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*National Committee*

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**MONUMENTS AND SITES  
JAMAICA**



**I ICOMOS**

CONSEJO INTERNACIONAL DE LOS MONUMENTOS Y SITIOS  
CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES  
INTERNATIONAL COUNCIL ON MONUMENTS AND SITES

MONUMENTS AND SITES  
JAMAICA

patricia e green architect

FEB 26 1997



National Committee  
11th General Assembly

# MONUMENTS AND SITES JAMAICA



Consejo Internacional de los Monumentos y Sitios  
Conseil International des Monuments et des Sites  
International Council on Monuments and Sites

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This is one of a new series of ICOMOS Scientific Publications released on the occasion of its 11th General Assembly in Sofia, Bulgaria, 5-10 October 1996, sponsored by the Central Cultural Fund and Sri Lanka National Committee of ICOMOS

The other volumes in the series are:

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- Dominican Republic ○ Egypt
- Hungary ○ India ○ Israel
- Japan ○ Russia ○ South Africa
- Sri Lanka ○ Zimbabwe

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Cover and Frontispiece: *Detail of Rodney Memorial Building, Spanish Town. (Pat Green photograph)*



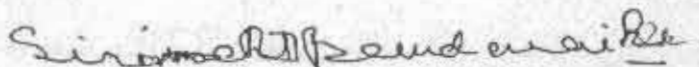
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## Foreword

Monuments and Sites of Mankind are but the memory of Man. These stand testimony to the life and style of the people through many generations. Sri Lanka is no exception to this characteristic of human nature, as our Monuments and Sites record a continuous history of a people from the 5th Century B.C. to the present day. We are proud that six of our sites have qualified to be among the three hundred and thirty cultural items listed by UNESCO to be World Heritage Monuments.

As chairperson of the Central Cultural Fund which is looking after such a rich heritage of world stature, we are proud to note that the Central Cultural Fund has been able to sponsor the publication of 20 volumes covering the Monuments and Sites of 20 different countries in the five continents of the globe. We believe that by the dissemination of the knowledge concerning the heritage of different peoples, the world will be richer in sharing such experiences that have so far been confined to each nation.

We take this opportunity to congratulate the 6,000 or more members of the International Council of Monuments and Sites (ICOMOS) for their dedicated service to the world and for providing professional guidance to each nation to safeguard their monumental heritage for the sake of generations to come. We also wish the 84 Member States of ICOMOS, every success in their deliberations at the 11th General Assembly of ICOMOS in Sofia, Bulgaria to be held later this year, for which occasion these volumes are being published.



Prime Minister's Office,  
Sir Ernest de Silva Mawatha,  
Colombo 3, Sri Lanka.

**Sirimavo Dias Bandaranaike**  
*Prime Minister*  
*Sri Lanka*

17th April, 1996

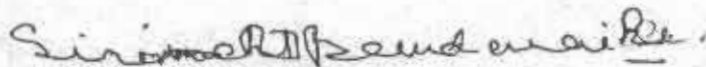
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## Avant-propos

Les Monuments et les Sites historiques ont représenté, au cours de l'histoire de l'humanité, la mémoire de l'homme. Ils témoignent de l'existence et du style de vie des peuples à travers les générations. Le Sri Lanka ne fait pas exception à cette caractéristique du genre humain puisque nos monuments et nos sites racontent l'histoire de notre peuple depuis le 5ème siècle av J.-C. jusqu'à nos jours. Nous sommes fiers que 6 de nos sites aient été sélectionnés parmi les 330 articles culturels listés par l'UNESCO comme Monuments du Patrimoine mondial.

En tant que Président du Central Cultural Fund ayant à coeur l'intérêt d'un tel héritage d'importance mondiale, je suis heureuse de savoir qu'il a été possible de patronner la publication de 20 volumes se rapportant aux Monuments et aux Sites de 20 pays différents des 5 continents du globe. Je suis convaincue que c'est grâce à la diffusion des connaissances concernant les héritages culturels des différents peuples que le monde pourra s'enrichir du partage de telles expériences jusqu'alors confinées à chaque pays.

Je saisis cette opportunité pour féliciter les quelque 6 000 membres du Comité International des Monuments et des Sites (ICOMOS) pour leur service dévoué au monde et pour l'assistance professionnelle apportée à chaque nation en vue de la sauvegarde de leurs monuments dans l'intérêt des générations à venir. Je souhaite également aux 84 états membres d'ICOMOS tous les succès dans leurs délibérations lors de la 11ème Assemblée Générale d'ICOMOS à Sofia, Bulgarie, qui se déroulera à la fin de cette année et à l'occasion de laquelle ces livres ont été publiés.



**Sirimavo Dias Bandaranaike**  
*Premier Ministre*  
*Sri Lanka*

Bureau du Premier Ministre,  
Sir Ernest de Silva Mawatha,  
Colombo 3, Sri Lanka

17 avril 1996

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## Preface

Although ICOMOS had its birth in Europe over thirty years ago, it is only now that it has spread to the ends of Africa, America and Asia/Oceania. It has now a membership in 84 countries, and more nations are fast appreciating the professional value of this International Body.

The steadfast effort of ICOMOS is to see that the highest principles of conservation are applied to the Monuments and Sites of the World. It is precisely for this reason that ICOMOS has been able to interest twenty countries in the five continents of the world to record their efforts so that the rest of the world could share their rich experience in the science of conservation.

The organizers of the twenty publications take this opportunity to thank the Editors of these volumes for giving generously of their time and for collaborating in this major exchange of knowledge.

Prof. Lakshman Alwis  
President  
ICOMOS, Sri Lanka

Ms. Sita Pieris  
Editor-in-Chief  
ICOMOS, Sri Lanka

Dr. Roland Silva  
President  
ICOMOS,

Colombo, 17 April 1996



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## Préface

Bien qu'ICOMOS soit né en Europe il y a un peu plus de 30 ans, c'est seulement maintenant que son action a pu s'étendre aux frontières de l'Afrique, de l'Amérique et de l'Asie/Océanie. Il possède aujourd'hui 84 pays membres et un nombre rapidement croissant de nations rendent hommage à la valeur professionnelle de ce corps international.

Le constant effort soutenu par ICOMOS est celui de veiller au respect des grands principes de conservation des Monuments et des Sites historiques mondiaux. C'est pour cette raison précise qu'ICOMOS a su intéresser 20 pays des 5 continents du globe à prendre notes de leurs efforts pour que le reste du monde puisse partager leurs riches expériences dans le domaine de la science de la conservation.

Les organisateurs des 20 publications saisissent cette opportunité pour remercier les éditeurs des 20 volumes qui ont si généreusement donné de leur temps pour cet échange majeur de connaissances.

Prof. Lakshman Alwis  
Président  
ICOMOS, Sri Lanka

Mme Sita Pieris  
Rédacteur en chef  
ICOMOS, Sri Lanka

Dr. Roland Silva  
Président  
ICOMOS

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## Message

The story of conservation is as old as the civilization of the human race. If ICOMOS has in recent years collated ideologies and codified precepts, it is the research and experiences of man that they have sensitively brought together.

The ancient chronicles of Sri Lanka like the Dipavamsa and the Mahawamsa as well as technical texts like Manjusri's Vastuvidya Sastra are attempts to record unending tales of scientific experience that have enriched the sum and substance of its human tradition. The data of unwritten experience is yet another source that the professionals of today should attempt to glean from traditional craftsman and village elders. These researches would extend from city planning to monastic layouts, to monuments and interiors, to furniture and even to items of regal wear as crowns and the setting of the gems upon such jewellery. These texts and traditions are valuable not only for creation but also for the conservation and safeguarding of their quality through time.

I wish the work of the world body in the conservation of Monuments and Sites every success and congratulate them for this attempt to collate such information from the different ends of the earth.

Ministry of Cultural and  
Religious Affairs, Sethsiripaya,  
Battaramulla, Sri Lanka.

3rd May 1996



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**Lakshman Jayakody**  
*Minister of Cultural and  
Religious Affairs,*

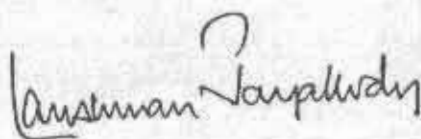
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## Message

Les origines de la conservation sont aussi anciennes que celles de la civilisation humaine. ICOMOS a depuis de récentes années regroupé des théories et codifié des règles de conduite permettant ainsi une approche intelligente des recherches sur l'homme et de ses expériences.

Les anciennes chroniques du Sri Lanka comme celles de Dipavamsa et Mahavamsa ainsi que les textes techniques comme le Vastuvidya Sastra de Manjusri sont des tentatives de récits scientifiques impérissables qui ont enrichi l'ensemble et l'essence même des traditions humaines du pays. Les faits provenant d'histoires qui n'ont pas été écrites forment une autre source d'information que les professionnels d'aujourd'hui devraient essayer de recueillir auprès des artisans traditionnels et des anciens du village. Les recherches s'étendent des plans de villes aux conceptions monastiques, des monuments et intérieurs au mobilier et même aux accessoires vestimentaires comme les couronnes et la disposition des pierres précieuses les ornant. Ces textes et ces traditions sont de grande valeur non seulement pour notre histoire mais aussi pour la conservation et la protection de leurs qualités à travers le temps.

Je tiens à souhaiter aux membres du corps mondial de la conservation des Monuments et des Sites tous les succès dans leurs travaux et je tiens également à les féliciter pour leur effort de collection d'informations en provenance des quatre coins du monde.



---

**Lakshman Jayakody**  
*Ministre des Affaires Culturelles et  
Religieuses, Sri Lanka*

Ministère des Affaires Culturelles  
et Religieuses  
Sethsiripaya, Battaramulla  
Sri Lanka

3 mai 1996

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## ICOMOS National Committee - Jamaica

The Jamaica National Committee of ICOMOS (JaICOMOS) presents here a brief overview of some areas of interest which are of significance and concern when we review issues of protection of the nation's cultural heritage. This heritage is presented here under both the built and the natural environment. Each chapter has been carefully selected to reflect the interest of the JaICOMOS membership and, at the same time, to display other aspects of Jamaica to the world, in addition to the sun, sea and reggae (as discussed in the chapter on cultural tourism). This book is a first for the country and promises to be an invaluable addition.

JaICOMOS wishes to express its appreciation to all its members, for their support in compiling the book, as well as to the following persons: Mr Alwyn Bully, Caribbean subregional director for culture for Unesco; Mr Ainsley Henriques, chairman of JNHT and his staff; Mr John Aarons, former director of the National Library of Jamaica; Ms. Jenni R. Anderson for her editorial assistance and for typesetting the book, and all who helped to make this publication possible.

**Patricia E. Green**  
*Editor-in-Chief*  
*ICOMOS National*  
*Committee of Jamaica*

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## Comité National d'ICOMOS - Jamaïque

Le Comité National d'ICOMOS de la Jamaïque (JaICOMOS) présente ici une vue générale de certaines zones d'intérêt possédant une signification importante dans le cadre de la révision des issues concernant la protection du patrimoine culturel de la nation. Ce patrimoine est présenté ici selon deux types d'environnement : celui créé par la main humaine et celui créé par la nature elle-même. Chaque chapitre a été sélectionné avec soins dans le but de montrer l'intérêt de l'adhésion à JaICOMOS et, dans ce même élan, pour présenter d'autres aspects de la Jamaïque au monde, en plus du soleil, de la mer et du reggae (discutés dans le chapitre sur le tourisme culturel). Ce livre est une première pour le pays et promet d'être un apport de grande valeur.

JaICOMOS souhaite exprimé sa reconnaissance à tous ses membres pour leur support pendant la compilation de ce livre, ainsi qu'aux personnes suivantes : M. Alwyn Bully, directeur sub-régional des Caraïbes pour la culture pour l'UNESCO ; M. Ainsley Henriques, Président du JNHT et son équipe ; M. John Aarons, ancien directeur de la Bibliothèque Nationale de la Jamaïque ; Mme Jenni R. Anderson pour son assistance dans la rédaction et la mise en page de ce livre, et à tous ceux qui ont permis de rendre possible cette publication.

**Patricia E. Green,**  
Editeur en chef;  
Comité National d'ICOMOS - Jamaïque



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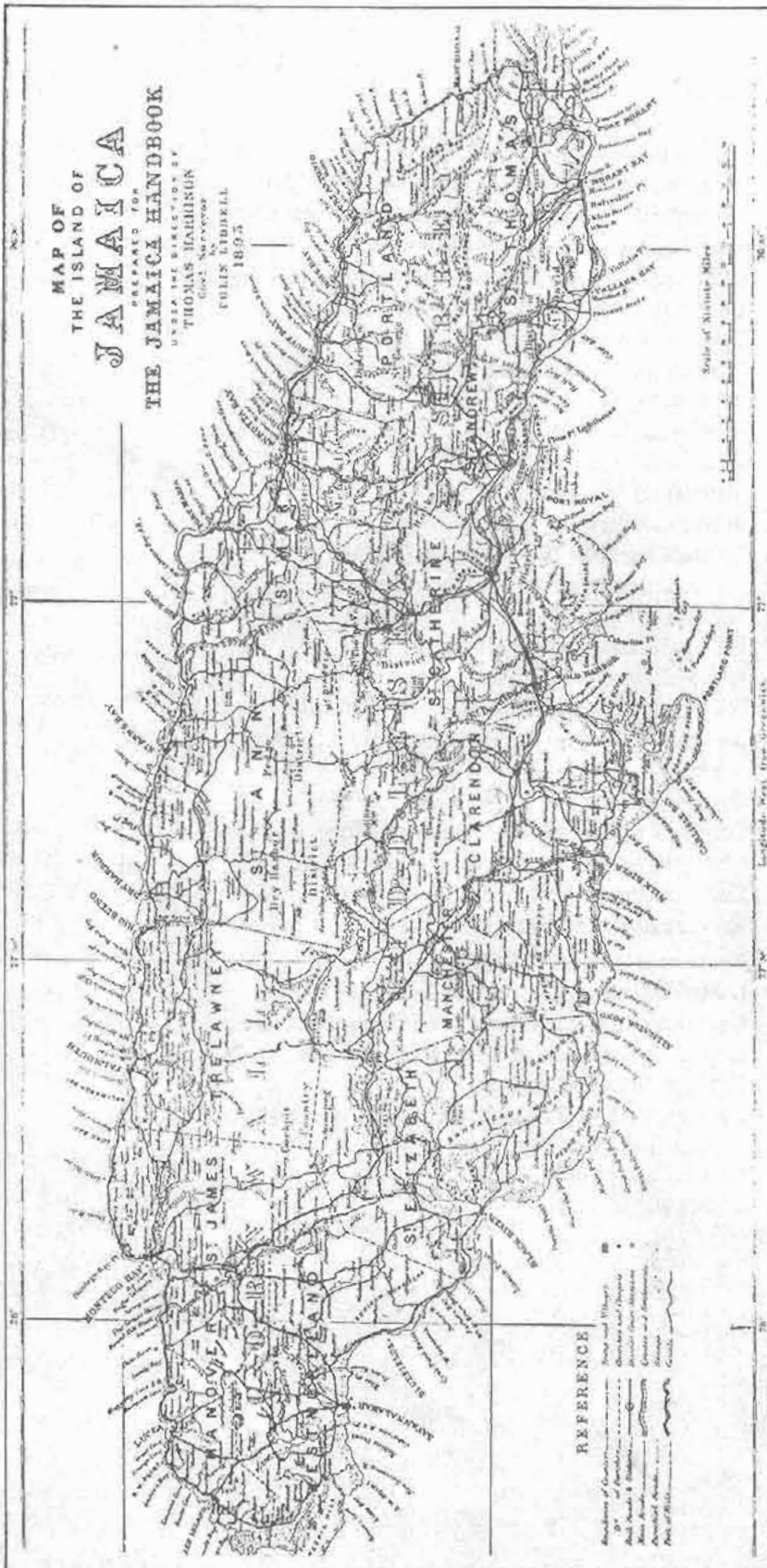
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## List of Abbreviations

ASJ	Archaeological Society of Jamaica
BJCMNP	Blue and John Crow Mountains National Park
CCAP	Columbus's Caravels Archaeological Project
CSA	Caribbean School of Architecture
CHIN	Canadian Heritage Information Network
EFJ	Environmental Foundation of Jamaica
GOJ	Government of Jamaica
IACA	International Association of Caribbean Archaeologists
IDB	Inter-American Development Bank
INA	Institute of Nautical Archaeology
IOJ	Institute of Jamaica
IUCN	World Conservation Union
JalCOMOS	Jamaica National Committee of ICOMOS
JCDT	Jamaica Conservation and Development Trust
JNHT	Jamaica National Heritage Trust
KRC	Kingston Restoration Committee
NGO	Non-governmental organization
NRCA	National Resources Conservation Authority
NRCD	National Resources Conservation Division (now Authority, see above)
OAS	Organization of American States
ODPEM	Office of Disaster Preparedness and Emergency Management
OECS	Organization of Eastern Caribbean States
PLC	Preservation Institute: Caribbean
TAP	Tourism Action Plan
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
Unesco	United Nations Educational, Scientific and Cultural Organization
UTech	University of Technology, formerly College of Arts, Science and Technology
UWI	University of the West Indies
WWF	World Wildlife Fund

Map of the island of Jamaica



## Youth and Our Heritage Initiating the Spanish Town Guided Walking Tour

*Marguerite Curtin*

### **Educating the Youth**

On Sunday, 11 July 1982, a group of concerned citizens undertook a photographic survey of the Historic Zone of Spanish Town. This was an important step towards the conservation and preservation of national heritage in Jamaica's oldest living city, Spanish Town. As the group worked, photographing building by building in street after street, the significance of the enterprise became more apparent to the persons involved. It was felt, therefore, that the knowledge and awareness gained during the photographic survey should be shared with young people in Spanish Town, who, in turn, would be able to pass the insights and attitudes on to the rest of the community.

With the approach of Jamaica's national Heritage Week celebrations, two members of the newly appointed Spanish Town Interim Task Force (under the auspices of the Jamaica National Trust Commission)<sup>1</sup> prepared a script for a 'Guided Walking Tour' within the core of the Historic Zone. The section chosen was a route that people from all walks of life would have used two centuries ago as they went to and fro in the city between the Cathedral, the Barracks, and the governor's residence and civic buildings

in the Square. Interspersed between these important buildings of the State were the houses of the urban dwellers, built on a much smaller scale, and painted in attractive colours. They had timber frames with brick or timber construction, or a combination of both; sometimes the walls were finished with stucco over brick nogging or 'Spanish walling'; their roofs, now covered with galvanized (zinc) roofing, were formerly of wood shingles.

In mid-September 1982, five secondary schools in the Spanish Town area were contacted and invited to take part in the development of this new tour. On Thursday, 7 October at 3:30 p.m. the recruits — students between the ages of 14 and 18 — walked the proposed route of the tour for the first time.

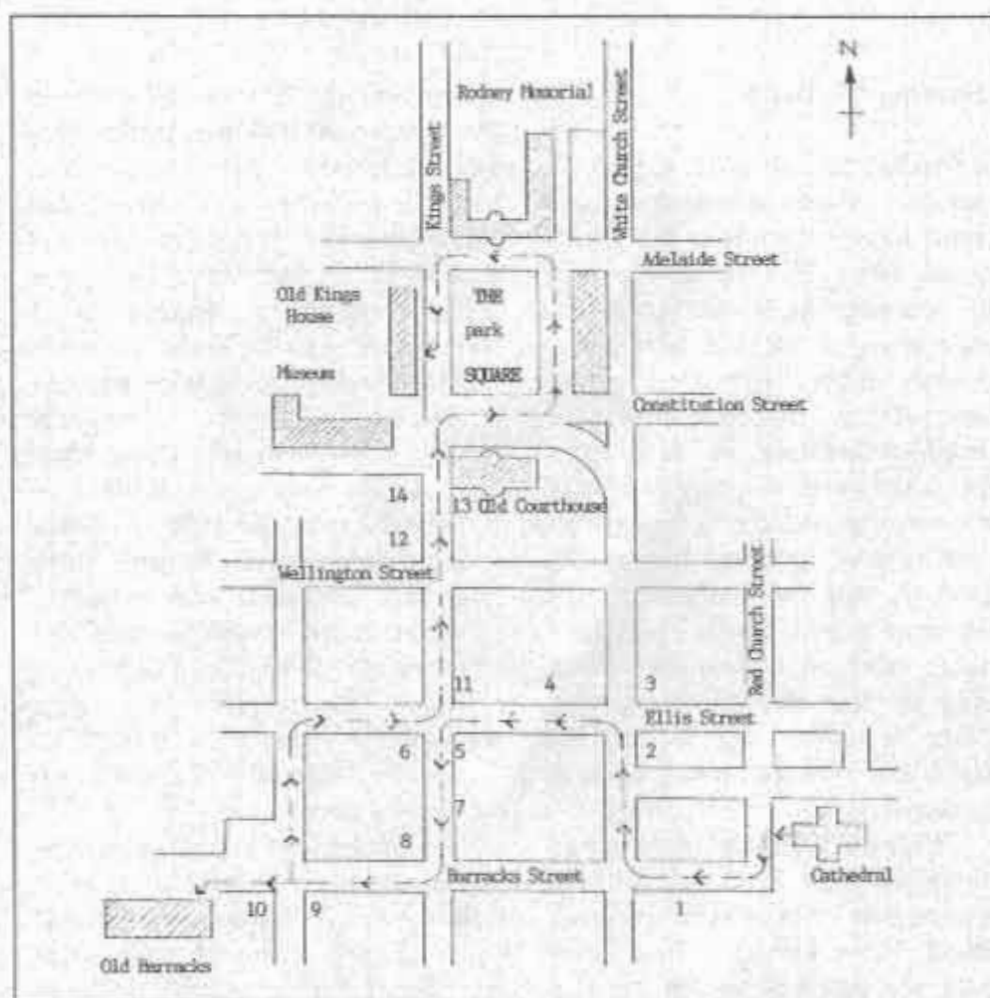
The Cathedral of St Jago de la Vega was a good point from which to start. Built on the foundations of the Red Cross Chapel, it was an appropriate reminder of the old capital's origin in Spanish times, the town being established by Francisco Garay in 1534 under the Ordinance of the King of Spain.

### **First Phase of the Tour**

The first phase of the tour led to the barracks, built during the British colo-

nial period (c. 1791) under the supervision of the Royal Engineer. The route went via the corner of White Church Street, passing an excellent example of an early twentieth century dwelling house, to the corner of Ellis Street, past vacant lots, once ruins of

churches now fallen prey to brick-sellers, and on to Ellis Street with its well-fruited premises — a distinctive feature of Old Spanish Town — past another charming brick and timber house, and finally on to Barracks Street.



*Key to important points on walking tour*

- |   |   |
|---|---|
| 1 Outside the cathedral                         | 8 House on the corner of Barracks and King Streets              |
| 2 House on the corner of Church St              | 9 Cannon  |
| 3 Corner of White Church St and Ellis St        | 10 The Old Barracks with its Secret Passages                    |
| 4 Ellis Street                                  | 11 Corner of Ellis and King Streets, looking towards the Square |
| 5 House on the corner of Ellis and King Streets | 12 Alienheim House  |
| 6 Broken-down building opposite                 | 13 Courthouse   |
| 7 Catholic Church (St Josephs)                  |   |

*Fig. 1.1  
Route of Spanish Town  
guided walking tour,  
initiated 1982*



## Second Phase

The second phase of the tour led back to the corner of Ellis Street and Kings Street. From this vantage point, where the grid pattern of the streets is subtly broken, the stately colonnaded portico of Old Kings House, formerly the residence of the governor of Jamaica is glimpsed for the first time.

King Street is one of the best preserved streets in the entire town, and so this last leg of the walking tour is particularly interesting. A variety of building types and architectural features is to be found on this narrow stretch with its high walls on the street edge. The focus is always on the portico in the distance, but on one hand the tour passes an old chimney, on the other hand a barber's shop and a hairdressers' establishment, both doing a brisk trade. Of special interest is No. 24 King Street, 'Altenheim House' — a beautiful example of Jamaica-Georgian architecture. It now houses Fitz-Henley's Secretarial Institute. Beside it is a fine example of a Jamaican-Vernacular townhouse, now being used as offices.

## The Spanish Town Square

Quite suddenly, the feeling of intimacy of King Street is transformed. The walkers stand still, overwhelmed by the power of the Square — the space. Undoubtedly its buildings form one of the finest civic groupings in the Americas.

Maintaining the western edge of the Square is the façade of Old Kings House, built about 1762 and restored in the late 1950s after the building was razed in 1925. Of the original buildings, the historian, Edward Long, writ-

ing in 1774 had this to say: 'the noblest and best edifice of the kind, either in North America, or any of the British Colonies'.

The Island Record Office<sup>2</sup> is housed behind the Rodney Memorial. It was designed by the eighteenth century sculptor, John Bacon and forms the northern side of the Square. Admiral Rodney's victory over the French fleet in 1782 saved Jamaica from a French invasion and a grateful island showed its appreciation by erecting a statue of him bedecked as a Roman soldier.

On the eastern side of the Square is the oldest building of the group. It was completed in about 1755. Once the House of Assembly, it now houses the offices of the St Catherine Parish Council. On the southern side is the old Courthouse, built about 1819 where Petty Sessions, Circuit and Resident Magistrate Courts continued to be held until a fire ended this in 1986.

## The Tour Opening

Here in this famous Square on Sunday, 10 October 1982 a group of approximately thirty-seven tour guides participated in a ceremony which marked the start of Heritage Week. It was an unforgettable Sunday afternoon. Resplendent in their colourful school uniforms and headed by the students, the marching bands of Spanish Town opened the tour route. The fanfare of brass bands echoed through the Square and the adjoining streets. The procession no doubt recalled other occasions of pomp and celebration that the Square had witnessed during its rich historic past, such as the arrival of a colonial governor; the festive joy on that first Emancipation night . . .



19th century print, courtesy of the National Library of Jamaica

Fig. 1.2  
Civic buildings in the  
Spanish Town Square  
forming part of the  
eighteenth and nineteenth  
century grouping

Adding to the air of celebration on this particular occasion were the tour guides with their red sashes and red arm-bands. Later the procession gathered under the brick red colonnade of the old Assembly building for picture-taking. The celebration in the heart of Spanish Town was indeed a fitting opening for Heritage Week 1982.

During the ensuing week, various groups of these tour guides took turns in the afternoons after school to show visitors around. As the week wore on, some did drop out — the hot afternoon sun and other extra curricula activities were a deterrent. However, there was always a faithful core of tour guides on hand each day.

Taken at a fairly leisurely pace, the guided walking tour lasted approximately 35 to 40 minutes. On the major part of the route traffic was light but at some places, where the sidewalks are very narrow and traffic on the main thoroughfare heavy and fast, special care had to be taken.

### Community Response

How did householders along the route, react to this 'invasion' of their quiet streets by strangers? In July, before the photographic survey started, a circular letter explaining the nature of the project had been delivered to each of the premises. Householders were therefore already familiar with what was happening. They were quietly courteous, never resentful, even if slightly amused when they saw some old feature of their house, which they had longed to renovate or demolish altogether, being admired and recorded.

Perhaps the people who enjoyed and supported the tour most of all

were the children from the Spanish Town Primary School, opposite the Cathedral. They came out in large numbers. For them the tour was a new and exciting way of walking through their town: seeing the subtle detailing of brickwork on a building, hearing words such as fanlight, casement and 'coolers': perhaps for the first time discovering an intricate pattern of fretwork. They learnt that the high walled gardens were a special feature of their town, and they were surprised at seeing from the unusual angle of King and Barracks Streets corner, the Cathedral's steeple with its weather vane. But best of all, they enjoyed visiting the Old Barracks building (c. 1791) which was one of three military buildings of its kind in the world — one is in the island of St Lucia, and the other is to be found in Woolwich, England. Eagerly, the children asked about the parade grounds, stables, exercise yard, and the secret underground passages which some of their own parents, as well as their teenaged tour guides had once explored.

Because some of the tour guides enjoyed the week's challenge so much and had become aware of the possibilities of such a tour, they volunteered to do a final tour on the Saturday morning. On that occasion a special touch was added as at the start of the walk, each female visitor was welcomed with the gift of a flower.

### Lessons for the Future

As this pilot project of October 1982 developed, there were some important insights gained. First, and most important, the students themselves benefited; and the tour provided opportunities for personal develop-



ment. One student remarked: 'I had lived in Spanish Town all my life, but I had never seen it'. It is primarily for this reason that the record of the initiative of the Spanish Town Guided Walking Tour is being shared' in the hope that other educators will, in turn, see the possibilities in establishing similar tours in their own communities.

Developing a script for the guides to use in the initial stages is essential as it helps to give the student a base on which to work, ensures that accurate fact, not fiction is related, and in turn helps to promote the student's confidence. But even the preparation of the script can be a creative activity in which both teachers and students participate. The formulation of the script can become an interesting part of the Social Studies and Language Arts programmes.

Every parish and community has its own unique saga to be told. A guided walking tour is possible in every community, with schools sharing information about their own community and visiting a school in another part of the island.

Not only buildings, but also trees are an important visual record of our history. In a country such as Jamaica which is prone to natural disasters and one which has experienced not only two devastating earthquakes (1692 and 1907) but also some twenty-six hurricanes recorded since 1566, landmarks which survived have special significance for the present generation.

The village square, market place, trees which have given shade to people and their animals for generations should not be taken for granted. Watering places, wells, pumps, the

buying shed — to mention only a few examples — when brought together, add up to a unique and important story. Places long used by the public also have a silent tale — the police station, court house, post office as well as the church and cemetery. The humble domestic dwellings and the 'family plots' of every community should not be discounted. Place names, too, had interesting secrets related to our history.

