Plant Infrastructure

Mangoes, Race, and Empire in Early Twentieth-Century Miami

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Abstract This essay analyzes Miami as a place where plants are a major component of urban infrastructure. The centrality of tropical plants to the growth of Miami connects that city to the history of empire, where control of plant matter was the violent model for the standardization and distribution practices of modern infrastructure. In Miami, the US Department of Agriculture established a Plant Introduction Garden in 1898, with "Agricultural Explorer" David Fairchild activating networks connecting India, Kew Gardens, and Washington to bring mostly Asian tropical fruits, shrubs, and flowers to South Florida. A close reading of archives of botanical gardens, plant nurseries, and community organizations shows that Miami plant infrastructure was created jointly by these elite political/scientific networks and by vernacular, informal networks of Black labor migration and horticultural know-how. The essay focuses on the cultivation of Miami's best-known plant product, the Haden mango, and the vital role in its propagation played by Black Bahamian gardener Nathan Sands, whose letters to his employer David Fairchild are preserved in the latter's papers. Recovering the stories of people like Nathan Sands is vital to understanding the development of a global metropolis whose plant infrastructure erased the Black horticultural work on which it depended.

Keywords Miami, plants, infrastructure, race, imperialism

In the small library of the Miami branch of the Hawaii-based National Tropical Botanical Garden, dozens of typed index cards fill a metal file drawer labeled "Catalog: Plants on the Kampong." Arranged alphabetically according to Latin binomial, each card represents an individual plant that grew in the garden in the first half of the twentieth century, as documented by the botanist and bureaucrat David Fairchild, who bought the property in 1916 as his family home and named it "the Kampong," a transliteration of the Malay word for *village*. Belying its dented, nondescript exterior, this botanical card catalog contains the seeds of a rich story about plants, race, and empire in the twentieth-century infrastructure of an American city.

Filed under the letter *M* in the drawer are cards listing the provenance, cultivation history, and garden location of some examples of the species of tropical fruit tree that

Environmental Humanities 16:1 (March 2024)
DOI 10.1215/22011919-10943105

Fairchild believed would be transformative for the development of Miami: *Mangifera indica*, more commonly known in English as mango:

> Mangifera Indica Mango
>
> Var. Kavas ji Patel S.P.I. 29507. Introduced from Bombay region, Poona, through Wm. Burns Economic Botanist there. Recd Nov. 17, 1910, Numbered Feb. 7, 1911. Sands grafted an old seedling mango standing beside the road with a bud stick that he got from Edward Simmond[s] at the Brickell Ave Garden about 1923??[1]

Despite its humble form, this archival document has all the hallmarks of imperialist natural science: close observation, detailed recordkeeping, and a system of numbering and classification to facilitate the attempt to control nature by transferring and manipulating biological matter across a global network—a network that in this case encompasses the most significant part of the British Empire, India. An index card recording a common fruit tree opens a window to the worldview and the imperial history recently critiqued so compellingly by Amitav Ghosh in his book *The Nutmeg's Curse*: "The vision of world-as-resource. To see the world in this way requires not just the physical subjugation of people and territory, but also a specific idea of conquest, as a process of extraction."[2]

David Fairchild, head of the Office of Foreign Seed and Plant Introduction of the United States Department of Agriculture, importer of cherry trees to the nation's capital and of avocados, sapodillas, and mangoes to Florida's subtropical southern tip, presumably did not imagine himself to be participating in conquest and subjugation when he gave himself the professional title "Principal Agricultural Explorer" for the USDA.[3] Nevertheless, he was acting in a long tradition of imperialist botany when he arranged to bring a seedling mango tree from the agricultural college established by the British in Pune to the USDA's plant introduction garden on Brickell Avenue in Miami, Florida, in 1910, where it was given the serial number SPI 29507 and joined dozens of other mango varieties and hundreds of other tropical plant species being tested, grown, and disseminated in the first decades of Miami's establishment as a US city.[4]

The centrality of horticulture and agriculture in the early marketing and building of Miami connects the city to the history of empire, in which the control of plant matter was the violent context for the development of infrastructure more generally in its

1. "Catalog: Plants on the Kampong," the Kampong, National Tropical Botanical Garden, Miami, Florida.

2. Ghosh, *Nutmeg's Curse*, 76.

3. Generally celebratory biographies of David Fairchild include Harris, *Fruits of Eden*, and Stone, *Food Explorer*.

4. "SPI" stands for Seed and Plant Introduction. For official documentation of the arrival of this particular mango, see United States Department of Agriculture, *Seeds and Plants Imported*, 28; Plant Inventory Books digitized by USDA National Germplasm Resources Laboratory, https://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/national-germplasm-resources-laboratory/docs/plant-inventory-books/ (last updated October 16, 2023).

modern form. As Susan Leigh Star and Geoffrey Bowker argue in their landmark book *Sorting Things Out*, systems of classification and standardization are the precondition for the establishment of modern infrastructure.[5] Building on the eighteenth-century Linnaean system of plant nomenclature, the imperial classification, standardization, commodification, and distribution of tropical plant products such as tea, opium, quinine, rubber, and sugar underwrote the infrastructural practices of industrialization and modernization—railways, telegraphs, mines, urban street grids—even as those new forms of infrastructure seemed to relegate plants to minor roles.

The nonvisibility of plants in modern infrastructure, however, may be a sign of the working of infrastructure itself, "its tendency to become normalized and fade from view, operating just 'beneath' (*infra*) the surface of the phenomenal world while facilitating the operations on which that world depends."[6] Recent work in infrastructure studies, imperial history, and environmental humanities by scholars such as Daniel Nemser and Ashley Carse has emphasized the entanglement of plants, people, and infrastructure. Analyzing the ecologies of the Panama Canal zone, for example, Carse concludes that "infrastructures produce environments, and vice versa. . . . Infrastructures give rise to political ecologies with winners and losers."[7] Writing about imperial botany in Mexico City, Nemser argues, "Although the botanical garden encloses plants instead of people . . . it is better viewed as continuous with rather than radically distinct from the centralized town, disciplinary institution, and segregated neighborhood."[8] The development of Miami in the first decades of the twentieth century could be understood as an extension of these claims: a racially segregated city that sought to manage subtropical wetlands to foster both commercial agriculture and a tourist economy that relied on flamboyant plant life for marketing purposes.

