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Number Fifty Poinciana Street from the  
Little Theatre Movement's fiftieth pantomime,  
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*Out of Albion  
And Lebanon,  
Out of Erin  
And Aberdeen,  
Out of Guinea  
And Ashanú,  
Out of Bombay  
And Old Cathay.  
Out of traders' din  
And slavers' sin,  
Came the many  
Whose progeny,  
Motley and sun-tanned,  
People this land,  
This land we love  
Far, far above  
Our power to say  
In splendid way.*

*Out of many  
Comes a beauty,  
At times, unseen  
Through cloudy screen,  
But shining still  
With valiant will  
In the struggle  
Of a people  
To be in aim  
And single name  
One realm at peace  
And glad release  
From blinding hate  
And sordid state,  
One, in harmony,  
Hope, and destiny.*

*Out of Many, One Nation  
V.H.Percy 1*

# ARAWAK SPANISH AND AFRICAN CONTRIBUTIONS TO

## JAMAICA'S SETTLEMENT VEGETATION by John Rashford

The national motto of Jamaica is *Out of Many, One People*. It is a recognition of the diverse geographical and cultural origins of Jamaicans. This recognition, however, is not generally extended to include the great variety of useful plants upon which the people of Jamaica now depend. Yet, like the people, most of the important species commonly associated with the human environment also have diverse geographical and cultural origins

and are now established as 'one' in the form of Jamaica's settlement vegetation. The different plant communities of vines, herbs, shrubs, and trees that make up much of Jamaica's vegetation today are the result of human settlement and the activities associated with it. These plant communities are the ones with which people are in regular contact, and upon which they depend for their domestic, economic, recreational and

religious life. In addition to Native American influence, Jamaica's settlement vegetation is the outcome of the island's position in the post-Columbian world, the development of which has been based, in part, on the worldwide dispersal of useful plants. This paper focuses on the Arawak, Spanish, and African contributions to Jamaica's settlement vegetation up to 1655 when the British captured the island.<sup>2</sup>

## Human selective pressures

Human pressures that produce settlement vegetation are exerted in two fundamental ways. The first is our impact on wild plants: both those spread in natural areas by nonhuman biotic and abiotic dispersal,<sup>3</sup> and those spread in human areas by nonhuman biotic and abiotic dispersal, and human incidental dispersal.<sup>4</sup> The most common human responses to wild plants are to destroy them to make space, remove interference, and create useful products; to tolerate them when they do not interfere; and to preserve, protect and plant them when they are valued. Wild plants can be divided into weeds and what might be called naturals. Weeds are common because they derive a positive advantage from the settlement environment and thus cause interference with human activities. It is as a result of this interference that they are regarded as weeds and an effort is made to destroy them.<sup>5</sup> Naturals are common and do not interfere, so they are generally tolerated.

The second human selective pressure influencing the development of settlement vegetation is the cultivation of domesticated and wild plants.<sup>6</sup> Domesticated plants, whether grown from seeds or vegetatively, are plants that have been genetically modified to the point of dependence on human activity for successful reproduction and dispersal.

The Arawak transformed Jamaica's natural forests into settlement vegetation by their responses to wild plants and their cultivation of largely introduced domesticated plants. The Spanish and Africans continued this process. Today, much of Jamaica's natural vegetation has been transformed into settlement vegetation (Swabey 1949:60).

## Introducing roots and fruits to Jamaica

While most of the world's people depend on grasses for their basic nutrition, Jamaicans, in common with other groups in humid equatorial and tropical marine environments, depend upon a complex of herbaceous root crops and tree crops. This complex is identified in the island's Census of Agriculture (1973) as a 'food forest', and elsewhere as a 'tangle of productive

vegetation' (Money 1972:10), 'artificial woodlands' (Adams 1971:5-7), an 'arboretum' (Fitzgerald 1978:14), and a 'tropical jungle garden' (DN 1976:28). The plants that make up this complex are from around the world. They are now part of the ordered, distinctly Jamaican way in which different species are distributed throughout the island's settlement environment.

