We have no large stores of timber, we have no minerals, we have no manufacturing industries, and we cannot hope to struggle successfully with other countries in the more advanced arts and sciences. We, nevertheless, possess a rich and productive soil, a salubrious climate, abundant springs and a vast extent of uncleared mountain land; and it is mainly on the due utilization of these valuable natural resources that our prosperity must ultimately depend.

Daniel Morris, Annual Report of the Public Gardens and Plantations, for 1881

Jamaica’s topography and climate make it home to an extraordinary diversity of plants—wild, naturalized, and cultivated. Since the beginnings of colonial settlement the luxuriant tropical vegetation and landscapes, and the agricultural potential, have deeply impressed visitors to the island. Plants are central to Jamaican history of all periods, whether in the early encounters of Sir Hans Sloane (1660–1753) and other travelers in the Atlantic world or as a result of the dominance of sugarcane during the era of the plantocracy and slavery. The Victorian period is no exception. As this book demonstrates, the period saw fundamental change in the life of Jamaican people and far more extensive communication with the outside world, through travelers and books and periodicals but also through the transport of plants. Taking into account changes in the island’s economy and government, these six and a half decades of Victoria’s reign give fertile ground for exploring human interactions with plants.

The key actors in the island’s botany during the Victorian period were the Jamaican Government’s Botanical Department (under several names) and, in the United Kingdom, the Royal Botanic Gardens, Kew (in this chapter simply referred to as Kew). The flow of advice and plants between the two is well documented in the annual reports of the Botanical Department and in Kew’s archives, both key sources for this chapter, which will also draw on the artifacts and raw materials housed in Kew’s Economic Botany Collection. The Victorian era also marked a transition for Kew, which in 1840 ceased to be a royal garden and became a national botanic garden, funded and managed as part of Britain’s Civil Service. The first three directors, William Hooker (director 1841–1865), his
son Joseph Hooker (1865–1885), and William Thiselton-Dyer (1885–1905), were active in their support of botanic gardens in the colonies, through the supply of plants and requisites such as books, through advocacy for funding, and through recommendations of staff of known ability to fill vacant posts. I will explore the range of motivations and actors involved in Jamaican botany through a series of themes, bearing in mind that Jamaican botany is not just about useful plants: the remarkable diversity of Jamaican ferns attracted more than purely botanical interest, and the plants and landscapes were also important to travelers and to artists such as Marianne North.

Environment

In addition to the political and economic factors discussed below, key factors in understanding Jamaican botany are the island’s topography, climate, and vegetation.1 The island is just 146 miles long and 4,244 square miles in area. However, extensive mountains mean that travel times are far longer and access more difficult than this small size might imply. Very little land is flat. Not only is it difficult to collect or disseminate plants, but topography also presented a challenge to the Botanical Department, which, by Victorian times, was spread over up to seven gardens at any one time. In 1877 a staff member, George Samuel Jenman, complained that the Cinchona Plantation was as far from the Hope Garden, in travel time, as Edinburgh’s Botanic Garden is from Kew.2

To the east of Kingston the steep metamorphic rocks of the Blue Mountains rise to 7,402 feet. This area came into cultivation relatively late, from the 1860s onward, for cool-climate crops such as cinchona and coffee, grown at high altitudes. The rest of the interior of the island is filled with highly dissected limestone plateaus. In parts karstic, highly eroded with shallow stony soils, the plateau also has plains (“poljes”) with deep productive soils. Most agriculture is concentrated in the plains, both in the interior and on the coast. Steep areas were once forested, but deforestation has been of concern since the nineteenth century and was rapid in the twentieth. This varied environment supports a diverse flora of about 3,000 species of flowering plant and conifer, including naturalized species, and 579 species of fern.3 About 27 percent of the flora is endemic, in other words, with a native distribution limited to Jamaica.4

Rain falls all year round but is concentrated in two rainy seasons, April–June and September–October, with a hurricane season from June to November. The southern side of the island is markedly drier, and water can be in short supply for agriculture in the dry season. As William Fawcett noted in 1887, “Owners of gardens in Jamaica have many drawbacks to contend with—a burning tropical sun,
which during dry weather necessitates almost continual watering—heavy tropical showers which wash off the surface soil and lay bare the roots of the plants—hurricanes which in a few hours destroy the results of years of patient labour. Examples of this variety included floods in 1879, “unprecedented drought” in 1880, a hurricane in August 1880, and drought in 1881, all of which had a severe impact on agriculture and on the plants and buildings of the botanic gardens.

Before the Victorians

The history of Victorian Jamaica must be seen in the context of the nearly two hundred years of British rule that had already elapsed since the capture of the island from the Spanish in 1655. The earliest initiative to set up a botanic garden was taken by Mr. Hinton East in the 1750s, at Spring Garden near...
Gordon Town. His was not an isolated example of a garden centered on plant introduction: in the early 1770s Matthew Wallen established a garden at “Cold Spring,” and Thomas Thistlewood’s garden at Breadnut Island Pen dates to 1767. In 1774 the governor, Sir Basil Keith, set up an official garden nearby, with Dr. Thomas Clarke as superintendent from 1775. That garden was initially situated at Enfield, adjoining Spring Garden, but steep slopes led to the move to Bath in 1779. Significant stock came from a French ship captured in 1782, bound from Mauritius to Haiti.

In 1788 Dr. Thomas Dancer was appointed superintendent of the Bath Garden and island botanist. In 1792 Spring Garden was also acquired by the government, and both gardens received breadfruit plants from Captain Bligh’s voyage in hms Providence in 1793. In 1810, in the years of economic depression following the abolition of the slave trade, the Enfield Garden was sold. The post of island botanist was intermittently held after Dancer’s resignation in 1804. Dr. James MacFadyen (in post ca. 1825) remained active after the resignation, publishing the first volume of a Flora of Jamaica in 1837 and writing to Sir William Hooker at Kew in 1843 to suggest contacts for specimens and promising plants. Other island botanists included Thomas Higson, appointed to superintend the Bath Garden in 1828 after MacFadyen’s resignation, and Thomas Wharton, who presided over an annual budget of £300, in 1842. As was often the case in this period, many botanists were medical doctors, although MacFadyen was the last medical doctor to be appointed. With the appointment of Nathaniel Wilson as superintendent of the Botanic Garden in 1846 sustained work really began. Wilson, who had trained as a Kew gardener, was already resident on the island and working for MacFadyen’s coffee plantation and had been in correspondence with Hooker since at least 1844.

