ARCHITECTURAL AND ARCHAEOLOGICAL STUDIES AT ILE DE LA PASSE

MAURITIUS

Earthwatch Team 1 on Ile de la Passe with the 18th century French Powder House behind. (03jv0101)

The 2003 Season
January-February 2003

A Report Submitted to Sponsors

by

Geoffrey and Françoise Summers

ACKNOWLEDGMENTS

First of all we would like to thank the National Heritage Trust of Mauritius, who allowed us to continue the work on Ile de la Passe after the initial survey season that the Trust initiated in 2002. We are particularly grateful to the Chairman, Philippe La Hausse de Lalouvière, the Director, Mr Premlall Mahadeo, and his staff for their interest, enthusiasm and support.

Our gratitude also goes to all those whose contribution, listed below, made the 2003 season possible, and to our family and friends without whose generosity and hospitality the season would not have happened.

The Earthwatch Institute

The 2003 study was made possible thanks to the grant from Earthwatch and the participation of the volunteers.

Phoenix Camp Mineral Ltd

A generous contribution financed local labor for the cleaning and clearing operations as well as the first restorations efforts.

Harel Mallac Electronics Ltd

The loan of a computer, essential for the digital recording, processing and archiving of data facilitated our work during the season.

Villa Le Guerlande

Mrs Vencatachellum of the Villa Le Guerlande at Pointe d'Esny kindly agreed to special rates for the bungalows.

Coral Dive Ltd

A reliable speedboat service at a special rate was provided by the Boat House at La Croix du Sud Hotel. We thank Tony Apollon and his dedicated skippers who assured the early start of the day's work.

Ile de la Passe guards the channel into the Vieux Grand Port. (03jv1321)

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PROJECT

Architectural and Archaeological Studies at Ile de la Passe, Mauritius
The Archaeology, Architecture and Conservation of an Historic Islet.

The 2003 season

Earthwatch participants

Team 1 (19 January to 2 February):
Ian Bainbridge, Bradley Braun, Jonathan Howe, Roger Lucas and George Weiss.

Team 2 (2 to 16 February):
Faye Hogan, Judith Palmer and Wendell Zipse.

METU Research Assistants for post fieldwork in Ankara

Aylin Ağar, Özge Başağaç and Çiğdem Uysal.

Team 1 disembarking on the islet. (03jv1215)

Research Site

Ile de la Passe guards the entrance through the coral reef into Grand Port at the south-east of Mauritius. Control of this coral islet was the key to control of the Indian Ocean from the early 18th century until 1810. The islet, pivotal in the last Napoleonic naval victory against the British at the "Battle of Grand Port", boasts some of the most impressive surviving examples of French military architecture in the southern hemisphere. Later British military installations are of considerable importance for the heritage of Mauritius and of interest to students of colonial history.

Team 2 and local workers awaiting the speedboat. Ile de la Passe can just be seen on the horizon at the extreme right. (03jv1812)

HIGHLIGHTS

A pot of gold where the rainbow ends? (03jv0507)

Cultural Heritage

The architectural and archaeological survey on Ile de la Passe not only documents archaeological remains and architectural features, but also both complements and adds to the partial and sometimes misleading records which can be found in the archives. The work will permit the implementation of appropriate approaches to Cultural Heritage issues, including preservation and conservation, on this evocative islet. Ways in which the cultural assets can be enhanced and presented to future generations of Mauritians and to tourists can only be explored once a proper understanding of what survives has been assessed.

Research Design

Current research design is largely focused on establishing the sequence and dates of the complex alterations to the defenses and other military illustrations from the French period to the early 19th century. Closely linked to the unraveling of this sequence is the gaining of greater insights into the precise ways in which installations, such as different types of gun emplacement, actually functioned. We might then be better able to address the extent to which new designs reflect technological advances in ordnance. Finally, the research will help us to place more precisely the coastal defenses of Mauritius within the wider pattern of European colonial endeavors.

Yet another aim is to record the many graffiti, the majority of which were carved in the 19th century by British officers and troops.

Key Results

The sequence of defenses dating to the French Period is seen to be more complex and multi-faceted than had been expected. Cleaning part of the Upper Battery revealed stone gun mountings with iron fittings (for which no parallels have yet been found) while work on the Central Platform uncovered unexpected features within it that require further exploration.