This process of diffusion began with the Arawak who were dependent on a complex of roots and fruits which many scholars believe originated between 3,000 and 7,000 years ago in South America's tropical lowlands east of the Andes. The Arawak brought this complex with them to Jamaica as they migrated north through the Caribbean archipelago (Grigg 1977).

## Arawak

There were an estimated 60,000 to 100,000 Arawak in Jamaica when Columbus landed in the New World in 1492. They lived by fishing, farming, collecting, and hunting, and were among the earliest occupants of Jamaica to change the natural vegetation of the island. They did so when they altered or destroyed small patches of forests to create space and to provide products necessary for their villages, gardens, and fields.

Chief among the important domesticated herbaceous plants in the fields of the Arawak were the starchy root crops, which included cassava (*Manihot esculenta*), their staple: sweet potato (*Ipomoea batatas*), a valuable plant in the humid tropics; yampi (*Dioscorea trifida*), the only important New World yam; arrowroot (*Maranta arundinacea*) a perennial aroid<sup>7</sup> with swollen rhizomes; Spanish arrowroot (*Canna edulis*), another rhizomatous aroid; and coco (*Xanthosoma sagittifolium*), also an aroid, but with a thickened underground stem called a corm. Corn (*Zea mays*), another of their staple crops, was probably also planted in their fields.

Turning from Arawak fields to their home gardens,<sup>8</sup> we find that the important cultivated crops were peanut (*Arachis hypogaea*), pineapple (*Ananas comosus*), squashes (*Cucurbita spp.*), peppers (*Capsicum spp.*), beans (*Phaseolus spp.*) and possibly the callaloo (*Amaranthus spp.*) and bottle gourd (*Lagenaria siceraria*). Callaloo, one of Jamaica's most loved vegetables,

is widely used in the Americas. Pickersgill and Heiser (1977:808) note that the 'hypothesis that the different cultivated species of *Amaranthus* were domesticated independently, in different areas and from different wild species, still best fits the known facts'. The bottle gourd is an African plant (Pickersgill and Heiser 1977:815-816) that has long been important to people in many parts of the world. Evidence of its use in the Americas is present in the earliest levels of many archaeological sites, from Mexico to highland and coastal Peru, dating back from 6,000 to 10,000 years ago. This plant could have been present in the gardens of the Arawak.

Especially important to the Arawak was tobacco (*Nicotiana rustica*), a plant deeply associated with recreation, medicine and religion. Oviedo wrote 'This plant is very highly prized by the Indians, and they grow it in their gardens and farms . . . they believe that the use of the plant and its smoke is not only a healthy thing for them, but a very holy thing' (cited in Williams 1963:20). Other plants that might have been in their gardens were wild cucumber (*Cucumis anguria*), sweet cup (*Passiflora maliformis*), prickly pear (*Opuntia dillenii*) and dildo pear (*Stenocereus hystrix*).

Except sweet cup, prickly pear, dildo pear, bird pepper (*Capsicum frutescens*), and possibly the callaloo and bottle gourd, the crops mentioned above are herbaceous plants that require systematic cultivation. As such, they represent one important component of the Arawak's settlement vegetation. The other important component was wild plants, especially trees, which are often described as 'half-wild' or 'semi-cultivated', or plants that 'volunteer' or are 'spontaneous'. These wild plants would have appeared in Arawak residential areas, especially in association with home gardens, toilet areas, and dump heaps; they would have appeared in their fields, though fields were primarily devoted to root crops; and they would have appeared along paths, and in recreational and religious places.

Wild plants, as previously noted, are incidentally dispersed in the settlement environment by humans and other animals, and by wind, water, and other abiotic means. Human incidental dispersal results from three basic processes: harvesting, adhesion, and mediation. In incidental dispersal by harvesting, seeds are spread by

rejection (they are spat out); by loss (where collected fruits might be lost while being taken from one place to another); by discard (where the fruits have been collected and processed and the seeds thrown away); and by defecation (where the seeds are ingested with the rest of the fruit). In incidental dispersal by adhesion, plants or seeds become attached to people, their equipment, or their animals and are thus spread in the human environment. And in incidental dispersal by mediation, human settlement as a built environment, together with the activities associated with it, affects animals and other natural agents that in turn have an impact on the dispersal of plants.