Numerous plants were introduced to the island in this period, including new varieties of sugarcane from the Pacific, mango, logwood from Honduras, ackee from West Africa, and cinnamon, nutmeg, black pepper, and bamboo from Asia. Many of these had become fully integrated into the diet and vegetation of the island.

Politics and Economy in Victorian Jamaica

The period from 1837 to 1901 was turbulent and saw many changes in Jamaica. Four of these changes raise questions of special relevance to this chapter. The first, one of the effects of emancipation, was a shift in labor and settlement among the formerly enslaved from plantations to independent smallholdings. In the six years after 1838, twenty thousand new freeholds were registered, in
some cases formed from plantations that were sold and subdivided. Drawing on their long experience of cultivation of provision grounds, the smallholders grew crops such as coffee, ginger, and arrowroot, rather than sugar. To what extent did the official botanists of Jamaica respond to this shift from plantation to smallholding by targeting advice, experimental work, and plants at this greatly expanded class of farmers?

The second change is closely related to emancipation: the imposition of direct rule from London, with Jamaica as a Crown Colony, in 1866. Did this shift in power, from the local elite to London, lead to any change in botanical provision for Jamaica?

The third change in this period had earlier roots: the collapse in the price of sugar on world markets. Sugar prices reached a peak in 1805 and again in 1820 and then prices and West Indies sugar production declined until World War I. A number of factors were responsible: post-emancipation difficulties for plantations in getting labor at the price and time required; the passing of the Sugar Duties Act in 1846, which removed trade barriers from sugar imported into the United Kingdom from countries that still employed enslaved workforces, such as Brazil and Cuba; and competition from European beet sugar. How did official botany in Jamaica respond? Perhaps through advances in sugar production or by enabling diversification into other products?

The fourth change comes increasingly to the fore in the last two decades of Victoria’s reign: the ever-increasing interaction with Jamaica’s near neighbor, the United States of America. The development of the banana industry and the introduction of fast steamship routes to Boston in the 1880s led to a significant reorientation of Jamaica’s trade from Britain to the United States. To what extent was this important trade relationship reflected in the activities of official botanists?

People and Institutions

I will begin with a brief history of the Botanical Department of the Jamaican government. While the transitions to new superintendents or directors and locations were not as straightforward as this brief account suggests, it is necessary to have in mind the key personalities and locations. Little has been published on the history of Jamaica’s botanical institutions, but throughout this chapter I have drawn on useful accounts by Eyre, Fawcett, McCracken, Morris, Satchell, and Senior.

Bath had long proved an unsatisfactory site for a botanical garden: small (two and a half acres), prone to damage by regular floods, and forty miles east
of Spanish Town, the island’s capital until 1872. In 1856 Nathaniel Wilson wrote to the Board of Directors of the Bath of St. Thomas the Apostle, who presumably managed the garden on behalf of the government. He complained that “the plants must naturally suffer from the over-crowded state they are in; every acceding year adding to the calamity in proportion as the plants advance in growth. . . . The rapidity and luxuriance of tropical vegetation being so great, as by far to exceed the limits assigned to it for botanical purposes long ago.”15 Wilson’s plea for extra space was answered by the formation, under his direction, of the twenty-five-acre Castleton Botanic Garden in 1863. The Bath Gardens were abandoned in 1867, although from 1879 onward Daniel Morris reinstituted a degree of care, initially on a budget of £20 each year. This work was primarily to safeguard the well-established trees within the gardens; most of the interesting plants had long since been moved to Castleton.

Castleton suffered from similar problems to those of Bath: located nineteen miles north of Kingston and rather further from Spanish Town, it too regularly flooded. It was also too damp for many plants, with ninety-three inches of rain each year. According to G. S. Jenman, writing in 1873, Castleton had been chosen as the result of the influence of two planters who wished to get a road made across the island.16 Nonetheless, it remained the main botanic garden until the end of the nineteenth century. By 1893 the gardens could be reached by buggy as a day trip from Kingston; a satisfied visitor described “Attalia [sic] palms standing sentinel-like on each side of the gate, the graceful tree ferns, the gorgeous crotons, the aralias, the roses—we did not know which to admire most.”17

Robert Thomson, a gardener at Kew, came to Jamaica in 1862, as assistant gardener at Castleton.18 He succeeded Wilson as superintendent of the Botanic Garden in 1867. As well as carrying out a great deal of work at Castleton, Thomson was responsible for choosing land in the Blue Mountains for the site of the Cinchona station, on which work commenced in 1868. The Cinchona Plantation, later known as the Hill Gardens, is at an altitude between 3,300 and 6,500 feet and lies about twenty-four miles east of Kingston. Further sites were added: the Parade Garden, a pleasure garden in Kingston (with an emphasis on shade plants) and the Palisadoes Plantation (of coconut), both in 1872, and a new garden at the Hope Plantation, four miles north of Kingston, in 1874. The Palisadoes coconut plantations were ultimately unsuccessful, and the land was leased out in 1887.

From 1880, the Botanical Department was also responsible for the private gardens and grounds of King’s House, the official residence of the governor. With the increase in the number of gardens, a single superintendent or curator
was not sufficient, and from the 1870s on, superintendents were employed for each garden, for example, G. S. Jenman at Castleton. In 1877 the gardens came under the control of the director of roads and surveys, and in 1878 Thomson retired. He was succeeded by Daniel Morris, who had been assistant director of the Royal Botanic Gardens in Ceylon and had strong Kew connections, and was director of Public Gardens and Plantations in Jamaica from 1879 to 1886. He was followed by William Fawcett, from Kew, director of Public Gardens and Plantations, from 1887 to 1908.

It was intended that the Hope Gardens would be both for experiment and for amenity, but at first the governor considered the garden to be too far from Kingston for the convenience of its poorer residents. The initial planting was thus limited to an experimental ground of sugarcane varieties and plantations of timber trees such as teak and mahogany. In his first year in Jamaica, Daniel Morris was proposing that the gardens should take on a broader role than experimental planting, in view of their convenient location, particularly for
the distribution of economic plants. In 1881 a two-acre nursery was enclosed for propagation of plants for distribution; by 1884 a total of fifteen acres were under cultivation. Ornamental planting, which was to become very extensive, did not start until 1885. Fawcett’s ambitious plan was “to arrange portions of the new Garden that they will represent the vegetation of different regions of the Earth’s surface, and so give practical lessons in the Geographical distribution of plants.”

