



PORT ESSINGTON

The historical archaeology of a north Australian
nineteenth-century military outpost

Jim Allen



Studies in Australasian Historical Archaeology 1



Port Essington

The historical archaeology of a north Australian
nineteenth century military outpost

Jim Allen

Studies in Australasian Historical Archaeology
Volume 1

Australasian Society for Historical Archaeology



SYDNEY UNIVERSITY PRESS

Published by
SYDNEY UNIVERSITY PRESS
University of Sydney Library
www.sup.usyd.edu.au
In association with the Australasian Society for Historical Archaeology

© 2008 Sydney University Press

Reproduction and Communication for other purposes

Except as permitted under the Act, no part of this edition may be reproduced, stored in a retrieval system, or communicated in any form or by any means without prior written permission. All requests for reproduction or communication should be made to Sydney University Press at the address below:

Sydney University Press
Fisher Library F03
University of Sydney
NSW 2006 AUSTRALIA
Email: info@sup.usyd.edu.au
ISBN 978-1-920898-87-8

ASHA Editorial Board

Professor David Carment, Charles Darwin University, Darwin, Northern Territory.
Dr Eleanor Casella, Senior Lecturer, University of Manchester, United Kingdom.
Dr Sarah Colley, Senior Lecturer, University of Sydney, Sydney, New South Wales.
Emeritus Professor Graham Connah, Australian National University.
Dr Clayton Fredericksen, Heritage Division, Dept of the Environment & Water Resources, Canberra, ACT.
Dr Susan Lawrence, Senior Lecturer, Latrobe University, Melbourne, Victoria.
Professor Tim Murray, Latrobe University, Melbourne, Victoria.
Dr Neville Ritchie, Waikato Conservancy, Dept of Conservation, Hamilton, New Zealand.

General Editor

Mary Casey

Monographs Editor

Martin Gibbs

Publications Committee

Mary Casey
Martin Gibbs
Penny Crook
Andrew Wilson

Cover Illustrations

1. Blockhouse and breastworks on Adam Head. Note magazine to the left of the structure. Watercolour by Owen Stanley, entitled The Fortress at Port Essington. Mitchell Library PXC 281 f.119. Published with permission of the Mitchell Library.
2. Royal Marines officer's shako plate from officers' mess excavations.

Frontispiece. Victoria settlement 1839. The town square is in the middle distance, right of centre. The white building with the bell-tower is the church and to its left through the trees is Government house. The house on piles, centre left, is the first hospital, later a store room. Water colour by John McArthur. National Library of Australia nla.pic-an 5863766. Published with permission of the National Library of Australia.

Contents

ABOUT THE SERIES	ix
PRESIDENT'S INTRODUCTION	ix
FOREWORD	xi
A RETROSPECTIVE INTRODUCTION	xiii
ABBREVIATIONS	xvi
CHAPTER 1 – INTRODUCTION: THE PROBLEM DEFINED	1
Research questions	1
Fieldwork.....	2
The site	2
Excavations.....	4
Documentary resources	4
CHAPTER 2 – EXCAVATIONS AND ARCHITECTURE	5
VICTORIA RUBBISH DUMP	5
VM surface collection	5
VM excavations.....	5
VICTORIA RUBBISH DUMP No. 2	9
THE HOSPITAL COMPLEX	9
The hospital surface collection	9
THE HOSPITAL	11
VH architecture.....	11
VH excavations.....	11
HOSPITAL DISPENSARY	13
VHD architecture.....	13
VHD excavations.....	13
HOSPITAL KITCHEN	15
VHK architecture.....	15
VHK excavations.....	16
MARRIED QUARTERS	18
VMQ architecture.....	18
VMQ chimney no. 1.....	22
<i>Conclusion</i>	22
VMQ excavations.....	23
QUARTERMASTER'S STORE	26
VQS architecture	26
VQS excavations	27
SHELL FLOOR No. 1	29
VSF excavations – structure.....	29
VSF1 excavations – artefacts	29
Summary of VSF1	31
SHELL FLOOR No. 2	33
VSFII excavation.....	33
VSFII finds	33
OFFICERS' MESS	34
VOM architecture.....	34
VOM excavations.....	34
VOM discussion.....	35
STORE D	35
VSD architecture	35
VSD excavations	36
VSD discussion	38
BAKE HOUSE	40
VB architecture.....	40

THE SMITHY	41
VS architecture	41
VS excavations	41
VS discussion	42
COWRIE HOUSE	43
VCH architecture.....	43
VCH discussion.....	44
ABORGINAL MIDDEN No. 1	45
VAM excavations	45
VAM finds	45
VAM shell sample	47
VAM radiocarbon 14 estimation	47
VAM discussion.....	47
ABORIGINAL MIDDEN No. 2	48
VAMII finds.....	48
GENERAL SURFACE COLLECTIONS	49
OTHER ARCHITECTURE	50
MAGAZINE.....	50
KILNS	51
CEMETERY	52
JETTY	54
GOVERNMENT HOUSE.....	54
WELLS.....	54
SAWPIT.....	54
STONELINE	54
EARTHWORKS.....	55
QUARRIES	55
<i>ARCHITECTURAL REMAINS OUTSIDE THE SETTLEMENT</i>	55
CONVALESCENT STATIONS	55
SMITH POINT BEACON	55
CHAPTER 3 – POTTERY	57
ARNOLD PILLING’S CLASSIFICATION	57
THE PORT ESSINGTON POTTERY CLASSIFICATION	57
CLASS 1 – PORCELAIN	58
Undecorated porcelain	58
Overglaze polychrome porcelain.....	58
Blue on white porcelain	60
Transfer printed porcelain	60
CLASS 2 – EARTHENWARE (WHITE CLAY WARES).....	61
Transfer Printed Wares	61
<i>Green floral transfer ware</i>	61
<i>Green scenic transfer ware</i>	61
<i>Green geometric transfer ware</i>	62
<i>Green and red floral transfer ware</i>	62
<i>Red floral transfer ware</i>	62
<i>Red scenic transfer ware</i>	62
<i>Brown floral transfer ware</i>	62
<i>Blue scenic transfer ware</i>	63
<i>Blue scenic transfer ware (Willow Pattern)</i>	64
<i>Blue floral transfer ware</i>	66
<i>Blue geometric transfer ware</i>	68

Green featheredge ware	68
Blue featheredge ware	69
Blue spatter ware	69
Undecorated white glaze ware	69
Line decorated ware	70
Hand painted ware	70
Flowing blue ware	70
CLASS 2 – EARTHENWARE (COLOURED CLAY WARES)	70
Mocha ware	70
Unglazed wheel-made ware	70
Salt glaze stoneware	70
Macassan ware	71
Rim glazed stoneware	72
Nga-kwun ware	72
UNIDENTIFIED POTTERY	72
DISCUSSION	72
Shape	74
Dating the pottery.....	74
Marked Items	74
Type Ranges	76
Clay Pipes	76
The Port Essington clay pipe collection	76
<i>Dating the clay pipes</i>	77
CHAPTER 4 – GLASS	79
TYPE A GLASS: THE ABORIGINAL ARTEFACTS	79
Base cores.....	81
Cutting flakes	84
Retouched implements	85
Utilised flakes.....	86
Waste flakes.....	86
Discussion – Type A glass.....	86
TYPE B GLASS	88
Rims.....	90
Bases.....	92
Complete bottles.....	92
Glass bottle seals	93
<i>The Château Margaux seals</i>	93
<i>The ‘Crown’ seals</i>	93
<i>The ‘AH’ seal</i>	94
Other glass items	94
Discussion – Type B glass.....	95
TYPE C GLASS	95
CHAPTER 5 – METAL, STONE AND BONE	97
METAL	97
Iron and lead.....	97
Copper	98
<i>Coins</i>	98
Brass	99
<i>Uniform insignia</i>	99
<i>Buttons</i>	100
STONE	101

Aboriginal stone artefacts.....	101
European stone – gunflints	102
<i>BONE</i>	103
CHAPTER 6 – THE ESTABLISHMENT OF PORT ESSINGTON	105
MELVILLE ISLAND AND RAFFLES BAY	105
The lessons of Melville Island and Raffles Bay	107
1829–1838. ARGUMENTS FOR A NEW ATTEMPT TO SETTLE NORTH AUSTRALIA:	
George Windsor Earl	107
Sir John Barrow and the maintenance of British sovereignty in north Australia	109
The financial administration of Port Essington.....	110
CONCLUSION.....	110
CHAPTER 7 – THE POLITICAL BACKGROUND	111
ARRIVAL AT PORT ESSINGTON: Choosing a site for the settlement.....	111
THE POLITICAL MANAGEMENT OF PORT ESSINGTON:	
Attempts to open the colony to settlers	111
CONFUSIONS OF AUTHORITY	113
ADMINISTRATIVE EQUIVOCATION: The decline and demise of Port Essington.	114
CHAPTER 8 – LIFE AT PORT ESSINGTON	117
THE FIRST GARRISON 1838–1844: Getting started	117
<i>The arrival of the French</i>	118
<i>Progress</i>	118
Captain John Mearthur, Acting Commandant and Commandant 1839–1849	119
The tropical environment and the 1839 hurricane	119
<i>Tropical predators</i>	120
Vernacular architecture.....	121
Professional architecture	123
Kitchen gardens and tropical horticulture.....	124
Local game and introduced livestock.....	125
Malaria: onset.....	125
THE SECOND GARRISON 1844–49: HOLDING ON	125
Malaria: taking hold	126
Small group personality conflicts	126
The tyranny of isolation	127
ABORIGINAL CONTACT.....	127
INTERACTIONS WITH MACASSANS	128
THE OVERLAND ROUTE.....	128
CHAPTER 9 – CONCLUSIONS	131
DENOUEMENT: SUCCESS OR FAILURE?.....	131
A limpet port.....	131
A missionary presence.....	131
European legacies.....	131
THE USE OF ARCHAEOLOGY IN AUSTRALIAN COLONIAL HISTORY	132
Documentary history and historical archaeology.....	132
The methodology of historical archaeology.....	133
BIBLIOGRAPHY	135

For John Mulvaney

By mid-century the British had not yet solved the problem of settlement on the northern coast but they had securely established a pattern of failure that was to stand as a model for some years to come.

C. Hartley Grattan *The Southwest Pacific to 1900*

About the Series

The *Studies in Australasian Historical Archaeology* series is designed to make the results of high-quality research in historical archaeology available to researchers and the public. Volume 1 presents Jim Allen's *Port Essington* as the first PhD dissertation in Australasian historical archaeology. As Jim's study was the seminal analysis for the discipline, in this instance we have chosen to retain the original content and discussion intact, both out of historical interest and as a benchmark for future researchers. Of particular significance is the extent to which the themes Jim explored in the 1960s, such as the nature of settlement and cross-cultural contact on the frontier, as well as the strong analytical structures he developed to address these, continue to resonate with current research.

Future releases in the series will include edited and revised versions of Australasian higher-degree theses, major pieces of consultancy and academic research, and commissioned

studies on other topics of interest to ASHA members. Volume 2, to be published shortly, will present Judy Birmingham's research on the Irrawang Pottery, recognized as the first HA excavation in Australia in the 1960s. In this completely new work Judy will not only report on the investigation of James King's 1833–1855 pottery and its products, but also provide an interpretation which draws on 40 years of experience and reflection.

A particular aim of the series is to ensure that the data sets from these studies are also made available, either within the volumes or in associated websites, to facilitate opportunities for inter-site comparison and critical evaluation of analytical methods and interpretations.

MARTIN GIBBS

Series Editor

President's Introduction

This new publishing initiative is a welcome one for ASHA and for historical archaeology in Australasia, coming as it does at a time when the quantity and quality of major research is higher than ever before. For ASHA, making the commitment to publishing monographs on a regular basis complements the ongoing publication of short reports in the newsletter and longer refereed articles in the journal. For the field of historical archaeology in the region, the series fills a gap that has been evident for some time, as it will make the results of large projects available to a wider audience than has previously been possible. ASHA has always seemed the logical host for such a monograph series, but until now it has not been possible to bring together the various elements required to make this happen and I congratulate Martin Gibbs for having the vision and dedication to make this project a reality. I am grateful to Mary Casey, as General Editor, for her guidance and generosity in assisting with the process and

I would also like to thank Wei Ming and Peter Saad of the La Trobe University Archaeology Program for their technical assistance.

On behalf of ASHA I would particularly like to thank Professor Jim Allen for allowing us to reproduce his thesis on Port Essington as the first volume of the series, and for graciously suffering the trials and tribulations that come with being a pioneer. The work is itself pioneering, as the first PhD thesis on a historical archaeology topic in Australia, and has more than stood the test of time to become a classic in the field. It is an appropriate study with which to launch this new series, and I am sure that it will be well received.

SUSAN LAWRENCE

President

ASHA

Foreword

I warmly welcome the publication of *Port Essington: the historical archaeology of a north Australian nineteenth century military outpost* and congratulate Jim Allen for having the intellectual interest (and the courage) to return to work undertaken some forty years ago. I also congratulate ASHA for having the wisdom to bring this important unpublished work into wider circulation. Its been said more than once, but its worth saying again, that to really grow and prosper, historical archaeology in Australia needs to develop a strong sense of its history. Improving access to foundational work such as *Port Essington* can only help this process.

Historians love foundation and origin narratives, and *Port Essington* provides a splendid opportunity to indulge in a little reflection about why this dissertation was (and is) so important. Any review of the history of historical archaeology in Australia (see for example Egloff 1994; Lawrence 2001; Murray 2000, 2002a; Murray and Allen 1986) identifies the critical origin points. *Port Essington* was the first doctoral dissertation on historical archaeology in Australia, and the first to actively explore what might now be seen as the themes of 'imperial archaeology', 'military archaeology' and 'contact archaeology' in Australia.

Jim's excavation of the site of Port Essington and Judy Birmingham's work at Irawang (begun in 1967) mark the beginning of a whole new kind of archaeology on the continent of Australia – one that dealt with the recent past, with European colonisation and settlement, and with contact between the settlers and local indigenous people. As in North America, the archaeology of Australia's recent past provided alternative social and local histories to those written by mainstream historians, demonstrating the value of this perspective to younger nations whose European past may have been short, but whose need to understand and value it was just as strong as it was with older nations. Both projects also clearly demonstrated that from the very first historical archaeology in Australia derived strong theoretical and methodological influence from North America, while at the same time engaging in the discussion of issues that were firmly global (or as we might now say *transnational*). This was (and is) entirely appropriate. But Jim was never a slavish follower of North American fashion, and *Port Essington* resonates with a strong sense of the local and of grappling with issues that were to become so significant in Australia over the coming decades. Understanding the history of places such as Port Essington required an understanding of matters as grand as British imperial policy. It also demanded an appreciation of how and why European settlements failed in tropical Australia, the consequences of contact with local indigenous communities, and of course of the ways in which material culture derived from archaeological excavation could enhance a reading of a rich documentary archive.

I have long used *Port Essington* as an exemplar of how to do historical archaeology – in particular how to properly analyse and report the analysis of excavated assemblages, and how to sensitively and imaginatively integrate these data with written documents to enhance understanding. *Port Essington* aptly demonstrates how the historical archaeological sum can be greater than either of its historical or archaeological *parts*. The fact that it reads so freshly today is testimony to the quality of what Jim achieved. It is also a testimony to the enduring nature of the issues that lay at its heart.

In celebrating Jim's achievement and extolling the many virtues of *Port Essington* we are reminded of several important matters. Perhaps foremost among these is that Jim undertook his research around the same time as Australian

society really began to address the nature of its relationships with indigenous Australia. In *Port Essington* indigenous people are not silent, disempowered observers, but neither are they 'colonised' or 'pacified'. Creating an understanding of the historical archaeology of indigenous Australia has proved to be a significant challenge to Australian archaeologists (see for example Murray 2002b, 2004), but I, for one, have always been struck by the subtle sense of indigenous presence in *Port Essington*.

Some years ago I discussed Jim's departure from historical archaeology to prehistoric archaeology (Murray 2000), and reflected on his views that the former lacked the intellectual challenge of the latter. In that context I sought to demonstrate that Jim's departure from the field was never total – indeed he published his Port Essington work very widely while at the same time doing important work in the development of heritage policy (see for example Allen 1967a, 1967b, 1972, 1973, 1975, 1976, 1980). Nonetheless it was difficult to demonstrate that historical archaeology in Australia for much of the next 20 or so years had managed to live up to the great promise he had demonstrated in *Port Essington*. Indeed it is probably closer to the truth that, with a few notable exceptions, the field did not regain intellectual momentum until the mid 1980s. Jim's important role in that revival has also been documented, notwithstanding his protestations to the contrary (see Murray 2000)!

The currently strong state of historical archaeology provides real justification for the publication of *Port Essington*. The issues Jim first addressed are well and truly on the research agenda and a new generation of historical archaeologists are there to build on his achievements.

TIM MURRAY

Archaeology, La Trobe University

BIBLIOGRAPHY

- ALLEN, J. 1967a. The technology of colonial expansion: a nineteenth century military outpost on the north coast of Australia. *Industrial Archaeology* 4(2):111-38.
- ALLEN, J. 1967b. The Cornish round chimney in Australia. *Cornish Archaeology* 6:68-73.
- ALLEN, J. 1970. Early colonial archaeology. In F.D. McCarthy (ed.) *Aboriginal Antiquities in Australia*. Publication No. 22. Canberra: Australian Institute of Aboriginal Studies
- ALLEN, J. 1970. Port Essington – a successful limpet port. *Australian Historical Studies* 15 (59):341-60.
- ALLEN, J. 1973. The archaeology of nineteenth century British imperialism: an Australian case study. *World Archaeology* 5(1):44-60.
- ALLEN, J. 1975. Report of the Conference on Historical Archaeology and the National Estate. *Australian Archaeology* 2:62-97.
- ALLEN, J. 1980. Head on: the nineteenth century British colonisation of the Top End. In R. Jones (ed.) *Northern Australia: Options and Implications*. pp. 33-9. Canberra: Research School of Pacific Studies, the Australian National University.
- EGLOFF, B. 1994. From Swiss family Robinson to Sir Russell Drysdale. Towards changing the tone of historical archaeology in Australia. *Australian Archaeology* 39:1-9.

- LAWRENCE, S. 2001. Australia, Historical. In T. Murray (ed.) *Encyclopaedia of archaeology: history and discoveries*. pp.114–21. Santa Barbara, CA: ABC-CLIO.
- MURRAY, T. 2000. Digging with documents. Understanding intention and outcome in northwest Tasmania 1825-1835. In A. Anderson and T. Murray (eds) *Australian Archaeologist. Collected papers in honour of Jim Allen*. pp. 145-60. Canberra: Coombs Academic Publishing, the Australian National University.
- MURRAY, T. 2002a. But that was that long ago: theory in Australian historical archaeology 2002. *Australasian Journal of Historical Archaeology* 20:8-14.
- MURRAY, T. 2002b. Epilogue: an archaeology of Indigenous/ Non-Indigenous Australia from 1788. In R. Harrison and C. Williamson (eds) *After Captain Cook*. pp. 213-23. Sydney University Archaeological Methods Series 8.
- MURRAY, T. 2004. In the footsteps of George Dutton: developing a contact archaeology of Australia. In T. Murray (ed.) *The Archaeology of Contact in Settler Societies*. pp. 200-25. Cambridge: Cambridge University Press.
- MURRAY, T. and J. ALLEN 1986. Theory and the development of historical archaeology in Australia. *Archaeology in Oceania* 21:85-93

A Retrospective Introduction

It is more than 40 years since I began work at Port Essington and 38 years since the doctoral thesis that forms the basis of this monograph was completed. I was thus reticent when Susan Lawrence approached me with the proposal that ASHA publish the thesis. My hesitancy was multi-faceted. The work was 40 years out of date; at least one long history of Port Essington (Spillett 1972) had appeared that suggested that my documentary search, exhaustive as it might have been, was not complete. I was also aware that other important documents had surfaced in the meantime, foremost among them a notebook kept by the commandant, John McArthur and his son John Junior at the settlement (McArthur 1843-49). As well, immediately I completed my thesis I took up a lectureship in prehistoric archaeology that took me away from historical archaeology; I can no longer claim particular expertise in a subject that has in the last decade claimed a firm place in Australian academic studies. Perhaps overriding these considerations was the notion that notwithstanding the fact that the thesis gained me a doctorate, a 'licence to practise', I have continued to carry a sense that the thesis did not work – that it failed to demonstrate the success or utility of attempting to integrate archaeological and documentary evidence in a situation like Port Essington where the documents were so extensive. Of course the thesis had its own justifications – it was a first attempt in the Australian field, it was a test case, it was exploring methodological issues in archaeology – but the ultimate question was (and perhaps still is) whether historical archaeology is sufficiently robust intellectually to survive as an academic discipline, rather than a tool to classify monuments or implement 'heritage' management. This introduction revisits some of these issues.

My acquiescence to Susan's request had less to do with overcoming these qualms and much more to do with guilt. Like others, when teaching graduate students I have emphasised the need to publish the data; as Roger Green says, the only 20-year-old papers of his that get cited these days are the data papers. Here are the data.