The fruit trees the Arawak incidentally dispersed by harvesting in association with rejection possibly included sweetsop (*Annona squamosa*), soursop (*Annona sapota*), custard apple (*Annona reticulata*) star apple (*Chrysophyllum cainito*), seagrape (*Coccoloba uvifera*), guinep (*Melicococcus bijugatus*), stinking toe (*Hymenaea courbaril*) and macca fat (*Acrocomia spinosa*). The seeds of the hog plum (*Spondias mombin*), red coat plum, and yellow coat plum (*Spondias purpurea*) could also have spread by rejection, though it is uncertain whether they were initially introduced to Jamaica by the Arawak (Adams 1971:434).

Seeds that could have been incidentally dispersed by discard in association with harvesting are those of the papaya (*Carica papaya*), cashew (*Anacardium occidentale*)<sup>9</sup>, mamee (*Mammea americana*), annatto (*Bixa orellana*), and calabash (*Crescentia cujete*).

The seeds of the guava (*Psidium guajava*), like those of the sweet cup and other *Passiflora* species, dildo pear, prickly pear, and wild cucumber are ingested and could have been primarily dispersed by harvesting in association with defecation.

The situation, however, is not as simple as presented here. The seeds of some trees such as the sweetsop, naseberry, and star apple which the Arawak would have primarily rejected are sometimes accidentally swallowed. This is especially true of the guinep. Its round, smooth, seeds, about the size of large marbles, are surrounded by a thin, slippery, gelatinous pulp (because of the likelihood of accidentally swallowing the seeds, the guinep is regarded as dangerous for very small children).

We can appreciate the complexity of human incidental dispersal when we consider that the ways in which the Arawak used fruits would determine the ways in which their seeds were dispersed. Moreover, fruits with multiple uses have seeds that would have been dispersed in a variety of ways. While the guava, for example, is suited to human dispersal by defecation, it also can be spread by other kinds of harvest dispersal, and by adhesion and mediation. Today, human mediated dispersal of the guava is especially evident when we consider the influence of cattle and other browsing animals that spread seeds by defecation. Guava, because of its success in pastures, is now listed as one of the twenty-five worst weeds in Jamaica (JAS 1954:574).

Of course, all the fruit trees mentioned above that were incidentally dispersed by the Arawak could also be spread in their environment by other animals and by natural forces. Consider the pimento (*Pimenta dioica*), which is the only native species among the plants of major commercial importance in Jamaica. The ripe berries are not highly regarded as a fresh fruit so incidental dispersal by the Arawak was probably insignificant. Where the pimento would have benefited most is from the open spaces created by the Arawak. This is the case today. 'The pimento tree,' writes Rodriguez (1969:5), 'is reproduced from ripe berries and in general the processes of propagation are started by such "natural agents" as birds, bats, lizards and insects. . . . When sown by these "natural agents", pimento will be found to grow under other trees, beside fences, stone walls, stones, clusters of shrubs and other points convenient to its agents for depositing the seeds.' Other important plants in the Arawak settlement that were not used for food that would have been spread by human incidental dispersal and nonhuman dispersal are the cotton tree (*Ceiba pentandra*) and cotton (*Gossypium spp.*).

### The Spanish

Following the Arawak, the next major event that, in time, would contribute significantly to the development of Jamaica's settlement vegetation began in 1492 when Columbus stumbled across the Americas in his effort to

demonstrate the possibility of reaching the wealth of the Indies by sailing west. At this time, the worldwide distribution of wild and domesticated plants did not include any significant exchanges between the Old World and the New. This was also true of people and their domesticated animals, and of the pests and diseases associated with both. Columbus set in motion a biological and cultural exchange between the Old and New World that in effect doubled the plant resources of both hemispheres and contributed greatly to the development of our present world system (Crosby 1969:195).

Columbus discovered Jamaica in May 1494 on his second voyage to the New World while he was exploring the southern coast of Cuba. Since the island showed little promise of gold or other sources of wealth, it remained largely unexplored and unsettled for the next fifteen years. This situation changed when the Spanish started their penetration of the American mainland and began to develop Jamaica as a supply colony.