Rainfall at the Hope Gardens was only forty-six inches each year, and water was periodically in short supply. By 1887 sufficient access to water had been given from the adjacent municipal waterworks and an irrigation system had been installed. In 1898 Hope took over from Castleton as the headquarters of the Department of Botanical Gardens and Plantations, with the move there of the library, herbarium, and head office, and in 1908 it became headquarters of the newly established Department of Agriculture. It has remained Jamaica’s main botanic garden to this day.

Although Wilson was in regular touch with Kew, the frequency of communication accelerated with the appointment of Robert Thomson. Thomson, Morris, and Fawcett were beneficiaries of the system by which Kew recommended staff to the satellite botanical gardens from its own ranks. The receiving garden gained dependable, well-trained staff; Kew gained an excellent contact abroad who could supply plants and information. An example of the help received

Fig. 6.3 William Fawcett’s proposed Geographical plan for the Hope Gardens, 1887. (Archives, Royal Botanic Gardens, Kew (Miscellaneous Reports vol. 234,folio 215).) © The Board of Trustees of the Royal Botanic Gardens, Kew.
comes in a letter from Wilson to William Hooker, director of Kew, in 1846, acknowledging plants sent from Kew, awaiting a book on microscopy, and asking for help with a subscription to Gardeners’ Chronicle: all part of a delicate exchange of favors between Kew and colonial botanists well-described by Jim Endersby.22

Plant Transfers

One of the most important duties in connection with Botanic Gardens is the exchange of plants and seeds. By this means, rare and new plants can be introduced into a country at a minimum cost, and, therefore, communities which keep up a Botanic Garden possess an immense advantage over others.

William Fawcett, 188823

Although some plant collectors came to Jamaica, including William Purdie, who collected mainly ornamental plants such as tree ferns for Kew and the Duke of Northumberland in 1843, plants usually traveled by exchange, through the medium of the Wardian case. This miniature greenhouse, so effective at protecting plants during long sea journeys, had reached Jamaica by 1843. A letter to Kew from Thomas Wharton at Bath gives a long list of plants that did not survive a journey in that year,24 but, in practice, provided the case was not abandoned on arrival at port, most plants survived. Most letters from the Botanical Department to Kew refer to lists of plants required for import or export. An indication of the scale of plant transfer is given by the four hundred species imported in 1869; in 1870, a more typical year, the number was two hundred. In some cases plants were grown at Kew and shipped out; in others, Kew acted as a staging point, for example, for two Wardian cases of mangos from India received in 1868. Plants also came directly from overseas; in 1870, for example, £50 was allowed to the agent-general for immigration to Jamaica in India, for the transmission of Indian plants to Jamaica on vessels carrying indentured laborers. Plants were also received from the United States: in 1871–1872 a large consignment of seeds came from the United States Department of Agriculture, from which several thousand plants of conifers and fruit trees were raised. Long-distance transport of plants remained problematic, despite the use of Wardian cases. Of ninety varieties of sugarcane sent from Mauritius, thirty died; of the plants in six cases sent from India, the majority died. Consular sources were also important; for example, “a bag of the famous and scarcely to be obtained Vuelta Abajo tobacco seed” was received from the consul in
Havana. The cultivation of tobacco became a success in the 1870s owing to the influx of refugees from political troubles in Cuba.\(^{25}\)

In 1869 Thomson noted, “Next in importance to the introduction and cultivation of useful exotic species of plants for the purposes of a botanic garden, at least in the tropics, is the office of collecting and cultivating the select and indigenous flora, whether for economic, aesthetic, or scientific purposes. In this island very few of the many important indigenous plants have ever been brought within the pale of cultivation.”\(^{26}\)

This comment is consistent with the content of the annual reports, which stress introduction rather than export, and with the small number of Jamaican useful plants to have entered cultivation elsewhere. The list of plants sent abroad in the Annual Report for 1871–1872 is typical: five recipients, far shorter than the list of those sent in, and comprising two boxes mainly of ornamental plants (orchids), two boxes of mahogany to India, and mixed economic plants to Queensland and India. Mahogany was the only Jamaican plant to become really important elsewhere.

The list of plants available from the department for distribution within the island in 1880 shows varying proportions of West Indian plants among different classes of use. The list offers 95 taxa of timber and shade trees, 52 local (from the West Indies); of 91 fruit trees, 23 are local; of 181 economic and medicinal plants, only 39 are local; of 57 orchids, 24 are local, as are almost all the ferns. The large number of local orchids and ferns available for distribution is not surprising in view of their abundance and strong interest to botanists, especially overseas (fig. 6.4). However, the small proportion of local economic and medicinal plants on the main list is consistent with the wider pattern of plant exchange described above: useful plants come into Jamaica, ornamental plants go out. There were sporadic signs of interest in native plants, such as the list of the economic plants and palms of Jamaica sent by Thomson to Joseph Hooker in 1866, at Hooker’s request. Thomson wrote that the medicinal plants and timber trees were of especial interest, particularly the bark of simaruba, but this led to no special initiative.\(^{27}\)

**Spreading Plants within the Island**

Even in the early days of the Victorian gardens, at Bath, Wilson could write of “the never ceasing flow of plants, both into and out of the garden. . . . The average number of plants distributed annually during that period being 2305, exclusive of many cuttings and seeds.”\(^{28}\) What kinds of plants were being distributed within the island, and why? Wilson writes:
The greatest number of those plants were of a permanent and useful description. ... The demand for plants is on the increase, and more than can be supplied. ... In former years a Botanic Garden may be considered a luxury to a few, and the introduction of plants superfluous; now it has become a necessity to the multitude, to make up in some measure for the loss of decaying staples, by the introduction of new ones suitable to the habits and tastes of the people, under the influence of these enlightened times. The distribution of so many plants of late years has awakened much attention, particularly among the small freeholders, and which proves most effectually the importance of the establishment.