David Fairchild was at the center of these efforts from the start, persuading his superiors in Washington, DC, of the economic and scientific potential of subtropical agriculture and horticulture, and traveling the region to foster a network of white men (and some women) who loved plants as much as he did. In the journal he kept on a visit to Miami in 1912, a few years before he made the city his permanent winter home, Fairchild wrote, "Miami is like one big botanic garden, and we had the remarkable experience of chasing in automobile from one private garden to another six or eight miles away to see a rare tree or shrub."[9] Those private gardens relied significantly on the labor of Black workers who tilled the soil, plucked the fruit, and passed on their botanical expertise to the white people who employed them. In the case of Miami, those workers came from elsewhere in the US South and, especially, from the Bahamas, where

5. Bowker and Star, *Sorting Things Out*.
6. Nemser, *Infrastructures of Race*, 17.
7. Carse, *Beyond the Big Ditch*, 6.
8. Nemser, *Infrastructures of Race*, 136.
9. Fairchild, "Reminiscences of Early Plant Introduction in South Florida."

their expertise cultivating the plants and navigating the waters of the Lucayan archipelago was crucial to the development of Miami as a new city in the early twentieth century, given that climatologically and geologically the Bahamas and South Florida form a single ecosystem.

Retrieving their stories and revaluing their work means gleaning fragments from archives that were created and organized by people and institutions with vested interests in overlooking those very stories. Nevertheless, those fragments can be found and pieced together to create a fuller account of Miami's infrastructure. Rereading David Fairchild's mango index card reveals a person and a horticultural practice that cut against the imperialist idea of world-as-resource: "Sands grafted an old seedling mango standing beside the road." My research, unfurled in more detail in the rest of this essay, allows me to expand on, and enliven, Fairchild's note: a Black Bahamian gardener, Nathan Sands, connected a shoot of the imperial mango SPI 29507 (the Indian cultivar Kavasji Patel) to a branch of an unnamed, unnumbered local mango tree, one that was likely the volunteer offspring of a tree grown from a seed carried from Eleuthera, New Providence, or another nearby island and planted in the yard of one of the first wooden homes built on the edge of Biscayne Bay by Bahamian migrants in the second half of the nineteenth century. Those unnumbered trees, planted by people whose names have mostly been forgotten, form part of environmental history from below that is as vital to the establishment of Miami infrastructure as the imperial history of the world-as-resource.

Nathan Sands worked in the gardens of the Kampong for almost thirty years, half of that time fully in charge of the place, because the Fairchilds—like most affluent white people in the era before air conditioning transformed Florida infrastructure—left Miami for months every summer in search of cooler weather. Dozens of Mr. Sands's summer letters to his employer David Fairchild are preserved in the latter's archives, housed in the library of the grand botanical garden in Miami that now bears his name, Fairchild Tropical Botanic Garden. From those letters, and from other documents of South Florida environmental history, can be reconstructed a fruitful story of a Black gardener who was a typical figure of the kind of plant worker who built Miami, but who was also a singular historical figure due to his role cultivating the plant that is now the best-known product of early twentieth-century South Florida horticulture and agriculture, the Haden mango—the most commercially successful mango developed in the Americas, from which many of the world's most common contemporary cultivars derive. I focus on mango cultivation in early twentieth-century Miami as a case study in the development of urban plant infrastructure. That infrastructure, like Miami mangoes themselves, was the result of a complex and unpredictable interaction between the planning of Miami's elites and the informal, vernacular, and ecologically unplanned movements of Black people and their plants.

Miami plant infrastructure was created jointly at the intersection of global-imperial economic and scientific networks and of local-regional, informal networks of labor migration and horticultural know-how. The Orientalist worldview of many white residents of

Miami during this period—including David Fairchild, who named his home the Kampong in memory of his formative botanizing experiences in Southeast Asia—met the Black and Caribbean circuits that recentered Miami as a city of the greater Caribbean region. While Fairchild and the USDA botanists sought out Indian varieties of mango as superior to what they called the "jungle" or "turpentine" mangoes already growing locally, it was in fact through hybrid Indian-Caribbean grafts and accidental pollinations that mango agriculture developed in Miami.[10] On the index card for *Mangifera indica* ("mango carried from India"), natural history and imperial infrastructure are grafted onto vernacular horticultural expertise and Black place-making.[11]

Plant Infrastructure, Orientalism, Empire

Every article, every real estate marketing brochure, every tourist postcard of early twentieth-century Miami featured horticultural wonders: swaying palm trees, blooming hibiscuses, lush gardens. Early numbers of the region's first newspaper in the late 1890s, the *Miami Metropolis*, carried a masthead featuring a map of Dade County with inset images of the tropical fruit that could be grown there: bananas, pineapples, and coconuts.[12] The text of a 1928 souvenir booklet began: "Modern Miami is a veritable tropical Garden of Eden," accompanied by two dozen images of lush South Florida scenes to affirm the statement.[13]

Indeed, the founding myth of the city is a story of plant infrastructure. When a wave of freezing weather decimated citrus crops in central and northern Florida in 1894, early South Florida entrepreneur Julia Tuttle sent the railway magnate Henry Flagler a box of orange blossoms from her Miami trees as evidence of the bountiful possibilities of subtropical southern Florida and as incentive for Flagler to extend his railroad south to Miami.[14] While citrus agriculture in fact never became big business in Miami—the climate and soils are not ideally suited to oranges and lemons—the story Miami tells itself about its rapid development is one that fulfills what Julia Tuttle described as "the dream of [her] life": "to see this wilderness turned into a prosperous country. Where this tangled mass of vine, brush, trees and rocks now are to see homes with modern improvements surrounded by beautiful grassy lawns, flowers, shrubs and shade trees."[15] Miami became a city in part through the vigorous propagation of gardening and horticulture.

10. Robert Knight and Raymond Schnell, Miami-based botanists at the USDA's National Plant Germplasm Repository, note that all common Florida mango cultivars "have been chance seedlings; despite considerable effort, none has come from controlled breeding—a humbling thought to plant breeders." See Knight and Schnell, "Mango Introduction in Florida," 142.

11. The literature on Black placemaking and Black ecologies is vast, but see McKittrick and Woods, *Black Geographies*; McKittrick, *Demonic Grounds*; Gumbs, *M Archive*; Roane, "Black Ecologies."