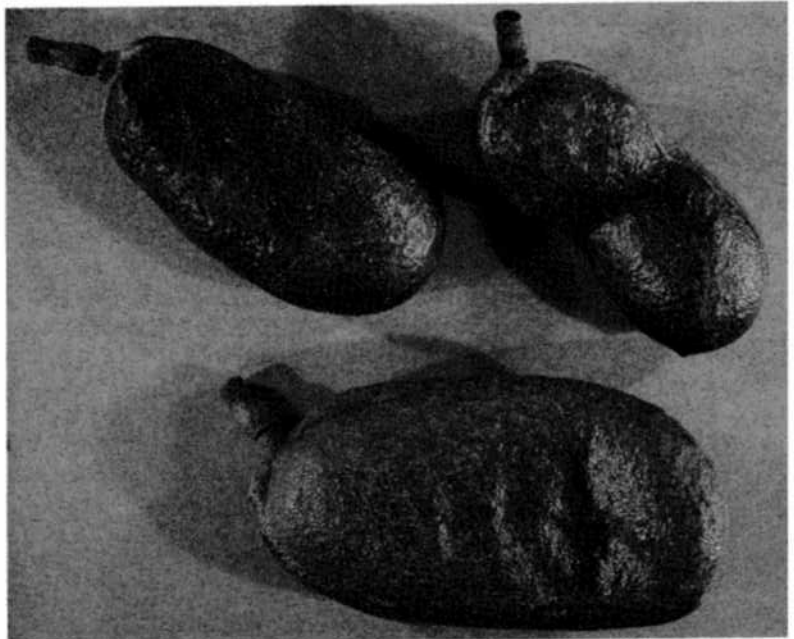
New Seville, the first Spanish settlement in Jamaica, was established in 1509 on the north coast in what is now the parish of St Ann. The town was never completed, however; it was abandoned after about twenty-five years while still being built. Whatever the particular circumstances were that led to its being abandoned, the drier coastal plains and river valleys on the island's south were clearly more suited to the pastoral life of the Spanish. These plains are the most extensive area of flatland in Jamaica, and stretch for some twenty miles west from the Liguanea plains of Kingston, through the St Jago plains of St Catherine to the Vere plains of Clarendon. Describing the Liguanea plains not long after the British capture of the island in 1655, Bryan Edwards (1972:149) wrote,

This part of the country was also abundantly stored with horned cattle and horses, which ran wild in great numbers; and the first employment of the English troops was hunting and slaughtering the cattle, for the sake of the hides and tallow, which soon became an article of export. It was supposed by Sedgewicke, that the soldiers had killed 20,000 in the course of the first four months after their arrival; and as to horses, 'they were in such plenty (says Goodson) that we accounted them the vermin of the country'.

*Sea Grape*



*Calabash*



*Locust (Sinking Toe)*

*Avocado*



*Bamboo and yam poles*



*Pimento grove*



*Inside Jamaica's food forest*

The Spanish, like the Arawak before them, had both a negative and a positive impact on Jamaica's vegetation. On the negative side, natural forests were altered or destroyed to create space and provide fuel, wood, and other resources. The trampling and predation of domesticated animals also had a major and long-lasting impact on the island's natural vegetation and on the settlement vegetation of the Arawak. On the positive side, the Spanish planted native and introduced crops, and they continued to tolerate, protect and cultivate any useful trees and shrubs. This was especially true of the pimento, which they exported, and the naseberry, one of their favourites.

Spanish efforts to grow wheat and barley in the lowland tropics were unsuccessful, so they adopted cassava and corn as staples. Other New World crops adopted included tobacco, the smoking of which would spread to the rest of the world; cotton, with which the Arawak wove the cloth they wore and the hammocks they slept in; and cocoa, the source of what was to become a popular beverage in Spain.

Of the crops characteristic of the Mediterranean – grape, fig, olive, and the citruses – only the citruses became important in Jamaica. Most of the familiar species – sweet orange, sour orange, lemon and lime – were introduced by the Spanish. They also succeeded with the fig (*Ficus carica*), though it never became popular or widespread in Jamaica.

