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THE TERRITORIAL POLITICS OF THE NEW YORK BOTANICAL GARDEN, 1891-  
1912

by

CAROLYN MCSHERRY

B.A., Latin American Studies, Middlebury College, 2000  
M.A., American Studies, University of New Mexico, 2008

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

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**ABSTRACT**

In 1891 fifty-four of New York's wealthiest speculators came together to incorporate a new botanical garden for their city. This dissertation examines the political work of the New York Botanical Garden during its founding decades to extend the expansionist capacity of botanical science, while addressing political problems endemic in New York. The Garden served as a vehicle for transcribing landscape meaning steeped in European traditions of colonialism, into a new American context defined by plebiscitary rhetoric, territorial dispossession and instability of tenure in land, social rifts and oppressions. It tells the story of how a landed elite in New York engaged in a competitive politics of comparison to develop the Garden and its science, focusing on how founders emulated institutions of imperial botany developed through European exchange circuits. It further explores the ways the Garden depended upon the development of a public parks system in New York, which was designed to limit

participation in decision-making about land. Correspondence preserved at the Botanical Garden, alongside publications issued by the Garden show how the Garden participated in an active, ongoing process of claiming land, both in an expanding New York City, and in a broad-reaching territorial vision. Finally, by examining the botanical science constructed under Garden auspices as part of a larger configuration of knowledge production about the economic potential revealed in plant life, this dissertation shows how turn-of-the century science imagined a natural realm existing prior to language, history, and empire, made comprehensible through affective, subjective, and racializing languages of landscape and territory. In so doing, it contributes to a critical literature examining the provisional coherences masquerading as permanent, static entities that animate imperial projects.

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## INTRODUCTION

This dissertation explores how the New York Botanical Garden, incorporated in 1891 and largely built within a decade, re-configured authority legible within the landscape of New York and expanded the jurisdiction of botanical science. The convergence of an empirical science with a politics of cultural imperialism yielded a language for the collective celebration of material power assembled out of the symbol systems of European colonialisms and the possibilities afforded by the new public parks in New York City.

Constructed on two hundred and fifty acres of annexed park lands to the northeast of Manhattan – the region that became the Bronx in 1898 – the lawns and woods and large buildings of the botanical garden emulated traditional monarchic designs of European imperial centers. The Garden brought together the city's most successful land speculators – a group comprised of individuals mostly at odds among themselves in a rapacious struggle for individual advantage – to secure a highly-valued region along the Bronx River fourteen miles to the north of the old developed city for their botanical garden. On this two hundred and fifty acres they created a home for a scientific research program of global significance, turning a marshy reach of raw parkland to lawns and plantings ornamented with glass conservatories and a large Renaissance-style museum building. This garden functioned as a vehicle for organizing new modes of claiming land and expressing territorial jurisdiction amidst formative struggles over city governance in

New York, and over the legitimacy and reach of United States military and commercial power.

As a center of cultural authority invoking European tradition and colonial prowess, the New York Botanical Garden helped to describe a new, European-style *municipium* in a region previously marked by diverse towns, factories and farms, dissipating estates and abandoned mills, proleptic train lines, marshlands, and glacial debris. Well-traveled highways to the hinterlands cut north and east through the region. Governance was, into the 1870's and 1880's, carried out in some measure by neighborhood-based organizations.<sup>1</sup> Picnic grounds brought communities together and served as spaces where various types of claims and authority could be negotiated.<sup>2</sup> Like many of the Caribbean and Latin American places where the Garden's researchers traveled and studied extensively this region was an object of intense speculative interest.

The botanical science practiced at the New York Botanical Garden at the turn of the twentieth century helped to constellate a new formulation of power in New York based on the expression of material control of the landscape and the possibility of control at a distance enabled by botanical knowledge. In its technological capacities, its colonial attentions, and its increasingly confident management of a "natural truth" discoverable through its methods, botanical science in this instance helped to describe what public land was, and to substantiate its existence in a richly fragmented environment in the city of New York. The larger political goal of the Garden was to establish New York as a central

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1 Joel Schwartz, "Community Building on the Bronx Frontier: Morrisania, 1848-1875" (PhD diss., University of Chicago, 1972), 201.

2 Ibid.

node in an emerging imperial order organized increasingly through the production of scientific technologies of vision and intervention.

### **US Imperial Formations in Context**

Scholarship on US Empire has debated the significance of 1898 to the imperial project. From one vantage, this date marks an “imperial turn” for the United States, when a complete *a priori* national body began to reach beyond its continental boundaries to expand militarily in the Caribbean and Pacific.<sup>3</sup> This narrative compellingly aligns with an intensifying involvement in Caribbean and Latin American regions by New York-based capital in concert with the nascent intelligence and military bureaucracies that would come to dominate the twentieth century. Military occupation and proxy rule in Puerto Rico (1898-), Cuba (1898-), the Dominican Republic (1916-24), Haiti (1915-34), the Panama Canal Zone (1903-1979), and Nicaragua (1912-33) laid the groundwork for further Cold War expansions of autarchic control under US auspices in Guatemala (1954) and British Guiana (1952-54), Brazil (1964), and on. In its most rudimentary form, the narrative tells a story of geographical expansion carried out by an empire conceived as a discrete, if expanding, geopolitical entity.<sup>4</sup>

Territorially-delimited categories of differential citizenship, deferred inclusion, or suspended rights, those places in law and geography where power becomes more

3 Christina Duffy Burnett uses this phrase in an interesting discussion of post-Fourteenth Amendment innovations in bifurcated citizenship. Christina Burnett, “Empire and the Transformation of Citizenship,” in *Colonial Crucible: Empire in the Making of the Modern American State* ed. Alfred McCoy and Francisco Scarano (Madison: University of Wisconsin Press, 2009): 339.

4 See Ann Laura Stoler and Carole McGranahan, introduction to *Imperial Formations*, ed. Ann Laura Stoler, Carole McGranahan and Peter Perdue (Santa Fe: SAR Press), 8-9. Another list might begin with the Guano Islands Act (1854) which allowed US citizens to claim Caribbean islands for agriculturally-valuable guano. This act resulted in the annexation of seventy islands, according to Sarah Cleveland. Sarah Cleveland, “Powers Inherent in Sovereignty,” *Texas Law Review* 81, no. 1 (November 2002). William Walker’s annexation of Nicaragua (1856) was one among many personal usurpations not authorized by this law, but following in its spirit.

explicitly arbitrary, were elaborated in US law during this period. Christina Duffy Burnett has suggested that the category of “noncitizen national” elaborated in post-1898 jurisprudence recouped a hierarchical bifurcated citizenship structure recently abolished by the Fourteenth Amendment.<sup>5</sup> Presaging these innovations in imperial law, the Chinese Exclusion cases of the 1880’s suspended the applicability of *habeas corpus* in particular geographically-delimited contexts. Travelers waiting to disembark from ships delayed in the San Francisco Bay became sites of non-applicability, as Lucy Salyer illustrated in an account of this transformation in constitutional jurisprudence.<sup>6</sup> Scholarship on the categories of difference elaborated around 1898 reveals a more complex geography of power at work in this “foray into empire.”<sup>7</sup>

That the very category of “foreign” affairs upon which a modern idea of empire implicitly depends, was not fully articulated in constitutional law until 1936 suggests the need for a deeper look at the trajectory of involvements taking place at the turn of the century and just beyond.<sup>8</sup> Empire’s base syntax went through a transition beginning the inter-war period wherein decolonization and self-determination became central operating terms in international governance. In an account of this diplomatic restructuring, Alyosha Goldstein offers the “blue water” doctrine as an emblematic coup for representatives of settler nations. These diplomats negotiated the meaning and circumscribed the reach of “self-determination” in the context of new international arbitrating bodies.<sup>9</sup> When

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5 Burnett, “Empire and the Transformation of Citizenship,” 339.

6 Lucy Salyer, “Captives of Law: Judicial Enforcement of the Chinese Exclusion Laws, 1891-1905,” *The Journal of American History* 76, no. 1 (1989): 91-117.

7 Burnett, “Empire and the Transformation of Citizenship,” 339.

8 Cleveland, “Powers Inherent in Sovereignty,” 1-304.

9 Alyosha Goldstein, Introduction to *Formations of United States Colonialism*, ed. Alyosha Goldstein (Durham, N.C.: Duke University Press, 2014), 12-13.

representatives of the member states to the United Nations General Assembly designed procedures for decolonization in the 1950's and 1960's, US delegates and their allies succeeded in limiting the applicability of these procedures to peoples whose territorial claims were separated by "blue water" from other territorial claims of the colonizing power.<sup>10</sup> This geographical imagery retains significant rhetorical potency, as it is remade in the cultural imaginary and in the landscape. It naturalizes US occupation in continental territory.

To circumvent the ideological compulsions of such geographical characterizations of empire which tend to leave national terrain conceptually intact, Ann Laura Stoler and Carole McGranahan have focused attention on the comparative work at the heart of imperial formations wherein colonial frameworks, projects, and languages are adapted and reinvented in new circumstances.<sup>11</sup> "Strategic and situational" comparisons brought imperial actors into relationships with one another as they exchanged "principles, practices and technologies."<sup>12</sup> The analytic proposed "a French empire that looked to Russia and Australia, a Russian one that looked to Spanish Creole communities in Latin America, a Qing empire that looked to the Ottomans and the Portuguese, and an Ottoman empire that was keenly aware of American missionary activity in Hawai'i."<sup>13</sup> Similarly, to determine the citizenship status of Puerto Ricans in 1898, US delegates adapted a racial framework earlier developed to incorporate Alaska, which was predicated upon a distinction between "uncivilized native tribes" and Russians eligible for US citizenship.

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10 Goldstein, *Formations of United States Colonialism*, 13. The provision was overturned by the 2007 UN Declaration of the Rights of Indigenous Peoples.

11 Stoler and McGranahan, *Imperial Formations*, 14.

12 *Ibid.*, 4.

13 *Ibid.*, 14.

Burnett showed how this distinction was translated to the circumstances of Puerto Rico, by comprehending Puerto Rican-born residents as “native inhabitants of the territories” barred from the option of US citizenship available to residents born in Spain or elsewhere.<sup>14</sup> César Ayala and Rick Baldoz are among the scholars who have explored the comparative racial discourses generative of differential citizenship statuses and independence trajectories in Puerto Rico and the Philippines.<sup>15</sup> By centering the translations and comparisons used to refigure spaces and populations, it becomes possible to examine how historical modes of knowing have come about in conversation with the acquisitiveness and the willingness to oppress, disregard and destroy, that are central to what we mean by US empire.

A small, excellent body of literature on the New York Botanical Garden during the period of its founding describes the ways that the Garden leveraged the US occupation of Puerto Rico to its scientific purposes.<sup>16</sup> Military occupation brought roads, schools, and agricultural experiment stations that facilitated the work of the Garden and helped to integrate governance patterns on the islands with mainland institutions. Alliances such as that uniting UPR chancellor and Agricultural Secretary Carlos Chardón with Garden staff blur the boundaries between science and governance, and between a supposed US nation and its empire. This work begins to bridge an extensive scholarship on the centrality of

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14 Ibid.

15 César Ayala and Rick Baldoz, “The Bordering of America: Colonialism and Citizenship in the Philippines and Puerto Rico,” *Centro Journal* 25, no. 1 (Spring, 2013): 76-107. Lanny Thompson, *Imperial Archipelago: Representation and Rule Under U.S. Dominion after 1898* (Honolulu: University of Hawaii Press, 2010).

16 Peter Mikulas, *Britton’s Botanical Empire: The New York Botanical Garden and American Botany, 1888-1929* (New York: New York Botanical Garden Press, 2007); Sharon Kingsland, *The Evolution of American Ecology, 1890-2000*, Baltimore: Johns Hopkins University Press, 2005. See also Simon Baatz, “Imperial Science and Metropolitan Ambition: The Scientific Survey of Puerto Rico, 1913-1934,” *Annals of the New York Academy of Sciences* 776, no. 1 (June 1996): 1-16. Darryl Brock, “American Empire and the Scientific Survey of Puerto Rico” (PhD diss., Fordham University, 2014).

botany and botanical institutions in eighteenth- and nineteenth-century imperial formations organized through European metropolises with studies of US American imperialism at the turn of the twentieth century.

That such institutions were central to imperial economies - matching plant varieties with plantation colonies, experimenting and creating knowledge necessary to sustain biologically and socially expensive forms of cultivation, and creating opportunities for participation in imperial governance through their extensive bureaucratic networks - has been well-established. In this dissertation I seek to build on that work by examining the Garden's political capacities as it participated in the invention of forms of territory and occupation useful to a specifically national imperial state. By national, I mean that it was as interested in generating membership and exclusions, and in naturalizing territorial claims in terms of those belongings and hierarchies, as it was in expanding its capacity for intervention. Rather than describe a botanical politics reaching outward from New York, I examine the reinvention of several interacting territorial strategies which are not confined temporally or geographically to the seizures of 1898. The public land on and through which the Garden was developed was a strategy for claiming land evolved in response both to its use in European municipal centers, and to nineteenth-century US elaborations of public domain, eminent domain law, and national parklands. The botanical reconnaissance work for which the Garden was most explicitly founded was given a place in a public, national, and imperial landscape. Foundational to the Garden's operating capacity was its members' experience with the geological surveys



which spanned most of the nineteenth century and were formative to US continental expansion.

This dissertation invites a view of the Garden as belonging to and innovating upon a broader trajectory of imperial botanical science as it encountered the opportunities and problems of a socially riven New York. Though developers in New York were always and unabashedly envious and emulous of the many forms that European governors had discovered for the expression of power-over, it is not simply the case, as has often been suggested, that the botanical garden in New York was an “American Kew.” It can be viewed as an expression and remaking of British expansionism as much as it was a means to extend the reach of New York capital in the Caribbean. It depended crucially upon its location in a conflicted, expanding New York, but neither was the territorial agency of the Garden a simple reaching-outward of “New York,” so much as it was a site for comparing and innovating ideologically-laden ideas about the material bases of the world and the modes of knowing, owning and belonging possible therein. To account for the ways that this site of comparison helped to recoup historical inequalities and to set New York both apart from, and in a particular relationship to, other, sister colonial outposts like Havana, Kingston and San Juan, the dissertation does not assume a transparent ahistorical geopolitical New York, but rather explores the remaking of this polity, landscape, and territory as it was both occupied, and agentic.

While imperial formations and the categories they produce are highly unstable, they create deep and irreversible effects. Historian Richard Drayton pointed suggestively to the material power of gardens in British India where “mere gardeners” on imperial

estates were “perhaps engaged in one of the most irreversible and unnoticed effects of imperialism: the protected propagation of European plants, animals, and ideas of landscape, in new conditions.”<sup>17</sup> The Botanical Garden in New York was thus taking up an old and well-elaborated imperial form which had demonstrated profound material efficacy, even if not always in intended ways. Part of this botanical science’s territorial agency lies in the way that its science conceived the material world upon which it was working. Botanical science endlessly projected a fundamental natural reality, and a knowledge of the world that seemed to correspond, basically and preemptively with the “the way things really are.” What was an essentially economic project – discerning and indexing the finest dimensions of plant life, the intricate processes and myriad forms of biological expression – was translated into a philosophy of landscape and nature.

Underlying the analysis in this dissertation then, is an exploration into the ways that symbol systems developed at the Garden to describe plants, publicness, and natural beauty constituted a powerful, masked language of territory. Territory, following Stuart Elden, might be conceived as a “particular and historically limited set of practices and ideas about the relation between place and power.”<sup>18</sup> This line of inquiry does not assume an inert region of occupation and control, but explores the historically specific processes by which particular understandings of what and who is being ruled over are elaborated. The Garden belonged to a tradition of delineating colonial territory, of making unfamiliar land visible to imperial administrators. Scholars of modern states have explored the creation in diverse contexts of what Matthew Edney described as “rational and ordered

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17 Richard Drayton, *Nature’s Government: Science, Imperial Britain, and the ‘Improvement’ of the World* (New Haven: Yale University Press, 2000), 181.

18 Stuart Elden, *The Birth of Territory*, (Chicago: University of Chicago Press, 2007), 6-7.

space, which could be managed and governed in a rational and ordered manner.”<sup>19</sup> Such spaces, for Edney and Graham Burnett, are assembled by explorers, cartographers, and surveyors out of “dynamic encounters with dynamic spaces” which had to be reduced and narrated for ready consumption by imperial administrators to be made into “possessable territory.”<sup>20</sup> The representational practices innovated by the Garden, on the landscape it claimed, in its publications, and in the conversations amongst its staff and collaborators were shaped by, and made useful to a broader project of reimagining spaces of arbitrary power, geographies of rule specifically unmitigated by legal hesitation or principle-based reasoning. As *habeas corpus* came during this period to be interpreted as non-universal in its applicability, botanical science was discovering itself as universal, its principles as objective, its knowledge as above bias and human fallibility.

The story of the Botanical Garden which emerges in the chapters to follow is of an institution which, while devoted explicitly to the identification of economic plants and investment possibilities, was at work at another level, reconfiguring the space of arbitrary power among and amidst multiple sites of colonial and national activity. The comparative labor of the Garden founders as they sought to create an imperial center around themselves and their work, defined a realm of objective botanical truth, developed in relation to taxonomies of racial difference which made sense of oppression and dispossession.

In this dissertation I refer to sources closest to the New York Botanical Garden, including the correspondence of several of its lead developers and scientists spanning the

19 Matthew Edney, *Mapping an Empire: The Geographical Construction of British India: 1765-1843* (Chicago: University of Chicago Press, 1997), 34, quoted in Graham Burnett, *Masters of All They Surveyed: Geography and A British El Dorado* (Chicago: University of Chicago Press, 2000), 9.

20 Burnett, *Masters of All They Surveyed*, 10.

1880's through the 1920's. I have also consulted the several serials published by the Garden, including the *Journal of the New York Botanical Garden*, the *Bulletin of the New York Botanical Garden*, and the *Bulletin of the Torrey Botanical Club*. The publications include a range of genre-spanning accounts narrating the travels of Garden researchers, descriptions of laboratory studies, plant descriptions and species determinations, and many promotional descriptions of the Garden itself, as its buildings emerged in the landscape of New York. I have also examined corollary materials such as letters preserved from the US experiment station at Mayagüez, Puerto Rico where officials fielded inquiries about agricultural investment opportunity in U.S.-claimed Puerto Rico. The US National Museum at the Smithsonian Institution was the federal government's botanical clearinghouse, and its staff collaborated closely with researchers at the New York Botanical Garden, as evidenced by correspondence to be found in its Washington, D.C. archives. Finally, Columbia University was a key institutional sponsor of the Garden, and indeed the Garden was in many ways an early elaboration of that university's new School of Pure Science. The correspondence of Seth Low, Columbia president and key Botanical Garden founder, informed this study.

An advantage of a research approach focused on a single botanical institution in New York lies in the view it affords across a collection of pursuits which modern power prefers to isolate. Tremendous powers of dispossession are generated through conceptual partitions isolating law from landscape design, or from plant taxonomy. The central actors in the narrative presented here include a federal district court judge, a college president, a head of the Chamber of Commerce for New York, and a number of

successful speculators in land with special expertise in railroads, mining, and finance. The shared interest in botany uniting this group suggests both a field with numerous surfaces of engagement – aesthetic, economic, and recreational – and a mode of inquiry shaped by social relations of class and colonialism. Correspondence preserved at the New York Botanical Garden library reveals an active and expert community of researchers at the start of an ambitious collaborative endeavor. The correspondence lends itself to an examination of the ways that a “community of purpose,” empowered by legal prerogative, participated in networks of commercial and ideological exchange, and innovated strategies of territorial involvement.<sup>21</sup>

Conversely, a challenge derivative of this institutional approach for a student of territorial politics lies in the need to inquire into the unstated shared assumptions, confident agreements, welcoming invitations, and unexamined adventures permeating the correspondence. Creative use of absences and omissions in source material is required. It is possible to infer for example from the oft-expressed need for added police officers to patrol the Garden grounds, that public access was not unlimited, as Garden documents repeatedly state. I have also relied extensively on the research of scholars on land tenure in Jamaica to understand the significance of the botanical collaboration between British colonial officials and the New York garden, and on the changing meaning of property in New York to contextualized its land claim there.

### **New York, Kew Gardens, and Remaking Imperial Circuitry**

In 1891 the New York State Assembly passed a bill of incorporation for the New York Botanical Garden. The bill stipulated that the members of the new corporation

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<sup>21</sup> Harris, “Long-Distance Corporations,” 277.

would be responsible for raising \$250,000 - half of the projected cost of building a botanical garden. Once raised, the funds would be matched by a grant from the City of New York, and land for the Garden would be selected from holdings under the jurisdiction of the city's Department of Public Parks. The initial attempt to raise funds by small contributions failed, so founders reworked the funding schedule to enable a small number of wealthy individuals to provide the initial funds for the Garden.

The land chosen for the Garden was part of a 1,757 acre 1888 appropriation for the construction of a Parks District on the mainland to the north and east of Manhattan.

Landowners contested the appropriation, and the status of the area as parkland remained uncertain when the Botanical Garden was founded. Long after the botanical garden grounds were developed with buildings and plantings, neighbors continued to harvest firewood there, as well as useful plants like birch catkins for beer brewing, and flowers, with which to decorate, or to sell.<sup>22</sup> The members of the Corporation fought to maintain control of the development process, as both the parks commissioners and the leadership of rival institutions tried to enter the process and shape the disposition of the land.

The Central Park also yielded the Central Park Commission, a small group of appointed men charged with appropriating and developing land for the park, and later for bridges and roads north of the park. This commission was created in 1857, alongside a host of other agencies designed to locate decision-making power in small, state-appointed

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22 Mrs. David Oaks, un-published biography of Elizabeth Britton, Elizabeth Britton Collection, New York Botanical Garden. Peter Mikulas, "A Scientific Garden in a Public Space: The New York Botanical Garden, 1900-1910," *Studies in the History of Gardens & Designed Landscapes* 22, no. 3 (2002), 207. Mike Wallace, *Greater Gotham: A History of New York City from 1898 to 1919* (New York: Oxford University Press, 2017), 357.

bodies insulated from city politics. With Central Park as a powerful precedent, the successful development of public parks paradoxically came to signify republican virtue and political legitimacy, as otherwise self-enriching politicians delivered on promises for developments benefiting the wider public. While these gifts of land to the public established a politician or administrator's efficiency and commitment to outcomes benefiting all, the development of the parks also entailed the elaboration of highly undemocratic processes for determining the ownership and disposition of lands.

The Parks District, the Parks Board, and the association of political legitimacy with material improvements to the landscape were all preconditions for the creation of the botanical garden was built on 250 acres of new parkland in the Parks District. The Garden also helped to consolidate and extend this form of landscape authority. A botanical garden would have been a familiar institution to any person of the merchant and traveling class, and it would have invoked European cities, and a certain expression of European power, a position at the helm of a territorial system, and at the forefront of knowledge about the natural world. The Garden helped to transform the landscape of the Annexed District to resemble, with the use of powerful landscape symbols, the already powerful European cosmopolis. The Garden helped to make it recognizable to land speculators, commercial dealers, and especially, to botanists, as a center of world activity and knowledge. It helped to create a coherent New York, and to endow the landscape with a sense of larger order and meaning, as a place that corresponded to a "public."

The museum building, a vast system of colonnades and entablatures was erected first, and quickly, to house the garden's herbarium and laboratories for the cutting-edge

botanical experimentation already underway. A range of conservatories for cultivating and displaying tropical flora came up and were filled with warm-climate greenery donated by the owners of the many similar structures that decorated the nearby Hudson River estates. An abandoned eighteenth-century stone mill and mansion were put to new purposes, including housing a new police regiment detailed to the region. Plans for a Director's Mansion were finally discarded in deference to the egalitarian aesthetics dominating landscape design at the time.

As quickly as the building campaigns for the botanical museum and the glass conservatories were mounted (both intended to be the largest of their kind), the botanical expeditions which would define the Garden's status as a scientific institution were launched. The first official mission was dispatched to Puerto Rico in 1899, with funding from Cornelius Vanderbilt. As a place where plant life was displayed in its apparent totality, with representatives from all the colonized territories, the botanical garden imbued the New York landscape with value by representing New York as a colonial power. As one of the most significant scientific institutions of its day, it claimed the right, in both direct and indirect ways, to arbitrate occupation and use of land.

The model for the New York Botanical Garden was the Royal Botanic Gardens at Kew, outside of London. The Kew Garden, built along the Thames outside of London, was the fruit of more than a century of botanical collecting and agricultural research in colonial locations. Eighteenth-century gardens initiated by planter societies in the West Indies were among the early establishments to be brought into active relationship with Kew. In 1785 an older garden in St. Vincent was revived in order to serve as a receiving



station for plants brought from the Pacific, and Asia.<sup>23</sup> In 1814, during the brief British occupation of Java, officials established the garden that, shortly afterwards, once restored to Dutch rule, would become the largest in the world, and the leading research center on sugar cane and other plantation crops.<sup>24</sup> During the first half of the nineteenth century, gardens in Calcutta, Madras, Bombay Sahranpore, Agra, Cawnpore, Lucknow, Delhi, Meerut, Umbala, Simla, Kussowlie, Dugshai, Lahore, Pegu, and Ootacamund, Pondicherry, and Ahmednagar in the Nilgiri Hills, conveyed British floral design acumen and taste for European vegetables, like brussel sprouts, to India.<sup>25</sup>

The gardens were places where plants could be incubated and tested before distribution to current or planned plantations. Tea was one of the first plants to be captured and successfully transplanted by a British botanical system. Early attempts to transplant tea failed, according to Lucille Brockaway, and East India Company officials recognized that a large coordinated effort would be required to successfully establish the crop in a region controlled by the company.<sup>26</sup> The plant was wrested in large quantities from the tea districts of China following the Opium Wars, shipped through the new British port at Hong Kong, and finally entered into cultivation in Company controlled lands in Sikkim.<sup>27</sup> Assam, Ceylon, and Malaya were all transformed in the wake of agricultural successes at Sikkim. Plants indigenous to the Americas, like cinchona,

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23 Drayton, *Nature's Government*, 86.

24 Ibid.

25 Ibid., 182-183.

26 Lucille Brockaway, *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens*, (New Haven: Yale University Press, 2002), 27-28.

27 Ibid.

rubber, and sisal were transferred, via Kew, to gardens in India where they were adapted to plantation-scale cultivation.<sup>28</sup>

Scholarship on botanical gardens, empire, and science including the works of Lucille Brockaway, Richard Drayton, Sharon Kingsland, Peter Mikulas, Duncan Taylor, Richard Grove, Christophe Bonneuil, and others, explores the formative interconnections between the the study of plants in Europe, and the rising imperial state bureaucracies of eighteenth- and nineteenth- century Europe. We know a great deal about how botany became “an essential part of the projection of military might into the resource-rich East and West Indies.”<sup>29</sup> As the gold and silver mines ran out, “[r]ich vegetable organisms supplied lasting, seemingly ever-renewable profits,” as Londa Schiebinger explains.<sup>30</sup> Botanical gardens were well-endowed by colonial states where administrators understood the ways that “exact knowledge of nature,” coupled with military power in colonial locations could supply wealth and national advantage.<sup>31</sup>

As this knowledge of nature evolved during the nineteenth century, incubated in British, French, Spanish, Portuguese and Dutch botanical gardens, and also in German research institutions, the realm of its colonial usefulness expanded as well. A new wave

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28 Brockaway, *Science and Colonial Expansion*.

29 Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2009), 5. Baber, Zaheer, “The Plants of Empire: Botanic Gardens, Colonial Power and Botanical Knowledge,” *Journal of Contemporary Asian Studies* 46, no. 4 (2016): 659-679; Lucille Brockaway, *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens*, (New Haven: Yale University Press, 2002); Richard Drayton, *Nature’s Government*, 2000; John Gascoigne, *Science in the Service of Empire: Joseph Banks, The British State and the Uses of Science in the Age of Revolution* (Cambridge: Cambridge University Press, 1998); Sharon Kingsland, *The Evolution of American Ecology, 1890-2000*, (Baltimore: Johns Hopkins University Press, 2005); Mikulas, *Britton’s Botanical Empire*; Emma Spary, *Utopia’s Garden: French Natural History from Old Regime to Revolution* (Chicago: University of Chicago Press, 2000); Duncan Taylor, “Botanical Gardens and their Role in the Political Economy of Empire: Jamaica (1846-86),” *Rural History* 28, no. 1 (2017): 47-68.

30 Schiebinger, *Plants and Empire*, 7.

31 *Ibid.*, 5.

of stations were revived or initiated in the final third of the nineteenth century, as the “New Botany” inspired new agricultural possibilities, and the stakes of inter-imperial advantage seemed to intensify. European colonial operatives and scientists intervened botanically in several sites in West Africa including Lagos (1883), Aburi, Gold Coast (1890), the Niger Coast Protectorate (1891), Gambia (1894), and Sierra Leone (1895).<sup>32</sup> A hierarchy of botanical stations circulated research and coordinated agricultural policy. Calcutta, Ceylon, Mauritius, and Jamaica hosted large research centers with herbariums, libraries, museums, and laboratories. They also managed networks of smaller stations. Ceylon, for example, would serve the new British planting enterprises on the Malay Peninsula, North Borneo, and Fiji.<sup>33</sup> During the 1880’s, a crop of stations devoted to sugar research sprung up in the West Indies in the hopeful aftermath of successful experiments growing disease-resistant varieties in Barbados and at the Dutch garden on Java. When New York Botanical Garden staff traveled to Kew to compare their collections with the holdings there, they encountered an institution at the apogée of its colonial power.

The agricultural advances emerging from these circuits of botanical exchange inspired emulation and innovation in institutional forms as scientists and governors sought ways to expand the reach of their influence. The model for the leading establishments was the Dutch garden at Buitenzorg, which American botanists praised and envied in scientific journals like the *Botanical Gazette*. Planters in the region who stood to benefit from crop experiments carried out at this station and its several satellite

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32 Drayton, *Nature’s Government*, 252-253.

33 *Ibid.*, 253.

stations provided funding, and the director brought in advanced botanical researchers with the offer of free laboratory space and access to the world of tropical flora.

Agricultural experiment stations established throughout the US states beginning in the 1860's - "science on the cheap," - was a model for the proliferation of new peripheral stations of the European empires.<sup>34</sup> In the US, German state-sponsored research institutions were invoked with anxious admiration by the wealthy. The large building in the parks district was designed as a new symbolic center of a colonial order in plant research stations.

The European botanical gardens facilitated imperial aims in fundamental ways, enabling settlement and plantation agriculture by disseminating plants across the globe and knowledge and technology to aid in their propagation. These gardens also marked the palaces and cities to which they belonged as imperial centers or places of authority. This authority increasingly became "public" during the nineteenth century as governors refined their ability to imagine public needs and to explain their actions in terms of public benefit. In the late nineteenth century, material wealth was often equated with governing legitimacy. To some New Yorkers, poverty in Europe was a sign of backward political institutions. Conversely, wealth, the ability to buy bananas in New York, for example, evidenced good governance, and even stood for "democracy."<sup>35</sup> Through the vehicle of botanical interest in New York, the Imperial Bureaucracy of Kew was transposed and extended into the field of US governance, encountering new terms and new resources.

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34 Ibid., 252.

35 Heather Cox Richardson, *West From Appomattox: The Reconstruction of America After the Civil War* (New Haven: Yale University Press, 2007).

While the incorporators of the New York Botanical Garden were assembling the initial \$250,000 needed for their garden, the city and the nation were enveloped in a deep depression. Several new institutions of science in New York, and in other cities like Chicago were founded during these years. Columbia University's new Faculty of Pure Science was emblematic, and the Botanical Garden in many ways served as an extension of this school. Nathaniel Britton, founder of the Botanical Garden, trained in the geology program at Columbia's School of Mines, and for a number of years taught botany there, received a devoted botany program with the new school. A precedent for the institutional arrangement for the Botanical Garden can be found in the Museum of Natural History, which linked Columbia University's scientific ambition to public land in New York and nationally, and to the city's coffers. That decade also saw the development of the Smithsonian, the Carnegie and corporate laboratories sponsored by GE and others. A well-established network of scientific institutions in Germany were the model for many of these institutions. The vast agricultural and related fortunes accumulating in New York at the end of the nineteenth century enabled individuals and corporations to establish their own research arms, modeled on the state-sponsored programs of Germany and Britain.

Developments in Germany in particular made the botanically-oriented institutions pressingly necessary. Research at institutions in Breslau, Munich, Jena, Halle, Strasbourg were among the beneficiaries of a trend of increased funding for scientific institutes by Prussian authorities between 1820-1870.<sup>36</sup> A remarkable picture of the material lives and evolutionary history of plants was emerging from the expanding and increasingly

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36 Eugene Cittadino, *Nature as the Laboratory: Darwinian Plant Ecology in the German Empire, 1880-1900* (Cambridge: Cambridge University Press, 1990), 15-18.

intercommunicating investigations.<sup>37</sup> At a 1902 conference held at the New York Botanical Garden, a presentation about Mendel's ideas on inherited traits and recessive genes gained the interest of an audience of agricultural experiment station researchers and plant breeders working on peas, carnations, and wheat.<sup>38</sup> The theory resonated with this experimenting audience, and they perceived its power as an intellectual tool with which to achieve more predictable results.<sup>39</sup>

The New York Botanical Garden represented a cultural and political continuity connecting imperial centers across the Atlantic, and expanding and amplifying a general line of inquiry and colonial pursuit, while shaping itself to the landscape and political exigencies of the colonial outpost, New York.

The Garden might be viewed as belonging equally to a pattern of innovation in colonial governance elaborated in the New York Harbor region. The original chartered corporation of New York was designed to make advantage out of an emerging colonial geography: the warren of inlets, deep harbors, and protected bays at the mouth of the broad and deeply navigable Hudson was to be the site of a "great city."<sup>40</sup> The members of this corporation were promised a form of autonomy ensured by its ownership of land and a set of governing prerogatives. It was poised to take advantage of the colonial

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37 A cursory overview might include the observation of Wilhelm Hofmeister of a common alternating reproductive cycles shared by larger flowering angiosperms and also the ferns, mosses, lichens, liverworts, horsetails, algae which, as Cittadino points out, helped to cohere "plants" as a unitary category of life. Cell division was the subject of Carl Nägeli's work identifying the apical cells of plants roots and shoots, and the cambial cells as the places where plant growth occurred. Julius Sachs studied how plants move in relation to light, gravity, and temperature. Other researchers examined how plants adapted to extreme climactic conditions, and how the physiological processes affected the plant's morphology.

38 Barbara Kimmelman, "A Progressive Era Discipline: Genetics at American Agricultural Colleges and Experiment Stations, 1900-1920" (PhD diss., University of Pennsylvania, 1987), 137.

39 Ibid.

40 Ibid., 21.

institutions flourishing around it, especially in the West Indies. “The West Indian trade formed an essential part of the economy in every mainland colony,” writes the historian Edward Rugemer. The “sugar revolutions” of the early seventeenth century created a series of plantation economies in the Caribbean dependent on imported food and supplies. From the early 1640’s New England trade met that need for food. New York was engaged with the West Indies trade under Dutch rule. Further south, “By 1740, Philadelphia and Newport had regular connections with the West Indies, and by the 1770’s, Wilmington, Baltimore, Richmond, and Savannah were also linked to West Indian markets.”<sup>41</sup> South Carolina was dependent on the trade from its colonial outset.