FIG. 6.4 Jamaica Orchids growing on a branch of the Calabash tree. Painted by Marianne North, 1872. Art Collection, Royal Botanic Gardens, Kew. © The Board of Trustees of the Royal Botanic Gardens, Kew.
Here Wilson refers to emancipation and the need to support the new class of freeholders. Although historians judge that “both British and Jamaican authorities were blind to the economic potential of peasant agriculture,” this was not the case at the botanical garden at this time. A later director, Daniel Morris, noted “there is much activity displayed by even the poorest peasants in obtaining and cultivating new plants; and I cannot but hope that, before many years have elapsed, this activity will result in the greater prosperity and wealth of the Island.” In 1881 Morris introduced charges for plants, but the numbers distributed within the island in that year are still very high: 330,000 seedlings and 50,000 plants of cinchona, 40,000 of the main economic plants (Trinidad cacao, ...
Liberian coffee, oranges, nutmeg, East Indian mangoes, cardamoms, vanilla, clove, cinnamon, pineapple suckers, and sugarcane), and numerous packets of miscellaneous seeds and cuttings. Considerable attention was given to distribution. Plants could be collected from the gardens in Kingston, Hope, Castleton, or Bath; the need to maintain an effective distribution network was cited as a reason for maintaining so many gardens. From 1882 free transport for plants was provided by the railway and by the Atlas Steamship Company to ports on the island; by 1885 they could also be sent by mail free of charge.

An indication of the effort involved in raising plants for distribution is given by William Fawcett: “The labour... is not always realised. To take Roses, for instance, a bed must in the first place be prepared for them with properly mixed soil, a substantial shading is erected, and the wood is taken carefully from the stock plants for the cuttings. To ensure 1,500 young plants, at least 3,000 cuttings are made. The bed must be carefully watered every day, sometimes twice a day, for eight to ten weeks. Then each plant is potted off and 1,500 names are written on labels.”

Fiber Plants

The marked interest in fiber plants in Victorian Jamaica must in part have been due to the efforts of Nathaniel Wilson, through his energetic promotion in experimental gardens, publications, and exhibitions. There is also evidence, for example, in Kew’s Economic Botany Collection, that this interest in fibers was part of a global phenomenon, until the advent of artificial (cellulose) fibers in the early twentieth century. Soon after Morris arrived in Jamaica, the Jamaica Daily Gleaner (August 25, 1880) noted, “We would like to see also a special report from Mr. Morris on the subject of Jamaica fibres. That we have in this island highly valuable and easily worked fibrous plants and trees is well known to its inhabitants.” The annual reports of the Botanical Department record the introduction of many fiber plants and trials of local and imported species, but numerous references to the necessity of imported machinery to clean fibers suggest that such cleaning remained an obstacle. For example, in 1890 Fawcett asked Morris to follow up on a report in the Times of the use of fiber-processing machines in London, and he inquired several times about the availability of machines for ramie processing. In 1894 the agent of the American inventor of a fiber machine came to Jamaica to persuade people to grow three thousand acres of ramie, a venture that probably never took off.

The requirements for successful fiber cultivation were succinctly set out by Morris: the possibility of harvesting or cultivating large quantities (which ruled
out many wild fibers such as lace-bark; see object lesson 15); the presence of machines for processing; the means to transport the plants to the machines and to port; and the presence of a convenient market. He pointed out that plants such as cotton or jute were not suitable, as they required the rich soils necessary for sugarcane cultivation. In 1884 nine fibers were submitted to brokers for their valuation, including silk grass, pineapple fiber, common penguin, and ramie. London merchants commented on the poor quality of preparation, which reflected the lack of correct processing machinery. A significant fiber industry never developed.
Cinchona

Cinchona trees, originally from the Andes, are the source of bark rich in quinine alkaloids, one of the few effective treatments for malaria up to the 1930s. In the 1860s the combination of developments in botany and chemistry that allowed identification of quinine-rich species, and the urgent requirement for medical treatment of fevers, led European countries to transfer cinchona plants from South America to Asian plantations. Kew was responsible both for collecting many of the Andean seeds and for distributing plants to British colonies such as India, Ceylon, St. Helena, and Jamaica. Cinchona is an unusual case in that the Botanical Department itself established large-scale plantations to encourage private planters and made significant amounts of money from selling the bark in London. However the rapid decline of Jamaica’s cinchona industry mirrored the problems of market access and prices that also affected many other crops.

Robert Thomson was responsible for the establishment of the cinchona plantations, covering some six hundred acres of the Blue Mountains that were cool enough for the tree. Seeds were germinated in 1865, and in September 1868 forty acres were planted with twenty thousand cinchona seedlings. Thomson reported that the take-up of trees by farmers was slow. Further plantings in 1870–1872 took the area to two hundred acres. This occasion was not the first introduction: In 1860 Wilson grew four hundred cinchona plants collected by Richard Spruce in Peru that year; however, the saplings were planted too low and on the wrong soil (Wilson’s preferred site had been unavailable owing to legal complications), and most died. In 1876, Thomson observed that *Cinchona succirubra* was by far the fastest-growing tree and that *C. officinalis* was the slowest and could be grubbed up. The plantation was also used for the timber tree *Eucalyptus globulus*, for the medicinal plant jalap, and for coffee. Jalap (*Ipomoea purga*) was an early failure, with great problems in drying the tuber without it going moldy, and an 1877 report from the Society of Apothecaries in London that “at no previous period has the English Market been so over-stocked with the article and the prices of it correspondingly low” led Thomson to withdraw from export production.

The arrival of Daniel Morris as director led to a reevaluation of the cinchona plantations in 1879. Morris had been assistant director of the Botanical Department in Ceylon and had considerable experience with cinchona. The trees were found to be too widely planted and the emphasis on *C. succirubra* to be a mistake: although *C. officinalis* was slower-growing, it grew well on steep slopes and its bark fetched much higher prices. In 1879, when the trees were eleven years old, cutting began, and in that year *C. succirubra* red bark was exported to London and sold for £2,100. Bark harvested from trees blown down in the
hurricane of August 1880 was sold for £2,796. Such income was not retained by the department but instead returned to the Jamaican government. Doubtless owing to this financial success, take-up of cinchona plants by private planters was high, with fifty thousand saplings distributed in 1880. The aim of the cinchona plantation—to demonstrate the financial viability of the crop—was achieved. In 1881 seeds of C. ledgeriana, the form of cinchona exceptionally rich in the quinine alkaloid, were received from the government of the Dutch East Indies (modern-day Indonesia) and were planted on.