There had to be some ground rules. The first was recognising that the primary purpose was publishing what, for good or ill, is now an historical document. This meant that nothing substantive in the thesis would alter and that nothing, including the references, would be brought up to date. At the same time the thesis had been produced under the tyranny of the typewriter; then, unless gross errors demanded the retyping of a complete page, a blind eye was turned to the odd typo and the prolix excesses of student prose. Here, while trying to avoid improving on history, I have chosen to write out obscurities, modify convolutions of style and otherwise do a general sub-edit. A large part of this modification has been converting the footnote referencing system universally favoured by historians in the 1960s to the Harvard system. While this saved space, it meant that many publication details not required in the footnote system had to be pursued. While most were located, some gaps remain in the bibliography. As well, in trying to minimise in text disruptions by long correspondence references, I have employed a system of abbreviations that are listed before the text. Very occasionally there are in text references to published sources that were published after the thesis and that were originally referred to as theses or manuscripts. Mostly both references are now given. Most of the original illustrations have been retained and a few new ones added. Finally, the original title *Archaeology, and the History of Port Essington* was succinct but grammatically challenged. Since the text has been altered here, so has the title been replaced.

In 1966 I moved to Canberra and the Australian National University intent on working prehistoric sites in Papua New Guinea for my doctorate. A plan to examine the northern edge of the Torres Strait Pleistocene land bridge for evidence of its use as an initial human entry point into Australia, an idea that held currency then and later (e.g. Flood 1983:79-80), fell through. Casting about for an alternative, John Mulvaney raised the possibility of Port Essington, pointing out that my formal training in classical archaeology at the University of Sydney suited me to the task, and that Campbell Macknight was about to begin a doctorate on the Macassans, so that the two subjects were related in time and space. A few weeks later, after working the libraries for the most readily available sources, John and I visited the site, carried out preliminary testing and the die was cast.

At my *viva* (*viva voce* – oral examination, now frequently thesis defence where it still exists) one examiner (a historian) thought such lengthy archaeological analysis interrupted the narrative. Another (a prehistorian) thought more could have been done with the Aboriginal material. Taken together, these comments reflected my own disquiet about the integration of the two data sources. Academic history, especially in the 1960s, had prescribed themes and prescribed ways of dealing with them. I recall attending a seminar by Sir Keith Hancock at the ANU where he discussed his current history project. When published, the fly leaf of *Discovering Monaro* (Hancock 1972) referred to it as a 'local history'. In fact it is an elegant, opinioned and entertaining social history of the Monaro that bounces from Plato to the CSIRO, taking its sources from a swell of natural and unnatural sciences (including archaeology). At the seminar, in question time, another eminent historian berated Hancock for wasting his time and skills on a 'municipal history'.

What sort of history does historical archaeology produce? Should it produce history that is recognisable in conventional terms at all? My view, initially expressed in this thesis, has not changed very much. It is not sufficient merely to do historical archaeology behind the cover of heritage management. After all, what is the significance of another drain or another footing or another descriptive catalogue of finds? The clear answer to this is in the context that the footing is found and this in turn means both its archaeological context and its historical context. This seems to me to offer a way forward. Over the years my students got sick of hearing me say 'The question is what is the question?' But by considering what we are trying to find out we can more clearly determine the ways in which we might contextualise the data to produce results that isolate us from thinking of archaeological and historical data as separate entities that merely confirm or deny each other. Archaeological data of any sort do not readily lend themselves to the seamless narrative. Archaeological and historical evidence operate within different frames and scales of reference.

I was, and remain, dissatisfied at my attempts to integrate the two data sets in this thesis which to me lacked sufficient mid-range theory to link data to behaviour. Like Murray and Mayne (2001:92) at 'Little Lon' I attempted to match site-units at Port Essington with the historical records for those buildings, but also like Mayne and Murray, making those interconnections in order to transform the data into a new understanding of past behaviour was never easy. Some attempts, as with the analysis of the married quarters and their round chimneys, came closer to success than others. But this might have been because the archaeology had more to reveal.

Larger scale and more abstract integrations sometimes required greater imagination that was founded on less persuasive data.

In part some of the limits to overcoming this problem had to do with the practicalities of finishing a thesis within time constraints and not having the space to see the wood for the trees. But even being laid aside for a time brought little reconciliation between my thesis and me. Instead I excised the archaeology and published the history in a history journal (Allen 1972) and then retackled the archaeology in a more synthetic fashion (Allen 1973). This paper focussed on a more explicit theme, the archaeology of British imperialism, and came closer to demonstrating the utility of historical archaeology at Port Essington than anything else I wrote.

I note in passing that such a thematic approach has taken on a life of its own in more recent historical archaeology. By aiming enquiries at historical themes that archaeological data reflect, even indirectly (slavery, urban landscapes, communication, nineteenth century imperialism), historical archaeology is carving out its patch and staking claims to a sociological or humanistic past that it certainly is uniquely placed to investigate, at least on occasion, and utilising not only documentary data but also the data from whatever other disciplines are relevant to any particular project. At least superficially such themes appear to offer an entrée to the mid-range theory that this thesis lacked.

So if I was re-writing it now, would I organise the thesis so that it addressed such themes more directly? An archaeology of contact chapter might better satisfy my prehistorian examiner; the archaeology of isolation might better exemplify the exigencies of frontier life controlled by a disinterested bureaucracy on the other side of the world; the archaeology of failure could address the economics of the settlement and the inroads of termites and malaria. The whole could be presented as the archaeology of tropical colonisation. Why does this prospect leave me uneasy? I think perhaps because themes frequently remain a well disguised substitute for theory rather than a focus for investigating and developing better thought-out and expressed theoretical positions. A confident discipline doesn't need bling.

I have much less to say on the methodology produced here. As I recount, I had few examples to follow, although in North America the papers of the newly formed Conference on Historic Site Archaeology were beginning to be published. These contained many seminal papers that influenced and clarified my own views. Re-reading the data chapters, they now strike me as clumsy and I wonder if I was up with the subject how I might approach it today. I watch with envy as the Time Team expert glances at the Willow Pattern sherd and says '1828 to 1830'. Yeah, right.

Within a few weeks of submitting this thesis I had begun teaching and researching prehistoric archaeology at the University of Papua New Guinea. But for another 17 years I flirted with historical archaeology. In 1971 Roger Green coaxed me into excavating the sixteenth century Mendaña site in the eastern Solomon Islands (Green and Allen 1972; Allen 1976) and I published a smattering of papers on Port Essington (Allen 1970, 1972, 1973, 1980) that added to the two published during my doctoral research (Allen 1967a, 1967b). Back in Canberra I was the chair of the Project Coordinating Committee on Historical Archaeology for the Australian Heritage Commission between 1975 and 1978 and a member of Tasmanian Research Advisory Committee set up to advise the Tasmanian National Parks and Wildlife Service on the management of Tasmanian historic sites in 1976 and 1977. In 1975 I reported on a conference on historical archaeology and the National Estate (Allen 1975) and with

Tim Murray (Murray and Allen 1986) I made my last foray into historical archaeology prior to this comeback. Additionally, Tim likes to portray his appointment at La Trobe as my soft spot for historical archaeology (Murray 2000:145) but he was really brought in to add the theoretical warp to the very practical weave of a research-active department. His historical archaeology was a bonus, but one that suited the catholic reach of La Trobe archaeology's curriculum.

Meanwhile, my 'mainstream' career, first in Papua New Guinea and subsequently in Australia gradually took me back from near contact prehistoric sites to the Pleistocene. As I conclude this monograph I am about to return to an article on a Pleistocene site in Victoria. I feel like Janus.

In the late 1960s Port Essington was a flora and fauna reserve, superintended by Dave Lindner, an Animal Industries Branch ranger living at Black Point with his wife and baby boy. At that time access to the settlement was extremely difficult. Today, with a permit, Black Point can be reached by road, air or sea with little fuss.

The area is now known as Gurig Ganuk Barlu National Park. It lies within the clan estates of the Iwaidja speaking peoples of western Arnhem Land. Custodianship is shared between five Aboriginal clan groups, the Agalda, Ngaindjagar, Madjunbalmi, Minaga and Muran. The park is managed jointly by the traditional land owners and the Parks and Wildlife Service and is administered by the Cobourg Peninsula Sanctuary and Marine Park Board. There is a caravan park and holiday cottages. Across the harbour is an exclusive resort. A large Ranger station is maintained, still at Black Point. Where Lindner's aluminium office and caravan once stood there is now a public telephone.

There is also a cultural centre there that has Aboriginal, Macassan and historical displays including a number of artefacts originally excavated at the Victoria settlement during this project. In 1995 my wife Jill and I visited the Northern Territory Museum and Art Gallery to inspect the tiny display case that encapsulated my three years of doctoral research. I had seen it a year or two earlier while at a conference in Darwin, but neither it nor any other Northern Territory history was now on display, except for an interactive exhibit about Cyclone Tracy that was more suited to Luna Park. A new directorial broom had swept clean. We flew to Port Essington and I was delighted to be re-united with parts of the collection in the cultural centre. But documentation was thin and nowadays I get occasional requests about the gunflints or the bottle seals and their present whereabouts that I cannot answer. The collection has become a classic C-transform in Schiffer's (1972) terms.

Whatever this dispersal of the collection says about the value of historical archaeology in Australia, it is one of the reasons that prompted me to publish this work. Even so, I might still not have been sufficiently motivated had not John Mulvaney raised the issue of publication with me every time we have met since 1969. It is for this reason that it gives me pleasure to dedicate this monograph to him. I need also to thank various additional people who helped this time around: Martin Gibbs, Susan Lawrence, Wei Ming, Mary Casey, Natalie Cleary, Jill Allen, Trish Scanlan, Peter Corris, Christophe Sand and finally Tim Murray for his generous introduction. I have benefited from the efficient assistance of staff at the National Library of Australia and the Mitchell Library in Sydney and here publish historical drawings from the archives of both establishments with their permission. In particular, having access to the resources of the Department of Archaeology at La Trobe University made this all possible, and the staff of Sydney University Press brought it to fruition.

I am particularly grateful to the Australasian Society for Historical Archaeology for undertaking this publication and giving me an opportunity to revisit my past at such a distance. It is an indulgence bestowed on few of us.

JIM ALLEN
Mossy Point June 2007

BIBLIOGRAPHY

- ALLEN, J. 1967a. The technology of colonial expansion: a nineteenth century military outpost on the north coast of Australia. *Industrial Archaeology* 4(2):111-38.
- ALLEN, J. 1967b. The Cornish round chimney in Australia. *Cornish Archaeology* 6:68-73.
- ALLEN, J. 1970. Early colonial archaeology. In F.D. McCarthy (ed.) *Aboriginal Antiquities in Australia*. Publication No. 22. Canberra: Australian Institute of Aboriginal Studies
- ALLEN, J. 1970. Port Essington – a successful limpet port. *Australian Historical Studies* 15 (59):341-60.
- ALLEN, J. 1973. The archaeology of nineteenth century British imperialism: an Australian case study. *World Archaeology* 5(1):44-60.
- ALLEN, J. 1975. Report of the Conference on Historical Archaeology and the National Estate. *Australian Archaeology* 2:62-97.
- ALLEN, J. 1976. New light on the Spanish settlement of the southeast Solomons. In R.C. Green and M.M. Cresswell (eds) *Southeast Solomon Islands history: a preliminary survey*. Bulletin of the Royal Society of New Zealand, 11:19-29.
- ALLEN, J. 1980. Head on: the nineteenth century British colonisation of the Top End. In R. Jones (ed.) *Northern Australia: Options and Implications*. pp. 33-9. Canberra: Research School of Pacific Studies, the Australian National University.
- GREEN, R.C. and J. ALLEN 1972. Mendaña 1595 and the fate of the lost 'Almiranta': an archaeological investigation. *Journal of Pacific History* 7:73-91.
- HANCOCK, W.K. 1972. *Discovering Monaro. A Study of Man's Impact on his Environment*. Cambridge: Cambridge University Press.
- McARTHUR, J. 1843-49. Notebook of John McArthur and John McArthur jnr., kept at Victoria Settlement Port Essington. National Library of Australia. Microfilm G 24614.
- MURRAY, T. 2000. Digging with documents. Understanding intention and outcome in northwest Tasmania 1825-1835. In A. Anderson and T. Murray (eds) *Australian Archaeologist. Collected papers in honour of Jim Allen*. pp. 145-160. Canberra: Coombs Academic Publishing, the Australian National University.
- MURRAY, T. and J. ALLEN 1986. Theory and the development of historical archaeology in Australia. *Archaeology in Oceania* 21:85-93.
- MURRAY, T. and A. MAYNE 2001. Imaginary landscapes: reading Melbourne's 'Little Lon'. In A. Mayne and T. Murray (eds) *The Archaeology of Urban Landscapes: Explorations in Slumland*. pp. 89-105. New Directions in Archaeology Series. Cambridge: Cambridge University Press.
- SCHIFFER, M.B. 1972. Archaeological context and systemic context. *American Antiquity* 37:156-65
- Sпилетт, P.G. 1972. *Forsaken Settlement*. Melbourne: Lansdowne Press.

ORIGINAL ACKNOWLEDGEMENTS

Since this piece of work was begun in March 1966 I have had the pleasure of meeting many people who with their knowledge, experience, interest and humanity have made this journey into the past also a journey into the future. I offer my thanks to them all. In particular I would thank the following, and apologise to any whose names may have been inadvertently omitted.

Northern Territory

Mr and Mrs D. Lindner, the Animal Industries Branch Ranger at Port Essington and his wife. Both David and Marjory assisted me beyond any official capacity and often to their own inconvenience. Without this assistance the project would not have been possible.

Mr E.P. Milliken, Mr G.A. Letts, Mr V. O'Brien, Mr N. Wilson, Mr J. Long, Mr P. Spillett, Mr G. Stocker, Mr G. Patterson, Mr and Mrs I. Walker, Mr and Mrs G. Kirby, Mr J. Morris.

Sydney

Mr J.V.S. Megaw, Mr D. Moore, Mr R. Wright, Dr D. McMichael, Mr A. Thorne, Dr C. White, Dr J.P. White, Mr and Mrs J. Clegg, Mr P. Davidson, and the staffs of the Mitchell Library, the Australian Museum, and the Museum of Applied Arts and Sciences.

Canberra

Mr J. Golson, Mr C.A. Key, Mr R. Jones, Mr C.C. Macknight, Mrs B. Hiatt, Mr I. Glover, Mr C. Smart, Mr J. Specht, Miss E. Crosby, Miss A. Bickford, Mr B. Egloff, Mrs L. White, Mrs L. Beattie, Mrs N. Phillips, Mr J.H. Calaby, Mr W. Bateman, Mr F.D. McCarthy, Miss C. Kiss, Dr N. Barnard, Dr D. Shineberg, Dr F.B. Smith, Mr and Mrs J. Edmonds, Mr P. Corris, Mr and Mrs A.C. Minson, Miss L. Ryan, Mr R.J. Lampert, and Miss .M. Slater, Mr T. McMahan and the staff of the Visual Aids Unit. Also the staffs of the Menzies Library and the National Library of Australia.

In particular I would like to thank Mrs S. Wilkie, Mr W. Ambrose and Miss W. Mumford, who carried the burden of producing the plates and drawings.

In addition I would like to thank Mr R. Edwards, Mrs E. Watkin-Jones and Dr I. McBryde.

Overseas

My thanks are due to the staffs of the various universities, libraries and museums with whom I corresponded and visited. In particular I would like to thank Mrs M. Hughes, Captain I. Donald, Professor and Mrs A.C. Thomas, Miss S. Davis, Professor G.S. Graham, Mr and Mrs M.A. Hudson, Miss M. Mountain, Mr K. Hudson, Professor A. Steensberg, Mr and Mrs L. Bobb, Dr N.F. Barka, Mr I. Noel-Hume, Professor F. Quimby and Mr I.C. Walker.

Finally my especial thanks is given to my supervisor, Mr D.J. Mulvaney for his encouragement, guidance and assistance at all times.

Abbreviations used in text

ADB	Australian Dictionary of Biography
Adm.	Public Records Office, London: Admiralty
AONSW	Archives Office of New South Wales
CO	Public Records Office, London: Colonial Office – NSW
HDL	Hydrographic Department, London
HRA	Historical Records of Australia
ML	Mitchell Library, Sydney
NLA	National Library of Australia, Canberra
NMMA	National Maritime Museum Archives, Greenwich
PLV	Public Library of Victoria
PPGB	Parliamentary Papers of Great Britain
PPNSW	Parliamentary Papers of New South Wales
RBGK	Royal Botanic Gardens Archives, Kew
RGSA	Royal Geographical Society Archives, London
RMAP	Royal Marines Archives, Portsmouth

Chapter 1

Introduction: The Problem Defined

Prior to 1966 no professional enquiry had been made into the potential of archaeology as a technique for historical research in Australia. In that year the possibilities of excavating the remains of the British settlement of Victoria, in Port Essington in tropical northern Australia (Figures 1 and 2) were investigated by me and my supervisor, D.J. Mulvaney. This thesis presents the results of the project which grew from those investigations.

The work was begun in total ignorance of the amount of historical archaeology which had been carried on in the United States of America and also in Canada and with only the vaguest ideas about industrial archaeology in Britain. The latter discipline proved to have less relevance to the Australian situation than the former, and many aspects of the organisation and analysis of the present work reflect the influence of American historical archaeologists. The cultural affinities of the materials recovered were British, however, and research into these was necessarily directed towards Britain. Terminologies in use have been maintained wherever possible and reflect both American and British influences.

RESEARCH QUESTIONS

A number of themes presented themselves as potential lines of enquiry. The first and major objective was to assess the degree to which archaeology, both in fieldwork and laboratory analysis, might be of value in providing new insights and evidence for Australian colonial history. In the immediate situation this meant demonstrating that archaeology might be able to say something beyond the available documents for the history of Port Essington. These documents were known to be available, although in what quantities was still to be

ascertained, and documentary research was assumed to be an integral part of the project from the beginning. This led to a further consideration, the degree to which two vastly different kinds of evidence might interact and be integrated into history. From the vantage point of hindsight this has emerged as the major problem confronting not only this project but historical archaeology in general.

The second aim of the thesis – to begin compiling a well-dated reference collection of mid-nineteenth century artefacts – both influenced and was influenced by the selection of the site. The settlement at Port Essington was made in 1838 and abandoned in 1849. From that time the area has remained almost totally free from contamination by later European occupation. The exception was in the 1870s when cattle ranchers occupied the area for a brief time, but as reference to the site map (Figure 3) shows, this was not in the settlement proper, nor was it of sufficient intensity to disturb the original occupation debris to any noticeable degree. Today the area is a flora and fauna reserve, superintended by a ranger living at Black Point, 24 km from the settlement. Access to the settlement by land requires a major expedition (see below) and the attendant difficulties of sea or air access limit visitors to the settlement to one or two per year.

Thus the site presented an almost unique opportunity to test the potential for the future analysis of historic sites elsewhere in Australia – the excavation of an uncontaminated site of single phase occupation whose occupation dates were known historically, and which was of sufficient duration to provide a meaningful collection of artefacts and architectural information. At the same time the duration of the settlement was not of an extended time range, and it was expected that the artefacts recovered might therefore constitute a type collection for this period of Australian history. This could then be used in the same manner as types anywhere in archaeology, for working from the known to the unknown. Following the first season's excavations an immediate example of this process was at hand. The Chinese porcelain excavated in the settlement showed similarities with that being excavated in historically undated Macassan (Malayan) trepanning campsites on the Arnhem Land coast, and a comparison of these wares is at present being conducted (Macknight 1969).

Two further areas of consideration presented themselves. The first of these was the possibility of exploring archaeologically for the first time in Australia the culture contact situation between Europeans and Aborigines, not only within the settlement itself, but also in Aboriginal sites in the general area.

The second consideration was that because of the unique possibilities of cross-checking archaeological evidence with historical documents it was thought that archaeology in the recent historical past might be well suited for examining concepts and techniques of fieldwork, analysis and interpretation current in prehistoric archaeological research.

Faced with no knowledge of any theoretical writing in the particular field of historical archaeology, the work was begun with a single basic premise: that the final objective of the fieldwork and analysis was to produce history. In the particular and practical aspect this meant the history of Port Essington constructed from all the available sources. In a more general aspect this meant contributing to the general history of nineteenth century technology and colonial expansion, again using both archaeological and historical data.

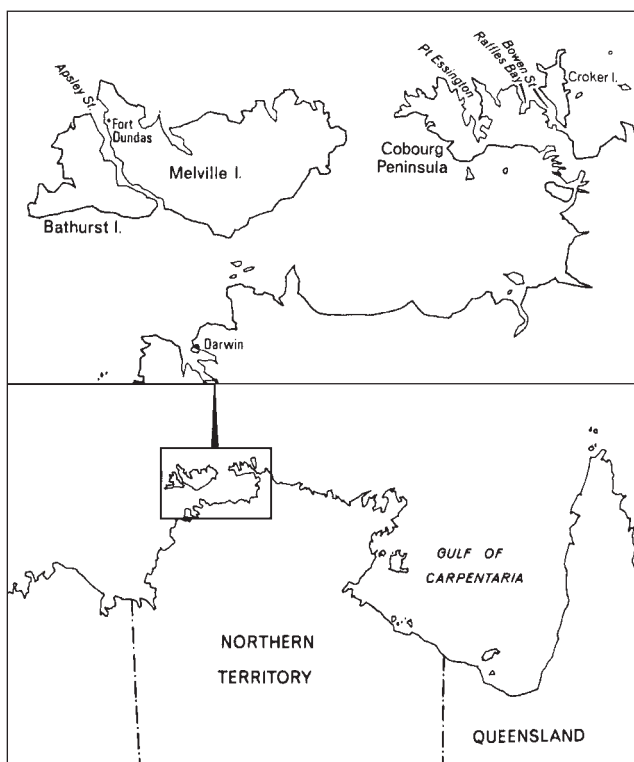


Figure 1. Location map showing Port Essington and other places mentioned in the text.