The autonomy of the Corporation of New York was to be built, in part, on its increasing capacity for connection, collaboration, and “innovation” in the Caribbean. The region surrounding the developed tip of Manhattan was given over to agriculture to supply the Caribbean plantations with food. There were many small farms, some reliant on slave labor, and some large farms, like that belonging to Lewis Morris, not far from the site of the current Botanical Garden. From his nineteen-hundred acre estate, Wallace and Burrows report, his partially enslaved workforce sent corn, wheat, barley, oats, lumber and livestock through Manhattan to the West Indies.<sup>42</sup> Settler agriculture extended the land base available to this trade northward and westward from the city, especially just before and after the revolutionary era.

US-based growers, merchants, shippers, and money lenders were also highly dependent upon Caribbean plantation colonies. As early as 1790, the French

41 Edward Rugemer, *Problem of Emancipation: The Caribbean Roots of the American Civil War* (Baton Rouge: Louisiana State University Press, 2008), 21.

42 Edwin Burrows and Mike Wallace, *Gotham: A History of New York City to 1898* (New York: Oxford University Press, 1999), 123.

West Indies imported more flour, beef, pork, fish, boards, livestock and butter from the US than any other part of the world.<sup>43</sup> Beginning in 1793, wars in Europe generated opportunity for trade in the Americas, and the twenty ensuing years saw an enormous expansion of trade volume between the US and Caribbean and Latin American mainland colonies. Almost one third of US exports went to that region during that period and further linked the fates of coastal towns, areas transformed by plantation and settler agriculture, and the merchant class to events in the Caribbean and Spanish America. American commerce, from a very early date, was extremely responsive to events in this region.<sup>44</sup> Grain and corn from the US went to the West Indies, and the plantation economies of those islands depended on imports from the US.

The Corporation of the New York Botanical Garden came into being at the end of a century during which the original corporate structure of New York was transformed. As will be discussed in the first chapter, “public interest” became a key coordinating mechanism for development. The botanical garden corporation served the development needs of a municipality transformed by its place in an Atlantic commerce.

### **Public Land and Landscapes**

The term “public” possesses a range of meanings. Its evolution in the English language is closely related to the emergence of imperial states, and serves as the legitimating basis for state action in relationship to land. In colonial New York, the “public good” of Britain was meant to be served by crown regulations on land and timber there. In republican New York, a planned canal traversing the width of the state would be

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43 John Coatsworth, “American Trade with European Colonies in the Caribbean and South America, 1790-1812,” *The William and Mary Quarterly* 24, no. 2 (1967): 246.

44 *Ibid.*, 243.



a great “public object” calculated to intimidate, and this provided the legal rationale for land appropriation for the canal.<sup>45</sup> The public good was a shorthand justification for expropriating land and giving it over to large-scale development projects. A body of eminent domain law developed early in New England and New York to facilitate the construction of mills, roads and other large-scale developments across variously claimed lands was adapted in the constitutions of western states to accommodate mining, timber extraction, and the maximal exploitation of resources by firms claiming to serve a public benefit. The principle was well established in New York law by the late nineteenth century and a lawsuit filed by landowners challenging New York City’s annexation of 1,757 acres of land for parks north of Manhattan failed to garner support from a court which could readily perceived the public interest at stake. Public interest was a way of overriding particular private property claims while simultaneously elaborating and protecting a general theory of private ownership. It was also, invariably forged in relationship to indigenous land claims.

Later in the nineteenth century, with the rise of a publishing industry and mass media, the term’s perhaps more familiar association with a sort of general will, or plebiscitary politics, gained significance. Governing officials, holding elected, appointed or hereditary positions of power, were increasingly forced to cooperate with an emergent mass publishing industry and to address themselves to national constituencies cohering through, for example political parties and labor unions.<sup>46</sup>

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45 Chancellor Kent, *Rodgers v. Bradshaw*, (1823), cited in Harry Scheiber, “Property Law, Expropriation, and Resource Allocation by Government: The United States, 1789-1910,” *The Journal of Economic History* 33, no. 1 (March, 1973): 235.

46 Christopher Bayly, *The Birth of the Modern World, 1780-1914*, (Malden, MA: Blackwell, 2004).

In particular in the exceptionalist language of the post-colonial US, the idea of a willful public became a central arbiter of state action. A language of “public” ownership, a republican aesthetic in landscape design, and a mythology of American distinction from authoritarian Europe affirmed in unison a democratic essence. Daniel Rogers describes the late nineteenth century, dominant, ‘republican’ opposition between Europe’s ancien régime, its kings and aristocrats, its standing armies and churches, and the monopoly on governance by which “the aristocracies seemed to have hung the state’s apparatus on the peoples of Europe like massive millstones.”<sup>47</sup> In contradistinction, the “genius of New World liberty” had been to “set the peoples’ will and welfare on top. The science produced at the New York Botanical Garden, I suggest helped to grease the gears of post-Reconstruction political and economic machinery by offering a world view organized around a deep confidence in its grasp of the physical principals of matter. The ever more complicated manipulation of materials and life processes was both an objective of large-scale agricultural programs, and an argument for a materialist view of the world. Extreme discretionary power, discoverable in the new parks board created in the mid-nineteenth century to develop the landscape of New York, as well as in the managers of the corporation of the botanical garden, presented itself in material displays of wealth, control, and scientific advance, all under the rubric of, and in communicative tension with a constituting public.

The term “landscape” embodies a productive opening separating land from human imagination and involvement. The word seems to have entered the English language

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47 Daniel Rogers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge: Harvard University Press, 1998), 35.

from the Netherlands somewhere about the end of the sixteenth or beginning of the seventeenth centuries.<sup>48</sup> According to Gina Crandell, the term did not refer to “what one saw outdoors” but rather was “a painter’s word introduced to describe sixteenth-century Dutch paintings.”<sup>49</sup> A landscape was a “picture representing inland scenery, as distinguished from a sea picture, portrait, etc.”<sup>50</sup> In Simon Schama’s reading, the Dutch *landschap*, with roots in the Germanic *landschaft*, shares this word’s suggestion of human occupation, or jurisdiction.<sup>51</sup> Where Crandell emphasizes Dutch painting techniques for representing views of land, Schama emphasizes the restructuring of the land accomplished in the Netherlandish flood-fields.

Convention, repeated techniques for establishing meaning and evoking a particular complex of feeling or response, brings landscape, that not truly distinguishable complex of land and representations of land, into the realm of the political. Crandell gestured toward this persuading power, writing that spectators had “learned the conventions of shading so well from pictures that when Manet reminded them, in his paintings that outside, in the full light of day, some round forms really do look flat, like a patch of color, they were outraged.”<sup>52</sup> Thus land-representations, or represented land are historical and ideological configurations with implications for how land can be inhabited. Botanical meaning participates in a dialectic between the developed landscape, and knowledge of land with important consequences for territorial interventions. Botanical

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48 Gina Crandell, *Nature Pictorialized: “The View” in Landscape History* (Baltimore: Johns Hopkins University Press, 1993), 9. Simon Schama, *Landscape and Memory* (New York: Vintage, 1995), 10.

49 Gina Crandell, *Nature Pictorialized: “The View” in Landscape History* (Baltimore: Johns Hopkins University Press, 1993), 9.

50 OED cited in Crandell, 9.

51 Schama, *Landscape and Memory*, 10.

52 Crandell, *Nature Pictorialized*, 157.

representations have long been intricately connected to imperial surveys, pointing audiences to agricultural possibilities inherent in imagined imperial terrains.

The representational work of botany and its significance to the territorial politics of the late-nineteenth-century US national state reaches beyond the elegant depictions of plants that enlivened surveys like the US geological surveys and, and later the extensive popular surveys carried out by the Garden, comprising a foundational symbolic complex for representing exotic, promising frontier space. Timothy Mitchell argued that the production of a “false binary” separating nature, the environment, or land, from human affairs, politics, and representations, is a crucial technology of modern politics.<sup>53</sup> “Over the last century or so, more and more work has been done to produce representations of nature and to produce what appears as a progressively more distinct separation between those interactions we call nature and those we arrange as images of nature. The result has been to open up, by a series of removals, detours, and delays, what appears as an ever more effective distance between our encounters with natural forces and our encounters with reports and images of those encounters.”<sup>54</sup> The botanical work carried out at the botanical garden in New York was centrally interested in managing that space of invented difference, and transposition between a projected “nature” and its interpretation.

A close relationship between alterations on the land and its ownership is evident in the colonial supposition that “improvements” bore some basic relationship to claiming land. This relationship diminished as a class of patentees and speculators in New York with many representatives in its court systems gradually articulated an abstract “right” to

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53 Timothy Mitchell, Afterword to *Environmental Imaginaries of the Middle East and North Africa*, ed. Diana Davis (Athens, OH: Ohio University Press, 2011), 84-85.

54 Mitchell, *Environmental Imaginaries*, 84-85.

property. Many diverse ways of comprehending land, belonging and landownership were widely understood in New York state and city well into the nineteenth century. Legal historian Elizabeth Mensch treated this diversity extensively in an account of the creation in New York jurisprudence of an abstracted legal “right” to property, a device legislators hoped would drown claims to land made by settlers based on a very old and established and crown-sanctioned practice of claiming land on the basis of improvements made to it. The creation of public parks in New York, beginning with Central Park, and continuing with the Parks District, where the Botanical Garden would be located shortly upon the acquisition of the land, was itself a large revaluing of land and a re-shaping of the modes and possibilities for claiming it. European landscape styles were calculated to add value, and the parks were largely a creation of landowners who perceived the value that would be added to the land they owned upon the creation of the parks.

### **Overview of the Dissertation**

Historians of science have extensively explored the essentially social nature of science, the ways it derives its meanings and ascertains its credibility within the particular social and geographic circumstances of its production. “Each site provides repertoires of meaning that facilitate communication,” wrote David Livingstone.<sup>55</sup> Each chapter in this dissertation is anchored in a dimension of the Garden landscape and the social processes it embodies. The grounds, located on public parkland, form the basis for the discussion in Chapter One. Chapter Two moves to the laboratory leased from British imperials in Jamaica and places this laboratory in essential relationship with the New York site. Chapter Three begins in the elaborate neoclassical museum, with its floors devoted to

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55 Livingstone, *Putting Science in its Place*, 6.

“economic” plants and natural sequences which explore the political usefulness of these separate taxonomies. In Chapter Four follows the glass conservatories, which embody an overtly colonial architecture commonly featured on private estates to the public landscape. This architecture serve as an entry point for my discussion of this invitation to a colonial territorial visions and belonging.

Chapter One, “Public Land in New York and the Creation of a Botanical Garden,” examines the use of European landscape traditions to interpret a public landscape in New York, and the process by which custom, tradition, and local authority were largely replaced as sources of legal precedent and political legitimacy by an interconnected set of meanings involving technical supremacy, science, and public ownership. The public parks created a space in the landscape for a botanic garden in New York. The Garden, according to one of its founders, “would not stand apart from, but will form a consistent portion of the park system.”<sup>56</sup> Further, the garden grounds were “not to be taken from the property of the city and turned over to a corporation for its own use” but “merely set aside by the Park Board to be officially developed and beautified . . . under the direction of scientific experts.”<sup>57</sup> Though it was the project of a small and wealthy class of botanists, its place in the public landscape set it apart from the ribbon of estates reaching up along the banks of the Hudson, each with extensive gardens and conservatories of its own. The material developments made to the garden grounds took on new and amplified significance as part of a public landscape, belonging, not to a single wealthy family, but to an indefinite constituency.

56 Charles Cox to Addison Brown, 5 March 1894, Addison Brown Collection, New York Botanical Garden.

57 Charles Cox to Addison Brown, 5 March 1894, Addison Brown Collection, New York Botanical Garden.

The strong discretionary power that early nineteenth-century aldermen in New York sought for the development of their city came into its fullest expression in the boards and commissions created to develop Central Park, and later to develop upper Manhattan and much of the Parks District. In many ways, the garden's de-personalized, de-classed version of nature belonged to a pattern of plebiscitary politics emerging in Europe and globally. This chapter examines the cultural agency of a complex landscape form, the late-nineteenth-century botanical garden, in relation to the acquisition and development of public land in New York.<sup>58</sup>

A key theme of the dissertation is set out in this chapter, which explores the Garden's role in the mediation of republican institutions, aesthetics, and symbols alongside the development of technologies for direct intervention and control. The botanical garden in many ways embodied a tension between inclusive participation and forceful intervention as its members sought to legitimize their control over public land in the Annexed District, and their broad-scale work of reporting on the hemisphere's flora helped to create room for more direct forms of intervention.

The second chapter, "Cinchona, an Anglo-American Tropical Laboratory," expands on this theme in a study of how agricultural research facilitated the Garden's botanical knowledge-production in the Caribbean region, and the ways that agricultural and botanical knowledge reformulated categories of exclusion and dispossession. Several of the Garden's staff had been on a quest to develop an "American Laboratory" in the "American Tropics," which was finally realized and emblemized in the Garden's

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58 James Corner offers a useful schema of the "cultural agency of landscape" in *Landscape Imagination: Collected Essays of James Corner 1990-2010*, ed. Alison Birck Hirsch (Princeton: Princeton Architectural Press, 2014).

lease of “Cinchona,” a laboratory in the mountains north of Kingston, Jamaica.

Agricultural research was a concern for both the British and the US states as a tool for the conversion of land to cash crops, and crops with significance to national security. Protecting the land claims of the planter class and settlers, and securing the economic viability of plantation agriculture were paramount. In this chapter, I explore how agricultural research supported botanical knowledge-making, and shaped the “natural truths” being discovered by taxonomists and experimental botanists stationed at the Garden. Building on the discussion in Chapter One of botanical science’s role in managing legitimate authority in landscapes, this chapter addresses the social and bureaucratic networks that facilitated the production of a placeless science and the attendant claim to know all landscapes in their truest, natural form.

The third chapter, “Extending the Survey,” describes a lineage for botanical research in the US in the system of surveys that arose to scope out lands suitable for agricultural development and ensure the success of settlements, and explores how the botanical garden staff expanded this work and amplified its power.

The process by which imagined communities began to emerge into self-awareness in many places globally during the nineteenth century coincided with intensified interest in, and technological interpretation of, the diverse landscapes. In an era of national competition when imperial powers were always poised to swallow a smaller or hobbled family member, the ability to maximally exploit the land became essential to political survival. This was as true for the “young republics” of Latin America as for powers seated in European capitals and in New York.



The Botanical Garden worked to expand the reach and utility a surveying apparatus elaborated in an expanding New York state. They extended its geographic purview by sending collecting missions to the Caribbean and other place, by linking its taxonomic work to ongoing botanical research sponsored by other institutions, and by integrating the entire history of colonial botanic survey into its knowledge-production system. Further, in a campaign to reform the processes of botanical naming toward a rationalized version, they aligned the economic imperatives of their patrons with the processes of meaning making about plants.

The botanical surveys' promised ability to match plant varieties with suitable terrains for plantation-scale cultivation motivated scientists and sponsors to develop ever-more finely managed organizational taxonomies, and more comprehensive libraries and herbaria. But the political power of the survey lay as much in its insistence on disguising what are ultimately prescriptive facts as mere descriptions. In the state's and federal government's earlier surveys, describers of land were rare taken as politically neutral. Their role in arbitrating land claims was raw and present to on-the-ground conflict, and the precarious legitimacy of their project was exposed and often challenged. The natural sciences of the late-nineteenth century helped to partition descriptions of land from ownership claims masked as natural prescriptions for the best uses for land.

Chapter Four, "Science, Landscape, and the Materiality of Exclusion," returns to the theme of the public land, first addressed in Chapter One to examine how the land claim for the botanical garden was imagined, performed, and given life through the animating tensions inhering in that botanical science's mode of knowing. The

“objective” authority it pursued (the subject of Chapter Three), nested itself in an array of highly subjective crafted experiences of landscape, ownership, and race.

The Garden was designed in harmony with the colonial fantasy of British landscape architecture which was popular at the time, and which retains a strong presence in urban landscapes in the US.<sup>59</sup> But the Garden also came into being at the apex of a century of botanical investigation which, through the coordination of great numbers of researchers in possession of vast amounts of plant material had advanced its collective grasp of the physical principles of matter. Plant breeders came to the Garden to enhance their ability to manipulate the materials of life. The narratives of colonial fantasy that would later be done away with in a more narrowly technical botanical discourse shared a brief coexistence with a knowledge form bent on shedding its social circumstances.

Prior to the consolidation of scientific authority in the land, these narratives formed part of the communicative repertoire through which scientists made sense of their subjects. These largely imagined landscapes acted as invitational surfaces, creating sites of participation for correspondents, readers, and visitors to the Garden’s landscapes. They depended fundamentally on an unnamed cast of botanical actors, “Negro guides,” cooks, specimen-dryers, muleteers, and others upon whose namelessness the hoped-for epistemological coherence of the botanical science rested.

The social milieu of the institutions in their botanical capacity expanded outward to encompass participants living and traveling in the distant reaches of US influence, in

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59 Historians of the landscape architecture and aesthetics of Frederick Law Olmsted, Calvert Vaux, Andrew Jackson Downing, and other influential New Yorkers have traced the antecedents of their ideas in British enclosure-era aristocratic landscapes. The coincidences of displacement and expropriation and fantasies of ideal natural or democratic settings. See Ann Bermingham, *Landscape and Ideology: The English Rustic Tradition, 1740-1860* (Berkeley: University of California Press, 1986); Ian MacLaren, “The Aesthetic Map of the North, 1845-1859,” *Arctic* 38, no.2 (June 1985): 89-103.

part by reaffirming and expanding the landscape philosophy and conventions of representation familiar to US nationals by mid century. Volunteers contributed to and identified with the expanded surveys because the landscape spoke to them through terms made familiar by the landscape designers like Olmsted, and popular works emerging out of the Hudson River school of painters. Later in the century the large amount of circulating engravings, photographs and narratives describing unowned landscapes, full of aesthetic and spiritual appeal, and increasingly subject to scientific interpretation would come to form a lineament of cultural engagement linking Latin America with New York and the US nation into a Pan-Americanism, an “ideology of mutual cooperation among American states,” defined by the knowledge capacities of northern institutions.<sup>60</sup>

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60 Ricardo Salvatore, “The Enterprise of Knowledge: Representational Machines of Informal Empire,” in *Close Encounters of Empire: Writing the Cultural History of U.S.-Latin American Relations*, ed. Gilbert M. Joseph and Catherine C. LeGrand (Durham: Duke, 1998), 80-81.

**CHAPTER 1**  
**PUBLIC LAND IN NEW YORK AND THE CREATION OF A**  
**BOTANICAL GARDEN**

This chapter examines the ways that the New York Botanical Garden helped to elaborate a new language of territorial authority in New York City by interpreting public land through the terms of the multifaceted botanical discourses of the era. Nathaniel Britton, a founder of the New York botanical Garden who served as its director for three decades, was on the far side of an extraordinarily successful career in 1933 when he was pressed by an interviewer to explain the legitimacy of the Botanical Garden's claim to the 250 acres of public land along the Bronx River where the Garden was located. This reach of swampy, rocky land along the Bronx River had been designated for the New York Botanical Garden in 1895, and was, by 1933, developed into an elegant floral park with winding paths, an enormous ornate neoclassical botanical museum housing the hemisphere's largest collection of dried plants and world-class research laboratories, and a range of conservatories built out of cypress, iron and glass and expressive of the era's fascination with tropical flora. The interviewer wanted to know whether the Botanical Garden corporation's occupation of public parkland in the Bronx was legitimate, and if so, how. "Wasn't there some question as to the legality of the city turning over part of one of its public parks to a private organization?"<sup>61</sup>

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61 Nathaniel Lord Britton, Untitled Interview, *Out of the Past*, WFUM-FM, Fordham Univ, October 27, 1933, transcript, Bronx Historical Society.

The interviewer's question suggests that a fully developed common sense association between scientific approaches to interpreting land and the common good had yet to fully lignify in 1933. As a private organization, the Corporation of the New York Botanical Garden was suspect in its claim over land in the Parks District. On the other hand, the interviewer's questions suggests that by 1933, the special significance of "public land" required no elucidation. It stood for common life and a version of collective ownership that required vigilant protection from encroaching inauthentic consortia representing narrow interests. Yet public land too was still a relatively new feature of the landscape of New York City at the time of the Botanical Garden's founding in 1891.

As successful claimants to this still-raw domain of symbolic collective possession, the botanical enthusiasts who founded the garden gained a new and permanent setting for the expression their vision of landscape, life, and political authority.

The significance of the public parks in New York derives in part from their place in a larger process of re-configuring the relationships between ownership, occupation, and government that took place during the colonial era in New York, and in to the nineteenth century. A very distinct legal world, in which "property rights legitimized community self-determination," was the context for the Dutch and British charters for the Corporation of the City of New Amsterdam/New York in the seventeenth and early eighteenth centuries.<sup>62</sup> The colonial charter<sup>63</sup> described a corporation endowed with a

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62 Hendrik Hartog, *Public Property and Private Power: The Corporation of the City of New York in American Law, 1730-1870* (Chapel Hill: University of North Carolina Press, 1983), 10.

63 There were actually a series of charters, created, confirmed and expanded, beginning with the Dutch in 1657. The 1730 Montgomerie charter has been taken as the cumulative, definitive governing document.

spectrum of “possessions,” including both land and an array of governing prerogatives. In the seventeenth and eighteenth centuries, land ownership and political autonomy belonged to a single legal-ethical domain. However, the specific charter rights and the unique autonomy of the old Corporation of the City of New York “fell out of the law books” somewhere in the latter third of the nineteenth century, according to Hartog, with the result that city government ceased to possess land, and came instead to be responsible for managing it on behalf of a public.<sup>64</sup> The singular legal-ethical domain encompassing land ownership and political autonomy was gradually eclipsed.<sup>65</sup>

Though lacking in definite contours, the “public” became the measure by which ethics and legitimacy in governance were assessed. As it suffered diminution in the law, the association between land and political autonomy gained a new, entirely symbolic status in the form of public lands. The public parks developed beginning in 1853, and accelerating toward the end of the century, were said to “belong” to the people, but the form of ownership that the parks described was entirely new and distinct from that form of property which defined the city’s colonial charter.

When the radio interviewer asked Nathaniel Britton to make a case for the botanical garden’s legitimacy as an occupant of public land, the Garden’s then-former director was also being presented with an opportunity. Public land offered botanists a

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64 Hartog, *Public Property and Private Power*.

65 On the one hand, an abstract “right” to property, existing independently of both Crown authority and of occupation or “improvement” of the land was developed in jurisprudence across a century of land conflict, especially between settlers and the holders of land patents in colonial New York. On the other hand, a need to co-ordinate large-scale development projects over and against the immediate interests of title holders led the Common Council in the city to work more closely with that sovereign state power vested in Albany. 1857 saw a broad transfer of power to Albany when the city’s finances, police, and, importantly, parklands was placed under the control of several small governing boards.

powerful language through which to affiliate their scientific concerns with the resources, purposes, and power of the city and the state.

Excellent narratives of the campaigning, legal maneuvering, and architectural and scientific visioning of the New York Botanical Garden's founding decades are available in Sharon Kingsland's work, *The Evolution of American Ecology*, and in Peter Mickulas's works on the Garden, including *Britton's Botanical Empire: The New York Botanical Garden and American Botany, 1888-1929*.<sup>66</sup> The contours of this chapter and subsequent chapters in this dissertation in which territorial and landscape innovation *vis a vis* the Garden have been suggested by those narratives. I have chosen in this chapter to present a somewhat broader picture of evolving governance of land in New York. A deep literature base treating land occupation in colonial and nineteenth-century New York has described complex and evolving patterns of corporate forms supporting colonial objectives and interacting with the port and riverine geographies now embraced by the state of New York. Along with the aforementioned work by Hartog, studies by Elizabeth Mensch, Laurence Hauptman, David Preston and others offer insight into the plurality and plasticity of modes for enacting title in land, prior to the consolidation of state knowledge and legal forms definitive of late-nineteenth century New York.<sup>67</sup> Viewed as a part of a lineage of colonial and post-colonial forms of land occupation in the unique context of late-nineteenth century municipal New York, the formative opportunities and

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66 Kingsland, *Evolution of American Ecology*; Mickulas, *Britton's Botanical Empire*.

67 Laurence Hauptman, *Conspiracy of Interests: Iroquois Dispossession and the Rise of New York State* (Syracuse: Syracuse University Press, 2001); Sung Bok Kim, *Landlord and Tenant in Colonial New York: Manorial Society, 1664-1775* (Chapel Hill: University of North Carolina Press, 1978); Elizabeth Mensch, "The Colonial Origins of Liberal Property Rights," *Buffalo Law Review* 31 (1982): 643-644; David Preston, *The Texture of Contact: European and Indian Settler Communities on the Frontiers of Iroquoia, 1667-1783* (Lincoln: University of Nebraska Press, 2009).

contests of the Garden's founding connect the rising power of scientific modes of knowing with public power.

In this chapter, and throughout the dissertation, the work of historians of landscape which has addressed itself so productively to nineteenth-century New York City lends support to this inquiry into scientific knowledge and territory and the cultural agency of the New York Botanical Garden. Among a large body of scholarship working in this vein, that of James Corner, Denis Cosgrove, Gina Crandell, Matthew Gandy and Anne Whiston Spirn has especially formed this chapter.<sup>68</sup> These writers have engaged with historical landscapes and the texts surrounding them to address the underlying theories of land and art, agency and world to which these forms speak. In the New York Botanical Garden, the objectivity of the material world, and the authority to describe it are at stake in the emerging definitions of a public landscape in New York by social orders born through the colonial engagements of modern empire.

### **Background: Land and Self-Determination in Colonial Law**

By 1891 when the members of the Corporation of the New York Botanical Garden were granted 250 acres of public land for their garden by the state legislature, the Garden's corporate membership could draw upon a century's worth of techniques for legitimating power and authority in terms of the "needs" of the public in the city. The

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68 James Corner, *Landscape Imagination*; Denis Cosgrove, introduction to *Imagining Eden*, by Lyle Gomes, (Charlottesville: University of Virginia Press, 2005), ix-xiv; See also Denis Cosgrove, *Social Formation and Symbolic Landscape* (Madison: University of Wisconsin Press, 1998); Gina Crandell, *Nature Pictorialized: "The View" in Landscape History*, (Baltimore: Johns Hopkins University Press, 1993); Matthew Gandy, *Concrete and Clay: Reworking Nature in New York City* (Cambridge: MIT Press, 2002); Anne Whiston Spirn, "Constructing Nature: The Legacy of Frederick Law Olmsted," in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: Norton, 1996), 91-113. See also Anne Whiston Spirn, *The Language of Landscape* (New Haven: Yale University Press, 1998).



scientists and benefactors belonging to the Corporation of the New York Botanical Garden defined their purpose and work in terms of perceived public benefits and repeatedly affirmed the free and open quality of the land. At the same time, the design, control and management of the landscape was restricted to a small and narrowing class of botanical experts qualified to care for the region.<sup>69</sup>

The development of managerial power over land in the city involved displacing custom, tradition and local authority as sources of legal precedent. Colonial legal forms designed to ensure claims through settlement and improvement had to be replaced. According to legal historian Elizabeth Mensch, occupancy and use was a salient source of legal legitimacy for asserting a claim to land in colonial New York. Usually these claims were made by “whole townships on behalf of a complex collective vision about the role of property in community and religious life.”<sup>70</sup>

The Board of Trade, which was responsible for implementing colonial policy in New York, viewed rapid settlement as one of its key goals. According to Mensch, the promotion of cultivation was viewed as one of the solemn obligations of sovereignty in the law treatises of the time<sup>71</sup> In the 1760’s and 1770’s the Board of Trade affirmed that “settlement was a ‘right to be preferred to others,’ warned against the effect of large grants, and proposed that authorities reduce the limit on individual holdings to 500 acres

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69 Though the number of institutions and amount of resources devoted to botany, and the closely related agricultural sciences was growing, the field was also becoming more exclusive as it became affiliated with research institutions and state concerns. On the professionalization and exclusion of women from botany during the years coincident with the founding of the botanical garden in New York, see Margaret Rossiter, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore: Johns Hopkins University Press, 1984).

70 Elizabeth Mensch, “The Colonial Origins of Liberal Property Rights,” *Buffalo Law Review* 31 (1982): 643-644, footnote 25.

71 Mensch, “Origins of Liberal Property,” 645-661.

or make them exactly proportionate to the ability to settle.”<sup>72</sup> Contradictorily and at the same time, the Board viewed extensive land grants as a primary method of maintaining order in the colony to ensure its control of provincial resources, particularly trees for naval stores.<sup>73</sup> The result of these multiple ways for claiming land and the conflicts they enabled was that by the 1760’s, Mensch writes, “‘property’ in New York was a virtually unintelligible concept.”<sup>74</sup>

Settlers continued to argue their occupation and use claims with violence through the 1840’s in the Hudson River Valley. Cultivation and improvement were eclipsed as intelligible bases for comprehending ownership in land as the parks era dawned in the city, and in part through the efficacy of the parks themselves.

In the city, the diminished salience of settlement, occupation and use as the basis of a land claim is apparent in the mid-nineteenth-century acquisition of land for Central Park. According to Rosenzweig and Blackmar, “Prior use claims did not loom as large as ownership rights in mid-nineteenth-century New York, and those who dwelled on the park site, mostly poor immigrants and African-Americans, had no power to make or influence policy decisions.”<sup>75</sup> One resident of the land that was to become Central Park argued on behalf of neighbors in a petition for compensation that the “very great number of poor families” who had worked for years on the land and “will be entirely ruined when they must give up their cultivated land . . .”<sup>76</sup> A schedule of compensation preferred formal land ownership, and an assessed value based on speculative markets, not on the

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72 Ibid., 695.

73 Ibid., 661.

74 Ibid., 660.

75 Rosenzweig and Blackmar, *The Park and the People*, 60.

76 Quoted in Rosnzweig and Blackmar, *The Park and the People*, 84.

“improvements” that had formerly marked and legitimated claims ownership in colonial landscapes.

The impetus for the broad expansion of governing power that would be elaborated in New York under the aegis of a new public may be found in the imperial crises which had divested Britain of its New York sea port and which precipitated a re-orientation in oceanic trading networks favorable to both Britain and the merchants of New York.<sup>77</sup> New York's exports increased tenfold across the turn of the nineteenth century.<sup>78</sup> Ship captains came increasingly to prefer New York for its deep saltwater channels, and the seaport also gained during this period a rapidly widening advantage over its rival Philadelphia.

As New York explored its new leverage in the West Indian trade, and as wealth swelled and traffic increased on Manhattan Island, the Common Council and island residents sought new powers to organize the construction of transportation routes and facilities. The old development mechanism, grants to individuals and associations for developing waterfront lots, no longer sufficed to accommodate the new needs occasioned by the city's multiplying riches. Whereas individual lot holders had been charged with street development during the colonial period and into the early nineteenth century, merchants and planners began to hope for a more coordinated approach. An 1807 draft bill presented by the Council to the state legislature anticipated the long marriage of public benefit to state power through development of infrastructure and landscape in

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77 Christopher Bayly wrote that, following the Berlin decrees of 1805, Napoleon and the British began a “world-wide programme of blockade and counter-blockade.” Britain seized French colonies in the Caribbean and the East and prevented Europe from receiving that produce. C.A. Bayly, *Imperial Meridian: The British Empire and the World, 1780-1839* (London: Routledge, 2016), 186.

78 Edwin Burrows and Mike Wallace, *Gotham: A History of New York City to 1898* (New York: Oxford University Press), 333.

pointing to “the necessity of projecting the streets and roads in such a manner as to unite regularity and order with the Public convenience and benefit, and in particular to promote the health of the City.”<sup>79</sup> Governors and justices began to perceive a “necessity of taking a comprehensive view of the whole in order to legislate wisely and discretely as to a part.”<sup>80</sup> City governors sought to exceed the powers indicated in the colonial-era charter, and increasingly sought authority for “strong, energetic laws”<sup>81</sup> and a “strong discretionary power.”<sup>82</sup> Members of the corporation’s governing body, the Common Council, looked for the language with which to “break with settled expectations” about the range of legitimate actions of governing officials. Religious authority, customary law, and the many claims of the more powerful property holders obstructed coordinated development.

Appeals to the state legislature to take action above the level of city government were common from the early nineteenth century. The Common Council lamented in an 1807 memorandum to the state legislature:

“The diversity of sentiments and opinions which has heretofore existed and probably always will exist among the members of the Common Council, the incessant remonstrances of proprietors against plans however well devised or beneficial, wherein their individual interests do not concur, and the impossibility of completing those plans but by a tedious and expensive course of law, are obstacles of a serious and perplexing nature. . . . As these evils are continually accumulating by reason of our increasing

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79 Morrison Heckscher “Creating Central Park,” *The Metropolitan Museum of Art Bulletin* 65, no. 3 (2008): 7.

80 Hartog, *Public Property and Private Power*, 175.

81 *Ibid.*, 131.

82 *Ibid.*, 134.

population, and the rise of frequent subdivisions of property, your Memorialists find it necessary to appeal to the wisdom of the Legislature, for relief.”<sup>83</sup>

The difficulty of uniting powerful landowners behind a single development scheme would persist through to the development of parks in the Northern Borough. However, Central Park, completed in the 1860’s, served as a powerful tool of persuasion for land owners who could anticipate a similar expansion of value in land in the Parks District with the development of the parks there. The Central Park Commission, created to ensure the park’s completion where such projects were easily made the hostages of political rivalry, had been institutionalized in a permanent development board. This board, though not always in perfect agreement with the Garden managers, held many sympathies in common, and had the advantage of being only a few, un-elected men.

### **Public Squares in New York and the Expression of a Colonial Relationship**

During the Jacksonian removal era, the absence of “Public Squares” in New York was becoming a cause of great concern for editorialists and Europhiles. In 1832 the Assistant Board of Aldermen's Committee on Lands and Places reported, “almost every stranger who visits us, whether from our sister States or from Europe, speaks of the paucity of our Public Squares . . . in proportion to its size, New York contains a smaller number, and those few of comparatively less extent than perhaps any other town of importance.”<sup>84</sup> Similarly the famous Hudson Valley landscape designer Andrew Jackson Downing brought his travels in England home to readers in New York, writing, “In the parks of London, you may imagine yourself in the depths of the country,” he wrote, but

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83 Quoted in Heckscher, “Creating Central Park,” 8.

84 Heckscher, “Creating Central Park,” 9.

“what are called parks in New-York are not even apologies for the thing; they are only squares, or paddocks.”<sup>85</sup>

Public parks joined the list of desired improvements requiring major land requisitions by the 1830’s. The infamous 1807 “gridiron” plan was a favorite dead horse of planners and developers who considered it a “system of streets running from nothing to nothing.”<sup>86</sup> By the early nineteenth century, land-owning New Yorkers would have been trained in a landscape aesthetic which married power to a series of formal principles called “natural.” The gridiron plan ignored the aesthetic standards that were well-developed in Britain by the turn of the nineteenth century, and that valued “irregularity,” winding pathways, and framed, wide vistas. Also by the nineteenth century, garden planners in Britain had been enlisted in town-design, and well-formed ideas about how towns should be planned and developed for aesthetic appeal circulated widely.