12. Early issues of *Miami Metropolis* are digitized and available through the University of Florida George A. Smathers Libraries Digital Collections. For the masthead see, for example, January 1, 1897, https://ufdcimages.uflib.ufl.edu/UF/00/07/61/00/01451/00001.jpg.

13. *Souvenir of Miami, Miami Beach, and Coral Gables, Florida*.

14. Sheppard, "Overlooked No More."

15. Quoted in Sheppard, "Overlooked No More."

Figure 1. From *Souvenir of Miami, Miami Beach and Coral Gables, Florida* (1928). Public domain, University of Miami Libraries, Digital Collections.

As John Babb observes, "Plants operated as part of a conscious strategy from the 1830s through the 1920s to signal South Florida and Miami as a particular kind of environment—tropical, but not overbearingly so, free of burdensome social problems, and open for business. Doctors, scientists, business leaders, and government officials remade south Florida in this image as they developed the city for agriculture, tourism, and settlement."[16]

Crucial in early twentieth-century Miami boosterism was an emphasis on the importation of Asian and Pacific island tropical plants, bolstered by a romantic Orientalism. As Brian Larkin has argued, "Infrastructures also exist as forms separate from their purely technical functioning, and they need to be analyzed as concrete semiotic and aesthetic vehicles oriented to addressees. They emerge out of and store within them forms of desire and fantasy."[17] Miami's early investment in plants relied on what Larkin calls the "poetics of infrastructure." To be "tropical, but not overbearingly so" required associations with Asia rather than with Africa or even the Caribbean: anti-Blackness was central to Miami's horticultural and cultural infrastructure from the beginning. Although the dominant native trees of South Florida's ecosystem before urbanization were pines (*Pinus elliottii*), sabal palms (*Sabal palmetto*), and black and red mangroves (*Avicennia germinans*, *Rhizophora mangle*), Miami's development visions featured coconut palms, hibiscus shrubs, and, especially, mangoes.

The *Florida East Coast Homeseeker*, a Miami magazine pitched to potential new residents, ran regular stories about the economic and aesthetic possibilities of mangoes in Miami, singling out the varieties imported from India by the USDA for special praise. In May 1908, the *Homeseeker* published "The Mulgoba Mango, Queen of Fruits," with the subheading "Destined to Be One of the Big Florida Money Makers—Cultivation Rapidly Increasing."[18] Two years later an article headlined "The Mango a Money Maker" praised the "superior" Indian varieties being grown successfully in Dade and Palm Beach counties, advising that "every settler locating in Florida should set out near his home some of these mangoes, as well as citrus fruits and avocados."[19] In July 1910, the Haden mango made its first appearance in print, after prominent Coconut Grove resident and writer Kirk Munroe brought into the offices of the *Miami Metropolis* "a basketful of mangos that attracted as much attention as if they had been specimens of some hallowed fruit from the restored Garden of Eden. . . . By some magic work of the ground fairies, the seedling [Mulgoba] planted by Captain Haden is bearing the most perfect specimen of mango ever seen or tasted here. It may be that India has fruit to compare with it but certainly none to surpass it."[20]

Miami nurseryman George Cellon quickly set about adding the Haden mango to the successful fruit business he and his workers were building at the Tropical Grove

16. Babb, "Viceroyalty of Miami," 55.
17. Larkin, "Politics and Poetics of Infrastructure," 329.
18. *Florida East Coast Homeseeker*, "Mulgoba Mango."
19. *Florida East Coast Homeseeker*, "Mango a Money Maker," 254–55.
20. *Miami Metropolis*, "New Variety Mango More Perfect."

Figure 2. From George B. Cellon, *Commercial Varieties of Mango and Avocado Trees* (1912). Public domain, USDA National Agricultural Library/Internet Archive.

nursery a few miles north of the city center.[21] Cellon's slickly produced fruit catalogs are important documents of early South Florida history, testament to the appeal of Miami tropical fruit both locally and, through mail order, further afield. Even before he added the Haden mango to his catalog, Cellon had been capitalizing on the association of mangoes with India, in a striking example of early Miami Orientalism. After a 1907 visit to South Florida by four Bengali men enrolled in a graduate program in agriculture at Cornell University, Cellon prominently deployed a lithograph of the Indian students' visit to his nursery in the opening pages of his catalog, where they are identified as "the Hindoos." In the text that accompanies the image, Cellon elevates his mango business by associating it with the land where mangoes originated while at the same time condescending to his visitors, whose interest in his propagation of the mango,

21. Cellon's nursery records, preserved in his papers held at Fairchild Tropical Botanic Garden, indicate that by 1913 he was already propagating considerably more Haden mangoes (2,007) than Mulgobas (856); the following year, 2,983 Hadens and only 336 Mulgobas. Ledger, field notebooks, 1908–1919, Box 1, Folder 20, George B. Cellon Collection, Special Collections, Montgomery Library, Fairchild Tropical Botanic Garden, Miami, Florida.

"the most important fruit of their country, can be seen reflecting from the faces of these intelligent representatives of their race."[22] From various sources, the visiting Bengali men can be identified as Apurba Chandra Ghosh, Jatindra Nath Chakravarty, Dwijadas Datta, and Hariprosad Mitra.[23]

Their visit to Miami, one stop on a tour of US agricultural facilities, is an example of the global-imperial network that linked British botanical imperialism to subtropical South Florida. The colonial government in Bengal funded the men's graduate studies at the new agriculture college of Cornell University, and their visit to Miami came at the invitation of a former Cornell professor, John Gifford, who had recently moved to Coconut Grove. Gifford subsequently became a botany professor at the University of Miami and a real estate developer—a combination of professions that crystallizes the significance of plant infrastructure in the early growth of Miami.[24] The global-imperial-Orientalist network circuit was completed four years later when David Fairchild wrote to the director of the Royal Botanical Gardens at Kew, David Prain, claiming that the Miami mango propagation technique being developed by George Cellon was so successful that when "a number of Hindoo representatives of the East Indian Government" recently visited Miami, they were "greatly surprised and keenly interested in this new method of propagating the mango."[25]