To find some of these treasures of our history, it is important that we talk with the older adults within our communities. They are usually delighted to be asked to share their knowledge and experiences with younger people. As generations meet and communicate, a pattern emerges, and an understanding of a community's unique place in a nation's destiny will be more clearly understood. These truths can be shared and explained with ease to each other, and to those who visit Jamaica's shores, from whatever part of the world that they may come.

### **Current Trends**

It was interesting to observe that as the walking tour was being conducted, the residents began to undertake private initiatives to beautify the environment. Sidewalks were being maintained, gardens spruced up, and even bright curtains appeared at windows. The initial tour guides have now graduated but have maintained an interest in Spanish Town. Some have become members of the Spanish Town Historic Foundation, a local 'watchdog' non-government organization which was established in 1992. It was hoped that the tour would have been institutionalized in the Spanish town school

system; however, this was not realized. Nonetheless, as a result of this tour, others have been established subsequently in Spanish Town using the basis of this initiative. Other communities such as Lucea, the capital town in the parish of Hanover on the north coast, is also defining and carrying out similar tour in that community. Seeds were planted by the first Spanish Town Guided Walking Tour and the result today is a better understanding and knowledge of the historic built environment as a part of the quality of life in the Spanish Town community.

Jamaica. Can it be stopped?' In *International Seminar on the Conservation of Cultural Property. Theme 3, Urban Renewal of the Historic Areas: The Urban Heritage*. Quito, Ecuador: Getty Conservation Institution in collaboration with UNDP/Unesco.

### Notes

- 1 This office was renamed the Jamaica National Heritage Trust in 1985.
- 2 In 1996, the offices of the Island Record Office were moved to more spacious and modern premises outside of the Historic Zone.
- 3 This article was originally published by the Ministry of Education in its journal, *Torch*, Vol. 29 (1986). The text has been adapted and, where necessary, information has been added or changed to reflect recent events.

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## Jamaica's Natural Heritage: A Diversity of Flora and Fauna

*David Smith and Shermaine Barrett*

### Flora

In many respects the island of Jamaica is unique, the natural heritage being no less special than is the cultural heritage. Jamaica has one of the highest percentages of endemic plant species (that is, those found only in Jamaica) for any island in the world. This is because the island has not been connected to any large land mass in recent geological time. This allowed plants and animals that arrived in Jamaica to evolve relatively undisturbed. Therefore, many plants in Jamaica have never existed anywhere else. Jamaica has earned international recognition for the uniqueness of its plants. Recently a list of the 200 most important centres of plant biodiversity in the world was published in 1995 by the United Nations Environmental Programme (UNEP), the World Wildlife Fund (WWF) and the World Conservation Union (IUCN). Jamaica has two sites (or 1 per cent of those recorded) on the list. The important sites are the Cockpit Country and the Blue and John Crow Mountains National Park (BJCMNP).

Of the over 3000 plants found in Jamaica some 28 per cent are unique to the island. In some areas such as the BJCMNP nearly 50 per cent of the plants are unique to the island. At

Dolphin Head, anyone picking plants at random is certain to pick plants found only in Jamaica and will probably pick up plants found only in Dolphin Head. In the Cockpit Country there are some plants that are so rare that they are only found atop a single hill, and nowhere else in the world.

### Fauna

Jamaica is home to several unique animals. The second largest butterfly in the world (*Papilio homerus*) is found here in the Blue and John Crow Mountains and in some parts of the Cockpit Country. Females usually have a wingspan of 15 centimetres (six inches), though a specimen with a span of 21.5 centimetres (8.5 inches) has been reported. The second smallest bird in the world, the male vervain hummingbird (less than 6 millimetres or a quarter of an inch longer than the Cuban bee hummingbird) is also found in Jamaica. There are twenty-five bird species found only in the island, including the doctor bird, the country's national bird, and its two species of parrot.

Jamaica is also an important winter home for birds from North America. During the 'winter' months from October to April the bird population can almost double because of the

number of birds coming from North America to feed. The Blue Mountains in Jamaica are a major winter home for Swainson's warbler, an endangered bird that lives in Jamaica and the USA. The bird spends the period from October to March in Jamaica and the rest of the year in the USA. It is endangered by habitat destruction in that country.

### Protecting the Natural Heritage

The Blue and John Crow Mountains National Park was established in 1992 and protects the rainforest in the Blue Mountain and John Crow Mountain ranges. The mountains provide water for Kingston through the Hermitage and Mona reservoirs. Our forests provide us with water, wood and protect the soil on our hillsides. Some 40 per cent of Kingston's water comes from the rivers protected by the BJCMNP.

Unfortunately, Jamaica is depleting its forests faster than any other country. According to *The Economist* and UNEP figures, at 5.3 per cent the country is well ahead of Haiti (3.9 per cent) and Bangladesh (3.3 per cent). When trees are cut and not replaced, there is an increase in the loss of soil from hillsides, and a concomitant increase in the silting of rivers. The Country Environmental Profile published by the National Resources Conservation Authority (NRCA), a Jamaican quasi-governmental entity, estimates that soil loss is 5-40 tonnes (5-40 tons) per half hectare (1 acre) each year (depending on the slope of the land).

The removal of forest cover enhances the effect of drought, since rivers with a high silt burden will reduce the storage capacity of reser-

voirs and decrease the amount of water available for the public. Deforestation in watershed areas is probably the biggest environmental threat to Jamaica.

Both the Cockpit Country and Blue and John Crow Mountains are vitally important areas for Jamaica's water supply. While the Blue Mountains supply Kingston in the south as well as parts of the eastern end of the island with water, the Cockpit Country supplies water to the north coast, including the tourism capital of Montego Bay and other areas in the west such as the Black River which is Jamaica's longest river system.

### Jamaica's Main Natural Wonders

#### The BJCMNP

The Blue and John Crow Mountains National Park which is in the east of the island, covers 76 000 hectares (about 31,000 acres) and several mountain ranges. One of these is the Blue Mountain range which is famous for the world's tastiest and most expensive coffee. Rising from 125 metres (400 feet) to 2260 metres (7402 feet) above sea level, the park is a series of contrasts. Rainfall varies from 75 centimetres (30 inches) per year in the south to over 875 centimetres (350 inches) in the Millbank area of the Upper Rio Grande Valley. With temperatures varying from 32 °C to 10 °C (90 °F to 50 °F), it's no wonder that the plants in the park have adapted to create forms found nowhere else in the world.

The park is a popular spot for hikers and campers. There are weekly treks to Blue Mountain Peak, the island's highest spot. For the less adventurous, camping is possible at



*Courtesy of the Jamaica Information Service*

*Fig. 2.1  
The Blue and John Crow  
Mountains National Park  
was established in 1992.*



Clydesdale, one of the island's first coffee farms and Hollywell Park. One can visit the Maroons in Moore Town or see places such as Alligator Church, Four Feet, Macca Sucker and Cuna Cuna Pass.

### **The Montego Bay Marine Park**

On the northern side of the island is the Montego Bay Marine Park. This protects the complex marine environment in our second city. Tourism in Jamaica is still very beach-oriented and therefore depends on crystal clear water, healthy coral reefs, mangroves and seagrass beds. The park is about 15 square kilometres (9 square miles) in expanse and protects the sea and everything underneath it. Jamaica's reefs are very rich in coral species, but are under great stress. Although the island's reefs have degraded faster than reefs in the rest of the Caribbean, the park has some areas which are well protected. Divers would find several interesting sites to explore within the park's boundaries. The Great River marks the western boundary of the marine park. The river arises from the Cockpit Country and forms an organic link between the two areas. To protect the sea we must manage the land.

### **The Cockpit Country**

The Cockpit Country (see case study below) is possibly Jamaica's best candidate for a World Heritage site. It has been proposed by several groups, including the Jamaica Conservation and Development Trust (JCDDT) and the University of the West Indies (UWI), that approximately 600-700 square kilometres (370-435 square miles) be set aside for conservation as

a national park. It is envisaged that work on this would start in 1996.

The Cockpit Country consists of a remarkable series of small hills and valleys resembling an eggbox. The plants found on the top of the hills may have an extremely limited distribution. Indeed, Miss Laura's Hill has plants on top of it that occur nowhere else on earth. There are 101 plant species endemic to the Cockpit Country. The park is one of the two places where the giant swallowtail butterfly can be found. The limestone region is riddled with caves, including the famous Windsor Cave owned by Miriam Rothschild and one of the best bat caves in the Western Hemisphere. The Cockpit Country also contains very rich bauxite deposits, the mining of which will almost certainly threaten the area.

The YS River and the Black River flow south from the Cockpit Country. Together they represent some of the most interesting and spectacular aquatic scenery found in the country. The Black River Lower Morass is Jamaica's largest wetland. It consists of mangroves, swamp, forests and large expanses of grasses. Dotted throughout the area are limestone 'islands', some large enough to support villages such as Cataboo and Slipe, while some are only a few square metres across. Crocodiles, tarpon, shrimp and crabs can be found there. The Morass is an important nursery for fish and supports a fishery worth about US \$4 million per annum. There are several endemic fish and amphibians in the area, but its most important value is as Jamaica's largest wetland and a habitat for waterfowl, both Jamaican and migratory.



*photograph, courtesy of the Jamaica Information Service*

*Fig. 2.2  
The Cockpit Country —  
530 km<sup>2</sup> of Jamaica's wet  
limestone forest located in  
the west central region of  
the country.*



## Case Study The Cockpit Country

### Description of the Area

Proposals for the conservation of the Cockpit Country and its valuable natural resources have been made since the 1970s. The Cockpit Country is the name given to approximately 530 square kilometres (330 square miles) of Jamaica's wet limestone forest located in the west central region of the country, starting in Trelawny and extending westward to St James and southwest to St Elizabeth. It also incorporates small parts of Manchester, Clarendon and St Ann. The area is distinguished worldwide for its karst limestone topography which creates a unique and scenic landscape. The Cockpit country has been suggested as a world heritage site, evidence of its 'outstanding universal value'.

The region is Jamaica's most important repository of biodiversity and endemism. Indeed, the site is one of the two hundred most important sites in the world for plants. It boasts a historical and cultural dimension which is of great interest and importance. As a result of its rich ecological characteristics, its setting, level of endemism, its rich historical and archaeological value and its intrinsic natural beauty, the Cockpit Country should be considered as a world her-

itage site.<sup>1</sup>

The Cockpit Country contains three main ecosystems: the dominant mesic limestone forests, the rare ponds and the short streams. The mesic limestone forest has extremely high levels of species endemism. It is home to a diversity of plant and animal species which, in many instances, are not only endemic to Jamaica but also to the Cockpit Country. There are some taxa that are found only on individual hills. In fact, 'No two hills are exactly alike in their vegetation'.<sup>2</sup> The Cockpit Country contains, relative to its area, more species of ferns than any other rainforest in the tropics.<sup>3</sup> 100 species of fern, including most of those indigenous to Jamaica, have been recorded in the area.<sup>4</sup> Some 106 species of vascular plants from 43 families have been reported in this forest. Of this total, 101 are endemic to the Cockpit Country.<sup>5</sup> These plants are the source of various foods, herbal medicine and timber.

In addition, the Cockpit Country is an important area for endemic birds, as 79 species including all endemic species and those that are threatened can be found there. Of Jamaica's 120 species of butterflies, 72 have been found in this region, including the endangered Giant Swallowtail butterfly, *Papilio homerus*,<sup>6</sup> which is the largest butterfly in the Americas and the second largest in the world. Its only other remaining habitat is the John Crow Mountains. Further, many rare species of land snails, two species of tree frogs and several lizards make their home in the Cockpit Country.

There are four large caves in the Cockpit Country, the largest and best known of which is the Windsor Great Cave. In addition to its scenic interest,

this cave is probably the most important site for bats in Jamaica. It houses at least five species in several large colonies totalling several million. This represents one of the largest concentrations of bats in the New World.

### **Value of the Cockpit Country**

The Cockpit County contains three important watersheds: the Black River (which flows into the Black River Lower Morass), the Great River (tied to the Montego Bay Marine Park) and the Martha Brae. These rivers provide water for domestic and recreational purposes to the major tourist resort areas of the island. The ponds and streams of the Cockpit Country provide habitats for migratory shore birds, pond turtles and endemic fish. The highly diverse ecosystems of the Cockpit Country and their flora and fauna provide a number of vital services to the surrounding communities and the country. These include protection of watersheds, providing water for approximately half a million residents and visitors on the south and west coasts.

The Cockpit Country provides a natural cycle of nutrients which sustain plant and animals and maintain the biological diversity of the area. Production of fertile soil, climate regulation and the provision of clean air are the other important benefits of this natural resource. The plant species of the region are an excellent source of raw material for scientific research and the development of new products. The scenic beauty of the unbroken pattern of forested hills, the tall trees, the history and the natural heritage of the region have the potential to enhance the tourism product offered to visitors and Jamaicans.

### **Historical and Cultural Dimensions of the Cockpit Country**

The Cockpit Country has a rich, historical background. The human use of the resources of the area dates back to the Taino Indians and the seventeenth century records of the Maroons. This area is one of two in the island in which the Maroons fought the British army to a stalemate in a series of military campaigns.<sup>7</sup> A peace treaty signed in 1739 between the British and the Maroon leader, Cudjoe gave the Maroons the right to live and enjoy some degree of autonomy in Accompong, their settlement adjacent to the Cockpit Country.

Later in the nineteenth century, a rapid expansion of the human settlement occurred as freed slaves started many new communities and opened up new agricultural areas. The agricultural use of land in the area has a long history and includes all except the eastern border. Sugar plantations and factories such as Long Pond, Hampden and Appleton are all adjacent to the Cockpit Country.

### **Threats**

The rich resources and services of the Cockpit Country are threatened by a number of encroachment activities. These include mining, an increase in small-scale farming, clear cutting of timber, selective removal of trees (for charcoal burning, fuelwood and construction), hunting of wild pigs, capture of parrots, uncontrolled collection of scientific specimens, grazing of animals and poorly planned tourism development in the vicinity of the caves.

The Great River watershed is

already badly degraded, as are the hills in the lower Black River watershed. This threatens the self-sustaining nature of these natural systems and has serious negative implications for the continued health of the Lower Black River Morass and the Montego Bay Marine Park, since both depend on those watersheds for their survival. The Cockpit Country also contains very rich bauxite deposits, the mining of which will almost certainly threaten the area.

Deforestation threatens the protective and productive capabilities of the forest, causing destruction of valuable endemic flora and fauna, soil erosion and pollution of rivers and streams. This may have profound effects on the coast and may expose communities to flooding, landslides and droughts. Damage to the Cockpit Country will result in damage to the tourist areas of the north and south coasts.

### Conservation

Conservation of the Cockpit Country, its species, ecosystems and resources is vital. Recently, it has become a focus for ecotourism activity on the south coast as evidenced by the use of the YS Falls, a nearby natural attraction. The Martha Brae ecosystem and the Hague swamp (which is one of Jamaica's important mangrove areas).

The Cockpit Country itself contains many endemic plants, the potential of which is not known. Work by the UWI and the Scientific Research Council indicates that there is a strong possibility that some Jamaican plants can be developed into useful chemicals. The potential of the plant life to produce a new drug or pesticide emphasizes the importance of conser-

vation in the Cockpit Country.

### Notes

- 1 See L. A. Eyre, 1995, 'Invasion of the Cockpits: Patterns of Encroachment into the Rainforest of the Cockpit Country' (*Faculty of Natural Sciences Newsletter* 8, no. 5).
- 2 Binney, M.J. Harris, and K. Martin.' Jamaica's Heritage: Untapped Resource' in *Environment and Development in the Caribbean: Geographical Perspectives*, eds. D. Barker, D.J. Miller and McGregor (Mona, Jamaica: The Press UWI, 1995).
- 3 Eyre, 1995.
- 4 A. Haynes-Sutton and C. Douglas, 1992, 'Cockpit Country Ecology. (Kingston, Jamaica: Unpublished report for the JCDT.)
- 5 Ibid.
- 6 See Tom Turner article in *Environment and Development in the Caribbean: Geographical Perspectives*, by D. Barker and D.J. Miller (Mona, Jamaica: The Press UWI, 1995).
- 7 See C. Robertson, 'Farming on the Fringe: Aspects of Small-scale Farming on the Edge of the Cockpit Country' (UWI, Mona: Paper presented to British-Caribbean Geography Seminar, 17-21 August 1969).

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## Archaeological Heritage Management: The Need for Planning and Systems

*George Anthony Aarons*

### **The Time Line of Jamaica's Archaeological Heritage**

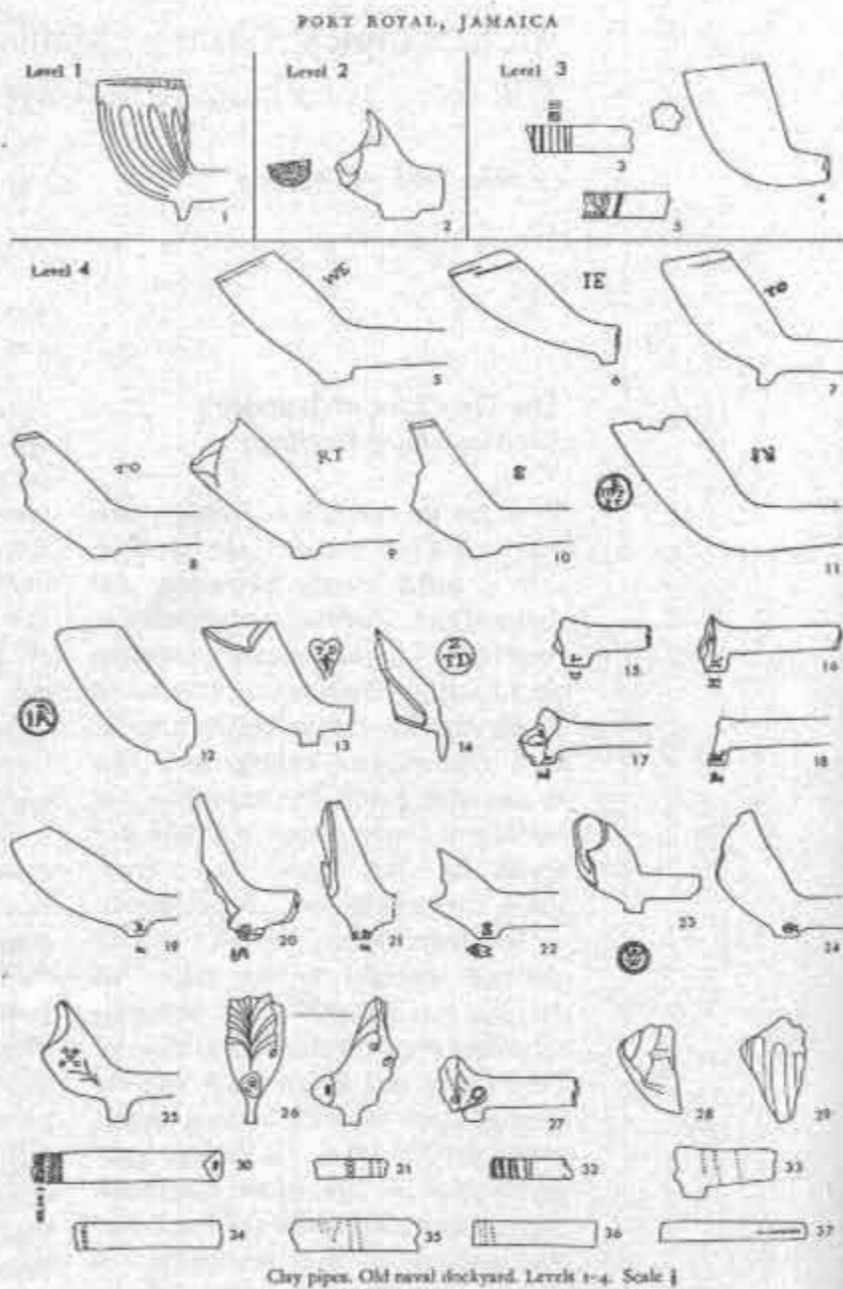
In order to manage any entity efficiently and productively, one has to be able to define clearly its purpose and *raison d'être*; after that is clarified, it is then easy to develop and implement a plan for its productive use. This broad dictum applies just as well to a country's archaeological heritage as it does to any other entity. The archaeological heritage is encompassed in a variety of forms such as shipwrecks, pottery, grave sites and architectural elements.

In general terms, Jamaica can be defined spatially as the island of Jamaica and the land spaces within its territorial water, inclusive therefore of the Morant and Pedro Cays and the Pedro Shoals south of Jamaica. In this paper the 'Caribbean' is defined geographically as the wider Caribbean region from Florida and the Bahamian archipelago to the northwest, to Trinidad and Tobago and the Guyana mainland<sup>1</sup> to the southeast and all the islands within the geological area between, as well as the Atlantic Bermudas, intrinsically linked historically with its southern and western mainland and island neighbours. Temporally, the time span of Jamaican human occupation starts *c.* AD 600 with the arrival of the initial Amerin-

dian migrants from Hispaniola and ends conveniently at AD 1938, the conventional date for the incipience of modern Jamaica. For the Caribbean, as spatially defined above, the time spectrum commences at *c.* 7000 BC, the radio-carbon-determined peg for initial palaeo-Amerindian migration into the Caribbean littoral and island spaces and goes until AD 1945, prior to the onset of the post World War II international developments.

Beyond these gross definitions of space and time, one runs into the problems of 'tying down the minutiae'. None of the polities or territories, so defined, have as yet achieved a comprehensive quantification and/or qualification of the universe of sites and artifacts, movable and immovable property and objects that is their archaeological heritage. Hence first, principal and original foundations of the management dictum as defined above are not as yet available. This also being the case, planning, development and implementation paradigms leading to productive use, also as expressed above, are rendered difficult to say the least in any logical and pragmatic form.

Even worse, the known and unknown archaeological heritage has been, and is at great risk from the full gamut of providential and man-made



From Port Royal Jamaica: Excavations 1969-70,  
by permission of the Jamaica National Heritage Trust

Fig. 3.1  
The known and unknown archaeological heritage has  
been, and still is at great  
risk

risks and disasters, including hurricane, earthquake, fire, storm surges, river overflows, volcanoes, development demolition', insensitive and haphazard adaptation, insouciant tourism, landslides, environment degradation, grave-robbing and other forms of 'vaguerism',<sup>7</sup> illicit exportation and commercial exploration, inappropriate curation and storage, the lack of appropriate and efficient technical facilities for conservation, preservation and restoration; absent, deficient or unenforced legislation and protection paradigms, and ill-functioning governmental supervision.

We can examine two of these acts of God and Man:

- 1 The wider Caribbean region suffered astronomical losses to hurricanes in the period beginning with Hurricane Gilbert in 1988 up to the thirteen hurricanes and twenty-one storms of the 1995 hurricane season;<sup>8</sup>
- 2 The internal and external trafficking of movable cultural property inter- and intra-regionally has reached alarming proportions.<sup>4</sup>

It is clear that the risk to the region's architectural heritage is varied, malevolent and, unfortunately, ever present. This is obvious from several incidents: from the cannon that washed on to the beach at Scarborough, Tobago after Hurricane Hugo in 1989; to a unique Amerindian petroglyph cave on Anguilla which was sealed off in 1995, to the Church of England belfry in Savanna-la-mar, Westmoreland which was demolished by Jamaican local government authorities in 1994 to provide parking space for a few government vehicles.

## Inventory

An inventory of the universe of sites in order to achieve a definitive quantification and qualification would represent a first step towards 'tying down the minutiae'. This inventory would need to be conducted in a systematic and coordinated manner, compatible with international standards and should be user-friendly for accession, retrieval and storage, locally and abroad.

In Jamaica, the principal legal governmental entities charged with responsibility for the archaeological heritage are the Jamaica National Heritage Trust (JNHT)<sup>5</sup> and the Institute of Jamaica (IOJ).<sup>6</sup> Both organizations have sought within archaeological, museological, architectural and general anthropological paradigms to make an inventory of the manifestation of the national archaeological heritage but the overall quantification and qualification remains incomplete and uncoordinated in a holistic sense.

The level of inventory coverage in relation to the overall archaeological heritage varies widely throughout the wider Caribbean region, ranging from the semi-complete qualification in place in Cuba, the Dominican Republic, Puerto Rico, Barbados, the Dutch and French Antilles and Mexico etc. to the minimal and preliminary work that has been undertaken in Anguilla, Tobago, Guyana, Panama etc. with respect to some aspects. A distillation of successful models in service elsewhere such as with the Canadian Heritage Information Network (CHIN) and so on would enable the generation of models applicable to Jamaica and the wider Caribbean region.

### **Computerization of the Inventory**

Once the process of the inventory has been set in place, or where it exists, the best method of ensuring an adequate measure of user-friendliness for data access, accession, retrieval and storage in computerization for which a variety of Word Perfect versions are extant and available, is in the CHIN system. This provides an immediate system of inputting field-data, enabling wide access to it in diskette (and hard copy) format; permits easy cross-referencing with Jamaican and regional collections; introduces an easy method of amendment and augmentation and once a suitable<sup>7</sup> repository is available, has proven the most space-efficient method yet available for short and long-term storage.

As of 1982, the JNHT and the IOJ had commenced the computerization of its inventory but less than 50 per cent of the remainder of responsible public and private sector agencies in the region had been able to do so by the end of 1995. (The failure to achieve full computerization resulted from shortcomings in the institutions or their financial arrangements rather than from any doubt about the efficacy of introducing such a process.) Computerization therefore provides an incredibly valuable management tool.

### **Prioritization of the Inventory**

With the inventory itself and its computerization in progress, research and analysis of the raw data then generated become greatly facilitated. Material constraints at all levels — international, regional and Jamaican — within the financial economies of scale, dictate certain limitations.

Preservation and protection paradigms naturally are forced to be selective in order to ensure the legal safeguarding of a core heritage (inventoried or potential, based on research and analysis). The resulting entities would ultimately be taken through the process of legal listing, gazetting and declaration, as laid down in the 1985 Jamaica National Heritage Trust Act, being declared important on a national level and, if warranted, on a hemispheric (Heritage of the Americas-OAS designation) or international (World Heritage list/Unesco designation) basis.

Such a selection can only sensibly and logically, in quantification and qualification, be based on data generated by an objective system of prioritization, derived from criteria regarding historical, age, sociocultural, political, religious, environmental impact, state of preservation etc. for Jamaica. Such a system has been derived since 1994 relative to the aspect of the 'built Heritage' within the overall universe of the archaeological heritage and is being utilized by the JNHT in its wider applications to other aspects of that heritage elsewhere in the region. Similar systems are in place in such territories as Barbados, the Bahamas, Mexico and Costa Rica but have not yet been introduced in more than 70 per cent of the overall region. Again, clearly, prioritization systems for the above stated reasons are an essential management tool.

### **Development of Action Plans**

Once the processes of inventory, computerization and prioritization are in train, a management design in the form of problem-oriented research on the priority entities is mandated.



Archaeological heritage resources are by their nature non-replaceable and do not have an infinite 'shelf-life'. Therefore, such action plans are emphasized by the degrees of emergency required for each respective intervention and may relate to archaeological paradigms ranging from sampling test rescue archaeological strategies in the face of an immediate threat, to long-term whole site programmes such as have pertained at Port Royal and New Seville in Jamaica or at En Bas Saline in Haiti or Tenochtitlan, in the valley of Mexico.<sup>8</sup>

#### **Prosecution of Action Plans**

For action plans to have any efficiency they must be based on the realities of prevalent time and space. Grandiose initiatives concerning the archaeological heritage and cultural resources have been developed over the years for such pivotal Jamaican sites as Port Royal, New Seville and Spanish Town<sup>9</sup> and regionally, an eminent example being Santo Domingo in the Dominican Republic.<sup>10</sup> To achieve success they must be achievable given the available resources of time, space, facilities and personnel.

Jamaica and each of the approximately forty regional territories possess at least a modicum of public and/or private sector infrastructure legally mandated to undertake the processes described above, the status varying in quality and quantity from the massive capabilities — for example Mexico, Venezuela, Columbia, the Dominican Republic, Cuba — to the many islands where only an occasional virtual archaeological extension service is available.<sup>11</sup> Local, regional

or international institutional sources therefore need to create and/or strengthen responsible government and or non-governmental organization (NGO) groups to harness and place in the field and the laboratory, both trained professional practitioners and avocational amateur volunteers under supervision, to perform the tasks necessitated by the processes outlined above.