Clearance and recording around the base of the 19th century Observation Tower was completed in advance of the National Heritage Trust program of restoration. Part of the Upper Battery parapet walling was restored and experimentation was conducted with a selection of appropriate materials.

Systematic recording of the graffiti by means of digital photography was begun.

OBJECTIVES

From its establishment as base for naval activities by France in the early 18th century until the advent of steamships in the second half of the 19th, Mauritius, or Ile de France as the French called it, was the key to the Indian Ocean. The first capital was at Grand Port on the south-eastern side of the island. The French administration soon found that Port Louis, on the western side, offered a superior harbor. Thus the capital was moved to its present location. Grand Port, however, retained very considerable strategic importance, a position that it did not loose when the last French governor established the town of Mahebourg to replace Grand Port in response to the silting up of the river and lagoon at the original site. Ile de la Passe is a small coral islet on the main protecting reef which commands the deep-water channel and pass leading into Grand Port. Control of Ile de la Passe was, therefore, of crucial importance for Mauritius and, by extension, for the entire Indian Ocean. During the Napoleonic Wars Britain was to be forced to take the Indian Ocean islands of Mauritius and Reunion from the French in order to protect her shipping. At the outbreak of the Mauritian campaign the British lost the Battle of Grand Port in an engagement that lasted several days. This, the last major naval victory by the Napoleonic fleet, is commemorated on the Arc de Triumph in Paris and immortalized in Patrick O'Brian's best selling historical novel *The Mauritius Command.*

Some of the best-preserved and most important examples of French coastal defenses in the southern hemisphere, and probably anywhere, are still to be seen on Ile de la Passe. Their survival was in part due to the fact that British possession of Mauritius was not seriously threatened throughout the remainder of the 19th century, with the result that no major rebuilding of the defenses were undertaken, and also because when the islet was re-established as a military base during WW II the commanding officers appreciated and displayed considerable respect towards the earlier structures.

The National Heritage Trust of Mauritius, in response to growing local interest as well as international tourism, wishes to raise the profile of the islet as a way of ensuring that both physical and administrative measures are taken to ensure preservation. It is expected that Ile de la Passe will be promoted for inscription on the UNESCO World Heritage List in the foreseeable future and that active measures will be taken to restore and preserve some of the structures (particularly those which have WW II period concrete roofs) as a matter of considerable urgency.

The overall objectives of the project are listed below:

1. Full documentation of the architectural and archaeological remains (AD 1715 - 1945) on Ile de la Passe, i.e. standing buildings, visible foundations and features, graffiti from the periods of French and British rule.
2. Conservation and limited restoration of remains, especially the parapet wall and cannon emplacements on the Napoleonic Upper Battery.
3. Systematic collection of samples of building materials (mortars, cements and brick) for analysis with regard to appropriate conservation and restoration.
4. Producing reports, recommendations for management plans, and popular publications (web site and brochure or guidebook).

The 2003 season was partly a continuation of the work done in 2002, filling in missing information. A major new component was the clearance of blown sand and recent debris in front of a selected monument, the Upper Battery, and along some key sections of the Central Platform. The base of the early 20th century Observation Tower and WW II adaptations were fully exposed and carefully recorded.

METHODS

The main tasks carried out during the season were:

1. Completing plans, sections, elevations and architectural details of standing structures where additional information was required to compliment what had been done in 2002.
2. Cleaning vegetation (after receiving expert botanical advice from the Wild Life Trust) and debris to expose wall faces, foundations, emplacements and other features (using workmen, under close supervision, for heavy work).
3. Clearing the selected areas of the Upper Battery and Central Platform by removing the accumulated wind blown sand to reveal more of the structures.
4. Adding to the photographic record (slide, negative and high resolution digital media) including photographs with measured control points for photo-rectification leading to the creation of virtual simulations.
5. Starting a catalogue of the 19th and 20th century graffiti (mostly made by British soldiers), including photography, hand drawings, tracings and some squeezes (paper impressions).
6. Experimentation in repointing masonry and replacing fallen stones in their original positions using lime mortars.