The Spanish were particularly successful with sugar cane. In time, its cultivation in every suitable environment on the island would entail the forced introduction of many Africans and the obliteration of Jamaica's lowland forests. Other important plants introduced by the Spanish were European vegetables; plantain (*Musa sapientum* var. *paradisica*), which, with corn and root crops, was an important staple during slavery; and banana (*Musa sapientum*), though not the Gros Michel variety which was to later become the basis for the development of the island's banana industry. In time, sugar cane, banana, and the citruses became among the most important commercial crops in the economic and social history of Jamaica.

The Spanish also introduced the pomegranate (*Punica granatum*), ginger (*Zingiber officinale*), and indigo (*Indigofera tinctoria*), and they continued the introduction of tropical

American crops that had not yet reached Jamaica, including the cocoa, avocado, and chocho (*Sechium edule*),<sup>10</sup> The coconut, wherever its place of origin might ultimately prove to be, was introduced to Jamaica by the Spanish as we see it mentioned in accounts of the island published soon after the British took control (Harris 1901:129).

Of the plants introduced by the Spanish, indigo became naturalized, and the sour orange, lime, and avocado were added to plants that are commonly incidentally dispersed in Jamaica today.

### Africans

The forced introduction of Africans throughout lowland tropical America, beginning in 1505 and continuing for some three and a half centuries, led to the early exchange of crops between the Americas and Africa. Grigg (1974:36) writes that 'In this way the greater yam, *Sorghum vulgare*, pearl millet, cowpeas and colocasia reach Brazil and the Indies. . . . ' The Spanish introduced Africans to Jamaica in 1517, eight years after the founding of New Seville. This occurred when the Arawak, devastated by exploitation and disease, were rapidly declining in numbers. For over a hundred years before the British captured the island, especially during the period in which the southern plains were settled and developed, the exploitation of Africans was the basis of the Spanish occupation of Jamaica.

Africans had the same selective impact on plants as the Arawak and because of their numerical majority, they contributed greatly to the development of Jamaica's settlement vegetation. The species they preferred were the ones that were preserved, tolerated, protected and cultivated. An anonymous author writing of the 'characteristic traits' of African Jamaicans at the end of the eighteenth century reports that 'Fruits of all kind they eat. . . . Among their favourite . . . is one with a hard shell called the locust (stinking toe, *Hymenaea courbaril*), the pulp of which is of so disagreeable a smell that most Europeans would not touch it' (Higman [1797] 1976:15).

Early introductions to Jamaica include melon (*Citrullus lanatus*), cow peas (*Vigna unguiculata*), and several kinds of yam (*Dioscorea* spp.), the traditional staff of life for many West Africans and African Jamaicans.

Published accounts written not long

after the British capture of the island suggest that other plants were probably also introduced to Jamaica in association with Africans.<sup>11</sup> These include the gungu (*Cajanus cajan*), a leguminous shrub producing one of the most-loved peas in Jamaica, providing an indispensable ingredient for Sunday dinners and for meals during the Christmas holidays (the time it is in season); sorrel (*hibiscus sabdariffa*), an important beverage plant in Jamaica; tamarind (*Tamarindus indica*), a very common tree that serves as a seasonal marker and is widely used for food, beverage and medicine; bissy (*Cola* spp.), as the kola tree is called in Jamaica; castor oil (*Ricinus communis*), a medicinal plant now spread throughout the tropics; John Crow bead (*Arbus preicatorius*), an old world plant now pantropically dispersed, useful to Africans in religious practices, and as a source of poison, medicines, and ornaments; and okra (*Abelmoschus esculentus*), a basic ingredient in Jamaica's traditional pepperpot soup. The same anonymous author mentioned above reports,

The soup known by the name of *Pepper-pot*, is a favourite dish; in the composition of which they use calilue of several sort, ochros, plantanes, yams, cocos, salted meat and fish, and Kayan pepper:- the young sprouts of the large cotton tree, and the tender leaves of prickly-pear are sometimes used as ingredients.

Of plants introduced in association with Africans, the tamarind, castor oil, and John Crow bead were added to the plants that are commonly incidentally dispersed in Jamaica today.