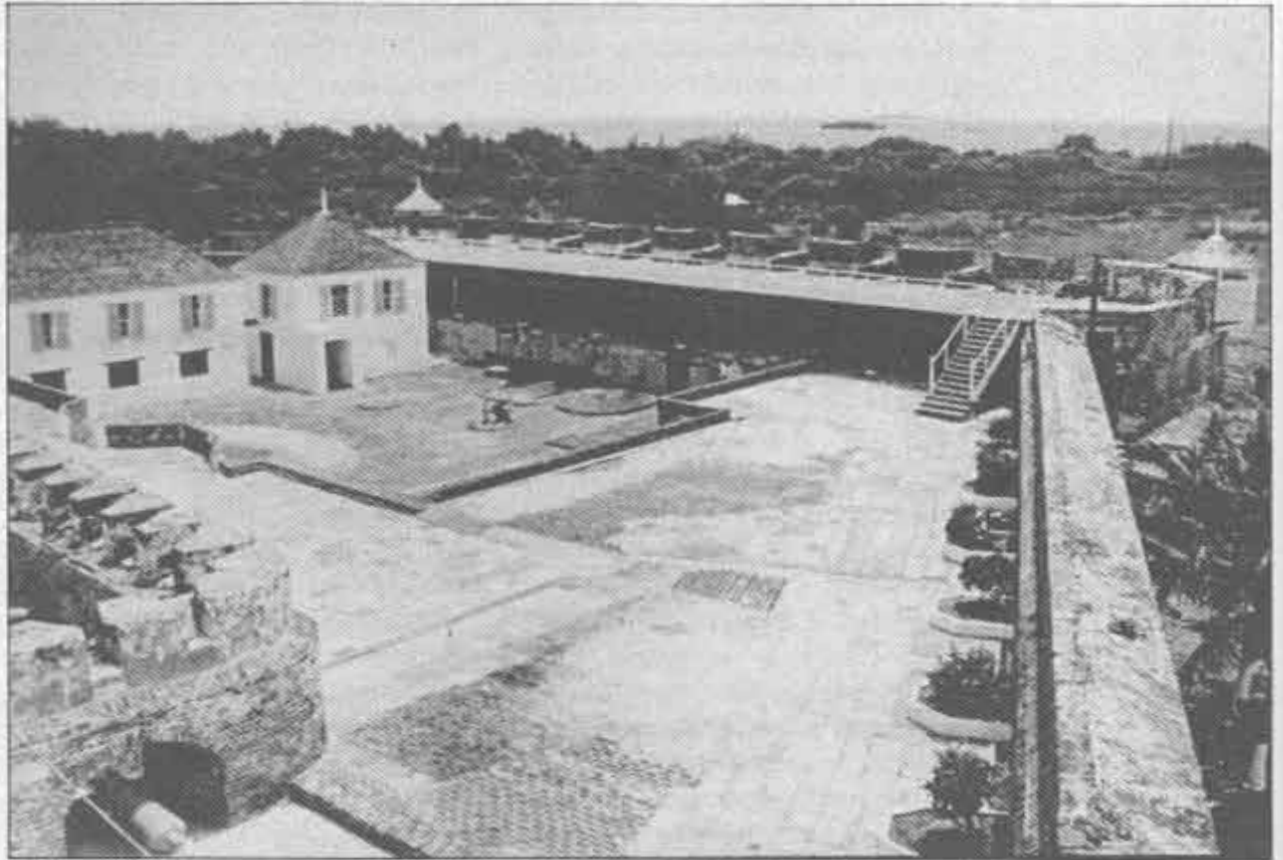
In Jamaica this has meant effectively the collaboration of the state offices of the JNHT and the IOJ with members of the Jamaica Archaeological Society. In the wider Caribbean this should be reflected in a more coordinated role by the International Association of Caribbean Archaeologists (IACA) in collaboration with the local entities legally responsible and the universities and research institutions conducting field work in the region.

#### **The Development of Public Education**

Long-term experience in Jamaica and the region has demonstrated that none of the above can function effectively in a vacuum; these processes must necessarily form part of and have, as an end-product, a built-in public education paradigm not least of all because a significant proportion of the archaeological heritage lies in private hands.<sup>12</sup>

#### **Preservation, Presentation and Publication**

A successful archaeological heritage management paradigm must involve the planning and instigation of a further series of processes related to the



*Fort Charles, Port Royal, Herbie Gordon photograph*

*Fig. 3.2  
Initiatives concerning the archaeological heritage and cultural resources have been developed over the years for such pivotal Jamaican sites as Port Royal*

preservation, and presentation of the entities prioritized as a result of the conduct of the inventory. Preservation should be carried out both in the interest of public education and in obedience of the archaeological dictum always to preserve part of a site for future study and interpretation. The aspect of presentation also relates to public education and, as a corollary, to the creation of income-generating activities, further to support the maintenance and sustainability of the archaeological heritage entities themselves. Finally, publication is a natural adjunct both to conservation and presentation and its multi-media promulgation will add immeasurably to public education. Again, this will assure sustainability through the attendant economic spin-offs increasing the 'shelf-life' of the archaeological heritage entity and ensure its far wider dissemination.

### Conclusions

The above has set out to present a model for the prosecution of the above applicable to Jamaica and the wider Caribbean region based on the pragmatic realities of the prevailing economic, political, institutions, theoretical and other sociocultural realities. Failure to manage the archaeological heritage appropriately, as happens in even the most highly developed or the most affluent regional territories, will have dire consequences. The heritage cannot survive without having in place the structural framework and planning to manage them successful. Without proper management, we stand to lose a great deal of our cultural heritage especially important as we are in a region which has a seemingly growing

number of annual natural disasters<sup>13</sup> and some negative socio-cultural practices. We must understand that the archaeological heritage is not an infinite resource. We ignore the warnings of particularly the last two decades to our immense peril and that of the immediate generations, alive or yet unborn.

### Notes

- 1 Ancient prehistoric 'Guyana', a Lokono Arawak term signifies the present political entities: eastern Venezuela, Guyana, Suriname, Cayenne and north-eastern Brazil.
- 2 A pseudo-word coined by this author from the Latin-American-Hispanic *vaquero* in the context of the despoilers of archaeological sites for commercial/personnel acquisitive gain as in the robbing of tombs on land or shipwreck sites underwater, that is, 'treasure hunting' in all its various forms. See George A. Aarons, Contributions to the Second New World Conference on Rescue Archaeology in the *Proceedings*, Gloria Loyola Black, ed. (OAS: Washington D.C., 1990).
- 3 A plethora of national, regional and international publications and reports have followed in the wake of *Hurricane Gilbert* (Westerham, Kent, England: Froglets Publications, 1989) *et al* which give some indication of the loss and damage suffered by the archaeological heritage. See, for example, the library of the Office of Disaster Preparedness and Emergency Management (ODPEM), Kingston, Jamaica.
- 4 This has been so notwithstanding a crackdown since 1991 from the US Customs Service as well as the

authorities in Cuba, the Dominican Republic, the Bahamas and the OECS countries. This has led to the proposal by Unesco to hold a regional conference in 1997 on the trafficking of cultural property. (From personal communication of Alwyn Bully, Unesco cultural heritage specialist in Kingston, Jamaica.)

- 5 Legally constituted in 1985, the Jamaica National Heritage Trust is the successor organization of the Jamaica National Trust Commission which was formed in 1957.
- 6 The Institute of Jamaica was legally constituted in 1879 and despite the amending 1985 JNHT legislation, its judicial mandate in common usage and in *sensu stricto* still overlaps with that of the JNHT.
- 7 'Suitable' here refers to an internationally accepted standard of climatological, environmental and structural safety and control.
- 8 George A. Aarons, 'The people of Santiago: The Taino-Hispano-Afro-Judeo Jamaican Crucible begins: 1493-1663,' (Rio Nuevo Heritage Foundation: forthcoming). See, also, Kathleen Deagan, 'The Archaeology of the Spanish Contact Period' in the (*Caribbean Journal of World Prehistory* 2, no. 2, 1988), 187-233; and Richard E.W. Aarons, *Prehistoric Mesoamerica*, rev. ed. (Univ. of Oklahoma Press: Norman and London, 1991).
- 9 See Patricia Green and André Minott, 'The potential impact of heritage tourism on Spanish Town, Jamaica' (Paper presented at the Heritage Tourism and Caribbean Development Conference UWI, Mona, March, 1995, in *Conference Proceedings*, forthcoming).
- 10 See, for example, Eugenio Perez Montas, ed., 'CARIMOS: Monuments and Sites of the Greater Caribbean / Monumentos y Sitios del Gran Caribe,' (*Revista Casas Reales* [organo del Museo de las Casas Reales]; segunda etapa, no. 22, Santo Domingo, 1994).
- 11 Many of the physically smaller territories, usually islands, have no archaeologist in permanent residence under any aegis, local or foreign.
- 12 For example, more than 50 per cent of the Priority 1 built Jamaican heritage lies in private hands and the same is believed to hold true throughout the Caribbean, as has already been tested in Haiti. See George A. Aarons, 'Report on an OAS Technical Mission on the Inventory of the Built Heritage (Monuments and Historic Sites) of the Republic of Haiti,' (Unpublished manuscript, Department de Asuntos Culturales Organization de Los Estados Americanos, 1995).
- 13 For example in 1995, virtually none of the forty regional territories escaped the vicissitudes of climate described in the first section of this article, not to mention the vandalistic vagaries of man.



## The Underwater Cultural Heritage of Jamaica: The Search for Columbus's Ships

*James M. Parrent and Maureen Brown Parrent*

### Jamaica's Underwater Heritage

Pirates, Spanish galleons, ships of Columbus, a city beneath the sea — only in Jamaica's waters can reminders and remnants of such treasures be found. Jamaica's history covers a broad spectrum of the New World events, from Columbus's explorations, to Oliver Cromwell's Western Design, to the great earthquake of 1692, to the Spanish galleons loaded with silver and sacked by the pirates of Port Royal and more. Much of this history is represented by underwater archaeological sites around Jamaica.

The recorded history of the New World starts with Columbus's voyages of exploration and his story, gleaned from authors such as Clinton Black (1983), Gerald Roe Crone (1969), Cecil Jane (1933), Samuel Eliot Morison (1983), Washington Irving (1868), and from the sixteenth-century accounts by Ferninand Colón (1959), Columbus's son, reads more like fiction than the historical truth it represents. He made landfall in the New World on his first voyage and visited Jamaica on his second voyage in 1494. Columbus's four voyages of exploration to the New World between 1492 and 1504 laid the groundwork for subsequent European explorations and settlement. His fourth voyage or *alto*

*viaje* ('high voyage') as he called it, was to be his last. It proved to be the most difficult for the Admiral of the Ocean Sea and resulted in failure, disappointment, despair and the loss of his entire fleet of four ships.

### Columbus's Fourth Voyage and His Sojourn in Jamaica

In May 1502, four caravels, the *Vizcaina*, the *Santiago de Palos* (sometimes referred to as the *Bermuda*), the *Gallega*, and Columbus's flag ship *Capitana* (the full official names of the *Gallega* and the *Capitana* are unknown), set sail from Cadiz on the now familiar route to the Indies. Still seeking a strait that would lead him to China, Columbus sailed the length of the Central American coast for many months. Forced first to abandon the *Gallega* at the river Belén and then the *Vizcaina* at Porto Bello, the admiral left with two badly leaking ships, abandoned his search and set sail for the Spanish colony of Hispaniola. Columbus hoped that by working his way east along the coast of South America he would be able to reach a point south of Hispaniola before he made a turn to the north and faced the easterly wind and current.

On 1 May 1503, almost a year after leaving Cadiz, he made his turn to the

north and set out across the Caribbean towards Hispaniola with the wind and current beating his starboard side. About ten days later the ships passed between the Lesser Cayman Islands, about 621 kilometres (100 miles) northwest of Jamaica. It was either that Columbus had made his turn to the north too soon, or that the wind and current were unusually strong. In either case, he was far off his planned course to Hispaniola and decided to sail on to Jardín de la Reina on the south side of Cuba.

Realizing that sailing against the wind to Hispaniola was now impossible due to the condition of his ships, Columbus instead sailed to Jamaica and arrived at Puerto Bueno (now Discovery Bay) on 23 June 1503. Puerto Bueno was lacking in fresh water sources and Indian villages from which the Spaniards could obtain food. On 25 June 1503, Columbus set sail for another town, Santa Gloria (now St Ann's Bay) where he knew from his second voyage that he would find fresh water and an Indian village from which food could be obtained.

By now the caravels were so worm-eaten that great effort in pumping and bailing was needed to keep them afloat. Columbus directed the ships (their decks almost awash) to be run aground side by side, a crossbow to be shot from land (Colón 1959; Morales Padrón 1952: 14), and that they be shored up on both sides to make them fast. With this done the crew built cabins on the ships' decks.

Columbus, knowing his men and the problems they could cause with the local inhabitants, ordered all to live on board the stranded ships and allowed only two of his men to pursue fair trading with the Indians for provi-

sions. Unable to repair his ships and aware that a chance rescue was unlikely, Columbus sent a group of volunteers led by Diego Mendez de Segura and Bartholomew Fieschi, back by canoe to Hispaniola (the Dominican Republic). Mendez and Fieschi succeeded in reaching Hispaniola but were unable to persuade Ovando, the unsympathetic governor of the island, to provide a rescue ship. Meanwhile the stranded crew waited, not knowing if Mendez had reached his destination.

Columbus and his crew were stranded in St Ann's Bay and faced the almost impossible task of staying on friendly terms with the Indians on whom they depended for food. Some mutineers left the ships and caused problems with the local inhabitants. Perhaps because of the activities of the mutineers, and possibly because they had grown tired of providing the large amounts of food required by the Spaniards, the Indians refused to continue trading food for beads and other trinkets. With their food supplies cut off, Columbus and his men faced starvation.

Resourceful fellow that he was, Columbus determined that an eclipse of the moon was due to occur and called a meeting with the local Indian chiefs the day before the eclipse. At the meeting he informed them that his god was displeased with the Indians because of their mistreatment of the Spaniards. Columbus informed them that they should view the rise of the moon that night and witness a demonstration of his god's anger, which would be revealed by a clear token from heaven indicating the punishment the Indians were about to receive. Ferdinand, Columbus's son,

reports in his journal that while some of the Indians appeared frightened, others scoffed at the threats. That night the moon rose and slowly started to disappear as if some giant insect was eating away at its fringes. Seeing this, the Indians rushed to the seashore laden with provisions, howling, crying and pleading with Columbus to intervene with his god on their behalf. Columbus, timing his response with the end of the eclipse, elicited from the Indians a promise that they would continue their friendly bartering for food. This ended Columbus's problems of acquiring food and, for that matter, ended all problems with the local inhabitants during the Spaniards' stay in St Ann's Bay.

Meanwhile in Hispaniola, Mendez, frustrated with Governor Ovando's lack of interest in rescuing Columbus, acquired some of Columbus's money and hired a caravel to sail to Jamaica. Finally, on 29 June 1504, Columbus and his remaining crew were rescued. Columbus's astute leadership meant that most of the stranded sailors returned safely to Hispaniola. The remains of the *Santiago de Palos* and the *Capitana* still lie buried beneath the sediments of St Ann's Bay. They are part of Columbus's legacy to Jamaica and the New World.

### The Spanish Colonial Period

In 1509 the Spanish occupied Jamaica and declared it a colony of Spain. They established New Seville on the northern shores of St Ann's Bay near where Columbus had beached his ships. There the Spaniards practised agriculture until 1535, when the settlement was abandoned in favour of St Jago de la Vega, now called Spanish

Town and its more favourable climate on the south coast. Jamaica became a relatively unimportant Spanish possession with a small population through the first half of the seventeenth century; a situation that changed as a result of Cromwell's dream of expanding British presence in the Caribbean, capturing Jamaica in 1655.

### Significance of St Ann's Bay

Although numerous models and several reconstructions of Columbus's ships have been attempted in the past, little is known about the caravel, the ship that propelled Renaissance Man from the Middle Ages into the Age of Expansion. It was in caravels that men first rounded the Cape of Good Hope to discover a maritime route to the fabled Indies, and caravels were among the ships in which Columbus sailed across the Atlantic Ocean to the New World. Known originally for its lightness, speed, and manoeuvrability, the caravel was used, with modification, by the Portuguese for coastal exploration and was later adopted by the Spanish. The caravel became the ship of choice for those sailing into the unknown. Bjorn Landstrom, author of *Sailing Ships*, remarks of caravels, 'We know almost nothing of their origins, and very little of their details' (Landstrom 1978: 100). Other early sixteenth-century hulls have been found in the New World (Oertling 1989a, 1989b), but because caravel construction is not understood, these cannot be conclusively identified as caravels.

A pressing technological question concerning caravel design is the nature of the modifications made by



the Portuguese and Spanish to adapt the original caravel — a sharp, handy, coastal fishing vessel first sailed in the thirteenth century — for long, deep water voyages. Columbus is known to have re-rigged one of his first two caravels, the *Niña*, substituting square sails for the traditional lateen of the fishing vessel, but there is evidence to suggest that the vessel's form and construction had already been significantly altered since the early fifteenth century. Scholars also debate the role of the caravel in stimulating the Iberian expansion of the fifteenth and sixteenth centuries. For example, Carlo Cipolla (1965) believes that the caravel was the sine qua non of the age of exploration; but Geoffrey Scammell, who has studied the motivating factors behind expansion, suggests that Portuguese exploration of the African coast and the Atlantic was already well underway before the caravel was employed (Scammell 1981: 263). Because no well-preserved, identifiable remains of caravels have been found, it is impossible to say exactly how the caravel differed from other ship types of the period. It is entirely possible that the caravel was preferred for reasons other than its performance; initial cost, and crew requirements are likely ones. This possibility can be confirmed only by comparison of building records, which are unknown for the period, or by examination of the ships themselves. The discovery of two of Columbus's caravels would allow other early ship sites in the New World, such as those found at Molasses Reef (Oertling 1989a) and Highborn Cay (Oertling 1989b), to be confirmed as caravels.

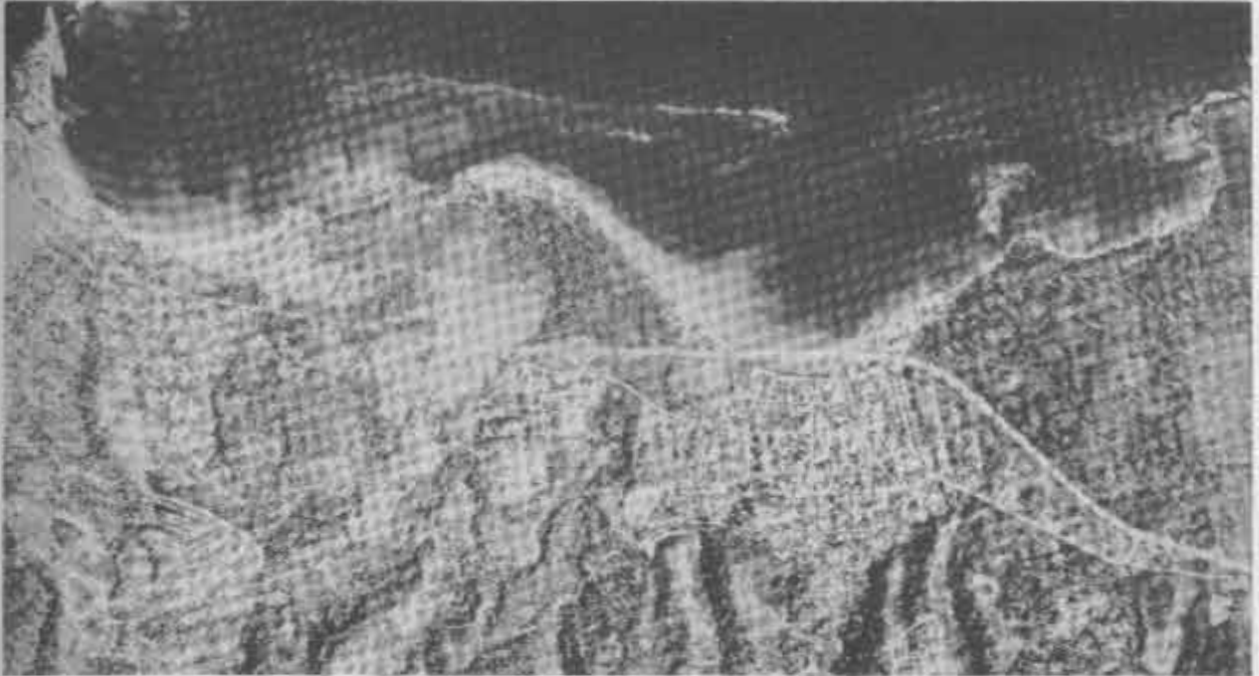
The potential for finding the remains of well-preserved and articu-

lated hulls in Jamaican waters is great because the *Capitana* and the *Santiago* did not smash into a coral reef or founder at sea. Instead they were run aground in an enclosed and placid bay, coming to rest on soft bottom sediments. The St Ann's Bay site offers an excellent opportunity for finding caravel hulls well enough preserved to analyse their design, construction, and performance in sufficient detail to make a significant contribution to the discussion of the role of specialized ship types in the European expansion of the fifteenth and sixteenth centuries.

Historical records of Columbus's voyages provide a good deal of information about the general events which occurred while the admiral and his men were marooned in Jamaica. Archaeology can tell us much more. In essence, two seagoing ships of exploration were transformed into a survival outpost filled with sick, hungry, and worried men. Archaeological evidence may provide a picture of their daily existence by detailing physical arrangements for eating and sleeping and by providing evidence of pastimes, segregation by rank, physical fitness of the crew, and possible defence measures taken against hostile Indians.

Examination of the archaeological deposits will shed light on the relationship between the marooned Spaniards and the indigenous Indian population. We know from historical accounts that the mariners bartered beads, bells, combs, knives, and other items with the Indians for cassava, fish, and small game, evidence of which should be discovered in association with the ships. In a sense, the Indians also were shipwrecked as they





*Fig. 4.1  
The St Ann's Bay site offers  
an excellent opportunity for  
finding caravel hulls suffi-  
ciently well preserved for  
archaeological analysis*

*Jack Tyndale Biscoe photograph*

provided all the food for the stranded sailors, first for trade goods and later through coercion. Thus, refuse around the ships will provide insight into the provisions acquired by the sailors, which would reflect the local subsistence base for the island inhabitants at a known, precise time. A model, based on archaeological evidence of food remains associated with the vessels, could be tested later by excavating nearby Taino (Arawak) sites.

### **Columbus's Caravels: the Search at St Ann's Bay**

#### *The 1930s*

Between 1935 and 1938, William B. Goodwin (1946), author of *Spanish and English Ruins in Jamaica*, searched for Columbus's two lost ships while investigating other historical and archaeological sites on the island. His research was based on such documents as the journal of Ferdinand Columbus and the will of Diego Mendez, as well as on early charts and maps of Jamaica. Goodwin (1946) concluded that Don Christopher's Cove, to the east of St Ann's Bay, was the correct location of the stranded vessels because the cove's features appeared to fit descriptions in the documents. In addition, geographical descriptions of the distances between various Indian villages and the site of the ships seemed to lead to the cove. Goodwin's initial assumption that Don Christopher's Cove was named after the place where Columbus was attacked by Indians during his first landfall on the island, however, may have reinforced his conclusion. It is currently accepted that the cove is named after Don Cristobal Ysassi,

leader of the Spanish guerrillas who contested the English invasion of 1655 and who fought the English until forced by insurmountable odds to flee the north coast.

Attempts by Goodwin to correlate the modern topography of the area with the past location of streams described in the accounts of Columbus's ordeal resulted in the laborious drilling of 150 test holes, many of which penetrated some 7.6 metres (25 feet) beneath the shoreline and seabed of the cove. When he found that his machinery could not break through the final layer of consolidated, dead coral covering the limestone bedrock, Goodwin reasoned that a diamond drill would be necessary for future work. His belief that the remains of the two ships were entombed in coral, at bedrock level, under the waters of the cove seems questionable today in view of what is known about submerged ship sites in the West Indies. Despite Goodwin's careful research and industrious investigations, he was rewarded by only one piece of pottery recovered from the tested areas, and field work was discontinued at Don Christopher's Cove.

#### *The 1940s*

In January 1940, Samuel Eliot Morison, a renowned maritime historian, led the Harvard Columbus expedition to the north coast of Jamaica. The purpose of the expedition was to reconstruct the sailing routes taken by Columbus and to attempt to identify various landfalls and notable sites associated with the voyages of exploration. With the assistance of local amateur archaeologist, Charles Cotter,

Morison and his team compared historical records with the topography of the area. They concluded that the two caravels were most likely abandoned on the west side of St Ann's Bay, near the early Spanish capital of Sevilla Nueva, founded in 1510. Morison felt that the ships had been grounded in a small lagoon with a gradually shelving sand beach that formed a 150 degree arc to seaward, affording a clear view of any rescue ship that happened to come searching for the marooned sailors. Additionally, the low shoreline at this location would have precluded a surprise attack by Indians from nearby villages (Morison 1983: 640-42).

#### *The 1960s*

Robert F. Marx surveyed St. Ann's Bay in the late 1960s and claimed to have found Columbus's ships within 30.4 metres (100 feet) of where Morison estimated them to be. However, Marx's claim was never proven and several years later, during an expedition sponsored by Jacques Cousteau, Frederic Dumas unsuccessfully tried to relocate the targets that Marx and Edgerton had found.

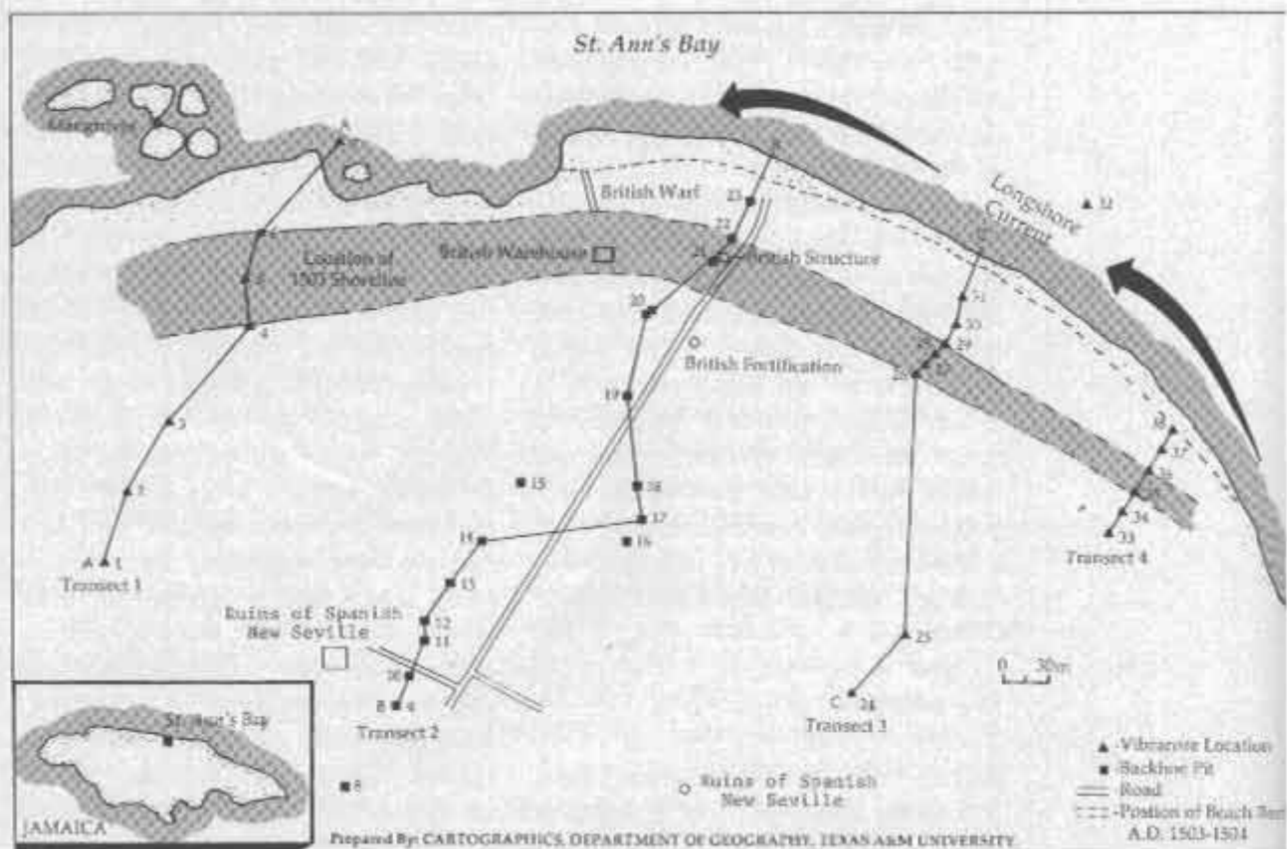
#### *The 1980s*

In 1982 a team of archaeologists then associated with the Institute of Nautical Archaeology (INA) at Texas A & M University commenced a series of four summer field seasons at St Ann's Bay to search for the caravel's remains. The beach area of the bay was surveyed and mapped. Portions of the bay were surveyed with a magnetometer and several potential targets were eliminated by site testing, but the

caravels were not located (Smith 1985). Unfortunately, very little data from the work performed during this time is available for study. A few proposals, popular articles and short field reports are all that the Columbus Caravels Archaeological Project (CCAP) team has been able to find. Neither the Jamaica National Heritage Trust (JNHT) nor the INA has information on file concerning locations of sites tested or any of the raw data collected. Without such information we were forced to resurvey areas we presume had been surveyed before. The fact that we were reworking areas previously tested was poignantly demonstrated when, after a week's work on Site 10, excavators came upon black plastic covering part of the ship's hull. It is frustrating and disheartening to realize that limited resources were needlessly expended because information about previous work was not available for study.

In March 1988, George Bass, Archaeological Director of INA, asked James Parrent to review past work at St Ann's Bay in the interest of continuing research to locate the caravels. Bass's own interests were heightened by the Jamaican government's desire to pursue this important research. After reviewing all previous efforts at St Ann's Bay and studying the documentary evidence concerning Columbus's fourth voyage, Parrent designed a research plan and began assembling a team to assist in finding and excavating the site.

On 22 September 1988, ten days after Hurricane Gilbert struck Jamaica, Parrent visited St Ann's Bay to see first hand what effects this powerful storm had had on the bay's configuration and so to evaluate the



**Fig. 4.2**  
 In 1992 a team of archaeologists started a series of four summer field seasons at St Ann's Bay, searching for Columbus's caravel



likelihood of finding well-preserved any remains (Parrent 1988). The coral reef enclosing the bay had prevented storm damage of any consequence. Within the bay only a few metres of beach sand had eroded and grass and small shrubs just inland, while bent over, were still in place. Farther down the coast, however, in areas not protected by coral reefs, huge amounts of sand and debris had washed ashore. The example of one hurricane does not prove that past storms have not damaged the site, but it does strongly support the belief that the configuration of the bay and the caravels site have not been altered significantly.