FIELDWORK

In June 1966 I carried out a preliminary survey, including some exploratory excavation, with the help of John Mulvaney. This had followed three months initial documentary research which yielded contemporary descriptions of the settlement, a large number of contemporary sketches and paintings and the descriptions of a few later visitors to the site. The survey confirmed the wealth of deposit and architectural remains and altogether more than 40 site-units (structures or contained areas within the site) were located, the majority of which could be identified as to function from the illustrations and descriptions available.

I returned to the site for six weeks in August and September of 1966 with a small team. We spent the time mapping, recording architecture and excavating various site-units. Of the six members who comprised the excavation team five were experienced excavators and all were efficient workers. This field season was so productive that the follow-up season in 1967 was limited to three weeks extending the excavations and checking results obtained in the previous year. In addition, short visits were made to two slightly earlier sites in the vicinity, Fort Dundas on Melville Island and Raffles Bay on the Cobourg Peninsula (see Chapter 6). Trial excavations at both these sites proved disappointing and given also the paucity of architectural remains at both, in comparison with Port Essington, it was decided to concentrate efforts on the latter.

A final visit to the site took place in August–September 1968. This was conducted in conjunction with a field exercise controlled by the Northern Command of the Australian Army and the primary purpose of the visit was to carry out conservation of the site. In addition, however, it afforded the opportunity of locating several convalescent stations which had been occupied by the original garrison in various parts of Port Essington. As an example of the difficulty of land access, it took the seven vehicles in the unit six days to reach the settlement from Oenpelli Mission, a distance of less than 160 km.

THE SITE

The Cobourg Peninsula is a small peninsula (approximately 1,500 square km in area) jutting into the Arafura Sea at the western end of Arnhem Land (Figures 1 and 2). It is a relatively flat piece of land whose outstanding topographical feature is the number of harbours and inlets which indent its coastline. The largest of these is Port Essington, which has a mouth c. 11 km wide and which extends approximately 32 km to its head. The harbour is divided naturally into inner and outer harbours by a narrow spit of land, Record Point. The shoreline consists for the most part of dunes screened by mangrove mudflats or sandy beaches. In places a low red cliff line reveals the hinterland as open sclerophyll forest with pockets of monsoonal jungle. Being well into the tropical zone the climate of the area is hot and humid. It receives c. 1,250 mm of rain each year, all of which falls in the wet season, October to April.

The site of the settlement, which was named Victoria (but universally referred to here and elsewhere as Port Essington), was situated on the western shore of the inner harbour where the white cliff of Adam Head forms a conspicuous landmark, rising about 15 m above the sea, and being possibly the highest point on the harbour shoreline (Figure 3). The settlement was placed on the plateau which extends from Adam Head to Minto Head and covered an area of some 36 hectares. Since its abandonment, the forest has regenerated strongly which made the location and mapping of site-units a

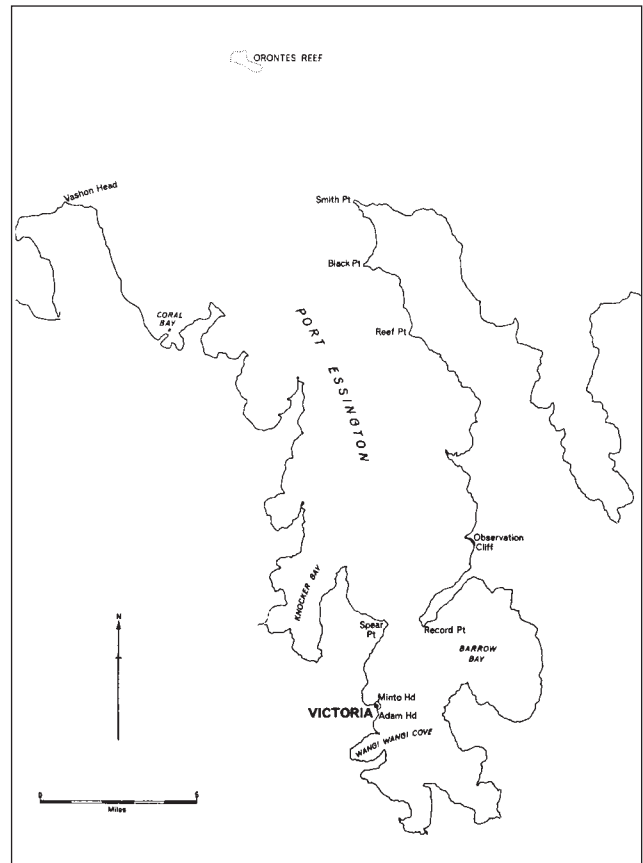


Figure 2. Map of Port Essington showing Victoria and other places mentioned in the text.

difficult process. Between the initial survey and the first season of excavation Peter Spillett (Historical Society of the Northern Territory) supplied me with a contemporary sketch map of the settlement (HRA I xxvi:373), which in general verified the identifications made during the initial survey. This map (Figure 4) showed that the town square was in fact hatchet-shaped and conformed to the similarly shaped patch of monsoonal forest located west of the jetty. There appeared to be no reason why this area should have regenerated in monsoonal growth unless it had been similar vegetation originally, but this proved not to be the case. Excavations under house floors in two separate site-units within this vegetation zone revealed a thin charcoal layer (see Figure 25) containing pieces of charcoal identified as eucalypt (Stocker 1968) that demonstrated that the area contained these trees prior to clearing by fire. The regeneration of monsoonal rather than eucalypt forest is seen as a result of the introduction of shell used as flooring in the huts which bordered the square. Section 4 of Stocker's report reads: 'the broken shell material used for the flooring of the houses may be important. Perhaps after the abandonment of the settlement the ring of broken shell floors around the square prevented fire penetration and enabled the monsoon forest to become established. Another possibility which cannot be discounted is that the broken shell material inhibited growth of eucalypt forest species without affecting those of the monsoon forest. Monsoon forest is often on soils derived from shell material but eucalypt forests rarely, if ever, occur on these soils'.

The area of the settlement proper is an undulating plateau with the highest points being Adam Head and Minto Head. To the west beyond the square the ground falls gently, terminating in a paperbark (*Melaleuca* sp.) swamp some 400 m from the settlement, immediately beyond the cemetery. The ground to the south of Adam Head falls sharply to a fine sandy beach where the 1870s cattle ranch was located.

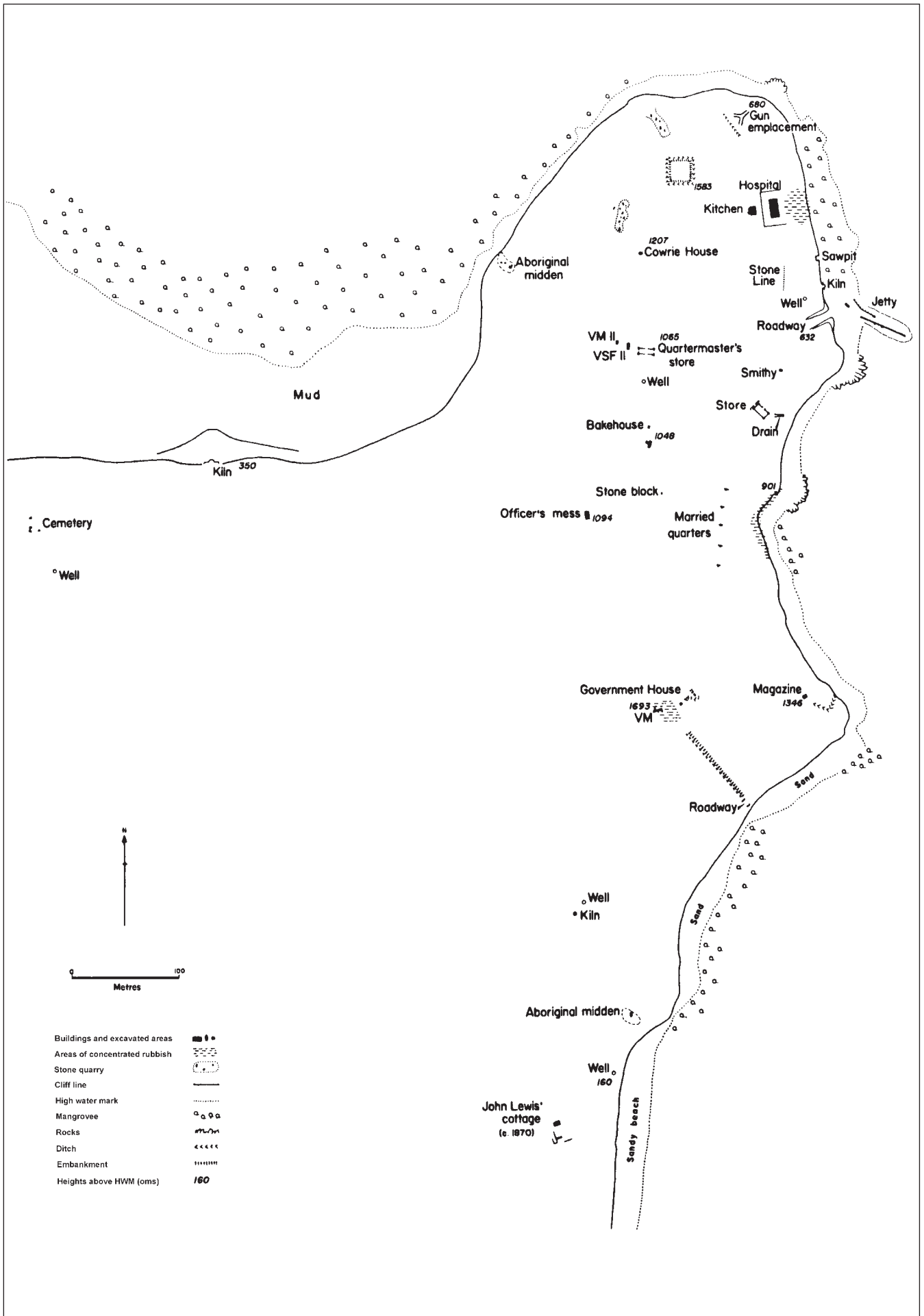


Figure 3. Map of Victoria settlement showing archaeological locations discussed in the text.

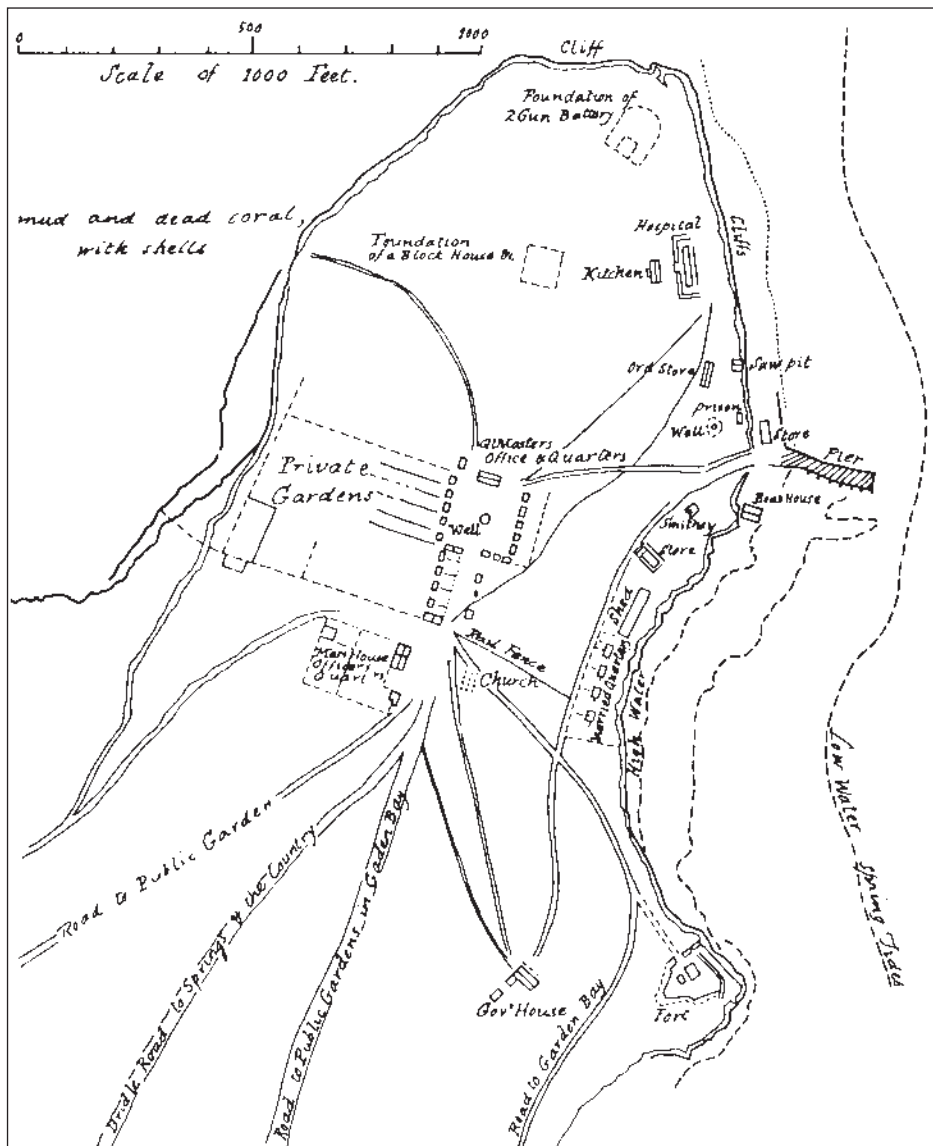


Figure 4. Contemporary map of Victoria settlement drawn in 1847 (HRA I xxvi:373), sometimes referred to as the McArthur map.

units were reduced. The standard technique was to excavate these squares with trowels until whatever stratigraphy present was recognised. In most site-units stratigraphy was of little importance, being single-phase occupation, but wherever an apparent stratigraphic division occurred, the material was excavated separately, to be integrated or kept distinct at a later date in the laboratory. Once the general nature of deposition was understood, small spades were employed to hasten the excavations. In general excavations were made at right-angles to wall lines, so as to be able to identify builders' trenches and other architectural features.

EXCAVATIONS

Given the time and resources at my disposal it was not possible to excavate the settlement completely, nor was this desirable, since we were conscious of preserving as much of the archaeological record there as possible. It was felt that since the potential importance of the site was so great, sections of original deposit of all site units should be maintained for future work when theoretical constructs of the discipline and techniques for exploring them were better understood.

It was thus decided not to excavate any site-unit totally, but rather to sample as many site-units as possible, despite deficiencies in this approach. The excavations become, as Dollar (1967:8) pointed out, a statistical sample of a statistical sample, with the attendant problems of generalising from misleading evidence. However, given the potential different nature of these deposits from the prehistoric sites with which we were familiar, we also had to develop appropriate excavation techniques in the field, building on our own immediate experience. More pragmatically we also wished to compare site-units to explore whether concepts as diverse as social class distinctions and technological functions could be determined from the archaeological evidence alone.

A standard pattern of excavations was developed. The site-units were excavated in metre squares except where a closer horizontal check was thought necessary, in which case the

All material was passed through 5 mm mesh sieves and immediately bagged for transportation to the laboratory where it was washed and labelled. All architectural sections were drawn in the field and measurements were independently taken for later cross-checking. The site map was drawn with less than a 2% error.

DOCUMENTARY RESOURCES

The major difficulty of my documentary research has been my inability to locate in Australia reliable literature dealing specifically with the technology and products of nineteenth century England. By corresponding with a number of museums and libraries in Britain some information was gained and this correspondence also introduced me to historical archaeology in North America from whence I was able to acquire a number of site reports and other methodological and theoretical papers. Many site reports did not contain sufficient detail for comparisons with my excavations, nor were the methodologies employed sufficiently useful for my work. However they were of great assistance in clarifying my own approach. In the latter part of 1967 I was fortunate in being able to spend four months in Britain, Canada and the United States, examining museum collections and talking to archaeologists interested in historical archaeology. This proved highly beneficial, not the least in that it enabled me to tap a number of documentary sources unavailable in Australia.

Chapter 2

Excavations and Architecture

This chapter describes the excavations and architecture of each site-unit. Any relevant discussion is included at this juncture and the finds from each site-unit are recorded in tabulated form at the end of each section; mostly these are not directly referred to in the text. General discussions of the artefacts follow in the subsequent chapters.

Each site-unit has been dealt with separately and has been given a code prefix listed at the beginning of each section. All weights are given in grams, and measurements in metres, or millimetres as appropriate. The glass in the tables in this chapter is divided into three types. Type A includes all pieces thought to be possible Aboriginal artefacts, Type B includes all pieces of identifiable shape and Type C includes all pieces of glass not identifiable as Types A or B (see Chapter 4).

VICTORIA RUBBISH DUMP (Code prefix VM)

During the initial survey an area was located immediately to the south of the outhouse belonging government house which subsequently proved to be the largest rubbish dump in the settlement. The area was flat and heavily grassed, and was covered with two large clumps of an unidentified green bramble, about 2.5 m in height and particularly thorny. Between these two clumps an animal path had kept the grass down and pieces of glass and pottery were noticed. Since it was almost impossible to delineate the area of rubbish distribution without a thorough clearing of the area, an area twenty metres by twenty-five metres was measured out, taking the animal path as roughly the centre, and this area was cleared to allow a complete surface collection to be made.

VM surface collection

Twenty-five squares, lettered A to T, and each measuring 5 m by 5 m, were completely collected with the exception of a few bricks, and pieces of local ironstone which may have been roughly hewn as a building material. As elsewhere, glass was by far the most common artefact recovered and its distribution gives a good indication of the density of cultural deposit. Most of the area of the heaviest deposit is that covered by the bramble.

The results obtained indicated that the grid had perhaps been set too far to the east. An examination to the west of the grid suggested more deposit, but few actual finds were visible on the surface and it was judged unimportant to extend the grid in that direction. Instead four more squares (U–X) were added to the southern side where another concentration of material was located.

This collection proved to be the most concentrated one found at the settlement. A total of 2,231 pieces of glass and 263 pieces of pottery were recovered, as well as fragments of metal, and an Aboriginal stone implement (a core) in creamy quartzite, a material foreign to the area. As the collection continued it became apparent that even allowing for accidental fracture, some of the glass represented deliberate utilisation by Aborigines.

Because of the density of surface artefacts I decided to excavate this site-unit during the first season to provide the nucleus of the site's type collection.

VM excavations

The distribution of the surface material suggested that the main concentration was lying roughly along the east-west diagonal of the surface grid and I decided to excavate along this line at the point where the slightly raised ground level promised the maximum depth of deposit. At the same time the trench was situated so as to avoid the bramble areas where the roots would interfere with the excavations.

An initial trench VM/1, measuring 2 m by 1 m, was excavated in two spits, the first to a uniform depth of 100 mm, the second to sterile soil, at an average depth of 160 mm. This trench produced an inordinate amount of cultural material, particularly glass. Since no difference could be ascertained between the upper and lower spits, and since the main object of the excavation was to obtain as large a sample of artefacts as possible, it was decided to abandon the stratigraphic differentiation to increase the speed of the excavation, but at the same time to maintain some horizontal control by excavating metre squares. Subsequently in the laboratory the two stratigraphic units of VM/1 were amalgamated for analysis.

The excavations were continued towards the west in a line of adjoining metre squares (Figure 5). Squares VM/10 and VM/11 took the excavations beyond the surface grid to

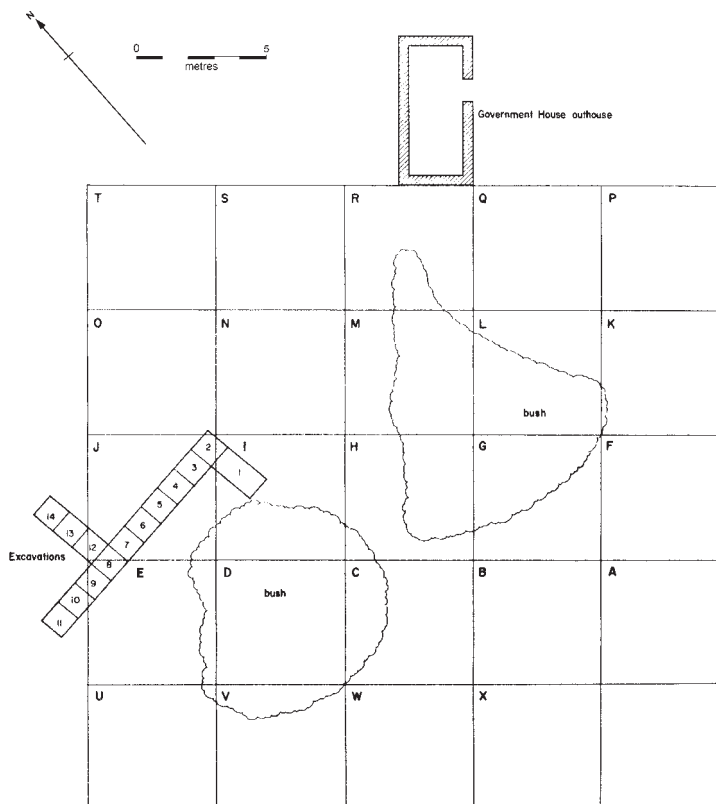


Figure 5. Rubbish dump behind Government House showing foundations of its outhouse, the area of its surface collection and the location of excavation VM.

demonstrate that the area rich in cultural material extended further than had at first been estimated, although VM/11 showed a rapid decrease in finds to the west. Three additional squares were dug to the north of VM/8 to increase the sample.