Volunteers clearing the monuments while local workmen dealt with the overgrown vegetation and accumulated rubbish. (03jv1308)

Full documentation can only be carried out after vegetation, rubbish and blown in sand has been cleared from in the front of the structures. (03jv0217)

Once revealed, the structures were carefully planned and the position of displaced stones was recorded. (03jv1402)

Earthwatch team members Roger and George measuring control points on the end wall of the Upper Battery for photo rectification. (03jv0113)

Team 1 learning how to make a squeeze but decided that it was not an easy task on a windy date! (03jv1401)

VOLUNTEER TASKS AND ACCOMPLISHMENTS

Most of Earthwatch volunteers' time was expended on the careful clearance and recording of the Upper Battery Parapet wall, gun emplacements and related features as well as portions of the Central Platform. Heavy work was done by workmen under close supervision. Recording included note taking, making accurate scale drawings of revealed features and walling and making photographic records. The high percentage of volunteer time and effort that was devoted to these aspects of the research was very much at their own request, the interest generated by the discoveries being a greater pull than recording standing or other visible remains. Other aspects of the project in which volunteers were concerned included measuring standing structures in order to make or complete architectural plans, sections and elevations. Added to this was the marking out and measuring of control points for digital photographic recording and rectification of wall faces, particularly those of the upper battery. On the islet itself, most volunteers were also involved in building up the new database of 19th century British army graffiti. Jonathan Howe, Earthwatch staff, was put in charge of collating the survey of flora that was carried out under the direction of a professional Mauritian botanist, Ashok Khadun, from the Wild Life Trust of Mauritius. In the last week, because cyclonic weather made it impossible to reach Ile de la Passe, one entire day was devoted to making a detailed preliminary study of the two lime kilns and associated structures on the nature reserve at Ile aux Aigrettes which the Wild Life Trust want to restore as a feature for visitors.

Team 1 clearing the parapet wall, emplacements and gun mountings on the Upper Battery. (03jv0202)

Team 2, Faye, Judith and Zip, investigated selected built features in the Central Platform. (03jv1616)

Bradley using a brush in preparation for photography of the Upper Battery parapet. (03jv0205)

Conservation First Aid... Bradley and Jonathan pushing back into position the displaced stone seen at center left in the previous photo. (03jv1304)

Roger and George measuring control points for photo rectification. (03jv0114)

Ian sketching the control points and taking notes of the measurements. (03jv0115)

Zip cleaning sand from part of the Central Platform to reveal features that were unexpected. (03jv1617)

Fay recording graffiti on the Storehouse. (03jv2003)

Judith catching up on archiving work when weather did not permit a day on the island. (03jv2202)

RESULTS

Terms and References

Terminology for the defensive structures on Ile de la Passe is in the process of being standardized according to terms that are clearly defined on the excellent web site of the *Palmerston Forts Society* (PFS) and particularly in the section entitled "A Glossary of Victorian Military Terms" at:

http://users.argonet.co.uk/users/dmoore/gloss.htm

Periodization also follows that established in 2002, the earliest being the French Period up to 1810, followed by the early British, the British construction of the Observation Tower, Central Building and the North-West Building in the late Nineteenth or early Twentieth Century and the World War II Installations.

Our insights have been amplified by the assiduous archival research that has been carried out by Dr Marina Carter and we are extremely grateful to her for so generously sharing with us the fruits of her labors. Dr Carter's as yet unpublished results have influenced our own conclusions in important ways.

The Condition of the Islet and its Monuments at the Start of the 2003 Season

Since the end of the last, 2002, season a considerable amount of rubbish had accumulated on Ile de la Passe, much of it the result of camping on the islet during the Christmas and New Year period. Good intentioned attempts had been made to pile rubbish up and some of it, although by no means all, was in sacks and bags. Generally the islet was not in such a foul state as at the start of the first campaign in 2002.

There had been some further damage to standing structures as a result of cooking fires being lit against walls and inside standing structures. While the extent of this damage is not in itself disastrous, the accumulative effect is considerable and, if not halted, will result in the loss of graffiti, some of which have considerable historical importance for Mauritius. Besides this loss, fire damaged wall faces will be both difficult and expensive to repair.

On Wednesday February 19 the islet was left free of recent rubbish.

Damage is not done by the unexpected visitor..... (03jv1914)

But because of its unfortunate fate! (03jv1913)

Overview of Results

1. Recording of standing architectural monuments

Digital photographs and measured sketches for photo-rectification and architectural studies were made of the North Wall of Upper Battery as well as of the Upper Battery Parapet Wall, World War II Shell Cabins and the features between the Shell Cabins and the Observation Tower.