*One British, two British, Three British, four,  
Five British, six British, Seven British, More?*

'Another eighteenth-century British ship!', was a common exclamation among the crew as the CCAP continued the methodical search for Columbus's last two ships resting somewhere in St Ann's Bay on Jamaica's north coast. So far, seven eighteenth-century British ships have been found in the bay (Parrent 1989, 1990, 1991, 1993; M. Parrent 1993). It is not surprising that only British vessels have been found since the British were present in the area much longer than the Spanish. Soon after capturing Jamaica from the Spanish in 1655, the British established several sugar plantations near St Ann's Bay. The bay was commercially important to the British for the rest of the seventeenth century and throughout the eighteenth and nineteenth centuries. Sugar cane was the area's most important crop during this time. In Jamaica, the cane was

processed into raw sugar, molasses, and rum and then exported to England. This period of British activity, spanning about 240 years, far outlasted the Spanish occupation of St Ann's Bay. Consequently, it is expected that British artefacts and hulls would be found during the excavations. There is no doubt that Columbus's ships are lying somewhere beneath the sediments of the placid bay.

### *The 1990s*

In the 1992 field season, twenty-one sites (including the reexamination of sites 14, 16 and 23, previously tested in 1991) were investigated over a three-month period that began on 20 May 1992, and ended on 20 August 1992. The sites investigated were: 2 through 10, 12 through 18, 23, and 27 through 30. Except for Sites 27-30, all sites are anomalies detected by the chirp sub-bottom profiler in 1990 and 1991 (Schock 1989, 1993). Sites 27-29 were detected during a magnetometer survey in 1992. Site 30 was investigated based on a sighting of two possible stone ballast piles before Hurricane Gilbert in 1988. In November 1992 seven new targets were detected by the sub-bottom profiler (Sites 31-38). Of these, Sites 31-33 were tested during summer 1994.

Sites 2, 4, 6, 14, 17, 18, 33, and 34 were tested by probing and coring. Sites 3, 5, 30, 31 and 32 were tested with test trenches, while Sites 7, 8, 9, 10, 12, 13, 15, 16, and 23 were tested by larger-scale excavations. Sites 27, 28, and 29 were tested by limited coring in the area where the magnitude showed the highest anomaly. Sites 35, 36 and 37 have not been tested.

Of the tested sites in 1992, three

were proven to be the remains of British ships, eight contained cultural debris and seven are natural phenomena. Three others have not been fully examined.

The sites were dated by analysing associated artefacts. The artefact assemblages for each site were classified by material type and date. Only a small portion of each site was test excavated, so the quantity of artefacts recovered is small. The diagnostic artefacts, that is ceramics, glass, and pipes, allowed us to establish the probable country of origin, and the date for each ship site tested.

The study of Sites 7 and 8 typifies the procedures and methodology used to test sites that probing and coring indicated might be ships. The two sites are located near each other in 3 to 7 metres (10 to 22 feet) of water on the southwestern edge of a bathymetric depression just west of the Old British Wharf Complex constructed c. 1670 and used until the late 1960s.

Sites 7 & 8 were originally detected by the sub-bottom profiler in 1991. Site 8 is located under the steeply sloping edge of the depression, which drops from 5 feet to 20 feet below the water surface. Site 7 sits at the bottom of the slope in approximately 7 metres (22 feet) of water.

In 1992 site probing indicated a hard layer that might represent wood at 2.5 to 3 metres (8 to 10 feet) below the sea floor. Coring was difficult because of a hard layer that could not be penetrated or which, when penetrated, held the core tubes so that they could not be removed. The sites were further tested by excavating a north to south trench 2 to 5 metres (5 feet to 15 feet) to determine the nature of the hard layer.

### Underwater Cultural Material Found

Excavation revealed that the first 1 or 2 metres (3 to 5 feet) of sediment was soft silt with concentrations of flakes from *Halimeda*, a marine alga. A layer of black stream-worn cobbles was found near the 2-metre (5-foot) level. A modern plank and several coconut palm tree segments were located in the upper soft sediment. Many eighteenth-century materials were found among the cobbles. Silty clay, sand, and small cobbles continued down to a depth of 2.5 metres (8 feet). Charred barrel staves and badly decomposed boards were encountered in the southern half of the trench at approximately 2 metres (7 feet) below the sea floor.

The amount of cultural material found decreased significantly at 2.5 metres (8 feet), where a dense concentration of cobbles, large shells, and shell fragments was encountered. This material was resting on an extremely hard deposit of clay, shell, and coral fragments. Below this level, at 3 metres (10 feet), the strata became increasingly denser until the clay gave way to a hard calcium carbonate layer. This material stopped further probing attempts and most likely accounted for the trapped cores and 'wood' layer sensed by earlier probing.

The two sites most likely represent an accumulation of debris from river run off and storm activity. They are at the end of a slump in the sea floor that forms a natural trap for drifting debris. The diagnostic remains from the area include two encrusted pocket knives with etched bone handles. The knives resemble a knife and fork illustrated on page 182 of *A Guide to Artifacts of*

*Colonial America* by Noel Hume (1980); these are dated *c.* 1750. A late eighteenth-century case bottle neck fragment and a pipe, with 'TB' maker's mark on the bowl, were also found in the area. The diagnostic artefacts recovered from Site 7 and 8 suggests a mid to late-eighteenth century date for the material deposits (M. Parrent 1993).

Other sites tested during the 1992 season through probing, coring, and sometimes, limited excavation. Site 2, which lacked any associated cultural material, is a natural hard layer of calcium carbonate and coral. Site 3 represents a possible ballast dump. The only artefacts found were a small concreted fastener and a bone fragment. Both were reburied on the site. Sites 4 and 5 are the remnants of a partially buried coral ridge lying in a roughly east-west orientation north of the Old British Wharf. They may have been part of a coral ridge system that once ran along the northern edge of the bay's deep channel was subsequently killed and buried by heavy siltation in historic times. Site 6 is an accumulation of coral debris lying on a hard packed sand layer. No cultural material was associated with Site 6. Site 9 is a concentration of cultural debris and stones washed down from the Old British Wharf Complex. The cultural material gathered dates back to the eighteenth and nineteenth centuries and is British in origin. Sites 12 and 13 are areas where littoral drift has left an accumulation of debris, both from Site 11, a British ship site, and from material deposited further up current.

The anomaly detected at Site 14 was produced by the gravel layer in the sediment profile. The few cultural

materials found at the site are probably debris. At Sites 17 and 18, coring revealed a dense layer of rocks, pea gravel and coarse sand. This mixture of materials probably produced the targets detected by the sub-bottom profiler.

### Elaboration on some Excavations

#### Site 10

At Site 10 a ship was partially excavated during the 1992 field season. The remains are located in a bathymetric depression west of the Old British Wharf Complex, approximately 16 metres (50 feet) north of the mangrove shoreline, in about 1 metre (3 feet) of water, and under 2 metres (6 feet) of sediment.

Excavation exposed an area of the hull that includes a composite mast step, ceiling planking, frames, and outer hull planking. The first three ceiling strakes south of the mast step appear to be made of oak. Only a few strakes of outer hull planking were examined. They are made from yellowish wood, possibly pine. The mast step measures roughly 1 metre (4 feet) long, 35 centimetres (1 foot 2 inches) sided, and 28 centimetres (11 inches) molded and appears to be oak. It is joined to the keelson with two iron through-bolts running vertically through the step and keelson. The step is simply a large rectangular timber cut to fit over the keelson and its longest dimension runs athwart ships. The keelson measures roughly 15 centimetres (6 inches) molded and 15 centimetres (6 inches) sided. According to CCAP staff member Greg Cook, the keelson maintains the same dimensions under the step.



The hull from Site 10 is not heavily constructed. The keelson and mast step mortise are quite small and do not appear to have been made for a large boat with extensive sail area. The limited excavated area and efforts to leave the integrity of the hull intact, prevent the determination of the fastenings of the outer hull strakes. The ceiling planking and frames, however, were noteworthy in their scarcity of fasteners. This may be another indication of a small vessel.

The presence of black plastic covering six of the frames in the centre of the east-west trench suggests that the site was previously excavated. Because of the previous excavation only artefacts found within the ship's remains are considered diagnostic of the vessel's age. Ballast was not found with this ship, even in the areas not previously excavated.

The diagnostic artefacts discovered among the Site 10 hull remains were all manufactured in England and range from the mid to the late eighteenth century. The ceramic sherds include an 'old feather edge' pattern creamware plate, mocha and transfer printed pearlware, stoneware, Jackfieldware and delftware fragments. An intact British wine bottle, discovered between the frames and ceiling and outer hull planking, is similar to examples dated between 1788 and 1798 in Noel Hume (1980). A plain pewter spoon, recovered from just above the hull layer, is of a type and pattern in common use from about 1760 until 1800 and going by the trade name 'Old English' pattern (Wilfred 1977: 279). After conservation a maker's mark, 'SW & Co', was visible on the back side of the spoon.

The diagnostic artefacts from Site

10 yielded a date of approximately 1790. The ship itself was probably abandoned near the Old British Wharf after suffering some kind of accident that buckled the east end of the vessel.

### Site 15

In 1991 Site 15 was detected by the sub-bottom profiler. Five of the ten cores taken there in 1991 contained wood. Four revealed metal concretions, brick fragments, charcoal and burned wood. Probing of the site indicated the presence of rock.

The presence of cultural materials at Site 15 prompted the 1992 CCAP team to excavate two trenches, one running north to south for 6 metres (20 feet) and the other, to the north running, running 3 metres (10 feet) from east to west. The two trenches form a T over the site. In the east-west trench, the remains of a ship's hull were found underneath the ballast.

The hull remains have been identified as a section of the main wale, probably the lowest timbers, including the futtocks, some external planking, and part of the bilge ceiling. The remains are oriented on an east-west axis parallel to the coastline. Five frames, all made of cedar, were uncovered. Only one bilge ceiling plank was exposed in the test trench: it appears to be oak. The outer hull planking also appears to be oak. Seams between the outer hull planking are caulked with oakum, according to Gregory Cook (1993).

The artefact assemblage for Site 15 was concentrated in two separate areas at approximately the same depth. A few diagnostic artefacts were directly associated with the ship's hull timbers within the east-west trench but, unfor-



tunately, most of the artefacts were not associated with the hull and were concentrated toward the south end of the north-south trench.

The diagnostic artefacts associated with the hull include one agateware sherd and three delftware sherds manufactured in England. The CCAP staff has dated the delftware sherds to c. 1640–1800 and the agateware to be about 1745 and 1775. The diagnostic ceramics yield a date of 1758 for Site 15.

#### Site 16

Site 16 was located by the sub-bottom profiler in 1991 and tested by limited excavation the same year. Results of the excavation indicated a late-eighteenth century British vessel. The site was reopened during the 1992 field season to test under the remains of the ship to assure that they were not concealing another site. Excavation exposed an area of the hull extending approximately 1 metre (3 feet) to the port of the keelson and to the end of the preserved starboard side, approximately 2 metres (7 feet) from the keelson.

The hull, especially the framing, is heavily built. The keelson is small in comparison to the large frames, but this may be partially explained by the erosion of the keelson timber compared to the good preservation of the frames. The scarf found at the forward or eastern end of the keelson appears to have been the apron-keelson scarf. This join was strengthened with a through-bolt that originally would have run through the keelson, apron and floor. Deadwood is visible under the keelson-apron scarf and the edge of the garboards can be seen angling

down on either side of the deadwood. The molded dimension of the keelson at the scarf is considerably less on the starboard side compared to the port side, indicating that the scarf was not a simple horizontal scarf but a beveled hook scarf.

Aft of the scarf, what may be the beginning of a composite mast step emerges from the western wall of the excavation unit. This is indicated by the increased molded and sided dimensions of the keelson, the presence of sister keelsons along either side of the main timber, and a buttress timber extending laterally from the starboard sister keelson. The sister timbers are joined to the keelson with horizontal through-bolts. Both sister keelsons are heavily eroded and the starboard one extends approximately 1 metre (3 feet) farther forward than the port timber. The starboard sister keelson appears to be composed of two distinct pieces of wood while the port side is definitely made of a single piece.

Analyses of the 1992 diagnostic artefacts complement the previous year's results. The artefacts, including ceramic sherds produced in the latter half of the eighteenth century, suggest that Site 16 is the remains of a British vessel from the mid to late eighteenth century. The three diagnostic ceramic sherds include pearlware (c. 1780 to 1820), agateware (c. 1740 to 1775), and a debased, scratch blue, salt-glazed stoneware sherd (c. 1765 to 1775; Hamilton 1990). One kaolin pipe recovered from Site 16 has a vertical stamped maker's mark on the bow, 'JA EATO . . . LIVERPOO. . .' Oswald (1975), in 'Clay Pipes for the Archaeologist', lists a pipe-maker by the name of James Eaton residing in

Liverpool, England, and gives a date of 1757. The bore diameter of the stem is 1.5 millimetres ( $\frac{1}{16}$  inch) *c.* 1750 to 1800 (Harrington 1954). Results of the 1991 and 1992 artefact analyses, when combined, suggest a date ranging from 1770 to 1800 for the Site 16 hull. Subsequently, Gregory Cook has excavated the entire site and is studying the hull and other artefacts for his Masters degree in Anthropology at Texas A & M University (Cook 1993).

### Site 23

Site 23 was located in October 1990 when our sub-bottom profiler detected rock at 2 to 2.5 metres (6 to 8 feet) below the sea floor. Further probing and coring in 1990 and a small test excavation verified this finding, and it was determined that the target was two stone ballast piles resting on a white sand layer.

During the 1992 field season, investigative probing revealed a concentration of rock along the eastern edge of the target area and slightly west of the 1990 test excavation area. Following additional probing, a 4.5-metre (15-foot) test trench was excavated along a north-south axis. At 1 metre (3.1 feet) below the sea floor a British sugar mold, possibly dating from the late seventeenth to the early nineteenth century, was recovered from the northern end of the trench. Subsequently, the trench was enlarged to expose the top layers of two ballast piles but no ship remains were found. The proximity and similarity of rock types, the lack of wood, and the scarcity of other artefacts indicate that Site 23 is probably a ballast dump site formed when a ship discharged ballast stones from both sides of the vessel.

Site 23 did, however, yield the sugar mold, an artefact that symbolizes an important part of Jamaica's early colonial history. The mold, shaped like an inverted cone with a drip hole at its base (much like a flower pot), was discovered almost whole, but broken at the mouth or top end. The mold is unglazed and has a reddish orange paste color with an inner gray core in the paste. The inner gray core is a result of the firing process. A 'B' inscribed near the drip hole of the mold may represent a label for the size of the vessel, a maker's mark, or a plantation owner's mark. According to D. L. Hamilton, director of INA's excavations at the sunken seventeenth-century city of Port Royal, Jamaica, Site 23's sugar mold is similar to fragmented molds found at Port Royal.

### Sites 27, 28 and 29

The three anomalies representing Sites 27, 28, and 29 were generated during a 1992 magnetometer survey east of Reader's Point between the old prison and the mouth of the Church River. The survey was an attempt to relocate a dipolar magnetic anomaly originally located by Gordon Watts during an earlier project and called the 'sand bar anomalies'. The sites lie slightly more than 100 metres (300 feet) offshore in a medium energy zone inside the reef in 1.2 to 1.8 metres (4 to 6 feet) of water. The remnants of a rock wharf are located south of the search area. The most southeasterly site, Site 29, probably represents the dipole anomaly found earlier.

Following the magnetometer survey, cores were taken at the centre of each anomaly. An additional four

cores, spaced 3 metres (10 feet) from the centre, one each to the north, south, east, and west, were taken around each anomaly. In the top of each core there were sediments composed of 40 centimetres (1.5 feet) of fine sand on top of 40 to 60 centimetres (1.5 to 2.0 feet) of darkly stained sand and gravel mixed with red brick, wood fragments, coal slag, small iron concretions and possibly heat-modified chert. Below this rich cultural layer the samples consisted of silt with Halimeda flake. Toward the bottom of the cores there was a layer of fine sand. None of the cores was extracted with its full sample and sample loss ranged between 60 centimetres and 2.5 metres (2 to 8 feet) of the down-core sediments.

Sediment loss from the cores prompted a circular probe survey, conducted at the 4.5- and 6- metre (15- and 20- foot) radii. During each of these exercises, a *de facto* visual reconnaissance of the bottom was conducted. Many ferrous metal objects were visible on the bottom, that is, cans, wire, pieces of cable, numerous fish trap and fish trap anchor fragments. Any of these modern items could have caused the magnetic anomalies. It is also possible that ferrous objects from the rich cultural layer encountered between 40 and 90 centimetres (1½ and 3 feet) below the surface might be additional sources for anomalies. Contamination, due to the proximity of the old wharf and its associated anchorage, and the Church River, makes problematic any survey of this area based on magnetic anomalies. A sub-bottom profiler survey is planned for the future.

### Site 30

Site 30 is located on the west side of St Ann's Bay just offshore of an area known locally as Columbus Beach. This site, thought to be two ballast piles, was first detected before the Hurricane Gilbert hit in 1988. During the 1990 field season, an investigation in the area with the sub-bottom profiler produced nothing. During the 1992 field season, the site was probed, and a test excavation was conducted, but no concentration of ballast stones was found. The original sighting might have been a thin layer of stones which were later dispersed by Hurricane Gilbert.

### Conclusion

The surveying methods used by CCAP have allowed quick coverage of a large section of the bay, and far more sites were located than can be excavated during a single field season. Thirty sites were located during surveys in 1990 and 1991. Six of these sites are the remains of British ships. Sites 27, 28, and 29 which were located by a magnetometer survey in 1992, have not been fully tested.

During November and December of 1992, portions of the east end of St Ann's Bay and an area to the east of Reader's Point were surveyed with the chirp sub-bottom profiler. Five substantial targets were located near the far eastern shore of St Ann's Bay (Sites 33-38) and two targets designated 31 and 32, each represented by side-by-side anomalies (precisely what we would expect from Columbus's two beached caravels), were located close to shore east of Reader's Point.



Sites 31 and 32 were probed during a short field season in the summer of 1994. What appeared to be wood was detected at each site. Excavations at site 31 revealed portions of a hanging knee, planking and several iron concretions. Recovered artefacts included lead shot, concreted fasteners and a clay pipe. The artefacts suggest that Site 31 is the remains of another British ship but more needs to be done to prove this. Limited excavations on Site 32 did not uncover any material

suggesting the presence of a ship. However, this site also requires more work. Sites 33-38 have not yet been examined.

Exploration needs to be extended in order to unearth the caravels. Discovery of the other ships in St Ann's Bay is proof that the right techniques and methodology are being used. Columbus's ships will be found, but only through persistence and methodical and diligent effort.

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## Case Study

### Port Royal: An Important Aspect of Jamaica's Underwater Cultural Heritage

In 1655 Cromwell set out to secure world territories by sending out a force, under the leadership of Admiral Penn and Robert Venables. The purpose of the expedition was to carry out Cromwell's 'Western Design'. The British were unsuccessful in their attempt to capture Hispaniola so, in a last-ditch effort to salvage the undertaking, they sailed to Jamaica and took control of the island's south coast. Subsequent expeditions reinforced the British position and the last Spanish resistance on the island was eliminated by 1660.

Port Royal, originally called Point Cagway or the Point, was established soon after the British took the south coast. It was situated on the tip of a long thin sandy spit that separated what is now Kingston Harbour from the Caribbean. Port Royal was originally designed to serve as a defensive fortification guarding the entrance to the harbour but the town soon assumed much greater importance.

Because of Port Royal's location within a well-protected harbour, flat topography, and deep water adjacent to shore, large ships were easily serviced, loaded and unloaded. Between 1655 and 1692 Port Royal became the most economically important English port in the New World. The period from 1660 to 1671 was the age of officially sanctioned privateering for which the city was so notorious. It was during this time that the city earned the title of the 'wickedest city on earth'. Because of the absence of a suitable British naval presence in the



Caribbean, Jamaica depended on buccaneers for protection from the Spanish. These buccaneers were formally organized as the 'Confederacy of the Brethren of the Coast' in Tortuga. Jamaica received great wealth in plunder from Spanish colonies and from ships attacked by buccaneers and freelance pirates operating out of Port Royal. The buccaneer era was a short-lived but very colorful period that England was forced to end by the conditions of the 1670 Treaty of Madrid. However privateering and piracy were not effectively controlled until Henry Morgan, formerly one of the most active and notorious pirates of Port Royal, was knighted by King Charles II and installed as the Lieutenant Governor of Jamaica. Sir Henry Morgan vigorously suppressed his former associates.

After 1670, Port Royal and Jamaica became increasingly important to Britain in the trade of slaves, sugar and raw material. Port Royal evolved into the mercantile centre of the Caribbean. From real estate and tax records located in Jamaica's national archives, it is known that a multitude of craftsmen and tradesmen lived in Port Royal. These included bakers, blacksmiths, bricklayers, butchers, carpenters, cabinetmakers, joiners, combmakers, coopers, cordwainers, drugsters, goldsmiths, gunsmiths, hat-makers, ivory turners, mariners, masons, merchants, pewterers, poulterers, sailmakers, schoolmasters, tavern-keepers, victuallers, watermen and wherry-men (Pawson and Buisseret 1975: 178-85).

At the height of Port Royal's prosperity it had an estimated population of 6500 and as many as 2000 buildings were concentrated on 51 acres at

the tip of the sandy Palisadoes. Many of the buildings were constructed of brick and some were four stories high. This period of prosperity, however, came to a sudden and frightful end. On 7 June 1692 at approximately 11:40 a.m., a severe earthquake shook Port Royal. Thirty-three acres or 66 per cent of the city sank beneath the water in the harbour. An estimated 2000 persons were killed immediately by the earthquake and a seismic sea wave that followed. An additional 3000 citizens died of injuries and disease in the following days. Salvage and outright looting began almost immediately and continued on and off for years.

As if the 1692 earthquake was not enough, Port Royal was again ravaged by a fire and earthquake in 1703, and was badly damaged by hurricanes in 1712, 1722, 1726, and 1744. More recently, the town was severely damaged by an earthquake in 1907 and suffered damage by hurricanes in 1951 and 1988. Port Royal has survived the turmoil and ravages of time and remains today as a somewhat isolated town at the end of the spit.

Port Royal is of primary archaeological significance as in its submerged and buried depths lies an extremely well preserved late seventeenth-century British colonial site with a massive array of *in situ* artefacts. Only a small portion of the available area has been archaeologically investigated and the research potentials are enormous.

The catastrophic events that befell Port Royal also caused damage to ships in the adjacent harbours. Numerous ships sank in Port Royal and Kingston harbours during the 1692 earthquake. In 1722 a hurricane struck

Jamaica and did much damage to local shipping. In Port Royal Harbour 26 merchant vessels were sunk and some 400 persons perished during the 1722 hurricane (Millas 1968: 178). The hurricane of 1726 caused the sinking of 50 vessels in Jamaica's harbours (Millas 1968: 179-80) and the 1744 hurricane reportedly stranded, wrecked, or caused to founder 104 vessels in Port Royal Harbor (Millas 1968: 201-02). Numerous other hurricanes, several earthquakes and two major fires have contributed to the dense accumulation of cultural material in Port Royal and the harbours of Port Royal and Kingston.

#### **Archaeological Investigations of Port Royal**

Within hours of the 1692 disaster, 'wrackers' began salvaging and looting the sunken buildings for anything of value. This salvaging continued intermittently into this century. In 1859 Jeremiah D. Murphy, a Royal Navy helmet diver, made an air support dive on the city and identified the remains of Fort James. Alexi DuPont discovered an arched brick doorway with a flight of ten steps in 1954, but was unable to locate it again on a subsequent visit. Edwin Link tested the King's Warehouse and Fort James, but the areas were not systematically excavated (Link 1960).

During Link's research, in conjunction with the National Geographic Society, a map of Port Royal was reconstructed from real estate plat records. This is by far the most useful map of the city. In 1960 Norman Scott excavated in the area of Fort Carlisle, but little is known of the work. From December 1965 to March 1968 Robert

Marx directed a very extensive excavation in the southwestern part of the sunken city. Marx's excavation was in the area of the fish and meat markets between Lime Street and the former shoreline of 1692. Although Marx made an attempt to maintain minimum archaeological control, the excavation does not meet today's accepted archaeological standards.

#### **Work Since 1981**

In 1981 the Institute of Nautical Archaeology (INA) at Texas A & M University accepted the invitation of the GOJ to excavate at Port Royal during the 1981 season. Each succeeding summer from 1981 until 1990, a field school, directed by D. L. Hamilton, was conducted at Port Royal as a cooperative effort by A & M, INA, and the government (Hamilton 1981, 1984, 1986, 1990, 1992).

The primary goal of Hamilton's first season was to determine if controlled excavations could be conducted in the sunken city. Reports by others of earlier work on the site suggested that stratigraphic controls could not be maintained, visibility was very bad, excavations had to be carried to depths of nine to fifteen feet below the sea floor, excavation walls continually caved in, the danger of sharks was great, and sea urchins literally paved the area. Concerns about these points proved to be unfounded, at least in the areas where Hamilton conducted his field schools. No sharks have been seen and, although numerous, sea urchins are not a great problem. Visibility is normally 1 to 3 metres (four to ten feet) and the excavation team is able to take underwater photographs, plot the location of artefacts within a

metal grid frame network (about 3 x 3 metres or 10 x 10 feet square), maintain good stratigraphic control and prepare detailed drawings of all features. Remains of the city were found to be buried under 0.3 to 1.5 metres (one to five feet) of sediment in the excavated areas. Excavations were conducted in much the same manner as on land and similar techniques and tools were used. The only difference is that the 'land-site' is now underwater.

Hamilton limited his excavations to an area along the south side of Lime Street across from the intersections of Queen and High Streets. There he discovered the remains of five buildings. The area of Hamilton's excavations is 6 to 9 metres (20-30 feet) north of the large area excavated by Marx in 1966-68. Even though the area excavated by Hamilton is only a few metres north of Marx's excavation, the buildings excavated are in shallower water and are more intact than those reported by Marx. The buildings that Hamilton exposed contained a wealth of artefacts preserved *in situ* on the floors of the structures. The artefacts, often covered by large sections of toppled walls and collapsed ceiling plaster, were plotted within each room of each building. The buildings also differ from any in the Marx excavation by being oriented along the postulated alignment of Lime Street. Hamilton's method of excavation leaves the building walls and floors in place.

Hamilton (1990) reports that excavations of Building 5 produced more *in situ* artefacts than any other building excavated by his team at Port Royal. Artefacts recovered include a wood frame four-partition window with leaded glass panes within a wrought iron frame, two sets of Chi-

nese porcelain Fo Dogs, at least twenty-eight Chinese porcelain cups and bowls, pewter palates, candlesticks, brass mortar, delft vase, Dutch faience plate, gold ring, pearl with gold attachment, silver forks and spoons.

Pewter recovered by Hamilton's teams includes many pieces made by Port Royal pewterer Simon Benning (Hamilton 1992). These pieces are identified by Benning's touch mark: a pineapple surrounded by an oval rope braid with the initial 'S' to the left of the pineapple and the initial 'B' to the right.

Hamilton's team also excavated a seventeenth-century ship, in addition to the five buildings. The ship appears to have been driven into Building 5 at the time of the earthquake (Clifford 1990). The ship's remains have been left *in situ*.

Hamilton completed his excavations of the sunken city in 1990 and is presently writing a book about his discoveries.

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## Jamaican Heritage in Engineering: An Historical Review

*Garth Lampart*

### **Roots of Jamaica's Engineering Heritage**

The recorded history of Jamaica began with the arrival of Christopher Columbus in 1494. In the centuries which followed, the Caribbean, with Jamaica at its geographical centre was dominated by European nations, in search of its wealth and its strategic location in the many wars in which these nations became embroiled. In fact, the destiny of the region was determined more by what transpired in Europe and conversely the course of European history was frequently changed by Caribbean conquests.

Of particular significance in the history of Jamaica and the islands of the Caribbean is the fact that in this period of European occupation, the indigenous population was dramatically transformed from Carib and Taino Indians to predominately black people as Africans were brought to the islands as slaves.

The post Emancipation influx of Indian and Chinese nationals into Jamaica as well as other Caribbean islands after 1834 introduced further unique influences on this island that boasts as its motto 'Out of many, one people'. This 'New World' has emerged from the melting pot of many diverse civilizations in relative calm

and with few prejudices to create independent states with unique cultures.

In Jamaica the crucible of development and change was undoubtedly the sugar cane industry and it is here that one should expect to find the main roots of our engineering heritage. It would be remiss however to omit reference to the Arawak civilization which flourished before Columbus, but of which little is known.

### **The Taino Heritage**

When the British captured Jamaica from Spain in 1655, there was no longer any trace of the Taino as a race. It was well documented that this docile and peaceful tribe of Ameridian peoples was decimated by the Spaniards and many of its members committed suicide rather than undergo the humiliation and suffering of life under the Spaniards. Any descendants of this tribe must have assimilated themselves into the growing numbers of runaway African slaves later to be known as the Maroons.

This genocide created a distinct chasm in cultural continuity. In spite of this however a few distinct elements of the engineering heritage of the Taino culture crossed over into the subsequent stages of Jamaica's devel-

opment. The matapi or cassava snake and the cassava press used for the extraction of the poisonous juices of the cassava are evidence of early mechanization of a common home chore in the preparation of one of the staple foods of that time, a process which is still used today.

The hand-made dug-out canoe, hewn from the trunk of the silk cotton tree is also another heritage of the Taino craftsmen which has remained with us into the present time.

### **The European and African Heritage**

From the landing of Columbus in 1494 to the end of the Spanish rule in 1655, Jamaica was always poorly defended and suffered raids from the pirates who had begun to roam the Caribbean. Jamaica's main use to Spain was as a supply base for its naval activities in the region. In the early days of its colonization, men, horses, arms and food from here helped in the conquest of Cuba and much of the American mainland, but after that the island's importance waned.

The chief activities were the rearing of cattle and other livestock and a certain amount of ship building for which there was an abundance of cedar and mahogany. There are understandably very few remnants of any engineering heritage of this period left with us today.