Fairchild's pride in Miami mango culture cannot be separated from his, and Miami's, ongoing romantic investment in Orientalism and empire. Scorning the mangoes growing locally that predated his arrival in South Florida, Fairchild's correspondence with Kew was prompted by his continued search for Indian mango varieties. In December 1910 he wrote to Prain, enclosing a copy of a sixty-year-old article from *Curtis's Botanical Magazine*, "The Mango under Glass in England," inquiring whether the Indian mango cultivar named "Muldah" was still growing at Kew, as documented in the article, and whether budwood from the tree might be shipped to the United States.[26] Prain, who

22. Cellon, *Commercial Varieties of Mango and Avocado Trees*, 4.

23. "Four natives of India, graduates of the University of Calcutta, and more lately students of agriculture at Cornell University, Ithaca, N.Y., arrived in Miami last Friday, to spend several days there and visit the Subtropical laboratory [i.e., Plant Introduction Garden]. Messrs. Chakravarty, Ghosh, Datta, and Mitra had previously visited the department of agriculture at Washington and the Jamestown exposition." Unidentified, undated newspaper clipping, Box 10: Scrapbooks, George B. Cellon Collection, Special Collections, Montgomery Library, Fairchild Tropical Botanic Garden, Miami, Florida. "The four Hindoos are S. Dotta, A. C. Ghosh, H. P. Mitra, and J. N. Chakravarty." Cellon, *Commercial Varieties of Mango and Avocado*, 4. For more information and more precise identifications of the men, see the Cornell College of Agriculture's magazine *Cornell Countryman*, vol. 4 (1906–7), 312, 313, and vol. 5 (1907–8), 296, 297, and Cornell University commencement programs for 1907 and 1908, available on Google Books, https://www.google.com/books/edition/Commencement/A4A0AQAAMAAJ (accessed November 3, 2023).

24. On Gifford, see Kushlan, *Seeking the American Tropics*, 138–43.

25. David Fairchild to David Prain, January 9, 1911, Directors' Correspondence, Archives, Royal Botanic Gardens, Kew. Digitized copy in *Global Plants* database, http://plants.jstor.org/stable/10.5555/al.ap.visual.kusdc4217.

26. David Fairchild to David Prain, December 8, 1910, *Global Plants* database, http://plants.jstor.org/stable/10.5555/al.ap.visual.kusdc4213. Fairchild wrote on Bureau of Plant Industry letterhead from Washington, DC, before his move to Miami, and signed himself "Agricultural Explorer in Charge."

had himself worked previously in India, informed Fairchild that the tree was no longer living in the Palm House at Kew and suggested that Fairchild seek out Indian mango cultivars that had been shipped across the empire to the British colonies in the Caribbean.[27] Fairchild was later happy to report that through these imperial botanical networks he was able to obtain mango cultivars from colonial botanists in Jamaica and Trinidad, but he downplayed their Caribbeanness, calling them "very superior varieties of mangos originally introduced from the East Indies."[28]

The infrastructure of botanical imperialism that connected Kolkata, Pune, Kew, Kingston, and Miami was complemented by, and to some extent dependent on, an early twentieth-century American Romantic Orientalism that flooded Miami with fantastical versions of Asian and Mediterranean architecture. In addition to the Fairchilds' Kampong, the wealthy Matheson family built Mashta House (a "Moorish-style palace") on the island of Key Biscayne and "Swastika" (named for the Hindu symbol for prosperity) in Coconut Grove.[29] Meanwhile, the aircraft manufacturer Glenn Curtiss commissioned a whole Dade County municipality, Opa-Locka, built on fantasies of the Arabian Nights, with "Moorish" architecture and "street names like Sabur, Sultan, Ali Baba, Sharazad, Aladdin, and Sesame."[30] In 1923, Florence Haden, along with other affluent white women of Coconut Grove who were members of a civic organization called the Housekeepers' Club, organized a large-scale "Tour of the Orient," in which participants in stereotypical "Eastern" costumes moved along the Coconut Grove bayfront from the gardens of one landowner to the next, encountering tableaux representing Hawaii, Persia, and Japan (along with Greece and Dahomey).[31]

History does not record whether David Fairchild traveled from his own Coconut Grove home, the Kampong, to attend the Tour of the Orient, but his wife Marion was a member of the Housekeepers' Club. The civic spectacle of Orientalist fantasy meshes with the scientific and administrative investment in Asian tropical agriculture that marked David Fairchild's tenure as the Principal Agricultural Explorer of the Office of Foreign Seed and Plant Introduction. On his first visit to Miami in 1898 he met with Julia Tuttle's neighbors William and Mary Brickell to discuss their offer to donate land

27. David Prain to David Fairchild, December 21, 1910, *Global Plants* database, https://plants.jstor.org/stable/pdf/10.5555/al.ap.visual.kusdc4214.

28. David Fairchild to David Prain, January 9, 1911, *Global Plants* database, https://plants.jstor.org/stable/pdf/10.5555/al.ap.visual.kusdc4217.

29. Trasobares and Blank, "Mashta House Album"; "Swastika, Coconut Grove, Florida, 1914," Finlay B. Matheson Collection, University of Miami Libraries, Digital Collections, https://digitalcollections.library.miami.edu/digital/collection/asm0216/id/5638/rec/22 (accessed November 3, 2023).

30. "City of Opa-locka History," City of Opa-locka Florida (website), https://www.opalockafl.gov/229/History (accessed November 3, 2023).

31. "Oriental Voyagers Visit Many Strange Lands During One Day," unidentified newspaper clipping, January 25, 1923 (incorrectly annotated 1922), Box 24, Folder 2, Woman's Club of Coconut Grove Collection, University of Miami Libraries, Special Collections. On Miami Orientalism and the Housekeepers' Club, see Lane, "Forging Florida's Sun Screen"; Lane, "Politics of Feminism, Race, Community, and Place."

just south of the Miami River to the USDA for a plant introduction garden. He came away "convince[d] . . . that there was, down here on the shores of this Bay, a zone in which some of the gorgeous tropical fruits and flowering trees I had seen in Java and elsewhere could actually be grown."[32] The plant introduction garden was duly established on several acres in what is now Miami's financial district and was subsequently expanded and relocated to Buena Vista, north of the city center, with the support of an even wealthier patron, the industrialist Charles Deering, whose intellectual and civic investment in plants led him to fund botanical exploration and horticultural experimentation in South Florida on a significant scale.