The designs and advice of Andrew Jackson Downing and others like Downing’s colleague Calvert Vaux, whose designs for the carriageways for the New York Botanical Garden were interrupted by his unexpected 1895 death, had an audience in the region’s elite. Their plans for houses, gardens, and public spaces conveyed aesthetic principles developed by the British aristocracy during a period of rapid enclosures and land consolidation in the British Isles.<sup>87</sup> The influential landscape artist Uvedale Price (1747-1829) advised against symmetry and linear development, preferring humble groupings of houses, as well as the preservation of uneven ground and old trees and vegetation.<sup>88</sup> This

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85 Ibid., 12.

86 Samuel Parsons and William Rudolf O’Donovan, “Design as Applied to Cities,” *North American Review* 185 (1907): 364.

87 See David Cannadine, *The Decline and Fall of the British Aristocracy* (New York: Vintage, 1999).

88 Crandell, *Nature Pictorialized*, 136-137.

“pictorial” style was in turn deeply influenced by the Italian landscape painters of the sixteenth century, whose work was much admired by the wealthy British who traveled in Italy. The style would come to bear, in the nineteenth century, on the meaning and integrity of property in New York.

Ann Bermingham linked the aesthetic ideas embodied by this tradition to changing meanings of property in England:

“As the real landscape began to look increasingly artificial, like a garden, the garden began to look increasingly natural, like the pre-enclosed landscape. Thus a natural landscape became the prerogative of the estate, allowing for a conveniently ambiguous signification, so that nature was the sign of property and property the sign of nature. . . . Its deliberately serpentine stream and undulating grassy hills evoke the estate as a state of nature.”<sup>89</sup>

From another perspective, the apparent openness of this landscape was brought to bear against the hierarchical social regime dominating England. James Corner writes of a new late eighteenth century ‘reformative apparatus’ which had the English landscape garden at its ideological heart, with its “freedom from unnecessary constraints and its availability to a larger social group.”<sup>90</sup> This theme of designed (and managed) openness would be taken up by Olmsted and Vaux in their Central Park, and in other works. Olmsted, for example, wished to preserve the accessibility of Yosemite for a democratic visitorship, lest it become the private pleasure grounds of an elite.

A paradox thus attends the beauty that parks and botanical gardens brought to cities. The beauty bestowed upon an urban landscape, whether it take the form of geometrical and be-tulipped parterres, or meadows for sheep, mirrored in intensity a set

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89 Ann Bermingham, *Landscape and Ideology: The English Rustic Tradition, 1740-1850*. (Berkeley: University of California Press, 1986), 13-15, quoted in Gina Crandell, *Nature Pictorialized: “The View” in Landscape History*, (Baltimore: Johns Hopkins University Press, 1993), 130.

90 Corner, *Landscape Imagination*, 42.

of violences transpiring at the frontiers of urban influence. In the 1830's, New York-based innovators like Pierre Lorillard, whose tobacco mill still graces the grounds of the New York Botanical Garden, were establishing speculative networks across war-devastated territories to the north and west. Lands defended from white settlement to 1832 fell to networks of speculators and the New Yorkers named new capitals after themselves in Northwestern outposts.<sup>91</sup> The initial visions for the creation of public space in New York coincided with a removal campaign against Seneca communities along Buffalo Creek in western New York state,<sup>92</sup> the 1832 Blackhawk War and the entry of New York financiers into the Northwestern Territory, the 1838 forcible removal of 12,000 Cherokee to the west of the Mississippi, and a scorched earth campaign against Seminole communities in Florida. The Marshallian precept “domestic dependent nations” encoded into law during this era a definite realm for the legal exercise of arbitrary power.

Garden founder Britton said at the same event, “This auspicious occasion, when the forces of civic and individual liberality and philanthropy are again so happily enlisted in a common cause, should, it seems to me, mark another forward step in our vast city's triumphal march toward unquestionable superiority in all that makes for the welfare and happiness of mankind.”<sup>93</sup>

In the period from 1881 to 1900, when 1,757 acres north of New York City were being set aside for public parks, indigenous lands nationally were reduced by half, from approximately 156 million acres to 78 million.<sup>94</sup> From New York, celebrating the

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91 Burrows and Wallace, *Gotham*, 570.

92 Hauptman, *Conspiracy of Interests*, 101-143.

93 Addison Brown, memorandum, undated, Addison Brown Papers, New York Botanical Garden, New York.

94 Cleveland, “Powers Inherent in Sovereignty,” 55.



groundbreaking for the glass conservatory in 1897, Parks Commissioner August Moebus described the botanical garden as “a fitting illustration of the progress of civilization of the present century.”<sup>95</sup> To express an order and an aesthetic which mimicked European metropolises was to call forth belonging in an imagined community of nations, and a civilized world. The parks, and perhaps most powerfully, the botanical garden, made a case for national status. By the late nineteenth century, lawmakers and courts affirmed the right of an unregulated federal power to take colonies and thereby ensure the U.S. an ‘equal station among the Powers of the earth.’<sup>96</sup> In emulating European cities, urban planners were appreciating not only an inherited aesthetic, but also an active relationship of power.

### **The Parks District**

The Bronx River rises about twenty-four miles north of the Long Island Sound, near the site of the now-submerged village of Kensico. From that drowned valley, the site of the Kensico Reservoir, it cuts a southward course through the upper, mainland reaches of New York City, toward the salty East River. That mainland region is now called Bronx County, or the Bronx, and it forms a sort of wide peninsula, separating the Hudson River from the East River and Long Island Sound. A few miles upriver from its mouth, the Bronx narrows and passes through a gorge. One Garden founder counted this gorge as among the “most beautiful landscape features under the control of the Parks Board.”<sup>97</sup> This is the site of the New York Botanical Garden.

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95 Addison Brown, memorandum, undated, Addison Brown Papers, New York Botanical Garden, New York.

96 Quoted in Cleveland, “Powers Inherent in Sovereignty,” 266.

97 Charles Cox to Addison Brown, 5 March 1894, Addison Brown Collection, New York Botanical Garden.

What is now the Bronx was a largely agricultural and marshy mainland region of shifting boundaries for much of the nineteenth century. From the 1870's, 80's and '90's the area was being brought, piece by piece into the jurisdiction of the City of New York. The region that would come to be named after its central river, was then called by several names including the "North Side," the "Annexed District," and later, the "Parks District." In 1874, the towns on the west side of the Bronx River were annexed to New York City.<sup>98</sup> The "North Side" joined Manhattan's East and West sides. In 1886 the state legislature authorized the purchase of land located in both the west and east sections of the region for parkland, and the whole area was conceived as a great system of parks for the city.

From the manorial seventeenth century, the region was the site of ongoing battles for control and meaning near the commercial heart of the rising empire in the Americas. In the seventeenth and eighteenth centuries large land grants were used by governors in rival colonies to secure loyalty and the boundaries of their territories. Thomas Pell was one beneficiary of such a rivalry between the governors of New York and Connecticut, and was the original patentee of a large area of land surrounding a bay on the east edge of what is now the Bronx, and Pelham Bay Park was one of the larger parks secured in the late 1880's. On the other side of the peninsula, Lewis Morris owned several thousand acres across the creek from Manhattan and in 1790, he proposed his manor, Morrisania, as the site for the new national capitol, touting its accessibility to the sea, without

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98 Opposing an 1869 annexation proposal, the senator representing that region threatened that he would rather "annex the city of New York to Morrisania." However, according to Stephen Jenkins, this senator later became one of the foremost advocates of annexation, presumably when he and his party were better poised to leverage the anticipated gains. Stephen Jenkins, *The Story of the Bronx* (New York: G.P. Putnam's Sons, 1912), 6.

“tedious passages of two hundred miles each up Bays and Rivers” and with all the hazards of rocks and shoals.<sup>99</sup>

The manors and towns of this region supplied grain to New York, and to plantations in the West Indies. The sugar business was the central source of wealth for New York in the 1740's and 50's and 60's.<sup>100</sup> According to the historians Edwin Burrows and Mike Wallace, “By 1720 or so half the ships entering or leaving the port [of New York] were on their way to or from the Caribbean . . .”<sup>101</sup> They describe the region as completely integrated to an Atlantic slave economy:

“On innumerable small and medium-size plots ranging from a few dozen to a few score acres in extent, the rural populations of Long Island, Staten Island, New Jersey, and Westchester – many relying heavily on slave labor-produced an ever-growing volume of foodstuffs for the Caribbean market. Bigger and richer landowners like Lewis Morris [grandfather of the aforementioned Lewis Morris] . . . built productive complexes that combined elements of slave plantations and industrial villages. From Morrisania, his nineteen-hundred-acre estate in what is now the southwest corner of the Bronx, he and his work force – which in 1691 included one of the area's largest concentrations of slaves (twenty-two men, eleven women, six boys, two girls) – sent corn, wheat, barley, oats, lumber, and a variety of livestock to Manhattan for export to the West Indies.”<sup>102</sup>

The granted manors and estates dating from the seventeenth century, and patterns of large-landholdings more generally, had not disappeared from the landscape of the region when in 1891, members of the Torrey Botanical Club appealed for and obtained a

99 Jenkins, *The Story of the Bronx*, 6.

100 Burrows and Wallace, *Gotham*, 170.

101 Ibid., 120.

102 Ibid., 123.

grant for 250 acres of land from the state legislature to create their botanical garden. The Lorillard estate, with a mill and mansion relocated from lower Manhattan during the imperial crisis of the 1780's was the site chosen for the botanical garden, having since been abandoned for a new location across the Hudson. Inside the planted grounds of the botanical garden, the landscape would come to be imbued with meaning and coherence reflecting new metropolitan patterns emerging in the city to its south, and imperial capitals globally.

The development of Central Park paved the way for the Botanical Garden in several respects. The processes of acquiring land for the park, securing funds to develop it, and ensuring its development through streamlined management Central Park were all long and contentious. However, the completed Park, and its effect on land values in its environs became a compelling argument on behalf of similar projects. When the city acquired 1,757 acres of land north of Manhattan, about half of which lay outside the then-current boundaries of city jurisdiction, Central Park was its model and the primary reference point. As importantly, a small administrative board was created to develop Central Park. This board was at first considered by some to be highly undemocratic and even despotic, for its unelected status, small size, and broad powers. However, as the park was completed, the board's powers were extended to oversight over land north of the park. For the Botanical Garden, this meant that managers would be dealing, as they planned their grounds and secured money for its development, not with the diverse interests of landowners or elected representatives and their patrons, but with a small group of like-minded men.

The Central Park institutions provided a model for channeling state and city resources toward a corporate entity with “no private interest”:

. . . we are anxious that in the new charter suitable provision should be made for the City's appropriate contribution towards the maintenance of the Garden in Bronx Park. I understood from Pres. Low that some changes were proposed to be made in the new charter as regards the mode of getting appropriations of money from the Legislature for such purposes as that of the Museum of Natural History, and for our Garden, and other similar objects; and whatever the changes contemplated may be, our Board would request that the Botanical Garden, which exists purely for the benefit of the people, and with no private interest, but as one of the modes of developing a part of Bronx Park in a most useful, attractive and educating manner, should have in the new charter appropriate recognition and suitable provision, of like nature with the provisions for the Museum of Natural History.<sup>103</sup>

Central Park on Manhattan, and the Parks District created in 1888 on the mainland to the north of Manhattan Island, reflect nineteenth century patterns of territorial power in emerging national states where national publics and authoritarian rule coincide. C.A. Bayly describes what seems from a certain perspective to be a paradox in emerging national states wherein, “the search for an equal citizenry often led to a narrow nationalist autocracy.”<sup>104</sup> The public parks in New York, like those in Europe, described an ineffable and omnipresent collective body of visitors. This “public” was increasingly invoked as the source of legitimacy for governing actions, a metaphorical font of sovereign power, in nineteenth century New York. The parks in New York were not principally created for any broad group of people. Central Park was fought for and ultimately developed as it was as a means of generating value in the land surrounding it.

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103 Addison Brown to 12 December 1896, Addison Brown Collection, New York Botanical Garden.

104 Bayly, *The Birth of the Modern World*, 209.

The processes for taking land for the parks, and the governing bodies established to develop them, involved narrowing and concentrating decision-making power into select boards comprised of several unelected members endowed with exceptional powers to plan and manage the transformation of the land. “Despotic,” is how some commentators who witnessed the emergence of these boards characterized this aspect of governance in New York. The strong discretionary power that early nineteenth-century aldermen sought for the development of their city came into its fullest expression in the boards and commissions created to develop Central Park, and later to develop upper Manhattan and much of the Parks District.

The public parks created a geographic and conceptual space in the landscape for a botanic garden in New York. The Garden, according to one of its founders, “would not stand apart from, but will form a consistent portion of the park system.”<sup>105</sup> Further, the garden grounds were “not to be taken from the property of the city and turned over to a corporation for its own use” but “merely set aside by the Park Board to be officially developed and beautified . . . under the direction of scientific experts.”<sup>106</sup> Though it was the project of a small and wealthy class of botanists, its place in the public landscape distinguished it significantly from the many estates along the Hudson with enormous glass conservatories sheltering privately-owned tropical worlds. The material developments made to the Garden grounds between 1895 and 1902 took on new and amplified significance as part of a public landscape, belonging, not to a single wealthy family, but to an indefinite and metaphorical constituency.

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105 Charles Cox to Addison Brown, 5 March 1894, Addison Brown Collection, New York Botanical Garden.

106 Ibid.

The botanical garden was an institution and landscape expression closely associated with European social hierarchy, which is here interpreted as an impersonal place of symbolic common ownership. The design and value of the public parks, as in political discourse more broadly, was constantly negotiated with Europe's social hierarchy as a reference point. Daniel Rodgers summarized this discourse,

. . . the ancien régime's kings and aristocrats, its standing armies and standing churches, became the European continent's very essence. Through their monopoly on governance, the aristocracies seemed to have hung the state's apparatus on the peoples of Europe like massive millstones. Overtaxed, overgoverned, rent-racked, and impoverished, the European nations groaned under the double weight of political and economic parasitism.<sup>107</sup>

A symbolic cluster surrounding the idea of a "public" and imbuing it with values of egalitarianism and republicanism was explicitly and frequently invoked to distinguish old, European power, from legitimate governance in New York. However, despite the long tradition of monarchial and aristocratic landscaping in Europe, governance in these countries was already defining itself in relationship to a public. At Liverpool in 1800 a botanic garden with a conservatory was opened for the "pleasure and improvement" of the public.<sup>108</sup> By the 1820's and 1830's reformers in England had introduced the idea that ordinary citizens deserved access to parks.<sup>109</sup>

By the eighteenth century in England, "power was no longer principally responsible to itself," Richard Drayton writes, "with its prerogatives founded securely on divine or oligarchical election. Its legitimacy depended increasingly on the service it

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107 Daniel Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge: Harvard University Press, 1998), 34.

108 Drayton, *Nature's Government*, 134.

109 Norman Newton, *Design on the Land: The Development of Landscape Architecture* (Cambridge: Harvard University Press, 1971), 220.

rendered to those over whom it presided.”<sup>110</sup> Royal parks such as the Kew Garden were open “by grace and favor” to the public during the eighteenth century, but truly public parks – regions of land designed with specific governing purposes in mind – found expression in the nineteenth century.<sup>111</sup>

The Royal Botanic Garden at Kew was transitioned from a royal landscape, “part of the dignity of the monarchy,” to a public garden in the 1830’s, as part of a larger program of reform in early nineteenth century Britain.<sup>112</sup> Following a series of late eighteenth and early-nineteenth century challenges to their legitimacy and existence the landowning class in Britain began to support a newly public Kew. Before reform, Kew, even in its public functions like facilitating plant transfers and training botanists for posts at colonial stations “represented extensions of the personal efficiency of George III.”<sup>113</sup> However, Kew took on new meaning, including for North American interpreters like landscape designer Andrew Jackson Downing, who wrote, “Kew, formerly of little value has lately become a matter of national pride . . . The present queen has wholly given Kew up to the public, even adding a considerable sum annually from her private purse towards maintaining it.”<sup>114</sup> The “public” to which power increasingly addressed itself and its projects, was beginning to take shape in urban landscapes in England prior to and concurrently with the development of a public landscape in New York.

Power announced its subservience to the people in the form of new parks in many cities. Birkenhead Park was “. . . a proof of the ease and the natural method by which a

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110 Drayton, *Nature's Government*, 43-44.

111 Newton, *Design on the Land*, 220.

112 Drayton, *Nature's Government*, 129.

113 Drayton, *Nature's Government*, 129.

114 Andrew Jackson Downing, *Rural Essays* (New York: Putnam, 1853), 486.



democracy can create, for its own enjoyment, gardens as elaborate, costly, and magnificent, as those of monarchs.”<sup>115</sup> A few decades later, in reference to the parks north of the Harlem (the future site of the botanical garden), *Sun* editor Mullaly drew a contrast between monarchic Europe and republican New York to suggest the democratic nature of the parks. “If, in a monarchial country, the opening of “The People's Palace,” which took place in London the other day, was made the occasion of a royal pageant, and the dedication of an additional park area of 7,000 acres a few years ago was celebrated by the civic authorities of that city, should we not celebrate with the appropriate ceremonies the opening of the people’s parks next year by a grand municipal holiday?”<sup>116</sup>

By focusing on the styles of European monarchs, critics isolated a single representative source of tyranny from a dense network of colonial institutions and relationships. English monarchs in the early colonial period, Philip Stern writes, “did not have the resources or even the political will to command trade and colonial life abroad.”<sup>117</sup> They relied on corporations including the East India, Virginia, Guinea, Guiana, Africa, Russia, Northwest Passage, Levant, Somers Island, Providence Island, Plymouth and Massachusetts Bay, and Hudson's Bay companies.<sup>118</sup> The national states emerging *vis a vis* European capitals in the nineteenth century were similarly productions or projections of myriad social forms including corporations, municipalities, and universities which all participated in shaping relations of power and dominance in

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115 Fred Perkins, *The Central Park*, (New York: Carleton, 1863), 18-19, cited in Matthew Gandy, *Concrete and Clay: Reworking Nature in New York City* (Cambridge: MIT Press, 2002), 98.

116 John Mullaly, *The New Parks Beyond the Harlem* (New York: Records Guide, 1887), 8.

117 Philip Stern, “Bundles of Hyphens: Corporations as Legal Communities in the Early Modern British Empire,” in *Legal Pluralism and Empires, 1500-1850* ed. Lauren Benton, (New York: New York University Press, 2013), 27.

118 *Ibid.*, 28.

European metropolises. That America's republican institutions were a standing rebuke to Europe's corrupt politics and imperial pretensions was written in to the landscape aesthetics of Central Park, for example.<sup>119</sup>

But the distinction was perhaps overdrawn. During the late nineteenth century, processes of consolidating national-state power culminating in England, France, and Prussia were being mirrored quite closely by legislation and jurisprudence in the U.S. concerning the "right and power" of the United States as a participant in the family of nations, as well as by changes in the municipal landscapes.

The public parks, or the "peoples' parks" similarly took on a cast of rebuke to inherited privilege in promotional discourse. Public parks, however, were as much inventions of the European governing classes as the landscaped palatial grounds out of which they evolved. London, with Birkenhead Park in 1851, Berlin, and Paris, were among the cities receiving new, expressly public gardens and parks mid-century. Kew Gardens and many other aristocratic and royal landscapes were partially opened to public visitors. Great glass conservatories and malls were opened as public meeting spaces. A spate of such buildings were erected after the revolutions and uprisings of 1848.

The New York Botanical Garden could be viewed in this light as a vehicle for imputing meaning drawn from European contexts into the expanding landscape of New York City. The meaning of land in the city, and its environs, including how it should be owned and developed was very much in dispute in the 1890's. It is often said of New York in the nineteenth-century that, particularly when contrasted with Boston, the city did

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119 Thomas Bender, *A Nation Among Nations: America's Place in World History* (New York: Hill & Wang, 2006), 182.

not have a unified, close-knit upper class capable of coordinated political action. Development-minded elites were constantly frustrated by the effects of competing individual owners and speculators, of rival political families and patronage networks, and of the many cities and townships comprising the New York harbor region. A number of these developers were the financial backers and legal minds behind the creation of the Botanical Garden.

### **Public Ownership**

Though public parks were well-established in European cities by the time they were adapted in New York, the history of colonialism by settlement in the US context gave to nineteenth century public lands an added layer of significance. One of the people to buy a tract of land in the first planned suburban development to fragment a Lower Westchester County manor – Morissania, in the southwest corner of the region - in 1848 was Alan E. Bovay, a teacher and lawyer who campaigned with the anti-Rent farmers in the Hudson River valley in the 1840's.<sup>120</sup> "Every man his own landlord," was the slogan of the development, and it resonated with the land reformers' solutions to poverty and tenancy. Something akin to "a protracted guerilla war" was still being fought over the lands claimed by manor lords north of the city.<sup>121</sup> Bovay was a land reformer who worked to "speedily restore the soil to the people."<sup>122</sup> Reformers linked "downtrodden yeomen" and land-less city workers "squeezed by the same monopolists of the soil."<sup>123</sup> They proposed opening the public domain to the poor, and making freeholds available to tenant farmers in the Hudson Valley.

120 Schwartz, "Community Building on the Bronx Frontier," 31.

121 Ibid., 5.

122 Ibid., 32.

123 Ibid., 5.

National land policy mid-century reflected similar tensions, for example, in his studies of the land 1862 Morrill Act, Paul Wallace Gates makes frequent mention of a conflict between land speculators and “actual settlers.”<sup>124</sup> The national debate over the bill involved concerns over how to make the land available to people who would live and farm in an Anglo-American manner the lands that constituted the public domain, rather than to absentee owners. Settlers formed the crux both of colonial development strategy, and of the republican mythos which proved so compelling to future urban planners.

During the second half of the century, newspapers, city planners, and officials devised a form of joint ownership of the public lands, including especially those in the Annexed District wherein “the people” would be in “acknowledged possession” of the land controlled by the Parks Department, and property owners would appreciate the rising value of their land with the establishment of the parks.<sup>125</sup> The gradual fading of the large estates in the region gave way to, as parks promoter Mulally put it, the “impatient desire of the public to enjoy these great pleasure grounds.”<sup>126</sup>

The substance of the ethereal public body that would appear and take center stage in the governance of New York City in the nineteenth century is traceable to the language for claiming land developed by European settlers in New York under British colonial rule. During the eighteenth century, settlers claimed that the “people out-of-doors” were the source of all law, and “the people at large” were the “true proprietors of the land.”<sup>127</sup> They had colonial law behind them. Settlement was a key aim and policy of imperial

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124 Paul Wallace Gates, *The Wisconsin Pine Lands of Cornell University: A Study in Land Policy and Absentee Ownership* (Ithaca: Cornell University Press, 1943), 8.

125 Mulally, *The New Parks*, 47

126 Ibid.

127 Mensch, “Colonial Origins,” 655.

law, and settlers learned to appeal to this policy objective in their arguments against the holders of large manorial grants.<sup>128</sup> In 1698, for example, The Board of Trade insisted that no grants should be made without obligation to “settle and effectively cultivate” within three years.<sup>129</sup>

These arguments linking settlement, ownership, and public land were incorporated into a land development philosophy for New York and for the continent which complexly merged egalitarianism with land acquisition and development. In a report on Yosemite as a landscape for public use, Frederick Law Olmsted wrote in 1865 that the park should be available to everyone, and warned that in Great Britain, “a very few, very rich people” monopolized the “choicest natural scenes in the country.”<sup>130</sup>

Constructing the parks and the botanical garden was about more than the immediate hoped-for result of creating a metropolitan landscape that convincingly mimicked the landscapes of European power. In light of the deep depressions of the era and the proliferation of new, vast, and indefensible land transfers, more was at stake than either immediate wealth or the infrastructural improvements that helped keep money flowing according to prescribed pathways. Stabilizing a new set of “practices and ideas about the relation between place and power,” was the problem of emerging national states seeking to incorporate diverse territories and communities into unitary municipal and metropolitan regimes.<sup>131</sup>

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128 Ibid., 667.

129 Ibid.

130 Quoted in Spirn, “Constructing Nature,” 92.

131 Elden, *The Birth of Territory*, 7.

Bovay's message would not have lost its resonance by 1890 when one percent of the populace controlled more than half of the country's wealth.<sup>132</sup> By echoing the arguments made by settlers against large land holders in the Hudson Valley, parks proponents called up those leveling strains of U.S. American ideology through which competing strategies for colonial land claims, including on the one hand, settlement and cultivation, and on another large grants, large scale governance and development, were pitted against one another.

In the 1891 charter for the New York Botanical Garden, a decidedly public character was imagined for the institution's future landscaped countenance. "The said grounds shall be open and free to the public daily, including Sundays, subject to such restrictions only as the proper care, culture and preservation of the said garden may require; and its educational and scientific privileges shall be open to all alike, male and female, upon such necessary regulations, terms and conditions as shall be prescribed by the managers of those departments."<sup>133</sup> Early on, they imagined no fence surrounding the grounds.

### **The Cultural Agency of the Botanical Garden**

How members of the chartered, exclusive Torrey Botanical Club secured jurisdiction over a large and valuable property along the Bronx River is an interesting story. The legal body that was created to receive and hold the land, the Corporation of the New York Botanical Garden, included practically all of the richest men in New York, men who would have intuitively understood the significance of botanical research to

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132 Cleveland, "Powers Inherent in Sovereignty," 257.

133 "Act of Incorporation," *Bulletin of the New York Botanical Garden* 1, no. 1 (1896): 5.

colonial pursuit. They would have comprehended both its immediate commercial relevance, and its correlation with a longer-term capacity to control and profit from land, whether through investment in plantation agriculture and its associated industries, or through its transformation into real estate. In 1891, botanical research was absolutely central to business and international commerce, much as the chemical and technical industries that came to replace it are today.<sup>134</sup> Resilient strains of rubber, gutta percha (for telegraph cables), and fibers like sisal which could withstand the rigors of plantation-style cultivation were products of extensive scientific investigation, coordinated by the administrators at imperial stations like Kew Gardens near London. As the New York Botanical Garden initiated research in the Caribbean region during its first decades, investment in research on sugar cane by a concerned Colonial Office in London was funding the development of new strains of cane to bolster the plantation economies of Jamaica, Barbados, Puerto Rico, and neighboring islands.<sup>135</sup>

The year the New York Botanical Garden was founded also saw the founding, in Berlin, of the Botanische Zentralstelle. From this institution, plant samples made their way to chemical and drug companies for analysis, and the organization also “arranged to have plants sent to the colonies from all parts of the world to determine their economic potential in the new regions.”<sup>136</sup> That it was the governor of Cameroon who first requested such an organization, looking to Bismark for seeds with economic value suggests a complex involvement and interdependence of botanical research with settler

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134 Lucille Brockaway, *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens* (New Haven: Yale University Press, 2002), 7.

135 J.H. Galloway, “Botany in the Service of Empire: The Barbados Cane-Breeding Program and the Revival of the Caribbean Sugar Industry, 1880’s-1930’s,” *Annals of the Association of American Geographers*, 86 n. 4 (1996) 682-706.

136 Cittadino, *Nature as Laboratory*, 137.

outposts. The *Botanische Zentralstelle* was housed at the Berlin Botanical Garden and Museum, which, like the intended New York garden, showcased the “plant treasures of the colonies” and housed a research museum for studying economically valuable plants.”<sup>137</sup>

Botanical gardens were, also, by the late nineteenth century, ancient features of European landscapes of power, and so conferred with their exotic and seasonal displays the combined authority of large-scale design and natural beauty through the symbol systems of deeply hierarchical European societies. Corporate managers of cities like New York considered such institutions to be part of the necessary infrastructure of their municipal dominion. Parks and botanical garden proponents wished to ascertain the appropriateness of their city as a headquarters and base of operations to the captains of shipping, banking, and manufacturing. A botanical garden would provide a clear indication of municipal vivacity. Seth Low, who left his position as Director of the Board of Scientific Managers at the New York Botanical Garden in 1901 to assume the Mayoralty of the newly incorporated Greater New York would later laud the garden, along with several sister institutions:

“New York has also developed in its corporate capacity, in cooperation with and under the direction of organizations of private citizens, a natural history museum that is second to no other, an art museum that is fairly counted among the greatest of art museums, a botanical garden that is rapidly forging towards the first rank, a zoological garden that in size and equipment excels any other, and an aquarium that is also worthy of leading rank. Each of these institutions is free. They are visited annually by millions

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137 Ibid.



of people; all are related to the public school system of the city, and stand as high for scientific usefulness as for public service.”<sup>138</sup>

From its beginnings, the New York Botanical Garden resembled other late Victorian botanical gardens and plant research stations. It was closely associated with and deliberately emulative of Kew Gardens near London, for example. At Kew, Britain's imperial bureaucracy coordinated a massive global research effort in search of the technological keys to viable plantation agricultures. Colonial governments sought help from Kew from their research stations in the West Indies including Jamaica, Trinidad, Barbados, Grenada, St. Lucia, and Dominica, and from stations throughout not only the British empire but other imperial networks as well. New York garden researchers contributed to this network and aimed to become a force within it.

In 1887, John Mulally, editor of the *Sun*, and founder in 1881 of the New York Parks Association,<sup>139</sup> compiled a thorough treatise on the value of the parks. He compared New York to Philadelphia, Boston, and San Francisco all of which had botanical gardens and arboretums, and commended the foresight and generosity of the citizens of those cities who were willing to sponsor the botanical gardens. The spectacular fruit of this civic effort could be seen especially in San Francisco where park authorities had lately succeeded in raising from seed the giant South American water lily “Victoria Regia,” with leaves measuring twenty-three feet around.<sup>140</sup> The well-traveled among Mulally’s readership may have recognized the plant from visits to European

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138 Seth Low, “A City University,” *Johns Hopkins University Circulars* 14, no. 118 (April 1895): 53-57.

139 Gary Hermalyn, “A History of the Bronx River,” *Journal of the Bronx County Historical Society*, (1982): 9.

140 John Mullaly, *The New Parks Beyond the Harlem*, 68.

gardens. They would have recognized in these flowers an exciting and dense symbolic complex connecting them to a history and a class of explorers and collectors.

All of this meaning, toward which the Europhilic and hierarchal minded in New York might have strove, combined with a local problem in New York of expansion. From at least 1807 in the city, “the necessity of taking a comprehensive view of the whole . . .”<sup>141</sup> was a persistent source of concern and invention for city leaders constrained by a governing mechanism designed in an earlier era by colonial authorities with ruder forms of growth in mind. Infrastructure and public health, as well as aesthetics, demanded a level of coordination among property owners and residents of the many cities and towns of the New York harbor region, for which the charter provided no recourse. Though proponents of expanded jurisdiction and linked infrastructure spoke of a “close and indissoluble relation”<sup>142</sup> binding residents of all of these towns and counties into common purposes like bridge-building and slip-dredging, cooperation and merger, and the jurisdictional expansion of the city was continually blocked between the 1860’s and the 1890’s by advantage-seeking in the competition for real estate opportunities and political leverage. Brooklyn and Manhattan-based developers for example, were jealous of their land and growth opportunities and skeptical of how a closer association would affect their privileges and access to new value. With the Brooklyn-Manhattan rivalry so fierce, Wallace and Burrows suggest that gaining the consent of landowners in the region that would become the Bronx was crucial to the municipal incorporation of 1898.<sup>143</sup>

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141 Hartog, *Public Property and Private Power*, 175.

142 Quoted in Wallace and Burrows, *Gotham*, 1225.

143 Ibid.

Mulally's persuasive tract somewhat ironically testifies to the instability of the parks in that region following the land appropriation for them by the state for the city. The tract veers between two persuasive strategies, at times asserting that the parks are a done deal codified in law, and in other moments informing readers of the many benefits the parks will provide. The botanical garden was a particularly persuasive tool for uniting wealthier land claimants, who would have understood both its associations with old European caste systems, and its newer place at the center of an inter-imperial scientific-commercial rivalry. Many would have been among the membership of the Torrey Botanical Club, and would have identified culturally and intellectually with the garden's defining endeavors. Many of the gardens founders were among the political leadership in the city determined to run the city more like a business.<sup>144</sup> Botanical research provided a common language and set of aims to unite the region's wealth.

### **Governance Through Parks**

Members of the Torrey Botanical Club at first saw the Central Park as a logical site for the botanical garden they envisioned for their city. A baroque pool named "Conservatory Water" was to be the site of Central Park's "Flower Conservatory," according to plans drawn by Calvert Vaux and Jacob Wrey Mould and dated 1860.<sup>145</sup> The club's efforts in the 1870's to obtain land there were unsuccessful, however, the development of the Park involved the creation of an administrative process for controlling land which would ultimately facilitate their success two decades later in the Parks District.

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144 Mike Wallace, *Greater Gotham: A History of New York City From 1898 to 1919* (New York: Oxford University Press, 2017), 55-56.

145 May Woods, *Glasshouses: A History of Greenhouses, Orangeries and Conservatories* (London: Aurum Press, 1988), 149.

In 1853, the legislature passed the Central Park Act, which designated land for the park, and empowered a five-man commission to assess and acquire the land. A theory of eminent domain was applied successfully against the African-American, Irish and German communities comprising sixteen-hundred people owning and cultivating land in the region of the proposed park.<sup>146</sup> In 1857 the legislature appointed new, eleven-person body, the Board of Commissioners of Central Park, to oversee the development of the park. This board was one of several created by the state legislature that year designed to remove decision-making authority from the city government to the state legislature. The city's real estate, accounts, and taxes came under the oversight of a state-appointed comptroller, depriving the Common Council of some of the original chartered rights securing the corporation's autonomy. Municipal representatives, and the communities - including especially immigrant communities - which kept them in power, where thereby meant to be divested of their authority, as well as their opportunities for patronage and private gain. The state legislature in Albany would control more than three quarters of the city's budget.<sup>147</sup> The legislature freed itself to transfer "portions of the chartered jurisdiction of the city to other institutional structures."<sup>148</sup>

As the park neared completion in the 1860's and inflating land values attested to its success, many among the city and state leadership began to see value in extending the life span and jurisdiction of the unelected Central Park Board. In 1868, the commission's comptroller, and the man who, with no popular political base would become, according to historian Barry Kaplan, the most powerful man in New York during the 1870's, Andrew

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146 Rosenzweig and Blackmar, *The Park and the People*, 60-96.

147 Wallace and Burrows, *Gotham*, 836.

148 Rosenzweig and Blackmar, *The Park and the People*, 181.

Green, published a study which indicated the need to commit to large-scale co-ordination in the development of upper Manhattan and lower Westchester County.<sup>149</sup> The next year, in May 1869, the state legislature delegated additional power to the Central Park Board for the coordination of physical improvements, especially bridges, roads and sewers linking New York City to Westchester.<sup>150</sup> Thus the Parks Board became a permanent agency. This would be the governing body with which the incorporated New York Botanical Garden would collaborate and compete.