Bark from the Cinchona station was dried on a “temporary barbecue” in the Parade Garden in Kingston, thus avoiding the quality problems so prevalent in other exports. Seventeen thousand pounds of bark shipped to London in 1886 fetched just £542, an average of 7.65d per pound. The cost of freight to London was 3d per pound, leaving a poor return for planters. Looking back on the venture in his 1896 report, Fawcett noted that the lack of roads at high elevations had been the greatest obstacle to planters, in contrast to Ceylon, which had good roads and railways. In addition, as a result of the “extraordinarily large shipments” of bark from Ceylon, by 1889 it could be noted that “the value of this valuable drug has so declined in European markets that at present it is almost unrenumerative as a cultural product.” In 1885, as private plantations began to approach maturity (and London prices were falling), Morris proposed that the government withdraw from cinchona production. In 1888 cultivation stopped, and the Cinchona Garden was renamed the Hill Garden and given an emphasis on European crops.

“Curiosities”

Nothing is lost in nature... I would apply this... to a small matter, but one which contains in it the germ of a “minor” industry not to be despised, especially by ladies and those who are only able to follow light sedentary occupations. The present age is one in which there is a great demand for curious or quaint natural productions of all kinds. Many of these are capable of being tastefully and cleverly worked up into objects of great delicacy and beauty, and, moreover, into articles eagerly sought for purposes of personal or household decoration... This island is in many senses remarkable for possessing ornamental seeds, nuts, and vegetable productions of a most interesting character.

Daniel Morris, 1884

Morris lists some of these products: lace-bark, velvet seed, nickars, soap-berry seed, wild ebony, the “innumerable and matchless” ferns, and many kinds of seed. He proposed to make a display in the Museum of the Institute of Jamaica
and gave special mention to the Women’s Self Help Society, founded by Lady Musgrave in 1879. The society sold work on behalf of “industrious women.” The making of objects such as D’Oyleys and fans was also a hobby among the wives of settlers, such as the wife of Charles Campbell, “on behalf of schools and other charities.”

While these plants figure most often as curiosities in the context of a souvenir industry that burgeoned with the beginning of tourism in the 1880s, most were initially used in everyday life. Wortley’s *Souvenirs of Jamaica* (1905, reissued 1906) offers unusually detailed insight into the everyday use of plants in Jamaican homes, a tradition that was to die in the second half of the twentieth century. Uses included baskets, mats and brooms, hats, fans, D’Oyleys, fern work, lace-bark, dolls, jewelry, walking sticks, the bitter cup, razor strops, carved coconuts and calabashes, water gourds, chewsticks, preserves, and pickles. Although timber was no longer exported on a large scale in the Victorian period, it was used for furniture, particularly inlaid work, by makers such as Ralph Turnbull (see chapter 13 in this volume, by John Cross).

A wide range of society was reported to be engaged in such manufacture, including inmates at the reformatory, “the peasantry,” and individuals such as “a young wife, struggling to keep soul and body together and, at the same time, to ‘keep up appearances,’ assets being, £100 per annum and love in a mortgaged cottage.” Such plant products were highly visible in markets and on souvenir stalls. A high proportion of surviving souvenirs are labeled, in handwriting...
or in print, with the correctly spelled botanical names of the plant products used, suggesting that sellers had easy access to botanical expertise, presumably through the Botanical Department.

Tropical Botany

Wayne Modest argues that the Caribbean has come to be defined primarily through its natural, rather than its cultural, history. Modest’s case study focuses on museum collections, but the same pattern can be observed in nineteenth-century travel literature. With rare exceptions, these writings display little interest in the culture of Jamaica’s black inhabitants, except in the most patronizing fashion, but devote page after page to encomiums on the lush tropical landscape. Several localities became essential viewing, including the Fern Walk, high in the Blue Mountains and east of the military settlement at Newcastle, and Fern Gully, three miles of lane bordered by ferns just south of Ocho Rios on the north coast; both seem to have acquired these names about 1880.

It is surprising to note that until 1972 the standard guide to the plants of Jamaica was August Grisebach’s *Flora of the British West Indian Islands*, researched in Göttingen, Germany, far from the Caribbean, and published between 1859 and 1864. While successful in building up a herbarium and discovering new plants (albeit named in Kew), the botanical staff in Jamaica had a poor track record of formal publication. MacFadyen, working as an amateur botanist in the last years of his life, published an incomplete flora in 1837, and Fawcett similarly never completed his flora (1910–1936), which he had begun when he moved to the Natural History Museum. An exception is G. S. Jenman, who published *A Hand-list of the Jamaica Ferns and their Allies* (1881) and *The Ferns and Fern Allies of the British West Indies and Guiana* (1898–1909). It is likely that the sheer volume of work in the Botanical Department did not allow time for purely taxonomic research. There is little evidence of visits by professional botanists from the United Kingdom, but toward the end of the nineteenth century American botanists were keenly interested in the island. In 1893 James Ellis Humphrey of Massachusetts proposed setting up an international laboratory for botany and zoology on the north side of the island, following in 1896–1897 with plans to set up a laboratory in the West Indies for American botanists; Fawcett was in favor of the idea and envisaged a joint project. In 1897 the botanists Douglas Houghton Campbell (Stanford University) and D. T. MacDougal (University of Minnesota) toured the island and commented on the magnificent range of ferns to be found in the Blue Mountains and forests full of ferns, palms, and orchids.
Fig. 6.8 Marianne North, View in the Fernwalk, oil on board, 1872. © The Board of Trustees of the Royal Botanic Gardens, Kew. “It almost took away my breath with its lovely fairy-like beauty; the very mist which always seemed to hang among the trees and plants there made it the more lovely and mysterious. There were quantities of tree-ferns, and every other sort of fern, all growing piled on one another; trees with branches and stems quite covered with them, and with wild bromeliads and orchids, many of the bromeliads with rosy centres and flowers coming out of them. A close waxy pink ivy was running up everything as well as the creeping fern, and many lycopodiums, mosses, and lichens. It was like a scene in a pantomime, too good to be real, the tree-fern fronds crossing and recrossing each other like network. One saw dozens at one view, their slender stems draped and hidden by other ferns and creeping things.” Marianne North, Recollections of a Happy Life (London: Macmillan, 1892), 89.
Spreading Knowledge

The work of the Department initially emphasized the dissemination of plants, but the dissemination of information gained in importance through the Victorian period. Daniel Morris instigated a publication program in 1880, with a printed catalog of plants and a bulletin of practical tips for cultivation. Apprentices (“native workmen”) and unpaid cadets (“gentlemen”) were trained in cinchona cultivation from 1882. In 1891 an industrial school was established in the grounds at Hope, and training was offered to some of the boys; in 1890 two men from Lagos, West Africa, were sent to the gardens for training.