When Jamaica came into British hands, a proclamation was issued giving encouragement of land grants and tax free entitlement to those who would settle in Jamaica. This and the subsequent decision to import Africans as slaves led in a short time

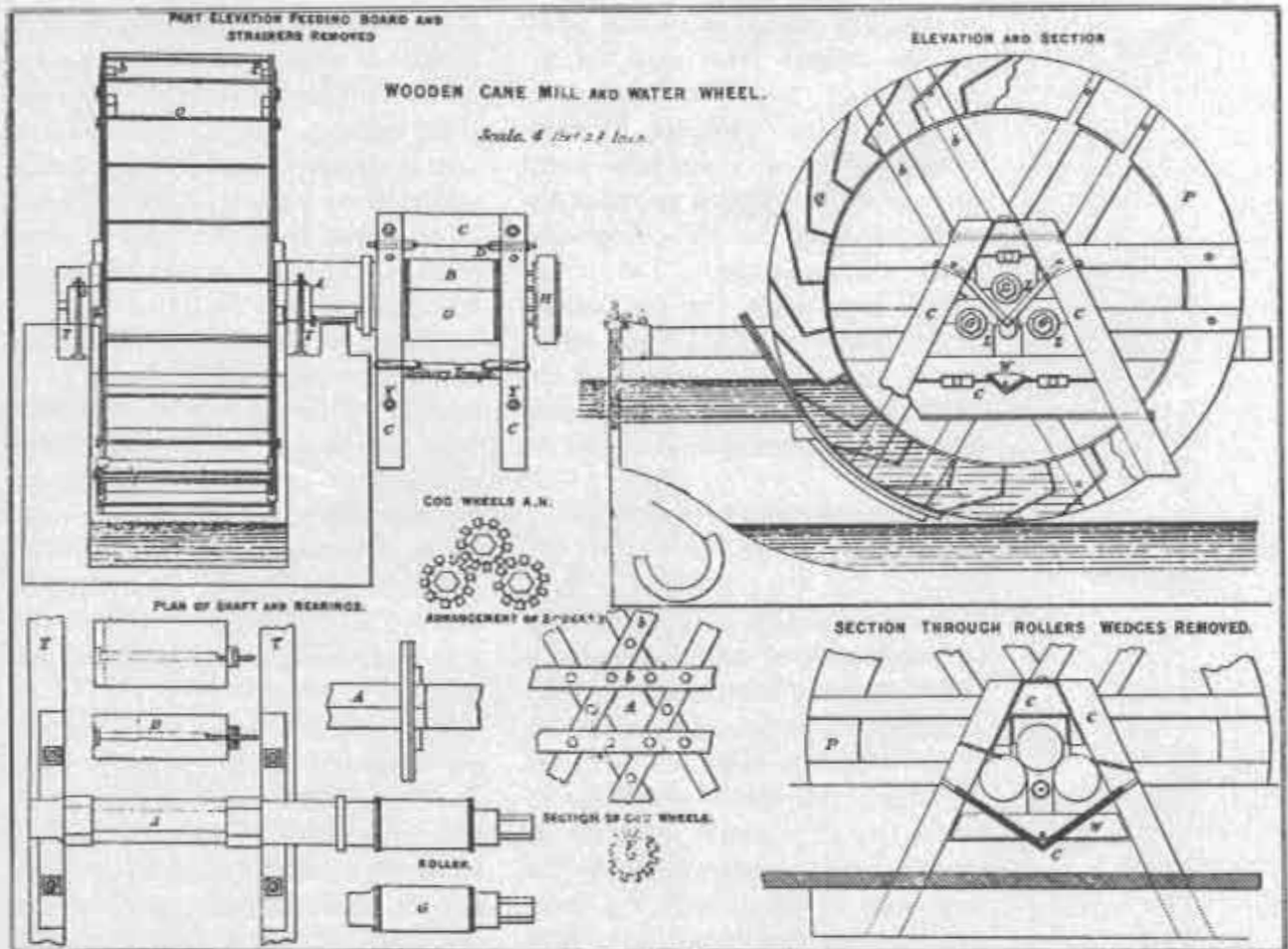
to the development of the island into a symbol of wealth and strength. At the centre of this development was the sugar industry. Jamaica became for a time in the seventeenth and eighteenth centuries the world's largest producer of sugar and immense fortunes were amassed by the mostly absentee landowners.

During the period 1713–1807, over one million Africans as slaves were brought into Jamaica of which 200 000 were re-exported; 800 000 remained to replenish the island's labour force on the plantations. By 1834, at the time of the Emancipation Act, the slave population in Jamaica was approximately 320 000, a figure which suggests a high mortality rate among the Africans.

The white Jamaicans in 1775 were outnumbered fifteen to one by their slaves. Methods of enslavement were therefore devised to reduce the possibilities to successful slave revolts. As a result, native languages and customs of the large imported population were modified in their captivity.

Little recorded evidence exists today of African industrial heritage as only small fragments survived the crossing from Africa to the Caribbean. In spite of this, however, domestic tools and pottery items can be identified as part of the African heritage from this period.

In direct contrast to the de-Africanization of the slave, the colonialists were Anglocentric in their outlook. Many of the plantation owners lived in England and many were close to the power brokers or lobbied strongly to protect their self-interests. The importance of the sugar industry in Jamaica at its peak in the mid 1760 cannot be underestimated. Moreover,



19th century print, courtesy of the National Library of Jamaica

Fig. 5.1  
Water-powered mills  
required an adequate water  
supply



this period coincided with the rapid industrial changes sweeping through Europe. The importance of the sugar industry and the coincidence of the Industrial Revolution propelled Jamaica into considerable advances in sugar manufacturing in a period which can be said to be the genesis of our engineering heritage.

#### Use of Animal, Water, Wind and Steam Power

Initially the sugar industry utilized animal powered mills but these were gradually replaced or augmented by more efficient water mills during the eighteenth century, while windmills were used on a relatively small number of plantations. Steam power was applied to manufacturing processes in the eighteenth century, but did not come to predominate until the second half of the nineteenth century. Wind-powered mills were the most constrained location requiring exposed hilltop sites. Water-powered mills required an adequate water supply carried by aqueducts and gutters, which could be quite lengthy and costly. The aqueduct at the Trinity Estate in St Mary, one of Jamaica's north eastern parishes, was monumental in scale, stretching over 1.5 kilometres (1 mile) and made of hundreds of masonry arches.

The first steam engines were capable only of reciprocating motion, and were applied most commonly to pumps. Thus in 1756 the Jamaica House of Assembly encouraged 'GEORGE ABERNATHIE in his project for raising water by fire [steam] and applying the same to turn water mills for grinding sugar canes in this

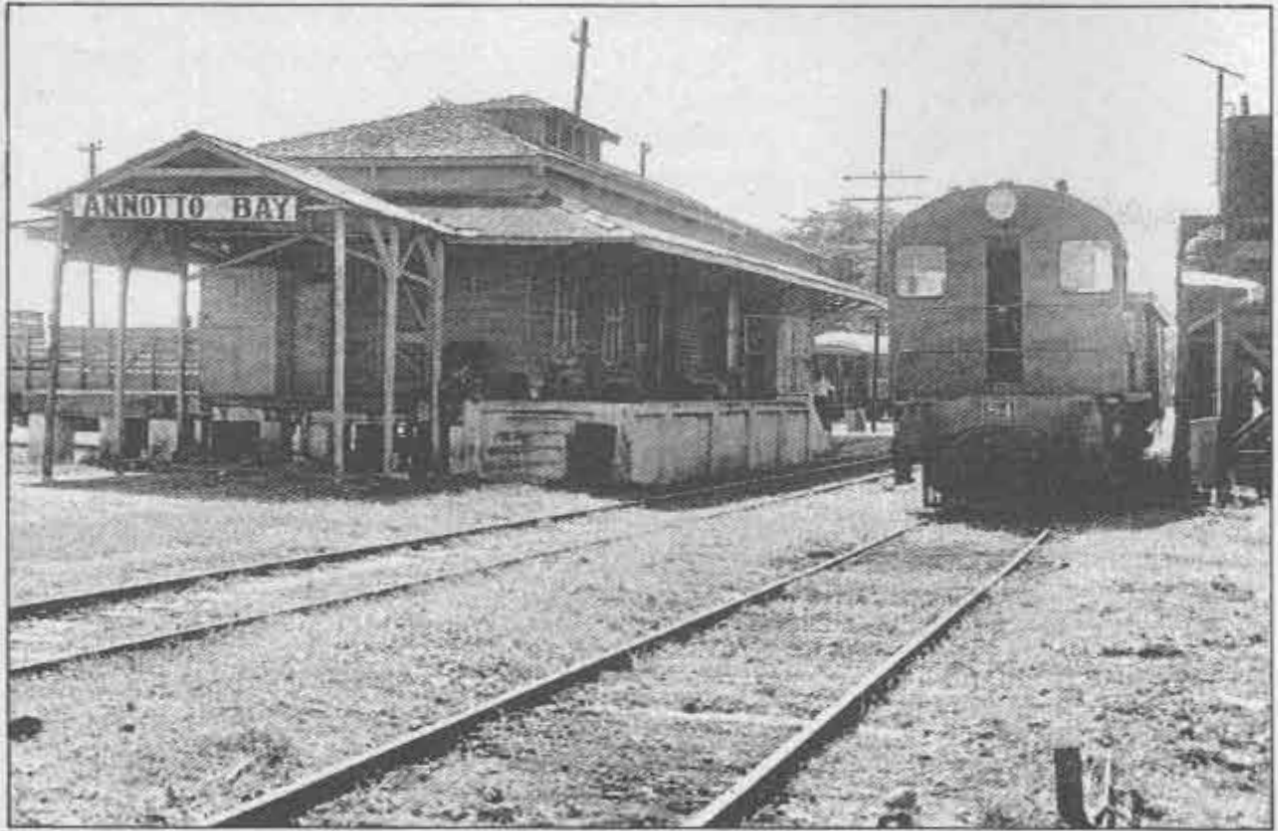
Island'.<sup>1</sup> In 1766, John Stewart a Jamaican millwright was granted an English patent and in the following year established 'A description of a Machine or Invention to work mills by the power of a fire engine, but particularly useful and profitable in grinding sugar cane'.<sup>2</sup> In 1768 John Stewart brought to Jamaica the mill he had built in London and set it up at Greenwich Plantation in St Andrew. His steam mill was proved and the Assembly rewarded him.

The first steam engine<sup>3</sup> was produced in England by Thomas Newcomen in 1705 and erected in 1712 to pump water from a mine at Dudley Castle Staffordshire and the seeds of the Industrial Revolution were sown. The Newcomen engine made its way slowly, the operators were unaware of its inefficiencies, but its usefulness as a means for pumping in the mines brought some credit to its inventor. It was not until James Watt (1736-1819) of a later generation, was able to apply his genius to Newcomen's child that any real advance was made.

It is noteworthy, that the Jamaica House of Assembly encouraged the use of steam engine from as early as 1756, whereas it was not until the early nineteenth century that a great extension of the use of steam power was used in industry as well as its application to marine population and railway transportation internationally.

#### Progress in Agricultural Industrialization

Jamaica was abreast in utilizing steam and the latest technology of the period. The works on Jamaican sugar estates did indeed constitute formida-



*Garth Morgan photograph, courtesy of the Jamaica Information Service*

*Fig. 5.2  
The Jamaica railway was  
the first to be constructed  
in the British colonies*

ble industrial complexes comparable in scale and technology to the factories of industrialized Europe and North America at least until the middle of the nineteenth century. There were no regulatory engineering institutions at the time and creations were of an age without standardization and so exhibited considerable individual variety.

Jamaica was rich and could well afford to employ the latest inventions. In 1805 Jamaica was the leading sugar exporter in the world and had produced almost 100 000 tonnes. There was a gradual decline in the years leading up to 1838 when slavery was abolished and rapid decline after Emancipation, so that by 1913 sugar production was a mere 5000 tonnes. The fall in sugar output during the late nineteenth century was cushioned to some extent by a shift to rum production.

No information was found that can throw light on the status of the early engineers responsible for the mechanisation of the sugar estate works, but the scant references that were found, suggest that they were men of substance who also included surveying as part of their discipline. The following extract from the book *Jamaica Surveyed* by B.W. Higman shows this: 'Major Jean Bonnett Pechon a French coffee planter came to Jamaica following the revolution in St Domingue and signed himself 'Knight of the Royal and Military Order of St Louis Engineer'.<sup>3</sup> In 1807 he was appointed Assistant Island Engineer after completing a number of plantation surveys.

Another extract from the same book gives information about the breast wheel: 'The breast wheel did not

become popular until the 1750s when it was developed by John Smeaton, an English Engineer, and only began to replace the traditional overshot wheel after 1800. It is interesting to note, that one of the earliest of Smeaton's breast wheels was executed for a Mr. Grey of Jamaica in 1754'.<sup>4</sup>

Smeaton was a famous English Engineer. When in 1768 he described himself as a 'Civil Engineer' he did more than differentiate himself and his colleagues from the Military Engineer: he identified a new vocation — the profession of civil engineer. He practised as a consulting engineer for many years in the same way that consulting engineers do today, long before the Institute of Chartered Engineers (ICE) was founded.

### Recent Jamaica Heritage

The Emancipation Act of 1834 signalled the decline of the Jamaican plantation system which had dominated the economy for more than a century. The depression in Europe following the Napoleonic Wars, growing competition for Cuban and Puerto Rican sugar, and shortage of labour on the plantations were foremost reasons for this decline. In addition Britain's new free trade policy and the introduction of the Sugar Equalization Act in 1826 took away Jamaica's tariff advantage and caused many estates to go bankrupt. Much of the land was divided up and sold to the new class of peasants.

Only the introduction of large scale banana cultivation in the 1820s and the arrival of the large foreign United Fruit Company offered any positive move in the bleak economic outlook of that period.

The peasant population grew rapidly but remained rooted in poverty and the large surplus of labourers were lured overseas to Cuba, Panama to build the Panama Canal, Costa Rica and the USA.

Indigenous technologies during this period continued to develop from the agricultural base. The growth of these expressions was undoubtedly inhibited by a colonial education rooted in Britain and the complete anglicization of the middle class Jamaican created a local dependence on technology from Britain.

There was little innovativeness in Jamaica with technologies being all imported and applied unchanged. Jamaica produced primarily agricultural products only. For example, cocoa was grown and the beans exported to Britain with chocolate products and sweets imported from Britain.

It is against this backdrop that we must examine our engineering heritage from the heyday of sugar through to its decline following emancipation, closely bound with our colonial heritage strongly influenced by Britain.

Jamaica in the late eighteenth century was rich and could afford the latest in technology. The old Iron Bridge at Spanish Town, erected in 1801 is reputed to be the oldest surviving cast iron bridge in the Americas. Up to the mid eighteenth century Jamaica was a leader in the utilization of steam and the island's sugar factories were formidable industrial complexes comparable in scale and technology to any in the world.

### Post-Emancipation Mechanization

The advances made possible by the industrial revolution found ready implementation in a continuing good economic climate. It is not surprising therefore, that in 1845 22 kilometres (14 miles) of public railway was established between Kingston and Angels which is about 3 kilometres (2 miles) west of Spanish Town. Not only did the Jamaica railway have the distinction of being constructed soon after the first public railway in Britain, but it was also the first to be constructed in the British colonies.

Following on the success of the railway, a public water supply was established by the Kingston and Liguanea Water works in 1849. The Governor Sir Anthony Musgrave spoke with his Colonial Secretary, Major Owen Lanlon, by telephone, two years after Alexander Bell invented the telephone in 1878.

In 1883 commercial telephone came to Jamaica and fifty telephones were installed by the West India and Columbia Electric Company and in 1892 the Jamaica Telephone Company was incorporated to acquire the undertaking of the West India and Columbia Electric Company.

Jamaica was among the foremost countries to use electricity and regulations were made by the Governor in Privy Council under the Electric Lighting Law 1890 for securing the safety of the public from personal injury or from fire or otherwise. In 1880 Thomas Edison invented the first successful electric lamp and in 1892 the first electricity service in the island was supplied by the Jamaica Electric Light and Power Company.

In 1898 the West India Electric



Company started operations and in 1899 introduced electric tram cars to replace mule-drawn tram cars which were until then the prime means of transportation in Kingston. The power which was generated for the operation of the tram car service came from Jamaica's first hydro-electric plant at Bog Walk in St Catherine.

The plant was historic in a number of ways — the young engineer who designed and built the plant became in later years one of the world's most eminent hydro-engineers. The plant contained what was probably the world's first surge tank and the massive 1.8-metre (6-feet) diameter pipes were said to be the largest in the world.

### Modern Jamaica

Modern Jamaica continues to be the recipient of a transferred technology clearly evident in the bauxite alumina industry, which now occupies prime position in industry. Despite our history of having formidable industrial complexes not much remains. Perhaps we were all spectators at the game then and must now realize that we need to be part of the team.

It is recognized that conservation efforts are needed today to help to preserve and highlight Jamaica's diverse engineering heritage, particularly because much of this was established at the cutting edge of this technology, as pointed out in this chapter. The use of museums as well as the compilation of artifacts and documents about this heritage are some methods of putting into effect the educational aspects associated with the conservation efforts to ensure their preservation.

### Notes

- 1 House of Assembly Journals, 1756, National Library of Jamaica.
- 2 Ibid., 1766.
- 3 Barry Higman, *Jamaica Surveyed* (Kingston, Jamaica, IOJ Publications, 1988).
- 4 Ibid.

## The Fortifications of Jamaica: A Rich Variety of Sites and Ornaments

*Hugh Dunphy and David Buisseret*

### Siting of Coastal Forts

Neither the Tainos nor the Spaniards are recorded as having built any substantial fortifications on the island. The Tainos relied for defence upon observing an enemy before he could reach their villages, and the Spaniards chose the second site for their capital some way inland (at what is now Spanish Town), so that they could not be surprised from the sea. When English pirates did come, in the late sixteenth and seventeenth centuries, the Spanish tactic was not to defend their town, but to harrass the enemy's landing force, and then to retire to the hills and wait for its departure.

When the British came in 1655, they very soon began building up a base at Port Royal, and realized at once that it had to be defended against naval attack. They addressed this by building a rather crude little fort, on the site where Fort Charles is. During the 1660s and 1670s, as the town became richer and so more tempting, they surrounded this settlement with a wall which enclosed numerous forts: Fort Rupert, Fort Carlisle, Fort James, Walker's Fort, Fort Charles and Morgan's Line.<sup>1</sup> This fortified perimeter was designed not only to protect the harbour, but also to deter attack from the landward side, along the

Palisadoes peninsula.

Fort Charles survives to the present day, although it has been somewhat modified. The sites of all the other forts are known, in most cases through underwater archaeology, but they are all more or less ruined. They were built of brick, and were quite small, mounting between fourteen and twenty-six guns each. The north curtain at Fort Charles probably gives us a good idea of what they looked like: a lowish brick wall broken by large embrasures through which the cannon could fire. In fact, the guns of Port Royal were never tested, except by pirates escaping to sea out of the harbour; when the French invaded in 1694, they landed in the parish of St Thomas, but upon sailing westwards preferred not to test these redoubtable defences, which completely dominated the maritime approaches.

As time went by, Port Royal (and then Kingston) lost the monopoly of trade into and out of the island, and other ports began to gain in importance. By the middle of the eighteenth century, towns such as Savanna-lamar, Black River, Morant Bay, Port Antonio, Annotto Bay, Port Maria, St. Ann's Bay, Rio Bueno, Montego Bay and Lucea were all centres of shipping, and so all had to be defended. At first the danger was from European

pirates and privateers but eventually they had to fend off attacks from United States vessels.

At Lucea, for instance, Fort Charlotte guarded the anchorage. This fort was characteristic of most of the others, in that it was built of brick and stone, in an irregular shape to fit the site.<sup>2</sup> The largest and most regular of these forts was the one at Port Antonio, whose twenty-two large guns commanded the anchorage. Often there were powder-magazines and barracks associated with the forts, and these have sometimes been converted into school buildings, as at Port Antonio and Lucea.

Some coastal forts came into existence away from towns of any size, in order to protect anchorages from which quantities of sugar were shipped. Examples of these forts, which were generally smaller and cruder than the town forts, may be found at Davis Cove, Green Island, Pera and Bowden Hill, and Whydah. All in all, the coast of Jamaica must have been fortified at this time more extensively than almost any other stretch of coast in the western world. This is not surprising, given the value of the sugar that was shipped out of these ports and anchorages.

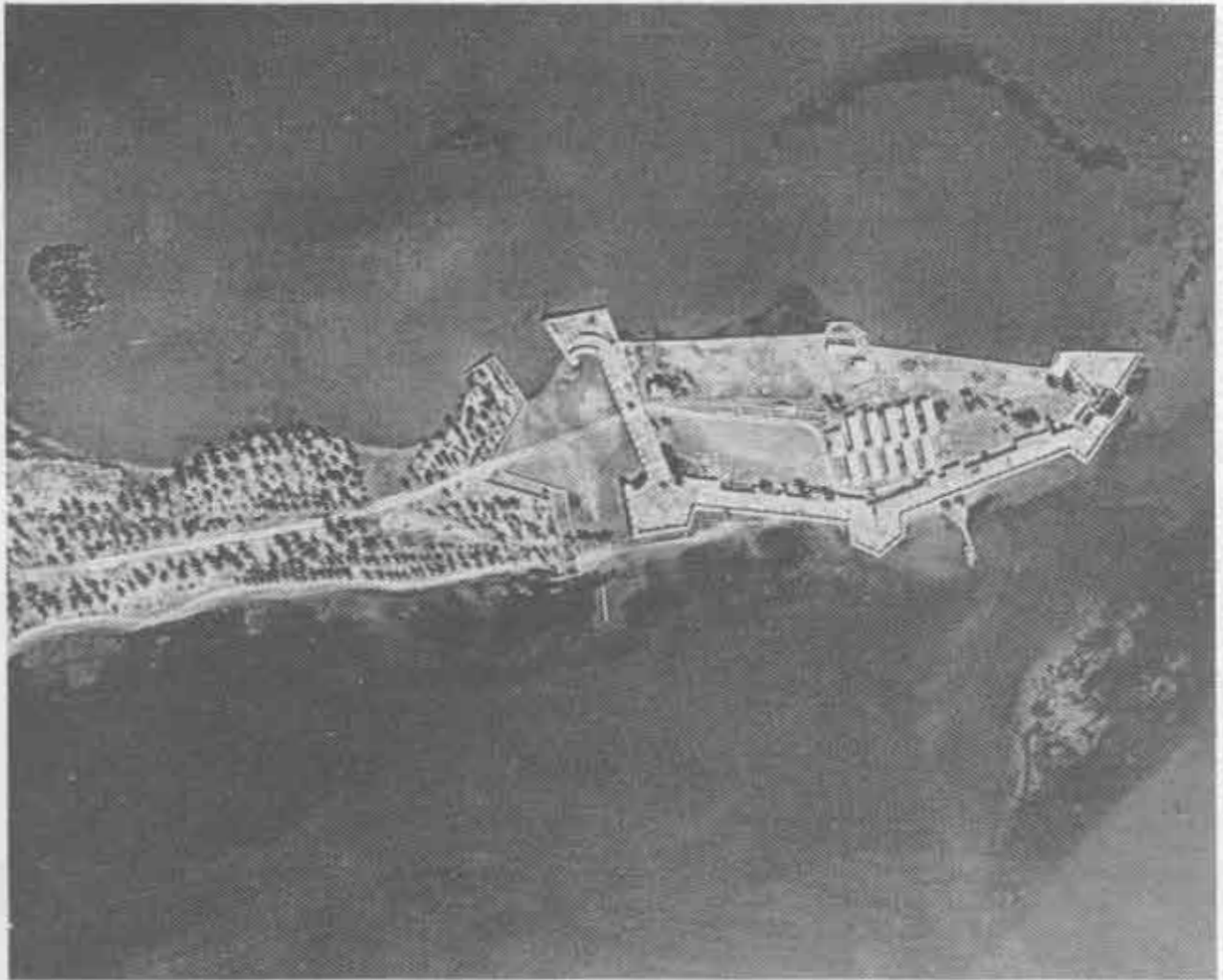
### Protecting Kingston

There was a particular concentration of forts around the Liguanea Plain. Here the first priority had been to protect the approaches to Kingston Harbour, and for this purpose Fort Augusta was constructed between about 1740 and 1755. It was a massive work and is still very impressive. About eighty large guns were mounted in Fort Augusta, whose main

battery commanded the ship channel at a range of about 185 metres (200 yards); small wonder that no enemy force ever tried to make its way through these narrows.

The next concern was to protect the growing capital of Kingston from land attack, and this became particularly urgent in the late 1770s, when the French sent large fleets and armies to the Caribbean. From 1729 onwards, the eastern approaches to Kingston had been secured by Rockfort,<sup>3</sup> but the Liguanea Plain still seemed vulnerable from the north and east. A considerable number of batteries were therefore built around Stony Hill, where the main barracks then was, and small redoubts were built in the Cane River valley, as it was anticipated that irregular troops might approach by that route. In the end, the French fleet was defeated at the Battle of the Saints, far away in the eastern Caribbean, and the redoubts were soon abandoned, though they may still sometimes be seen as part of modern gardens.

All the forts that we have been describing were low, bastionned structures built of brick and stone. In 1806, though, a new type of fort was constructed against the possibility of attack near what is now Harbour View. Here a 'Martello tower' was erected upon a commanding hill. This round three-storied tower was modelled after one which had proved very successful in the Mediterranean. It had many counterparts along the English coast in the early nineteenth century, and still survives essentially intact, though delapidated. This tower was exceptionally well built, and has few counterparts in the Caribbean: it would merit a serious attempt at preservation.



*Fort Augusta, Kingston, Jack Tyndale Biscoe photograph*

*Fig. 6.1  
At first the danger was  
from European pirates and  
privateers but eventually  
they had to fend off attacks  
from United States vessels*



In the course of the nineteenth century, many of these forts fell into disrepair, as the generally peaceful international relations removed the threat of attack. At the end of the century, though, there was a further flurry of activity, when some powerful batteries were built to protect Kingston Harbour. These batteries were located at Port Royal, and on Port Henderson Hill. They were essentially huge open gun-pits, made of cement and containing guns which could engage vessels far out to sea. It is unclear which enemy the British authorities had in mind, but it might have been either the French, or the United States, or eventually the Germans; at all events, these huge guns were never fired in anger.

#### Construction Process

The nineteenth-century installations were constructed when Jamaica was a Crown Colony and so they were entirely the responsibility of the British military authorities. However, the eighteenth-century works were built under a different system, with greater local participation. The money was provided, often with a great deal of grumbling, by the House of Assembly in Spanish Town.<sup>4</sup> In the early eighteenth century, the annual sum was about £1,250, out of a total budget of £7,000. The international situation became more dangerous towards the middle of the century, however, and the Assemblymen correspondingly more generous. In 1746 the allocation reached nearly £9,000, and towards the end of the century, the sum reached nearly £20,000.

This money was channelled through a committee of the House appointed to look after the forts, under

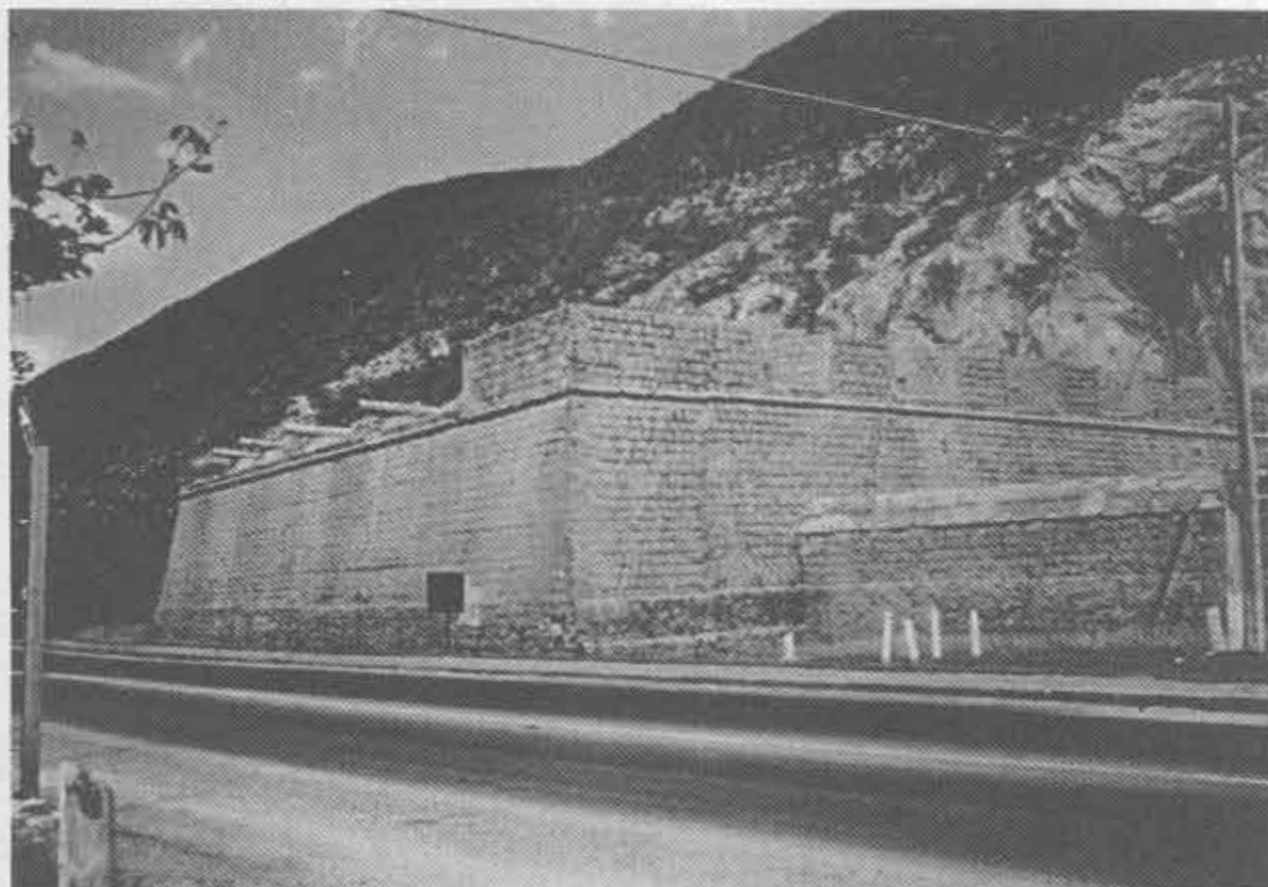
the guidance of the King's engineer, and we know about their proceedings because they periodically reported back to the full House. Contracts were given to local builders who, on the whole, seem to have performed satisfactorily. Much of the material used was stone, often dug from Port Henderson Hill for the works around the harbour, but some brick was also used, as well as stone brought from further away — sometimes from as far as England when particularly hard material was needed.