In 1891, the group obtained a new charter from a unanimously supportive state legislature to incorporate the New York Botanical Garden. The incorporation enabled the scientists to obtain park land from the Department of Public Parks to create a garden. Money for developing the garden grounds was raised by subscription and public donation: ten wealthy New Yorkers gave \$25,000 each, and the City of New York provided land and \$500,000. The charter limited decision-making authority to a Board of Managers and a Board of Scientific Directors.

In this it was arranged like the cultural institutions that grew up around Central Park in the 1870's. To isolate the museums from the partisan revisions suffered first by the 1807 street plan, and later by Central Park (including a nearly successful dramatic reduction in size) private donors would be enlisted to support the institutions and decision-making authority was removed from the distractions of patronage and electoral accountability. The city's responsibility lay only in maintaining the buildings. Governing the institutions would be "men of leisure & scientific men" appointed by the trustees of

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149 Barry Kaplan, "Andrew H. Green and the Creation of a Planning Rationale: The Formation of Greater New York City, 1865-1890." *Urbanism Past and Present* 8 (1979), 33-34.

150 Kaplan, "Andrew H. Green," 34.

the institutions.<sup>151</sup> The Central Park institutions, along with the botanical garden, would help to define publicness in New York.

For Garden founders, the power to design and define the landscape was paramount. “[W]e shall become merely the servants of the Park Board,” a founder wrote, if “we cannot arrange [the garden grounds] according to our judgment.” If the grounds were determined by the Parks Board, Charles Cox feared, “we can never re-arrange them.”<sup>152</sup> He emphasized, “We must not allow ourselves to get into that position.”<sup>153</sup> Cox recognized the ways that built landscapes can structure hierarchical relationships of obligation and control, and this knowledge is central to the landscape agency and political value of the Botanical Garden.

Following the development of Central Park, a consensus was emerging, particularly among anti-Tammany reformers that qualifications in a field of knowledge and experience, not personal relationships would ensure the best disposition of the city's land. Conversely, well-disposed land, and not the processes by which decisions about land were made, came to stand in for legitimate, democratic governance.

Contemporary observers noted the authoritarianism inherent in restricting decision-making about land to the members of the Parks Board. Napoleon's Paris was often invoked as a reference point. The “principle of governing by boards,” was as

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151 Thomas Kessner, *Capital City: New York City and the Men Behind America's Rise to Economic Dominance, 1860-1900* (New York: Simon and Schuster, 2003), 72.

152 Charles Cox to Addison Brown, 5 March 1894, Addison Brown Collection, New York Botanical Garden.

153 Ibid.

despotic as Napoleon's regime in France, according to one editorialist.<sup>154</sup> Laws made by boards resembled laws "on revolted districts or conquered places."<sup>155</sup>

Yet some longed for "some Haussmann" to "do for New York" what Haussmann had done for Paris.<sup>156</sup> Haussmann's makeover of Paris after 1848 garnered him emulators in cities all over the world where leaders hoped to impose symbolic unity and create real infrastructure to tie national lands more tightly to metropolitan centers.<sup>157</sup> For one editorialist, the daily experience of living in New York, was enough in itself to lead one to "wish that some Haussmann had presided" over its planning.<sup>158</sup>

Another observer, and participant, the chief landscape engineer for the Department of Parks, assumed that the inherently democratic American body would insulate it from authoritarianism. "With us, no such benevolent despotism is possible,"<sup>159</sup> "Not even the arbitrary methods which enabled Haussmann, under the Empire, to transform Paris from a noisome medieval city into the most beautiful and commodious capital of Europe, at a vast expense and in the face of hostile public opinion, would be possible . . . in an American city . . . power now is with the people."<sup>160</sup>

The unity of aesthetic principle, of intellectual approach and landscape philosophy that the gardeners would create in the place of the swampy abandoned mill and grounds of the Lorillard mansion remarkably was made to symbolize the idea that "power is with the people."

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154 Kessner, *Capital City*, 64.

155 *Ibid.*

156 *Ibid.*

157 Burrows and Wallace, *Gotham*, 821-822.

158 Kessner, *Capital City*, 64.

159 Samuel Parsons and William Rudolf O'Donovan, "Design as Applied to Cities" *North American Review* 185 (1907), 863.

160 *Ibid.*

### The Hemlock Grove

Below the great museum, outside of the conservatory's glass, and some distance back from the "purely decorative" plantings surrounding those buildings, the gardeners envisioned the herbaceous grounds. It was a meadow, with a brook running through it, a marsh bordering one side, and forest on the the other. In this meadow, and with a "slight modification of the position of the brook," the scientists found abundant space to arrange their plant families in "natural sequence."<sup>161</sup> The natural plantings of the botanical garden became part of the armory of the great civilizing mission. In England in the eighteenth and nineteenth centuries, nature, "with its various representations in painting, poetry, letters, manners, dress, philosophy and science, became a supreme social value and was called upon to clarify and justify social change."<sup>162</sup>

Symbolizing this natural sequence most powerfully was the ancient grove of hemlock trees at the edge of the marsh. This reach of woodland known as the Hemlock Grove was the source of some contention between garden planners and the Parks Department in 1895. "As the most southern hemlock forest along the Atlantic Coast it has a special interest," Nathaniel Britton said in a speech. William E. Dodge called it the "most precious natural possession of the City of New York."<sup>163</sup> But in 1895, the Grove had been excluded from the proposed boundaries of garden. The Parks Department was especially concerned that the grove be protected "for public use, without destruction or injury."<sup>164</sup> But Addison Brown believed that the best way to protect the grove would be

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161 "Report of the Plans Commission," *Bulletin of the New York Botanical Garden* 2 (1897), 38.

162 Bermingham, *Landscape and Ideology*, 13-15, quoted in Crandell, *Nature Pictorialized*, 130.

163 N.L. Britton, "The Pinetum, the Collection of Evergreen Trees." *Journal of the New York Botanical Garden* 26, no. 301 (January, 1925), 1.

164 Brown to Department of Parks, 27 June 1895, Addison Brown Records, New York Botanical Garden.



to place it *within* the bounds of the botanical garden. Under the protective auspices of botanical science, and with a legal coda ensuring that its status remain unchanged the forest could be saved. Brown wrote to a friend on the Parks Board, “The permanency of the grove feature would thereby be secured against all future assaults, either by the Garden Managers, or by your own successors.”<sup>165</sup> The grove was to be enshrined in a protected space apart from politics.

In English tradition, trees and woods had long been associated with state power. According to William Cronon, since at least the time of Columbus, wood was in short supply in England. Since as early as 1543, the English parliament restricted timber cutting.<sup>166</sup> British forest policy led to deep contradictions in its colonial policies in North America. Rules proscribed the cutting of mast trees, which were considered the possession of the crown. This policy was continued under US rule. “The approach to forest protection was militaristic and simple: prevent people from cutting trees.”<sup>167</sup> Forest protection encompassed American Indian forests and came to be enforced alongside an onslaught on new legislation expressing authoritarianism in the landscape vis a vis indigenous lands. According to Cleveland, it abandoned “all pretense of constitutional restraint” and claimed new “inherent powers” of sovereignty over indigenous lands and territorial possessions with the Major Crimes Act (1885), the General Allotment Act (1887) abandoning the policy of obtaining consent for allotment, and the Curtis Act

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165 Ibid.

166 William Cronon, *Changes in the Land: Indians, Colonists and the Ecology of New England* (New York: Hill & Wang, 1983), 20.

167 Alan McQuillan, “American Timber Management Policy: Its Evolution in the Context of U.S. Forest Policy,” in *Trusteeship in Change: Toward Tribal Autonomy in Resource Management* ed. Richmond L. Clow and Imre Sutton (Louisville: University Press of Colorado, 2001), 80.

(1898) and Burke Act (1906) dissolving the Five Civilized Tribes and subjecting them fully to US law.<sup>168</sup>

If power learned to find legitimacy in its ability to improve the city on behalf of the public in the early nineteenth century, in the Hemlock Forest, and in the Botanical Garden, it discovered by the end of the century, an authority that emanated from nature itself. The Garden joined a global constellation of municipal landscapes linking state and nature. “In publicly funded museums, nature became a medium through which to represent the state. London was the capital city, the center of the British Empire, and her museums were a source of imperial authority.”<sup>169</sup> The unique claim of the garden’s founders was to special purview over a world apart from both law and art. The garden’s plantings were to be laid according to the “natural families” of the plants. Semblances among plants, often quite invisible to a un-trained and un-aided eye, proved an existence more organic, more tantalizingly beyond the reach of human fallibility, than any law or painting, with their clear signs of human involvement.

The New York Botanical Garden was a late-comer to the world of imperial botany. At colonial outposts including several West Indian islands, eighteenth century gardens received plants brought in from across the world. Beginning in the 1870’s and during the two decades preceding the New York garden’s founding, a period of rapid expansion of this network saw the addition of more than a dozen new stations to Kew’s network, and other governments expanded as well. To its extensive system of colonial botanical garden stations the British colonial government added a new regional system of

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168 Cleveland, “Powers Inherent in Sovereignty,” 54.

169 Carla Yanni, *Nature’s Museums: Victorian Science and the Architecture of Display*, (New York: Princeton Architectural Press, 2006), 5.

botanical experiment stations in the West Indies, in West Africa, and a station in Fiji, in the 1880's. Other imperial centers took similar paths. Spain expanded its botanical research in the Philippines in the 1880's, Belgian research in the Congo was expanded beginning in the early 1890's. The German empire elaborated its system in East Africa, and the French reached out in Tunisia. By this point, Kew had almost one hundred stations under its direct or indirect management.<sup>170</sup> A Dutch station at Buitenzorg, Java was the largest botanical garden in the world, and it acquired its own satellite research stations beginning in 1876. This station, like the New York Botanical Garden founded a decade and a half later, became a center of international collaboration, with researchers from Germany, England, France and elsewhere coming to work in its laboratories.

Despite its youth, the New York garden took its place at the heart of the new "Parks District" to the north of New York City and proceeded to become, very rapidly, one of the most important botanical research institutions in the Americas and in the world. With Kew Gardens as a model, the designers of the New York Botanical Garden set out to create an institution of broad influence. As a model, rival, and collaborator, Kew was essential to the founding of the New York garden in 1891 and its rapid development in subsequent decades. Kew occupies a prominent place in histories of the Garden, including the ones it tells about itself. But we might find in New York, in Parks District itself, and slightly further afield, in New York's Central Park, which preceded, inspired and enabled the creation of the district, an equally compelling point of origin for the botanical garden in the Bronx.

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<sup>170</sup> Drayton, *Nature's Government*, 254.

## CHAPTER 2

### CINCHONA, AN ANGLO-AMERICAN TROPICAL LABORATORY

This chapter addresses the mutually beneficial relationship between an old British imperial bureaucratic infrastructure in the West Indies, and a non-governmental, New York-based scientific corporation. In the chapter, I show how a shared tradition of agricultural research organized around the production of export crops and the promise of scientific methods, and a shared legacy of racial oppression united these botanists and government officials. In a densely documented study of a transnational plantation society negotiating the end of legal slavery in the US, historian Matthew Guterl has explored the “binding familiarities” linking members of a mobile regional “master class” as their connections and commitments spanned many sites throughout the Caribbean and US South.<sup>171</sup> Cultural affinity, business interests, land ownership and expansionist visions linked slave-owning families across these regions. In this chapter I suggest that in a post-Civil War context of national consolidation, the racial and cultural solidarities and economic projects linking transnational actors in the Caribbean and US were taken up by

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171 Matthew Guterl, *American Mediterranean*, 20. Guterl describes the basis of these relationships: “Cuba and the South had long enjoyed a special relationship as two of the largest, most profitable, and physically proximate slaveholding societies in the New World. Southerners – alongside some New England families – owned plantations in colonial Cuba, ran hotels, and operated businesses in Havana. Southerners were not only slaveowners in Cuba (Nicholas Trist, the American counsel in the 1830’s, owned the Flor de Cuba plantation), but also businesspeople there (James Robb, president of the New Orleans Gas Light & Banking Company, established a sister company in Havana). The overlap and cross-pollination is so broad as to defy quick summary, and the resulting ‘binding familiarities’ were hardly limited to the South. The railroad cars, sugar boilers, and locomotives brought in to modernize Cuban sugar production came from American companies along the Atlantic seaboard, and New England mechanics proliferated on the Cuban *cafetals* and *ingenios* that were so often visited by Southerners.”

the botanical scientists of the New York Garden and British Imperial research stations and reformulated in the terms of science and agricultural prerogative.

When scientists at the New York Botanical Garden entered into a ten-year lease agreement with British officials transferring the use of the “Cinchona” laboratory in the mountains north of Kingston harbor, a shared “vaunted spirit of rationality” sealed friendships among the scientists and administrators.<sup>172</sup> “For genuine enthusiastic workers the Americans easily take the lead, and it is a pleasure to come in contact with them,” wrote the Superintendent of Public Gardens and Plantations in Jamaica, William Harris, to his friend and collaborator Nathaniel Britton.<sup>173</sup> The Garden’s fern expert Lucien Underwood had worked extensively with Harris’s predecessor, William Fawcett, and was the first to know when the laboratory came up for lease in 1903. Garden director Nathaniel Britton collaborated with Harris on extensive plant collecting in the region. Specifically, Britton contracted with Harris to collect specimens, an agreement which suited Harris and also benefited the three other recipients of duplicate specimens collected on the missions: Kew Gardens, the British National museum, and the principal taxonomist of West Indian botany, the German botanist Ignatius Urban. Hundreds of letters exchanged between Britton and Harris illustrate a close collaboration between a well-funded botanical visionary, eager to create comprehensive regional American floras, and a skilled plant collector limited by the dictates of an under-funded, politically-complex imperial administrative apparatus. Nathaniel and Elizabeth Britton, along with other Garden staff, traveled to Jamaica most winters for several years during the period of

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<sup>172</sup> Bayly, *Birth of the Modern World*, 478.

<sup>173</sup> William Harris to Nathaniel Britton, 31 December 1912. United States National Museum Division of Plants Records, Smithsonian Archives.

the lease. They encouraged other US-based researchers to visit and work at the Jamaican laboratory, and British officials and New York botanists collaborated in studying the fungal diseases affecting sugar cane.

The New York Botanical Garden leased the station beginning in 1903, fulfilling the aims of its researchers who believed that possession of a tropical laboratory would serve “the most pressing needs of American botany,” and would be “the most important means of advancement and preservation of the integrity of the science in general.”<sup>174</sup> A principal contribution of the New York-based network to the colonial politics of the Caribbean region lay in the resources and mobility afforded by its pared-down, politically unencumbered corporate infrastructure. Though the Colonial Office in London had begun sponsoring experimental agricultural research in the West Indies, an over-stretched and internally-conflicted imperial government could not populate its West Indian botanical stations with scientific experts. Correspondence preserved from the era at the New York Botanical Garden suggests a picture of a mutually beneficial relationship: the British gardeners had insufficient funding for “science;” the New York researchers needed a base of operations for their tropical research. A new Imperial Department of Agriculture for the West Indies envisioned a scientific research program headquartered in Barbados, to “develop the agricultural resources of the Windward and Leeward Islands and Barbados” in the 1880’s, an interest in expanding the scientific infrastructure in the region ran high.<sup>175</sup> The collaboration with colonial officials in Jamaica enhanced the

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174 Daniel MacDougal, “A Tropical Laboratory,” *Botanical Gazette* 22, no. 6 (1896): 496.

175 Daniel Morris, “Subsidiary Report on the Agricultural Resources and Requirements of British Guiana and the West India Islands,” in *Report of the West India Royal Commission*, 1 (1897), 82, 145. Quoted in William Storey, “Plants, power and development: Founding the Imperial Department of Agriculture for the West Indies, 1880-1914,” in *States of Knowledge: The Co-Production of Science and the Social Order*, ed. Sheila Jasanoff (Taylor & Francis, 2004), 19.

Garden in multiple ways, beginning with the collection and cultivation of plants to populate the conservatories and herbarium in New York that formed the crux of its nascent identity as a “botanical” garden and an institution of science.

The ties binding Garden researchers to plantation regimes were many and fluid. F.S. Earle’s career as a mycologist focusing on sugar cane was early nurtured by a post at the Agricultural Experiment Station in Alabama, after which he became curator of mycology at the New York Botanical Garden, before moving to a more permanent post at Santiago de las Vegas near Havana, Cuba. Bryologist Elizabeth Britton began her life and her career also in Cuba, on the sugar plantation of her paternal grandparents. She moved early to join the scientific community in New York, where she also had deep ties. Her communities in Cuba formed part of the means by which she and her colleagues in New York traveled and researched there, and her bilingualism brought her and her friends into closer communion with class affiliates in Puerto Rico where she traveled annually for research. The Garden gave these informal ties, born in plantation economies, a new corporate agency just as the last of the region’s regimes of legal slavery was being eliminated.<sup>176</sup>

Garden researchers were not short of friends among the officials and plantation owners of West Indian and formerly Spanish-claimed colonies.

Leaders of ostensibly independent republics who shared their faith in science’s

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176 Elizabeth Britton’s sister, Mrs. David Oaks remembered the end of slavery in Cuba (1886) as a time of peaceful non-evolution. Oaks’ and Britton’s grandmother had already freed her slaves, Oaks reported, and her slaves had chosen to stay on the plantation. The narrative closely mirrors the fantasies of peaceful enslaved people represented in imperial literatures and visual arts, including American pre-Civil war art and the nostalgic representations that accompanied the reconsolidation of white supremacy coincident with the Garden’s founding decades.

ability to more effectively exploit national lands hosted the scientists. An account of a trip to Cuba in the Garden's *Journal* describes a typical itinerary:

On March 10 we broke camp and drove back to Herradura by way of Paso Real. The thickets and fields in the vicinity of Herradura were explored on horseback during the next two days and we then returned to the Experiment Station in time to enjoy a visit from President Palma, accompanied by Luis Marx, a wealthy planter, and General Montalvo, the newly appointed Secretary of Public Works and Acting Secretary of Agriculture. The care with which these men inspected every detail of the work showed the great interest taken by each of them in the Station and augurs well for its future.<sup>177</sup>

The shared agricultural priorities of the two groups shaded into a deeper scientific problem and ambition, namely “the integrity of American science.” Overly-capitalized corporate entities in the US and their state apparatus were similarly interested in creating and supporting agricultural investment opportunities in the region. Meanwhile, a taxonomic botany was coming to embrace experimental and analytical research methods and the expanded scope for intervention they foretold. The Anglo-American lease and collaboration occurred during an era of high confidence in botany, both as a mediator of land use through agricultural potential, and as a way of seeing things as they “really are.” Agricultural research, according to historian Barbara Kimmelman, was understood as “[providing] at the same time valuable new varieties and new insights into nature's laws.”<sup>178</sup>

The social ties and collaborative enthusiasm helped Garden scientists create a picture of a seamless natural world subject to nature's universal laws and interpretation by American science. Yet the agricultural programming out of which these networks

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<sup>177</sup> William Murrill, “A Trip to Cuba,” *Journal of the New York Botanical Garden*, 6 no. 67 (July 1905), 113.

<sup>178</sup> Kimmelman, “Progressive Era Discipline,” 49.



derived their funding, purpose and transnational sympathies belonged to a different world, shaped by racial terror and land expropriation. In the background of these scientific and commercial enthusiasms, and the crucially generative fields of opportunity they envisioned, lay an infrastructure of agricultural programming designed to maximize national and colonial yields, and to manage racial and colonial politics. The scientific truths coalescing in the big research institutions at the turn of the century owed their explanatory capacity and persuasive strength to colonial agricultural research programming.

This Anglo-American collaboration uniting British colonial botanical-agricultural infrastructure with American “enthusiasm” belonged to a larger restructuring of imperial trade circuits and capacities in the Caribbean region. César Ayala described the US involvement in Cuba, Puerto Rico and the Dominican Republic as a reformulation of an old plantation complex in the region.<sup>179</sup> Sugar production on Cuba and Puerto Rico expanded exponentially following US military intervention there. Production doubled, according to Ayala, between 1900 and 1902; doubled again between 1902 and 1910; and doubled once again during the decade spanning 1910-1919.<sup>180</sup> “No region of the world,” Ayala wrote, “ever experienced a process of expansion of sugarcane plantation agriculture comparable in scope and depth to that which took place in the Spanish Caribbean in the first three decades of this century.”<sup>181</sup> A “fiscal version of the Oklahoma

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179 César Ayala, *American Sugar Kingdom: The Plantation Economy of the Spanish Caribbean, 1898-1934* (Chapel Hill: University of North Carolina Press, 1999).

180 *Ibid.*, 18.

181 *Ibid.* Coffee, which was a crop for smaller-scale farmers in Puerto Rico suffered an inverse fortune, as it lost protected markets in Spain and Cuba, and found itself newly facing plantation-scale crops from Brazil in the US tariff boundary.

land rush” is how Mike Wallace characterized New York investors’ involvement in Cuba during the Palma regime.<sup>182</sup>

The agricultural fortunes, and the land tenure crises, of the Caribbean region were well-integrated with US agricultural industries, beginning long before the Anglo-New York collaboration at Cinchona. Brooklyn had become a global center for sugar refining by 1860. Frederick Havemeyer’s waterfront refining complex in Williamsburgh, including its own docks and warehouses, began producing sugar in 1858, and ultimately was the principal engine for the foundational transformations in US corporate law that took place four decades later enabling opening the way for corporate consolidation across the major industries.<sup>183</sup> Representatives of US-based interests in the region adopted various strategies to forward their purposes. Elihu Root, longtime legal counsel to the Havemeyers, was Secretary of War in 1898, oversaw military occupation in the region, and worked to lower US tariffs on Cuban sugar. Charles H. Allen was the first civil governor of Puerto Rico (1900-1901). He later became the president of the American Sugar Refining Company, (1912-1915).

The botanical imperialism of the New York garden should not be read simply as an extension of US power into the Caribbean region. Such a reading would obscure the long and fluid relationships of racial solidarity and exchange that have structured imperial formations in the Caribbean, Gulf, and Atlantic coast of the US. It also relies on a conception of empire as a coherent geographical entity rather than a moving set of colonial practices and territorial claims in need of reinvention.

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182 Wallace, *Greater Gotham*, 44.

183 Ibid., 17. Ayala, *American Sugar Kingdom*.

## Cinchona

Five thousand feet above the Caribbean Sea, on a south-facing slope of the Blue Mountains north of Kingston Harbor, a research station surrounded by a several thousand-acre cinchona plantation was the site of a transnational agricultural development program initiated in the early 1860's, and fully planted by 1867.<sup>184</sup> Peruvian authorities successfully protected a monopoly on the medicinal cinchona tree for some time after British authorities gained an inkling of its anti-malarial properties. An excellent account of the circumstances by which imperial authorities finally succeeded in smuggling the tree out of Peru in 1859-60 for large scale planting can be found in Lucille Brockaway's history of Kew Gardens role in plantation agriculture.<sup>185</sup> Circumventing the South American monopoly became a high priority for the British government following the imperial government's attempt to suppress uprisings in India in the 1850's, where many British troops were lost to malaria. The first major research center for cinchona was in the Nilgiri Hills in South India. This project was quickly followed with a station in Peredinaya in Ceylon, and then the Dutch began a major, and ultimately highly successful cultivation program at Buitenzorg, Java. The Colonial Office sponsored research on Mauritius, Fiji, St. Helena, Tanganyika, the Cameroons, Burma, Trinidad, and Tobago.<sup>186</sup>

The laboratory complex in Jamaica, which came to be called "Cinchona," was first established by Sir John Grant, whose experience in Bengal in 1857 prepared him to take over in Jamaica following the Morant Bay Rebellion in 1865.<sup>187</sup> Economic

<sup>184</sup> Duncan Taylor, personal correspondence, 3 May 2018.

<sup>185</sup> Brockaway, *Science and Colonial Expansion*, 114.

<sup>186</sup> Ibid.

<sup>187</sup> Drayton, *Nature's Government*, 222, 227.

renovation through botanical investigation was a strategy of governance where resistance to monopolistic landholding practices and oppressive, extorting colonial occupations threatened imperial control. Cinchona was grown successfully in Jamaica, and officials promoted it as an estate crop, both through land grants specifically for cinchona cultivation, and through research and experiment.<sup>188</sup>

The property included a sixteen-room house, called Bellevue, a stable, servants' quarters, two greenhouses, three laboratories, a guest house, and a storehouse.<sup>189</sup> Nineteen miles north of Kingston, it had for a time served as the center of the network of imperial botanical gardens and research stations on Jamaica and throughout the British West Indies. However, the cinchona research was deprioritized after Dutch success with the crop in Java, and extensive successful plantings in India and Ceylon caused the price to fall.<sup>190</sup> During the 1880's and 90's British colonial research priorities shifted focus to the low-elevation West Indian crops. A Mr. Nock, "a skilled European gardener," occupied the Bellevue house for a time, with the job of growing European plants in the Jamaican highlands, and teaching the peasantry about the successful results of his experiments.<sup>191</sup>

With Kew and Colonial Office research priorities focused on low-elevation crops, the station was put up for lease. New York Botanical Garden staff had traveled in Jamaica, knew the Director of Public Gardens and Plantations, William Fawcett, and

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188 Duncan Taylor, "Circulating Tropical Nature: An Historical Geography of the Botanical Gardens on Jamaica, 1774-1907" (PhD diss., Queen's University, 2015), 268-281.

189 Kingsland, *The Evolution of American Ecology*, 83.

190 William Fawcett, *Jamaica in 1896: A Handbook of Information for Intending Settlers and Others* (Kingston: Institute of Jamaica, 1896), 32.

191 William Fawcett "The Public Gardens and Plantations of Jamaica" *Botanical Gazette* 24 (July-December 1897): 353.

were prepared to take up the offer. Enthusiasm courses through the exchanges among Botanical Garden scientists regarding the Jamaica station in the summer of 1903. “I feel that we must make a grand effort at Cinchona this fall,” the Garden’s fern expert wrote. “It may be snapped up by some tourist association before we know it.”<sup>192</sup>

### **Jamaica**

When human bondage lost its legal sanction in the British possessions, including Jamaica, free people left the coastal sugar plantations.<sup>193</sup> The mountains of Jamaica sprouted “mushroom communities” of freeholders, and “[t]housands of acres were taken up by free settlers.”<sup>194</sup> By 1842 freed women and men had built 100 villages.<sup>195</sup> One estimate suggests that by 1844, “19,000 freedmen and their families (100,000 *in toto*) removed themselves from estates into the new villages.”<sup>196</sup>

Jamaica, unlike other West Indian islands subjected to intense plantation regimes like Barbados, was large enough, and mountainous enough to support food crops where cane would not grow. Plantation workers had cultivated most or all of their own food on areas of land beyond the cane fields, and the geography of the island was marked by this tradition. During slavery, cultivators distinguished among several kinds of planting

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192 Underwood to Britton, 19 June 1903, Nathaniel Lord Britton Collection, New York Botanical Garden

193 For excellent histories of land tenure in post-emancipation Jamaica, see Matthew Smith, *Liberty, Fraternity, Exile: Haiti and Jamaica after Emancipation* (Chapel Hill: University of North Carolina Press, 2014); Barry Higman, *Jamaica Surveyed: Plantation Maps and Plans of the Eighteenth and Nineteenth Centuries*. (Kingston: Institute of Jamaica Publications Limited, 1988); Veront M. Satchell, *From Plots to Plantations: Land Transactions in Jamaica, 1866-1900* (Kingston: Institute of Social and Economic Research, 1990), Brian Moore and Michele Johnson *Neither Led Nor Driven: Contesting British Cultural Imperialism in Jamaica, 1865-1920* (Kingston: University of West Indies Press, 2004). John Soluri, “Bananas Before Plantations. Smallholders, Shippers, and Colonial Policy in Jamaica, 1870-1910,” *Iberoamericana* 6, no. 23 (2006).

194 Smith, *Haiti and Jamaica*, 25.

195 *Ibid.*

196 *Ibid.*

grounds, expressed in terms of proximity to or distance from the cane fields.<sup>197</sup>

“Provision grounds” in the hilly regions were the places where people traditionally grew sweet potatoes, corn, cocos, yams, plantains and cassava.<sup>198</sup> “Home gardens” were closer to the living spaces, and were for vegetables and yams, or “ornament and luxury.”<sup>199</sup>

There were also “dinner-time” grounds where, “during the two-hours' dinner-time, the negro can go to and return back to his work in the afternoon.”<sup>200</sup> “Shellblow grounds” were for cultivating food crops during short intervals away from work in the cane fields but within earshot.<sup>201</sup>

After 1838, the tradition continued. “[F]reedpeople devoted their attention not to estate labor on major staples, sugar and coffee, but to the cultivation of their own food crops . . .”<sup>202</sup> But what was mandatory during slavery became increasingly prohibited following emancipation. Of the West Indies more broadly, Sidney Mintz wrote, “the planter classes sought to re-create pre-emancipation conditions – to replace the discipline of slavery with the discipline of hunger.”<sup>203</sup> Moore and Johnson concur with Mintz that the white plantocracy attempted to coerce people to work on plantations by restricting access to freehold land.<sup>204</sup> However, Higman writes that in Jamaica, “Attempts by the planters to keep their laborers dependent on the estates with high rents failed.”<sup>205</sup>

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197 Higman, *Jamaica Surveyed*, 262.

198 *Ibid.*, 263.

199 *Ibid.*, 262-3.

200 *Ibid.*, 263

201 *Ibid.*

202 Smith, *Haiti and Jamaica after Emancipation*, 24.

203 Sidney Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Penguin, 1985), 70.

204 Moore and Johnson, *Contesting British Cultural Imperialism*, 2.

205 Smith *Haiti and Jamaica after Emancipation*, 24.

Plantations were interrupted by small holdings, and many plantations struggled economically and were broken apart.

By the 1870's and 80's, small-scale cultivators entered the emerging banana trade with the US. John Soluri noted that there was a window when small-scale cultivators discovered "a rare opportunity to gain access to both land and expanding North Atlantic markets."<sup>206</sup> The banana trade enabled settlers to avoid coercive labor and unstable tenancies.<sup>207</sup> A similar trend occurred in Puerto Rico at the start of the US occupation when farmers without capital were for a time able to obtain coastal land and find a toe-hold in the sugar market.<sup>208</sup>

This window began to close on non-European farmers without capital in Jamaica after 1880 when obtaining and holding land became more difficult, according to historians Michele Johnson and Brian Moore.<sup>209</sup> Land value rose as owners perceived new ways of capitalizing their idle or under-cultivated sugar estates, and other properties. This happened especially after Lorenzo Baker and the Boston Fruit Company began shipping bananas from Kingston to cities on the Atlantic coast of the US, and New Orleans. Beginning in the late 1880's, island-based foreign investors who observed the innovations of the small farmers in cultivating bananas, helped to vertically integrate the New Orleans-based fruit-trading companies by buying abandoned sugar estates and

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206 John Soluri, "Bananas Before Plantations," 144.

207 Ibid.

208 César Ayala and Laird Bergad, "Rural Puerto Rico in the Early Twentieth Century Reconsidered: Land and Society, 1899-1915," *Latin American Research Review* 37, no. 2 (2002): 65-97.

209 Moore and Johnson, *Contesting British Cultural Imperialism*, 10; Satchell, *From Plots to Plantations*, 140-41.

converting them to bananas.<sup>210</sup> Higher prices for arable, coastal land forced small settlers into leases or the mountains.<sup>211</sup>

Foreign investment and white settlement in the Caribbean region were key concerns of both British imperial governance and the New York Botanical Garden. Reporting on a Garden research trip in Cuba, a staff member wrote, “It is safe, I think, to predict that within five years Americans will own three-fourths of all the land that can be bought in Cuba and that American capital and intellect will control to a large extent the business enterprises of the island.”<sup>212</sup>

If Cuba was a “magnificent and easily accessible winter resort” which “cannot fail to attract large numbers of Americans of all classes,”<sup>213</sup> Jamaica was also a site where imperial politics called forth racial and national solidarity. Efforts to attract the white seekers of private enterprise and cultivation appeared in a publication entitled, *Jamaica in 1896: A Handbook of Information for Intending Settlers and Others*, and published by the Institute of Jamaica. For “young men from Great Britain and other European countries with small capitals . . . Jamaica offers numerous favourable openings.”<sup>214</sup> The Institute endeavored to match prospective pupil-farmers from Europe with proprietors in Jamaica. Advertisements note the circumstances settlers could expect to find on host farms:

Must purchase his own horse – stabling and forage free – Boy on Pen will attend to him generally – Shooting – no linen and plate . . . must supply his own servant, for whom plenty of accommodation. Tennis . . . Must supply his own horse . . . Boy will be supplied . . . Boy must be found by Pupil, but would be

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210 Soluri, “Bananas Before Plantations,” 144.

211 Ibid.

212 Murrill, “A Trip to Cuba,” 112.

213 Ibid.

214 Fawcett, *Handbook of Information for Intending Settlers*, 38-49.



accommodated – Cricket . . . attendance of Boy would be supplied – no sports near except fishing – could collect Ferns and other Botanical specimen . . .<sup>215</sup>

Promoting white settlement was a means of supporting planters and the larger regime of export agriculture. Amateur white farmers ill-equipped for success in an unfamiliar land were connected with experienced planters to train and sustain them as they learned how to successfully grow export crops in Jamaica. The 1887 West India Commission found, “What suited [the planters] best was a large supply of labourers, entirely dependent on being able to find work on the estates, and consequently, subject to their control and willing to work at low rates of wages.”<sup>216</sup> Botanical science, as part of a vast research apparatus sponsored by the imperial states, was an arbiter of land use and social hierarchy and exploitation where legal enslavement and codified hierarchies were replaced, in word, by theories of freedom and equitable access.

### **Agricultural Research: A Common Framework**

Of Cuba, Botanical Garden explorer William Murrill wrote in 1905:

“Agriculture must be the basis of all future progress in this new country. The plantations that have been depleted by years of mismanagement and laid waste by years of war must be restored by careful handling and the vast areas of uncultivated land must be cleared of dense forests and planted in sugar cane, tobacco, fruits, fiber plants and vegetables before the wonderful development now under way will be in any sense complete. The rôle of the experiment station, established about a year ago, is of the utmost importance in this connection and it will be fortunate for Cuba if President Palma can continue to secure for this new enterprise the necessary funds and freedom of action which its great responsibilities and present broad policy demand.”<sup>217</sup>

Both the British officials stationed at the Jamaica research gardens who collaborated with the researchers from New York, and the New York Botanical Garden

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215 Fawcett, *Handbook of Information for Intending Settlers*, 38-49.

216 Quoted in Drayton, “Anglo-American Liberal Imperialism,” 327.

217 Murrill, “A Trip to Cuba, 111.

staff were involved in large agricultural research programs. These aimed to both profit scientifically from the accumulation of data amassed across broad territories supported by research gardens and experiment stations, and to influence agricultural land use and occupation.