Photographs, measured drawings and written descriptions of the Underground Generator Halls were also made.

2. Mapping ramparts

The NHT commissioned a highly accurate map that was made by a Mauritian firm of professional surveyors. Our new discoveries and insights have been added to this excellent map, which will also provide an excellent base from which to draw up management plans for walkways and footpaths and the positioning of new facilities.

3. Uncovering and cleaning gun emplacements and other remains.

As far as the 2003 season of fieldwork is concerned this highly successful aspect of the scheme of research has been completed. Plans and sections were drawn to scale while measured drawings made of elevations for photo-rectification. In addition, extensive notes were made.

4. Limited exposure of remains through the clearance of vegetation and rubble.

This aspect of the work consumed the greater part of the available time and energy. Following consultation with Dr Ashok Khadun, Botanist and Island Restoration Manager with the Mauritian Wildlife Foundation, it was possible to cut back and remove any vegetation that was obscuring walling, graffiti or other features in the full confidence that no rare endemic species would be harmed. Indeed, it was rewarding to be able to begin the process of eradicating unwanted exotic species from the islet, a task that we would like to continue more methodically in future seasons. A digital illustrated list of plant species was made and is available on request.

One of the principle objectives in the 2003 field season was to clean away vegetation fallen debris, accumulated rubbish and wind blown sand so as to uncover sections of the inner face of the Upper Battery Parapet Wall and Gun Emplacements, parts of the Central Platform and the sides of the large Ditch on the north-western side. Care had to be taken in removing the vegetation because pulling plants out of walling by their roots tended to dislodge masonry. In general, therefore, growth was cut back with hand clippers (sécateurs) or by a grass cutting machine rather than being uprooted. Modern broken glass, of which there are large quantities, is a potential hazard to hand cutting.

The grass cutting machine was also used to trim the grass around the base of the monuments that had been cleaned last year. This procedure not only enhances the look of the islet but it also discourages visitors from throwing rubbish, such as tins and bottles, into the long grass.

5. Examination of the enigmatic "ditch" and its associated features

Vegetation was cut back along both sides of the ditch so as to expose fully all of the graffiti that were hidden from view. In addition the channels and their stepped terminations were partially cleaned. It was decided to strike a balance between the total removal of rather attractive vegetation and the more usual archaeological practice of total cleaning for the sake of clear and complete photographs. Yet another factor in the decision to leave most of the vegetation along the top eastern side of this feature was the barrier that it provided against accidentally stumbling into the Ditch.

A full photographic record was made of the graffiti and the measurements recorded by scrambling through bushes and undergrowth in 2002 were checked and found to be correct.

6. Recording graffiti

Systematic recording of graffiti began with the tall North Wall of the Upper Battery and the external walls of the Storehouse. As related above, the graffiti in the Ditch were also photographed and studied. There are a great many more to record and collate, not least in and around the Powder House. No pre-British examples have been found and very few (if any) appear to have been cut earlier than the late 1850s. Further, to date no graffiti have been discovered that might be associated with the construction of the Observation Tower and its companion structures some time between the very end of the Nineteenth Century and the First World War.

One major concern associated with recording graffiti is the time needed after work in the field to process digital images and to transcribe each individual graffiti.