The labour was provided by slaves, sometimes taken out of the Kingston and Spanish Town gaols, sometimes hired from planters, and sometimes, when martial law had been declared, levied from them. The works were often very extensive, and highly labour intensive, so that on occasion as many as 500 slaves could be employed at a single site. The plans would have been drawn up by the royal engineer, but we may imagine that among the slaves there were highly skilful stone-masons and bricklayers. The work was demanding in a technical sense, for brick walls had to be long and true, and the stone foundations and facings had to be skilfully cut, for instance so as to give the necessary 'batter', or slope, to the outside walls.

#### Outstanding Engineers

##### *Christian Lilly*

Between 1655 and 1815 the Crown appointed about twenty-seven engineers to the island. Their activities were multifarious, and often came to include much more than the design and upkeep of the fortifications.



*Stephen Asher photograph*

*Fig. 6.2  
Under the British the eastern  
approaches to Kingston had  
been secured at Rockfort*

Christian Lilly (c. 1660-1738), for instance, a native of Hamburg, came to the island in 1695, after service not only with William III's armies in Scotland and Ireland, but also with German forces attacking the Turks in Hungary. In 1696 he was sent to spy out the defences of Havana, which the Spaniards were then greatly extending; upon his return to England he was appointed chief engineer for Jamaica, and came out again in 1697-8, working on the fortifications at Port Royal, which had been much damaged by the 1692 earthquake. He again visited the Spanish Caribbean, taking in Portobello and Cartagena, and then played some part (though not, it would seem, the leading role), in the planning of the new city of Kingston. In 1704 he was appointed chief engineer for the West Indies, and until 1712 travelled widely in the British-held islands, constructing fortresses and sending back proposals for further work.

Returning to England in 1712, he worked on the defences of some south-western towns, and tried to develop a new kind of small howitzer. In 1728, when he was nearly 70 years old, he was again appointed chief engineer in Jamaica, and returned to the island, working a good deal on Fort George at Port Antonio. In 1734 he was semi-retired as captain of Fort Charles; he died in 1738. Several of his maps and plans survive, mostly at the British Library; and his skill as a draughtsman emerges well from his *Profile of Fort Charles* (1699), a delightful bird's-eye view.

#### *Archibald Bontein and Peter Martel*

During the 1740s, a time of peril, two remarkable engineers arrived in

Jamaica. Archibald Bontein came about 1744, the same year that he published his *Exact plan of Carthage*. He worked chiefly at Rockfort and Port Royal between 1746 and 1748, but also gathered the material for his *Map of the island of Jamaica*, published in 1753. Like many of these early modern engineers, he had wide interests, including plans for 'making machines or mills for grinding sugar-canes'. Bontein was followed in 1746 by Peter Martel (c. 1701-1761), who was if anything even wider in his interests. During the early 1740s he had published maps of Fort Louis on the Rhine, and of Fribourg in Switzerland (he was a native of Lausanne), and in 1746 designed a new battery for Port Royal. Thereafter, he was chiefly in charge of the mammoth operations at Fort Augusta, carried on in the face of difficulties which included extremely marshy ground, a hurricane and a devastating powder-explosion. Martel was in fact ruined by the explosion of 1749, and had to petition the House of Assembly to recover some of the money he lost when his materials were destroyed there. However, he survived the blow, and in 1758 is described as 'engineer and surveyor of the harbours'.

#### *Thomas Craskell and Archibald Campbell*

In 1759 Martel was succeeded by Thomas Craskell, another polymath who could turn his hand not only to the construction of fortifications, but also to civil architecture and cartography. At first Craskell concentrated on the forts, surveying and repairing not only those around Kingston Harbour, but also those in the country, such as Fort George at Port Antonio.



By 1761, however, the military threat had passed away for the time being, and he turned to cartography, in collaboration with J. Simpson. The following year they published not only maps of the counties of Cornwall, Middlesex and Surrey, but also their *Map of the island of Jamaica, from a great number of actual surveys*.

About that time too Craskell turned to civil architecture. He put railings round the Parade at Spanish Town, and did a good deal of work on King's House, finishing by 1765. Meanwhile he had also become a landowner, and with several others was responsible for building a road near the Rio Grande in Portland. When the French again became threatening, Craskell turned back to the fortifications, making a general survey of them in 1778.

By then he was being helped by Major-General Archibald Campbell, a regular soldier who had been wounded during Wolfe's capture of Québec in 1759. After that he spent some time in the West Indies, producing plans of Fort Royal (Guadeloupe) and of the coast of Dominica, before going to India. Recalled in 1773, he returned to the New World to fight in the American War of Independence, during which a force under his command brilliantly seized Savannah, Georgia in 1775.

About 1780 he was posted to Jamaica as commander-in-chief, and so was responsible for making the defensive arrangements in the face of the impending French invasion of 1782. His plans survive in a series of splendidly-executed maps now preserved at the British Library, setting out his dispositions for resisting the French. In 1785 he published a *Survey of the south coast of Jamaica*, and was

in the same year appointed governor and commander-in-chief at Madras; he returned to England in 1789, and died shortly afterwards. Like Lilly, Bontein, Martel and Craskell, Campbell was a person of varied and extensive talents. The work done by these men on the fortifications was remarkable, but we ought also to note that they made contributions in many other fields, particularly in their advancement of the cartography of the island.

#### Surviving Fortifications and Guns

Much of the work on the fortifications survives, for these were sturdy structures, capable of holding up without maintenance for many years. As we have seen, the two most remarkable sites are probably Fort Augusta and the Martello Tower at Harbour View. Fort Charles is also of great interest, for very few brick forts of this kind have survived, most in Europe having been replaced by larger bastionned traces, often made of stone. Among the other large forts, Fort George at Port Antonio is probably the most remarkable. Standing at the tip of the peninsula between the East and West Harbours, it is an exceptionally regular plan, many of whose ancillary buildings survive as part of Titchfield School. At this site, as at many others, some guns are still *in situ*; here they are 22-pounders, mounted on iron garrison-carriages.

The guns surviving in the fortifications of Jamaica would make a full study in themselves. They range in size from 6-pounders (they are described by the weight of their shot) to 32-pounders, and were made in England or Scotland some time



between 1650 and 1815. All are smooth-bored muzzle-loaders, and some have been remounted on wooden carriages; all these, however, are modern. From time to time attempts have been made to gather together some of the stray guns to be found in the island, and to assemble them at Fort Charles. If this effort were resumed, perhaps with the collaboration of the Jamaica Defence Force, it would be possible to assemble at Port Royal a gun-museum that would probably be unique in the extent and variety of its holdings.

Port Royal is also the site of two much later guns, the huge 9.2-inch weapons still lying in the sand at the side of the Victoria Battery gun-pits. These are very unusual pieces, and would also merit not only preservation but also, if possible, remounting; this would provide a spectacle unique in the new World. The potential of such a gun-museum at Port Royal is considerable, particularly bearing in mind the large number of people, in Europe and North America, interested in early armaments.

#### Possibilities for the Future

If Fort George is one of the most interesting of the large forts, the now ruined battery at Pera might stand for the small ones. Once called Fort Lindsay (or perhaps Fort Sinclair), this seems to have been built in the 1770s to command the harbour at Port Morant. It was designed to mount nine 24-pounder guns, and most of this complement of weapons still seems to be lying on the ground around the fort. The guns are half-buried in the ground, and the whole site is heavily bushed over. But it enjoys a splendid

view, and is a good example of the type of site that could one day be cleared and opened to both local and foreign visitors. Sites of this type require minimum upkeep, and hold no very delicate artefacts (though, to be sure, archaeological investigation might well reveal interesting military artefacts); they could therefore be developed with minimal initial and continuing costs.

It would be tedious to comment on all the sites shown on the earlier map, as there would be a great deal of repetition. This chapter aims to have shown, though, that the island contains a great variety of fortified sites, ranging in date from the mid-seventeenth to the late nineteenth century; indeed, it is probably true to say that nowhere else in the world is there such a concentration of surviving examples of bastionned fortifications. Many of these sites still possess their guns, while others have been taken to Port Royal (and others again illegally taken out of the island). There is the potential not only for the clearing of some of the more interesting sites, but also for the establishment at Port Royal of a museum of guns that could draw visitors from all over the world.

#### Notes

- 1 Described in Michael Pawson and David Buisseret, *Port Royal, Jamaica* (Oxford: Clarendon Press, 1975), 37-41.
- 2 See the aerial view in David Buisseret and Jack Tyndale-Biscoe, *Historic Jamaica from the air* (Kingston, Jamaica: Caribbean Universities Press, 1969) 26-27; some other forts are also shown in this book.

- 3 On these fortifications, see David Buisseret, *The Fortifications of Kingston, 1655-1914* (Kingston, Jamaica: Bolivar Press, 1971).
- 4 Most of the following information is derived from the Journals of the Assembly of Jamaica, 1663-1826, 14 vols. (Spanish Town, 1803-1826).

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## Vernacular Architecture: The Development of a Jamaican Traditional Style

*Patricia E. Green*

### The Architectural Periods

The environment which engendered the distinctive architecture of Jamaica is cradled in the Caribbean against a background of pre-Columbian Taino (Arawak) Indians as well as people of Europe and Africa forming a culture within the tropical climatic zone. All these were moulded within the context of the seventeenth, eighteenth and nineteenth centuries and grew out of the socioeconomic situation of plantations (mainly sugar), slavery and European colonial administration which gave rise to specific town planning, materials, configuration, decoration and style. Caribbean cultural dynamics have varied throughout its period of growth, and this has greatly influenced the architecture of the region.

In the early years of the plantocracy system, the Europeans set the tone within the society and they looked outward for inspiration and guidelines. They established an architecture of fortifications which included forts and barracks, as well as plantation or 'great' houses, churches and public buildings which all followed the strict Palladian design principles of Europe. By the eighteenth century in the heyday of sugar and settlement, Palladianism therefore had become the major

influence on the architecture of the Caribbean region. At the same time, the Africans retained the principles of their motherland and added the traditions of the aboriginal Tainos in the construction of their rudimentary buildings. The resilience of the African structures to withstand the effects of the heat of the sun and natural disasters of the tropical region such as earthquakes and hurricanes resulted in the eventual adoption of aspects of all the cultural groups into a 'Creole' product. This creolization or local expression is often termed 'vernacular'.

Caribbean architecture may be classified in relation to a sociocultural time frame tied to the dominant people groupings and dated accordingly. Jamaica's architecture has evolved over the centuries through the process of 'creolization', the fusion of cultures of the different people — Taino, Indian, Spanish, African and British. The Chinese and Indians from Asia who arrived in the island after 1838 have interestingly made little impact on the architectural evolution. Older structures surviving today in Jamaica are mainly from the eighteenth century, the period when Britain was ruled by the kings George. Frequent reference is therefore made to 'Georgian architecture' and 'Victorian archi-

ecture' of the nineteenth century as well as to 'colonial architecture' for a general description. These terms are, however, often inadequate to deal with the Caribbean and Jamaican cultural nuances. In other words, if some of these 'Georgian' buildings were to be placed in Britain, they would appear distinctly different. Jamaica's architectural heritage contains a special quality which makes it unique to the Caribbean and in particular to Jamaica, therefore requiring its own classification and time line.

To understand the vernacular architecture of Jamaica, therefore, is to understand the history of its people, and the evolution of a nation. Interestingly, all expressions of the vernacular are distinct, nonetheless consistent in texture and colour, forming a homogeneous blend on the Caribbean and Jamaican landscape. The architectural periods in Jamaica may therefore be divided into five main categories: Taino, Spanish, British, Creole and Jamaican.

This stylistic dating process is intended to indicate the periods within which certain typological categories and design modes emerged and predominated as traditional forms in Jamaica. It should be noted that there are instances when buildings of one style or another were constructed either before or after the dominant times listed here.

The *Taino* period would cover buildings erected prior to 1494 which is the year Christopher Columbus landed on Jamaica on his second voyage to the Americas. The *Spanish* period would encompass those buildings erected between 1494 and about 1655 when the colonial rule changed after the British captured the island

from the Spanish. The *British* period embraces those structures erected from 1655 up to about 1760 when there was a dominance of construction which followed very closely the patterns and style of Great Britain. The *Creole* period began to have a dominance from about the 1760s until the period of Emancipation from slavery in 1834, taking in the architecture which mixed the primary elements of European and African cultural groups, however with a very characteristic European dominance in the stylistic mode. The *Jamaican* period covers post-Emancipation Jamaica up to its independence from Britain in 1962 to the present. This covers the architecture which evolved out of self rule and nation building with a dominant local character.

Generally, the architecture is identified by its elements such as window — casement, jalousie or glazed-sash; door — raised panel, inset, flush; wall — stone, brick, timber, nog; and roof — parapet, hip, gable. Without any positive identification of Spanish structures on the island, the architectural heritage is classified here broadly under both the British and Jamaican design modes. The dates shown indicate the periods within which the design mode emerged and predominated as the traditional form of construction.

#### **The Taino and the Spanish Periods, 1494–1650**

The Taino Indian race is now extinct in Jamaica but the Taino left behind a legacy in the place names, network of road systems across the island and, undoubtedly, some of the construction techniques still being practised today.



The name Jamaica is Arawak in origin meaning 'land of wood and water'. Jamaica then was enriched with abundant hardwoods. (The geological sub-structure is limestone in various stages of formation with rich silica-based soil, all ideally suited for construction.)

There is no real evidence today of Spanish buildings in Jamaica, though it is strongly believed that some have survived. One important artefact, however, is the old capital, St Jago de la Vega, now called Spanish Town, which is laid out in the style of Spanish town planning of the sixteenth century.

Architecture of the Taino and Spanish periods is represented primarily through documentation and archaeology; however, more in-depth and scientific study with analysis of the built heritage of Jamaica would inevitably show that some of the structures being accredited to the British period should really be attributed to this earlier time. Excavations have shown that the Spanish settlements have often been developed over Indian villages and along Taino routes (Goodwin 1946). When the British captured the island from the Spaniards, they not only destroyed, but occupied Spanish houses and converted some of them (Long 1774).

The town of St Jago de la Vega (Spanish Town) became the second Spanish capital in 1534 after Nueva Sevilla on the north coast was abandoned for health reasons. The site of this town holds the largest finds of Taino material culture, suggesting that this had been the capital for the Indian population on the island. The Spanish Town Cathedral was built by the British on the foundations of the 'Red

Church' which dates from about 1504 (Black 1974).

The Taino Indians settled mainly in the interior of the island along the banks of the rivers. This was the same group of Indians found in Jamaica, Hispaniola and the other islands of the Greater Antilles. When Columbus first encountered these people, he described their dwellings as sometimes being of 'a large size, constructed in the shape of a tent, and each collection of them appeared like a camp, without any order of streets, but scattered here and there; the interiors were found very clean and neat, well furnished and set in order; they were all built of fine palm branches' (Columbus 1827). The dwellings of the chief or *cacique* possessed an area for large gatherings. This dwelling was no doubt elaborate. In the journal of the first voyage of Columbus, it is chronicled that a visit was made to a Taino village, and that Columbus was conducted to an harbour near the chief's house where the party was attended by more than a thousand Indians.

It is often stated that the Jamaican Tainos lived in small, circular huts with timber posts 61 centimetres (24 inches) in diameter but this has not been verified with primary documentation. Perhaps this suggestion arises from the illustrations of Indian dwellings which were done at least a century after the arrival of Columbus, and by that time most of the Indians had been killed. Bartolomé de Las Casas, a member of the Dominican Order, had emphasized that he was the only one qualified to write about the Indians as he had lived among them since 1500 and had witnessed the destruction of the society, whereas those who were writing had not (Las



*19th century print, courtesy of the National Library of Jamaica*

*Fig. 7.1  
An example of  
Jamaica-Georgian, notice  
the single, steep-pitched  
hip roof covering the entire  
structure and the piazza*

Casas 1971). It is possible that the same had occurred with the illustrations depicting settlement and housing.

In order to maintain vigilance of the seas, the Spaniards developed a number of coastal towns. By 1501, the Crown had begun to make decrees about settlement in the Americas. Of importance is the decree that settlers should not live outside of the towns or the 'villas' which were founded. The Spaniards, however, were allowed to have on their plantations a hut or small house in which to stop over when they visited. Spanish town planning and construction were also governed by ordinance of the king. After the lots were assigned in the town, each settler was required to set up his tent on his lot if he had one, and those who owned none were 'to build huts of such materials as are available, wherever they can be collected' (Williams 1963).

The Jamaican Spanish villas were established prior to the 1538 ordinance. It is likely that tents were used by new settlers until houses were erected in the villas of Nueva Sevilla (c. 1509) and later at St Jago de la Vega (c. 1534). Furthermore, when permanent buildings began, they were made from local materials and varied in construction from very rudimentary timber-framed, earth buildings to more elaborate brick structures (Padrón 1992). It appears that stone was used mainly for the religious buildings.

The Spaniards also erected wooden houses at Port Royal which had survived almost fifty years after they were forced to flee the island (Sloane 1702). Spanish buildings were described as being cool and they sur-

vived the earthquakes, being 'excellently well contrived to answer these different purposes; with the further merit that the materials of which they are built were cautiously prepared in such a manner as to become extremely durable' (Long 1774).

It is not evident today exactly which structures dating back to the Spanish period of construction on the island are still intact. Archaeological excavations at the sites of Nueva Sevilla and the Old Kings House in Spanish Town, areas of known Spanish occupation, have unearthed foundations and remains of parts of Spanish buildings. It is suspected, however, that some of the older buildings in Spanish Town may be Spanish in origin with British alterations and this is yet to be verified. For the purpose of this exercise in defining the evolution of the Jamaican architecture, until there is more precise evidence of Spanish domestic architecture, then the Spanish influence as a stylistic mode will have to be excluded here.

#### **The British and Creole Periods, 1650s to 1830**

The British period had two modes which in this book are being termed *Early English*, spanning from about 1655 to 1720, and *Georgian*, from the 1720s to about 1760. The architecture of the British period followed precise master builder techniques and pattern books of the time. Not only were the styles imported, but also some of the building materials were introduced into the island for the construction of the buildings.

The Early English mode on the island spanned the reigns of James I (1603-25); Charles I (1625-49), the



Commonwealth under Oliver Cromwell (1649–60 when Jamaica became an English colony; Charles II (1660–85), James II (1685–88), William and Mary (1689–1702), and Queen Anne (1702–14). This means that the stylistic influence on the first phase of the Jamaican scene would be primarily Jacobean, the stylistic term applied to the designs of the period of the reign of James I. In general, the building should belong to the vernacular movement of the British master builders who predated architects in Britain, continuing in importance during and beyond their practice.

The Georgian mode depicts the symmetry and classical proportions of the Palladian architectural movement at the time. The structural materials were either stone or brick in Flemish-bond pattern. These brick buildings were sometimes decorated with glazed headers. Limestone quoins and lintels were sometimes used to trim the façades which often terminated with a parapet roof. Windows were glazed, double hung sash, sometimes protected by shutters. doors were often raised-panel with glazed fanlights above. Buildings had an 'H-plan', sometimes with a hall situated off a portico. Often, the portico was graced with classical columns which supported a pediment. The Doric classical order was mainly used in Jamaica during this period.

The Creole period also has two modes — a transitional one, and the truly vernacular product: the *Transitional-Georgian*, spanning from about the 1760s to 1790 and the *Jamaica-Georgian*, spanning approximately from the 1790s to 1834. Both modes bear very little difference in their physical appearance but are quite dis-

tinguishable at roof level. In the latter truly vernacular product of the Jamaica-Georgian, the entire building is crowned by a single, steep-pitched hip roof covering the entire structure, and surrounded by a piazza.

In the Transitional mode, the Georgian planning remained as the core plan of the building, however, exterior additions were made to provide shade for some of the interior rooms. Additions such as 'shed or piazza' (Long 1774) fenestrated with 'jealousy shutter or Venetian blinds' are typical features. A piazza may loosely be described as an enclosed wooden verandah composed of a rhythm of columns generally infilled with a raised panel base and jalousie windows above. This was an 'indoor/outdoor' space attached to the main core of the Georgian designed building.

Often, these piazzas were punctuated with glazed sash as well as jalousie windows. In some cases, the glazed sash windows on the Georgian core were fitted directly with a fully jalousied box called a 'cooler' to shade the window. During this Transitional period, the parapet roof was being replaced by a steep-pitched hip roof which sometimes extended as a shed roof to include the piazza. Generally, the piazza had a shed roof at a different angle from that of the rest of the building. In two-storey structures, the principal rooms were placed on the upper floors. Often exterior steps led directly from the main room or hall to the ground or street level.

Jamaica-Georgian describes the first appearance of a Jamaican vernacular stylistic mode in which the Georgian core building is protected on all sides by a piazza typically enclosed with jalousies and sash windows. The



whole building is covered entirely by a steeply pitched pyramidal hip roof. In the townscapes such as in Spanish Town where the buildings are built so close to each other, the piazza was attached to the front, side or back of the central core building. In the towns, the upper piazza may be termed the gallery which created a covered walkway below. This lower area is here termed the 'shop piazza' and in the Jamaican dialect today the 'payzah'.

It should be remembered that the decoration of the Jamaica-Georgian was based on classical principles; therefore, the embellishment was classical. Columns to entry porticos and galleries were usually of the doric order. Rooms were wainscotted in the classical styles and doorways and arches were framed in one of the classical orders, sometimes with fluted pilasters. Floors were usually timber, of highly polished mahogany, with moulded skirting and dados. Ceilings were either of timber, usually painted white, or plastered and decorated and trimmed with a cornice and sometimes a decorated frieze. The classical decorations in proportion, rhythm and harmony were also interpreted on the piazza of the Jamaica-Georgian design.

#### **Jamaican Period, 1830s to present**

The end product of the evolution of the traditional architecture on the island can only be described as Jamaican commencing from 1834 to about 1951 when the disastrous Hurricane Charlie struck the island. This later period is extended from 1834 to the present, encompassing the architectural stylistic modes not only of the traditional forms of the late nineteenth

century, but also the parallel 'Modern movement' and the 'International style' designs employing Portland cement technology. It is important to note that the traditional timber framed architecture dominated the Jamaican period up to the middle of the twentieth century and this epitomizes the purest form of the vernacular architecture expression.

#### **Jamaica-Vernacular**

This style is predominantly African. Possibly the most important feature contributed by the Africans to the Jamaica-Vernacular was the resilience of the structure. The Europeans noted that the humble dwellings of the Africans were able to withstand the tremors of the earthquakes. The 1692 earthquake levelled the entire town of Port Royal, all except the humble slave huts which escaped destruction because of their resilient stick and thatch construction. The survivors ejected the slaves from their huts and moved into them (Dunn 1973). The buildings of the Jamaica-Vernacular were primarily constructed in timber-framed technology as opposed to the loadbearing stone or brick masonry used in the earlier Creole period.

The Jamaican African also knew the forests, what timber was suitable for structural members, for decorative work or for furniture. No doubt the Africans brought to Jamaica by the Spaniards had learned a great deal from the aboriginal Taino population about the suitability of indigenous trees for construction, as well as the technique of curing the wood by smoking. It is likely that these Africans would have passed on the information gleaned to the later arrivants.

By the middle of the nineteenth century, the strict requirements of the Georgian style began to evolve into a more expressive form. Although the planning remained consistent, the roofs began to relate more directly with the rooms below as opposed to the entire house, as before. The main structure was being constructed of more indigenous materials, of timber frames which were infilled with brick and lime mortar and, much later, around the turn of the century, concrete and other mixes. Timber was also increasingly used as a cladding with the traditional 'sand dash' protection applied to the wood; that is, the mixing of sea-sand when applying the paint, which helped with termite and water proofing. A verandah also became a purely decorative feature and piazzas began to be opened up, thus showing off the main structure.

In the Jamaica-Vernacular tradition, the classical decorations were being combined with other patterns which were often ornate evolving out of the African tradition. Jamaica-Vernacular decoration and embellishment in some cases have distinct African symbolism which were generally expressed in the 'gingerbread' or 'fretwork' of the roof eaves, the barge boards, and in the fan lights over the doorways. The fretwork as evolved and depicted in the Jamaica-Vernacular style is a contribution of the people of Africa to the architecture of the world and can be traced as an international movement stemming from the creative expression of post-Emancipation timber craftsmanship in architecture (Green 1996). Colour also became a very important element and was often used to define the structure in addition to decorating the building.

The Jamaica-Vernacular style of the late nineteenth century was used not only for the buildings of the small rural settlers, but also spread to the buildings of the emergent urban middle class as well as for hotels which were being erected at that time as a new building type on the island. This style therefore became not only a rural but also an urban form.

### **Modern Jamaica-Vernacular Development**

The years 1907-1951 represent one of the key periods for the development of the 'modern' version of the Jamaica-Vernacular style of architecture. The way was paved for this development by a natural disaster — the earthquake of 1907 which was immediately followed by fires.

All sectors of the population were affected by the earthquake but it can be suggested that the reconstruction which followed afforded certain sectors of the community the opportunity to gain a firmer foothold in the society. It was as part of the earthquake reconstruction of the city of Kingston that neighbourhoods were for the first time specifically created for the middle class. It is within these neighbourhoods that the Modern Jamaica-Vernacular developed.

By the 1920s the style had become distinctive and continued with enrichments until it was interrupted by the next major natural disaster — Hurricane Charlie in 1951. This hurricane heralded another change in construction techniques and building design.

Though modern, the housing of the emerging middle class was heavily based on the styles and construction techniques of the past, especially the

vernacular style. This post-earthquake domestic construction reduced the distinctions in architectural forms between the urban and rural buildings. What now began to emerge in domestic building were distinctions based on class differences. This new type of dwelling house was a direct outgrowth of the rise of a middle class and hence might be termed the architectural style of the middle class.

A number of domestic building types developed after the 1907 earthquake. These can be classified in descending order, according to cost and scale, as: *suburban villa*, *middle class dwelling house*, *bungalow*, and *cottage*.

The suburban 'villa' describes the house established by the elite in neighbourhoods of low population density on large plots of land. The building was usually very fashionable in accordance with the latest trends from Europe or North America and of ample proportions. Most were constructed of imported building materials.

Next in scale was the dwelling house of the emergent middle class. Although this type of house had begun to appear at the close of the nineteenth century in the form of the 'small settler house' in rural areas, it established itself in its most distinctive form and gained prominence in the suburban setting in the period under discussion (Green 1985). The dwelling house was usually smaller in scale and grandeur than the villa but generally would emulate its basic features. There were many variations and both single and double storey structures.

The term 'bungalow' is generally applied to buildings found on the grounds of the villa or the middle class

dwelling house. This smaller, more humble structure, usually served as accommodation for guests, for rental, or to take care of the growth of the household.

The term 'cottage' was used to describe the housing of the poorer members of the society. When the government began to consider erecting dwellings for this group of persons in the 1930s, the solution that was being sought was termed the 'low cost house'.

It was the creation of these 'new' distinctions in housing, along with elaboration and expansion of existing ones that made the period 1907-51 of major importance, and establishes it as one of Jamaica's key architectural periods. In this period, identifiable construction techniques evolved in response to the demands brought about by natural disasters, the external pressures of the period, and the needs of the emerging middle class.

### Modern Vernacular Construction Techniques

The techniques of timber-framed construction of this modern Jamaica-Vernacular can be broken down into two main groupings using the 'wet-wall' or 'dry-wall' technique (Green 1985).

There are four basic types of wet-wall construction: concrete nogging, brick nogging, wattle and daub, and Spanish walling. Concrete nogging was mainly to be found in the city where a concrete mortar mix using portland cement was poured between wooden formwork around the timber frame. Brick nogging was another method commonly used in the city. After the earthquake the bricks from the destroyed buildings were inte-





*Harvey photograph, courtesy of the Jamaica Information Service*

*Fig. 7.2  
An example of the decoration and embellishment of the Jamaica-Vernacular, shown here in the 'gingerbread' or 'fretwork' of the eaves, barge boards and fan lights*



grated into this construction. It involved the laying of bricks between the timber frame, using either a lime or cement mortar. Wattle and daub is a method which overlapped between urban and rural areas. The process of wattling is to plait thin strips of wood between the structural frame. The daub is the mortar mix, mainly using white lime which was thrown on to the wattle, from a distance. The method of Spanish walling was practised mainly in the country parts. This utilized small local stones, approximately 7.5 centimetres (3 inches) large which were packed between the timber frames, using a lime mortar mixed with the local red mud. (Tradition states that this technique was practised by the Spaniards, hence it is called 'Spanish walling'.) These wall types would all have been rendered or plastered over and decorated.

The significance of the wet-wall technique is that in addition to the mortar jointing and rendering being applied wet, and then being allowed to dry out, it was also a requirement under the 1907 building law that '... Every brick or stone used in the construction of a wall or panel of brick or stone nogging shall, previous to being laid, be thoroughly soaked (not wetted only) in fresh water and be laid soaking wet . . .' After that the wall was built, if properly executed and in accordance with the 1907 law the structure should be '... protected by plastering [25 millimetres] one inch thick in cement or other external coating approved by the Surveyor . . .' The outside surface was most times finished with pebble-dash rendering, that is, the technique of throwing fine aggregate of limestone chippings into the mortar mix.