With respect to Jamaica, Duncan Taylor has described the agricultural policies of nineteenth-century post-abolition botanical gardens as vacillating in their attentions to “peasants” and to planters, but consistent with regard to the objective of improving colonial production through crop diversification. A similar orientation in the US experiment station network aimed to integrate farmers with international markets and buffer them from the devastating price fluctuations constitutive of the markets in principle crops like wheat and sugar. Peasants, small-scale black West Indian farmers with long traditions of agricultural self-sufficiency were encouraged to plant export crops.<sup>218</sup> This encouragement was met with varying degrees of success, and proposals for reform schools where black Jamaicans could be trained in economic agriculture surfaced with some regularity among botanical garden staff.<sup>219</sup> In other moments, garden directors focused on improving estate yields, for example by promoting cinchona as a plantation-scale crop.<sup>220</sup>

Agricultural programming in the US shared the general aim of crop diversification to expand national export capacity, and likewise involved itself in mediating access to land and self-sufficiency. Farmers’ organizations threatened monopolies organized around the control of railroads, grain elevators and debt. State Farmers Alliances and People's

218 Duncan Taylor, “Botanical Gardens and their Role in the Political Economy of Empire: Jamaica (1846-86)” *Rural History* 28, no. 1 (2017): 47-68.

219 *Ibid.*, 52-53.

220 *Ibid.*, 54-55.

Party chapters challenged political and economic systems. In her innovative research on US agricultural experiment stations and genetics research Kimmelman wrote:

“The Progressive emphasis on scientific reform from above was an antidote to the Populist thrust of political and economic reform from below. The ideology of scientific agriculture ascribed farmers' failures not to economic exploitation or political disorganization, but to the absence of rational and scientific procedures on the farm; the answer to agricultural problems lay not in radical social reform, but in patient scientific research and dissemination of findings to the farmers, who ideally would look to the agricultural scientists as teachers and benefactors.”<sup>221</sup>

These late-nineteenth-century research apparatuses share a set of historical reference points, beginning with the sixteenth-century English literature of planting, which Micheal Warner described as “the oldest branch of American literature in English.”<sup>222</sup> This body of literature “produced the notion of emigrant settlement colonies oriented to trade, first for Ireland and then for the New World; in doing so it created an entirely different model of colonialism from the Iberian plan of armed conquest and the extraction of wealth from a native population.”<sup>223</sup> Agricultural societies devoted to particular colonies, including New York, helped to create and circulate a knowledge base and a landscape vision to support the collaborative effort of settlement. In the eighteenth century, learned societies devoted to the promotion of agriculture in Ireland, Scotland, England, New York, Barbados, and Grenada drew ideas from this planter literature, and devised schemes and prizes for cultivators of merchantable goods in the colonies.<sup>224</sup>

American and New York-based agricultural and horticultural societies sprung up

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221 Kimmelman, “A Progressive Era Discipline,” 23.

222 Micheal Warner, “What’s Colonial about Colonial America?” in *Possible Pasts: Becoming Colonial in Early America*, ed. Robert Blair St. George (Ithaca: Cornell University Press, 2000), 57.

223 Ibid.

224 Drayton, *Nature's Government*, 64. Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism 1600-1860* (Cambridge: Cambridge University Press, 1995).

immediately after the Revolution, and agricultural journals and fairs became common in the Hudson Valley during the early decades of the nineteenth century. An early nineteenth century attempt to establish a botanical garden in New York emerged from the New York State Society for the Promotion of Agriculture, Arts, and Manufactures, a group of landowners concerned with agricultural methods, horticulture, and good husbandry.<sup>225</sup> Horticulture was, for these settler-cultivators, “one of the most useful and elegant arts of peace.”<sup>226</sup>

When agricultural colleges were first taken up by Congress at the national level in 1858, the People's College of Ovid, New York was offered up as a model. “Profounder information” about the nation's soils would help to “elevate the social conditions of the agriculturalist, to increase his prosperity and to extend his means of usefulness to his country.”<sup>227</sup> In 1862, the US Congress, less its absent southern membership, voted overwhelmingly to allocate 17.4 million acres of the public domain to the states for the purpose of developing agricultural colleges.

Efforts at agricultural improvement in the United States, including those promoted by the New York Agricultural Society and the Albany-based *Cultivator*, and culminating in the national sphere with the passage of the Morrill Act (1862), the creation of the land-grant colleges (1863) and the USDA, and the Hatch Act (1887), found antecedents in the improving efforts of the British landed aristocracy. Canandine for one, described the close relationship between territorial expansion and improved husbandry:

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225 Mikulas, *Britton's Botanical Empire*, 13.

226 *Ibid.*, 14.

227 Lee S. Duermer, “The Agricultural Education Origins of the Morrill Land Grant Act of 1862,” *American Educational History Journal* 34, no. 1 (2007): 138, 141.

“As in England and Wales, great magnates like Lords Donegall, Hertford and Devonshire were pioneers in improved breeding, cultivation and drainage. In Ulster, the landlords reclaimed waste, drained bogs, promoted the new husbandry, and instituted shorter leases. A series of Ejectment Acts passed between 1816 and 1820 gave landlords sweeping powers of eviction to help them create a more efficient and capitalistic agriculture.”<sup>228</sup>

More proximately and as relevant to the Garden’s work at the turn of the twentieth century was an extremely productive network of research institutions sponsored by an expanding German state beginning in the early nineteenth century. Staff at these institutions had, by the middle of the nineteenth century, assimilated the observations of many previous generations of plant breeders, yielding powerful new insights about plant growth and reproduction. The fruits of this research, and their pertinence to Germany’s territorial consolidation and colonial outreach inspired funding from the American and British states for mirror networks.<sup>229</sup>

By the end of the century, the national experiment station system was a well-coordinated network overseen by the Office of Experiment Stations at the USDA. This office administered research at more than forty stations in states and territories. Kimmelman has shown the centrality of this state-sponsored research infrastructure to the emerging field of plant genetics. “Though created as an oversight organization, designed to ensure that each station’s \$15,000 was spent well, it became a crucial agent of centralization promoting a program of fundamental scientific investigation.”<sup>230</sup> The stations had the “interest and co-operation of the greatest authorities in science,” as they became centers of scientific activity.<sup>231</sup> William Bateson, a British participant in a

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228 Cannandine, *Aspects of Aristocracy*, 14.

229 Cittadino, *Nature as the Laboratory*.

230 Kimmelman, “A Progressive Era Discipline,” 43.

231 *Ibid.*, 45.

genetics conference held at the New York Botanical garden noted the advantage of the system of experiment stations, “Here amid vast diversities of soil and climate the great resources of the States are being applied to the elucidation of [genetics] problems with the result that the scope of the work carried on entirely surpasses that which is attempted by other nations.”<sup>232</sup>

A similar level of co-ordination was developed in Germany. In addition to botanical gardens and colonial research stations, Cittadino wrote, “a university-trained botanist might find employment at one of the institutes created to prepare planters, traders, farmers, and government officers for their overseas experiences, such as the *Deutsche Kolonialschule* at Witzenhausen, the *Kolonialakademie* at Halle, the *Kolonialinstitut* at Hamburg, or the *Seminar für orientalische Sprache* at the University of Berlin.”<sup>233</sup>

Programmatically, the New York Botanical Garden was entirely in line with the US and international systems of agricultural experiment stations. According to Sharon Kingsland, “The Garden aimed for improvement and modernity on all fronts, combining systematics, ecological surveys, and the latest experimental science into the research program.”<sup>234</sup> Though the New York Garden’s director was himself a taxonomist, he had much broader aims in mind for the Garden as a research institution, Kingsland pointed out. The Garden’s first Director of Laboratories was Daniel MacDougal, a leading developer of experimental botany in the US.

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232 Ibid., 136.

233 Cittadino, *Nature as Laboratory*, 137.

234 Kingsland, *The Evolution of American Ecology*, 70.

Staff at the Garden came and went from the agricultural experiment stations. When Franklin Sumner Earle resigned from his position at the Garden to direct the new agricultural experiment station in Santiago de las Vegas, Cuba in 1904, he took with him a small team from Columbia University and the Garden, including plant pathologist W.T. Horne, and Garden administrator Percy Wilson.<sup>235</sup> From Cuba, Earle published extensively on sugar cane and the diseases that affect the plant. A year later, the Garden lost its Assistant Curator to the Bureau of Science of the Government of the Philippine Islands where he became the economic botanist.<sup>236</sup> In 1906, when Dr. Melville Cook resigned his position as chief of the department of plant pathology at the Central Agricultural Experiment Station of Cuba, he traveled to the New York Botanical Garden for several months of study.<sup>237</sup> In future years, Botanical Garden researchers would collaborate closely with Cook at his new position at the experiment station at Mayagüez, Puerto Rico. Formerly a sugar experiment station owned by sugar companies, the University of Puerto Rico at Mayagüez was established in 1903 as a land grant college, and received funds under the Morrill-Hatch Act.<sup>238</sup>

Some of the Garden's most renowned experimental researchers, including MacDougal, received their early on the job training as researchers and plant hunters in the employ of the USDA. The Garden also served as a clearinghouse for all USDA publications distributed from the many dispersed experiment stations. A web of state,

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235 "Notes, News and Comment," *Journal of the New York Botanical Garden*, 5 no. 54. (June 1904) 127.

236 "Notes, News and Comment," *Journal of the New York Botanical Garden*, 8, no. .95 (November 1907), 256.

237 "Notes, News and Comment," *Journal of the New York Botanical Garden* 7, no. 83 (November 1906), 262.

238 Simon Baatz, "Imperial Science and Metropolitan Ambition: The Scientific Survey of Puerto Rico, 1913-1934," *Annals of the New York Academy of Sciences* 776, no. 1 (June 1996), 6.

federal and privately sponsored institutions energized by the economic, social, and national possibilities promised by new scientific research in plant genetics, experimental evolution, and botanical surveys supported the work of the botanical garden.

### **The Promise of Scientific Research**

“Chasing a goose,” “groping in the dark,” and “bottomless,” were some of the ways that plant breeders attending the Second International Conference on Plant Breeding and Hybridization, held at the New York Botanical Garden in 1902 described their work prior to learning about the Mendelian idea of a “hidden” recessive gene.<sup>239</sup> At the conference, the British geneticist William Bateson explained the concept of recessivity to an audience comprised of agricultural researchers from the nation’s agricultural experiment stations and land grant colleges. The concept would have carried immediate interest for breeders and crop developers: “The masking of the recessive by the dominant thus explained much in breeding lore which hitherto had appeared mysterious; understanding dominance and recessivity increased the predictability of breeding results.”<sup>240</sup> The first (London, 1899) and second International Conferences on Plant Breeding and Genetics were “crucial episodes in the origin of American genetics,” according to Kimmelman.<sup>241</sup>

MacDougal’s work on experimental evolution “dealt with some of the most exciting and controversial topics of the day,” according to Kingsland.<sup>242</sup> MacDougal’s research, and that of his closest collaborators, held promise: “Controlling evolution was

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239 Kimmelman, “A Progressive Era Discipline,” 139-141.

240 Ibid., 137.

241 Ibid., 117.

242 Kingsland, *Evolution of American Ecology*, 94.



the scientific Holy Grail that Americans avidly pursued along several different paths in the early twentieth century.”<sup>243</sup>

In the West Indian context, sugar researcher John Redmand Bovell, was pursuing more or less precisely this goal at the Dodds Reformatory in Barbados, where in the 1880’s and 90’s he was conducting a long series of cane-breeding experiments to explore the genetic possibilities contained within the species *S. officianrum*. He discovered disease-resistance among his cultivars, and mycologist and sugar researcher F.S. Earle found among Bovell’s varieties what he considered to be one of the best canes in the world.<sup>244</sup> J.H. Galloway has shown that new cultivars developed in association with this program helped restore the profitability of sugar and the integrity of plantation land regimes in the Caribbean. On Barbados, cane production grew by 76% during the period of Bovell’s breeding research.<sup>245</sup>

Bovell's success in probing the possibilities of the species *S. officianrum* for new viable cane varieties inspired administrators at Kew to recommend a new infusion of imperial funds into a series of small, local agricultural stations in the West Indies. New agricultural research centers in British Guiana (1879), Grenada (1886), and Dominica (1889) received funding from the imperial government and colonial governments.<sup>246</sup> Old, eighteenth century botanic gardens in Jamaica and St. Vincent were revived and devoted to the new agricultural purpose. The Colonial Office established the Imperial Department of Agriculture for the West Indies in 1898. Stations in British Guiana, St. Croix (Danish West Indies), Guadeloupe (French West Indies), Puerto Rico (at an experiment station at

<sup>243</sup> Ibid.

<sup>244</sup> Quoted in J.H. Galloway “Botany in the Service of Empire,” 690.

<sup>245</sup> Ibid., 693.

<sup>246</sup> Ibid., 686.

the Central Guánica of the South Porto Rico Company) received staff from Bovell's laboratory at Dodds.<sup>247</sup>

Those interested in restoring the profitability of sugar in the West Indies and Caribbean took the example of beets as inspiration. New York Botanical Garden mycologist Franklin Sumner Earle wrote, "Beet agriculture has long received much more careful scientific study than has ever been given to cane, and remarkable progress has been made in improving the richness of the beet juices and in increasing the total yield per acre."<sup>248</sup> Daniel Morris, who shuttled between high-level appointments at the botanical department in Jamaica and at Kew, believed that West Indian sugar could be restored, "if such high scientific skill as is applied to the manufacture of beet sugar were applied to the manufacture of cane sugar."<sup>249</sup>

Daniel Morris's territorial vision extended beyond the realm of scientific innovation. Despite the conflict and limitations on land-use felt by West Indian farmers and Afro-Jamaican communities, Morris saw a wealth of available land in 1896 in the British West Indies. "Only a small extent of the rich and fertile lands of the West Indies had so far been utilised," he wrote. "In British Guiana alone there is an area of country equal to two Ceylons quite untouched . . . To Trinidad we could add the wealth of the Straits Settlements, and with the resources of the unworked soils of Jamaica we might emulate the prosperity of a least four colonies the size of Mauritius."<sup>250</sup> The optimism of this account stands in stark contrast to the experience of small farmers who, since about

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247 Galloway, "Barbados Cane Breeding Program," 693.

248 Franklin Sumner Earle, *Sugar Cane and Its Culture* (New York: John Wiley and Sons, 1928), 16.

249 Galloway, "Barbados Cane-Breeding Program," 686.

250 Daniel Morris, Appendix A, in *Report of the West India Royal Commission* (London, 1897), 82.

1890, were being pressed off arable, market-accessible coastal lands by investors taking advantage of upward-ticking land-values associated with the banana trade.

Apart from this optimism, the British imperial government, as mentioned above, was not long on funds for scientific research. In the design of the West Indian Agricultural research network, Galloway reports, Thiselton-Dyer and Morris never expected that budgets would allow for “skilled scientific officers” to staff the stations.<sup>251</sup> A colleague at Johns Hopkins confirmed in an 1896 letter to Britton that “Very little scientific work is being done [at the Jamaica botanic station], but the director, Mr. Fawcett, [will be] glad to help you in your work in every possible way.”<sup>252</sup> The New York Botanical Garden staff came to Jamaica with resources and a commitment to a set of scientific problems that were beyond the budget of the agriculturally-focused, publicly-funded colonial operations. William Harris commented that if he were to rely on the British Museum to make determinations of his plant specimens, he would be waiting several years, so he preferred to send them to the US.<sup>253</sup>

### **A Place for Science**

F.S. Earle, the Garden’s fungi expert who left to direct the agricultural experiment station at Santiago de las Vegas, Cuba, continued to work closely with his colleagues in New York, and to rely on them in certain crucial respects. Earle was aware of the tenuousness of US influence and control on the island in 1905. He explained his policy of sending specimens back to his old employer in New York. “Yes I expect to send co-

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251 Galloway, “Barbados Cane Breeding Program,” 687.

252 J.G.Humphrey to MacDougal, 19 October 1896, Daniel MacDougal Collection, New York Botanical Garden.

253 William Harris to Nathaniel Britton, 31 December 1912. United States National Museum Division of Plants Records, RU 221 Smithsonian Institution Archives.

types of everything I describe here up to the Garden where they will be always accessible [sic]. So far I have put nothing into the regular herbarium here. If I should suddenly ‘change my residence’ the little plunder that has accumulated would quietly go too.”<sup>254</sup>

The meaning and significance of his work was safeguarded in New York. The science was developed on behalf of planters and the plantation regime in the sugar-growing regions, but Earle’s wager was that science could escape place and politics, that it was infinitely mobile, untethered, and invincible.

Jamaica was different from Cuba. While they were still searching for a site for a tropical laboratory, recommendations for Jamaica arrived in the letterboxes of Britton and MacDougal. “As possessing a rich and interesting tropical flora, a fine and healthful climate and no poisonous snakes, I can heartily recommend Jamaica to you.”<sup>255</sup> J.G. Humphrey wrote to Daniel MacDougal early in his search for an American tropical laboratory. “The steamer service is excellent,” another friend wrote, “English is the spoken language and the island is at peace with itself and the rest of the world.”<sup>256</sup> In 1903, the banana trade was thriving, and steam travel via fruit boat was regular and subsidized by the imperial government. Governed directly by the Colonial Office in London, and with all the military resources of that empire available to back its law, private property seemed relatively secure there for members of the owning class, ongoing conflict between landowners and “squatters” notwithstanding. Other places under consideration were Cuba and Mexico, but in those places, “property was not secure.”<sup>257</sup>

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254 F.S. Earle to Lucien Underwood, 23 Oct. 1905, Lucien Underwood Collection, New York Botanical Garden.

255 J.G. Humphrey to MacDougal, 19 October 1896, MacDougal Collection, New York Botanical Garden.

256 John Harshberger to N. L. Britton, 16 August, 1903, Nathaniel Lord Britton Collection, New York Botanical Garden

257 Ibid.

Jamaica, with a strong British imperial presence and a thriving U.S. oriented fruit trade, was a good place for a permanent scientific laboratory.

In 1896, MacDougal published a series of editorials in Coulter's *Botanical Gazette* in which he advocated for the establishment of an intercollegiate, international botanical laboratory in the "American tropics."<sup>258</sup> In the editorials, MacDougal invoked the Dutch research station and botanical garden at Buitenzorg, Java. MacDougal called this cluster of research establishments in Dutch occupied Java the "Mecca" of botanical research, and Lucien Underwood would take up this theme in his descriptions of the future (1903) botanical station at Cinchona. Another US-based researcher who had the chance to work at Buitenzorg for a period testified to the "wealth of material" available at the station. "Various German societies have already acted in the matter [of obtaining ongoing access to laboratories]."<sup>259</sup> But, MacDougal argued, the long trip to Java via Hong Kong was a full month's journey on either end, Buitenzorg being half the world away from the United States. The cost, of about twelve-hundred dollars, was prohibitive in MacDougal's estimation. Trouble and expense associated with research in the tropics could be saved by the establishment of a permanent station in the tropics.

Though the Dutch station was inconvenient, it did offer certain advantages, and in many senses served as a model for the collaboration in Jamaica. At Buitenzorg, the director Melchior Treub had imagined the garden as a place for scientific research. However, he was forced to answer to the Netherlands government and to the Dutch planters in the Malay archipelago, and much of his work involved setting up regional

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258 Daniel MacDougal "A Tropical Laboratory" *Botanical Gazette* 22, no. 6 (1896): 496.

259 B.T. Galloway, "The Buitenzorg Gardens," *Botanical Gazette* 22, no.6 (1896): 496-97.

experiment stations where assistants conducted research on coffee, tea, tobacco, indigo and other cash crops.<sup>260</sup> For science, Treub invited researchers from all over to visit the laboratories at his agronomic complex. Treub's German visitors "came to Buitenzorg primarily to enjoy the opportunity to conduct pure research under the nearly ideal conditions available to them at the laboratory and at the mountain station in Tjibodas."<sup>261</sup> In Jamaica, the New Yorkers found a similar form of indirect yet essential support for their research.

American botanists expressed some enthusiasm for the new American station at Cinchona. Charles Bessey wrote, ". . . I had no idea from your letter that you had secured so valuable a property . . . As I listened to Professor MacDougal's descriptions and looked at the photographs which were shown on the screen I felt a very strong desire to some day make a visit to this laboratory."<sup>262</sup> Researchers like Bessey who comprised the faculty at the new agricultural colleges and experiment stations, the German-modeled University of Chicago, and the new School of Pure Science at Columbia were drawn to "the American tropics" in part because it seemed to hold the answer to a spectrum of puzzles made available to botanists as herbaria were consolidated into larger and larger collections, offering an "almost unlimited amount of comparative evidence."<sup>263</sup>

Oriented towards corroborating and extending "the chief law of nature" a researcher of this era may have aimed at more than an understanding of a region's

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260 Cittadino, *Nature as Laboratory*, 135.

261 Ibid.

262 Charles Bessey to N.L. Britton, 7 January 1904, Nathaniel Britton Collection, New York Botanical Garden.

263 Hugo DeVries *Species and varieties: Their Origin by Mutation, lectures delivered at the University of California*, (1906) 3-4 <http://www.biodiversitylibrary.org/title/4640#page/27/mode/1up>.

flora.<sup>264</sup> A German botanist of the era wrote, “If in the past one traveled to exotic lands to collect specimens of as many new plant species as possible, now one traveled with entirely different goals in mind. . . . One no longer sets out only to exploit regions or to gain more precise knowledge of every aspect of a previously explored region; now one goes with a particular scientific question in mind and sets about solving it, on the spot, by experimental means.”<sup>265</sup> The many lines of inquiry opening before plant researchers derived their significance in part from a geographic argument. “Geographic and paleontologic facts, brought together by Darwin and others on a previously unequalled scale, point clearly in the same direction,” wrote a lead evolutionist and friend of the Director of Laboratories at the Garden. “The vast amount of evidence of all comparative sciences compels us to accept the idea [of descent with modification]. To deny it, is to give up all opportunity of conceiving Nature in her true form. . . . Descent with modification is now universally accepted as the chief law of nature in the organic world.”<sup>266</sup> Confidence derived from broad geographical involvement and the comparative mode of research it enabled inspired ambitious projects of taxonomy and experimental science.

Kimmelman suggested that the emergence and gathering force of Darwin’s vision among scientists was due not principally or exclusively to its geographic breadth. Kimmelman argued that this “chief law of nature” owed its existence not principally to an encompassing assessment of the world’s life, but to the horticultural traditions of plant breeders. “Many centuries of breeders' labors were the basis for Darwin's work on

<sup>264</sup> Ibid.

<sup>265</sup> Cittadino, *Nature as Laboratory*, 139.

<sup>266</sup> Hugo DeVries *Species and varieties: Their Origin by Mutation, lectures delivered at the University of California*, (1906) 3-4 <http://www.biodiversitylibrary.org/title/4640#page/27/mode/1up>.

change through variation and selection. Darwin came out of these horticultural and agricultural labors, and the theory connected these years of cumulative labor to a general biological possibility.”<sup>267</sup> It was Darwin’s long work with horticulturalists, as much as his travels and observations that formed the basis for his theory.

Earle’s evacuation plan, and his ability to dissociate from the political conflict that his work helped to create points to the utility of a science which brackets and excludes empirical events to imagine a pure, impervious, material world. The political labor of the British gardeners in Jamaica enabled their colleagues in New York to inhabit the same fantasy. Salvatore’s description of an emerging cultural imperialism uniting North and South Americans speaks to the broader implications of this Caribbean situation: “[T]extual producers worked within a delimited discursive field; their representations of South America attempted to answer questions posed by their communities of origin, questions only slightly reformulated by the experience of the encounter.”<sup>268</sup>

### **Open Door Policy**

While botanical science’s significance to commercial exploitation was strong and apparent at the turn of the twentieth century, its precise role in the mediation of the intense international imperial rivalries was shifting. A British scientist writing about Cinchona in *Nature* in 1904 spoke to the significance of scientific research to British interests and bemoaned the failure of the British to take the lead in this case:

Vast as is their territory, and numerous as are their experimental stations and like institutions, our cousins are not yet satisfied. They have invaded British territory, in a most genial and friendly manner it is true, but still they have annexed, with our consent, a

<sup>267</sup> Kimmelman, “A Progressive Era Discipline,” 102.

<sup>268</sup> Ricardo Salvatore, “The Enterprise of Knowledge: Representational Machines of Informal Empire,” in *Close Encounters of Empire: Writing the Cultural History of U.S.-Latin American Relations*, ed. Gilbert M. Joseph and Catherine C. LeGrand (Durham: Duke University Press, 1998), 75.



portion of the island of Jamaica, and there they have established, at “Cinchona,” a botanical laboratory and research station open to students of all countries. The direction is in the hands of Dr. Britton, of the New York Botanical Garden, in coöperation with Mr. Fawcett, the Director of Public Gardens and Plantations in the island. The policy of ‘open door’ pursued by the Americans in these matters prevents us from doing anything but acquiesce in their proceedings. But why what should have been plain duty for us should have been allowed to be undertaken by others is a mystery. We do not question the utility of ironclads and cruisers as protectors of our commerce, but it is obvious to those who are watching the proceedings of our neighbors and of our rivals that if we do not largely extend our scientific training and induce our wealthy citizens to follow the example of their American brethren in endowing science, the necessity for protection will vanish, and that not slowly.<sup>269</sup>

This commentator invoked US policy with respect to European occupation in China. Policy makers insisted upon free access to China for US companies. The threatened partitioning and colonization of China by Japanese and European imperial governments in the wake of Sino-Japanese conflict prompted US diplomats to intervene on behalf of equal opportunity to trade, create markets, and otherwise intervene in Chinese territory. The opportunity to exploit a militarily vulnerable region, in this British protest against the New Yorker’s lease of Cinchona, is here figured as a function of science. An amicable but wary glance at the American “annexation” points to the pivotal place of botanical science, as both a locus of collaboration, and a means of gaining advantage.

The New York Botanical Garden Director and his colleagues similarly wished for national stature for their endeavors. Early in his correspondence with Jamaica officials, Nathaniel Britton attempted to arrange a relationship based in the more prestigious and well-endowed Carnegie Institution. Britton wrote to a colleague there, “We learn . . . that the government of Jamaica has decided to give up its economic experimental work at

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269, “Laboratories for Botanical Research” *Nature*, 69 (1904): 538-539, 1904.

Cinchona, inasmuch as it is found expedient to conduct this work at a lower altitude and at other stations at the present time, and that Cinchona is advertised for rent at 60 pounds sterling a year. . . . [I]t would be unfortunate . . . if Cinchona should be rented so as to be beyond our reach.”<sup>270</sup> Britton expressed his hope that the Carnegie would take on the lease on behalf of scientists in the US, and he offered to personally facilitate the transaction to bypass the slower pace of institutional decision-making: “I am entirely willing to assume the personal responsibility of renting the place if necessary, and hold it, subject to the wish of the Institution.”<sup>271</sup> Ultimately the trustees of that institution declined the offer, preferring for the moment to restrict their involvement to areas under direct US control, and leaving it to the Board of Managers of the Garden to accept responsibility for the lease.

National expansion and collaborative international scientific projects depended on restricting political participation. Debates about the citizenship of residents of Puerto Rico were raging in the US when a close friend of the Brittons working in Puerto Rico’s occupying government advised the Brittons that the island’s governor would be traveling to Washington. The governor would be “trying to saddle a million or so black and tan voters on Uncle Sam in the hope of collective citizenship for Porto Ricans [*sic*].”<sup>272</sup> As I noted in the Introduction, members of the ruling class in the US along with race allies concerned to protect their tenuous stakes in a regime premised on ongoing dispossession, expressed concern about the inclusion of a “culturally and linguistically definable group”

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270 Britton to C.D. Wolcott, 26 June 1903, Nathaniel Lord Britton Collection, New York Botanical Garden.

271 Britton to C.D. Wolcott, 26 June 1903, Nathaniel Lord Britton Collection, New York Botanical Garden.

272 Basil Hicks Dutcher to Nathaniel Britton, 1 January, 1916, Nathaniel Britton Collection, New York Botanical Garden.

capable of exerting a collective voice in US politics.<sup>273</sup> Britton's friend in Puerto Rico expressed confidence that Britton would get an audience with the governor of Puerto Rico, even amidst his busy Washington itinerary, suggesting that Britton's botanical research held value to an occupying regime attempting to defuse arguments for local autonomy while developing foreign interests on the island. Where dispossession was impractical or inconceivable, where the language of liberalism mandated a semblance of formal equality, and where political control was precarious, expensive, or impossible, and certainly impossible to legitimize, botanical research was a more flexible agent.

Though they traveled with more freedom than most among the national empires, and maintained an aloof aspect toward the intensifying territorial contests that incentivized aggressive measures such as the US seizure of Puerto Rico, they were also playing a growing role in defining the nature of the territory at stake in these competitions. The historian Michel-Rolph Trouillot characterizes a set of "North Atlantic universals" driving interventionist development in the Caribbean as terms that seem to "refer to things as they exist" but which are "evocative of multiple layers of sensibilities, persuasions, cultural assumptions and ideological choices." Trouillot writes that these terms "do not describe the world; they offer visions of the world."<sup>274</sup> Such words derive their power and allure by blotting out the localized, parochial histories from which they arise. Unburdened by narrative, botanical terms enter a realm of uncomplicated literalism where the allure of technical intervention becomes practically irresistible. As much as

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273 Pedro Cabán, "The Puerto Rican Colonial Matrix: The Etiology of Citizenship – an Introduction," *Centro Journal*, 25, no.1 (Spring 2013), 19.

274 Michel-Rolph Trouillot, "The Otherwise Modern: Caribbean Lessons from the Savage Slot" in *Critically Modern: Alternatives, Alterities, Anthropologies*, ed. Bruce Knauft, (Bloomington: Indiana University Press, 2002), 220.

claims over land, they were shaping the meaning of territory, the consistency and salience of the land in the imaginations of imperials. In the New York Botanical Garden accounts these were generally lands of great beauty, freely accessible, and composed of various economic plants.

As botany moved to the center of imperial policy in the late 1800's, as evidenced in the proliferating research stations, universities, and publications, botanists were perhaps justified in taking more confident assessment of their grasp of natural truths. But the scientific truths coalescing in the big research institutions at the turn of the twentieth century owed their persuasive strength to colonial agricultural research programming. They belonged to the realm of *felicidad* described by the Cuban planter and reformer Francisco Arango y Parreño in the late-eighteenth century, who hoped to persuade the Spanish monarchy to promote agriculture through science (and slavery).<sup>275</sup> In Arango's view, control of fixed territory, most particularly, mines, were not of primary (or lasting) importance. A form of general, shared well-being, or *felicidad*, came about through collaboration on problems of scientific agriculture. Like Earle's "plunder," agricultural knowledge could accumulate independently of complicated on-the-ground tensions.

Botanical Garden staff generally operated at a slight remove from policy concerns: the British imperial botanists with whom they worked were directly beholden both the Colonial Office in London, and to the island's planters whom their positions were intended to serve. The obligations of the British imperials enabled the New Yorkers to enjoy a coveted liberty to focus on the dimensions of botanical research that most

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<sup>275</sup> Dale Tomich, "The Wealth of Empire: Francisco Arango y Parreño, Political Economy, and the Second Slavery in Cuba," *Comparative Studies in Society and History* 45, no.1 (2003):4-28.

compelled them and their patrons. It also moved them, and their work, I argue, further into the protective orbit of “natural truth.” Their discoveries were in every way derivative of and dependent upon a broad program of support for settlement and planting in colonial territories. As botanical knowledge and forms of expression expanded, its truths seemed to emerge directly from the substance of the earthly matter they examined.

### CHAPTER 3

#### EXTENDING THE SURVEY

This chapter explores how the staff of the New York Botanical Garden worked to expand their capacity to create colonially useful knowledge about plants and land by integrating their work to a larger botanical knowledge-making system. Botanists understood the necessity of a large herbarium to making credible claims about plants and a primary objective of the New York Botanical Garden was to assemble the largest herbarium in the western hemisphere. As they developed their collection and linked it to a larger, trans-national botanical endeavor, they also helped to consolidate and reshape a collective approach to plant study. In particular, they adopted a “rational” program for naming and organizing plants. Their system built on prior Euro-American innovations in plant systematization and knowledge consolidation, and also pressed the broader international community to relinquish nomenclatural conventions which encumbered plant names with traces of history and multivocality. Botanists recognized the inherently interpretive nature of their work, with different researchers adopting distinct approaches to the division and linking of “species.” A science of plants governed by rational mechanisms for naming through seemingly impersonal procedure obscured the interpretative labor at the heart of the work lending a sense of objectivity useful to the projection of orderable space, amenable to management and government.

In the summer of 1897, New York’s parks commissioners approved the designs for the several buildings planned for the grounds of the new botanical garden. Garden

planners placed the museum building first on their construction schedule and hoped to see it completed within a single year. The completed building, was, as planned, “the largest, most elegant, most satisfactorily illuminated, and for its purposes the best adapted of any similar edifice in the world.”<sup>276</sup> They called it “Italian Renaissance” and admired the “scholarly character” of the architectural details. They chose for its site a piece of elevated ground from which the museum would occupy a commanding position.

Inside the museum building, visitors could study displays of plants arranged according to their economic uses. An entire floor was given over to fibers including cotton, to rubbers and resins, spices and flavoring agents, dye stuffs, tanning materials, fodder plants, tobaccos and masticatories, beverages including chocolate, tea, maté or Paraguay tea, fixed and volatile oils, and finally to useful plant constituents like alkaloids, glucosides and amaroids, albuminoids, resinoids, enzymes and starches.<sup>277</sup> Alongside the several varieties of rubber on display, a visitor could also study the “rubber utensils” used to collect rubber “milk,” and see the rubber at various stages of refinement. Manufactured objects made of processed rubber completed the sequence.<sup>278</sup> Talks with lantern slides illustrating botanical topics and the Garden staff’s many land and sea voyages took place in the museum’s lecture halls. The upper story of the building was for the laboratories and plant collections which gave the Garden its identity as a scientific center.

Botanical objects have long served as economic barometers for explorers and surveyors of colonial claims. Agricultural potential could be predicted by a region’s

<sup>276</sup> Nathaniel Britton, “The Museum Building,” *Journal of the New York Botanical Garden* 1, no. 1 (January 1900), 1.

<sup>277</sup> “Descriptive Guide,” *Bulletin of the New York Botanical Garden* 7, no. 23 (August 1909), 21.

<sup>278</sup> Ibid.

endemic plant life.<sup>279</sup> Representations of plant life functioned powerfully to encourage interest and optimism about the costly and dangerous prospects for colonization.<sup>280</sup> Botanical illustrations belonged to a repertoire of representational strategies through which surveyors constructed territory that could be “consumed at a glance.”<sup>281</sup> For example, the giant South American water lily *Victoria Regia* is depicted on the cover of explorer Schomburgk’s important publication, *Twelve Views in the Interior of Guiana*. Graham Burnett described such iconographic botanical representations as part of a “heaping up” of “aesthetic signification,” through which surveyors transformed their ephemeral passages into fixed points on a map.<sup>282</sup> Visitors to the museum at the New York Botanical Garden would likely have been familiar with this format for encountering plants and interpreting their value from industrial exhibitions and world’s fairs, from the glasshouses commonly found on the grounds of private estates and in municipal centers, and from increasingly mass-printed publications, like the Garden’s monthlies, the *Journal of the New York Botanical Garden*, and the *Bulletin of the New York Botanical Garden*, and other sponsored publications including the *Memoirs of the New York Botanical Garden*. Labels indicating the a plant’s country of origin encouraged a projection of colonial space in the viewing of plant specimens.