As the main trench moved to the west, the deposit became deeper, reaching a maximum depth of 300 mm in squares VM/7, VM/8, and VM/9, and lessening to 180 mm on the western side of VM/11 (Figure 6). Thus, 15 square metres comprising less than four cubic metres of deposit produced 6,275 pieces of glass and 475 pieces of pottery. In addition 11 metal buttons, a free standing crown and anchor insignia, several percussion caps and other metal objects, mainly nails, were recovered. A single gunflint, in bluish-grey flint was also recovered.

The surface collection had indicated the possibility that some of the glass had been utilised by the Aborigines. Of the glass excavated 827 pieces were isolated as possible implements. In addition three fragments of chert and another unworked flake of quartzite were excavated. Finally the number of marine food shells in the deposit suggested that this European rubbish dump might also have been camped on by Aborigines, and that the glass had represented a source of raw material for them.

An additional surface collection of this site-unit was made at the end of the 1966 season, and again in 1967. The totals of these collections are listed under VM/S/GENERAL SURFACE, and are included in the overall totals for glass and pottery.

Finally these excavations yielded 480 gm of bone representing food remains. These have not been tabulated. Among the identifiable bones the following animals were represented; cow/buffalo, sheep/goat, pig, wallaby, fish.



Figure 6. VM excavation looking west.

Table 1. Glass from VM surface collections according to type: number, weight in grams, average weight.

Area	TYPE A			TYPE B			TYPE C			TOTALS		
	No.	Wt.	Av.	No.	Wt.	Av.	No.	Wt.	Av.	Total No.	Total Wt.	Av. Wt.
VM/S/C	49	603	12.3				333	930	2.8	382	1533	4.0
VM/S/D	47	1175	25.0	16	875	54.7	166	1460	8.8	229	3510	15.3
VM/S/E	21	482	23.0	20	720	36.0	159	1352	8.5	200	2554	12.8
VM/S/G	24	226	9.4				124	609	4.9	148	835	5.6
VM/S/H	46	436	9.5	10	130	13.0	126	376	3.0	182	942	5.2
VM/S/I	100	1179	11.8	14	223	15.9	320	541	1.7	434	1943	4.5
VM/S/J	57	1056	18.5	24	889	37.0	175	774	4.3	256	2719	10.6
VM/S/K	10	115	11.5	1	131	131.0	58	263	4.5	69	509	7.4
VM/S/L	15	235	15.7	1	83	83.0	104	456	4.4	120	774	6.5
VM/S/M	2	25	12.5				8	53	6.6	10	78	7.8
VM/S/N	29	211	7.3				31	120	3.9	60	331	5.5
VM/S/O	5	233	46.6				9	47	5.2	14	280	20.0
VM/S/Q							8	42	5.3	8	42	5.3
VM/S/R							1	13	13.0	1	13	13.0
VM/S/S							1	4	4.0	1	4	4.0
VM/S/T							1	7	7.0	1	7	7.0
VM/S/U	7	85	12.1				14	144	10.3	21	229	10.9
VM/S/V	13	251	19.3	2	89	44.5	21	235	11.2	36	575	16.0
VM/S/W	13	162	12.5				41	331	8.1	54	493	9.1
VM/S/X	1	8	8.0				4	19	4.8	5	27	5.4
SUB TOT.	439	6479	14.8	88	3128	35.5	1704	7776	4.6	2231	17383	7.8
VM/S/ GEN. SUR.	9	25	2.8	4	109	27.3	41	160	3.9	54	294	5.4
TOTAL	448	6504	14.5	92	3237	35.2	1745	7936	4.5	2285	17677	7.7

Table 2. Glass from VM excavations according to type: number weight in grams, average weight. Surface collection data have been added to give total numbers.

Area	TYPE A			TYPE B			TYPE C			TOTALS		
	No.	Wt.	Av.	No.	Wt.	Av.	No.	Wt.	Av.	Total No.	Total Wt.	Av. Wt.
VM/1/1	54	346	6.4	17	260	15.3	586	1545	2.6	657	2151	3.3
VM/2/1	34	312	9.2	11	714	64.9	178	496	2.8	223	1522	6.8
VM/3/1	21	108	5.1				168	246	1.5	189	354	1.9
VM/4/1	27	227	8.4	2	121	60.5	131	305	2.3	160	653	4.1
VM/5/1	101	332	3.3				153	428	2.8	254	760	3.0
VM/6/1	50	838	16.8	8	585	73.1	207	1080	5.2	265	2503	9.5
VM/7/1	122	1255	10.3	17	1359	79.9	1365	4681	3.4	1504	7295	4.9
VM/8/1	65	685	10.5	3	441	147.0	493	1760	3.6	561	2886	5.1
VM/9/1	34	889	26.2	12	1073	89.4	150	905	6.0	196	2867	14.6
VM/10/1	164	1055	6.4	10	472	47.2	758	2825	3.7	932	4352	4.7
VM/11/1	43	326	9.2	13	245	18.9	190	536	2.8	246	1107	4.5
VM/12/1	71	1009	14.2	22	1132	51.5	280	1348	4.8	373	3489	9.4
VM/13/1	18	199	11.1	18	2577	143.2	281	1706	6.1	317	4482	14.1
VM/14/1	23	220	9.6	14	1222	87.3	361	1090	3.0	398	2532	6.4
SUB TOTAL	827	7801	9.4	147	10201	69.4	5301	18951	3.6	6275	36953	5.2
SURFACE COLLECTIONS	448	6504	14.5	92	3237	35.2	1745	7936	4.5	2285	17677	7.7
TOTAL	1275	14305	11.2	239	13438	56.2	7046	26887	3.8	8560	54630	6.4

Table 3. Pottery counts from VM surface collections according to type.

	VM/S/ C	VM/S/ D	VM/S/ E	VM/S/ G	VM/S/ H	VM/S/ I	VM/S/ J	VM/S/ K	VM/S/ L	VM/S/ M	VM/S/ N	VM/S/ O	VM/S/ V	VM/S/ W	VM/S/ X	Sub- total	VM/S/ Gen. Surf.	TOTAL
Transfer Printed	9	3	13	7	12	31	29	11	11	4	2			8		140	48	188
Undecorated White Glaze Featheredge (Blue)	1				1											2	2	4
Featheredge (Green)			3			1						1				5		5
Mocha	1		2		4			1								8	3	11
Hand Painted Salt Glazed Stoneware		1	2		1	3	3		2							12	7	19
Unglazed Wheelmade			7													7		7
Clay Pipe Stems	1	1							1							3	3	6
Clay Pipe Bowls						1	1									2		2
Blue White Porcelain			2		1	3										6	4	10
Polychrome Porcelain			2			1			2					1		6	2	8
Undecorated Porcelain	1		1	2	3	3		2				1				13	3	16
Unidentified				1	4	2	1	1				1				10	1	11
TOTAL	12	10	36	13	40	53	38	16	19	5	3	4	3	9	2	263	90	353

Table 4. Pottery counts from VM excavations according to type. Surface collection data have been added to give total numbers.

	VM/1/1	VM/3/1	VM/4/1	VM/5/1	VM/6/1	VM/7/1	VM/8/1	VM/9/1	VM/10/1	VM/11/1	VM/12/1	VM/13/1	VM/14/1	Exc. Tot.	Surf. Tot.	TOTAL
Transfer Printed	29	10	3	16	16	39	18	30	26	13	14	14	22	250	188	438
Undecorated White Glaze Featheredge (Blue)	1							1						2	4	6
Featheredge (Green)								4	1					5	5	10
Mocha						2					1			3	11	14
Hand Painted Salt Glazed Stoneware	1				2		2	2	1			2		10	19	29

continued overleaf

Table 4 (cont.)

	VM/1/1	VM/3/1	VM/4/1	VM/5/1	VM/6/1	VM/7/1	VM/8/1	VM/9/1	VM/10/1	VM/11/1	VM/12/1	VM/13/1	VM/14/1	Exc. Tot.	Surf. Tot.	TOTAL
Unglazed																
Wheemade						1	4	4	3			2	1	15	7	22
Clay Pipe Stems						5	1	1	4	4		2	4	21	6	27
Clay Pipe Bowls						1	1			2				4	2	6
Blue On White																
Porcelain	1			1	2	2	2	3	2	2		1		16	10	26
Polychrome																
Porcelain	1				4	3	5	6	4	1	2		1	27	8	35
Undecorated																
Porcelain	1			2		5	1	2	1	2			2	16	16	32
Unidentified	4					4		2						10	11	21
TOTAL	56	17	6	20	27	78	42	58	52	28	29	26	36	475	353	828

Table 5. Metal from VM surface collections and excavations combined. Weight in grams. Because of an error in processing, VM/7/1 and VM/8/1 were inadvertently mixed prior to labelling. For that reason they have been dealt with here as a single group, VM/7/1.

	VM/S/D		VM/S/E		VM/S/V		VM/1/1		VM/3/1		VM/4/1		VM/5/1		VM/6/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Brass Ring																
Uniform Insignia																
Uniform Buttons																
Plain Buttons													1			
Percussion Caps																
Harmonica Reed																
Brass Knobs																
Unident. Lead																
IRON																
Nails <30 mm																
Nails 30-50 mm					1	6.2	1	1.6			1	3.4	1	2.7	4	7.6
Nails 50-80 mm															6	38.4
Nails >80 mm																
Hooks																
Hinges																
Screws													1	3.0		
Bolts																
Boot heels																
Angle Irons																
Unidentified		107.6		41.6				76.7		39.0		5.9		128.6		333.5
COPPER																
Nails <30 mm													1	2.1		
Nails 30-50 mm													2	4.5		
Wire																
Screws																
Unidentified									0.4			1.0				1.6

	VM/7/1		VM/9/1		VM/10/1		VM/11/1		VM/12/1		VM/13/1		VM/14/1		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.
Brass Ring															1
Uniform Insignia			1		1										2
Uniform Buttons	2				1								2		5
Plain Buttons					2		3								6
Percussion Caps															
Harmonica Reed												1			1
Brass Knobs									1	8.1					1
Unident. Lead				83.1			15.6								
IRON															
Nails <30 mm	8	13.3	6	8.0	6	11.8	2	4.2	3	6.2	2	1.8	1	1.5	28
Nails 30-50 mm	34	89.0	19	38.7	9	22.8	20	46.2	14	40.7	15	34.8	3	8.0	122
Nails 50-80 mm	13	100.0	18	108.7	7	38.4	6	40.5	3	14.5	2	15.5	3	17.7	58
Nails >80 mm	3	35.0	3	78.0			1	11.6	1	28.6			2	34.8	10
Hooks	1	9.8			1	19.7					1	16.7			3
Hinges							1	128.6							1
Screws	2	35.8													3
Bolts							1	473.3							1
Boot heels									3	63.0	1	9.2			4
Angle Irons			1	32.5											1
Unidentified		373.5		303.0		302.3		118.5		115.1		309.9		78.9	
COPPER															
Nails <30 mm	2	4.0	5	9.9			2	2.5							10
Nails 30-50 mm			1	4.6											3
Wire						2.2									
Screws			2	4.7											2
Unidentified		12.1		2.8				12.4		14.7				5.1	

Table 6. Aboriginal and European stone from VM. Weight in grams.

	VM/S/1		VM/4/1		VM/8/1		VM/14/1		TOTAL
	No	Wt	No	Wt	No	Wt	No	Wt	
Cores	1	54.1							1
Flakes			2	3.2	1	2.0	1	0.8	4
Gunflints							1	10.6	1

VICTORIA RUBBISH DUMP No. 2 (Code prefix VMII)

A second area of concentrated refuse was located 10 metres west of a shell floor (VSFII) and was assumed to be associated with it. No specific surface collection was made here; surface finds from this locality are incorporated into the general site surface collection. However two square metres were excavated and produced quantities of glass, pottery, metal, and some bone and stone. The total depth of deposit was 200 mm and no further excavations were undertaken at this site-unit.

In general the finds parallel those from VM, illustrating that the dump was associated with the nearby houses, but indications of Aboriginal activity on this site-unit are also apparent.

In addition to glass, pottery and metal (see Tables 7–9) one unworked struck flake of grey chert was recovered from VM11/1/1 and 991 gm of bone were recovered from the excavations, from which the following animals were identified: cow/buffalo, sheep/goat, pig, kangaroo, fish and crab.

THE HOSPITAL COMPLEX

The remains of a group of three buildings were located at the northern end of the settlement (Figure 7). These could be immediately identified from the historical record as comprising the hospital complex. The hospital itself, a wooden building, had been brought from Sydney in prefabricated form and the stone foundations are now all that remain. An area of approximately 30 m by 20 m had been excavated to provide a level surface on which to erect the building. On the rise behind the hospital, the remains of the hospital kitchen were located, heavily overgrown with vines and trees, but with the stone walls still standing to roof height. In the north-western corner of the levelled area the collapsed stone wall of a smaller building was noted, and nearby, the top of a stone-lined pit suggested some form of drainage. The whole area had regenerated to monsoonal forest containing, as well, eucalypt species. The hospital had been set back about 20 m from the top of the cliff. As a number of pieces of glass were noticed in the area between the cliff top and the buildings, it was decided to make a surface collection.

The Hospital Surface Collection (Code Prefix VH/S)

A grid of 24 squares each 5 m by 5 m, and lettered A–X was laid down and all surface material was collected (see Figure 7). The collection yielded 1,084 pieces of glass, 84 pieces of pottery, an iron nail, an unidentified piece of lead, an iron boot heel and a single fragment of flaked slate. As can be seen from the distribution of the material the finds divide into two areas, the squares immediately adjacent to the hospital building and the squares along the cliff line. (Much more debris was visible down the cliff face and a general collection was made of this material, which is described later in this chapter in the section on the general surface collection.) There appears to be no apparent reason why 47.1% of the glass and 35.7% of the

Table 7. Glass from VMII excavations according to type: number, weight in grams.

Square	Type A		Type B		Type C		Total	
	No	Wt	No	Wt	No	Wt	No	Wt
VMII/1/1	22	183.8	8	183.0	192	553.4	222	920.2
VMII/2/1	10	228.5	6	186.4	80	428.1	96	843.0
TOTAL	32	412.3	14	369.4	272	981.5	318	1763.2

Table 8. Pottery counts from VMII excavations according to type.

	VMII/1/1	VMII/2/1	TOTAL
Transfer Printed	36	3	39
Undecorated White Glaze	6	4	10
Featheredge (Green)	1		1
Hand Painted		4	4
Salt Glaze Stoneware		6	6
Polychrome Porcelain	27	1	28
Blue On White Porcelain		2	2
Macassan	2	1	3
Pipe Stems	7		7
Pipe Bowls	2		2
TOTAL	81	21	102

Table 9. Metal from VMII excavations. Weight in grams.

	VMII/1/1		VMII/2/1		TOTAL
	No	Wt	No	Wt	
Uniform Insignia	1				1
Uniform Buttons	2				2
Collar Studs	2				2
Lead Musket Balls	4	25.2			4
Iron Nails					
<30 mm	4	5.4	1	2.5	5
30–50 mm	12	27.2	1	1.7	13
50–80 mm	19	51.3	1	5.5	20
>80 mm	8	101.4	1	12.3	9
Unidentified Iron		52.8			
Copper Nails					
30–50 mm	5	23.5			5
Unidentified Copper		3.0		3.2	
Brass Hinge	1	6.0			1
Unidentified Lead				28.1	

pottery should have been located in square VH/S/D, unless the room immediately behind it was the source of most breakages and empty bottles. In general however it would seem that the rubbish was merely thrown immediately outside, or towards and over the cliff.

As with the VM rubbish dump south of government house, a large proportion (20.6%) of the glass appears to have been utilised by the Aborigines, and two pieces of a large flat base, heavily retouched along one edge to form a scraper, were found, which fitted together (see Chapter 4). These pieces were found in squares VH/S/A and VH/S/O, and were therefore separated by at least 7 metres. This suggests that the implement was manufactured and/or used on the site, and was discarded when broken, or the two pieces were used separately. Given the amount of glass in this collection, few bases of bottles were recovered; this would also support the idea of Aboriginal exploitation of the source of this raw material, since this portion of the bottle provided the thickest glass and therefore the best for making implements.

A number of pieces of glass from the squares adjacent to the hospital were vitrified, suggesting that on its final abandonment the hospital was destroyed by fire.

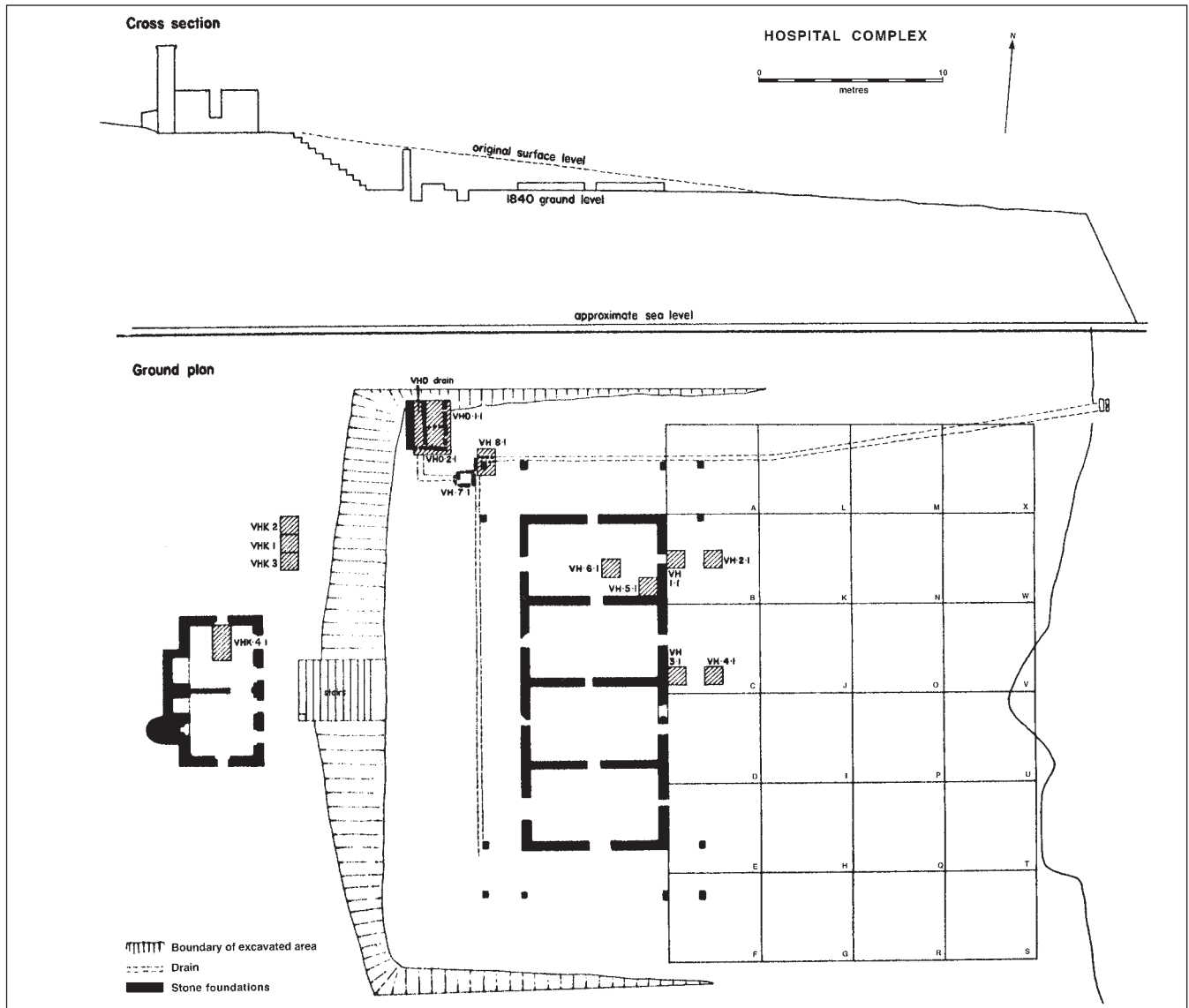


Figure 7. Ground plan of hospital complex showing areas of surface collection and excavation.