In the case of construction in the city, it was also a requirement under the Kingston building law of 1907 that wire netting or wire should be placed across the face of the infill to prevent the panel from falling outward or being displaced by vibration of the building in the event of an earthquake.

Dry-wall construction technique did not employ the use of mortar in any major way, the structural members were tied together using carpentry joints such as the mortise and tenon, or they were securely nailed, spiked, screwed or bolted together. There were three main types of dry walling: timber cladding, wattle walling and thatch walling. It should be noted that under the 1907 law, it was required that domestic buildings with external timber walls should not be within [15 metres] 50 feet of any other building or of the land of any adjoining owner.

The method of timber walling or cladding was used in the construction of many very fashionable houses, some were constructed entirely of timber throughout. Reference is sometimes made to this type of construction as 'the board house'. The exterior surface of the timber was usually finished in the traditional sand-dash.

The other type of dry wall which was commonly used, especially by the poor, was that of the wattle walling, but without the daubing on of mortar afterwards. The third method, the technique of thatch walling was practised mainly in the countryside by poorer persons. Here the walls and roof were constructed of thatch around the timber frame, using the thatch-palm or grass as the material.

It was common to see both dry-wall and wet-wall techniques used together on a building, for example timber

cladding of side or rear rooms, and in many cases for an upper floor, whilst the ground floor was of wet-wall construction. Internal walls of the wet-wall technique usually continued in the same materials, however in some instances dry walls were found.

A new fashion then was the replacement of the *jalousie*, that is the wooden louver, by double hung sash window and by french windows which are the narrow pair of glazed doors opening on to areas such as verandahs. The more expensively finished houses had ceilings, with the principal rooms having a decorated tray ceiling. This ceiling was designed like a tray turned upside down. Many ceilings were ornamental, with mouldings and reliefs, sometimes even around electrical outlets. The floors of the outdoor spaces, porches and verandahs, were generally ornately tiled, or concreted and finished smooth and placed lower than the main part of the house, which was generally floored with timber throughout. Kitchens always had tiling or concrete floors.

The plan of the house in this period had been amended. Whereas in the earlier Creole period, movement around the house was concentrated around a hall as the principal room, with rooms constructed without specific designations, the Jamaica-Vernacular dwellings were designed so that rooms not only opened one into the other as before, but also on to common spaces such as passages or corridors and verandahs. Each room tended to have a designated purpose, such as pantry, bathroom, dining room or bedroom. It should be noted that the kitchen began to be attached to the house, unlike in the Creole period, but was still isolated from the main part of

the house by the pantry. This separation occurred because coal burning and wood fired stoves were still being used.

The roof was extremely expressive and exhibited many different shapes and combinations. However, for the majority of buildings in this period, a one-third pitch was common up until some time in the 1940s when the roof began to become less steep.

Verandahs tended to be colonnaded. Earlier ones had a delicate and slender moulded timber posts infilled with intricate or stylized fretwork and balustrading in the early Jamaica-Vernacular tradition, whereas the later versions featured the Tuscan columns, constructed in stucco fashion, reminiscent of the Georgian great houses and town mansions of the earlier period. Much later, the verandah colonnades evolved into more stylized forms, mainly rectangular and geometric design patterns instead of the intricate and ornate fretwork patterns.

### Preservation

These traditional buildings in each period should be given a grade and assigned a preservation/conservation priority code along with a system of historic classification. Grading should be presented in three ascending classes of significance and/or importance. This could be:

- 'A' — for MUST be preserved, representing the best or major example;
- 'B' — for MAY be preserved, recognizing that it conforms, is good, ordinary, repairable, typifies or unifies; and
- 'C' — for MAYBE preserved if the example detracts, is irreparable, poor or in a temporary or unstable condition.

To fulfill the purposes of a control mechanism as an effective preservation tool, it is important that the preservation agency responsible should immediately undertake designation of significant examples in all of the periods declaring them to be a 'cultural artefact'. This exists currently for the more substantial buildings, but not for most of the smaller dwelling house types. It is also necessary to assign each certified structure a particular code in relation to its level of preservation/ conservation priority, and to establish this in any Historic District within which the structure falls.

Structures may further be classified as being of significance in the following aspects; *Contributing* in relation to the overall integrity of an historic environment; *Design* illustrating an outstanding example within the overall period; and *Social* applying to the specific history of the setting for the structure, and the island in general.

Out of these classifications, developers would then be given guidelines for the level of intervention, or whether permission would be given to extend, refurbish, restore, repair, demolish, alter, or replicate.

Examination of our architectural heritage would reveal more clearly the combination and fusion of technology, styles, craftsmanship, cultures, and traditions. It would also show the evolution of an architectural language — the vernacular — of one of our cultural forms. It would show that the techniques of construction which became the standard, practised by all sectors of the society, grew out of a utilization of available materials and labour, and how the European and African traditions fused to create this form. It might enlighten us to an

awareness and appreciation of these very special buildings as a part of our architectural heritage, including those which accommodate the domestic along with commercial activities. All testify to a vernacular, a language, which now can only be described as being truly Jamaican.

In Jamaica today, many of the buildings which were built between 1907 and 1951 are assuming some importance because of their development potential, especially those with surrounding large land area. Unfortunately, their value as an important part of our architectural heritage has not been given the proper acknowledgement and protection they deserve. Most of these buildings including the smaller domestic types have survived the onslaught of earthquakes and hurricanes and have remained intact, displaying their dignity and beauty. Much, however, is being lost through vandalism, unsympathetic renovations mostly for commercial purposes, or wanton demolition for alternative development schemes. Still others have been abandoned and are being allowed to deteriorate. These trends are all regrettable, because if they are allowed to continue, the nation will lose an important part of its housing stock, and significant examples of its architectural heritage.

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## Cultural Tourism in Jamaica: An Overall Development Programme

*Amelia Barahona*

### **The Need to Redefine Jamaica's Tourism Image**

Jamaica evokes for the average tourist, the tropical sun on a white sandy beach by the azure waters of the Caribbean Sea, a world apart for relaxation, leisure and fun, with the beat of the reggae music warming the hearts and soothing the minds. This is the product that in the international tourist market has made Jamaica a mecca, a must, the rediscovered paradise of the brochures.

Many aspects of the country's life have been geared to fulfill the visitor's dreams — grand hotels, all along the white sand beaches; lush settings amidst some of the best of the exotic flora of the island; tours to natural attractions and nightly entertainment to give the visitor a glimpse of the 'cultural background' of the Jamaican people, with the off-beat constantly permeating every activity.

This tourism product has attracted millions of visitors and has made tourism the most important industry in Jamaica; a source of economic development offering a constant influx of foreign currency, much needed in any developing country.

However, apart from the island's physical features with which nature has blessed Jamaica, little effort has

been made to know and show the real Jamaica. Still insufficiently explored are the complexity of Jamaica's cultural background, the richness of its cultural expressions (now in danger from by the wave of standardization that sweeps the world); its architectural legacy, a most remarkable heritage; and its extraordinary scenery and natural resources.

Under British rule (1655-1962), Jamaica developed a distinctive architectural style that was derived from the Georgian style which the British brought with them, and which, influenced by climatic conditions and the availability of construction materials, evolved into what is now called the 'Jamaica-Georgian' and 'Jamaica-Vernacular'. This is a style characterized by ample verandahs and woodwork, remarkable not only in the structure, but especially in the external decorations: verge boards, balustrades, screens, lattices, railings, the intricate designs of the 'gingerbread' or 'fretwork' with the appearance of real wooden lace that constitutes one of the most attractive elements of Jamaican vernacular architecture.

Historically, Jamaica was also the most important sugar producer during the eighteenth and nineteenth centuries, and the ruins of the sugar plantations such as mills and associated

structures remind us of the technological development achieved, as well as of the social costs of such colonial buoyancy. Little or nothing has been done to rescue these memories, give them their proper value in time and incorporate them into the overall cultural panorama of the island.

The pre-Columbian Taino culture, although with very limited remains, is another fundamental element of the cultural mosaic, relatively unknown to both locals and visitors, and yet, a most important factor in the understanding of the American civilizations which preceded the Europeans. The real story of the Americas is not yet written.

The rich African tradition in music, dance, rituals, culinary arts, hand crafts, have been overlooked in the overall marketing of Jamaica, stressing only on a very limited number of these expressions, with a mostly commercial view, thus preventing the real appreciation and understanding of the historical and cultural background by both locals and visitors. This has led to a gradual loss of important traditions such as the Jonkanoo, and the substitution by other culturally alien elements which appear more appealing on the world market of tourism products. Such practices represent an inherent danger, especially when there is no defined cultural policy that may create the necessary balance between the preservation and appreciation of the cultural identity and the need for its commercial use as a contributor to economic development.

#### **Changes in the Tourism Product**

It is important to acknowledge that tourism is an irreversible part of

Jamaica's economy today, with enormous benefits but also generating enormous problems that need to be prevented and tackled in time. This realization is important for forward planning as well as for helping the persons involved in tourism to appreciate that changing nature of the industry.

The Caribbean islands, with their privileged location and natural beauty, have developed a very strong competition among themselves trying to attract an ever expanding stream of visitors. However, the visitor have also changed in terms of their focus and interests and their demands are diversifying, hence the need for a more elaborate product to offer in order to keep the industry booming.

Tourism in Jamaica is shifting its focus from the clichéd image of sea, sand and sun to a more elaborate product: that of the cultural heritage, the built environment, the natural environment — in other words, to cultural tourism.

The discussion on this topic encompasses numerous organizations, both private and government, who are trying to define their roles, objectives, priorities, programmes and resources. All are aiming at developing a cultural product that will offer the most attractive invitation for the visitor.

#### *Adjusting the stereotyped images*

Unfortunately, the concept of cultural tourism which is centred around the organization of a few tours, the setting up of shops and restaurants to cater to the visitor's whims and dreams, the restoration of a few outstanding buildings with mainly commercial goals, does not constitute the safer and

wholesome approach to this delicate issue. It is only one of the many elements of an exciting and multi-faceted product. The 'Norms of Quito' (1968) already considers that any initiative for the promotion and highlighting the true cultural heritage must fall within the overall development plans of the country or region, in which tourism is considered as a means for the preservation and reevaluation of the architectural legacy, and that its economic benefits should be applied to the development of those communities directly involved in their creation.

#### The Need for Overall Planning

There is clearly a need for overall planning in order to preserve, promote and incorporate the cultural heritage into development programmes which can then be seen as a socioeconomic asset of irreplaceable cultural value. After all, once any aspect of the cultural heritage is destroyed, no copy will ever represent its intrinsic value. The planning is important also since many of these aspects of cultural heritage are subject to constant reuse, and therefore need to be carefully conserved and cared.

A very important distinction must be made in relation to the cultural heritage as a tourist product. Tourism should be considered as a resource, as a means for development, not as a goal, a panacea in itself. From the plantation houses, scattered all around the island, to the popular dwellings, there is a very rich legacy worthy of being recognized for its intrinsic value as part of the cultural identity of this country.

The historic sites are not merchandise but the very expression of the

people's identity as Jamaicans. Whether or not there is a tourism industry, they will always reflect our personality as a country, our distinctive image, that which makes us unique. They are not simply just attractions that can be marketed.

Since the 1960s and particularly so since the 1980s, local and international organizations and agencies have collaborated on a number of initiatives to:

- 1 identify and focus on the existing potential for cultural tourism; and
- 2 elicit a range of possible actions that can help in the revaluation of the Jamaican cultural heritage.

Collaborating, the UNDP, Unesco and the GOJ prepared an important document on the conservation and restoration of Jamaica's three main historical centres, identifying the features of each site which were to be highlighted:

##### *A Spanish Town*

With the finest Georgian Square of the Americas, reputed to be the 'oldest continuously inhabited city in this hemisphere'.

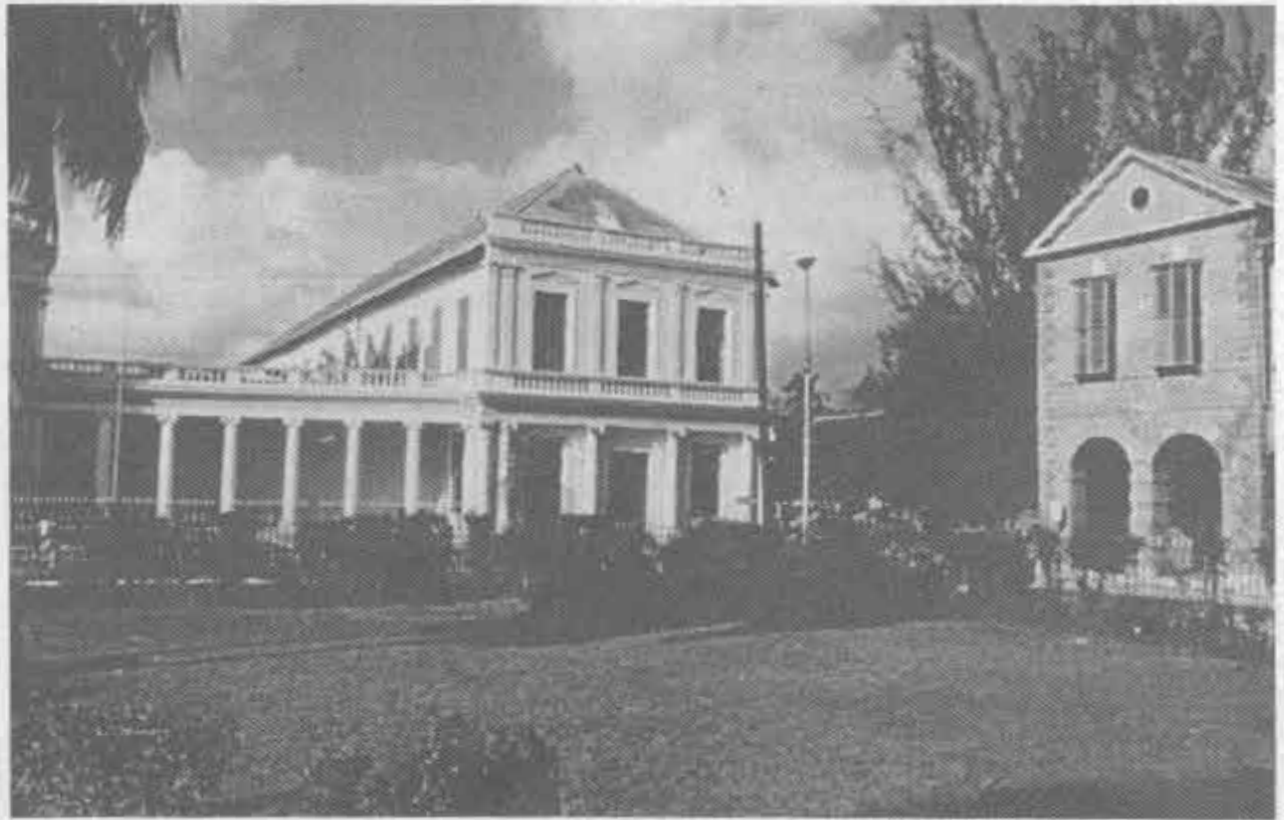
##### *B Port Royal*

Destroyed by an earthquake in 1662, two-thirds of the town sank beneath the sea and constitute nowadays an extraordinary archaeological site of unparalleled importance.

##### *C New Seville*

The original site of the first Spanish capital, later an English sugar estate.

These studies, carried out during the period 1986-87, produced master plan outlines for each of the sites, which included a tourism evaluation with economic projections. Unfortunately, few if any of the ideas have been



*Pat Green photograph*

*Fig. 8.1  
Spanish Town has the finest  
Georgian square of the  
Americas*



implemented and the studies remain a valuable source of information and possible action for the different local agencies.

Private organizations such as Tourism Action Plan (TAP) have also prepared studies which have included general listings of natural, cultural or historic interest across the island in yet another attempt to identify the potential for cultural tourism development. TAP has proposed uses for certain relevant buildings, preservation initiatives and has made recommendations that are organized and reasonable contributions to the whole discussion of the issue.

The Jamaica Georgian Society has focused its proposals and efforts on Falmouth, and the Kingston Restoration Company (KRC) has been developing a restoration plan in downtown Kingston, aimed at the reintroduction of degraded and abandoned sections of the historical tissue into the economic stream. The Spanish Town Preservation Committee is focused on the preservation of Spanish Town and its inclusion on the World Heritage List.

Many efforts, resources and personal involvement have been put into the issue, but the binding element, the overall approach, is still missing. The need for a real national overall planning is strongly felt.

The cultural heritage is a most valuable national asset, not only an expression of identity, but also as an economic resource. Any development plan has to take this into consideration, not as separate elements with a narrow scope of use, but as a part of the whole.

At all levels of planning, the historical buildings, sites, towns, and so on

must be included as part of the resources that are there for use and economic application for the benefit of the people and the nation. The concept of the cultural heritage as a social asset is a fact that cannot be overlooked.

### Education and Technical Assistance

There is an urgent need for the establishment of national policies and strategies to identify targets and timing, to set priorities, bearing in mind that modern preservation is preservation for development. Therefore, the quality of life of the people, the infrastructure, the services, the socio-economic activities are all bound together and cannot be isolated from the preservation process itself. The historic towns in Jamaica are living entities comprising buildings, open spaces, nature and, above all, *people*.

The participation of *people* in the decision-making, in the implementation of any such programme is the only guarantee of success. An involved community, aware of its legacy, educated, informed and alert, lies at the very base of an extensive preservation programme with cultural tourism as a goal.

Education is, therefore, a key element. Not only is it important to educate and inform the visitors, but the local population as well. School programmes, local civic activities and organizations, conferences, publications, community related activities, public forums and so on are but a few of the avenues for educating the communities about their cultural legacy, its value and importance and its impact on the development as a whole. The sense of pride in what a

community is and what it has must be part of the awareness programme. At the same time, the benefits to the standard of living, the economic advantages derived from the preservation and promotion of the site or town must accompany the education programme. Both must coexist. People need to see in concrete ways how their care and appreciation of the cultural heritage help them.

Another important need is the securing of technical assistance to guarantee the integrity of the cultural asset and look after the new development so that this integrity is maintained. Technical assistance might also help to provide much needed and very often unaffordable professional consultation with the population which is a basic, unavoidable element in the whole process.

Visitor's information can be articulated and planned to encourage the development of pride in the cultural background. Proper use of archives, museums, historical records in general, will give the visitor a comprehensive idea of the site, building or town's importance and interest. Signage, site indications guide leaflets, guided tours, books, city plans, all based on true historical sources, are but a few of the means to be developed for the visitor's education and information.

The creation of proper museums or the mounting of exhibitions, *son et lumière* shows, are more elaborate and highly regarded ways of presenting different aspects of the cultural heritage. A city museum for Falmouth, a music museum in a country with such extraordinary tradition and success in this field or a permanent craft exhibition displaying the authentic

expressions are just two of the wide range of possibilities for Jamaica to show its real face.

### **Management**

Management is yet another important aspect of the overall planning in cultural tourism. There are certain basic considerations which should be included in the much needed management plans for cultural tourism development. These are:

- 1 The preparation of a complete inventory of the built heritage;
- 2 An analytical assessment of its impact at the national and local levels;
- 3 the definition of limits that will prevent the damage that uncontrolled intensive tourism could cause (and this would involve setting biophysical regulations and limiting the number of visitors a site can get; and
- 4 an appreciation of the tourist clientele that will be attracted to a particular site.

### **Regulatory National Body**

The existence of a regulating national authority is critical. Such a body would provide the necessary legal framework, oversee its enforcement, give the high level technical assistance that is required, become a liaison between all the local and international organizations and agencies, encourage national planning on the issue of cultural tourism, and pursue the preservation of monuments and sites of national relevance. Properly trained staff should be in place, together with an intensive training programme that will guarantee the



*Fig. 8.2  
New Seville, the original  
site of the first Spanish  
capital, later an English  
sugar estate*

*Seville Great House, Herbie Gordon photograph*

expansion of preservation services throughout the island.

In other words, to develop cultural tourism requires not only the existence of the asset, the targeting of the market, the setting up of tourist services, but also a commitment to an overall development programme, intimately woven into the planning for a better future, for the appreciation of not only 'Beach Jamaica', but the artistic and cultural Jamaica as well.

Falmouth, Port Antonio', Rapport de Mission UNESCO.

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## Inventory: A Pilot Study for the Inventory of Heritage Structures

*David Harrison, with Ruth Loewe and George A. Aarons*

### **Means of Preserving the Heritage**

The preservation of heritage is a legal requirement in many of the territories of the wider Caribbean region, with the Dominican Republic becoming in 1918 the first Caribbean government to start a national inventory of heritage structures. In 1972, the international convention concerning the protection of the world cultural and natural heritage was adopted at the fifth session of the UNESCO General Conference. By January 1994, the majority of countries in the wider Caribbean region were 'State parties to the Convention'. The convention defines cultural and natural heritage and mandates each state to identify the properties in its territories. By 1994, 36 of the 411 designated 'World Heritage' properties were within the wider Caribbean region. Presently, Jamaica has no designated properties but has begun the process of submitting Spanish Town for consideration. The same process is due for Port Royal and New Seville.

Significant progress in the identification and preservation of the cultural and historic patrimony of the wider Caribbean dates to the early 1980s with the work of CARIMOS (Sites and Monuments of the Wider Caribbean) based in Santo Domingo, Dominican

Republic and Preservation Institute: Caribbean (PI:C), located at the School of Architecture, University of Florida at Gainesville. Both organizations have been assisted by the Organization of American States (OAS).

In Jamaica, preservation work is carried out by government and non-government agencies. The Jamaica National Heritage Trust (JNHT) was created in 1957 as an agency of the government. Its mandate includes the declaration and protection of properties and sites of natural, historical, archeological and architectural significance. The main non-government organizations (NGOs) with interest in preservation are the Jamaica Historical Society, the Georgian Society of Jamaica, the Archaeological Society of Jamaica and the Jamaica National Committee of the International Council of Monuments and Sites (JalCOMOS).

In 1994, the research division of the Caribbean School of Architecture (CSA) at the University of Technology (UTech, formerly College of Arts, Science and Technology) in Kingston, Jamaica, was contracted by the JNHT to develop and test a methodology for carrying out an inventory of heritage structures throughout the island. This project was funded by the Environmental Foundation of Jamaica (EFJ).

### Project Identification

As we know, an inventory is a basic tool for the management of any resource. It is integral to the drawing up and implementation of policy with respect to the preservation and presentation of cultural property. Proper listing, identification and classification are necessary so that programmes for protection of this property can be systematically planned and implemented.

In Jamaica, a national inventory of heritage structures would not only benefit their subsequent protection but could also play a pivotal role in the development of sound socioeconomic policies with respect to ecological and cultural tourism, informed land use decisions by communities, developers and government, and initiate a greater awareness of the potential value of heritage conservation with local populations. Such an inventory has the potential to use the process of inventorying, itself, as an educational process.

The investigations of the pre-pilot study had identified the following three typologies which would need to be covered when testing any inventory methodology: urban; township/settlement (coastal/interior); and remote sites (coastal/interior).

Savanna-la-Mar, capital of the parish of Westmoreland, was chosen for the urban study, part of the parish of St Elizabeth for the township/settlement study and part of the parish of St Ann for the remote sites study. These three locations also represented a range of topographies from flat coastal plains to hills and mountains in order that inventory planning and field logistics could be tested across Jamaica's diverse terrain.

The survey area for Savanna-la-

mar was taken as the coastal zone to the south, the commercial and urban centre, the suburban fringe, the Frome Estate and adjacent northeast and northwest communities. The St Elizabeth survey emphasized the small town rural agriculture areas surrounding Black River, reaching out to Middle Quarters, Maggoty, Windsor, Fullerswood, Pondsides, Claremont and Malvern. The St Ann survey, focusing on the rural remote interior, also included Brown's Town, a fairly large rural town with a pivotal role as the market town for remote villages.

From both the JNHT's limited list of gazetted/declared sites and other researches, the project proposal had estimated that approximately 540 sites within the study locations outlined on the map which follows would be identified for inclusion in the pilot study.

The project activities were identified, as follows:

- Set-up heritage resource advisory group
- Establish financial monitoring system
- Research and develop field work methodology
- Research written and map data
- Investigate heritage resources in pilot parishes
- Liaise with parish heritage foundations/community groups
- Train field enumerators
- Gather field data
- Process field data
- Set up data management system
- Develop prioritization criteria
- Prioritize findings
- Test JNHT listing procedure
- Establish computer database
- Evaluation

### The Team

The project coordinators were Ruth Loewe, architect/landscape architect, and George (Tony) Aarons, archaeologist/anthropologist. Both are visiting lecturers at CSA. Jochum Ledgister, CSA graduate, was the research assistant and Kim Pratt, Canadian heritage consultant, participated in the developmental stages of the project.

The members of the advisory group represented JaICOMOS, JNHT, the Town Planning Department and the Department of History, UWI; Alicia Taylor, research coordinator at CSA, chaired the meetings of the advisory group with the executive director of JNHT, the dean and the director of studies at CSA being *ex-officio* members. The advisory group represented expertise in the fields of archaeology, architecture, engineering, historical studies, planning, urban development and community liaison.

The fieldwork participants comprised ten CSA under-graduate/post-graduate students, one postgraduate student in heritage studies (UWI), one post-graduate student from PI:C, University of Florida, Gainesville and an assistant at the JNHT.

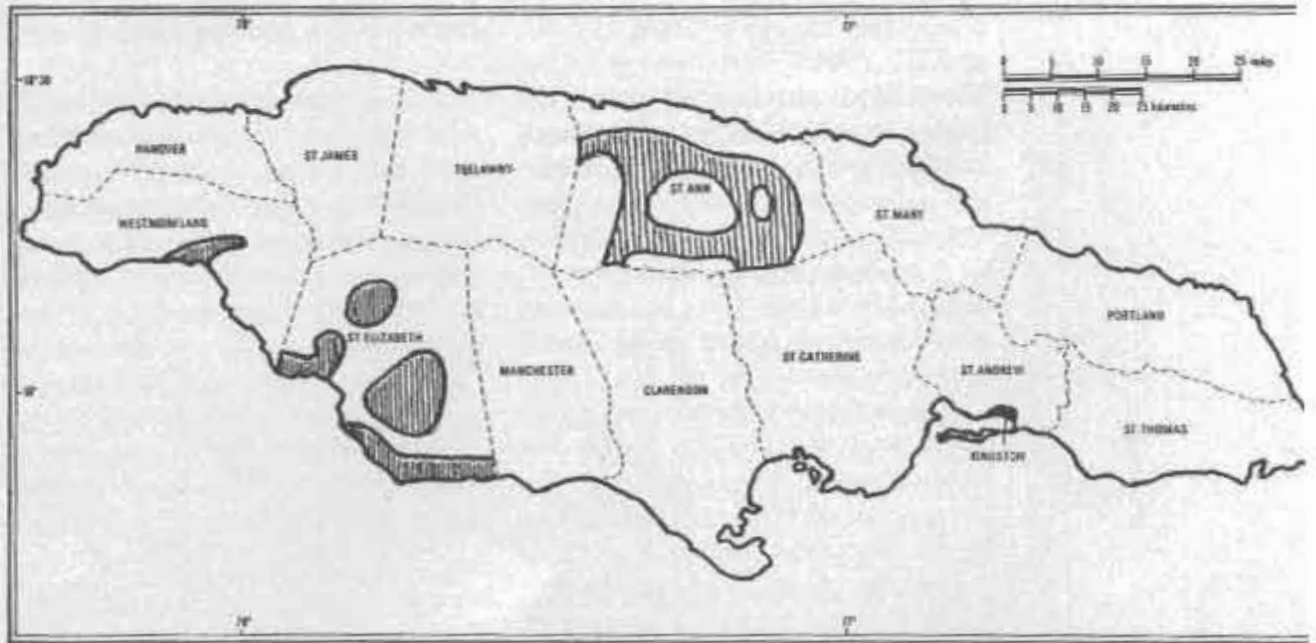
The parish groups involved were the Westmoreland Heritage Foundation, the St Elizabeth Heritage Foundation and the Civic Committee of the St Ann Parish Council. Student volunteers from the Black River and the Savanna-la-Mar High Schools as well as other youth volunteers and Heritage Foundation members participated in some of the fieldwork. The UWI advisers on database development were Keith Mannison and Roy Bailey with three final-year students at the computer science department carrying out the software programming.

### Survey Form and Data Entry

The inventory criteria used for the pilot study were based on those developed by Unesco, which recommends that inventories ask *primary* questions that are 'basic and universal to virtually all systems regardless of cultural context, objectives or budget' and which include:

present name, address, level of protection/designation, typology/use, level of importance, period/year, visible materials of structure, general condition, photographs, computer entry code and less essential secondary questions that 'reflect each system's local preoccupations and objectives': ownership, historical commentary, authorship, area description, magnitude, construction techniques, architectural elements, immovable features, movable features, files/references, general description, maps/plans/ drawings, cartographic coordinates, property registration

Following a study of international and regional precedents, a number of CSA draft survey forms were tested before a satisfactory balance could be found for the amount of secondary information that should be included. The amount of secondary information to be collected on site has a direct effect on the time and cost of an inventory, particularly when considering the large number of interior/coastal sites involved. The final selection takes into account the following factors: each site would be photographed in black and white and colour slides; each building or artefact would be sketched; and a diagrammatic site plan would be prepared, indicating the relationship between the building or artefact and other site features and/or boundary conditions.