7. Undertaking limited emergency conservation using lime mortars to replace key blocks of stonework

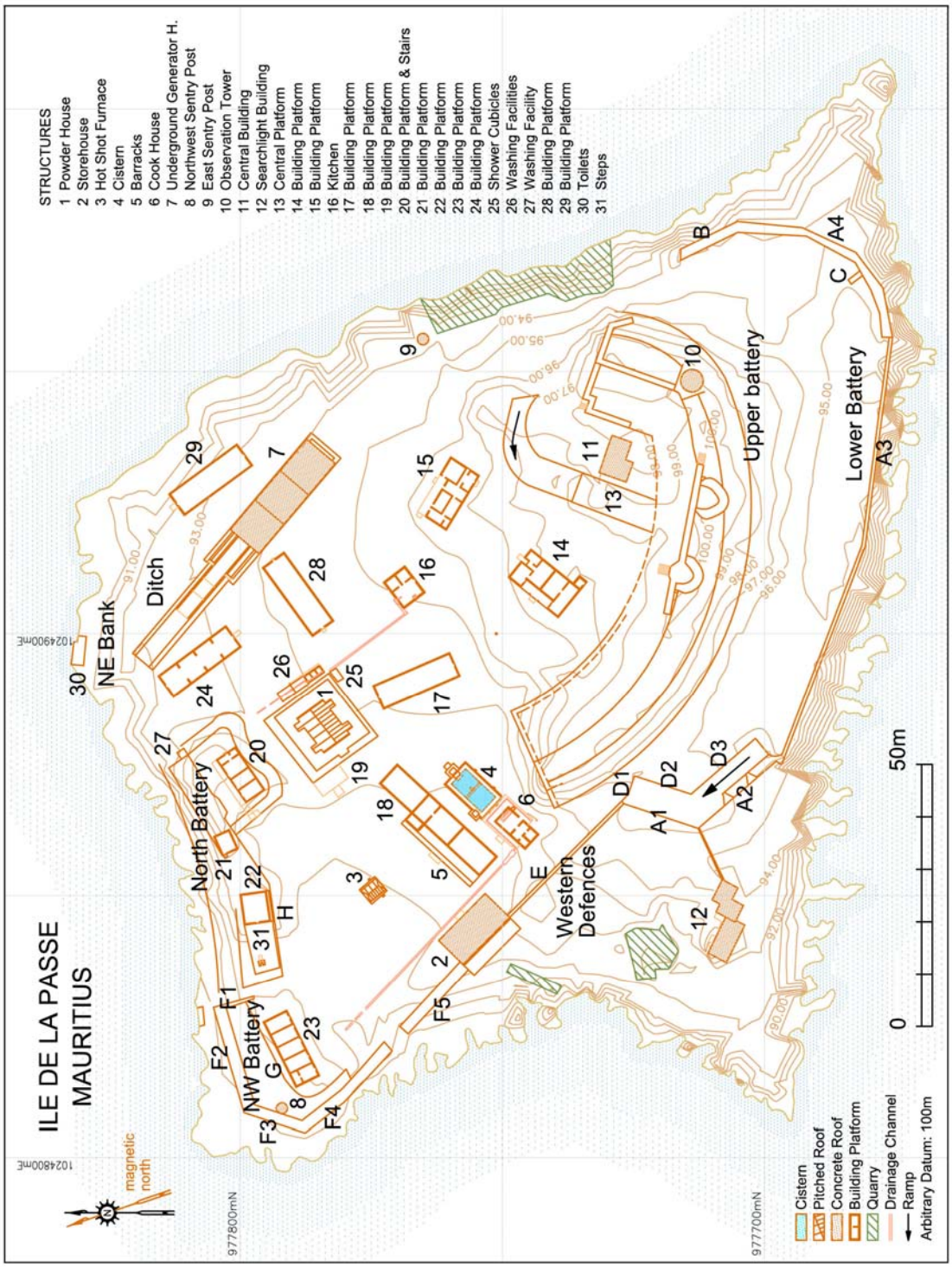
Good progress was made at the northern end of the Upper Battery. It is essential to understand two crucial concerns:

(i) Everything that has been done is reversible. In this respect it should however be realized that the restoration of standing structures, such as the Observation Tower and the Store House, will not and cannot be reversible because of the materials that were used in World War II and also because there are structural issues that will have to be addressed. The pre- World War II Upper Battery does not, however, have problems of the same order (although the World War II Shell Cabins will need some attention in the near future).

(ii) The conservation undertaken in 2003 was experimental in nature.

To a very large extent the local artisans who were employed guided decisions on the day-to-day mixtures of lime mortar with red earth and with sand with which they themselves proved to be greatly experienced. It was also learnt that these skilled men could measure and saw blocks of coral to fit precisely where they might be required. On the other hand, first attempts failed to attain the high standard expected with the result that some of the early trials had to be redone. With close supervision and the growing realization that quality rather than speed are of the essence in this particular type of work, a great team can be speedily built.

In general Emplacements 1 and 2 have been partially restored and consolidated as well as the intervening and adjacent stretches of the parapet wall. Fallen stones have been set back in their original positions in the very few cases where it was obvious from whence they had fallen. Otherwise stones were selected and set in a way that mimicked as nearly as possible the original character of the wall. At the Emplacements new stones had to be cut for the angles, and indeed occasionally for elsewhere. This was done with a simple wood saw. Newly cut stone is, however, gleaming white. Experiments with ways of artificially ageing the newly cut surfaces are in hand. The length of time taken by the natural processes that make the cut coral stone grey is not known but it is of interest that when new the battery walls, and the stone buildings, would have been gleaming white.