Table 10. Glass from VH/S (surface collection) according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt	No.	Wt	No.	Wt	No.	Wt
VH/S/A	6	116.4			19	86.5	25	202.9
VH/S/B	20	477.7			39	117.9	59	595.6
VH/S/C	7	88.2			23	401.6	30	489.8
VH/S/D	83	873.8	8	87.8	428	868.9	519	1830.5
VH/S/E	12	127.8	3	117.7	111	347.5	126	593.0
VH/S/F	2	39.0			6	14.0	8	53.0
VH/S/G							0	0
VH/S/H	4	118.0			4	9.7	8	127.7
VH/S/I	7	47.9			31	82.3	38	130.2
VH/S/J	1	5.0			6	73.3	7	78.3
VH/S/K	1	72.3					1	72.3
VH/S/L					1	0.8	1	0.8
VH/S/M	3	2.7			4	5.4	7	8.1
VH/S/N	1	95.8					1	95.8
VH/S/O	7	75.1			3	12.2	10	87.3
VH/S/P					3	34.4	3	34.4
VH/S/Q	6	296.1			3	7.3	9	303.4
VH/S/R	15	273.5			7	29.2	22	302.7
VH/S/S	34	476.9	5	429.7	23	125.5	62	1032.1
VH/S/T	24	266.8			30	100.8	54	367.6
VH/S/U	3	14.2	1	9.7	23	39.4	27	63.3
VH/S/V	7	24.8			18	50.0	25	74.8
VH/S/W	10	36.8			14	43.5	24	80.3
VH/S/X	10	90.9	1	138.1	7	9.2	18	238.2
TOTAL	263	3619.7	18	783.0	803	2459.4	1084	6862.1

Table 11. Pottery counts from VH/S (surface collection) according to type.

	VH/S/ B	VH/S/ C	VH/S/ D	VH/S/ E	VH/S/ F	VH/S/ G	VH/S/ H	VH/S/ I	VH/S/ K	VH/S/ N	VH/S/ O	VH/S/ P	VH/S/ Q	VH/S/ R	VH/S/ S	VH/S/ T	VH/S/ U	VH/S/ V	VH/S/ W	VH/S/ X	TOTAL	
Transfer																						
Printed			1	5		1	1	1		1	1	1	1	1	1	2	1		1			19
Undecorated																						
White Glaze	1	2	16	3	1			1	1	1	1						7					34
Salt Glaze																						
Stoneware		1	11																			12
Unglazed																						
Wheelmade													2	1								3
Clay Pipe																						
Stems			1										1	1	1	1						5
Polychrome																						
Porcelain																			1		2	3
Blue On White																						
Porcelain			1													4	1	1				7
Macassan			1																			1
Unidentified				1																		1
TOTAL	1	3	31	9	1	1	1	2	1	2	2	1	1	4	3	7	10	2	1	2	85	

THE HOSPITAL (Code prefix VH)

VH architecture

As noted, the only remains of the hospital building are the stone foundations on which it originally stood (Figure 8). The foundations were made of a double wall of rough-hewn ironstone with rubble fill, standing to an average height of 400 mm above the ground surface, and varying between 450 and 500 mm wide. There is no reason to suppose these walls ever stood higher, and it seems that the prefabricated wooden frame was erected on them. The foundation walls provide an exact ground-plan of the building which was divided into four rectangular rooms with a narrow entrance in each of the connecting and external walls (see Figure 7). These appear to be rather narrow for doorways, and were probably for ventilation under the building. From a contemporary painting (Sweatman ML A1725: plate 64) it can be discerned that the hospital was bounded on the south and east sides by a verandah and this was confirmed in the archaeological record by the presence of three squared stone post supports set in the ground at each of the four corners of the building,



Figure 8. Foundations of the hospital (VH) in foreground, looking north-west towards the remains of the dispensary (VHD).

demonstrating that the verandah extended around the entire perimeter of the building, being slightly wider on the north and south sides than on the east and west sides. From the painting it was noted that each of the corners was enclosed to provide an additional room. Along the western and northern sides a narrow, open, stone-lined drain or gutter was constructed to carry off the water which must otherwise have accumulated in this levelled area. Unfortunately, time did not permit excavations to determine whether this gutter extended along the southern side, but this assumed likely. At some point along the northern edge of the building the drain was apparently taken underground, since the outlet was located in the cliff (see Figure 7) approximately 1 m below the ground surface, and there is no evidence that there has been any natural soil deposition above it since its construction.

VH excavations

Traces of shell flooring were apparent at the southern end of the eastern face, but not elsewhere around the building. A metre square (VH/1/1) was begun outside the entrance to the northern room on the eastern side to see if this shell flooring extended around the perimeter, but after passing through 120 mm of dark grey topsoil the deposit immediately gave way to small ironstone pebbles overlying sterile sand and clay. Finds consisted of fragments of glass, and nails.

A second metre square (VH/2/1) was begun two metres to the east, taking the square outside the line of the verandah. Here the stratigraphy was identical to that in VH/1/1 but many more glass fragments were recovered. Two more squares (VH/3/1), (VH/4/1) were excavated on the eastern side. The first of these was dug in a similar position to VH/1/1, but 5.5 m south of it, so as to encounter the shell flooring noticed on the surface. Here the shell ran through the deposit layer (although never thick) until the sterile layer was encountered at a depth of 80 mm. Finds in this square were similar to those in VH/1/1, with the addition of a worn gunflint. VH/4/1 was excavated opposite VH/2/1 and 5.5 m south of it. The stratigraphy was the same as that in VH/2/1 but contained few finds, apart from a pewter button.

Two more metre squares (VH/5/1, VH/6/1) were excavated within the northern room of the hospital. In both cases, after passing through the topsoil layer, the same sterile layer was encountered at a depth of 60 mm. This presumably was the floor when the building was occupied. Finds were again few, consisting mainly of nails and several pieces of glass. Ideas of further excavation in this area were abandoned

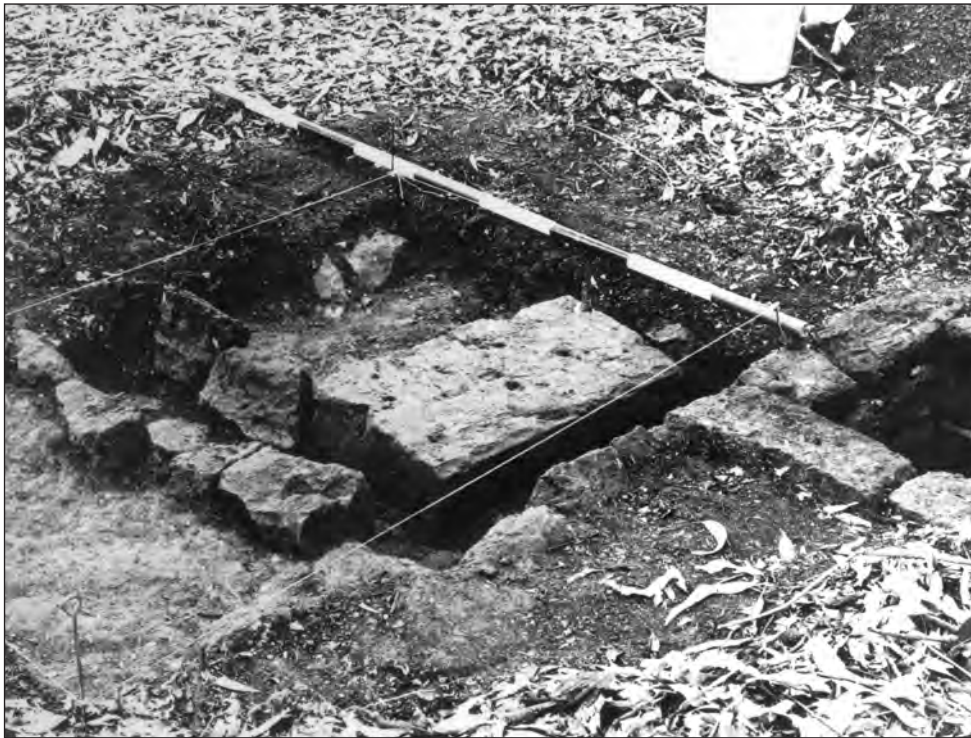


Figure 9. Excavation showing stone lined open drain running along border of hospital. Sullage pit on extreme right. Large block is north-west corner of verandah.

because of the paucity of material remains. Instead the stone lined pit in the north-western corner of the levelled area (designated VH/7/1) was cleared out to a depth of 620 mm, where a clay floor was encountered. At the base of the western wall of this pit, an opening 390 mm high and 200 mm wide was located. The pit is constructed of rough hewn masonry cemented with a mixture of lime and clay. The purpose of this sullage pit is unclear.

Immediately to the north of the pit several of the gutter stones were visible and an area 1 m by 1.5 m (VH/8/1) was excavated to reveal the gutter ((Figure 9). A large stone block

was also uncovered which proved to be the corner of the verandah of the hospital. The gutter on the western side meets the gutter on the northern side at this corner, and is unconnected with the pit, flowing between it and the verandah line. The gutter proved to be 150 mm deep at this point, lined on the bottom and both sides by uncemented stones. Here the sterile layer outside the gutter is higher than inside (in the north-western corner room) and possibly this room had loose stone flooring. Several flat stones were removed from this area before this possibility was realised. Finds consisted of several nails and some glass.

Table 12. Glass from VH excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VH/1/1	6	158.0	1	18.2	13	26.2	20	202.4
VH/2/1	11	104.7	6	94.1	182	530.5	199	729.3
VH/3/1			20	59.9	20	59.9	20	59.9
VH/4/1	3	4.1			5	6.6	8	10.7
VH/5/1					1	6.0	1	6.0
VH/6/1					1	21.0	1	21.0
VH/7/1					2	8.0	2	8.0
VH/8/1			7	137.8	44	214.2	51	352.0
TOTAL	20	266.8	14	250.1	268	872.4	302	1389.3

Table 13. Pottery counts from VH excavations according to type.

	VH/1/1	VH/2/1	VH/3/1	VH/4/1	VH/8/1	TOTAL
Salt Glaze						
Stoneware			3	1		4
Undecorated						
White Glaze					1	1
Pipe Stems		1		1		2
Pipe Bowls	1					1
TOTAL	1	1	3	2	1	8

Table 14. Metal from VH excavations. Weight in grams.

	VH/1/1		VH/2/1		VH/3/1		VH/4/1		VH/5/1		VH/6/1		VII/7/1		VH/8/1		Total		
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uniform Buttons							1												1
Iron Nails																			
<30 mm	18	37.3	6	8.0	1	0.9			6	12.1	1	1.9	1	1.0	4	8.3	37	69.5	
30-50 mm	7	19.8			1	4.5	1	3.4	22	46.1			2	13.6	1	1.9	34	89.3	
50-80 mm	1	7.8							5	25.3	1	5.9	2	17.6			9	56.6	
>80 mm																			
Unidentified iron		33.0								73.0	3.7				9.7			119.4	
Iron Ring									1	67.2							1	67.2	
Eye Nail									1	7.0							1	7.0	
Copper Nails																			
30-50 mm					1	1.9											1	1.9	

HOSPITAL DISPENSARY (Code prefix VHD)

VHD architecture

In the extreme north-western corner of the levelled area the single (western) stone wall of a building was located (Figure 10). From the area of rubble the building appeared to be small, and from the standing wall certain observations could be made. The wall appeared to have originally had two windows, between which a vertical row of bricks standing from the wall suggested a dividing wall across the east-west axis of the building. Apart from this row of bricks the wall was constructed of rough-hewn ironstone. In the northern and southern faces of the central pillar two square holes suggested the places where beams had been placed to form the tops of the windows.

VHD excavations

A 2 m by 2 m square (VHD/1) was excavated adjacent to the standing wall on the eastern side. After passing through 500 mm of rubble (mainly bricks), shell flooring was encountered, divided by a single row of bricks which coincided with the line of bricks tied into the upright wall. This horizontal row of bricks did not extend right to the wall however, stopping 580 mm from it, where it coincided with a row of square stones running parallel to the standing wall. Between this row of stones and the wall the shell flooring gave way to dark grey soil, and this area was interpreted as a drain. At the eastern end of the row of bricks another line of squared stones was uncovered, running parallel to the first, and this marked the eastern side of the building. Adjacent to the easternmost brick in the row, a 4 centimetre square post hole had been carved into the stone block on which the brick stood.

The square was extended (VHD/2) a further 50 mm

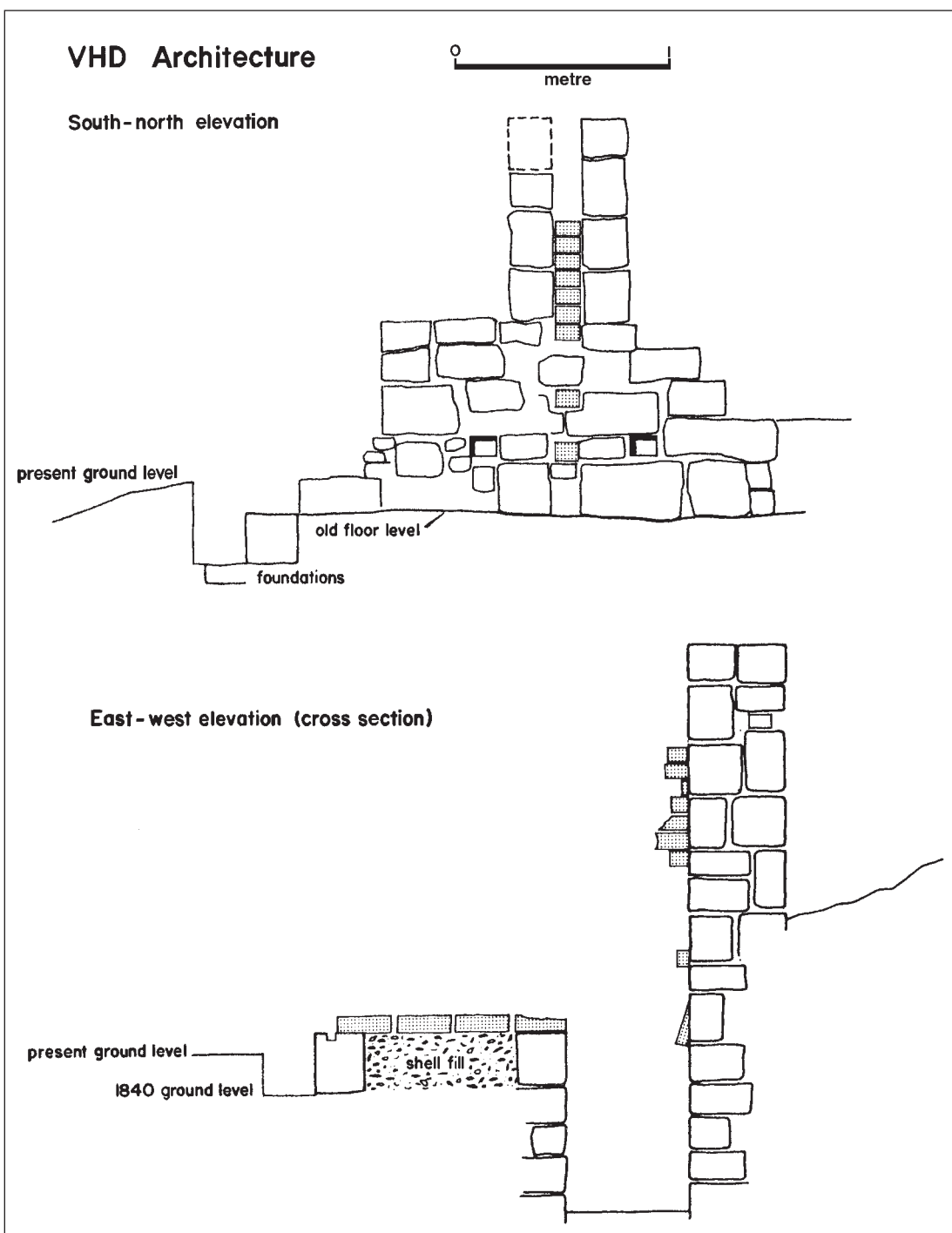


Figure 10. Two elevations of the remains of the dispensary. See text for discussion.

towards the south, and the southern wall of the building was uncovered, again built of roughly shaped stone. Outside the wall line the excavations were taken down 250 mm at which point the rubble footings were encountered, extending out 250 mm beyond the perimeter of the building. The finds in this square were of a similar nature to those from VHD/1/1, nails and glass, but beyond the building line the glass immediately increased in quantity.

Finally excavations were commenced to clear out the drain (VHD/Drain) at the southern end (Figure 11). This proved much deeper than anticipated and the nature of the deposit (decayed bricks and mortar which had solidified, probably through water action) hindered progress, and the drain clearance was continued only to a point immediately beyond the line of bricks, demonstrating that this dividing wall did not continue below the floor line. At a depth of 890 mm a clay floor was encountered with an opening at the southern end 320 mm by 250 mm, apparently connecting this drain with the stone-lined pit (VH/7/1) described above. The walls of this drain were constructed of well cut ironstone blocks cemented in courses, and of considerably better workmanship than the same wall above ground level.

As anticipated the only finds came at the very bottom of this drain – many nails, glass, a complete but broken clay pipe and the pieces of a small ceramic palette.

Immediately above the floor a 25 mm layer of dark soil and many pieces of charcoal suggested the destruction of the building by fire.

The excavations gave no indication as to the construction of the southern, eastern and northern walls of this building. These were certainly not made of stone, and the number of bricks recovered from the excavation could be accounted for by the central dividing wall. Even if these three outer walls were of brick, and had been completely dismantled one might well assume traces of mortar on the stone perimeter. Alternatively no indications of post supports, except for that in the centre of the eastern wall, were located. One or more of these walls may well have been open. The second point of interest is the function of this building. Given its size, neither room could have had more than one occupant at any one time. Two beam holes in the eastern face of the standing wall suggest some form of table or stand above the drain in each



Figure 11. Hospital dispensary looking south, showing half excavated stone drain. Note remains of brick dividing wall tied into standing stone wall and continuing across the floor of the structure.

compartment. One suggestion is that the building was a primitive ablution block. Alternatively there is one brief historical reference to the hospital dispensary (Sweatman ML A1725:257) and the broken palette excavated in VHD/Drain tends to confirm the interpretation of this building as the dispensary. The purpose of the connection between the drain in this building and the stone-lined pit remains unclear and neither the pit itself nor its contents offer any indication of the function of the building.

Table 16. Pottery counts from VHD excavations according to type.

	VHD/Drain
Undecorated White Glaze	3
Pipe Stems	1
Pipe Bowls	2
TOTAL	6

Table 15. Glass from VHD excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VHD/1/1	3	21.5	6	953.0	12	162.4	21	1136.9
VHD/2/1	2	12.0	15	1090.0	228	1123.0	245	2225.0
VHD/Drain			2	603.4	12	204.3	14	807.7
TOTAL	5	33.5	23	2646.4	252	1489.7	280	4169.6

Table 17. Metal from VHD excavations. Weight in grams.

	VHD/1/1		VHD/2/1		VHD/Drain		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Musket Balls					2	61.5	2	61.5
Iron Nails								
<3 Cms	7	11.5	6	13.3	8	19.1	21	43.9
3-5 Cms	54	130.4	123	316.1	162	515.3	339	961.8
5-8 Cms	13	56.5	24	141.9	52	333.5	89	531.9
>8 Cms	1	11.2	2	28.0	4	63.6	7	102.8
Unidentified Iron		22.9		65.0		124.9		212.8
Copper Nails								
<3cms			1	1.8			1	1.8
Copper Wire			1	1.0			1	1.0
Copper Ring					1	0.2	1	0.2

HOSPITAL KITCHEN (Code prefix VHK)

VHK architecture

This building is the best constructed and one of the better preserved buildings in the settlement. Built entirely of the local ironstone, all the corners, entrances, windows and the chimney are quoined in excellent masonry and the building is to be attributed to the convict masons stationed at Port Essington in 1845–6 (see Chapter 8). The walls comprise a double row of stones, whose external faces are rough-hewn, with the gaps between being filled with rubble and cement. These stones are laid approximately in courses, with the joints rendered in cement to provide a reasonably smooth surface (Figure 12).

With the exception of the fireplace wall on the western side, the building is perfectly symmetrical, and presumably follows a stock design of the period (see Chapter 8). It consists of two rooms divided by a free-standing wall (i.e. not tied into the western wall) connected by an internal doorway (Figures 13 and 14). The floor level is raised above the outside ground level, using stone doorsteps and an internal flooring of shell. On the insides of the door uprights the remains of timber jambs measuring 60 by 100 mm, are reflected in the cement (Figure 15a) and slots were cut to receive them in the stone door steps. Cuttings in the stone also reflect the use of wooden lintels and window sills, which averaged 100 mm in thickness.

In the western wall of each room is a fireplace, that in the northern room being larger than that in the southern room, while this latter room also contains a baking oven. In ground



Figure 12. Remains of hospital kitchen (VHK) looking north-west (a) and south-east (b).