A botanical science devoted to discerning the natural relationships among plants was incubated by a colonial dynamic of collection, representation, and intervention. As botanists refined their conceptions of the material dimensions of plant forms and

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279 Philip Pauly, *Biology and the Promise of American Life: From Meriwether Lewis to Alfred Kinsey*, (Princeton: Princeton University Press, 2000), 20.

280 Graham Burnett, *Masters of All They Surveyed: Geography and A British El Dorado*, (Chicago: University of Chicago Press, 2000), see especially 119-166.

281 *Ibid.*, 123.

282 *Ibid.*, 133, 147.



processes, they could offer informed predictions about how a particular species or variety of plant might respond in a given colonial climate. Intending settlers, bureaucratic officials, and speculative interests like pharmaceutical companies would have depended upon this knowledge.

Much of this botanical labor centered on determining the location of the boundaries separating one species from another, and assigning names to plant specimens. The complexity of this work might be underlined by the fact that as botanists struggled to ascertain with some measure of accuracy where one species ended and another began, they diverged radically from their eighteenth century predecessors in doubting the real existence of the very thing that they were looking for. They knew that species were “judgments” not things, that they were useful as indexical reference points, but did not refer to fixed essences. “There are no fixed lines in nature,” wrote the Director of the New York Botanical Garden.<sup>283</sup> Charles Darwin denied the existence of species, according to historian McOuat, prompting one reviewer to ask of his most famous publication, “If species do not exist at all . . . how can they vary?”<sup>284</sup> While acknowledging the absence of fixed lines in nature, Britton and other botanists believed that their study would bring botanists closer to understanding the underlying patterns structuring plant life.

As botanists sought a semblance of predictivity for their aspiring science, they imaginatively relocated these underlying patterns from the economic realm to which the

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283 Nathaniel Britton, “On the Naming of ‘Forms’ in the New Jersey Catalogue,” *Bulletin of the Torrey Botanical Club* 17, (May 9 1890): 122.

284 Louis Agassiz, quoted in Gordon McOuat, “Species, Rules and Meaning: The Politics of Language and the Ends of Definitions in 19<sup>th</sup> Century Natural History.” *Studies in History and Philosophy of Science* 27, no. 4 (1996): 473-519. 474.

natural history surveys explicitly addressed themselves, to a separate “natural” realm. The scientific status of this realm must be actively remade using various strategies for projecting objectivity, such as statistical representation, the creation of replicable experiments, participant self-discipline, and the enforcement of convention in botanical practice. Like other taxonomic projects addressing themselves to humans and other animals, to human cultures, to the earth and the stars, this unending work of establishing objectivity served colonial purposes.

The work assembling, describing, and publishing about plants in their economic and natural dimensions that was to take place inside of the museum might be regarded in terms of the way it extended and institutionalized the measuring and reporting practices of the nineteenth-century states, and located New York at the center of a global apparatus of colonially-useful knowledge production. These surveys were designed both to explore agricultural and other economic potential, and to elaborate ownership claims to frontier lands. Many of the Garden’s key staff spent the early part of their careers working on these surveys. They transferred to their new work a confidence in the practices of coordinated scientific effort, and a perspective of landscape defined by the appetites of these surveys. Especially, they knew how to represent what they encountered in their travels so as to appeal to patrons.<sup>285</sup> They were the inheritors of a program of measuring, documenting, and presenting landscapes for imperial administrators imagining them from a distance.<sup>286</sup>

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285 For an interesting discussion in the context of the US Geological Surveys, see Robin Kelsey, *Archive Style: Photographs & Illustrations for U.S. surveys, 1850-1890*, (Berkeley: University of California Press, 2007).

286 Burnett, *Masters of All they Surveyed*, 119-166.

The early publications of many of the Garden staff focused on the region around New York. The Garden's first Scientific Director, Nathaniel Britton, (1896-1929) had begun publishing on plants in his native Staten Island in 1877. In 1889 he began publishing on the plants collected by Dr. Henry Rusby in South America.<sup>287</sup> This work continued into the 1890's and took him to Kew Gardens near London where he could compare Rusby's specimens with the imperial holdings. In 1899, the Garden began sponsoring its own surveying missions, with Puerto Rico as a first destination. The program of surveys took new energy from what Ricardo Salvatore has described as a new "Pan Americanism" which imagined peaceful relations among the republics of the Americas underwritten by a "series of interventions in the cultural field."<sup>288</sup> Botanical garden explorers joined peers in other fields of study aspiring to scientific status in elaborating a "fantasy of converting bits and pieces of information of the empire into a unique system of knowledge" – this knowledge system became "the ideological support of empire, the imaginary basis of the colonial state."<sup>289</sup> A crowning achievement in this vein was the *Descriptive Flora of Puerto Rico and the Virgin Islands*, a collaborative project organized by the Garden's scientific director beginning in 1912. This survey has been characterized as the first systematic natural history inventory made for any of the Caribbean islands, and the most complete inventory of its kind in the region.<sup>290</sup> The botanical surveying apparatus they helped to build was a means of expanding the

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287 Nathaniel Britton, "An enumeration of the plants collected by Dr. H.H. Rusby in South American, 1885-1886. - IV Anthophyta.", *Bulletin of the Torrey Botanical Club* 16 (January 12 1889): 13-20.

288 Salvatore, "The Enterprise of Knowledge," 81.

289 Ibid., 82.

290 Inés Sastre-D.J. and Eugenio Santiago-Valentín, "Botanical Exploration of Puerto Rico by N.L. Britton and E.G. Britton: their significance in plant conservation, horticulture, and education." *Brittonia*, 48, No. 3 (1996): 322-336.

territorial reach of plant-based economic forecasting, while also projecting a scientifically comprehensible, manageable terrain. A spectrum of officially post-colonial, twentieth century interventions in Latin America and the Caribbean found inspiration in the imagined landscapes posited by floristic studies and the experimental research of the Garden.

While overtly addressing themselves to discerning a natural order, the Garden's staff and sponsors intuitively understood and responded to opportunities presented by a different kind of order, marked out by historical coordinates, and bearing as much relevance to the material circumstances of their lives as the carbon cycle. Imperial instinct led well-positioned agents to perceive and innovate upon inequalities generated by prior imperial forms.<sup>291</sup> New York had long since learned to channel material subsidies toward itself. To enhance the ways that imperial geography would favor its polity, botanical researchers worked to direct flows of economically useful knowledge toward New York. Botanical research obtained resources and achieved stature in part because of its role in a larger redefinition of municipal space and governing authority. Representatives of multiple scientific clubs and institutions worked to persuade themselves and others that their sea-level home was actually a promontory from which a synoptic perspective of the world could be gained. As they represented plants and colonial space, they also worked to represent themselves and to define a place for themselves at the center of an imperial knowledge-producing empire. They described a singular cultural inheritance endowed with a unique aptitude for minute description and categorical precision, compelling ever deeper attention to the material structures of plant

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291 Stoler and McGranahan, *Imperial Formations*, 17.

life. Prescriptions masquerading as descriptions formed the basis for ownership claims construed in the language of botanical science, and configured new territorial claims in New York and globally.

### **New York's Early Surveys**

New York, as colony and state, early developed a strong tradition of sending surveying parties out across the land. An ability to imaginatively project, out of marshes and swamplands, settled agricultural land; out of Indian territory, European ownership; out of river valleys, transportation networks, was a strength of New York's eighteenth and nineteenth-century landowning class. A series of surveys in the region of the upper reaches of the Mohawk and its tributaries were carried out on behalf of the New York State Board of Canal Commissioners early in the nineteenth century, anticipating the construction of the system of dams and locks that would make that river navigable, through to the great midwestern lakes. Following upon this project, a more comprehensive, systematic geological survey was initiated in 1836. This survey included a section on botany, and the plants collected during the survey's sixty-five-year lifespan, along with, crucially, descriptions of them composed by John Torrey, ultimately became the basis for the herbarium at the New York Botanical Garden. The surveying work of the botanical garden in the late-nineteenth and early-twentieth centuries was in this and other respects a direct outgrowth of the state-sponsored geological surveys.

From the vantage of their creators, surveys document existing resources and anticipate new uses for land. Description and persuasion are inseparable in this process of measuring, recording and presenting a convincing picture of the land and its

ownership. Eighteenth-century surveys were used by wealthy land patentees to establish their legal possession over and against settler farmers in New York, for example. These settlers' claims to the land held traction in an English colonial law favoring and requiring "improvement" as a condition of holding and retaining colonial land. However, settlers rarely had the resources to fund a survey and thereby define, for a legal body, exactly where their land was. Euro-American farmers, according to Elizabeth Mensch, recognized surveys as legal procedures designed to evict them, and they devised methods of obstructing surveyors. Mensch writes, "Surveys on land settled by farmers generally led to proprietor claims and then ejectment suits."<sup>292</sup> Settlers learned to obstruct surveyors without transgressing the legal code, and sometimes resisted surveyors with violence. They had little alternative: "Most farmers could not afford to defend themselves in a complex suit, yet, unless legally contested, the surveyor's determinations were considered strong evidence of boundaries."<sup>293</sup> Fluidity in the meaning and location of boundaries of land claims ensured that property, both in the form of a particular land claim, and as a general idea able to exert social force, remained incoherent for much of the eighteenth century in New York.<sup>294</sup>

The property surveys in New York coincided with and anticipated a larger emerging program of surveys addressing national territory. The earliest national surveys were designed to facilitate land speculation and organize and control settlement, and to finance national development. Malcolm Rohrbough has documented the creation and elaboration of an administrative apparatus for integrating land into the national public

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292 Mensch, "Colonial Origins of Liberal Property," 723.

293 Ibid.

294 Ibid.

domain through measurement, platting, and negotiating the multiplicity of claims and languages for claiming land.<sup>295</sup> In the new Louisiana Territory, as in the Northwest territories before it, the Secretary of the Treasury charged with registering plats and organizing sales and claims had to “make haste in order to keep his land system abreast of an expanding population and, at the same time, to meet a variety of local conditions.”<sup>296</sup> Land commissioners claimed broad authority to act as “the sole judge of what should be considered by them as proper evidence.”<sup>297</sup>

At that time, a cadre of developers newly positioned at the helm of governance in New York set surveying to a new scale and degree of co-ordination. The material changes they were able to effect through coordination narrowed and hardened the terms by which lands could be occupied in the Mohawk and Genesee valleys. These surveyors planned a transportation network to enhance the significance of the region to commerce. They particularly sensed the significance of a waterway to the west in terms of how it would affect suppliers of grain to the plantations in the West Indies, and its capacity to establish and magnify the commercial value of the land along the way as it came to be exposed to white settlement. In an extensive study of the development of the canal in relation to the Iroquoian communities along the proposed route, Laurence Hauptman described how surveyors laid out lots and towns in the former Oneida territory north and west of Oneida Lake from 1788 on, and how surveyors gathered information about rights of way, good locations for roads, and the potential of resource development in the

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295 Malcolm Rorrbough, *The Land Office Business: The Settlement and Administration of American Public Lands, 1789-1837* (New York: Oxford University Press, 1968).

296 *Ibid.*, 30.

297 Quoted in Rorrbough, *The Land Office Business*, 42.

region.<sup>298</sup> Surveyors worked for the Surveyor General of New York, as well as private land speculators.<sup>299</sup> The significance of the canal for settlement, commerce, land values, and the nascent organizational capacity of the state was basic and foundational. Members of the state's Canal Commission, along with representatives of several land and canal companies made careers of establishing control over the lands along the canal's proposed route, over the ongoing objections of established communities. In response, one justice ruled on the legitimacy of the land-takings entailed in the creation of the Erie, writing that the canal was to be "a great public object, calculated to intimidate by its novelty, its expense, and its magnitude,"<sup>300</sup> and thereby sanctioned the land seizures.

At a meeting of the New York Historical Society in 1812, Surveyor General De Witt Clinton expressed his hope for control in the genocidal logic of his class that "[B]efore the passing away of the present generation, not a single Iroquois will be seen in this state."<sup>301</sup> The grotesqueness and unmitigated violence that propelled the surveying activities early in the century became less explicit as the independent and collective sovereignties of the Iroquois communities which had, during British rule, occupied large agricultural land bases, became increasingly boxed in.<sup>302</sup> Clinton's forecast turned out to be inaccurate, but the surveying apparatus that he helped to launch became a major arbiter of land claims in the state. Where the Ogden Land Company repeatedly failed to gain tribally-agreed upon or legally sound land concessions from the Seneca in Western

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298 Hauptman, *Conspiracy of Interests*, 60.

299 Ibid.

300 Quoted in Harry Scheiber, "Property Law, Expropriation, and Resource Allocation by Government: The United States, 1789-1910," *The Journal of Economic History* 33 no. 1 (March 1973): 232-251.

301 Hauptman, *Conspiracy of Interests*, 18.

302 Ibid.



New York, the “natural” dimensions of the land identified in the surveys enticed settlers and profiteers and ultimately made it extremely difficult for tribes to hold on their land.

Eleven years after the Erie was completed, plans for “a complete geological survey of the state,”<sup>303</sup> were presented by the Secretary of State of New York to the legislature for approval. The survey was intended to furnish a “perfect and scientific account of rocks and soils and their localities, and a list of all its mineralogical, botanical and zoological productions, and for procuring and preserving of the same.”<sup>304</sup> Legislators were unanimous in their support for this scientific endeavor and appropriated \$104,000. The survey lasted through the remainder of the century, with the final volume published 1897.<sup>305</sup>

It was a model for other state geological surveys, and it fostered the growth of scientific associations before they found more permanent homes in the research universities of the late nineteenth century. Botany served these local, regional and transcontinental surveys, according to Phillip Pauly, because plants offered expansionists a sense of a region’s climate and its agricultural potential.<sup>306</sup> The botany division of the New York Geological Survey was headed by John Torrey, and his work classifying plants for that survey yielded two important herbaria – Torrey’s personal collection which he gave to Columbia University, and which finally became the basis of the New York Botanical Garden’s herbarium, and a collection for the National Museum of the Smithsonian Institution.<sup>307</sup> This work, and the herbarium itself in many ways laid the

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303 William Stanton, “American Scientific Exploration, 1803-1860,” (Philadelphia: American Philosophical Society, 1991).

304 Ibid.

305 Ibid.

306 Philip Pauly, *Biology and the Promise of American Life*, 20.

307 Douglas Sloan, “Science in New York City, 1867-1907,” *Isis* 71, no.1 (March, 1980): 45.

foundations for the surveys of the New York Botanical Garden. By the time John Torrey's herbarium was relocated from Columbia University to the newly completed museum building at the New York Botanical Garden in 1901, the scope and power of the botanical survey had enlarged considerably. The herbarium resulting from this survey was valuable as an economic forecast. It was especially valuable to botanists who respected the discerning eye of the man who organized its contents, and made them legible and available to future surveys.

The purposes expressed in the geological surveys carried over into the Columbia School of Mines, where geological surveyors John Strong Newberry, and his protégée Nathaniel Britton were faculty. Newberry "had a deep interest . . . in the practical applications of geology – or, in the phrase of the time, in economic geology" and was "much sought after as a technical consultant."<sup>308</sup> As president of the New York Academy of Sciences, Newberry saw that the technological applications of science remained central to the group's work. "Newberry seldom let slip the chance to point up 'the great value of the research' under discussion 'in relation to the arts, manufactures, and agriculture.'"<sup>309</sup> The faculty at Mines, including Britton, cultivated close associations with business and industrial innovators.

Botanists would have no small say in what the facts bearing on policy questions might be. For example "facts of climate and soil" became key determinants in whether land might be devolved to corporations for "public" ends (such as mining, timber extraction) in Supreme Court rulings on eminent domain.<sup>310</sup> As the array of works

308 Ibid., 43.

309 Ibid.

310 Harry Scheiber "Property Law, Expropriation, and Resource Allocation by Government: The United States, 1789-1910" *The Journal of Economic History* 33, no. 1, (1973) , 248.

defined as public in nature expanded, land claims came to depend less on legal principle and more on knowledge of the “facts of climate and soil” pertinent in each state. The Supreme Court deferred to state courts in their local knowledge of facts, enabling them to make otherwise illegal grants to corporations.<sup>311</sup> In eastern states, lands, rivers, and rights of way were taken from various claimants and owners on the basis that they were needed for an enterprise (such as a road or mill) with a public purpose. As this system of “eminent domain” law moved westward, its associated practices expanded in ways that were particularly aligned with the science of the botanical garden. The US Supreme Court applied an “instrumentalist doctrine” leaving it to each state’s legislature and courts to determine whether takings led to the prosperity of the community. “The Court must recognize the differences of climate and soil, which render necessary these different laws in the States . . .”<sup>312</sup> Resources, once recognized and named as such, could serve as a legal basis for making a land claim and securing title in US law.

### **Herbarium**

A principal objective of the Garden’s founders – which they would achieve to lasting success – was to gather inside of their museum the hemisphere’s largest collection of dried plants. Botanical researchers interested to expand the territorial scope of their work depended on large assembled plant collections against which to compare new specimens. The economic significance of such comparative knowledge was well-understood by the late nineteenth century. Close observations of growth patterns of different varieties of *S. Officianarum* enabled new successes in sugar cane cultivation in

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311 Ibid.

312 Harry Scheiber and Charles McCurdy, “Eminent Domain Law and Western Agriculture, 1849-1900,” *Agricultural History*, 126.

Barbados, as discussed in Chapter Two. New sources of rubber were sought through close, systematic inspection of varieties, combined with cultivation experiments in lands where climactic conditions might match the requirements of the variety.

In 1889, Nathaniel Britton began publishing on a collection of plants gathered in South America by his Columbia colleague Henry Rusby, whose collecting missions in Bolivia, Chile and Peru were sponsored by a Detroit pharmaceutical firm, Parke, Davis & Co.<sup>313</sup> It was his first major effort at organizing a large collection encompassing a broad territorial reach, and he published on the collection for several years. In 1903, a Sir Martin Conway, in possession of “concessions from the Bolivian government for the manufacture of india rubber” contracted with New York Botanical Garden staff member R.S. Williams to explore and collect in Bolivia.<sup>314</sup> An agreement with the Bolivian company ensured that sets of all the specimens secured would become the property of the Garden, and that Mr. Williams would examine his collections at the Garden, in collaboration with other members of the staff. When Williams returned from fifteen months of travel in Bolivia, he delivered to the Garden what was, in the view of one Garden colleague, “probably the most important botanical collection ever brought out of that part of the world.”<sup>315</sup> Botanical study was inseparable from anticipated economic benefits. “The results of this exploration and the study of the material secured will be a grand contribution to botanical science.”<sup>316</sup>

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313 Kingsland, *Evolution of American Ecology*, 25

314 Nathaniel Britton, “Report of the Secretary and Director-in-Chief for the Year 1902,” *Bulletin of the New York Botanical Garden*, 2 no. 8, (1903): 431-432.

315 Ibid.

316 Ibid.

By the late-nineteenth century, botanical collections originally assembled by wealthy individuals and collectors had become consolidated in large institutions like Kew Gardens. This would be the model for the herbarium at the New York Botanical Garden. Kew had long been the receiving institution for flora gathered by British explorers, surveyors, and plantation owners. By the mid-nineteenth century, its growth was hastened by the fact that collectors and individual botanists could no longer afford to keep herbaria of the size adequate to the classifying endeavor.<sup>317</sup> Peter Stevens recounted that George Bentham transferred his fifty or sixty thousand specimens and twelve hundred books to Kew Gardens in 1854 when the collection became too expensive to maintain.<sup>318</sup> When Jussieu published his *Species Plantarum* in 1789, 5,900 species were known to European botanics. Bentham and Hooker's post-"deluge" colonial floras and their *Genera plantarum* (1862-1883) dealt with 97,205 species.<sup>319</sup> Paris, Geneva, Berlin and Boston similarly became centers for large herbaria. Consolidation magnified the reach and influence of the philosophical inclinations of the few men who could access these herbaria, particularly as their scientific predilections radiated through colonial networks. Christophe Bonneuil has shown how Joseph Hooker and George Bentham collaborated on a series of colonial floras to restore an organizing pattern to what was becoming a "chaos of incommensurable statements" by publishing useful botanical information for a broad range of imperial actors while assertively employing and teaching

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317 Ibid.

318 Peter F. Stevens, "George Bentham (1800-1884): The Life of a Botanist's Botanist," *Archives of Natural History* 30, no. 2 (2003): 194.

319 Peter Stevens, *The Development of Biological Systematics: Antoine Laurent de Jussieu, nature, and the natural system*, (New York: Columbia University Press, 1994), 208.

the conventional practices they wished to secure for the science.<sup>320</sup> Consolidated herbaria also brought the plant collections into closer association with state and colonial purposes.<sup>321</sup>

Nathaniel Britton had built up the herbarium at Columbia significantly by 1898 when the school turned it over to the botanical garden. “In 1898 the bulk of the herbarium of Columbia College, nearly half a million specimens, and its botanical library of five thousand bound volumes, were turned over to the Garden, in trust and for its use.”<sup>322</sup> The institutional herbarium at the New York garden grew in size and significance during the Garden’s first decades. The very existence of a public collection invited contributions – donations of plants, entire herbaria, and books poured in. The meaning and use of each collection was amplified as it took its place alongside the others. Increasingly, people sent plants from the places they lived to the Garden in order to find out what they were, and the letters collected at the Garden’s archives are jammed with queries as to the identity of a particular plant, noticed in a field while on a walk.

A problem for botanically-inclined economic surveyors was that information was dispersed geographically among institutions and publications. According to Bonneuil, even botanists at large herbaria had to “‘navigate’ in a poorly ordered field of statements – sometimes contradicting each other – about [rubber-yielding] *landolphias* (concerning their appearance, distribution, specific identity, economic value, etc.). These statements were published in many different places and genres such as travel narrative,

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320 Bonneuil, “The Manufacture of Species: Kew Gardens, the Empire, and the standardisation of taxonomic practices in late-nineteenth-century botany.” In *Instruments, Travel, and Science: Itineraries of Precision from the Seventeenth to the Twentieth Centuries*, ed. Marie Noëlle Bourguet, Christian Licoppe, and H. Otto Sibum (New York: Routledge, 2002), 200.

321 Stevens, *The Development of Biological Systematics*, 216.

322 Kingsland, *Evolution of American Ecology*, 64.

administrative reports or economic correspondence, local publications, etc., rather than in the major and readily accessible botanical periodicals.”<sup>323</sup> It was partly in response to this erratic growth pattern that George Bentham and J.D. Hooker published their massive colonial surveys. The New York Botanical Garden aimed to serve not only as the central reference herbarium, but also as a library, systematically collecting literature from all the state and territorial agricultural experiment stations, and colonial research stations worldwide.

The herbarium was equally important for the way it served to integrate the work of the Garden staff with the vast amount of botanical work occurring globally, and to benefit from its ongoing discoveries. An economy of botanical exchange and sharing of “duplicates” among the major institutions ensured that the Garden would become a receiving center, much as Kew had become the receptacle for colonial plants. A large herbarium was necessary to extend the territorial reach of the Garden’s interpretive efforts, providing a basis for cross-reference. It was also necessary to establish favorable terms for collaboration with botanists presiding over the large European herbaria. Access to the full range of meaning and possibility available through the study of the material processes of plant life depended on the measure of control already possessed. The main classifier of West Indian plants in the late-nineteenth and early twentieth centuries was a German botanist named Ignatius Urban who preferred not to communicate with New York botanist Nathaniel Britton. As Britton’s collaboration with British officials in Jamaica deepened, Urban continued to correspond exclusively with the British botanists,

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323 Bonneuil, “The Manufacture of Species,” 193.

even where Britton's knowledge and resources bore directly on Urban's work. William Harris wrote to Britton from Jamaica in 1906,

It is very evident the Germans do not realize what an immense collection you have in your Herbarium, but the time has arrived when the European botanists must realize that the collection, thanks to your industry, now stands in the very first rank. This is a most remarkable fact considering the comparatively short time that your Garden has been in existence. You may not have some of the old types but that does not prevent you recognizing a new species when you see it.<sup>324</sup>

The capacity to recognize and describe plant life in territorially efficacious ways increasingly depended on a person's status in relationship with a center of botanical ownership and power.

### **A Rational Basis for Collaboration**

In 1888, the same year that the Torrey Botanical Club launched their campaign for a botanical garden in New York, Department of Agriculture botanist George Vesey proposed to his friend Nathaniel Britton that the New Yorkers host a botanical congress. The purpose of the congress would be to organize and streamline the systems botanists working in US territory would use to identify and name plants. Many cataloged plants had more than one scientific name. At the congress, American botanists would "take up Synonymy and make such changes in nomenclature as are needed."<sup>325</sup> Vesey thought the problem – multiple names for plants regarded to be of the same species, resulting in ambiguity and inefficient communication among botanists – could be solved expediently. "The whole list of [North American] plants could be divided up among our botanists . . ."

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324 William Harris to Nathaniel Britton, 5 November 1906, Nathaniel Lord Britton Collection, New York Botanical Garden.

325 Ibid.



The list “could be rapidly straightened out provided that the parties could have access to books and Herbaria.”<sup>326</sup> A belief in the possibility of a transparent system for plant naming amenable to rational principles was shared among the botanists at the New York garden. Rationalism propelled their work cataloguing plants in the Caribbean, as they worked to generate comprehensive texts as quickly as possible. They also pressed colleagues in other institutions to abandon parochial naming practices in order to create a system less burdened by historical complexity, and more able to accommodate ongoing reinterpretation of species’ boundaries while maintaining an appearance of empirical stability.

Elizabeth Britton expressed a similar faith in the existence of objectively achievable plant indices in a letter to her friend Alexander Evans, at Yale:

My dear Dr. Evans:-

The package of Porto Rican hepatics has been received and your letter of June 19<sup>th</sup> as well as a set of your reprints. I am very glad to hear that you have found something of special interest in the collection. Your experience in working up specimens from descriptions and the difficulty of getting at scattered types agrees exactly with mine in the mosses. It certainly wastes a great deal of time, but it is the only way to clear out mixtures and duplications. I suppose that Herr Stephani is as difficult as Dr. Karl Müller used to be and that both of them I imagine that they care more for quantity than quality of their work. I am in consistent correspondence with Professor Max Fleischer at Berlin and with the people at Kew and I find that duplications, absolute ignorance or inattention to others' work characterize the result. It simply shows the necessity for doing this work in just this way and we must have patience and keep at it, little by little we shall untangle this synonymy.<sup>327</sup>

The goal of a stable, transparent system for naming plants was widely shared among nineteenth-century botanists. A proliferation of colonial species and species-

326 George Vesey to Nathaniel Britton, 14 November 1888, Nathaniel Lord Britton Collection, New York Botanical Garden.

327 Elizabeth Britton to Alexander Evans, 22 June 1906, Elizabeth Britton Collection, New York Botanical Garden.

describers had made it very difficult for botanists to find and corroborate information about about plants. Because of this uncoordinated diversity, botanical knowledge could not accumulate, plant experts feared. In addition to the logistical problems of information being dispersed among many sites and publications, there was a problem in the diversity of interpretations available to plant-namers and indexers. Botanists disagreed about about how names should be assigned to maximize their utility as reference tools. In particular, as multiple names vied for a single kind of plant, or a new name reinterpreted a plant's relationship to similar specimens, for example by locating it in a new genus, botanical statements ceased to correspond with one another and accumulate into a coherent body of knowledge.

Botanists also disagreed about to what exactly a species name was supposed to correspond. Plant taxonomists of the eighteenth century generally believed in an essential quality that could be recognized and captured in a name for a species.<sup>328</sup> However, nineteenth-century botanists, grappling with an exponential increase in the amount of plant material available for study, questioned the existence of discrete species, as well as the possibility or utility of a name which captured a singular essence. Still, according to Peter Stevens, botanists maintained a sense that with Linnaean differentiae they could “link together names and plants in an objective way.”<sup>329</sup>

Though most of his contemporaries saw the virtues of securing convenience, uniformity, and stability in trans-global processes for naming and categorizing plants, few fully embraced the faith of Nathaniel Britton in the possibility of a naming process that

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328 McOuat, “Species, Rules and Meaning,” 479-480.

329 Stevens, “George Bentham and the Kew Rule,” in *Improving the Stability of Names: Needs and Options*, ed. D.L. Hawksworth (Taurus, Germany: Koeltz Scientific Books, 1991): 159-160.

entirely circumvented the pitfall of human interpretation. “It is perfectly clear,” New York Botanical Garden Director Britton wrote, “that as long as we allow ourselves a choice of names in any way, so long will authors differ in their acceptance and the settling of this important matter be deferred.”<sup>330</sup> As much as they worked to expand the territorial scope of their botanical surveys, the staff worked amidst and often against an international community of botanists to leave behind the histories and complexities alive in the discipline of botanical nomenclature.

The interpretive nature of determining where to place lines between species – and the resistance of this form of plant study to monolithic concepts – was eloquently described by the British botanist George Bentham: “We botanists cannot be so mathematically exact as geographers,” Bentham wrote, “and where an isthmus is very narrow, we must class the peninsula with the island. How often does it happen that two large orders . . . totally distinct from each other . . . are yet connected by some small isolated genus . . . [or] a single species . . . [leaving] no room for the strait, through which we ought to navigate between the two islands.”<sup>331</sup> “Species are judgments,” explained Liberty Hyde Bailey of the New York Agricultural College.<sup>332</sup> The “species is not . . . an entity, . . . we must look upon it as a more or less arbitrary division which it is expedient to use in taxonomy and nomenclature.”<sup>333</sup>

Nathaniel Britton acknowledged this basic element of interpretation and judgment:

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330 Nathaniel Britton, “On the Priority of Place in Biological Nomenclature,” *Botanical Gazette* 15 (December 1890), 340.

331 Quoted in Stevens, *The Development of Biological Systematics*, 104.

332 Bailey, “The Philosophy of Species-Making,” 462.

333 *Ibid.*

“This brings up the whole question of what we should agree upon as constituting a ‘species.’ There are no fixed lines in nature. The whole vegetable kingdom is so interlocked by the tendency to variation, working simultaneously with the efforts towards atavism and heredity, that structures are continually produced which defy any system of classification. We are forced to admit. . . that intermediate forms may occur between any related groups or individuals . . . It is, I believe, useless at the present stage of knowledge to argue that all ‘species’ are rigidly distinct and can be separated by carefully drawn descriptions, if once their characters are understood.”<sup>334</sup>

Britton’s approach to “untangling” synonymy and creating a useful technical reference tool must be understood in the context of the largely successful efforts of two British botanists to establish convention in naming following the “colonial deluge.”<sup>335</sup> Christophe Bonneauil has shown how, in collaboration with Joseph Hooker at Kew, Bentham created a series of large publications designed to reign in the diversity of plant naming and the varied approaches to species determinations they represented. Bentham and Hooker faced the dissolution of their science as a multiplicity of plant forms undermined European taxonomies and many explorers joined in a frenzy to name the plants. New names given without considered reference to similar specimens in herbaria threatened to result in a “chaos of incommensurable statements” where names failed to reference larger patterns.<sup>336</sup> Further, it had become practically very difficult to communicate about species, including species of economic and national significance such as rubber, since published information was dispersed and followed no common ground rules.

In particular, Bentham and J.D. Hooker believed that species could best be understood as “not made of individuals strictly moulded after one single type,” but rather

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334 Nathaniel Britton, “On the Naming of ‘Forms’ in the New Jersey Catalogue, *Bulletin of the Torrey Botanical Club* 17, (May 9 1890): 122.

335 McOuat, “Species, Rules and Meaning,” 481.

336 Bonneauil, “The Manufacture of Species,” 200.

as a “spectra of slightly variable forms clustered around the type.”<sup>337</sup> Viewing species in terms of a spectrum enabled botanists to better perceive and represent biogeographic relationships, for example similar forms hailing from Arctic or montane tropical regions might be brought into relationship through the use of a single shared species name.<sup>338</sup>

Hooker was a “brilliant plant geographer” for whom, “broad species were necessary to make classification of species more sound and stable,” and also “to draw meaningful comparisons between floras of different regions and explain the distribution of plants.”<sup>339</sup>

To address the problem of diversity in interpretation, Bentham and Hooker organized a large series of publications, in coordination with Kew Gardens and the Colonial Office. Between 1857 and 1864 Kew sponsored a three-volume *Flora of the British West Indian Islands*. This was the first of a series of colonial floras co-ordinated by William and J Hooker that would include the *Florae hongkongensis* (1861), *Flora capensis* (3 vols., 1859-65), *Flora australiensis* (7 vols., 1863-78), *Flora of Tropical Africa* (3 vols., 1868-77), and *Flora of British India* (7 vols., 1872-97).<sup>340</sup> Two other major publications helped to secure Bentham and Hooker’s preference for describing species in such a way as to include a spectrum of forms, the *Genera Plantarum* and the *Index Kewensis*. While no “natural system” had yet been discovered to explain the relationships among plants or substantiate an objective system for naming plants, Bentham and Hooker drew upon the “authority of persons, texts and institutions whose power was built on the opportunities provided by travel and empire” to secure alignment

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337 Ibid., 196.

338 Ibid., 198.

339 Ibid.

340 Bonneuil, “The Manufacture of Species,” 201.

in naming practice and allow for cumulativity in botanical knowledge-making.<sup>341</sup> In other words, they secured conventional practices by publishing large quantities of material, and securing consent among other heads of major herbaria, making it difficult for alternative practices to find space in the botanical community.

The success of the British system was embraced by researchers at Harvard, and an instinct to protect a fragile sense of order is reflected in a letter from Charles Sargent to Nathaniel Britton, about a subject of mutual interest:

As you know, the West Indian botany is terribly mixed up and I should not think it would be safe to make new species in a genus like *Pisonia* without having first compared all our specimens with the material at Kew; this, perhaps, you have already done. Just now my mind is so muddled in a vain attempt to clear up the synonymy of *Cratsegeus* that it seems hopeless to think of tackling any new puzzles; and I hope you will clear up *Pisonia* before I get to it in the *Silva* which won't be, I am happy to say, for a year or two yet.<sup>342</sup>

Perhaps it was a sense of the precariousness of the authority of the heads of the large herbaria, in the face of the many potential namers-of-plants that led botanists like Sargent to the place of respect and caution he expressed regarding the West Indian Botany. To ignore Kew was to risk not only creating confusion in the form of multiplying synonyms, but also to re-introduce openness into the tentatively established hierarchy of namers. Britton expressed a similar hesitance when he described his early conservative approach to naming. Convention was precarious, upsetting it potentially costly.

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<sup>341</sup> Ibid.

<sup>342</sup> Charles Sargent to Nathaniel Britton, 21 April 1892, Nathaniel Lord Britton Collection, New York Botanical Garden.