Site map of Ile de la Passe combining the topographic survey conducted in 2002 by A.S. Calloo, sworn surveyors, and details of the structures planned during the 2002 and 2003 seasons.

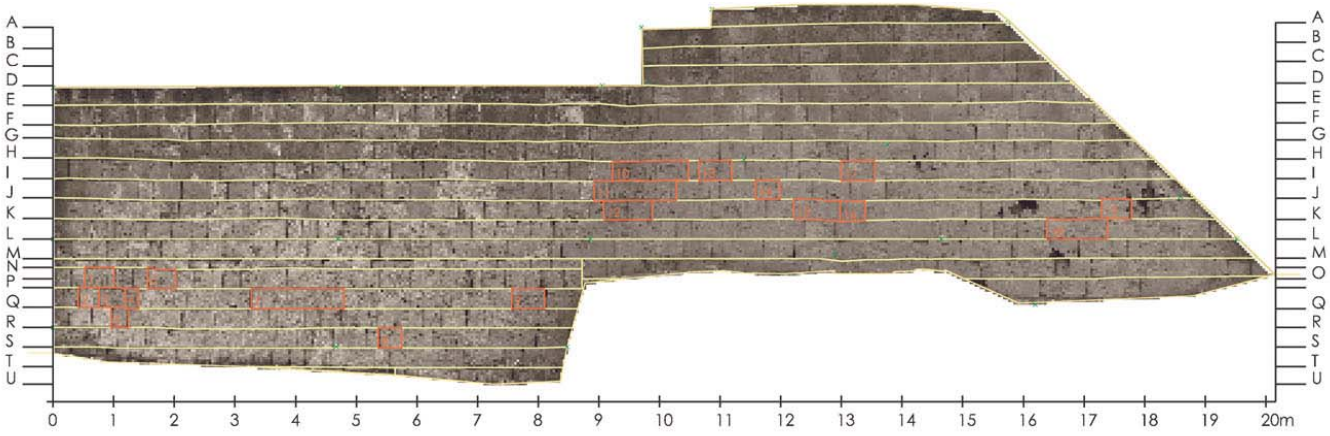
The first step was to clear the overgrown vegetation and blown sand so as to record the features revealed. (03jv0605)

Some of the basalt stones were put back in place and where necessary a lime mortar, similar to the original one, was used. (03jv3510)

An exciting discovery was the sloping end of what might be a flagpole base seen in early French maps. (03jv1618)

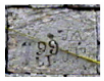
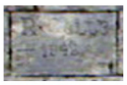
The enigmatic ditch and newly revealed graffiti were documented after vegetation had been cut back. (03jv2908)

The NW end wall of the Upper Battery seen in the background. (03jv2002)



The NW end wall of the Upper Batter reconstituted from a mosaic of rectified photographs for identification of graffiti.

Rectified digital photo imported in AutoCAD to match control points.

	GRAFFITI LOCATION		DIGITAL PHOTO	RECTIFIED IMAGE/DRAWING
No.	Course	From Axis		0 50 100cm
1	P	0.52m		
2	Q	0.43m		
3	Q	0.76m		
4	Q	1.19m		
5	R	0.96m		
6	P	1.55m		
7	Q	3.26m		
8	S	5.36m		
9	Q	7.56m		
10	I	9.22m		
11	J	8.93m		
12	K	9.08m		
13	I	10.65m		
14	J	11.59m		
15	K	12.22m		
16	K	12.98m		
17	I	12.99m		
18	L	16.39m		
19	K	17.29m		

An Excel table, a preliminary step in the creation of a database, displaying the graffiti on the NW end wall of the Upper Battery.

CONCLUSIONS AND DISCUSION

The 2003 season of archaeological and architectural study at Ile de la Passe was extremely successful. The participation of Earttwatch Volunteers contributed very substantially to the amount that it was possible to uncover and record. It had been hoped that students from the University of Mauritius would have been able to join the team for a substantial part of the season and, although contacts were established too late in the day for that to happen in 2003, it is fully expected that there will be student participation in 2004. It was also gratifying to discover that local skilled labor still retained many of the traditional skills of building in fossil coral and lime mortar mixes and that, with further experience and close supervision, it will be possible undertake conservation and partial restoration of French period remains to an exceedingly high standard using completely appropriate materials.