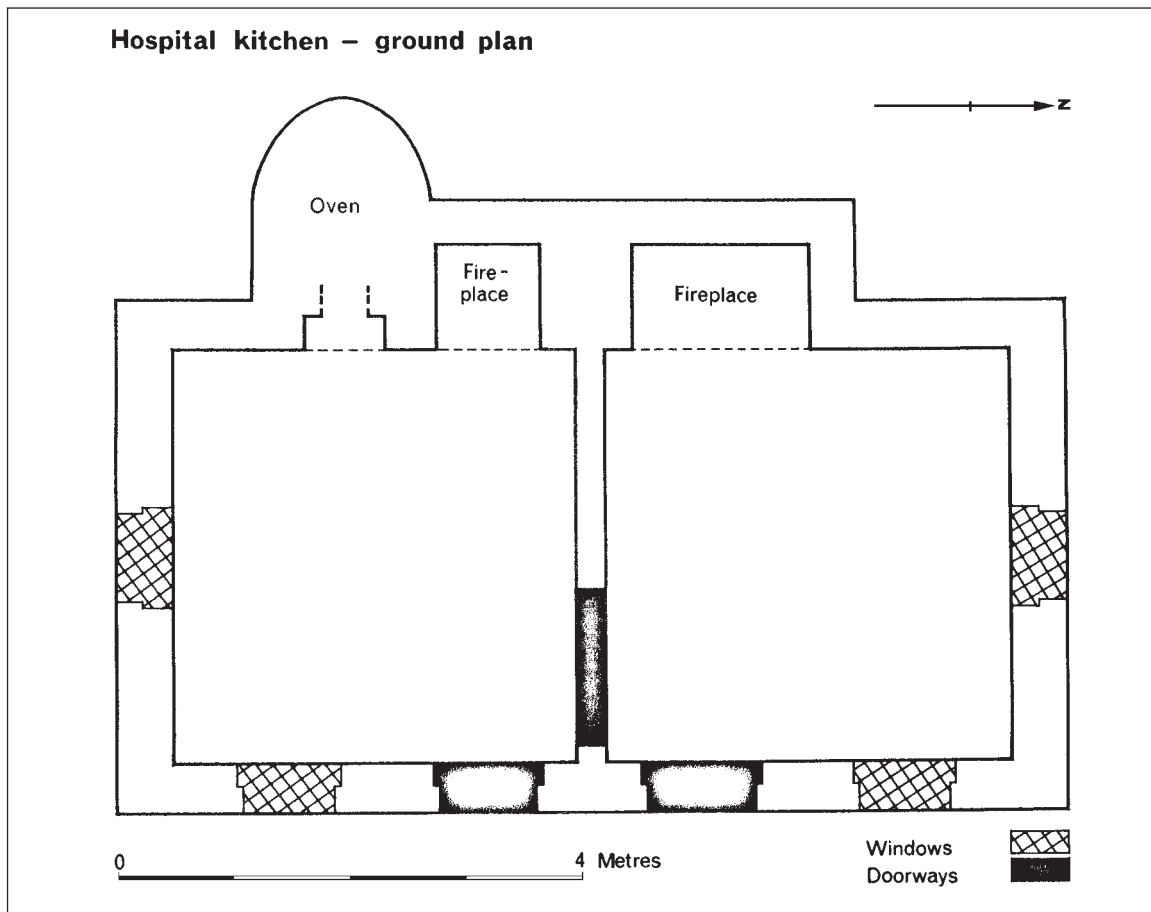


Figure 13.
Ground plan of
hospital kitchen.

plan the oven is oval, with an arched dome and a solid fill floor. This oven apparently worked on the same principle as that described for the bake house (below), with additional heat being supplied from the adjacent fireplace. The opening into the oven is recessed, and above the recess an air vent has been built leading into the southern chimney in order to draw off smoke during the firing. Although combined externally, the chimneys from each room have separate angled exits, with the internal faces pargetted.

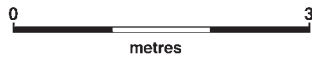
A close examination of the western wall indicates that the chimneys and oven were built separately and the thick section of the wall above the oven was added after (see western external and internal elevations and southern elevation Figure 14), presumably for added insulation. This section was built of solid rubble fill, and from the impressions remaining in the cement it had been roofed with wooden shingles, in a similar manner to the bake house (q.v.). Wooden shingles are inferred from the absence of slates or clay tiles near either baking oven. This section of the roof is pitched at an angle of 15°, but it is reasonable to suppose that the shingle or thatch roof over the main part of the building was pitched more steeply than this. That the main roof was pitched along the long axis of the building is suggested by the presence of a row of projecting stones in the eastern face of the chimney, under which the roofing material was butted (Figure 15b). This is reminiscent of similar rows of sloping projected stones on the towers of late medieval English churches, where the object was to carry rainwater off the face of the building. If the purpose of these stones was to prevent rainwater running between the thatch and the face of the chimney into the top of the wall some form of guttering must have been placed below the drip line and above the thatch. No indication of this remains.

The only use of brick in this building is the lining in the top of each of the chimneys.

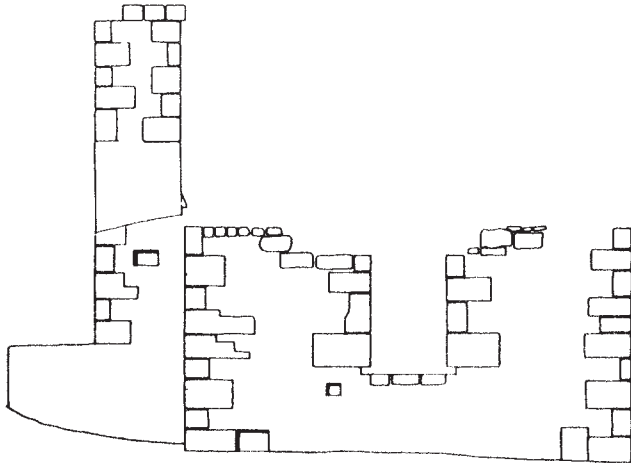
VHK excavations

Some glass and pottery fragments had been noticed near the north-east corner of the kitchen, and one conjecture was that this was a rubbish disposal area for the kitchen. A 1 m by 1 m square (VHK/1/1) was excavated in what appeared to be the centre of this deposit (see Figure 7). After passing through a dark soil layer for 200 mm the deposit gave way to a sterile layer similar to that encountered in the previous excavations. The deposit produced quantities of oyster shells (but not other varieties), glass, pottery, metal, and bone food remains. Despite the fact that some of the pieces of glass appeared to be Aboriginal artefacts, the nature of the overall finds appeared equally to suggest that the deposit was as likely European as Aboriginal material laid down after the settlement was abandoned. The excavations were extended one metre to the north (VHK/2/1) and one metre to the south (VHK/3/1). Similar stratigraphy to VHK/1/1 was recorded for both squares, with the depth of deposit lessening at the northern end of VHK/2/1 and the southern end of VHK/3/1. Similar finds were also recorded in these squares, with the addition of a copper coin in VHK/2/1. Un-milled, circular and with a square hole in the centre, the coin was identified by Dr Noel Barnard (Department of Far Eastern History, A.N.U.) as a *supika*, an Indo-Chinese imitation of a Chinese coin, of small value, common in such commercial centres as Singapore at this period. This coin is identical to two others excavated in other parts of the site.

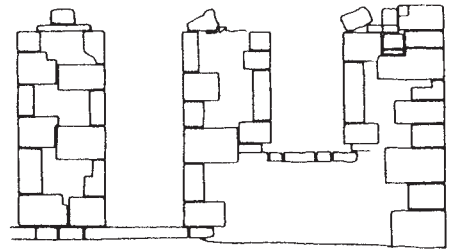
In order to examine the wall foundations and flooring of the kitchen, an area 2 m by 1 m was excavated immediately below the window in the northern room. The flooring proved to be the shell flooring traditional in the settlement. This was laid to a depth of 150 mm over sterile sand. Approximately 900 mm from the wall this sand changed to grey soil, this line demarcating the line of the foundation trench. The footings, of



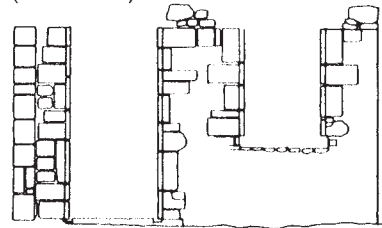
southern external elevation



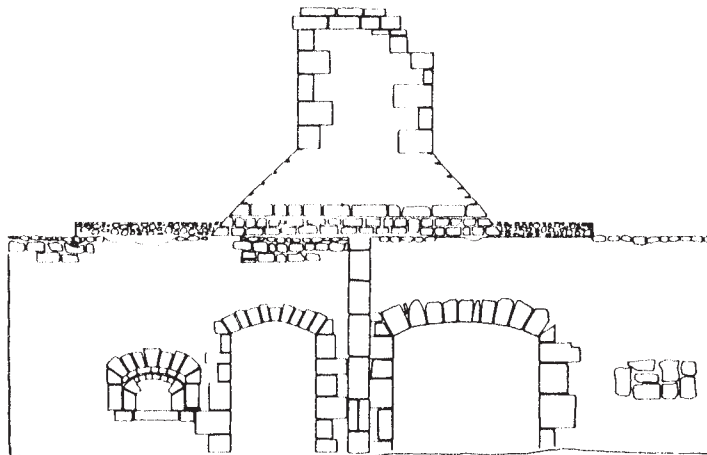
eastern external elevation
(northern end)



eastern internal elevation
(southern end)



western internal elevation



western external elevation

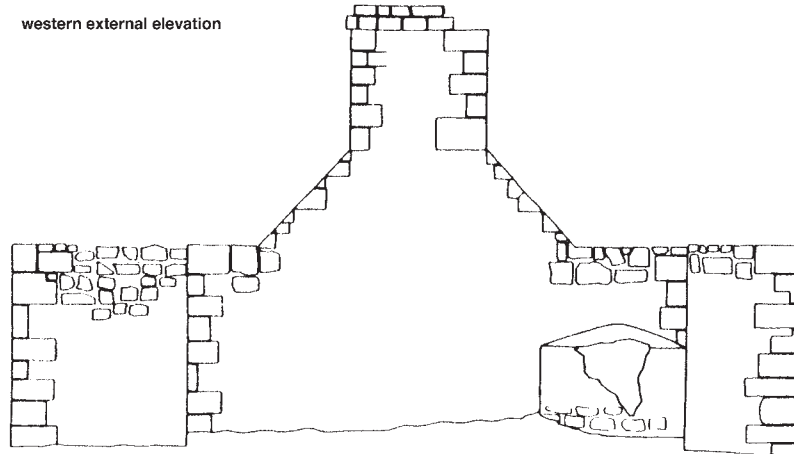


Figure 14. Hospital kitchen elevations.



Figure 15. Hospital kitchen construction details. See text for discussion.

ironstone, were set in cement to a depth of 500 mm and on the internal side, 150 mm wider than the wall. The trench had been back filled with rubble and soil. Finds were extremely limited in this area, and it was decided not to extend this excavation.

Only 615 grams of animal bones were recovered from the excavations of which the identifiable animals represented were as follows: two cow/buffalo, sheep/goat, two pigs, wallaby, bird, fish, crab and reptile.

MARRIED QUARTERS

(Code prefix VMQ)

VMQ architecture

North of Adam Head five semi-circular buttress stone chimneys set into the southern stone walls of the cottages which they served, were identified from the McArthur map (Figure 4) as the garrison's married quarters. This map shows only four cottages at this location and while it is possible that only four existed when the map was drawn, it is equally likely that the map is in error, since other discrepancies in this map were identified in the field. These houses were oriented in a rough north-south line running parallel to the line of the cliff, and about 20 m from it (Figure 16). Only the southern walls with the fireplaces were built of masonry.

For convenience the structures have been numbered 1 to 5, from north to south. Chimney no.1 has been almost destroyed by falling trees, but a portion of the wall and chimney is still standing; the chimney of no. 5 has suffered similar damage, but still stands to an overall height of 2.5 m, so that the recording of many architectural features was possible. The remaining three structures are intact. The general dimensions of these chimneys and the design and size of the cottages are sufficiently similar to allow a single general description. However sufficient differences in detail and building technique exist to require some elaboration.

Preliminary appearances of the cottage floor mounds suggested that the dimensions of the cottages were similar. Excavation of the floor of no. 2 was carried out and is described below. This cottage had a clay floor, and possessed a stone doorstep in the western wall. However, no doorstep was visible in the floor mounds of the other cottages. No. 3 had visible indications that the floor had been cemented (at least in part) and no. 4 apparently possessed a shell floor, but

Table 18. Glass from VHK excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VHK/1/1	14	160.5	2	30.0	189	504.8	205	695.3
VHK/2/1	19	134.1	3	187.4	230	722.3	252	1043.8
VHK/3/1	10	113.8	1	105.4	85	226.4	96	445.6
VHK/4/1	4	24.9			3	18.5	7	43.4
TOTAL	47	433.3	6	322.8	507	1472.0	560	2228.1

Table 19. Pottery counts from VHK excavations according to type.

	VHK/1/1	VHK/2/1	VHK/3/1	VHK/4/1	TOTAL
Transfer Printed	4	5	23	3	35
Undecorated White Glaze	20	18	23		61
Salt Glaze Stoneware	1				1
Hand Painted	1	5			6
Featheredge (Blue)		1			1
Line Decorated Ware		5			5
Pipe Stems	5	1	3	4	13
Pipe Bowls	1				1
Blue On White Porcelain	2	3			5
Polychrome Porcelain		2			2
TOTAL	34	40	49	7	130

Table 20. Metal from VHK excavations. Weight in grams.

	VHK/1/1		VHK/2/1		VHK/3/1		VHK /4/1		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Coin			1						1	
Brass keyhole			1						1	
Iron Nails										
<30 mm	1	1.6	2	3.1	2	4.2	11	16.0	16	24.9
30-50 mm	3	13.8	3	13.6	2	7.2	32	76.6	40	111.2
50-80 mm			1	7.4	3	25.0	1	6.5	5	38.9
Unidentified iron		85.1		61.5		82.9		63.2		292.7
Unidentified lead		30.3		38.4		5.9				74.6
Copper Nails										
<30 mm	13	30.0	7	14.5	19	39.0	1	2.2	40	85.7
30-50 mm			1	2.0					1	2.0
50-80 mm					1	5.0			1	5.0
Unident. copper		19.2								19.2

no time was available to test these differences by excavation. Measurement of the five floors established the internal dimensions as 5.3 m long and 3.5 m wide.

In each instance, the shape of the stone walls indicates a simple pitched roof, although this might have been hipped at the northern end. The materials used in the construction of the roof and the remaining three walls have disappeared completely. Fortunately, these particular cottages were described by a visitor to the settlement in 1848 as having grass thatched roofs and walls of bark or rushes. In the latter case the rushes were secured internally to a light framework of wood, and were held in place externally by thin strips of bamboo. The cottages had 'little square holes for light and air with little raised shutters like the ports of a Vessel' (Brierly 1848 ML A501-4:14 November). This technique of shutters hinged at the top and propped outwards to open was used extensively in the settlement, as is evidenced by many of the contemporary sketches which have survived.

The southern walls and chimneys were built with ironstone blocks quarried within the settlement and cemented with lime mortar. In the cottage we excavated, the foundations were carried down two courses into the earth (430 mm) and were not set into wider footings, the dimensions paralleling those above ground-level. The stone was rough-hewn into

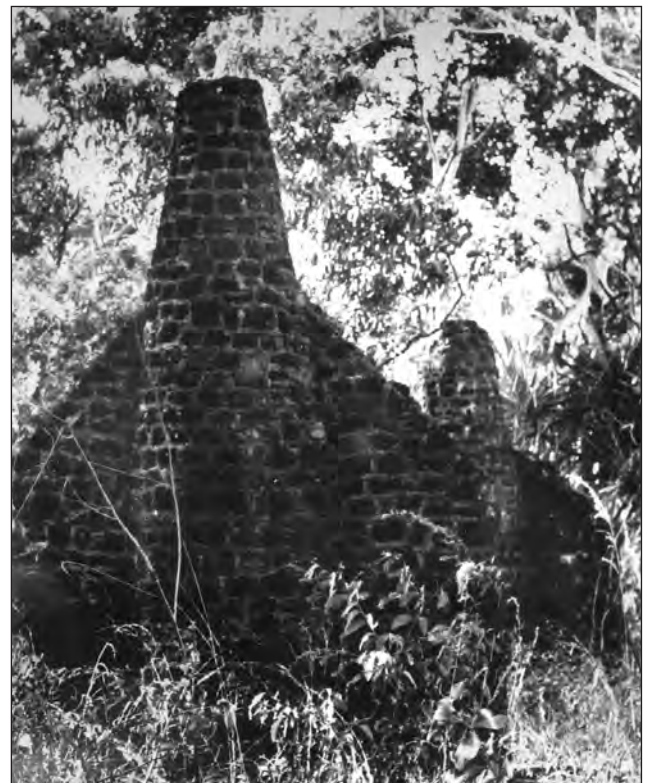


Figure 16. Married Quarters round chimneys: general view.

blocks, rectangular but varying in size, although rarely exceeding 300 mm by 200 mm by 150 mm. Only the external faces were shaped, and the gap between the facings was filled with rubble and cement. In all the examples, the internal walls were coated with lime plaster. Bricks were used to construct the arch above the fireplace, which was in the shape of a basket arch.

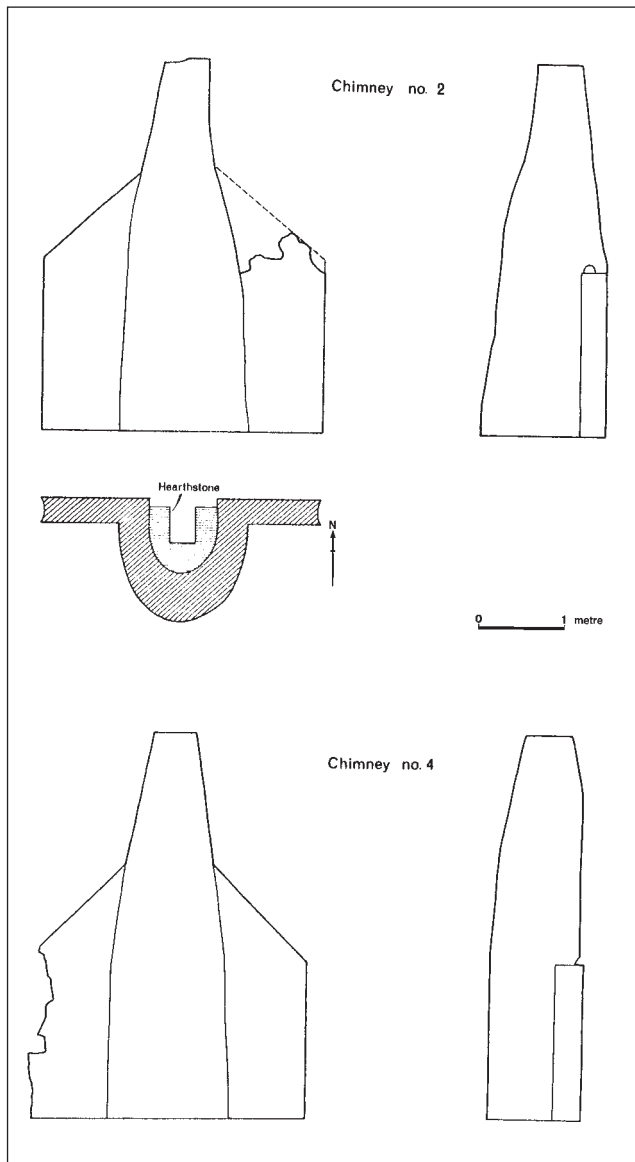


Figure 17. Married Quarters round chimneys: elevations of chimneys 2 and 4.

Despite the general similarity of design, significant variations do occur between chimneys, both in dimensions and in methods of construction. Figure 17 for example, illustrates the differences in size and shape of the chimneys of no. 2 and no. 4. Whereas no. 2 projects 1.15 m behind the wall into which it is built, no. 4 projects only 750 mm, despite the fact that they are of equal width across the base. A second variation in dimensions which should be noted is the difference in the thickness of the walls of each structure (Table 21):

Table 21. Wall thickness variations in the five married quarters.

No. 1	No. 2	No. 3	No. 4	No.5
350 mm	290 mm	310 mm	370 mm	410 mm

Variations in construction techniques have proved more interesting. Despite the disappearance of timbers, their original positions are indicated by holes in the stonework. On no. 1, no. 2 and no. 3, large circular posts were used at each end of the stone wall, and as the imprint of the mortar shows, the ends were abutted against these posts (Figure 18). These may have possessed a structural purpose for the masonry wall as well as acting as an upright on which to batten the side walls. At the point at which the walls begin to slope inwards a horizontal beam was laid along the entire length of the wall (Figure 19). In no. 4 and no. 5 this beam is visible on the internal face; on no. 3 it is visible on the external face; on no. 2 it is concealed, passing through the centre of the wall. On no. 3, no. 4 and no. 5, a principal rafter is set into the top of the upper, sloping, section of the wall (see Figure 18). It is difficult to define this feature on no. 2, because one side of the wall has fallen, but some indications do exist on the remaining side. Apparently it was not set into the chimney as in the other cottages. Instead, a vertical beam had been set into the front of the chimney which presumably carried the ridge beam (Figure 20). As Figure 17 shows, the chimney of no. 2 slopes back from the vertical. Thus the principal rafter could also have been tied into this vertical beam. A rafter was set into the internal face of the chimneys of no. 2 and no. 3 sloping to the ridge beam at approximately 45° (Figures 20 and 21). This feature was absent on no. 4 and impossible to define on no. 1 and no. 5 because they are now incomplete. On no. 4 and no. 5 the upper part of the wall was recessed 40 mm on the internal face.