By 1896 one of the garden staff, Mr. W. Chadwick, was traveling the island, giving popular lectures and demonstrations on the cultivation and curing of agricultural products. The audience sought were “the small freeholders.” In 1898 Fawcett wrote, “Our chief aim at present is to reach the peasant class, who cannot read well enough to appreciate printed matter, or who cannot get just the kind of information he requires.” All the directors of the department gave public lectures, aimed more at the planters and administrators who might attend a meeting in Kingston. Letters were an immensely important means of communication; the annual report for 1884 notes that 4,021 letters were sent on official business, and “nearly every one of these letters was either drafted or written by the Director [Morris] himself.”

The potential of Jamaica’s natural resources was communicated to the wider world through the characteristically Victorian medium of museums and exhibitions. The Museum of the Jamaica Society, viewed by Philip Gosse in 1846, appears to have dissolved shortly afterward, leading Gilbert McNab to send its extensive collection of starches, oils, and spirits to the Museum of Economic Botany at Kew in 1848. Over subsequent decades many more specimens were sent to Kew’s Museum. Founded as the first of its type in 1847, it inspired similar museums of useful plants in many countries. Economic plants were shown in the Museum of the Institute of Jamaica from 1879. In 1887 Fawcett proposed a display of plant products, “a valuable assistance to those engaged in the culture of minor products . . . prepared in the condition most suitable for home markets.” Kew sent out a case of specimens in 1888 for display at the institute. In 1891, as the Imperial Institute in South Kensington took on a major role in tropical products, Fawcett arranged an exhibit of fruits and spirits in its Jamaica Court.

Staff of the department were active participants in, and sometimes managers of, the process of assembling exhibits for international exhibitions. Jamaica had only one exhibit at the 1851 Great Exhibition in London, but the 1862 London
Exhibition mustered 195 exhibitors, including Wilson, who showed a collection of plant fibers. Subsequently, botanical staff assembled large displays and made long stays at exhibitions. Thomson stayed for seven months at the Centennial Exhibition in Philadelphia in 1876, taking an economic collection of about 140 species for the Horticultural Hall. Morris visited the 1883 Colonial Exhibition in Amsterdam and assisted in arranging the Jamaica Court. Morris had over three months of absence on special duty, as commissioner for Jamaica at the 1884 World’s Exposition in New Orleans, where the display included “useful and fancy woods, dyewoods, spices, ornamental seeds, and various economic and
medicinal products.” In 1885 he was made chairman of the local organizing committee for the Colonial and Indian Exhibition, to be held in London in 1886.

The success of the Jamaica Court at the Colonial and Indian Exhibition led to the Jamaica Exhibition, held in Kingston in 1891. While its original purpose, to encourage foreign trade, was not fulfilled, over 302,000 visitors came, from an island population of 650,000. On a smaller and more regular basis, the horticultural shows held in Kingston were also an important domestic showcase for the island’s products.

Forests

In 1881 Daniel Morris prepared a report on forest conservation for the governor and the secretary of state for the colonies. He emphasized the importance of forests for standing timber and for their effect on climate and erosion. E. D. M. Hooper, of the Indian Forest Department, visited Jamaica in 1885–1886. His report of 1886 identified small freeholders’ shifting cultivation of yams in the forests, usually at some distance from their home, as a major cause of deforestation. Land was often abandoned after a couple of years and then filled by shrubs that excluded the reestablishment of hardwoods. At the time, forests accounted for about eight hundred thousand acres, or 29 percent of the island’s surface; more than 4 percent of the forest within reach of cultivation was being cut over each year. Hooper considered that the ease of import of timber from North America led to the underestimation of the hardwoods of the island as an economic product, particularly as road and rail communication improved. There were more immediate grounds for forest conservation, for regulation of water supply, and potentially for amelioration of climate. Hooper recommended the establishment of forest preserves in the ridges of the Blue Mountains and more care of existing crown lands in the western half of the island. He emphasized the importance of a gradual approach that encouraged cultivation of existing land and recommended the appointment of a forest officer and of forest guards.

Little action followed, despite reminders to the government from Morris and Fawcett. At the same time, forest was regarded as a resource for agricultural land: for example, Morris drew attention to the fact that “on the northern slopes of the Blue Mountains, there are, at the present time, about one hundred thousand acres of land in virgin forest, richer and finer than any now cultivated, admirably adapted for the growth of tea, coffee, and cinchona.” Unlike many other colonies, Jamaica came very late to forest management. In 1924 Sir Arthur Hill, director of Kew, wrote to the Colonial Office regarding his conversation with members of the Legislative Council on forestry and the need for diversity
in agricultural production; he found them “decidedly apathetic and lacking in appreciation of the dangers to which the island . . . was exposed by the policy of neglect of forestry. . . . The prevalent idea seemed to be that bananas were the only crop about which any trouble or interest need be taken.” A Forestry Department was finally established in 1937 and is today responsible for 274,000 acres of forest, or about 10 percent of Jamaica’s land area.

**Government**

The colonial establishment of Jamaica experienced a mounting sense of crisis during the early 1860s. In 1863 Nathaniel Wilson wrote to Joseph Dalton Hooker of Kew,

> With respect to botanical Science it was always a rare pleasure here and will soon become extinct, and Horticulture is but little better cultivated. I have established a new nursery [Castleton], 19 miles from Kingston, which Mr. Thomson superintends, with but little comfort or pleasure, and as to this old ruinate garden [Bath], it still serves to supply the country with plants and seeds, every obstacle being thrown in the way of progress. . . . Many fine plants have been received from Kew, but this government have not to the best of my knowledge thanked Sir Wm. [Hooker] for them nor indeed appreciate their value aright. This sad picture is only a type of the decadence of the Island. The Sugar Estates are being abandoned fast and the country over-run by bush.