The temperament of Harvard's reigning botanist contrasts dramatically with his friend and sometime-antagonist Britton. Britton respected Kew's collections and traveled there often to compare specimens with its holdings. He corresponded with Kew director William Thistleton-Dyer, and in many respects sought to model his own institution on the London establishment. However, he took a very different, determined and unhesitating approach to "the West Indian botany." Recognizing complexity, Britton was also keen to advance the territorial scope of his work and his institution's as quickly as possible. Britton's style of work contrasted not only with Sargent's but also with that of the then-current authority on West Indian botany, Ignatius Urban. Urban included "detailed descriptions, full citations of collectors and localities, and extensive discussions of species relationships, all in Latin."<sup>343</sup> Contrasting Britton and Urban's approach, a colleague of Britton's wrote, "before Urban could complete his minute dissections, his ponderous descriptions, and his erudite discussions, Britton had his brief diagnoses actually in print and the type specimens, christened with a Brittonian name, safely deposited in the herbarium at the New York Botanical Garden."<sup>344</sup>

A main achievement of Bentham and Hooker had been to secure the authority of the interpreter of a specimen's genus by making the correct name for the plant reflect the moment the plant was placed in the (currently) correct genus. This name would replace a name assigned to a plant upon discovery. Bentham and Hooker made a case for the importance of comparison with the benefit of a large herbarium, and for interpreting relationships among plants as part the work of isolating a species. This was a complex

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343 Kingsland, *Evolution of American Ecology*, 84.

344 Quoted in Kingsland, *Evolution of American Ecology*, 84.

and difficult to describe process: “species vary within limits” but how they do so is “very difficult to express in a word.”<sup>345</sup> For these botanists, the moment of interpretation is crucial, and enshrined in the name given to the plant. Bonneuil gave an instance of this, writing, “an Apocynae described by the French botanist Louis-Pierre as ‘*Ancyclobotryspyriiformis* Pierre’ in 1899 became ‘*Landolphia pyriiformis* Stapf’ when Stapf revised the family to conform to the kind of taxonomic order Hooker and Bentham wanted to institute.”<sup>346</sup> This revision of names had the advantage of correlating plant names closely with the philosophical perspective Bentham and Hooker wished to advance, and upon which their herbarium was organized.<sup>347</sup> The practice helped to anchor and more firmly emplace the interpretive preferences of the British botanists discussed above.

However, by 1891, with the support of a number of researchers already secured, Britton was prepared to argue for an emendation to the British practice of enshrining the moment of interpretation in plant names. “In other words, I would quote the original author of the name, and leave the author of the [new] binomial to be brought out in the synonymy of the species, by means of a check-list or other compilation. This has the advantage of doing away with the double citation and eliminating all personal considerations in the publications of new binomials.”<sup>348</sup> In a sense, his proposal was an extension of a larger, widely agreed-upon program for eliminating most of the names used to describe representatives of what was considered to be one species of plant.

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345 Quoted in Bonneuil, “The Manufacture of Species,” 202.

346 Ibid., 205.

347 Ibid.

348 Nathaniel Britton, “Botanical nomenclature” *Garden & Forest* 4 (29 April 1891): 202.



The difficulty of adopting such a practice can be explained partly by the investment of Kew-based specialists in Bentham and Hooker's recently-established convention. For some at Kew, too much was invested in the old system. J.H. Hart, the British botanist stationed in Trinidad, characterized a British position on taxonomy for his friend, the New York Botanical Garden fern expert Lucien Underwood in 1907:

I know you are not the only one who criticizes Kew work. The criticism is deserved and the most enlightened of the staff would freely admit the same. But the vast change that would follow the upsetting of their recognized procedure appalls them, and hinders the attempt. I doubt much if the present organization would be equal to the task without great addition to the staff, specially selected for the purpose; + (*sic*) then it must take the life work of many. The herbarium of course would then afford ready assistance to all + the old types Kew possesses would be more readily available to the world. In your country the lines are laid on more modern systems, and no one, not even the most prejudiced of Englishmen can help admiring the . . . energy and ability with which your work proceeds.<sup>349</sup>

Botanical naming was also about inventing an evacuated, encapsulated European history capable of conferring narrative context, authority and significance. Attachment to the "Kew rule" wherein plants were renamed as botanists at herbaria placed them into their correct genus could be partly explained by the prior institutional investment in the system and the "life work of many" that would be required to reorganize according to a new system. However, the rationalism proposed by the New Yorkers was untenable to some botanists not only for reasons of prior investment, or what Britton called "mistaken conservatism."<sup>350</sup> Others perceived an inescapable historicity in European naming practices. Not only did the boundaries of species themselves leave room for

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349 J.H. Hart to Lucien Underwood, 28 May 1907, Lucien Underwood Collection, New York Botanical Garden.

350 Nathaniel Britton, "Reply to 'Recent Tendencies in American Botanical Nomenclature,'" *Journal of Botany, British and foreign*, 26 (1888), 292.

interpretation, but the act of tracing a lineage of published names for a plants was not so easily reducible to objective choiceless procedure as Britton imagined.

The new system proposed by the New York gardeners and others was perhaps an extreme version of a long-accepted practice of “priority” wherein the first published name was generally recognized, with many exceptions. This version emblemized the Linnean publication of 1753 as the starting point for all botanical names, officially eliminating other publications of the same era. When delegates agreed upon Linnaeus’ *Species plantarum* (1753) as a point of origin for botanical names, Schiebinger explained, “All works published before 1753 . . . were declared invalid for purposes of naming plants; these naturalists’ naming practices, strongly based in local cultures both domestic and foreign . . . were replaced by Linnaeus’ European-centered system.”<sup>351</sup> Emptying the detailed interpretations from the historical narrative embedded in the names served to create a more iconic, less historical history.

A debate carried out in the pages of the *Journal of Botany, British and Foreign*, and the Chicago-based *Botanical Gazette* between Nathaniel Britton and the editor of the *Journal of Botany*, William Britten, revealed some of the nuanced possibilities available to interpreters of any given set of “laws” of botanical nomenclature. This particular debate centered on which of several published names for a genus, including *Lepigonum*, *Spergularia*, *Buda*, and *Tissa*, should be adopted as the official name.

The question hinged on Michel Adanson’s 1773 publication of the genus, in which he gave these several names for it. All agreed that as the first published instance of the

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351 Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2004), 204-205.

genus, Adanson's text was the reference point. However, Adanson was not in agreement with some of his eighteenth-century colleagues over the value of choosing a single name to represent a group of plants whose internal and external contours remained uncertain. Drayton wrote that Adanson, "in 1749 confronted the plants and animals of Senegal and decided that they simply did not fit the categories framed by any natural historian, including the Swede."<sup>352</sup> Adanson transcribed and maintained numerous plant names, including those given in Wolof, which he recorded during his years in Senegal.<sup>353</sup> Successors wishing to pin a genus that he published to a single name were left to select from among the options he provided.

On the grounds that *Tissa* came first in the pagination of Adanson's publication, *Tissa* would be the correct choice for a final consolidated name, following the "priority of place" (referring to place within a single published text) rule, and this was Britton's choice.

However, from London, William Britten took a different view, introducing a historical nuance into the reading of Adanson's genus. Britten noted that in 1828 the botanist Dumortier had recognized the unity, or "synonymy" in Adanson's multiply-named genus, and had published *Buda* as the name for a single, unified category. Dumortier made this choice, according to Britten, in perfect accordance with the then-current DeCandolleian *Lois*, citing article 55.<sup>354</sup> As the first to condense Adanson's severally-named genus/genera into a single group, his choice of *Buda*, which had been in use for the better part of the century, should have been maintained.

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352 Drayton, *Nature's Government*, 19.

353 Schiebinger, *Plants and Empire*, 221.

354 William Britten, "Buda v. Tissa," *Journal of Botany, British and Foreign*, 26 (1888): 296.

Nathaniel Britton preferred to eliminate any reference to intermediary interpretations, and to secure uniform adherence to the rule of first published name since Linneaus' 1853 text. To do so was to eliminate "choice" and leave out both past instances of interpretation, and present historical interpretations. But for William Britten, there were "many ways of mixing the history of a species with its description."<sup>355</sup>

The first published name rule posits a transparent relationship between a stable thing (species) and its name, even where the location of the imagined boundaries separating that thing from the world of other things may have shifted. Permanence could be achieved in a name by eliminating the practice of changing the name to accommodate new understandings of species' boundaries and relationships. Though botanists embracing Darwinian insights had largely abandoned the idea of species as stable units in nature, the dehistoricized name posited seamless continuity of these imaginary units across layers of looking and understanding, and imagined permanence where none was known to exist.

The Kew publications had attempted and somewhat succeeded in restoring order to botany. They secured closure through the ability to influence convention by using their position at helm of a large institution receiving colonial specimens, giving this closure a political and not an empirical basis. In a sense, to argue for a "rational" approach was to build on the gains of this negotiated closure while erasing its history and geographical specificity. With the removal of the instances of interpretation from the naming process, historical complexity receded, and the Linnean reference point emerged

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<sup>355</sup> William Britten, "Recent Tendencies in American Botanical Nomenclature," *Journal of Botany, British and foreign*, 26 (1888): 290.

more boldly from among the possibilities. This history-sloughing naming process restored a sense of coherence and solidity to the content of a species category which, despite having possibly been redrawn one or many times, now appeared to have a discrete existence of its own, as though only waiting to be identified by Linneaus or a successor.

A faith in rationalism aligned the New York science with the surveying prerogatives of the major commercial institutions, and the ethos of the entrepreneurial sponsors of the Garden. The Colonial Floras were intended to provide colonists and intending settlers with the information they would need to survive. As a publishing house, the New York Botanical Garden served similarly to create an interface between investors and landscapes of agricultural possibility. They believed with George Vesey, that synonymy could be “rapidly straightened out” with the application of a rational system based in an immutable Linnean starting point. By eliminating intermediary interpretive moments from official nomenclature, botanists temporarily recouped the feeling of objectivity through which their knowledge claimed its authority.

### **Natural Reality in the New York Landscape**

The emergence of a modern process of coordinated botanical naming was achieved through the distillation, from a ranging, internally contentious set of botanical encounters, a single “first” encounter with a species of plant. The streamlined scientific object produced by this narrated encounter was represented in the Garden’s publications. Sprinkled amidst travel narratives and descriptions of the Garden’s displays and grounds, articles with titles like, “A New *Mouriria* from Porto Rico,” “A new *Peperonia* from the

island of St. Kitts,” or “An undescribed species of *Hydrophyllum*” advertised the staff’s scientific findings.<sup>356</sup> This idea of discrete plant-objects was also being represented on the main floor of the museum where visitors were invited to browse among economic specimens linked to the regions of their present and future extraction. As visitors to the Garden, as residents in or visitors to New York, they were invited to feel themselves confidently positioned as surveyors of an entire botanical world.

A mythic European scientific tradition was being elaborated in the landscape of New York. The Italian Renaissance-styled museum building belonged to a boom of large edifices erected in the New York landscape expressive of scientific cultural authority.<sup>357</sup> Several of these were located on Columbia University’s new campus and were representative of Columbia president and Garden founder Seth Low’s sentiment that by providing a great “service to the multitude,” the American university would “win a place for itself in the midst of a democratic community.”<sup>358</sup> In this final section, I return to the landscape of New York to explore how a broader imperative toward disinterested science created a local context for the Botanical Garden as an agent of territorial expansion. In the emerging built environment of the research institutions and public edifices of science, these modes of inquiry were figured not as belonging to an economic project, but as part of a scientific culture with a vaunted European lineage.

The museum, along with other neoclassical buildings, narrated a rich cultural lineage, a venerable ancestry for the Garden’s science. Tzonis and Lefebvre described an

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356 Nathaniel Britton, “A New Mouriria from Porto Rico,” *Torreyia* 2 (24 January 1902): 10; N.L. Britton, “A new Peperonia from the island of St. Kitts,” *Torreyia* 2 (12 March 1902): 43; N.L. Britton, “An undescribed species of *Hydrophyllum*,” *Torreyia* 2: (2 August 1902):123.

357 Simon Baatz, *Knowledge, Culture, and Science in the Metropolis: The New York Academy of Sciences, 1817-1907* (New York: New York Academy of Sciences, 1990), 153.

358 Seth Low, “A City University,” *Johns Hopkins University Circulars* 14, no. 118 (April 1895): 56.

architectural citationism in which an “as-if scenographic reality” was produced by invoking forms, geometries and patterns of classical buildings.<sup>359</sup> Detached from the dense symbolic context and theoretical meaning which gave them rise, they hollowly evoked a vague and imposing sense of ancient and timeless European authority. In their citation of classical design principles, the buildings joined New York to a lineage of urban renovations in European capitals where cities were rebuilt to evoke an aura of classical order. This order involved stylizing buildings according to classical formal principals, coordinating buildings together to give a sense of a larger outdoor ordered space, and removing evidence of human participation. At the Garden, emulated ancient design features stood for timelessness in a landscape newly claimed by an as-yet unproven variety of corporate proprietor. The unique existence of a legally-empowered body, the Corporation of the New York Botanical Garden, conveyed itself in ridges and valleys of the museum’s fluted columns.

The architectural rhetoric grew in concert with an argument being formulated by scientific practitioners and their sponsors for a “pure science.” They wanted funding for research with economic relevance that was not immediately plain, an authoritative platform from which to articulate a coordinated message, and symbolic representation in the landscape. In a presentation on “Botanical Gardens,” for a Buffalo audience, Nathaniel Britton emphasized the relationship of the scientific aspect of the botanical garden with its economic dimensions:

“The investigation of economic plants and their products is accomplished through the Scientific Department, and few valuable results can be reached unless

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359 Alexander Tzonis and Liane Lefaivre, *Classical Architecture: The Poetics of Order* (Cambridge: MIT Press, 1986), 246.

the scientific equipment is well developed. The two departments must work conjointly, both on account of the necessity of knowing just what species is under investigation, its structure, distribution and literature, and in order that the most approved and exact methods may be used in the research. Any idea that the scientific element can be dispensed with in connection with economic studies is palpably untenable.”<sup>360</sup>

Addison Brown, president of the Torrey Botanical Club in the 1890’s, and a co-author and patron of Britton’s botanical studies echoed Britton. He addressed an audience at the Smithsonian on behalf of a mode of thought and collaboration which he called pure: “Behind all our practical applications, there is a region of intellectual action to which practical men have rarely contributed, but from which they draw all their supplies. Cut them off from that region, and they become eventually helpless.”<sup>361</sup>

Advocates of this “region of intellectual action” also included Seth Low, who spent his tenure as president of Columbia (1890-1901) expanding the college’s physical presence in the city to a new campus and channeling the superfluous wealth of the era’s sugar boom and China trade into new buildings, a new Faculty of Pure Science, and a new professorship in botany.

In 1896, the Havemeyer family, architects of the consolidation of the sugar industry in Brooklyn and of the joint-stock mechanism for circumventing anti-trust laws, contributed \$450,000 for a new chemistry building at Columbia University.<sup>362</sup> Funds for a new natural science building, a new library, and for programs in zoology and teaching

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360 Nathaniel Britton, “Botanical Gardens,” *Bulletin of the Torrey Botanical Club* 23 (1896), 333.

361 Addison Brown, “Endowment for Scientific Research and Publication,” in *Annual Report for the Board of Regents of the Smithsonian Institution* (Washington, D.C.: Government Printing Office, 1893), 623.

362 Simon Baatz, *Knowledge, Culture and Science in the Metropolis: The New York Academy of Sciences, 1817-1907* (New York: New York Academy of Sciences, 1990), 153. For an argument about the ways this circumvention re-configured corporate capitalism in the US, see César Ayala, *American Sugar Kingdom*.



were provided by other owners of capital in the city, as the institution expanded and integrated itself into the material and political landscape of the City.

Low was also involved, with botany professor Nathaniel Britton in a coalition referring to itself as the Scientific Alliance whose mission was to organize all the scientific societies in the city, to create a united front to establish the value of science to the press, and to secure funds for a building to represent all of the scientific societies. This symbolic building, a “temple of science,” would be modeled on the Burlington House in London, where several royal associations for sciences were headquartered.<sup>363</sup>

For Low, whose presidency at Columbia was sandwiched between two mayoral terms, of Brooklyn (1881-85), and of Greater New York (1902-3), this effort to create a place for science in the city was integrally related to a vision for municipal governance. A wider group of entrepreneur “reformers” aiming to wrest control of the city’s political infrastructure and develop it as they would a business were his colleagues in this effort, and funded many of the improvements.<sup>364</sup>

It was Seth Low’s opinion that legitimate governance and urban infrastructure were integrally related. In what is perhaps an updated, Progressive version of Chancellor Kent’s Erie - that great, intimidating, “public object”<sup>365</sup> - Low prescribed a service-based approach to social coordination and land acquisition. Advanced studies by “the few” could effect material changes in the landscape which would provide, the “utmost service to the multitude.”<sup>366</sup>

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363 Baatz, *Knowledge, Culture and Science*, 150.

364 Wallace, *Greater Gotham*, 56.

365 Quoted in Scheiber, “Property Law, Expropriation, and Resource Allocation by Government,” 235.

366 Low, “A City University,” 56.

Material infrastructure played a crucial role in the re-definition of governance in mid- and late- nineteenth-century New York. Mines faculty created things that helped to define public benefit – things that facilitated commerce, improved health, and exceeded the confines of private interest in scale and purpose. These marvels vouched for the existence and efficacy of the state. Large scale material improvements were intended to supplant the personal favors – immigration papers, coal, widow support, and so on that were the currency of the old ward-based politics of the city. Physical improvements were, in the dominant political discourse, both the mechanism for controlling graft and the evidence of good government. The vision of collective life proposed by Low and other Garden founders and municipal consolidators linked landscape development, especially large-scale infrastructure, to social control, coordination, and peace, in many senses preferring development to participatory decision-making, as the local governance based in the towns was swallowed by the consolidated municipality in 1898.

The legal transformation taking place in New York City during the second half of the nineteenth century, wherein New York became described in law as a “municipal corporation” - essentially an expression of state power - depended on the persuasive power of these engineers. This equation of national interest with technological advance, engineering successes, and benevolence was explicitly modeled on strategies evolved in Europe. As a model for New York, Albert Shaw, author of *Municipal Government in Great Britain*, and *Municipal Government in Continental Europe* proposed the London County Council whose members collectively “possessed as high an average of ability and

distinction as the House of Commons.”<sup>367</sup> They were “representatives of the best elements in business life . . . men of intelligence and character, and of practical conversance with affairs.”<sup>368</sup> There were among them, “no saloon keepers or ward bosses.”<sup>369</sup>

Superseding resistance to the proposed consolidation of Greater New York, widespread particularly among a Brooklyn elite, was another useful function of this material infrastructure. “[A]n immense, shifting, heterogeneous population of three millions” is how Brooklyn Loyal League leader Rev. Dr. Storrs characterized the population to be encompassed in the proposed merging of western Long Island with New York.<sup>370</sup> Storrs particularly feared the coming of “the political sewage of Europe.”<sup>371</sup> A.A. Low, Seth Low’s father, one of the largest land owners in Brooklyn and millionaire founder of the foremost China trading company in the Americas, also opposed the metropolitan consolidation, according to David Hammack.<sup>372</sup> The men were joined by 40,000 members of the Brooklyn Loyal League. In a long and contested battle to join several independent townships and cities into a single jurisdiction, support of residents and landowners in the Annexed District was pivotal.<sup>373</sup> The new garden was in some ways an extension of the new Columbia University, and its Faculty of Pure Science, in alignment with the consolidated power of the reformers. When the Garden’s scientists

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367 David C. Hammack, *Power and Society: Greater New York at the Turn of the Century*, (New York: Russell Sage Foundation, 1982), 200.

368 Ibid.

369 Ibid.

370 Quoted in David C. Hammack, *Power and Society: Greater New York at the Turn of the Century*, (New York: Russell Sage Foundation, 1982) 211.

371 Ibid.

372 Hammack, *Power and Society*, 210.

373 Ibid.

moved from their cramped quarters at Columbia to the expansive new building in the Annexed District, they moved simultaneously into a new symbolic arena. Elevated, magnificent, the museum building presided over the garden. It also formed a cohering center for a network of agricultural colleges and small, cheap laboratories stationed throughout the US territories following the Morrill (1862) and Hatch (1887) Acts. It was a gathering place for the botanical works produced by the new cadre of plant researchers distributed throughout territories of interest to state- and federally-sponsored institutions, and commercial enterprises like sugar refining companies. Individual initiative and passion brought independent collectors into the Garden's exchange orbit. There were also many volunteers who collected, preserved, dissected, sketched, edited, and wrote for its herbarium and publications.

In this chapter I have located the plant systematics work of the New York Botanical Garden staff carried out in anticipation of the Garden's founding, and through its early establishing decades, within a history of governance based on description. Descriptive capacity allowed the Garden to extend its territorial reach and channel economically useful information toward New York. I have suggested that the Garden staff's belief in a rational mechanism for naming and organizing plants that would better allow for the accumulation of botanical data was one of the major contributions of the institution to territorial surveying through botany. I have also argued that the creation of a botanical, scientific reality subtending all other realities belonged, not to an innocuous hobby-tradition once restricted to the elite but presently democratized, but to a mode of accumulating plant information for colonial purposes. In the following chapter, I turn to

how the mode of the survey, and a self-generating tension between a posited sub-tending inhuman order, and the subjective and racial facts it excludes, was extended as a form of participation for emerging natural historians in association with a northern, imperial landscape vision.

## Chapter 4

### Science, Landscape and the Materiality of Exclusion

Asserting credible claims to land is a fundamentally social and ongoing process. In this chapter I return to a theme introduced in Chapter One, in which I described how the Corporation of the New York Botanical Garden established a legal claim to 250 acres of land in the Annexed District in New York by drawing upon a materializing ideological infrastructure based in claiming land for public use. Here I argue that the Garden's claim to the land was not fixed and finalized when it was inscribed in law in the terms of their charter, or even after the grounds were drained and developed. The claim had to be actively tended, and I explore how the botanical search for an elusive natural order discussed in Chapter Three served as a participatory mechanism through which ideas about ownership and sovereignty were reconfigured through exchanges linking its many sites of intervention. I argue that the legacies of inequality and racial hierarchy derivative of plantation regimes discussed in Chapter Two were taken up and reconfigured in several languages spoken by that era's botany. Subjective experiences of privileged racial belonging invited participation in a broad-reaching project of remaking the terms by which land and territory could be legitimately known, occupied, and possessed. Energized categories of social exclusion and a converse, intimate belonging through scientific participation comprised a new form of collective territorial possession.

The collective, participatory basis for claiming land in settler colonial contexts is obscured by binary versions of capital and empire which imagine land and territory

exclusively as an objective pre-social thing that can be taken or possessed – by a king or a nation-state, for example. Effective occupation by settlers and other imperial agents has long been a central strategy for substantiating claims to territory and defending claims from rival powers. As far back as the grants comprising the Treaty of Tordesillas, Philip Slattery has shown, “the papal grants took effect only when the grantee assumed ‘actual and real possession.’”<sup>374</sup> In the colony of New York, the English crown attempted to assert dominion through a variety of mechanisms including large land patents conditioned by a requirement to settle the land described by the patent within a specified number of years. Occupation was an active process shaped by the prospect of contest by rival imperial powers and the proximity of possible dissolution before the conflicting interests of communities resident in the land. This history of expansion through settlement is largely obscured by the current emphasis on abstract rights to land. Negotiated, participatory and fragile webs of meaning, security, and authority through which imperial territorial claims have been asserted are still present in late-nineteenth century botanical discourse, in new forms, subsumed in its everyday terminologies.

The political project of the New York Botanical Garden, its re-configuration of space and belonging made sense amidst a global context of imperial re-formation, wherein, “social imaginaries and political arrangements shifted focus from empire and emperor to empire and nation,” accompanied by new forms of dispossession and exclusion.<sup>375</sup> Bayly commented suggestively, “If the king, rather than the people, was the

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374 Brian Slattery, “Paper Empires: the Legal Dimensions of French and English Ventures in North America,” in *Despotic Dominion: Property Rights in British Settler Societies*, ed. John McLaren, A.R. Buck, and Nancy Wright (Vancouver: University of British Columbia Press, 2005): 55.

375 Stoler and McGranahan, *Imperial Formations*, 7.

fountain of authority, issues of ‘us’ and ‘them’ were less important.<sup>376</sup> The Garden was devoted to defining ownership and belonging in terms that depended upon, but seemingly superseded or preceded - older sources of authority and hierarchy including those based in racial schema and in familial lineages and personalist power. An expanding structure of participation sponsored by the Garden formed part of a larger cultural-imperial shift wherein reporting on the territories at the edges of national control formerly dominated by personal, eye-witness accounts and dramatic romantic landscape paintings were increasingly complimented with objective reporting strategies and technologies like photography, and scientific study.

### **Inherited Inequality**

In Chapter One I described how the developing public landscape in New York created political and geographic space in the New York harbor region for the establishment of the New York Botanical Garden in 1891. I suggested that landscape tropes familiar to parks advocates and city developers emphasizing public access to natural and scenic landscapes were part of the means by which land was secured and resources were galvanized for the Botanical Garden. This chapter returns to the created landscape in New York to explore how a social peace imagined through the tropes of conventional picturesque landscapes form an animating background for the scientific work circulating in both the published journal articles and private correspondence of the Garden’s first decades. These tropes formed a common landscape idiom for communication and connection, and created a social context predicated upon racial exclusions within which scientific activities could be understood. The “repertoires of

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<sup>376</sup> Bayly, *Imperial Meridian*, 220.



meaning that facilitate communication” for a range of botanical participants dispersed geographically emerge out of older frameworks for exclusion.<sup>377</sup>

Scholars exploring colonialism and empire from diverse disciplinary perspectives have examined the ways that representations of scenic idyll in paintings, in travel narratives, and in actual landscapes have configured European imperial projects.<sup>378</sup> Denis Cosgrove wrote, “. . . perhaps the most momentous – and disturbing – appearance of Eden/Arcadia has been in its migration into ‘new’ worlds, its historical use as a trope for colonial encounter. The image of Eden is etched into the geography of European discovery. Colonization insistently figured its subject spaces as second Edens, newfound Arcadias, Golden Age landscapes.”<sup>379</sup> Romantic painted renderings of frontier scenes and images of montane and scenic Caribbean and South American landforms were very popular in an emerging mid-nineteenth century US culture of consumption. Deborah Poole described these mid-century landscape paintings which preceded and in some respects made a way for the more literalist, photographic and scientific representations which arrived along with mass publishing later in the century. The paintings, according to Poole, were “anxiously awaited and eagerly consumed” offering a vision of the North American landscape which “shaped how people (then and now) would think about the future of their country and the peculiar ways in which its citizens’ sense of self came to

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377 Livingstone, *Putting Science in its Place*, 6.

378 Ann Bermingham, *Landscape and Ideology*; Ian MacLaren, “The Aesthetic Map of the North, 1845-1859,” *Arctic* 38, no. 2 (June 1985): 89-103; Gina Crandell, *Nature Pictorialized*. See also, William Cronon, *Changes in the Land*.

379 Denis Cosgrove, “Introduction,” *Imagining Eden*, Lyle Gomes (Charlottesville: University of Virginia Press, 2005), xi.

depend on constant territorial expansion.”<sup>380</sup> Uninhabited space structured these paintings, and the scientific representations that built upon them.

The acquisitive power of depictions of landscape following this tradition would have been well known to the founders of the Botanical Garden. The salience of these silencing tropes was heightened as they specifically addressed dispossession and oppression and the attendant paranoias. Matthew Guterl described paintings rendering an antebellum Southern landscape in which a “calming certainty of slave contentment,” was depicted for “a nation where ‘the order and security of the state’ was of paramount importance and where fear of the ‘horrors of San Domingo’ was routine.”<sup>381</sup> One watercolorist and amateur mapmaker working along the Mississippi River, achieved this effect by diminishing the size of black slaves and placing them in a corner, or “dressed them in fuller, more humane clothing to deemphasize their brutal treatment” or occluded them entirely. These paintings describe a peaceful, orderly, civilized Southern life.<sup>382</sup>

This narrative tradition was carried forward in an account of Elizabeth Britton’s childhood on a sugar plantation in Cuba, composed by her sister. “My earliest recollections were those of a happy childhood on the sugar estate, . . . We children had wonderful walks with Father, to the icy spring called ‘Ojo de Agua’ near Matanzas, where we fed the fish, which I think were blind. [I have a] vivid impression of being held by Father over an old well . . . the beautiful ferns and mosses growing on the masonry, as far down the sides of the well as we could see.”<sup>383</sup> The narrator continued, “Grandmother

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380 Poole, “Landscape and the Imperial Subject,” 110.

381 Guterl, *American Mediterranean*, 69.

382 *Ibid.*, 70.

383 Mrs. David Oakes, biography of Elizabeth Britton, Elizabeth Britton Collection, New York Botanical Garden.

Knight, who managed the estate after Grandfather died, was one of the first to free her slaves, but most of the 60 negroes refused to leave.”<sup>384</sup> In this account, a romanticized well becomes the source of a sister’s lifelong passion and career as a moss expert, while a nature made benevolent through the imagined fealty of agricultural laborers sustains the social sense of the work in its most personal dimensions. Slavery as a function of liberty is re-imagined in this place of autochthonous engagement, where one simply grows up, responding, as if directly, to a natural world.

The botanical travel narratives published in the Garden’s *Journal* extended the reach of this inherited reconciled landscape, which shaped the perceptions of traveling botanists. One coastal valley with a series of low waterfalls “ought to be made a park,”<sup>385</sup> one botanical narrator argued, since the cultivation at the bottom of the valley “presents an unattractive aspect.” Meanwhile, the “natural features” could be “restored by judicious planting and care of native trees and shrubs.”<sup>386</sup> An erasure of human life and activity is prescribed in this wished-for space of reconciliation. Imagined parks conceived uninhabited island territory for a colonial gaze.

Seemingly uninhabited outdoor space was also increasingly necessary to the work of botanical science. Barring some forms of engagement with the land was a way of creating a scientifically inhabitable space which, like the laboratory, was endowed with the capacity to certify knowledge produced there as scientific. What was described in Garden narratives was created on the Garden grounds, where harvesting was prohibited,

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384 Mrs. David Oakes, biography of Elizabeth Britton, Elizabeth Britton Collection, New York Botanical Garden.

385 Nathaniel Britton, “Botanical Exploration in Jamaica,” *Journal of the New York Botanical Garden* 9, no. 101 (May 1908), 88.

386 Ibid.

with the exception of the hay raised on the grounds before they were fully planted. Flowers, useful plants, fish, and firewood had to be left untouched. Economic activities such as selling food or carriage rides were also prohibited.<sup>387</sup> A fragile image of undisturbed natural space was created on the Garden grounds, and read into the places Garden researchers visited, bringing each place into a comparative framework structured by a compelling ideal which seemed to emerge from the essence of the places themselves.

Like the antebellum paintings imagining peace in the face of racial fear, scientific publications produced at the Botanical Garden narratively eliminated conflict through racial caricature. Travel narratives published in the Garden's journals took readers on regular trips to the Caribbean. Accounts often gave a day-by-day rendering of a botanical exploring party's travels across one or several islands. These accounts generally included both a named cast of characters and an unnamed cast. The named cast is featured in Chapter Two, as these were the directors of experiment station, estate owners, bureaucrats, and even presidents who hosted the researchers and crucially enabled their work in the "American Mediterranean." Published tributes to these members of the ruling class served as gestures of reciprocity keyed to a person's place in a social hierarchy. Less present was a ghostly cast of unnamed guides, muleteers, cooks, servants, and assistants charged with drying specimens at camp (whose work often proved dissatisfactory to the botanist in charge). Sometimes this cast was called upon to affirm the racial superiority of a narrator and his imagined readership. The racial logic structuring the evolutionary sciences of the era are deployed in one account of botanical collecting in Jamaica, "We had to fell many trees here and elsewhere in order to get their

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387 "Descriptive Guide," *Bulletin of the New York Botanical Garden* 7, no. 23 (August 2009), 89.

flowers or fruits, though in many instances they were had by climbing; [our negro guide] gave us an unconscious expert exhibition of climbing on one occasion when we sent him up a fifty foot *Mayapaea*, and happened to notice that he balanced the machete on his head all the way up to the lowest branch, some thirty feet!”<sup>388</sup> The racial stratification animating this story offered a surface of identification and knowing solidarity for the *Journal’s* white and civilizing readership. Racial difference was a structuring dimension of the repertoire of meaning made available in the Garden’s created landscapes.

The complex of landscape signifiers embedded in this rendering of racial difference and territorial provenance involves it in a project of emptying and openness that was intricately connected with contemporary formulations of democratic belonging.

A tradition of shaping landscapes in accordance with evolving notions of openness in England was well-developed by the time of the Botanical Garden travels. James Corner writes of the eighteenth century, “Increased travel across Europe and into the Americas and China . . . provided the impetus for a reaction against the rigid geometries of the French garden.”<sup>389</sup> China, in particular inspired travelers who noted the “natural” and “irregular” gardens to be found there, and the pleasurable experiences of their grottos and “wild places.”<sup>390</sup> Architects began to enumerate the formal principles of variety, contrast and distant views, and in England in the early eighteenth century, reformers and artists of landscape looked decidedly away from the Dutch and French traditions which contrasted with these values.<sup>391</sup>

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388 Nathaniel Britton, “Botanical Exploration of Jamaica,” *Journal of the New York Botanical Garden*, (1908), 86.

389 Corner, *Landscape Imagination*, 63.

390 *Ibid.*

391 *Ibid.*

The way that an aesthetic, a reform program, or an intellectual pursuit can become interesting and available to a class interest, can move in and out of its fold, without ever being fully enclosed by it or fully independent of it, is part of the story of the salience and life of the English landscape tradition. Aristocratic impulses found sympathy with the tenants of this unbounded aesthetic as an English eighteenth century turned toward an enclosing, expanding British nineteenth. David Cannandine has extensively described the reconfigurations of ownership and control taking place across the late eighteenth and early nineteenth centuries.<sup>392</sup> He describes a speed-up in the legal enclosures reconfiguring the English, Irish, Scottish, and Welsh countrysides, especially between 1793 and 1815, which saw two thousand legal enclosure acts, “as well as many private agreements which, like the acts themselves, were usually the result of local landowner initiative.”<sup>393</sup>

Travelers commenting on British designed landscapes in early and mid-nineteenth-century New York emphasized the potential of what they saw as the democratic openness of some of the British landscapes. Frederick Law Olmstead wrote, “I was glad to observe that the privileges of the garden were enjoyed about equally by all classes.”<sup>394</sup> A mode of social-spatial organization anchored in the notion of public prerogative informed the design and construction of Central Park, the many urban parks it inspired, including the Botanical Garden. Larger wilderness parks were also designed with public possession in mind. Anne Whiston Spirn described Yosemite as “the first

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392 David Cannandine, *Aspects of Aristocracy: Grandeur and Decline in Modern Britain*, (New Haven: Yale University Press, 1994), 13.