It was unfortunate that some days were lost as a result of Cyclone Gerry, but it was possible to make good much of the shortfall through work on two additional days running into an unscheduled fifth week. The season has demonstrated that there is indeed a very considerable amount of new information to be gained through continuation of this project in future seasons. Further, is has been shown that careful and considered conservation and limited restoration of the masonry from the French period greatly enhances the visual attractiveness of the remains and, at the same time, make the defensive schemes more comprehensible to casual visitors. Much is still to be done. In this respect, it cannot be stressed too strongly that there is a most urgent need to restrict camping and cooking on the islet, to control wanton damage and vandalism. It would also be very advantageous and also to design and set out a visitors trail that will confine and limit the damage done to fragile remains by the passage of feet.

A program of work and research for 2004 is being drawn up. This next season will concentrate on further clearance and restoration of the Upper Battery, the resolution of questions concerning the Central Platform and investigations in the Ditch.

The Director of the National Heritage Trust and a group from the University of Mauritius were shown the progress made. (03jv1318)

PUBLICATIONS AND EVENTS

- A public lecture, arranged by Dr Vijaya Teelock, was delivered at the University of Mauritius on the 17th February 2003. Radio and television crews covered the event.

- An article in *Week End* by Jean Claude Antoine, published on the 16 February 2003.

- The MBC TV crew filmed a group of school children accompanied by the Chairman of the NHT as they progressed round the island. A documentary film was produced.

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Inventaire à l'île de la Passe

L'île de la Passe vue de la mer

Depuis plus de deux semaines, un groupe de personnes armées d'appareils de mesure, d'outils de nettoyage et de sacs poubelles se rendent quotidiennement, quand le temps le permet, sur l'île de la Passe à Mahébourg. Ces personnes, Mauriciens et d'étrangers, font partie de l'équipe placée sous la direction de Geoffrey et Françoise Summers, respectivement archéologue et architecte, chargés par le National Heritage Trust Fund de procéder à un inventaire de l'île. Cet inventaire archéologique et architectural, qui servira de base à une éventuelle restauration des bâtiments se trouvant sur l'île est également soutenu par l'organisation américaine Earthwatch.

Des ouvriers mesurent les pierres taillées d'une des fortifications

Inspection des dégâts aux murs qui entourent la poudrière de l'île

Notes d'histoire

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Des membres de Earthwatch terminant l'inspection du mur faisant partie des premières fortifications construites sur l'île

Plan de la batterie de Belle-Isle sur l'île de la passe. Construite entre 1778 et 1780, cette batterie comprenait "20 gros canons et six gros mortiers de bronze"

JEAN-CLAUDE ANTOINE

Nettoyage de la citerne utilisée comme poubelle par certains pique-niqueurs

A*rticle by Jean-Claude Antoine in the* Week End.

The MBC TV crew filming Mr La Hausse de Lalouvière as he explained the importance of the islet to a group of school children. (03jv1412)

OTHER ACCOMPLISHMENTS AND BENEFITS

Contacts were established and future cooperation and collaboration with the University of Mauritius and The Mauritian Wildlife Foundation was discussed. Various visits and meetings were organized while on certain fronts action was on the agenda. Jonathan Howe, Earthwatch staff, assisted Ashok Khadun of the Wildlife Foundation, to produce an illustrated list of plants found on the island. The visit of Dr Marina Carter was an opportunity to discuss the *in situ* evidence of archival documents.

Our daily presence during the 2003 season allowed us to observe visitors and their behavior, assess the damage done by casual campers and note what tourists and local visitors were most interested in. It was obvious, from visitors' comments, that once all the rubbish had been cleaned off the islet the value of the remains and monuments was enhanced. Whenever possible, our conversations with local visitors stressed the importance of the site and the need to respect the monuments. We were also able to provide some information to casual tour guides who often described the hot-shot furnace as the bread oven....

Botanist Ashok Khadun gave advice on how to deal with unwanted species while historian Marina Carter checked the on site evidence for the archive documents. (03jv0616)

The workmen cleaned the cistern and collected rubbish from all over the island. (03jv1613)