So it was perhaps not surprising that when David Fairchild in 1920 dreamed of an even more extensive infrastructure of tropical botany in South Florida, he turned to Deering with a request for money. Invoking Asia once again—"Since the days when I was a botanist in Java there has been a lure about the Tropics which I cannot get over"—Fairchild sent a letter to Deering requesting support for "one of the greatest opportunities which was ever presented for the establishment of a real Institute of Tropical Plants" in Miami.[33] Linking Miami historically, racially, and rhetorically to the imperialist quest to manage nature, Fairchild pitched Miami as the ideal place for such a scientific venture because of the fact that "today South Florida—Dade County—has in it in the winter time more intelligent white people who walk under the coconut palms than any other spot on the face of the globe where that emblem of the Tropics grows."[34] Fairchild conjured a world in which two intelligent white men who love plants are in the vanguard of scientific and civilizational development, key players in the creation of an urban infrastructure that relied economically and culturally on tropical horticulture. And when funding from Deering did not come through, Fairchild turned to another logical source of infrastructural support: the US military. He persuaded the War Department to lease the USDA a hundred-acre portion of a World War I airfield just south of Coconut Grove, Chapman Field. The US Plant Introduction Garden moved there in 1923—where it remains to this day.[35]

Miami's municipal and botanical histories—just like British imperial and botanical history—have tended to be told as tales of intelligent white men and women making "improvements," as Julia Tuttle put it, cultivating gardens and creating infrastructure out of "wilderness." In the case of Miami, those self-validating stories were fueled by Orientalist romance and a global botanical infrastructure. In what follows, I turn to the people and the plants who were excluded in the stories Miami developed to market

32. Fairchild, "Reminiscences of Early Plant Introduction in South Florida."

33. David Fairchild to Charles Deering, December 8, 1920, in Box Dacanay-Deering, David Fairchild Collection, Correspondence, in Special Collections, Montgomery Library, Fairchild Tropical Botanic Garden, Miami, Florida (hereafter DFC Correspondence).

34. David Fairchild to Charles Deering, December 8, 1920.

35. McGuire, "Chapman Field."

itself as a subtropical garden city, but whose contributions were equally vital to the creation of Miami's urban infrastructure of South Florida.

Black Miami Horticulture: Nathan Sands

Miami's rapid growth in the first two decades of the twentieth century, and its status as a territory already legally incorporated into the United States, make it appear anomalous in histories of empire, but in many ways the region's story is archetypically imperial.[36] The settler-colonists attacked Indigenous peoples, adopted Indigenous knowledges adapted to the local environment to establish their settlements, and then connected the territory to the rest of the imperial network, including the introduction of new crops, new businesses, and new people. Throughout this process in South Florida, Black and Indigenous workers were essential, serving as go-betweens and cultural brokers, just as they did in other colonial and paracolonial ecosystems. Their entanglement with plant life—both local plants and ones they carried with them as migrants and propagated—is as important to the development of Miami plant infrastructure as the work of the Office of Foreign Seed and Plant Introduction.

In South Florida in the second half of the nineteenth century, the aftermath of the war between the Seminole and the US military and white settler-colonists created an unstable contact zone in the lands and waters south of Lake Okeechobee, with the unconquered Seminole people living in the interior wetlands and marsh prairie. The Seminole harvested and processed the roots of the locally abundant coontie plant (Latin binomial: *Zamia integrifolia*) to produce a paste and bread; white settlers on the east coast of southern Florida adopted and adapted these Indigenous techniques and created "starch mills" in the Miami area.[37] Of the seventeen white people listed in a directory of the Miami area in 1886, just before Julia Tuttle arrived from Ohio, eight were engaged in the business of "starch" (one was listed as a "naturalist").[38] Black workers moved from the US South and from the Bahamas to participate in the starch (or "Florida arrowroot") business, which was relatively small scale, but nevertheless depleted the slow-growing coontie. A photograph from the 1880s shows a Miami-area "compty starch mill" belonging to Charles and Isabella Peacock, Miami settlers from England: two white men and one Black man are working, with the barrels of starch stored under a thatched palmetto roof, a chickee, a form of architecture also learned from the Seminole.[39]

Julia Tuttle's dream of building homes with lawns and gardens in an environment she characterized as a "tangled mass of vine, brush, trees and rocks" required the

36. One of the few scholars to write about Miami as an imperial city is John K. Babb, in "Viceroyalty of Miami."

37. On coontie, see Griffith et al., "Genetic Patterns of *Zamia* in Florida."

38. Hudson, "Beginnings in Dade County," 31.

39. "Compty Starch Mill," Photographic Album of Miami and Vicinity, Ralph M. Munroe Family Papers, University of Miami Libraries, Digital Collections, https://digitalcollections.library.miami.edu/digital/collection/asm0015/id/2981/rec/845; "Chickee," Seminole Tribe of Florida, https://www.semtribe.com/stof/culture/chickee.

decimation of the low-growing coontie plants and the further marginalization of the Seminole. The period when Indigenous knowledge was necessary for basic white settler survival was ended by a large-scale wave of violent settler migration at the end of the nineteenth century, facilitated by the arrival of the railroad, by regular ferry service from Nassau to Miami, and by the enforcement of a regime of racial segregation in the new city. This was the colonial context in which the United States Department of Agriculture established its plant introduction garden and began importing mango saplings from India.

It is important to recognize that the investment in official channels of botanical distribution came about in spite of—and to some extent as an explicit attempt to circumvent—the informal and local webs of people and plant movement that had already brought mangoes to Miami. David Fairchild noticed these trees on his first visit in 1898: "I was delighted . . . to see some young seedling mango and avocado and papaya trees already growing here and there in people's yards."[40] Mangoes had been growing in the Bahamas since at least the early nineteenth century: a report from the botanical gardens at Kew in 1888 estimated that a million mangoes were grown in the Bahamas each year, and while the majority were consumed locally, some sixty-four thousand were exported to Key West annually.[41] Bahamians who moved to the Florida Keys and then north to Miami brought mango seeds with them and planted them outside their residences, where they provided shade and, in the summer months, fruit and a taste of home. The *Florida East Coast Homeseeker* reported that "the original settlers in the Biscayne Bay country came from Nassau, where the mango is grown extensively. On coming to this new country the seed of this fruit was brought with them and planted. . . . Around all of these old places groves are found, and almost yearly they bear heavy crops."[42] While one of the first historians of mango cultivation in Florida claimed that "the beginnings of mango growing in Florida are shrouded in uncertainty," there is no real ecological mystery to the spread of mangoes west from the Bahamas, northwest from Cuba, and then northeast from Key West (where "thickets of buttonwood, acacia, and mango" were reported to "cover the uninhabited area" of the island as early as 1890) to Miami by the turn of the twentieth century.[43]