Although despair—like disagreements with Thomson—is a constant theme in Wilson’s correspondence, nonetheless it is possible to discern a change in attitude, and eventually in funding, with the introduction of direct rule in 1866. Sir John Grant was the first governor in the new regime. He wrote to Kew in May 1868. After explaining that Wilson’s enforced retirement was necessary as part of wider cost cutting (Wilson earned £300; Thomson £150), he explained, “The want of intelligent enterprise, and power of exertion, among the landed proprietors of this colony is truly surprising. But neither Mr. Wilson nor anyone else could do good to people who would do nothing—and think of nothing—but their wretched squabbles—which they called politics. Imagine our importing castor oil from Europe—the plant growing here more luxuriantly than I ever saw it in India.” Grant drew attention too to cacao, tobacco, and coconut as crops with obvious potential. He was evidently keen on gardening too, seeking advice and plants. In 1871 he wrote again, to Sir Joseph Hooker, with a list of plants at Castleton and the Cinchona Plantation:
“I have always been at Mr Thomson about palms. . . . I am also anxious to have every variety of sugar cane. . . . I want Jamaica to have as complete a collection of sugar canes as exists, and a notable collection of Palms— and a great collection of economic trial plants.”60 That Grant was in post from 1866 to 1874 was undoubtedly a major factor in the establishment of the cinchona plantations on such a large scale. For example, in 1869 Thomson quoted Grant as urging the purchase of more land for Cinchona plantations.61

Sir Anthony Musgrave (governor 1877–1883) also took an active interest in the appointment of staff and was strongly in favor of the appointment of Daniel Morris in 1879. On Morris’s arrival in Jamaica, on December 1, 1879, he was invited to stay at the governor’s residence, where he met many of Kingston’s officials at receptions and balls, a sign both of the strong interest from the governor and of the higher social status now accorded the director of the Botanical Department.62 Although, as we shall see, there was still strong opposition to the Botanical Department from some members of the Legislative Council, the direct intervention of governors from 1866 must account for some of the increased activity seen from that time.

Botany versus Agriculture

The development of the department as a scientific, rather than a purely horticultural, institution began with the arrival of Daniel Morris, who established a herbarium and library in 1880. Indeed, Morris’s actions in developing the work of the department, in close correspondence with Kew, conform to the recommendations set out in a wide-ranging review of colonial botany by Thiselton-Dyer, assistant director at Kew.63 The growth of these collections is charted in subsequent reports: the herbarium had reached 2,300 specimens by 1883, with the explicit aim of collecting all the Jamaican flora, not only the economic. Similarly, cultivation within the gardens was not only of economic plants; in 1874–1875, for example, 230 species of indigenous ferns and 140 species of orchids were brought under cultivation. Morris’s successor, William Fawcett, wrote that “Botanic Gardens should aid in the study of pure science, for science always tells on practice.”64

Tensions over this approach are hinted at here and there in annual reports but are most clearly expressed in a scathing editorial in the Gleaner in 1903. The writer quotes from the recent Royal Commission and accuses the Botanical Department of being a “sham.”65 Criticisms of the department often came from sugar interests, who saw investigation of “minor” crops, let alone ornamentals, as a diversion. Toward the end of the nineteenth century, calls for an agri-
cultural department became more frequent, though in 1892 Fawcett pointed out that the several departments of Jamaican government collectively fulfilled that purpose. The West India Royal Commission's report of 1897 emphasized the United Kingdom's obligation to fund alternatives to a sugar industry on the verge of extinction, particularly in the smaller islands, rather than in Jamaica and Trinidad. The commission criticized the representatives of the sugar interest for their lack of interest in the state of “peasant proprietors.” It praised the work of the Jamaica Department and proposed it should form the basis of an imperially funded department that would work in the Leeward and Windward Islands, Barbados, and Tobago, ensuring that the quality of service available in Jamaica and Trinidad was available in the smaller islands. Fawcett pointed out that the Department of Public Gardens and Plantations in Jamaica received £4,695 of public funding in the year 1898–1899, whereas the commission proposed equivalent facilities for these islands (with a substantially smaller area and population) of £10,400: “The Department is run very cheaply, but the saving effected in this way, cripples its work, and prevents expansion in many directions.”

The United Kingdom versus the United States

Jamaica lies far closer to the United States than to the United Kingdom, yet in 1865, 79 percent of Jamaica’s exports went to the United Kingdom, which supplied 61 percent of Jamaica’s imports; only 8 percent of Jamaica’s exports went to the United States, whence came 26 percent of her imports. The reasons for restricted trade with the United States are complex but include the effects of the blockades during the American Civil War and quarantines against Jamaican shipments, which were vigorously opposed by Morris. The Botanical Department regularly exchanged plants with the U.S. Department of Agriculture, and its staff visited the United States, mainly to participate in international exhibitions. However, Jamaica’s Botanical Department had little to do with the major reorientation of Jamaica’s trade in the Victorian period. By 1899 the United States accounted for 59 percent of Jamaica’s exports and 45 percent of her imports; overall, 41 percent of Jamaica’s exports were fruit.

From about 1882 bananas replaced oranges, coconuts, limes, and pineapples as the major fruit to be exported. Bananas had been grown in the Caribbean since the sixteenth century. In Jamaica they were mainly cultivated in the northeast, on fertile metamorphic soils, by smallholders within easy reach of Port Antonio. Jamaican fruit had been bought by American shippers since the 1860s, but Jamaica’s banana export industry owes its origins to Lorenzo D.
Baker from Massachusetts, who first visited Jamaica in 1872. Through manipulation of shipping and banana prices, Baker’s Boston Fruit Company (later United Fruit) controlled 42 percent of banana exports by 1886, exported exclusively by steamship. Bananas had to reach retail markets within three weeks of cutting, so effective control of shipping was essential. Baker also established plantations on the island, to give greater control over a substantial portion of the banana supply.\(^\text{71}\) The banana boats of the Boston Fruit Company—which were steamships by the mid-1880s—not only created a new market in North America but also brought the first tourists to Jamaica.\(^\text{72}\) Toward the end of the nineteenth century, the Boston Fruit Company had sixteen steamers traveling between Jamaica and American ports.