Some of these variations are the product of one major constructional difference. On no. 1 and no. 2, the walls are not tied into the chimney. On no. 3 the wall and chimney are tied in up to the height of the horizontal beam (Figure 21). On no. 4 and no. 5 the wall and chimney are tied in from the bottom to the top. In the case of nos. 1–3 the triangular sloping sections were added after the completion of the horizontal beam (Figure 21). In the cases of no. 4 and no. 5 the chimneys and walls were built as a single unit (Figure 19). The evidence from no. 1 is uncertain because of its dilapidated condition. It is clear that in the case of no. 2, with its chimney sloping back from the vertical, and its ridge beam supported by a vertical beam set in the face of the chimney, that this posed the problem of keeping out the rain. The construction of no. 3 indicates an improvement. Building the chimney with a vertical flat surface on the northern side was a better solution, and this was further improved with no. 4 and no. 5 by building the entire wall and chimney as a single unit.

After returning from the field in 1966, the distribution of these differences was tabulated in the form of a sorted matrix. When represented diagrammatically in this fashion indications were that the structures fell into two groups, nos. 1–3 and nos. 4–5, with no. 3 being transitional. In other words, the chimneys could be seriated (Allen 1967:70). With this idea in mind, a further examination was carried out during the 1967 season, and the number of constructional traits was more closely scrutinised and increased. The tabulation of the traits in 1966 had been clumsy because no differentiation was made between the simple presence and absence of traits and the fact that some traits were mutually exclusive. With the 1967 elaboration it became necessary to divide these traits into two tables. In Table 22 the simple presence and absence of some of the traits is represented. Table 23 shows the distribution of mutually exclusive traits. Chimney no. 1 has been excluded from both these tables because of its dilapidation and is discussed separately below. With no. 5, a question mark has been inserted for Trait 6 because there is no direct evidence for this trait. However the probability that it existed is high.



Figure 18. Married Quarters round chimney no.3 looking east. The positions of the vertical post, the principal rafter and horizontal beam on the external face are all discernible.

Below: Figure 20. Married Quarters round chimney no. 2 showing the position of the vertical beam in the chimney, the internal sloping rafter hole and the separate triangular section of the upper part of the wall on right, now lost on the left.



Figure 19. Married Quarters round chimney no. 4 showing horizontal beam revealed on internal face.

Below: Figure 21. Married Quarters round chimney no. 3 showing internal sloping rafter hole and the separate triangular sections of the upper parts of the wall. A hole for the ridge beam is discernible in the upper chimney.



Table 22. Distribution of architectural traits on four married quarters' chimneys. 1: vertical wall posts abutted to each end of standing wall. 2: rafter hole at 45° set into internal face of chimney. 3: vertical beam set in internal face of chimney. 4: ridge beam hole set in internal face of chimney. 5: sloping hearth stone at rear of fireplace. 6: internal face of chimney vertical to height of ridge beam. 7: upper section of wall recessed above horizontal beam.

Trait	No. 2	No. 3	No. 4	No. 5
1	X	X		
2	X	X		
3	X			
4		X	X	X
5		X	X	X
6		X	X	X?
7			X	X

Table 23. Distribution of mutually exclusive architectural traits on four married quarters' chimneys. 1a: Chimney constructed before wall. 1b: Chimney constructed simultaneously with upper wall. 2a: Chimney at rear angled inwards from ground level. 2b: Chimney at rear vertical to height of horizontal beam then angled inwards. 3a: Chimney not tied into wall at any point. b: Chimney tied into wall to height of horizontal beam. 3c: Chimney tied into wall to the total height. 4a: Horizontal beam concealed. 4b: Horizontal beam visible on external face. 4c: Horizontal beam visible on internal face. 5a: Principal rafter in centre of top of wall not tied into chimney. 5b: Principal rafter in centre of top of wall, tied into chimney. 5c: Principal rafter in centre of wall, tied into chimney, with raised internal edge. 5d: Principal rafter at rear of wall, tied into chimney.

Trait	No. 2	No. 3	No. 4	No.5
1a	X	X		
1b			X	X
2a	X	X		
2b			X	X
3a	X			
3b		X		
3c			X	X
4a	X			
4b		X		
4c			X	X
5a	X			
5b		X		
5c			X	
5d				X

VMQ chimney no. 1

Although this structure had been virtually demolished by a falling tree, certain characteristics could be distinguished. As with no. 2 and no. 3, no. 1 was constructed with vertical wall posts; as with no. 2 the chimney was not tied into the wall. An apparent difference between no. 1 and all the other examples is that the chimney does not slope in at the rear (its present height exceeds the height at which the horizontal beam would have been employed). This variation, with the buttress chimney remaining vertical at the rear, while differing from the other examples is not atypical, as both types are recorded in Cornwall.

There is evidently a correlation in the positioning of the horizontal beam and the vertical side posts. On no. 2 the side post is in the centre and the horizontal beam passes through the centre of the wall; on no. 3 the side post is set at the rear edge of the wall while the horizontal beam is visible on the external face. On no. 1 the side post is also set at the rear of the wall, but evidence for the presence or absence of the

horizontal beam is now lost. On no. 4 and no. 5 the horizontal beam is visible on the internal face and no evidence of side posts remains. Certainly they did not abut the wall as in the case of no. 1, no. 2 and no. 3.

The function of the horizontal beam is uncertain. However, in cottages no. 2 and no. 3 it may have helped stabilise the walls while the construction of the chimneys was completed. The beams projecting forward in no. 4 and no. 5 may have served as mantelpieces.

CONCLUSION

Represented diagrammatically in the form of a sorted matrix, the observed differences permit the division of the chimneys into two groups; nos. 1–3 and nos. 4–5. No. 3 appears to be a transitional example sharing the traits of both groups, but being more closely aligned with no. 1 and no. 2. Only two traits are universal, the horizontal beam and the principal rafter, which was needed to secure the purlins. However this trait suggests a continual improvement in technique from no. 2 to no. 5.

No. 3 has been grouped with no. 1 and no. 2 because its chimney was built before the upper walls, and this constitutes the most significant constructional difference. Yet no. 3 also stands somewhat apart from this group, because its builder had the foresight to keep the internal face of the chimney vertical and to insert the ridge beam into the chimney. The upper wall sections were added more efficiently and neatly in no. 3 than in no. 2, and in general the former structure is more regular and neatly built, and in this respect more closely resembles no. 4 and no. 5.

Several assumptions can be made on the basis of these observations. An obvious grading in constructional techniques and efficiency of building is demonstrated between nos. 1–2, no. 3, and nos. 4–5. While three different builders could have been responsible for these groups, the first garrison consisted of 40 marines, and as the building of these cottages would have formed part of official duties, it seems probable that if the project was a single enterprise, it would have been directed by one person rather than three (and much less five people). Thus the differences are best seen as a function of increasing expertise through time.

Even accepting this seriation it is impossible to demonstrate with certainty the priority of chimney construction. That said, since the settlement lasted only 11 years it is unlikely that there was a degeneration rather than an improvement in the efficiency of building techniques and construction. If all the chimneys are the work of a single builder, it is improbable that he became increasingly inefficient. More probable is that he was inexperienced to begin with and learned by experience. An unlikely alternative is that an experienced builder built no. 4 and no. 5 and that nos. 1–3 were imitations by someone less experienced. However it is likely that the explanation requiring the fewest assumptions is the correct one and that these chimneys reflect the sort of improvisation that attended this attempt at colonisation.

So far only one other example of this semi-circular buttress chimney has been located in Australia on Winninnie Station in South Australia (pers. comm. Robert Edwards, South Australian Museum) although more might still exist in those areas which were extensively settled by Cornishmen in the nineteenth century. One pictorial representation of a round chimney at Glenelg in South Australia can be dated 1836–38 (Wallace NLA MS.179). It is possible that this chimney and the Port Essington examples reflect a common origin, for some of the marines used to establish Port Essington had been previously stationed in South Australia (Adm. 53/88:

Alligator's log 20.7.1837 to 13.2.1843; Pasco 1897:89). These cottages are mentioned by D'Urville (1841–55) who visited the settlement in April 1839, but no specific numbers of cottages or descriptions are recorded. The use of bricks indicates an earliest date of 1840 (see Chapter 8). However on the evidence available, both historical and archaeological, it seems likely that all these chimneys were completed before the first garrison was relieved in 1844.

VMQ excavations

Excavations were begun in the house floor of chimney no. 2 to determine the structure of the floor and its precise measurements by locating post holes, and delineating the extent and composition of the flooring material (Figure 22). It was hoped further to contrast the finds from this type of dwelling with other house floors in the settlement. This particular floor was chosen because the chimney and the hearth were intact and because two squared stones, interpreted as a doorstep, were visible in the line of the western wall; this floor also appeared to be free of major tree root disturbance.

An area measuring 1 m by 2 m was excavated at the north-western corner, and was located so that a visible mound that reflected the corner of the floor fell within it. This excavation was designated VMQ/1. Two further areas, VMQ/2 and VMQ/3 were also opened (see Figure 21). In VMQ/1 and VMQ/2 a hard clay floor, sloping upwards towards the south was encountered 500 mm from the north edge of the excavations. Some small glass flakes had been located on the

western side of VMQ/1 (as far as had been excavated) and similar flakes had appeared in the western extreme of VMQ/3, so it was decided to divide the remaining square metre of VMQ/1 and excavate the section on the western extreme, which appeared to be outside the building line, in smaller units and in two spits, and contrast this with the remaining section of VMQ/1 also excavated in two spits. These areas were designated VMQ/1a, /1b, /1c and /1d as shown on the ground plan. VMQ/1b became 400 mm by 300 mm, while VMQ/1c and VMQ/1d were each 300 mm by 300 mm. Table 24 shows the numbers of pieces of glass for these areas.

This distribution demonstrated that the heavy concentration of glass occurred outside the building line. As well, the combined area of /1b, /1c and /1d is less than half that of /1a, making the distinction between deposition inside the house and that outside the house even stronger.

While the northern edge of the clay was quite distinct, the western edge, both in VMQ/1 and VMQ/3, was more indistinct, grading in colour from the red clay on the eastern side, to black soil on the western side. No definite post holes were discernible in the areas uncovered, with the possible exception of a discontinuity in the horizontal section of VMQ/1 at the western extreme of the northern floor line (that is, the point that probably marks the north-west corner of the building). However as this was also associated with major root disturbance it could not positively be identified as a posthole.

An examination of the glass from VMQ/1b, /1c and /1d indicated that much of it could be classified as probably having been utilised by Aborigines. The initial field sorting of the material put 57.4% of the glass from this area in this category. This immediately posed a new possibility that the area outside the building represented a flaking floor, an area for the manufacture of glass implements by the Aborigines. In order to test this hypothesis an area 2 m by 1 m was excavated to the west of VMQ/1 and separated from it by a 300 mm baulk. To gain maximum control of the material this area was excavated in 500 mm squares (VMQ/4 to VMQ/11) and in two spits down to sterile sand. The maximum depth of deposit above the sterile sand in these squares was 210 mm, the minimum, 140 mm. Cultural material was recovered throughout the deposit. A total of 256 pieces of glass was recovered from these eight squares, of which 52.8% was initially sorted as probably utilised by Aborigines. A further area consisting of eight 500 mm squares was excavated (VMQ/12 VMQ/19) and produced significantly less glass (87 pieces) of which 56.3% was classified as probably utilised by Aborigines. In addition two pieces of ground ochre, three stone flakes, and one stone implement were recovered from these areas. The stone implement was reconstructed from five pieces of slate and appears to be the heavily step-flaked butt of a broken spear point. This type has not been recorded before in excavations or collections from Arnhem Land, where the predominant form of

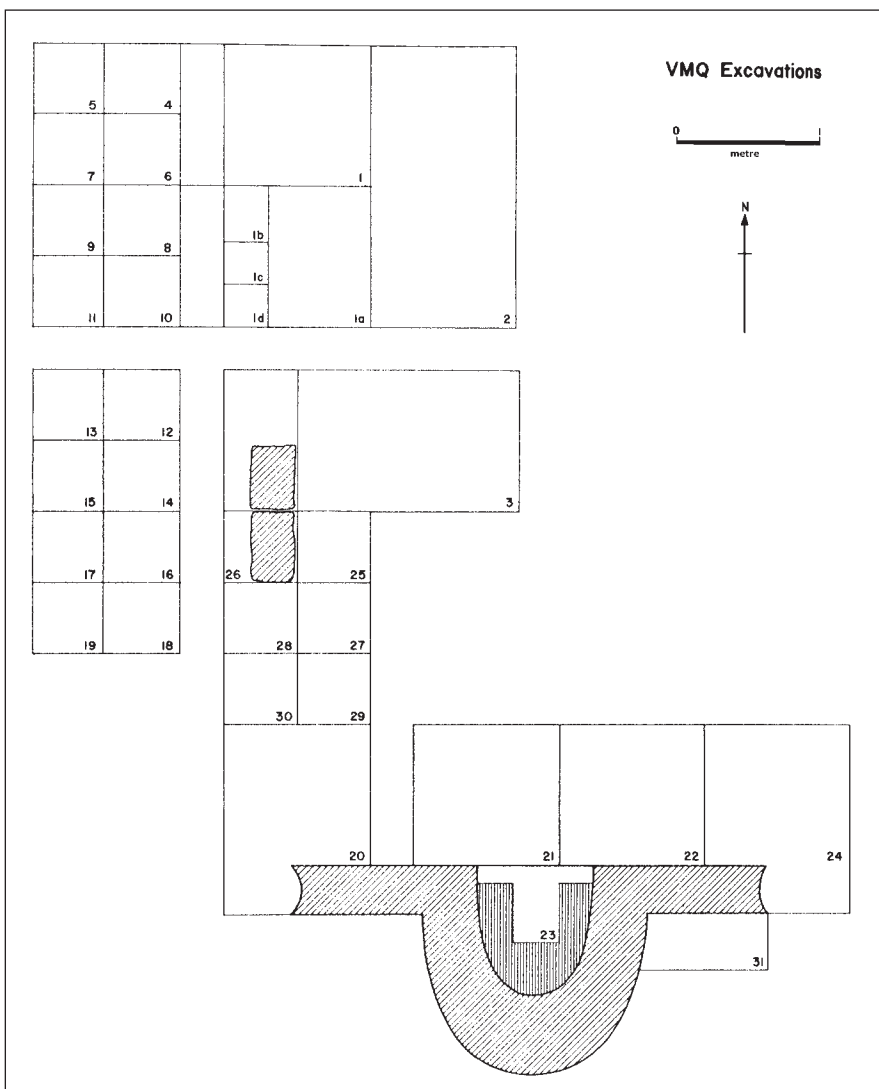


Figure 22. Married Quarters round chimney no 2 ground plan, showing excavation units in relationship to the chimney.

stone spearhead is the *Leilira* blade. The only parallels are two similar implements in the Port Essington collection, described below (Chapter 5).

Following this diversion it was decided to excavate series of squares across the hearth area in front of the standing southern wall of the building. The first of these squares, VMQ/20 was begun outside the supposed line of the building and was extended to the foot of the western end of this wall where traces of plaster and tooled stones indicated the presence of a post. Again however, no indications of a posthole were discernible from colour change in the soil, although from traces of wall plaster below ground level, it was apparent that the post had been set in the ground. Twenty-two pieces of glass were recovered at the western end of this square. Inside the line of the house the clay floor proved to be much better defined, covered by a thin charcoal layer presumed to be the reflection of the destruction of the house at the time the settlement was abandoned. The floor in this area consisted of packed clay with criss-cross wear lines running through it, and this continued through VMQ/21 and VMQ/22. The nature of the topsoil in VMQ/20 had changed from the northern end of the building and here contained shells amongst the loose black soil. A 300 mm baulk was left between VMQ/20 and VMQ/21. Here again a loose black deposit containing shell, iron, glass and pottery was found above the clay floor, being deeper at the southern end and extending into the fireplace. A similar deposit, but decreasing in depth, was found in VMQ/22 above the clay floor, and also in VMQ/23, in the fireplace above the hearth-stones. VMQ/24 extended the excavation beyond the building line and was extended to investigate the eastern end of the stone wall, but again no colour change indicated where the post had stood. Finds in this area were few.

The stratigraphic evidence in the hearth area established that almost all the finds related to occupation by Aborigines after the European evacuation. Because of the sharp division of finds of glass on the western side of the building it is reasonable to infer however, that this latter deposit was laid down at a time when the western wall was still standing, i.e. while the settlement was occupied by Europeans. Apparently the Aborigines began to use the remaining southern stone wall and chimney as a form of rock shelter after the abandonment and destruction of the house, and at this time the midden deposit grew in front of it.

Six 500 mm by 500 mm squares (VMQ/25-VMQ/30) were excavated to join the western end of VMQ/3 and VMQ/20 in order to investigate further the relationship of the areas within and outside the supposed line of the building. Results in terms of finds and stratigraphy paralleled the earlier results.

VMQ/31 was excavated to investigate the foundations of the standing wall. These extended 430 mm (two courses of cemented stone) below present ground level and were of the same width as the wall above ground level. The only find in this area was a single nail.

Finally the baulk separating VMQ/1 and VMQ/4 to VMQ/11 was excavated in the hope of increasing the sample of glass. Indeed, the area proved extremely rich, producing 100 pieces of glass, 25 pieces of pottery, and one European gun-flint.

Finds which definitely could be associated stratigraphically with the European occupation of the house were extremely rare and perhaps this reflects the tidiness of the family who lived there. The use of a broom appears to be the best explanation of the criss-cross lines which were found in the area of the hearth. The metal frame of a brooch from this site-unit was the only clearly feminine artefact excavated in the entire settlement, so that it was satisfying that it was found in a building designated as married quarters. The recovery of

pottery and glass from the cliff top and slope opposite these houses suggests that most of the refuse from these houses was dumped in this area. No suggestion of internal walls or partitions was recognised in the excavated house floor.

Table 24. Distribution of glass in selected squares inside and outside of married quarters house no. 2.

Spit	VMQ/1A	VMQ/1B	VMQ/1C	VMQ/1D
1		33	16	22
2	4	10	20	
TOTAL	4	43	36	22

Table 25. Glass from VMQ excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VMQ/1/1	20	214.0			17	87.3	37	301.3
VMQ/1A/2					4	7.3	4	7.3
VMQ/1B/1	21	69.4			12	35.1	33	104.5
VMQ/1C/1	13	21.3			3	5.0	16	26.3
VMQ/1B/2	5	22.6	5	21.1			10	43.7
VMQ/1C/2	15	19.5	5	15.0			20	34.5
VMQ/1D/1	4	11.5			18	16.5	22	28.0
VMQ/2/2	2	2.3			2	2.1	4	4.4
VMQ/3/1	18	49.0			22	30.1	40	79.1
VMQ/4/1	4	13.9			7	12.1	11	26.0
VMQ/4/2	4	28.8			13	20.5	17	49.3
VMQ/5/1	3	9.5			4	5.0	7	14.5
VMQ/5/2	5	8.9			7	4.5	12	13.4
VMQ/6/1	9	65.8			13	17.1	22	82.9
VMQ/6/2	1	1.9			1	1.0	2	2.9
VMQ/7/1	3	6.1			4	5.9	7	12.0
VMQ/7/2	4	11.5			7	17.5	11	29.0
VMQ/8/1	47	116.9			26	47.1	73	164.0
VMQ/8/2	4	3.2			1	1.9	5	5.1
VMQ/9/2	7	85.4			3	0.9	10	86.3
VMQ/10/1	28	54.5			19	41.6	47	96.1
VMQ/10/2	1	3.4					1	3.4
VMQ/11/1	7	12.1			2	7.1	9	19.2
VMQ/11/2	16	51.0			7	26.8	23	77.8
VMQ/12/1	2	8.6			1	0.8	3	9.4
VMQ/12/2	8	38.7			2	3.4	10	42.1
VMQ/13/1	3	15.0			3	2.5	6	17.5
VMQ/13/2	2	6.7			6	4.5	8	11.2
VMQ/14/1	2	3.5					2	3.5
VMQ/14/2	1	1.5			3	3.0	4	4.5
VMQ/15/1					1	0.6	1	0.6
VMQ/15/2	3	15.8			4	7.8	7	23.6
VMQ/16/1	2	61.0			4	5.0	6	66.0
VMQ/17/1	5	9.6			6	7.5	11	17.1
VMQ/17/2	5	16.4					5	16.4
VMQ/18/1					2	1.9	2	1.9
VMQ/18/2	1	2.0					1	2.0
VMQ/19/1	15	126.5			6	9.2	21	135.7
VMQ/20/1	14	146.7			8	38.9	22	185.6
VMQ/21/1	10	121.3			60	269.9	70	391.2
VMQ/22/1	9	31.3	1	13.1	16	23.2	26	67.6
VMQ/23/2	2	11.2			2	23.8	4	35.0
VMQ/24/1	1	3.0			2	5.3	3	8.3
VMQ/25/1	2	38.4			2	15.8	4	54.2
VMQ/26/1	2	14.2			11	32.9	13	47.1
VMQ/28/1	4	58.6			6	64.8	10	123.4
VMQ/29/1	1	10.7			2	2.3	3	13.0
VMQ/30/1					2	9.8	2	9.8
VMQ/32/1	22	234.4	1	20.0	23	116.4	46	370.8
VMQ/32/2	3	25.4			2	10.0	5	35.4
VMQ/33/1	12	31.1	1	7.9	7	44.7	20	83.7
VMQ/33/2	16	43.7			13	34.4	29	78.1
Surface			1	21.8			1	21.8
TOTAL	388	1957.8	14	98.9	386	1130.8	788	3187.5

Table 26. Pottery counts from VMQ excavations according to type. Only squares/spits with pottery are shown in table.