Bahamian workers were drawn to southern Florida at the end of the nineteenth century in part because of their expertise in harvesting and processing coontie for its starch: *Zamia integrifolia* grows on several of the Bahamian islands, whose geology and climate are very similar to those of southern Florida. Despite the racial segregation that was a defining feature of early Miami—as it was for the US South more generally, of course—the historical record contains abundant evidence of the impact that these

40. Fairchild, *World Grows round My Door*, 19.

41. "Colonial Fruit: Bahama Islands," 181, 182.

42. *Florida East Coast Homeseeker*, "Mango Culture in Florida," 249.

43. Wolfe, "Mango in Florida," 387; *Weekly Abstract of Sanitary Reports*, "Report upon the Sanitary Condition of Key West, Fla.," 108.

Black Bahamian workers had on the infrastructural development of South Florida. Historians of Black Miami who have documented and analyzed these processes include Marvin Dunn, N. B. D. Connolly, Nadege Green, Julio Capó, and Chanelle Nyree Rose.[44] In the settlement of Cocoanut Grove, a few miles southwest of the mouth of the Miami River, white and Black Bahamians had been the first non-Indigenous settlers in the 1880s; when the English Peacock family opened the first hotel in the region near their starch mill, Black Bahamian workers moved there to work at their Bay View Inn.[45] Black Bahamians built wood-frame homes inland along Evangelist (later renamed Charles) Street in a settlement Bahamians called Kebo and whites called "Colored Town."[46]

Their yards were soon full of fruit trees. Community historian and activist Thelma Gibson recalled that in Kebo, "much of the vegetation was planted by the hands of the Colored men who brought so much of it from the Bahamas. . . . There were so many things we got from the native vegetation. We knew people who had fruit trees in their yards and we were always able to get fruit from them."[47] Gibson remembered her grandparents' house on Charles Street: "There were so many fruit trees in that yard: peach, turpentine, number eleven mango trees, a Tee Essie tree, avocado-pear, souersop, sapadilla, and sugar apple trees."[48] This transfer of botanical knowledge and horticultural practice from the Bahamas to South Florida was a vital contribution to Miami plant infrastructure. The vaunted Haden mango—perhaps the most celebrated product of early twentieth-century Miami—would not have appeared without the care of its Bahamian cultivator, Nathan Sands, or without the mango trees that Bahamians brought to Coconut Grove.

Although that mango bears the name of the white couple, John and Florence Haden, in whose garden the tree first bore fruit in 1910, it was their Black gardener, Nathan Sands, who would have been the one to tend the tree and then to pick the fruit when it first ripened in June or July of that year: John Haden had died some years before, and his widow Florence Haden spent the summers in Michigan. It was Florence Haden who recommended Nathan Sands to her new neighbor David Fairchild when he arrived in Coconut Grove in 1916 looking for a gardener for his new home, as he later recalled in his book about the Kampong, *The World Grows round My Door*: "Just after the place

44. Dunn, *Black Miami in the Twentieth Century*; Connolly, *World More Concrete*; Green, "Miami and County School Board Destroyed a Black Community"; Green, *Black Miami-Dade*, Instagram blog, https://www.instagram.com/blackmiamidade/ (accessed November 3, 2023); Capó, *Welcome to Fairyland*; Rose, *Struggle for Black Freedom in Miami*.

45. "Bahamian Immigrants Stand Outside the Barnacle Boathouse," Ralph M. Munroe Family Papers, University of Miami Libraries, Digital Collections, https://digitalcollections.library.miami.edu/digital/collection/asm0015/id/719/rec/117.

46. Rose, *Struggle for Black Freedom in Miami*, chap. 1; Mohl, "Black Immigrants."

47. Gibson, *Forbearance*, 35, 92.

48. Gibson, *Forbearance*, 7. Tee-Essie is a Bahamian English name for the Central American and Caribbean tree commonly called sapote or mamey sapote in US English (Holm and Shilling, *Dictionary of Bahamian English*, s.v. "tee-essie," 203).

became ours I called on Mrs. Florence Haden, and in answer to my inquiry regarding a good man who could be trusted to take care of our new place she said, 'Why don't you take Nathan Sands? He is perfectly reliable. He was in charge of the Haden mango tree when it first bore. Take him.' Nathan Sands took charge, and together we began doing things here."[49]

Because Fairchild obsessively kept records and archived his personal and professional life, Nathan Sands occupies a space in the archive of Miami infrastructure that is unexpectedly large for a Black person in a non-elite profession, in the catalog of Kampong plants and in dozens of letters written by Nathan Sands to his employer, contained in David Fairchild's papers that form the core of the archives of the gardens established in Miami in 1938 and named for the man who had long advocated for a botanic garden as a requirement for Miami's civic, cultural, and horticultural stature. Mr. Sands's letters give a perspective on Miami's imperial and botanical history not easily represented in other sources. While it is important not to overstate the importance of written, documentary evidence at the expense of oral history or floral growth, Sands's letters to Fairchild represent a rare account of American horticulture from the point of view of the working Black gardener, an early twentieth-century analogue to the extensive diary kept by James F. Brown in the Hudson Valley in the nineteenth century that forms the basis for Myra Young Armstead's groundbreaking book *Freedom's Gardener*.[50] They document Mr. Sands's work on specific plants, the tools and materials that he used, his horticultural knowledge, and the importance of his work for the creation of Miami's urban infrastructure.