In 1901 a fortnightly service of steamers commenced between Jamaica and Bristol, with a subsidy from the imperial and Jamaican governments of £40,000

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**FIG. 6.10** Banana women. James Henry Stark, *Stark’s Jamaica Guide* (London: Sampson, Low, Marston, 1902), 98. “Great quantities of bananas are shipped from this port [Morant Bay]. Many people will be met bringing down bunches of bananas on their heads from their little patch of ground on the mountain side. They are put into the storehouse on the wharf in open slat crates or bins, and then transferred to the steamers.”
a year on condition that the owners of the line, Messrs. Elder, Dempster & Co., purchased twenty thousand bunches of bananas for conveyance on each ship. The quality problems so often apparent in Jamaican products continued. Thiselton-Dyer wrote to the Colonial Office on March 26, 1901, of an early shipment on this line: “I am extremely disappointed with the result. . . . The bananas were small, hard, green, and immature. The oranges were externally satisfactory in size and colour. But they were full of tough ‘rag’ and though juicy, singularly deficient in flavor.” He made similar comments about grapefruit, mangoes, and pineapple. With its lack of expertise in fruit purchases and vulnerability to the aggressive United Fruit Company, Elders and Fyffes, the company responsible for purchasing and shipping the bananas, was soon taken over by United Fruit.

Conclusions

Optimism about the agricultural potential of Jamaica has a long history. In 1678 Richard Blome wrote, “If well improved, [it] would soon become the best and richest plantation that ever the English were (or are like to be) masters of.” Two hundred years later, Daniel Morris wrote, “The true wealth of these possessions lies in the characteristics and products of the soil; and, without exception, in this respect they afford means of development and of permanency of prosperity equal to any in the world.” In the same paper, Morris contrasted the stagnation or decay of the West Indies with the success of agricultural development in South Asia.

Reading the letters and reports of the staff of the Botanical Department, one can only be impressed by their energy and efficiency under difficult circumstances. They were vulnerable to—and sometimes died from—cholera and yellow fever; they faced difficult terrain on every journey; and above all, they were subject to the vagaries of the island’s government, which was always seeking to reduce expenditure and some of whose members questioned the whole basis of the department. There is evidence, however, that the advent of direct rule brought strong interest from the governor, and in the 1880s he increased funding to consistently around £5,000 a year. Throughout the Victorian period, staff in Jamaica relied heavily on practical support from Kew, in forms ranging from selection of new staff to naming of plants and sending of books. The bulk of international plant exchange was with Kew. At some points four botanical gardens were maintained; each received glowing reports from visitors and proved able to produce large numbers of plants and distribute them around the island.
The Botanical Department made extensive efforts to adapt to emancipation and the rise in smallholders and to the perils of reliance on a single crop. While research into sugar was maintained — and sugar has continued to be an important crop in Jamaica — most efforts went into crops suitable for smallholders, who were the formerly enslaved, and distribution and agricultural extension efforts were explicitly targeted at this group. The Botanical Department, at least, cannot be accused of ignoring peasant agriculture. It is true that the emphasis was on export crops, but the kitchen gardens and provision grounds had long been recognized as well stocked and expertly gardened; they were a low priority for improvement. The lack of sustained interest in the medicinal plants used in Jamaica is more surprising; these had been of keen interest to earlier botanists, at least to the beginning of the nineteenth century.

It is when we come to judge the outcomes of the department’s work, rather than its aims, that hard questions must be asked. A very wide range of plants was imported and trialed in the botanic gardens, an approach consistent with Victorian economic botany farther afield, as visible, for example, in the vast collection of the former Museum of Economic Botany (now the Economic Botany Collection) at Kew. Most of the thousands of species in the museum never made the transition to commercial success. The same is true of Jamaica’s botanic gardens in the Victorian period. Cinchona and plant fibers are just two of many examples of crops that failed, because of difficulties in local processing that led to poor quality raw materials, expensive freight costs to the United Kingdom, and, above all, the vagaries of world markets. The much desired diversification never happened. A counterintuitive exception is the “curiosities,” which proved to be less economically marginal than one might expect. As demonstrated by Jamaican lace-bark, these products were widely sold for a period, from the 1880s to the 1930s, and supported a wide range of makers and sellers. Yet the most successful new export crop of the Victorian era was one that the Botanical Department did nothing to promote. In the decades during which it became so important, the banana hardly figures in the annual reports of the Botanical Department. Were the Botanical Department’s close links to Kew in fact a disadvantage, focusing attention on minor crops for export markets in a far distant land rather than on the major fruits desired by the United States nearby? The questions raised by this chapter are not purely academic. To this day, articles in the Gleaner discuss the problems facing the island’s farmers; many of these would have been familiar to their Victorian forebears.
Notes

Annual Reports of the Botanical Department are referred to by the year they cover; they were usually published the following year as a supplement to the Jamaica Gazette.

I am grateful to the editors and to Caroline Cornish (Kew) and Duncan Taylor (Queen’s University Belfast) for their helpful comments on this chapter; remaining errors are my own.


2. Kew Directors’ Correspondence, 211/623. Housed at the Archives of the Royal Botanic Gardens, Kew, and henceforth cited as DC, followed by volume and folio number. Also available at http://plants.jstor.org.


4. Adams, Flowering Plants of Jamaica, 22.

5. Annual Report on the Public Gardens and Plantations for 1887. Each annual report, usually published as a supplement to the Jamaica Gazette, is cited here by the last year to which it refers; it was usually published the following year.


10. DC 69/173.


16. DC 211/593a.
18. M. F. Robinson, A Narrative Introducing Robert Thomson (Published by the author, 2007).
20. Gall’s Newsletter, May 14, 1887.
21. McCracken, Gardens of Empire.
24. DC 69/351.
27. DC 211/981.
33. DC 210/274.
34. DC 210/422.
37. DC 65/407.
41. DC 210/23.
45. DC 210/462.
49. DC 70/196.
51. DC 210/51.
52. DC 211/1052.
56. Daniel Morris, Planting Enterprise in the West Indies (London: S. W. Silver, 1883).
58. DC 211/1075.
59. DC 210/499.
60. DC 210/505.
61. DC 211/1010.
62. DC 211/706.
65. Gleaner, November 5, 1903.
68. Annual Report of the Department of Botany, 1898.
69. DC 211/852.
73. London Times, October 13, 1900.
75. Richard Blome, A Description of the Island of Jamaica (London: T. Milbourn, 1678); and Morris, Planting Enterprise in the West Indies.
77. Brennan, Harris, and Nesbitt, “Jamaican Lace-Bark.”