*Fig. 9.1*  
Approximately 540 sites  
within the study location  
would be identified for  
inclusion in the pilot study



It was found that the initial category/subcategory section of the form, which was derived from the JNHT's system of classification, did not reflect standard land use planning systems. The categories were adjusted in the final survey form to represent broad land use divisions, and the subcategories to represent the range of building/artefact types (see survey form). As a result of this, the JNHT amended its system of classification. In the long term, this categorization will facilitate the inventory data to be incorporated into the evaluation procedure for development planning applications.

The format and content of the survey form also took into account the development of a computer database and subsequent entry. The compatibility between the fieldwork form and the database format enables the field information to be entered directly into the database without further manual transcribing.

It was realized that any database system should be interactive and able to both store visual images and allow for 'field' searches between individual site entries and across the codes contained therein. In this way, the inventory information can assist scholars to carry out further work in Jamaican cultural history, and enable JNHT, planners, decision makers, local people and others to focus on information pertinent to their particular interest and/or location. In collaboration with staff and students of UWI, a subprogramme was written in MicroSoft Access 2.0 software to begin the achievement of this goal.

#### Fieldwork

The project coordinators held training sessions with the fieldwork partici-

pants at CSA. Apart from preparing recruits for recognizing potential heritage sites and recording them efficiently, these sessions were important in identifying persons with particular skills with respect to photography, drawing and interviewing/recording prior to establishing the members of the field teams. The teams contained three or four persons with one person allocated as the leader. Three teams (sometimes augmented by local volunteers) worked in the field at any one time. The actual survey, however, proved to be the real training ground for all concerned. For this reason, starting inventory work in an urban context is appropriate since it is easier for the coordinators to keep in close contact with the field teams. A clear learning curve became evident as the survey work proceeded.

The project coordinators identified 699 sites (containing 729 buildings/artefacts) to be recorded following the preparatory meetings with the heritage groups and local historians, visits to the selected study areas and subsequent observations made by fieldwork teams. The parish distribution was as follows: Westmoreland (123), St Elizabeth (221) and St Ann (355). The locations were marked on ordinance survey maps, which were frequently out of date.

The Category A classification of the properties, as set out in the survey form, was as follows:

01 Residential	407
02 Social/recreational	2
03 Public Buildings	35
04 Commercial	68
05 Industrial/Manufacturing	7
06 Transportation	1
07 Communications	1

08 Religious	46	— It is important to involve local people in the preparatory and surveying work;
09 Agricultural	17	
10 Maritime	5	
11 Armed Forces/ Security	22	— Reliable four-wheel-drive vehicles are vital in all but the urban areas;
12 Immovable Objects/ Artefacts	8	— The use of fieldwork teams has the advantage of providing safety in numbers, particularly, in urban depressed areas and remote rural sites. The involvement of local persons when working in such areas is also an additional benefit;
13 Infrastructure Works	0	— The balance of male to female participants within the working teams is important. Some people were wary of young, all male field teams, especially in isolated rural communities;
Mixed-use Categories	110	— The cost per site recorded in the field can be weighted as: Urban : 1; Township : 1.1; Settlement : 1.3; Remote : 1.5; having taken into account the number of sites that can be covered per day, and associated travel and per diem expenses.

The main categories occurring within mixed-use properties were residential (34%), commercial (16%), agricultural (11%), public building (10%), religious (10%) and social/recreational (7%).

Community response to the survey was generally positive with the majority of occupants being helpful to the teams by giving access to their property and providing a surprising amount of oral history. Response to the survey was the most sensitive in the urban area, Savanna-la-mar, and reflected extreme positions. Some persons perceived that heritage status would either increase the burden of taxes, destroy the financial potential to be gained from redevelopment or become a burden of paying insurance coverage on retained timber buildings. Apart from the positive response from the heritage groups and local volunteers, other townspeople welcomed the inventory survey and hoped that it could bring about a more sensitive and disciplined approach to parish planning and development procedures. In depressed residential communities, where property rights and tenure are questionable, there was some suspicion.

Conclusions that emerged from the fieldwork stage of the project include:

#### Prioritization Process

At CSA, the completed field survey forms, photographic, graphic, oral history notes and cartographic data were reviewed by the project coordinators and integrated with any previously researched archive/historical information. Subsequently, at the next stages in the process, the reviewed material was cross-referenced, indexed and stored.

The pilot prioritization process was developed by the coordinators in conjunction with a sub-committee of the

advisory group. The categories and subcategories of the prioritization assessment reflect the range of subjects encountered in the field with reference to the built heritage and

associated cultural and natural heritage. Criteria were developed for the weighting from 2 to 5 for each subcategory, with a final prioritization as follows:

Priority 1	56-75	Most important, declaration as a National Monument essential
Priority 2	46-55	Important, worthy of declaration as a National Monument
Priority 3	30-45	Worthy to be recorded for cultural heritage archives and research interest

Of the 699 sites recorded in the field, 100 were classified as Priority 1 and 94 as Priority 2 as shown below.

PARISHES	Total Sites	PRIORITY		
		1	2	1 & 2
Westmoreland	123	28 (23%)	33 (27%)	61 (50%)
St Elizabeth	221	20 (9%)	37 (17%)	57 (26%)
St Ann	<u>355</u>	<u>100 (14%)</u>	<u>24 (7%)</u>	<u>76 (22%)</u>
	699	100 (14%)	94 (13%)	194 (27%)

For a pilot study, only the survey form and photographic and graphic information for buildings/artefacts located on Priority 1 sites were entered into the computer database. The details of coding, category, location and prioritization rating were entered for the others. A list of priority 1 sites was submitted to the JNHT for consideration for gazetting and listing procedure, with an indication of any sites needing urgent attention.

A number of the Priority 1 sites contained either building clusters or buildings/artefacts located within historic sites. Within parts of the urban, townships and settlements, there were twenty cases where the relationship

between individual sites and adjacent man-made and natural environments displays a cohesiveness that warrants special recognition. The JNHT is considering a list of these areas for declaration as 'Historic Districts'.

The Jamaica National Heritage Trust list now contains 340 gazetted monuments and sites for the nation, 35 of which are located within the pilot study areas. Taking into account the restrictive criteria used by the JNHT for listing classification, the pilot study results suggest the potential figure of heritage structures that should be inventoried to be in the region of 10 000 to 12 000, with Priority 1 and Priority 2 site classifications amount-

Pilot Study: Inventory of Jamaican Heritage Structures							
Prioritization Form: Caribbean School of Architecture / Jamaica National Heritage Trust							
Date:		Plotted by:		Field Team:		S. & W.:	
Parish:		Category:		Sub-Category:		Site:	
Subject:	Subject:	Subject:	Subject:	Subject:	Subject:	Subject:	Subject:
Sequence No.	Priority:	Sequence No.	Priority:	Sequence No.	Priority:	Sequence No.	Priority:
<b>Natural Sites</b>		<b>Ethnographic Sites</b>		<b>Historic District</b>		<b>Historic Structure / Building</b>	
<b>1 Relevant Features</b>							
Scenic value	5 4 3 2	Scattered surface finds	5 4 3 2	Predominant style	5 4 3 2	Style	5 4 3 2
Natural phenomena	5 4 3 2	Remnant structures / archaeology	5 4 3 2	Construction	5 4 3 2	Construction	5 4 3 2
Indigenous / endangered flora	5 4 3 2	Structure-representative artifacts / items	5 4 3 2	Architect / planter	5 4 3 2	Design architect / builder	5 4 3 2
Indigenous / endangered fauna	5 4 3 2	Staked remains / burial sites	5 4 3 2	Design / craftsman/ship	5 4 3 2	Design / craftsman/ship	5 4 3 2
Relevance to ecosystem	5 4 3 2	Man colored features	5 4 3 2	Elements of form	5 4 3 2	Interior form	5 4 3 2
<b>2 Historical Significance</b>							
Geological age	5 4 3 2	Age / period	5 4 3 2	Age / period	5 4 3 2	Age / period	5 4 3 2
Influenced by natural event	5 4 3 2	Significant event	5 4 3 2	Event	5 4 3 2	Event	5 4 3 2
Person / group	5 4 3 2	Person / group	5 4 3 2	Person / group	5 4 3 2	Person / group	5 4 3 2
Socio-cultural	5 4 3 2	Socio-cultural	5 4 3 2	Socio-cultural	5 4 3 2	Socio-cultural	5 4 3 2
<b>3 Identity / Regional / Local</b>							
Area context	5 4 3 2	Area context	5 4 3 2	Area context	5 4 3 2	Area context	5 4 3 2
Landscape asset	5 4 3 2	Landscape asset	5 4 3 2	Landscape asset	5 4 3 2	Landscape asset	5 4 3 2
Cultural value	5 4 3 2	Cultural value	5 4 3 2	Cultural value	5 4 3 2	Cultural value	5 4 3 2
<b>4 Viability / Sustainability</b>							
State of preservation	5 4 3 2	State of preservation	5 4 3 2	State of preservation	5 4 3 2	State of preservation	5 4 3 2
Physical condition	5 4 3 2	Physical condition	5 4 3 2	Physical condition	5 4 3 2	Physical condition	5 4 3 2
Locale	5 4 3 2	Locale	5 4 3 2	Locale	5 4 3 2	Locale	5 4 3 2
<b>Sub-Totals</b>							
<b>Totals</b>							
<b>Weightings</b>		<b>Significant Risk Evaluation</b>		<b>Notes</b>		<b>Category</b>	
<b>Resource Potential Evaluation (+)</b>							
1 0 Institutional		1 0 New development		Pre Historic		A Ancestral	
1 0 Commercial		1 0 Environmental risk		Historic		B Hispanic-Jamaican	
1 0 Heritage		5 Irreversible collapse		Pre-Emancipation		C Anglo-Jamaican	
1 0 Industrial		1 0 Human impact/issue		Post Emancipation		D Afro-Jamaican	
1 0 Original use		5 Other		Mixed		E E. Indian Jamaican	
TOTAL		TOTAL				F Chinese Jamaican	
						G Other	
<b>Documentation Priority</b>		<b>Recommendations</b>		<b>Notes</b>		<b>Prioritization Rating</b>	
Architecture						Priority 1	56-75
Archaeology						2	46-55
Oral History						3	30-45
History							
Ethnography							

DLT-PRI.XLS



**PILOT STUDY: INVENTORY OF JAMAICAN HERITAGE STRUCTURES - 1994**  
**CARIBBEAN SCHOOL OF ARCHITECTURE/JAMAICA NATIONAL HERITAGE TRUST**  
**SURVEY FORM**

Parish / Category / Sub-Cat / Typology / Priority  
 CODE # \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

SEQUENCE NO: \_\_\_\_\_ BAW FILM NO / NEG NOS to \_\_\_\_\_  
 SLIDE FILM NO / NEG NOS to \_\_\_\_\_

Team Number : \_\_\_\_\_ Photographer : \_\_\_\_\_

SUBJECT : \_\_\_\_\_

Team Names : \_\_\_\_\_

Date Of Survey: \_\_\_\_\_ Date Received: \_\_\_\_\_ Date Entered: \_\_\_\_\_

Std Form Ref : JHNV\_IF3.1 Revised 14/12/95

**I SYSTEMIZATION CODE**

**A. PARISH:** (Tick [✓])

- CLA Clarendon   
 HAN Hanover   
 KSA Kge/St. Andrew (Parish)   
 MAN Manchester   
 POR Portland   
 STA St. Ann   
 STC St. Catherine   
 STE St. Elizabeth   
 STJ St. James   
 STM St. Mary   
 STT St. Thomas   
 TRE Trelawny   
 WES Westmoreland

**B. CATEGORY:** (Tick [✓] all that apply)

- 01 Residential   
 02 Social / Recreational   
 03 Public Buildings   
 04 Commercial Buildings   
 05 Industrial / Manufacturing   
 06 Transportation   
 07 Communications   
 08 Religious   
 09 Agricultural   
 10 Maritime   
 11 Armed forces / Security   
 12 Intangible Objects/Artifacts   
 13 Infrastructure Works

**C. SUB-CATEGORY:** (Tick [✓] all that apply)

- 01 Residence  Great House   
 02 Tavern   
 03 School  Hospital  Town Hall  Court House   
 04 Shop  Shop house  Market   
 05 Factory  Warehouse  Plant   
 06 Railway station  Vehicle   
 07 Post Office   
 08 Church  Cemetery  Tomb   
 09 Plantation  Plant/Infrastructure   
 10 Pier  Wharf  Lighthouse   
 11 Police Station  Jail  Fort  Monument   
 12 Statue  Clock Tower   
 13 Bridge  Dam  Aqueduct/Irrigation

**D. PRIORITIZATION:** Office Use

- 1 Major Significance (56 - 75)   
 2 Important (46 - 55)   
 3 Interest/Research (25 - 49)

**A Natural Sites**

- B Pre-historic Site   
 C Historic Site   
 D Historic District   
 E Ethnographic Site

**A Caves**  Lakes  Spas  Swamp  Forest

- B Midden    
 C Belfry  Monument   
 D Lot  Village  Town   
 E Ritual  Burial

**E. TYPOLOGY OF INFLUENCES** (Tick [✓] all that apply)

CULTURE		PERIOD	MATERIALS						
			Foundation/Plinth	Favings/GF	Fence	Walls	Roof Covering		
1a	Amerindian	AD 600-1700	Prehistoric	Mud & Lime <input type="checkbox"/>	Broken earth <input type="checkbox"/>	Wattle <input type="checkbox"/>	Wattle <input type="checkbox"/>	Thatch <input type="checkbox"/>	
1b	Amerindian	AD 1494-1700	Prehistoric/ historic	Stone <input type="checkbox"/>	Stone <input type="checkbox"/>	Wattle & Daub <input type="checkbox"/>	Wattle & Daub <input type="checkbox"/>	Slate <input type="checkbox"/>	
2	Hispanic/Jamaican	AD 1494-1700		Cast Conc. <input type="checkbox"/>	Cast Conc. <input type="checkbox"/>	Conc. Nog <input type="checkbox"/>	Conc. Nog <input type="checkbox"/>	Shingle <input type="checkbox"/>	
3a	Anglo-Jamaican	1655-1838	Pre-Emancipation	Brick <input type="checkbox"/>	Brick <input type="checkbox"/>	Coursed stone <input type="checkbox"/>	Coursed Stone <input type="checkbox"/>	Corrug. metal <input type="checkbox"/>	
3b	Anglo-Jamaican	1838-1938	Post-Emancipation	Wood <input type="checkbox"/>	Wood <input type="checkbox"/>	Random Stone <input type="checkbox"/>	Random Stone <input type="checkbox"/>	Clay Tiles <input type="checkbox"/>	
4a	Afro-Jamaican	1494-1838	Pre-Emancipation	<input type="checkbox"/>	Plain conc. blk <input type="checkbox"/>	Dry Stone <input type="checkbox"/>	Corrug. metal <input type="checkbox"/>	Bamboo <input type="checkbox"/>	
4b	Afro-Jamaican	1838-1938	Post-Emancipation	<input type="checkbox"/>	Mosaic Tile <input type="checkbox"/>	Tin Pan <input type="checkbox"/>	Brick <input type="checkbox"/>	<input type="checkbox"/>	
5	Modern Jamaican	AD 1938		<input type="checkbox"/>	<input type="checkbox"/>	Bamboo <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	Brick <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Parish / Category / Sub-Cat / Typology / Priority		SEQ. NUMBER (#):	FILM NO. / NEG NOS. to
CODE # _____			
<b>2 IDENTIFICATION</b> <b>NAMES:</b> Historic _____ Present _____ Other _____  <b>LOCATION:</b> City/Town _____ District/Island _____ Street # _____ Address _____ Lot# _____ Associated Landmark _____  Map No. _____ Map Sheet _____ Latitude _____ Longitude _____ UTM Reference _____ N _____ E		<b>4 HISTORICAL COMMENTARY</b> <b>OBJECT / BUILDING / SITE:</b>  Date(s) Constructed: ____ / ____ / ____ Architect(s) _____ Builder(s) _____ Engineer(s) _____  <b>5 DESCRIPTION</b> <b>OBJECT / BUILDING / SITE:</b>  <b>BUILDING FEATURES:</b> Missing - No of Units _____ No of Storeys (incl basement) _____ Storey Height(s): GF ____ / 1st ____ / 2nd ____ Basement / Foundation Height (m): _____ Plan Dimensions (m): _____ x _____ Structural Material(s): _____	
<b>3 SIGNIFICANCE / DESIGNATION</b> <b>FORMAL RECOGNITION: (Tick [✓])</b> INHT declared <input type="checkbox"/> Date _____ INHT Listed <input type="checkbox"/> Date _____ INHT Gazetted <input type="checkbox"/> Date _____ World Heritage Site <input type="checkbox"/> Date _____ GAS Site of the Americas <input type="checkbox"/> Date _____ Not formally designated <input type="checkbox"/>		<b>6 CONSERVATION STATUS: (Tick [✓])</b> E Excellent <input type="checkbox"/> U Unshored <input type="checkbox"/> G Good <input type="checkbox"/> A Altered <input type="checkbox"/> F Fair <input type="checkbox"/> O Original Site <input type="checkbox"/> D Deteriorated <input type="checkbox"/> R Ruin <input type="checkbox"/> Date Moved: _____ By _____ Date Damaged: _____ By _____ Describe Imminent Threat(s): _____	
<b>PHOTOGRAPHS:</b> File Ref: _____ B&W Film No: _____ Neg Nos. to _____ Slide Film No: _____ Neg Nos. to _____ <b>DRAWINGS: (tick [✓])</b> Ref: _____ Attached <input type="checkbox"/> <b>PLANS: (tick [✓])</b> Ref: _____ Attached <input type="checkbox"/>		<b>7 OWNERSHIP</b> <b>PUBLIC ACQUISITION: (tick [✓])</b> Publicly owned <input type="checkbox"/> By _____ Being Considered <input type="checkbox"/> By _____ In Progress <input type="checkbox"/> By _____ Not Considered <input type="checkbox"/>  <b>PRIVATE:</b> <b>Present Owner</b> Name _____ Address _____  <b>Previous Owner</b> Name _____ Address _____  <b>Tenant</b> Name _____ Address _____  <b>STATUS: (tick [✓])</b> a) Occupied <input type="checkbox"/> b) Unoccupied <input type="checkbox"/> c) Work in Progress <input type="checkbox"/>  <b>8 GENERAL COMMENTS</b> _____ _____ _____ _____ _____ _____	

## 9.2c The Final Survey Form.

ing to 1000 to 1500 each. A detailed analysis of the results with reference to population density and urban/rural distribution will be necessary before an accurate projection can be made.

### Threats to the Patrimony

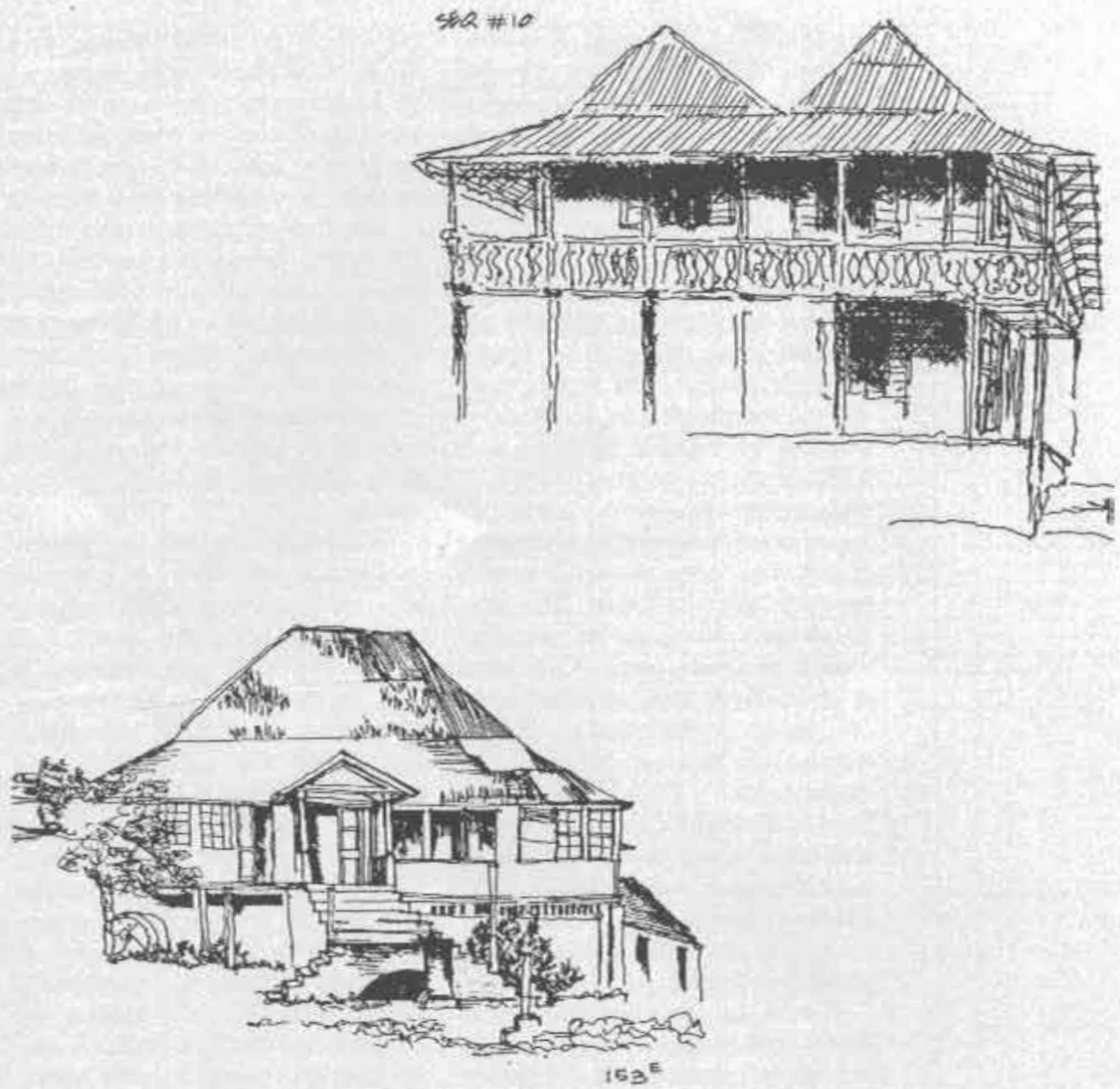
The pilot study survey highlighted the risk that many heritage structures and sites are under due to either human action or inaction. The urban study showed the progressive deterioration and loss of valuable structure as a result of neglect or demolition, with replacements frequently demonstrating an insensitivity to the maintenance of any visual cohesiveness or respect for their historic context. The most threatened buildings are the remaining wooden structures, many of which are in an advanced state of disrepair. In one case, as the Aarons chapter records, the previous belfry of the Anglican Parish Church was demolished by the Parish Council one month after the pilot study had recorded it, in order to upgrade the adjacent car park. The wooden belfry had been a superb example of the craftsmanship of early timber construction.

In both the urban hinterland, rural remote and mixed town rural areas, development planning and designation of land use frequently conflicted with heritage cultural values. A progressive loss of pastoral landscapes to isolated speculative subdivisions has been occurring as idle agricultural lands have moved into the ownership of real estate speculators.

In St Elizabeth, where there is a distinctive tradition of building and detailing in timber, much of the building stock of small-scale vernacular and larger structures is in serious

decline. A population decline as a result of the migration of young people has followed a decline in the rural agricultural economy. Many structures have been abandoned; others have received ill-conceived rehabilitations or additions as commercial tourism has started to supplant previous village economic activities. Two sites — one previously owned by the family of Donald Sangster, a former prime minister of Jamaica — contain family graves and many fine buildings. These are both in a ruin state with their fate awaiting proposed housing subdivisions.

In the study area in St Ann, bauxite mining activities have had a serious effect on the survival of pre- and post-emancipation settlements. Some, such as Tobolski, have been destroyed in their entirety without having been documented or recorded beforehand. The survey also discovered that a great house, listed as a national monument, no longer exists. In the western section of the parish, where mining is most prevalent the influence of the various ethnic groups involved in the plantation economy as indentured labour was particularly strong. Villages such as Madras and Bengal reflect the East Indian indentured settlers effect on cultural history and building traditions. Madras possesses outstanding and beautiful examples of timber vernacular with sun screens, fretwork and colours that merge the influences from Africa and India. In the eastern section of the parish, where the post-plantation economy remains strong, there is a valuable collection of great houses and associated artefacts that remain occupied and maintained.



*Fig. 9.3  
The most threatened  
wooden buildings are the  
remaining wooden  
structures, many of which  
are in an advanced state of  
disrepair*



### Effects of the Pilot Study

The pilot study sensitized the contact public to the need for heritage conservation and its potential as an economic asset. It emphasized the role of the JNHT as a regulatory body in designating and protecting the national patrimony, and stimulated discussion at the local planning level on the role of the Parish Councils as guardians of local heritage in development control and land use designations. The study confirmed the importance of developing strong educational links between JaCOMOS, the CSA research team, the JNHT and the parish Heritage Foundations, which need expert advice on heritage matters. Failure to make heritage advice accessible results in heritage resources being mismanaged and altered, sometimes even by the well intentioned heritage advocate.

The pilot study successfully developed and tested a methodology for designing and implementing a national inventory of heritage structures in Jamaica. The financial analysis of the pilot study expenses indicates that the average cost per site surveyed could be budgeted at approximately US \$45, or equivalent, for all activities from preparatory work to final database output.

Although the development of an interactive database was started in the pilot study, the research team recognized that a far wider application of information systems will be necessary if heritage inventory information is to

establish a place within national economic and land use planning procedure. The first need is to have a data link between CSA and the JNHT. The use of location finders in the field and the computerization of heritage map data into a system that can be integrated with the Geographic Information System (GIS) application would enable the heritage data to become part of a network of computerized physical planning data that is currently being developed by the Survey Department and associated land utilization agencies of the Government of Jamaica.

The inventory methodology and classification system that has been developed for a comprehensive application across the typologies and topographies of a nation has broken new ground in the Greater Caribbean and could become a regional model. Other Caribbean countries and international organizations have expressed considerable interest in Jamaica's pilot project, including Unesco, OAS, the Republic of Haiti and the Dominican Republic. CARIMOS intends that a wider Caribbean Centre for the Inventory of Heritage Structures be established at the Caribbean School of Architecture as part of CARIMOS's regional commitments. The ability to share and to coordinate inventory methodologies across national boundaries, as well as to exchange the heritage data contained therein, is a further reason for the development of comprehensive information systems.

## List of Authors

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*Amelia Barahona* is an individual member and secretary of JaICOMOS. She is an architect and preservationist in private practice who previously headed the conservation unit of the architectural department in the government of Nicaragua. She has a keen interest in acquiring conservation details of the Jamaican heritage.

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*David Buisseret, PhD*, is an associate of JaICOMOS and professor at the University of Texas at Austin. He has lived in Jamaica and has researched and published much on the island's history and its built heritage.

*Marguerite Curtin*, individual member of JaICOMOS is an historian. She is presently the Executive Director of the Hanover Historic Foundation, an organization established in this north coastal area of Jamaica by persons who were anxious to protect their cultural heritage. Ms Curtin formerly held the posts of Director of the Monuments and Sites at the Jamaica National Heritage Trust and Director of Culture in the Ministry of Education, Youth and Culture.

*Hugh Dunphy* is an individual member of JaICOMOS and a preservation adviser who spearheads and convenes the Jamaica Conservation Building. Mr Dunphy has published a number of historic prints, maps and books. His company, Bolivar Press, has published David Buisseret's *Historic Fortifications of Jamaica* which is referenced here.

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## Message from JaICOMOS

Jamaica National Committee of the International Council on Monuments and Sites

The International Council on Monuments and Sites (ICOMOS) is a non-profit, non-government organization of the United Nations Educational, Scientific and Cultural Organization (Unesco) which comprises over sixty national committees forming a worldwide alliance to promote the study and conservation of historic building, districts and sites. The national committee was ratified by ICOMOS in November 1989 and Jamaica has the distinction of being the first English-speaking and fourth Caribbean island to have a National Committee of ICOMOS. Jamaica now has a 'voice' and active participation within the international arena to help safeguard its cultural heritage, monuments and sites.

JaICOMOS welcomes all professionals and concerned individuals active in the preservation and protection of Jamaica's cultural heritage monuments and sites to join its organization.

The goal of JaICOMOS is to show professionally and technically how the energies and enthusiasm stemming from the awareness for the protection of Jamaica's cultural heritage monuments and sites can be channelled into practical solutions.

The aims of JaICOMOS are:

- to establish and maintain a comprehensive list of professionals and concerned individuals active in the preservation and protection of Jamaica's cultural heritage.
- to encourage coordination between technical, professional, institutional and advisory entities working on Jamaica's historic environment affecting monuments and sites.
- to seek to police at every level preservation standards and interventions on Jamaica's monuments and sites to ensure that they meet established international standards.
- to bring to public attention the need for and to encourage comprehensive documentation of Jamaica's cultural heritage monuments and sites including Jamaica's recent past, in accordance with accepted international criteria.
- to undertake a public education campaign and generate public consciousness for the value of Jamaica's monuments and sites, emphasizing their international relevance.
- to emphasize the need to publicize and implement the 1985 Jamaica National Heritage Trust Act, especially to establish a register of Jamaican artefacts so as to discourage their illicit exportation.
- to demonstrate that local benefits can be derived from Jamaica's cultural heritage monuments and sites by all persons and not only by overseas institutions in cooperative ventures with national entities and individuals.



- to ensure that Jamaica's cultural heritage is put on public display at all times and in places from which all Jamaican can benefit.
- to advise on the setting up of 'Historic Centres' across Jamaica in order to encourage a participation with the cultural heritage at a parish level.
- to seek out and generate local and international sponsorship for projects, educational opportunities and publication in the area of cultural heritage monuments and sites with the primary focus on the Jamaican school children, also giving guidance on career opportunities in this area.

**Patricia E. Green**  
*Chairperson*