When the Spanish fled Jamaica in 1655, there were many important plants that had not yet reached the island. These include, for example, the ackee (*Blighia sapida*), from West Africa, the most important dooryard tree honoured by being the source of the national fruit; mango (*Mangifera indica*), a tree whose abundant fruiting allows Jamaicans to 'wash pots and turn them down' when it is in season; and bamboo (*Bambusa vulgaris*), one of the most useful Jamaican plants which, although sometimes cultivated, is often a giant naturalized weed restricted primarily to river courses, ponds, water holes, roadways, inaccessible hillsides, pastures, and areas in ruinate, i.e. land in which agriculture has been abandoned (Lewis 1965, Eyre 1966, Symes 1971).

At the beginning of the twentieth

century, William Harris, who was sent from Kew Gardens to Jamaica to be Superintendent of the island's Public Gardens, was able to conclude,

Jamaica may be described as the garden and or orchard of the West Indies. There is probably no tropical colony which has benefitted to such a large extent by the introduction of the fruit, economic and

ornamental trees and plants of other lands as this island (1910:181).

Jamaica has benefited greatly from its diverse natural flora, from the rich exotic flora introduced by the Arawak, Spanish and Africans, and from later introductions, especially in association with the island's botanic gardens (Powell 1972, 1973; Eyre 1966).

This has given rise to a settlement vegetation that is now distinctly Jamaican.

#### ACKNOWLEDGMENTS

I would like to thank Brad Huber, Robert Tourmier, Caroline Hunt, Joko Sengova, and Barbara Borg for helpful comments on earlier drafts of this paper.

#### NOTES

1. This poem by V.H. Percy appeared in his book of poems titled *Teacher's Punch* which was probably published in the 1960s. No publisher or date of publication is given.

2. The plants discussed in this paper are those that now grow in Jamaica. This does not mean, however, that all plants cultivated today are direct descendants of the earliest introductions.

3. Nonhuman biotic dispersal is dispersal by birds, bats, reptiles, and the like, and nonhuman abiotic dispersal is dispersal by wind, water, gravity etc.

4. Human incidental dispersal refers to the unintentional spread of plants from rejecting seeds, defecation, and the like.

5. Botanists state that the identification of a weed is an agricultural and not a botanical concept. They also point out the fact that the same plants which are identified as weeds are also frequently appreciated as wild flowers and are used for food, animal feed, medicine, and raw material for various purposes.

6. The importance of cultivated wild plants should not be overlooked. Clarissa Kimber, who has been studying 'dooryard gardens' in the Caribbean (1966, 1978, 1988) reports in a study of Puerto Rico (1973) that an average of 45% of the useful species were of 'spontaneous origin'.

7. Aroids are in the family Araceae which includes many familiar house plants such as the genera *Dieffenbachia*, *Philodendron*, *Spathiphyllum* and *Syngonium*.

8. Root crops apart, the distinction between field and home garden was probably not as rigid as this paper might suggest. Many garden plants could also have been field crops.

9. It is uncertain if avocado and cashew were grown by the Arawak. Of the cashew, De Candolle ([1886] 1967:199) writes: 'The species is certainly wild in the forest of tropical America, and indeed occupies a wide area in that region. . . . Dr Ernst believes it is indigenous only in the basin of the Amazon River. . . . His opinion is founded upon the absence of all mention of the plant in Spanish authors of the time of the Conquest - a negative proof, which establishes a mere probability.'

10. There are those who believe that the cocoa, chocho and avocado could have been introduced to Jamaica by the Arawak.

11. There is much room for discussion in identifying the origin and dispersal of crops

and wild plants. Earlier I suggested that lime was introduced by the Spanish. McClure (1982) thinks differently: 'The first *Citrus* seeds were taken to America by Columbus . . . but it is not clear when *C. aurantifolia* originally reached the Caribbean. Soon after the first West African[s] . . . had been introduced, Sloane (1696) and Oviedo (1526) refer to West Indian cultivation of the lime. Various authors speculate that the lime either preceded Columbus or was introduced by Spaniards shortly after 1492, but there is no convincing evidence to support these hypotheses. . . . It seems more likely that social ingression of the west African heritage may have been responsible for this introduction.' This argument could be extended to several other plants.

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