Letters spanning a period of more than twenty years document Nathan Sands's accumulation of horticultural expertise in Coconut Grove: from a March 1916 letter enclosing a six-dollar receipt for the first tools Nathan Sands bought (two hoes, a rake, a shovel, an axe, and "pump leather" gaskets for sealing water pumps) to a 1938 letter reporting on the challenge to South Florida agriculture caused by the early harvest that year of avocados in Cuba, with imported fruit outcompeting the local market, and on the health of the *Annona diversifolia* trees at the Kampong, the fruit of which Sands has recently shipped to the Fairchilds.[51] The letters detail Sands's frequent interactions with USDA horticulturalists, including Edward Simmonds at the Miami plant introduction garden, and with local youth intent on stealing the Fairchilds' fruit. They show Sands increasingly using Latin names for plants as time goes on, and they document his pride in his work and his determination to be compensated properly for his labor. Their overriding context is the challenge of a working-class Black man communicating with a white employer who was no more enlightened in matters of race than most

49. Fairchild, *World Grows round My Door*, 39.

50. Armstead, *Freedom's Gardener*.

51. Nathan Sands to David Fairchild, letters of March 20, 1916 and August 14, 1938, Box Root-Segner, Folder Saford-Sargent, DFC Correspondence.

affluent white people of his time, and in fact—given Fairchild's interest in and support for eugenics research—was likely more racist than most of his peers.[52]

Sands asked his employer for periodic salary increases because he knew the value of his horticultural and caretaking work and calculated that the Fairchilds could not afford to lose his labor. Though much of the evidence of his expertise would have accumulated in the plants and gardens themselves, traces of it appear in his letters to his employer. As early as 1917, he recommended a new fertilizer for the mangoes that he was using on other gardens where he worked: "Its the best I have used for quite a while, it will help the fruit on."[53] The following month he reported that some seedling avocados had died—"I don't think they were set out right"—while the others that he planted are thriving: "I didn't set any of them [those that died] all I set is still living."[54] By 1930, Sands routinely referred to plants by their Latin names, trading horticultural know-how with Fairchild on collegial terms: "The passiflora seed failed to spring. . . . The Strophanthus vine isnt doing much. . . . The Dalbertis creeper havent bloomed yet. The Hernandia is doing nicely"; "the Prunus Majestica are doing fine also the bread fruit."[55]

There are several references to Edward Simmonds of the Miami Plant Introduction Garden, an Englishman whom Miami mango grower Harold Dorn claimed was trained at Kew, although I was unable to find evidence for that claim in the staff records in the Kew Gardens archives.[56] We can imagine regular conversations between them in the gardens, the Black Bahamian and the white Englishman, their relationship mediated by the absentee American landowner: "Relative to the water system I dont think its necessary. . . . Mr Simmon[d]s spoke to me Friday as I was coming home, asking any ideas about it and I told him as I have explained in this letter and he voiced my sentiments so we agreed on one thing."[57] The letters allow us to reconstruct the history of Miami's urban development as an infrastructural network in which the working Bahamian gardener plays a central, if underappreciated, role. An international network of scientists, commercial growers, and middle-class gardeners looking for the next

52. Fairchild's interest in plant hybridization led him to membership, and then the presidency, of the American Breeders' Association, renamed the American Genetics Association in 1913. Fairchild appointed the editor of the association's *Journal of Heredity*, Paul Popenoe, who became a prominent advocate for racist eugenics research in human populations. See Harris, *Fruits of Eden*, 224–48. In an unpublished 1917 report on South Florida plants, Fairchild uses a racial slur when referring to an unnamed Black man who was pulling manatee grass from the Miami River, although at the same time he recognizes the man's local horticultural knowledge: "The darkie said that the grass was dormant at this time [March], whereas in summer the river seemed to be literally filled with it." Fairchild, "Southern Trip, January to April 1917," typescript, Office of Foreign Seed and Plant Introduction, 1917, George A. Smathers Libraries, University of Florida, Digital Collections, https://ufdc.ufl.edu/AA00003176/00001, p. 159.

53. Nathan Sands to David Fairchild, August 15, 1917, DFC Correspondence.

54. Nathan Sands to David Fairchild, September 23, 1918, DFC Correspondence.

55. Nathan Sands to David Fairchild, August 13 and September 7, 1930, DFC Correspondence.

56. Dorn, "Mango Growing around Early Miami," 41. Simmonds's name does not appear in the notebook "Men and Women Employed at Kew from March 1877—January 1902," Archives, Royal Botanic Gardens, Kew, London.

57. Nathan Sands to David Fairchild, July 18, 1927, DFC Correspondence.

fashionable shrub can be seen to revolve around the actions of a Black gardener working on the land: "The plants we made preparations for in the pattio havent arrived as yet[,] ozaliers. I suppose the boat left Germany before they were packed."[58]

While David Fairchild was away, it was Nathan Sands who met with local commercial nurserymen and with botanists from the federal government whose experimental garden had been moved from downtown Miami to the larger grounds leased from the US military at Chapman Field, a few miles from the Kampong: "Mr Dorn came in last Friday and I picked two little boxes of mangoes. . . . The men from Chapman came up and got a few [mangoes] for seed a day or so later, and its just a few more left in the trees."[59] As if to confirm that in practical and figurative terms, although not in legal and economic terms, Nathan Sands worked to make the Kampong his place in the summer months, his letters to his employer after 1930 are often written on Fairchild's own letterhead paper, with the address "4013 Douglas Road" marking the place that Sands was making through his labor and the nodal point of a network of human/plant entanglements being reworked through the grid of race, labor, and empire. Sands, as a representative of Black horticultural place-making and labor in Miami, works to place himself at the center of a story gleaned from archives that are structured by the exclusion of Black voices and labor. In a photograph in the Fairchild archive, likely taken by Fairchild himself, Nathan Sands holds a mango in a portrait that joins the tree and its cultivator in a connection that momentarily transcends the white man who presses the camera's shutter and in whose papers the image is preserved.[60]

For Sands and the other Bahamian men and women whose work was an essential part of the creation of the infrastructure of modern South Florida, the mango represented continuity with Eleuthera (where Sands grew up) and the other islands of the Lucayan archipelago. It was also a link to the forces of the British empire that had brought mango seeds from South Asia to the Caribbean in the early nineteenth century: an imperial infrastructure of economic botany that depended on local go-betweens and cultural brokers every step of the way. This essay has tried to unpack and recover the hidden botanical and cultural history embedded in Miami mangoes and their place in the city's infrastructure. Plant infrastructure is urban infrastructure in South Florida, the city's roads, streetcar lines, and concrete buildings surrounded by and inseparable from the root systems, stems, leaves, and fruit of Miami's botanical life.[61]

58. Nathan Sands to David Fairchild, June 6, 1931, DFC Correspondence.

59. Nathan Sands to David Fairchild, June 20, 1930, DFC Correspondence. Harold Dorn wrote one of the first histories of the development of mango cultivation in South Florida. Dorn, "Mango Growing around Early Miami."