393 Ibid.

394 Frederick Law Olmsted, *Landscape into Cityscape: Frederick Law Olmsted's Plans for a Greater New York City* ed. Albert Fein, (Ithaca: Cornell University Press, 1968), 383.

tract of wild land set aside by an act of Congress.”<sup>395</sup> Olmsted, according to Spirm, felt that such “scenery” should never be private property - “rich men’s parks” in Olmsted’s words - “but should be held in trust for public purposes.”<sup>396</sup> At Yosemite, the “privileges of the garden” and the naturalness imputed to it became a force for territorial expansion.<sup>397</sup>

On the Garden grounds are to be found abundant citations of this tradition of English landscape design, and its ambivalent, productive openness. Serpentine paths through the “ancient” hemlock forest, stone bridges reminiscent of Calvert Vaux’s accomplishments in Central Park, and an overall emphasis on form and picture reflect this tradition’s ideologies. Landscape architect James Corner wrote that in the tradition of the “rusticated Picturesque,” the landscape was “pure image, reduced to a singular pictorial representation.”<sup>398</sup> The result, in Corner’s description, “was an aestheticized landscape, where form and picture became the primary content or meaning.”<sup>399</sup> One description of the museum building speaks to this custom of viewing nature as a picture, “[t]he order of pillars gives bold scale to the building, with vertical lines effective at distances, and in harmony with the woodland surroundings.”<sup>400</sup>

Scenic conventions posited by British landscape traditions and the frontier landscape painters from the mid-nineteenth century pervade the correspondence circulating through the botanical garden. Letters included scenes of beautiful, accessible and available landscapes. These were the sets upon which botanical work was

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395 Spirm, “The Legacy of Frederick Law Olmsted,” 92.

396 Ibid.

397 Ibid.

398 Corner, *Landscape Imagination*, 65.

399 Ibid.

400 “Description of the Museum Building,” *Bulletin of the New York Botanical Garden*, 1, no. 3 (1898).

performed, and relationships formed. “Can't you and Dr. Britton come to Ithaca this summer?” Elias Durand wrote to his friend Elizabeth from his post at the state agricultural college. “I should like very much to show you the country and go over some of our collecting grounds with you. You certainly would find it picturesque if nothing more. There are 18 large glens within ten miles of Ithaca all of them full of ferns and Bryophytes.”<sup>401</sup> Botanical outings such as the one proposed here, are the very substance of the work of the Garden, where researchers traveled annually to Florida and the Caribbean, and as often to more local glens.

The setting proposed romantic immersion and un-circumscribed vision. This animating Eden of American colonization was undergoing a transformation toward the end of the century. Ricardo Salvatore has described this shift as one in which “new visual (ideographic) representations” claiming “greater accuracy and objectivity,” were represented in new mass publications like *National Geographic*, and in disciplinary investigations sponsored by large institutions like the Carnegie and Rockefeller.<sup>402</sup> The invitation issued by the Garden to participate in its natural history drew energy from this technological turn in imperial cultural representation, even as it gave more precise definition to an American territorial vision.

### **Participation**

As the Botanical Garden grew as an organizing center of social power, intellectual exploration, and colonial adventure, the psychological rewards of participation expanded. Intimacy, belonging, and advantage were all part of discovering “How to Know the

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401 Elias Durand to Elizabeth Britton, 30 May 1897, Elizabeth Britton Collection, New York Botanical Garden.

402 Salvatore, “The Enterprise of Knowledge,” 82.



Mosses” or learning that the true family relations of the “Columbian Tail Flower” on display in the conservatory live nearby in the familiar landscape of the northeastern woods. A botanically trained observer learned to view the world synoptically, and to feel that as they encountered any one plant, they were in some ways encountering all plants. Botany’s dramas reveal themselves in the correspondence of scientists, sometimes opaquely, as in the case of the mostly formal and technical letters of Nathaniel Britton, and sometimes more openly, as in the case of Elizabeth Britton’s often more intimate and ranging correspondence.

The Garden managers, the engineers who drained its swamps, the architects who designed its structures, its gardeners, together created a landscape which was both “a veritable fairy land”<sup>403</sup> and a center for the production of a highly materialist knowledge of the natural world. A wish-assertion for an objective material world, alongside its subjective excesses generatively structured participation through invitation and containment. The botanical project, as we saw in Chapter Three, was essentially dependent on practiced convention for its appearance of natural stability and integrity. By participating in convention a botanically-inclined observer could feel as they looked upon the plants in their own backyard, that they were simultaneously comprehending something essential about plants growing in backyards everywhere. In this section I explore the affective ligature which shaped transient individual idiosyncratic experiences into resonating patterns of confident knowing.

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403 Gary Hermalyn, “A History of the Bronx River,” *Journal of the Bronx County Historical Society*, (1982): 112.

Elizabeth Britton worked with a close circle of microscopists, writers, and illustrators to produce a large body of published materials designed to aid observers in making fine discernments among mosses. Together they performed what Poole has named a “visual apparatus or discipline” by which personal claims to a generalized landscape without the property lines or deeds of real space, could be “daily reenacted as an essential component of each person’s physical and spiritual self . . .”<sup>404</sup>

The way that a botanical vision could become part of a person’s physical and spiritual self is suggested in a letter to Elizabeth Britton from a friend in the new state of Idaho. “But the desire to collect and preserve plants, with me is simply perfectly irresistible and I do not remember the time when it was not so. My parents when I was a boy rather frowned on this desire . . . I only hope my boy will take to Botanical Studies as I have tried to do . . .”<sup>405</sup> The epistemological modes generated at Garden provided a form for the innate longing for connection described in this letter. Where the writer’s parents frowned on his interest, he might have found a community of purpose at the Garden. The Garden created the appearance of a larger social world within it made sense for this plant-lover to encourage his own son’s participation in a particular line of inquiry with respect to plants. An inner impulse recognized, named and shaped toward some coordinated and broad scale effort is a largely hidden process made up of innumerable complex and irreducible encounters. The coordination of this spectral array of movements and possibility into space- and time- transcending patterns is the great accomplishment of the Foucaultian state, which announces its existence as a supra-human

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404 Deborah Poole, “Landscape and the Imperial Subject,” 116.

405 John Leiberg to Elizabeth Britton, 13 January 1890, Elizabeth Britton Collection, New York Botanical Garden.

authority, through the coordinated motions of disciplined bodies. The appearance of over-arching order and authority, replete with power and direction, depends on these personal encounters and enactments. The collective botanical endeavor, with the solid authority the Garden's museum building and ordered landscape standing behind it, served as an avenue of expression for a "perfectly irresistible interest" in the natural world. Confirmation by an esteemed, and well-organized body of peers sanctioned the interests of many Botanical Garden correspondents whose passions for microscopy, drawing and painting, and collecting found form under its auspices.

When the *Bulletin of the Torrey Botanical Club* entered circulation in 1870, its editors proposed not only to bring the area's botanists into closer communion with one another, but also to give this inspired concourse a definite direction in the form of a collective project, a "new catalogue" of all the plants growing within 33 miles of New York City.<sup>406</sup> It would be a revised catalogue of the plants, "native and naturalized" in the region. This long-contemplated project would remain incomplete, "without the cooperation of those who herborize in all the different regions of our district." Particularly, readers who knew "of observers, not yet in communication with the Club," should provide the Club with the postal addresses of these "observers." In this way, the catalogue would be more "serviceable and authentic."<sup>407</sup>

Twenty years later, Elizabeth Britton framed a program of research that would enlist all of her "botanical" readers in an encompassing project of gathering plants in all the states and territories. "Within the last five years a great work has been planned, The

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406 "Prefatory," *Bulletin of the Torrey Botanical Club* 1, no. 1 (January 1870): 1.

407 Ibid.

Systematic Botany of North America.”<sup>408</sup> “This is to include descriptions of all plants, from the lowest to the highest, from the smallest of the bacteria to the largest of the trees, which are found on this continent.” Already, “many specialists from numerous institutions, and students in all parts of this country, have promised to cooperate.” Participation would be a great honor, Britton suggested, and she hoped that readers would “aspire to that privilege.”<sup>409</sup>

Elizabeth Britton addressed her readers in the popular botanical publication *The Observer* with a plea for participation: “This is the theme of my greeting to you; we want every botanical reader of *The Observer* to feel that it is his or her duty to help. That this duty will be a pleasure, we can promise. To suggest to you how you may help is easily done, to show you how, will be our duty hereafter.”<sup>410</sup> “From a bowing acquaintance” with plants, Elizabeth Britton promised readers of her popular articles, a novice botanist would eventually find intimacy with the plant forms they studied.<sup>411</sup>

Learning botanical conventions would enable participants to deepen their involvement with the landscapes they traversed, while also joining with a larger group of committed naturalists. Elizabeth Britton worked assiduously to share these conventions with readers of publications like *The Observer*: “The notes should follow a regular sequence which should be committed to memory and regularly followed, so that a habit of systematic observation may be formed, and no points overlooked.”<sup>412</sup> Note-taking

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408 Elizabeth Britton, “Cryptogamic Botany,” *The Observer: An Illustrated Monthly Magazine of the Outdoor World and Microscopy* 5, no. 3 (1894), 162.

409 *Ibid.*

410 Britton, “Cryptogamic Botany,” 161.

411 Elizabeth Britton, “How to Study the Mosses,” *The Observer: An Illustrated Monthly Magazine of the Outdoor World and Microscopy* 5 no. 3 (1894), 114.

412 Britton, “How to Study the Mosses,” 84.

practices connected individuals who adopted them into a larger world of meaning and coherence structured by conventional patterns. In correct note-taking practice, an observer could bridge the distance between their transient, isolated experience, and a firm ground of definite meaning.

“Like all other plants the mosses have two names, the generic or first name, which indicates its relationship, and the specific or second name, which indicates its individuality.”<sup>413</sup> So Elizabeth Britton instructed her readers in “How to Study the Mosses,” a four-part series published in *The Observer* in 1894. The Linnean system to which Britton referred had been profoundly efficacious for the science of botany because it enabled broad participation in a project of supra-human scale. A botanical colleague of Britton’s wrote, “Probably one reason for the vogue of the Linnean conception of species for the past century and a half is that it is so well adapted to the mental requirements of botanists the world over.”<sup>414</sup> Linnaeus’s system was organized around the number of stamens found on a plant. Though Linnaeus could not, according to Peter Stevens, “assert that they represented the essence of plants,” the number of stamens was “an easy character to see.”<sup>415</sup> McOuat has described how the pre-Linnean belief that names for plants had to capture a plant’s essence was jettisoned by nineteenth-century botanists who came to see names as arbitrary.<sup>416</sup> Names could serve as mnemonic devices by reflecting some visible feature of a plant, but they in no way emanated from or essentially belonged to the organism itself. Still, botanists ever aimed to reunite names with the natural order

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413 E.G.K. Britton “How to Study the Mosses,” 116.

414 Charles Bessey, “The Taxonomic Aspect of the Species Question,” *The American Naturalist* 42, no. 496 (April 1908): 220-221.

415 Peter Stevens, *The Development of Biological Systematics*, 128.

416 McOuat, “Species, Rules and Meaning,” 480.

from which they were separated. Anticipating this event, Nathaniel Britton wrote, “It appears as though our present methods of nomenclature would prove insufficient to meet the necessities of this new biological era, so rapidly opening before us, but what will be substituted for them is not yet clear.”<sup>417</sup> The knowledge of mosses proffered here is predicated on a proposed separation between things as they actually are and language itself. A generative rift demanded of participants an indefinite attention and deference to a literal empirical reality located beyond the concrete facts of their own apprehension.

Technology afforded access to that realm where people could not go on their own. The Head Gardener for the New York Botanical Garden recounted a visit to Haiti in 1904. The account devotes substantial attention to his research outfit. During a trip the year before, Head Gardener Nash “felt exceedingly the lack of instruments for determining altitudes, temperature and humidity,” and so on this trip, provided himself with good measuring devices.<sup>418</sup> Nash was pleased with the accuracy of his barometer. With it, he determined the elevation of many small mountains, including Mt. Piment, which stood at 2,550 feet. Earlier botanists visiting this region had relied on resident experts for knowledge about the places where they traveled and the plants living there.<sup>419</sup> But by the late nineteenth century, New York botanists could travel with the help of plantation owners and managers like the Mssrs. Cassé and Hermann who provided Nash with a base of operations near Bayeaux, as well as mules, tents, and guides, and,

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417 Nathaniel Britton, “Our conception of ‘species’ as modified by the doctrine of evolution,” *Transactions of the New York Academy of Sciences* 13 (March 20 1894): 132-135 135.

418 George Nash, “Further Explorations in the Republic of Haiti,” *Journal of the New York Botanical Garden*, 170-191, 172.

419 Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the British Atlantic World* (Chapel Hill: University of North Carolina Press, 2006), see especially 215-258. Schiebinger, *Plants and Empire*, 199.

crucially, inroads with regional customs officials. With all of this support, and especially the certainty afforded to him by his barometer, Nash found that it was “useless to rely upon the judgment of natives.”<sup>420</sup> “[T]he mountain people assured me that Mt. Piment was the highest point around there,” Nash recounted, yet his barometer told him that the mountain was 450 feet lower than a neighboring mountain in plain sight from Mr. Piment, proving their unknowingness.<sup>421</sup>

Together, the scientists, gardeners, and other observers of plants, as they came into affiliation with the Garden, created a natural, accessible world underlying the political boundaries of the independent republics increasingly united by what Salvatore describes as a new Monroe Doctrine - “an ideology of mutual cooperation among American states.”<sup>422</sup> This cooperation was organized in concert with an expanding “orbit of ‘American’ collective knowledge” and the new technologies of observing and representing reality.<sup>423</sup> It was structured through the racial animus of the plantation regimes, and the generative circuits of knowledge exchange linking diversely claimed territories. Objectivity and accuracy became alluring objectives in and of themselves, and botanical conventions promised participants access to both. By engaging with the conventions of botany, a participant could gain some certain knowledge about the place they were living in, and the larger world at once.

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420 George Nash, “Further Explorations in the Republic of Haiti,” *Journal of the New York Botanical Garden*, 6, no. 71 (November 1905): 176.

421 Ibid.

422 Salvatore, “The Enterprise of Knowledge,” 78-80.

423 Ibid.

### Formal and Informal Power

In 1858, the nascent Torrey Botanical Club was still an “informal band of collectors” who gathered from time to time, either for a field trip, or for a visit to the Columbia College Herbarium where they could enjoy the company of John Torrey, botanist for the New York Geological Survey.<sup>424</sup> Twelve years later, in 1870, a fully-fledged Torrey Botanical Club began publishing its own *Bulletin*. The object of the publication was “primarily to form a medium of communication for all those interested in the Flora of this vicinity, and thus to bring together and fan into a flame the sparks of Botanical enthusiasm, at present too much isolated.”<sup>425</sup> As this club reimagined itself as a more public institution, for example by occupying public land, its members constructed a botanical polity that embraced formal, impersonal modes of expressing power, while drawing from a reservoir of social and ownership meaning rooted in the informal, private, and tradition-bound.

The Club progressively formalized itself between the 1870’s and 1890’s. It began to issue publications about itself, gained a legal charter, and finally, in 1891, established itself in the New York landscape in the form of a botanical garden. This institutionalization can be viewed in the context of members’ sensitivity to modern authority’s careful modulation of personal and impersonal expressions of authority. Whereas family lineages such as those embodied in the Hudson Valley estates structured the passage of wealth and land along generations in a “vertical line of descent,” privileged belonging through botany found a horizontal form in the “affiliative order” of

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424 Edward Burgess, “The Work of the Torrey Botanical Club” *Bulletin of the Torrey Botanical Club* (1900), 552.

425 *Bulletin of the Torrey Botanical Club* 1, no. 1 (January 1870).



institutions. Gauri Viswanathan described institutions as “the new repositories of cultural capital that replicate the functions of the family in disseminating . . . values, principles, and dogma.”<sup>426</sup>

The Club was a place of social significance where young botanists enjoyed the aura of tradition and authority that older botanists with renown brought to the meetings.<sup>427</sup>

Paleobotanist Arthur Hollick recalled his voyages to attend meetings of the Club:

“Attending meetings in those days was not so easy as it is now – I mean for out-of-town members. I lived at Port Richmond on Staten Island. The last boat to the island was at 9pm. I used to take the midnight train on the Central Railroad of New Jersey at Liberty Street, get off at Bergen Point Station, walk three quarters of a mile to the shore of the Kill van Kull, wake up a man who lived in a little shanty there, and hire him to ferry me over to Staten Island in a rowboat, arriving home about 1:30 am. Sometimes, in winter, the trip was not a comfortable one; but I do not recall that I ever thought it a hardship, and, to the best of my recollection, I think I merely regarded it all as a matter of course.”<sup>428</sup>

Traditional botanical ritual brought practitioners into relationship with an intellectual inheritance and created a sense of historical coherence. Philip Pauly writes that in England, “Men such as Sir Joseph Banks controlled a material, intellectual, and moral ‘economy’ in which objects and information were exchanged according to the informal but elaborate rules long established within aristocratic networks.”<sup>429</sup> According to one narrative of the Torrey Botanical Club’s origins, its symbolic beginning occurred when a Dr. Allen, who, while out walking, recognized the nodding, bell-shaped flower of

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426 Gauri Viswanathan, “The Naming of Yale College” in *Cultures of United States Imperialism*, ed. Amy Kaplan and Donald Pease (Durham: Duke University Press, 1993): 90.

427 “Torrey Botanical Club Retrospective,” Proceedings of the semi-centennial anniversary of the Torrey Botanical Club, *Memoirs of the Torrey Botanical Club* 17 (1918): 29.

428 Arthur Hollick, “Torrey Botanical Club Retrospective,” *Memoirs of the Torrey Botanical Club* 17 (1918): 30.

429 Philip Pauly, *Biology and the Promise of American Life: From Meriwether Lewis to Alfred Kinsey*, (Princeton: Princeton University Press, 2000), 21.

a *Clematis ochroleuca*, and “brought his prize to Dr. Torrey.”<sup>430</sup> After that inauguration through discovery and gift, people began to gather regularly. A few decades later, Elizabeth Britton re-enacted in narrative this scene when she described her discovery of a rare fern, *Schizaea pusilla* hidden underneath some orchids at the edge of a lake in Nova Scotia. She collected the specimen and brought it to Asa Gray at Harvard, where its reception by the eminent botanist sanctified her discovery and elevated her status as a collector and knower of plants.<sup>431</sup> Still early in her glowing career, Britton found herself on the other side of this ritual of presentation, as she presided over a network of moss collectors, illustrators, and specimen mounters who sent hundreds of specimens to her at the Botanical Garden. Her encyclopedic knowledge of mosses grew as more people sent her materials, out of interest, for money, or as part of ongoing exchanges connecting collectors and other experts with Britton. “You may have a new species!” she might have congratulated a collector, and certified his expertise.<sup>432</sup> Ritual configured scales of temporality, social significance, and institutional reach.

The landscape form the Club chose for itself, the manner in which it would affirm its existence, its conservatories and museum, all referenced an emerging power of late-nineteenth century imperial cities. In this way, the group found support for its program, and for the land deal it proposed. If the words of its first Scientific Director and most ardent proponent can be credited, the 1891 botanical garden bill “passed rapidly through both houses of the Legislature, encountering no opposition whatever, but rather the most

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430 Edward Burgess, “The Work of the Torrey Botanical Club,” *Bulletin of the Torrey Botanical Club* (1900), 552.

431 Cited in Rossiter, *Women in the Field*, 124-125.

432 Elizabeth Britton to Severin Rapp, 30 December 1913, Elizabeth Britton Collection, New York Botanical Garden.

cordial support.”<sup>433</sup> Through the power of landscape tropes, the Garden placed itself into a more formal association with the state. Its social and political power amplified as the group’s existence was stabilized in the public landscape and reflected municipal power more broadly.

When Judge Addison Brown, president of the Torrey Botanical Club and legal architect of the Botanical Garden, “formally transferred the project from the Botanic Garden Committee of the Torrey Botanical Club to the Incorporators of the New York Botanical Garden,” the Club expanded the legal reach of its delegated sovereignty. Corporations have provided the social-legal framework for collective endeavor and imperial expansion. The existence of this corporation, its coupling of public land and funds with dynastic and speculative wealth, enabled not only the creation of a physical expression in the landscape for the club, but also the ongoing passages abroad that secured the meaning of the Garden without which, it would fall apart. Harris has described a long relation of science to a social and legal form that enabled its work and truth-making processes, “Like a ship’s silent wake or the silk route across the steppes, if these paths were not regularly remade through repeated cycles of travel, they would be quickly reabsorbed by nature and thus vanish entirely from the world of human intercourse.”<sup>434</sup> Repeated patterns of travel, circuits of exchange of plant-objects and knowledge about them, gave to the informal band of collectors the sense of being connected to some much larger, more permanent order in the universe.

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433 Nathaniel Britton, Minutes of the Board of Managers Meeting, 1891, Addison Brown Collection, New York Botanical Garden.

434 Harris, “Long-Distance Corporations,” 275.

Establishing municipal control in the landscape was a central dimension of the political project of the Botanical Garden, as discussed in previous chapters. After a visit to the New York Botanical Garden in 1906, a reporter recounted his walk along old paths set down by the former owners of the land and then the new, paved and snaking Beaver Swamp Road. He was taken by surprise at a sudden view from within the woods of the “charming crystal domes of the ‘Glass House’ with its wealth of palms.”<sup>435</sup> It is a “veritable glimpse of fairy land,” reporter Randall Comfort concluded.<sup>436</sup> Surreal urban spaces, including glasshouses at botanical gardens and public parks, formed part of a nineteenth-century iconography of urban, municipal landscapes. Berlin, Copenhagen, Florence, Lyon, Madrid, Liverpool, Glasgow, and Brussels were among the cities hosting instances of this new architecture, which, in its use of iron to replace bulky wood and masonry structures, represented “a qualitatively new step in construction and in the concept of space,” and “became the basis for twentieth-century modern architecture.”<sup>437</sup>

An earlier glasshouse built at the *Musee d’Histoire Naturelle* attracted enormous crowds, who were, according to historian Renzo Dubbini, “thrilled by the brilliance of its design and entranced by the profusion of rare species on display.”<sup>438</sup> A new winter garden followed at the Champs Elysées in 1846 and received a similar response.<sup>439</sup> In contrast, a private glasshouse complex imagined by Alphonse Balat for a monarchical residence north of Brussels was completed in 1895, and included the King’s glass-covered royal

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435 Hermalyn, “A History of the Bronx River,” 112.

436 Ibid.

437 Georg Kohlmaier and Barna von Sartory, *Houses of Glass: A Nineteenth-Century Building Type*, trans John Harvey (Cambridge: MIT Press, 1986), 2.

438 Renzo Dubbini, “Glasshouses and Winter Gardens,” in *The History of Garden Design*, ed. Monique Mosser and Georges Teyssot (London: Thames & Hudson, 1990), 427.

439 Ibid.

chapel, as well as his private *Congoserre*. Of Balat, one admirer wrote, “His genius at Laeken was to span and capture space in a web of iron and steel so thin as to make the results seem as weightless as a fish skeleton.”<sup>440</sup>

Ten thousand designs for similar glass structures can be found in the archives of the Lord & Burnham Company, a Hudson River-based glasshouse firm whose commissions included the estates along that river, mostly for glasshouses constructed around the turn of the twentieth century.<sup>441</sup> This company had plenty of experience to draw from, then, when its workers began construction on a glasshouse at the New York Botanical Garden in 1899. At the Garden’s greenhouses, visitors joined with their counterparts across the Atlantic as they entered the dream space of the redeveloped nineteenth-century municipality. In other cities, a growing need to justify governance on the basis of public utility pressed glasshouses, as well as botanical gardens into public service. At Kew for example, from the mid-nineteenth century, Director J.D. Hooker was pressured into expanding the days and hours of public access.<sup>442</sup> In New York, Garden managers proclaimed the landscape’s public accessibility, free and open, all days from the outset. Managers embroiled in city and state politics and courts comprehended the emerging power of a politics centered around the authority of a public interest. Thus, these webs of iron and steel and glass were spun by the eminent political technology of that century, as much as by its advances in materials manipulation.

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440 Dale MacKenzie, “Brussels’ Palace of Glass & Greenery,” *Smithsonian* 31, no. 12 (March 2001): 110.

441 Lord & Burnham Co. Records, New York Botanical Garden, New York.

[https://www.nybg.org/library/finding\\_guide/archv/lord\\_burnhamf.html](https://www.nybg.org/library/finding_guide/archv/lord_burnhamf.html).

442 Ray Desmond, *Kew: The History of the Royal Botanic Gardens* (London: The Harville Press, 1995), 223-239.

Inside the conservatory, botanical objects represented a landscape made accessible by science. Head Gardener Nash described an appealing specimen living inside of the Garden's glasshouse like this, "Between the modest little jack-in-the-pulpit of our own wet woods and this giant from the forests of Colombia there is apparently a world of difference, and so there is in general appearance, but an examination of the flowers of each will quickly show that they are members of the same family, and it is these constant and essential resemblances which indicate their affinity."<sup>443</sup> The tail flower hailed from Columbia, but did not belong to Columbia, so much as it belonged to a natural family that also included the familiar jack-in-the-pulpit of the northeastern woods.

As science gained a place for itself in the cultural field in the early twentieth century it began to more actively expel the structuring narratives describing class solidarity transpiring in natural settings. It immersed itself more fully in its own analytic systems. However, a study of the written communication circulating among disparate locations in the US, Caribbean, London, and elsewhere, shows how botany at the turn of the twentieth-century established common ground among its participants through an intimacy premised on racial exclusion and a shared sense of ownership.

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<sup>443</sup> George Nash, "A Remarkable Plant of a South American Tail Flower," *Journal of the New York Botanical Garden* 3, no. 36 (December 1902), 222. (221-222).

## CONCLUSION

In this dissertation, I have described how two new world sites were enlisted into the reproduction of a European imperial form, the botanical garden. I have examined the local political circumstances and opportunities which gave this form a place in the landscape in New York in 1891, and a role in the shaping of social and spatial organization in the hemisphere. Additionally, the distinct trajectory by which an older, British botanical garden was created in the mountains north of Kingston, Jamaica in the 1860's for the cultivation of cinchona for the British empire illustrates the ways that such sites can foster imperial interconnectivity. In the relationships connecting this site in Jamaica to a larger set of botanical stations and imperial projects, including finally, that sponsored by the New York-based corporation, it is possible to explore some of the ways that historical inequalities rooted in plantation regimes were recouped by new forms of scientific knowledge production. Some of the ways that governing agents and the broader polities they represent in New York, San Juan, Havana, and Kingston are differentially beholden to larger imperial exchange circuits and the imperatives of the US national state are suggested in this history of interconnected botanical enterprise.

An alliance with the British colonial government in Jamaica through the use of the botanical laboratory "Cinchona" supported the Garden's effort to become an authoritative center of knowledge production, on par with those of other colonizing municipalities, like the Royal Botanic Garden at Kew. The infrastructure afforded by the British colonial government enabled the New York researchers to generate botanical science and respond

to the imperatives this knowledge proposed, and to project a vision of a natural landscape unaffected by politics, land occupancy, or alternative interpretations of the lands.

Maximizing the capacity of imperial centers to enlist national and extra-national lands into agricultural projects was a shared goal animating a politics of competitive and collaborative emulation.

By combining a site-based approach with a study of the territorial efficacy of botanical knowledge, I have illustrated the political stakes enabling and propelling an empirical science's claims to a-perspectival knowledge. Such an approach is meant to interrogate the idea of empires as "clearly bounded geopolities" and to explore the fragile work of recreating social hierarchies by imagining colonial problems and programs in new contexts.<sup>444</sup> Placing the geological surveys that structured US continental expansion in the nineteenth century in relationship with the British imperial botanical infrastructure in Jamaica enables a view of imperial formations as active, contingent and self-contradicting projects, not contained within, so much as enabled by, imagined national geographies.

Similarly, the public parks developed in New York in the second half of the nineteenth century innovated upon an emerging territorial technology. The public landscape in New York compellingly represented a form of land claim fundamental to US territorial expansion. An emerging public landscape in New York eclipsed a former territorial framework in which legitimate claims to land were closely associated with cultivation and occupancy. The public landscape organized a territorial vision wherein legitimacy derived from a proposed benefit accruing to a vague and mystical body of

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444 Stoler and McGranahan, "Refiguring Imperial Terrains," 9.



deserving constituents. As the Botanical Garden gained a place in this landscape, it added a new spectrum of territorial agencies based in empirical knowledge to the rhetorical force of public ownership. The Garden posited a discrete existence for itself in the landscape of an expanding New York, however its real geographical agency was dependent upon its staff's capacity to organize perception, enforce convention, and create affective bonds linking raced participants to one another and to a particular vision of landscape.

I treat territory in processural terms, as not simply land that is governed, but as a historical set of processes for determining what it is that is being ruled over, to borrow Stuart Elden's formulation.<sup>445</sup> Temporarily constituted patterns of ideas about how claims to ownership and jurisdiction can be asserted and recognized were produced at the intersections of public land, materialist science, and imperial racial hierarchy.

The appearance of measured land, unburdened with historic claims, either legal or moral, provided a framework for involvement in New York and in the Caribbean by governments based in New York and London. But a larger significance of botanical work to ongoing restructurings of social and spatial relationships is suggested by Salvatore's argument that late in the nineteenth century, "an ideology of mutual cooperation among American states" premised on the knowledge capacities of northern institutions was emerging to facilitate the transformation of landscapes in Latin America according to the dictates of those disciplines. In an era when the capacity to maximally exploit national lands was essential to survival as an independent political entity, botanical science was

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<sup>445</sup> Elden, *Birth of Territory*.

useful to governing bureaucracies in the region, irrespective of the degree to which those governments were beholden to local constituencies.

U.S. American imperial actors sought out and innovated upon those patterns of knowledge and exchange. By exploring one expression of this form in a US American context, it is possible to better account for the co-emergence of scientific authority in New York and the changing forms of involvement in Caribbean and Latin American lands.

In the dissertation, we saw how in New York, as in Jamaica, a network of relationships were given formal and legal expression in the incorporated botanical garden and were supported by longer-lasting class ties and cultural affinities excessive of posited national boundaries.

Part of this shared cultural knowledge is expressed through an invented landscape, the elements of which have traveled through colonial and imperial networks, finding expression in the municipal projects of reformers interested in social order and the aesthetic amelioration of class differences in the imagined open landscape of a park.

This terrain of intervention was integrally connected to a problem inherent in plant systematics in the nineteenth century. Botanists found it difficult to establish the objectivity of their work, as disagreement about the meaning of categories like “species” revealed the contingency of the interpretations and the names given to plants. Accuracy, stability of practices, and theories which would give the science more predictivity were essential concerns for the scientists. Historians of science have examined the ways that particular scientific endeavors have sought to legitimate their knowledge claims,

achieving observer-independence through techniques like statistical representation and averaging, measuring tools, experiment and self-discipline. These Enlightenment preferences for creating knowledge remained elusive for plant systematists following the great influx of plant forms to European herbaria in the late-eighteenth and nineteenth centuries. The Garden's efforts to rationalize plant naming might be viewed as part of a broader imperial framework, aiming for trans-global communication organized around an underlying belief in the ultimately material, orderable nature of the world, as pictured by botanical science.

The generative tensions of late-nineteenth-century botanical science channeled resources and institutional energy into a reconfiguring of governance in New York and the Caribbean. Scientific collaborations and imperatives succeeded in channeling resources into projects with implications for agricultural and industrial expansion. They expanded the scope of intervention and inspired confidence in expensive imperial and colonial projects.

A developmentalist political logic that came to dominate the terms of collaboration by which the governing classes of national states would communicate and organize collaborative efforts finds its infrastructure in the agricultural work of this period. New types of programming and institutions designed to channel resources more directly into projects promising to heighten the capacity for intervention in plants' life processes were one outcome. The re-arrangement of terms by which colonial governments would relate to the Colonial Office in London, and the elaboration of new practices of intervention based in science linked the British government more closely to

colonies and planters in the West Indies.<sup>446</sup> In the US similar ties were being forged linking both state- and privately-sponsored scientific institutions to locations in the territory claimed unilaterally by the US, as well as regions without formal, explicit state claims. The New York Botanical Garden was more flexible than both state organizations. This flexibility earned the researchers a place in a European scientific network dominated by Kew and the German institutions.

The space of transposition between objects and representations appeared as a neutral, interesting problem in the natural sciences of the late-nineteenth century. The imagined extraction of language from objects was central to the European indexing project of the eighteenth and nineteenth centuries where conceptual grids turned names into technical reference tools, and wedged apart a presumed essential quality from an inadequate, arbitrary indexical name.<sup>447</sup> The tension created by this gap produced through the surveying projects was generative. It held out the promise of understandings that could speak to both economic utility and natural truths, and demanded ever more research involving large institutions and networks devoted to parsing the material bodies and understanding the forms and mechanisms supporting plant life. The positing of a natural essence, even as botanists recognized the non-existence of discrete species, was a political project taken up by the founders of the New York Botanical Garden as they sought to coordinate local and distant energies around the construction and ongoing reenactment of a fragile materialist dogma.

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446 William Storey, "Plants, Power and Development: Founding the Imperial Department of Agriculture for the West Indies 1880-1914." in

447 Schiebinger, *Plants and Empire*, 197-198.

The Garden was an essentially political project, drawing inspiration and support from the politically efficacious public landscapes of emerging municipalities globally, from the British West Indian plantation infrastructure, and from a broad web of institutions supporting plant research through colonial enterprise. The quality of fact proposed by the botanical endeavor carried a particular political salience in late-nineteenth-century New York. It was deeply intertwined with a political process devoted to containing and preempting the difficult negotiations entailed by republican institutions and other forms of broad-based participation, and to securing more exclusive control over speculative opportunity. The Central Park Commission fundamentally enabled the development of the Garden, where both the land condemnation and the planned disposition for it was achieved by a small number of actors committed to a particular vision of municipal development and political legitimacy.

The wish to exclude value from the essence of matter is not an innocent inheritance from the vault of the European Enlightenment. Rather, both the impetus of such a philosophy, and its location in a self-contained European history of unfolding understanding are visions that are re-imagined both in the landscape of the New York Botanical Garden, and in the rules and conventions proposed there for describing a larger botanical world. By securing a Linnaean starting point for botanical naming, a “rational” process for matching names to specimens to more efficiently bracket complexities of interpretation and history, the botanists posited a scientific status for their discipline. This scientific status promised patrons of the Garden efficacy: their work sorting plants would lead to the discovery of economically valuable information through processes that

render plant life comprehensible. It also created a view of inert, tractable territory understandable through scientific mechanism. This ahistorical natural knowledge was proposed as having emerged from a history of European progress in science. This progress and its connection to public well-being was proposed in the economic displays at the Garden's museum, as well as in the magnificent lording architecture of the Garden grounds.

The production of difference and the imagining of territory converge in the constellation of the activities sponsored by the Botanical Garden. To conceive botanical travel narratives, with their racial constructions and economic ambitions, as of a piece with the extensive work discerning patterns among plant forms, is to point to some of the ways that discerning the material truths of plants belongs to a set of political experiments animated through the creation of social difference.

In this dissertation I have explored how processes for re-imagining social difference and enacting dispossession are lodged in the most basic material facts of plant life. If history is to be, as Kew historian Richard Drayton suggested, “a means through which a sense of what we share with other [people] is enlarged,” and “an instrument through which we are equipped for the fullest possible creative collaboration with all other human beings,” then it might usefully look to the ways that participation is necessarily circumscribed through the universal knowledge projects.<sup>448</sup> Further, the universal knowledge project described in this dissertation took energy from a plebiscitary politics premised on territorial dispossession for public benefit. Botanical science in this instance came to depend, even as it insulated itself from political processes for allocating

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448 Drayton, “Kings College,” 158.

funds and deciding the disposition of land, upon its utility to a seemingly uncircumscribed body of beneficiaries.

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