60. The photograph is one of several of Sands and his son Ernest Sands in a folder entitled "Kampong—'The Sands,'" Cabinet XIII, Drawer Fb-Ka, Fairchild Tropical Botanic Garden Collection, Special Collections, Montgomery Library, Fairchild Tropical Botanic Garden, Miami, Florida. A sticky note in Fairchild's handwriting appended to the caption on the reverse side of the photograph reads, "Nathan Sands, the first caretaker of the Kampong—trained by DF in 1917."

61. For an excellent account of the intersection of racial segregation, environmentalism, and urban planning in Miami, see Donald, "Greenlining."

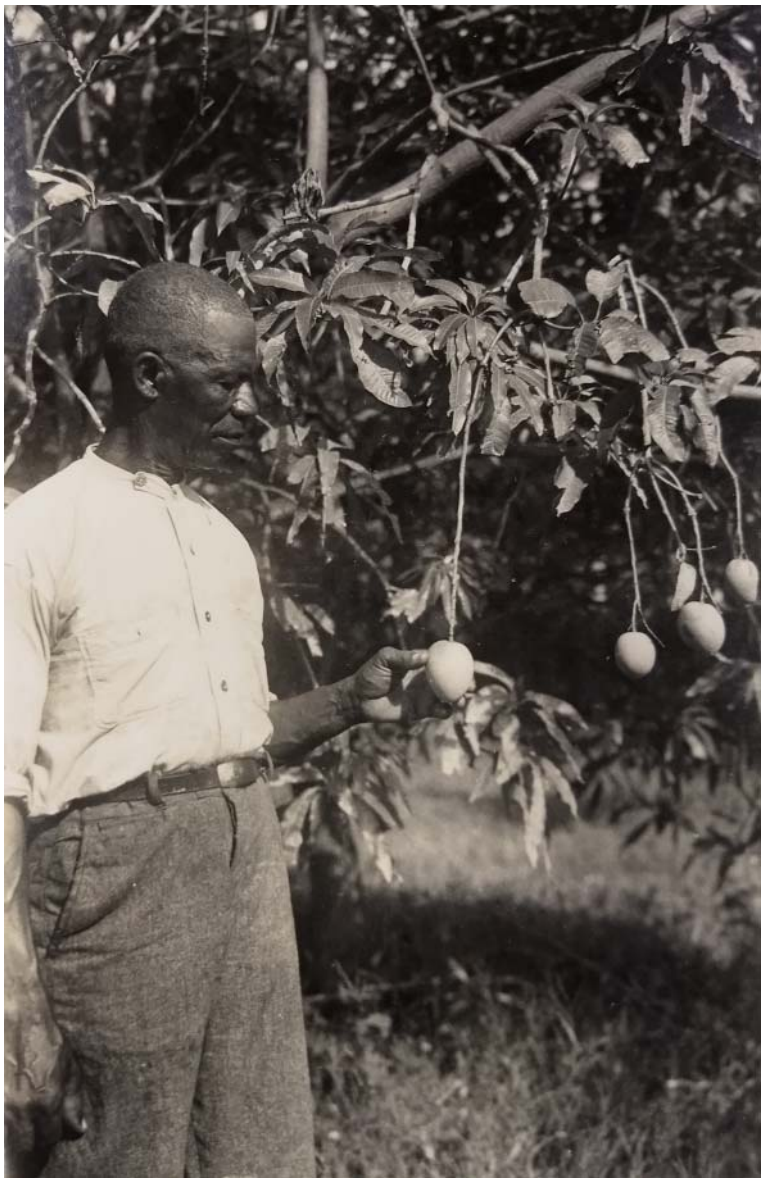

Figure 3. "1934—Nathan Sands & Cambodeana [*sic*] mango on [The] Kampong." Courtesy of Fairchild Tropical Botanic Garden Archives.

The US Department of Agriculture's Plant Inventory Book first recorded the Haden mango in 1911, assigning the cultivar the Plant Introduction number 29333: "It fruited in 1910 for the first time and promises to be one of the most valuable accessions to our mango collection."[62] In fact, mangoes never became the bonanza crop that the USDA and Miami's marketers hoped that they would. While the Haden is the parent cultivar of the mango most commonly sold in North American and global supermarkets, the

62. United States Department of Agriculture, *Seeds and Plants Imported*, 12. For the record of the Haden mango/PI 29333 in the US National Plant Germplasm System, see https://npgsweb.ars-grin.gov/gringlobal/accessiondetail?id=1097824 (accessed November 3, 2023).

Tommy Atkins, large-scale agricultural production of mangoes in the Americas largely shifted to Caribbean and Latin American fields where labor costs and land were cheaper. In South Florida, it turned out that the land originally designated for tropical fruit agriculture was much more valuable for suburban and ex-urban housing. In an intriguing infrastructural irony of history, that municipal sprawl—and *Mangifera indica*'s capacity for thriving in human-disrupted environments—means that today backyard mango trees are one of the few features of southern Florida life that transcend the stark racial and economic disparities that still distinguish the region.

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Acknowledgments

Thanks to two anonymous reviewers for *Environmental Humanities* whose comments and suggestions were enormously helpful. An October 2022 discussion with Donette Francis and other colleagues from the Center for Global Black Studies at the University of Miami was extremely generative. I am grateful for the work and the collegiality of the following archivists, librarians, and historians: Brett Jestrow and Beth Milne at Fairchild Tropical Botanic Garden; Craig Morell at the Kampong; Chelsea Jacks, Béatrice Skokan, and Jason Sylvestre at University of Miami Special Collections; Leona Cooper-Baker of Coconut Grove; Rebecca Peterson at Vizcaya Museum and Gardens; Nadege Green of Black Miami-Dade; Alicia Melton at the Black Archives; Jeremy Salloum at HistoryMiami Museum; and Kiri Ross-Jones and Cecily Nowell-Smith at the Archives, Royal Botanic Gardens, Kew. Beshouy Botros generously shared some of their research on mangoes around the world; thanks to Gina Maranto for connecting us.

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