	1/1	1A/1	1A/2	1B/1	1C/2	1D/1	3/1	4/1	4/2	5/1	5/2	6/1	7/2	8/1	8/2	9/2
Transfer Printed Spatterware													1	1		2
Undecorated White Glaze	2				2	1	1	2	3	1	1	1				
Salt Glaze Stoneware	2											1				
Unglazed Wheelmade		1														
Pipe Stems	1		2	1		2		1				3	1	1	1	
Pipe Bowls	1											1	4	2		
Blue On White Porcelain							2									
Polychrome Porcelain														1		
Macassan											1					
Total	6	1	2	1	2	3	3	3	3	1	2	6	6	5	1	2

	10/1	11/2	12/2	13/1	13/2	14/1	19/1	21/1	22/1	26/1	32/1	32/2	33/1	33/2	TOTAL
Transfer Printed Spatterware	1				1									2	6
Undecorated White Glaze		1		1			1		4		5	3	2	3	33
Salt Glaze Stoneware											1	1	1		6
Unglazed Wheelmade															1
Pipe Stems	2		1		1					1	2		3	2	25
Pipe Bowls															8
Blue On White Porcelain								2							4
Polychrome Porcelain															1
Macassan															1
Total	3	1	1	1	2	1	1	2	4	1	8	4	8	5	89

Table 27. Metal from VMQ excavations. Weight in grams. Only squares/spits with metal are shown in table.

	1A/2		1C/2		1D/2		2/2		3/1		6/1		7/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Pin					1									
Uniform Insignia			1											
Uniform Buttons														
Plain Buttons												1		
Percussion Caps									1					
Cameo Holder									1					
Brass Washers														
IRON														
Nails <30 mm														
Nails 30-50 mm									1	2.8	1	6.2		
Nails 50-80 mm														
Nails >80 mm														
Nut							1	88.5						
Unidentified		21.9						20.6				45.2		15.5
COPPER														
Nails <30 mm														
Nut and Bolt														
Unidentified														

	7/2		8/1		10/1		11/2		14/2		19/1		21/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Pin														
Uniform Insignia														
Uniform Buttons									1					
Plain Buttons														
Percussion Caps														
Cameo Holder														
Brass Washers														
IRON														
Nails <30 mm														3 6.0
Nails 30-50 mm					1	4.7								24 72.8
Nails 50-80 mm														3 20.0
Nails >80 mm														1 20.0
Nut														
Unidentified				7.2				5.9						145.2
COPPER														
Nails <30 mm	1	1.4												
Nut and Bolt											1	12.7		
Unidentified												4.4		

continued overleaf

Table 27 (cont.)

	22/1		23/2		31/1		32/1		33/1		33/2		TOTAL No.
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Pin													1
Uniform Insignia													1
Uniform Buttons													1
Plain Buttons	1												2
Percussion Caps													1
Cameo Holder													1
Brass Washers							2	1.5					2
IRON													
Nails <30 mm	1	6.4											4
Nails 30-50 mm													27
Nails 50-80 mm			4	43.1	1	6.4							8
Nails >80 mm													1
Nut													1
Unidentified		39.2		30.3							23.0		
COPPER													
Nails <30 mm													1
Nut and Bolt													1
Unidentified											9.3		

Table 28. Aboriginal and European stone from VMQ. Weight in grams. Only squares/spits with pottery are shown in table.

	8/1		8/2		19/1		19/2		26/1		32/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Flakes	1	1.3	1	2.3					2	1.4		
Implements					1	8.3					1	3.1
Ochre							2	32.0				
European gunflint											1	13.6

QUARTERMASTER'S STORE (Code prefix VQS)

VQS architecture

The remains of the quartermaster's store were located at the northern end of the square, which had regenerated into a forest of monsoonal vegetation. These consisted of the stone walls, standing to window height (approx. 1.2 metres), built in a rectangular shape with entrances in the centre of each wall (Figure 23).

From contemporary paintings this building was identified as one of the prefabricated buildings which had been brought from Sydney. Originally it had been constructed on c. 2.5 m high wooden piles, which were afterwards enclosed in the stone foundations which now remain. When the enclosure took place the wall, consisting of a double thickness of rough-hewn blocks with rubble and cement fill, was built around the existing wooden piles, and although these have long since disappeared, the gaps in the stonework which they filled show their positioning and their variation in size (Figure 24). Except for the four corner posts, a gap was deliberately left on the internal face of the wall adjacent to each wooden pile, but the reason for this is uncertain.

Excavations revealed a stone post-support in the centre of the floor and it is supposed that this is the centre of the long axis of the building. In this respect this building is similar to Store D (see below). Also the external corners were buttressed as in Store D, and the flooring was again of layers of shell, although in places these were separated from the sterile sand by a layer of red clay. The excavations through the southern doorway revealed a stone doorstep.

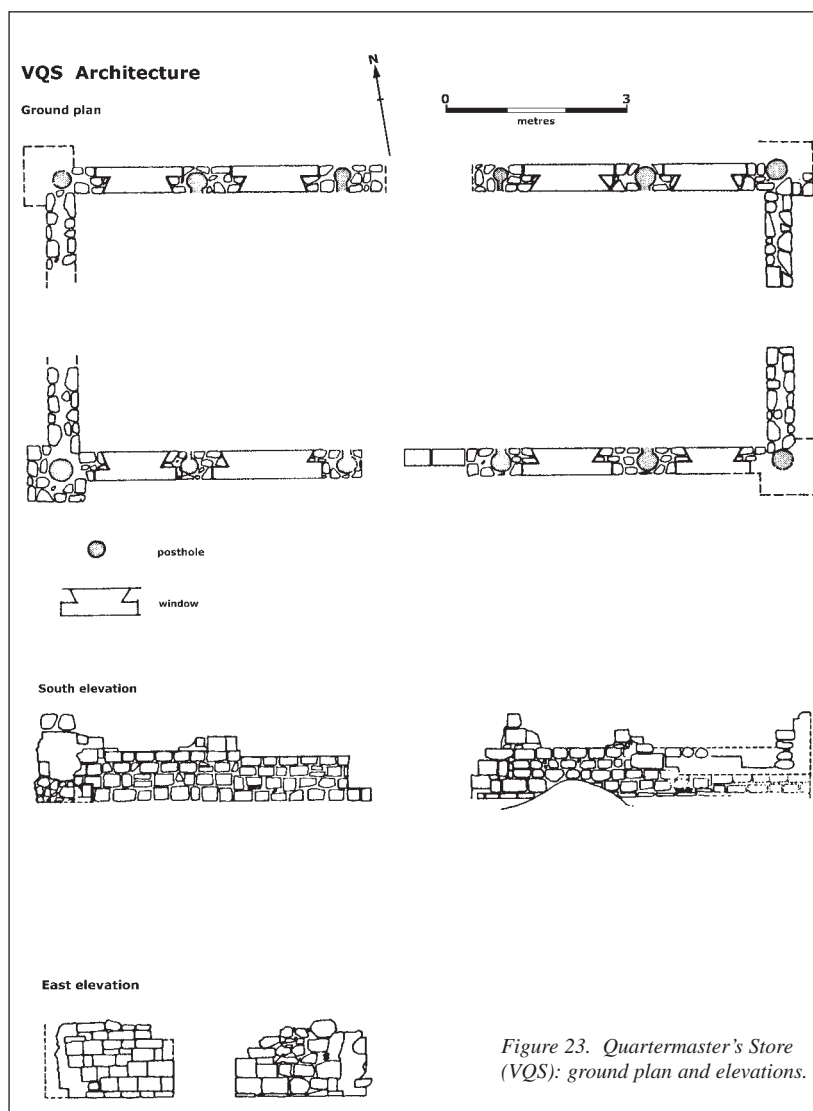


Figure 23. Quartermaster's Store (VQS): ground plan and elevations.



Figure 24. Part of the standing lower storey of VQS. The tree is growing in the space provided by the original wooden pile, later mostly enclosed by the stone wall.

Access to the upper storey was external, consisting of wooden steps at the eastern end; no evidence of internal stairs was revealed, although this may be the result of insufficient excavation.

The remains of four windows were discernible in each of the long walls of the lower storey (Figure 22). These were of an intricate shape and were probably provided with wooden sills.

VQS excavations

An area measuring 2 m by 4 m was excavated in metre squares (VQS/1–VQS/8), in order to reveal the doorway in the southern wall and to examine the deposit inside and outside the building (Figure 25). Excavations in VQS/1 revealed the edge of a stone block in the centre of the house floor, and an additional metre square, VQS/9 was excavated to uncover this block. The excavations in VQS/1 were divided into two spits, but since it appeared that no differentiation could be made in the deposit within the house, the remaining internal squares were excavated as single units with the exception of VQS/7 where a post hole in the wall was taken out as a separate spit. The squared stone in VQS/9 proved to be an internal post support similar to those found in Store D, measuring 600 mm by 400 mm with a 100 mm square notch cut in the top to a depth of 40 mm.

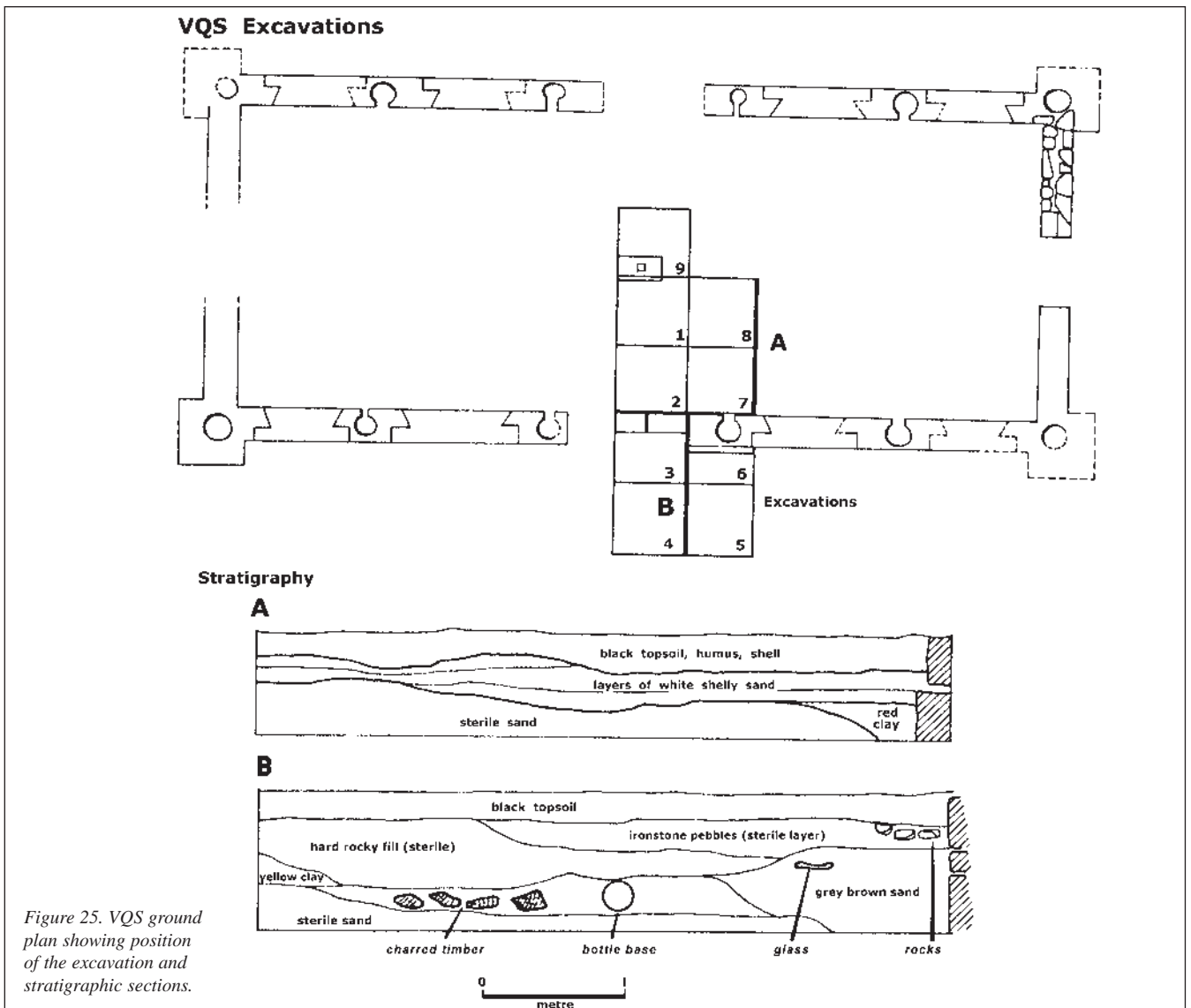


Figure 25. VQS ground plan showing position of the excavation and stratigraphic sections.

The stratigraphy within the building was the same in each square and consisted, as in other buildings in the settlement, of a basal deposit of sterile sand over which red clay was lain down, followed by successive layers of fine beach shell. The post hole in the wall was excavated to a depth of 300 mm, at which point no more deposit could be removed because of the difficulty of excavation, although sterile sand had not been reached.

Excavations in VQS/3 and VQS/6 uncovered a stone doorstep made of hewn stone blocks cemented in two courses. Beyond this, in VQS/3, after passing through the topsoil deposit, a roughly level surface of small broken stones was encountered, which extended a metre from the building line. VQS/5 and VQS/6 were then excavated in two spits, the top spit uncovering the deposit above the 'path' and the second spit passing through the floor down to the sterile sand.

After passing through the 'path' deposit, which was sterile, it was found that the level underneath contained European cultural deposit for a further 150–200 mm before the basal sterile layer was encountered. Section VQS/5–VQS/6 west wall (Figure 25) indicates the stratigraphy, showing the base of a bottle, and burnt timbers *in situ*. Whether this constitutes an earlier building or an earlier phase of the present building is impossible to demonstrate archaeologically, but it is probably associated with the period before the lower section of the building was encased in stone. The stone doorstep appears to have been built with little or no excavation of the ground beneath it, and the interior filled with clay and shell flooring to the height of the step. At the same time, perhaps, the immediate surrounds of the building were levelled to the height of this stone 'path'.

As in the case of other buildings in the settlement, rather more glass and pottery was recovered from the immediate exterior of the building than from within it. Metal was found throughout the excavation, but VQS/7 yielded the greatest amount of 'exotic' metal – uniform insignia, several buttons, a large brass spike and a brass knob. In VQS/8 a brass and iron door lock and the chin-strap terminal of an officer's shako were recovered.

Of the glass recovered from the excavation, 13.6% was sorted primarily as possibly utilised by Aborigines, and this material was found throughout the deposit. In other areas this material was located predominantly outside houses. Its

presence inside the quartermaster's store might indicate that the Aborigines occupied the building while the settlement was still in existence, since it is known that the building fell into such disrepair that it was no longer occupied by the garrison before the settlement was abandoned (Brierly 1848 ML A501–4:14 November). Alternatively the area could have been used by the Aborigines before the lower section was enclosed.

Table 29. Glass from VQS excavations according to type: number and weight in grams.

AREA	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VQS/1/1	1	3.2			13	19.4	14	22.6
VQS/2/1	4	20.1			27	67.5	31	87.6
VQS/3/1	16	85.4			38	59.3	54	144.7
VQS/4/1	21	82.1	1	15.2	116	209.1	138	306.4
VQS/5/1	10	57.0			48	110.0	58	167.0
VQS/5/2	4	19.0	1	457.5	27	42.2	32	518.7
VQS/6/1	9	52.3			80	229.5	89	281.8
VQS /6/2					6	31.4	6	31.4
VQS/7/1	25	214.0	2	28.0	95	642.5	122	884.5
VQS/7/2	12	26.8			23	138.4	35	165.2
VQS/8/1	2	3.7			28	56.5	30	60.2
VQS/9/1	3	3.5			22	67.0	25	70.5
TOTAL	107	567.1	4	500.7	523	1672.8	634	2740.6

Table 30. Pottery counts from VQS excavations according to type. Only squares/spits with pottery are shown in table.

	1/1	2/1	3/1	4/1	5/1	6/1	7/1	9/1	TOTAL
Transfer Printed	3	1	4		2	12		4	26
Featheredge (Blue)			2						2
Saltglaze Stoneware			1	1					2
Unglazed Wheelmade							1		1
Undecorated White Glaze		3	2	3	1	2			11
Hand Painted				1					1
Pipe Stems		1	5	1	1		4		12
Blue On White Porcelain			2	14		4			20
TOTAL	3	5	16	20	4	18	5	4	75

Table 31. Metal from VQS excavations. Weight in grams.

	No.	1/1 Wt.	No.	2/1 Wt.	No.	3/1 Wt.	No.	4/1 Wt.	No.	5/1 Wt.	No.	5/2 Wt.	No.	6/1 Wt.
Uniform Insignia														
Uniform Buttons														
Plain Buttons														
Musket Balls														
Brass knob														
Brass Spike														
Brass/Iron Lock														
Boot Heel														
IRON														
Nails <30 mm	11	31.5	8	22.5	4	8.3	2	4.4	5	7.8	6	14.9	14	27.9
Nails 30-50 mm	2	8.7	1	2.8	19	69.9	4	11.7	8	24.2	11	30.7	36	116.6
Nails 50-80 mm	1	8.3	3	24.9	3	59.7	1	8.4					2	20.6
Nails >80 mm							1	9.9					1	23.8
Hinge					1	43.7								
Roundel														
Unidentified		25.0		31.8		38.4		19.1		36.2				109.4
COPPER														
Nails <30 mm	1	0.5												
Nails 30-50 mm														
Screws	1	2.4												
Unidentified								7.7						
LEAD														
Unidentified														

continued overleaf

Table 31 (cont.)

	6/2		7/1		7/2		8/1		9/1		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uniform Insignia			1				1				2
Uniform Buttons			1								1
Plain Buttons			2								2
Musket Balls			1	47.5							1
Brass knob			1								1
Brass Spike			1								1
Brass/Iron Lock							1	67.5			1
Boot Heel			1	40.0							1
IRON											
Nails <30 mm			10	32.4			5	17.3	1	2.7	66
Nails 30-50 mm	9	23.3	2	7.0	3	13.6	2	9.5			97
Nails 50-80 mm			3	16.2							13
Nails >80 mm											2
Hinge											1
Roundel			1	40.0							1
Unidentified		6.2		284.0				23.0		17.0	
COPPER											
Nails <30 mm											1
Nails 30-50 mm			2	7.0							2
Screws											1
Unidentified											
LEAD											
Unidentified				9.8							

SHELL FLOOR No. 1 (Code prefix VSFI)

Within the pocket of monsoonal vegetation which marks the area of the town square, six mounds were located. These were mostly rectangular or square in plan, standing to a height of only a few centimetres above the surrounding ground level. Because of the dense vegetation, which reduced visibility to several yards, no detailed plan of the localities of these house floors could be drawn without major clearing.

The floor selected for excavation was located 12.6 m south of the bake house. This floor was chosen because it was free of major tree root disturbance and because in the centre of the mound, four squared stone blocks were visible on the surface. This feature was not apparent in any of the other floors located, although similar arrangements of stones may occur below the present ground level in these other examples. In all examples the mounds are flecked with small pieces of shell.

VSF excavations – structure

Fourteen square metres were excavated as shown on the ground plan (Figure 26). Originally it had been hoped to uncover the total area to obtain a complete ground plan of post holes, but time did not permit this.

VSFI/1 was excavated in an attempt to define the western edge of the building at its eastern end. After passing through a layer of topsoil and shell above a layer of shell flooring, a stratum of red clay was encountered at a depth of 180 mm. The material so far excavated was bagged as spit 1, and the remaining deposit excavated to sterile sand as spit 2. The remaining thirteen square metres were excavated in a similar two spit system. On the western side the exact delineation of the clay was unclear at the bottom of spit 1, merging into a grey shelly matrix, but with the removal of spit 2, the edge of the clay became more definite.

After the removal of the upper spit of VSFI/2, a possible post hole was revealed in the north-east corner. Because of the nature of the shell matrix it was impossible to determine post holes in this and subsequent squares in spit 1, but in the red clay deposit, or when contrasted with the sterile yellow sand these holes became obvious.

After leaving a 300 mm baulk, two further squares were

excavated to the east to define the eastern edge of the clay, which was located in VSFI/4. VSFI/5 and VSFI/6 were excavated to delineate the northern extreme of the clay, which was found to follow almost exactly the northern face of VSFI/1 to VSFI/4.

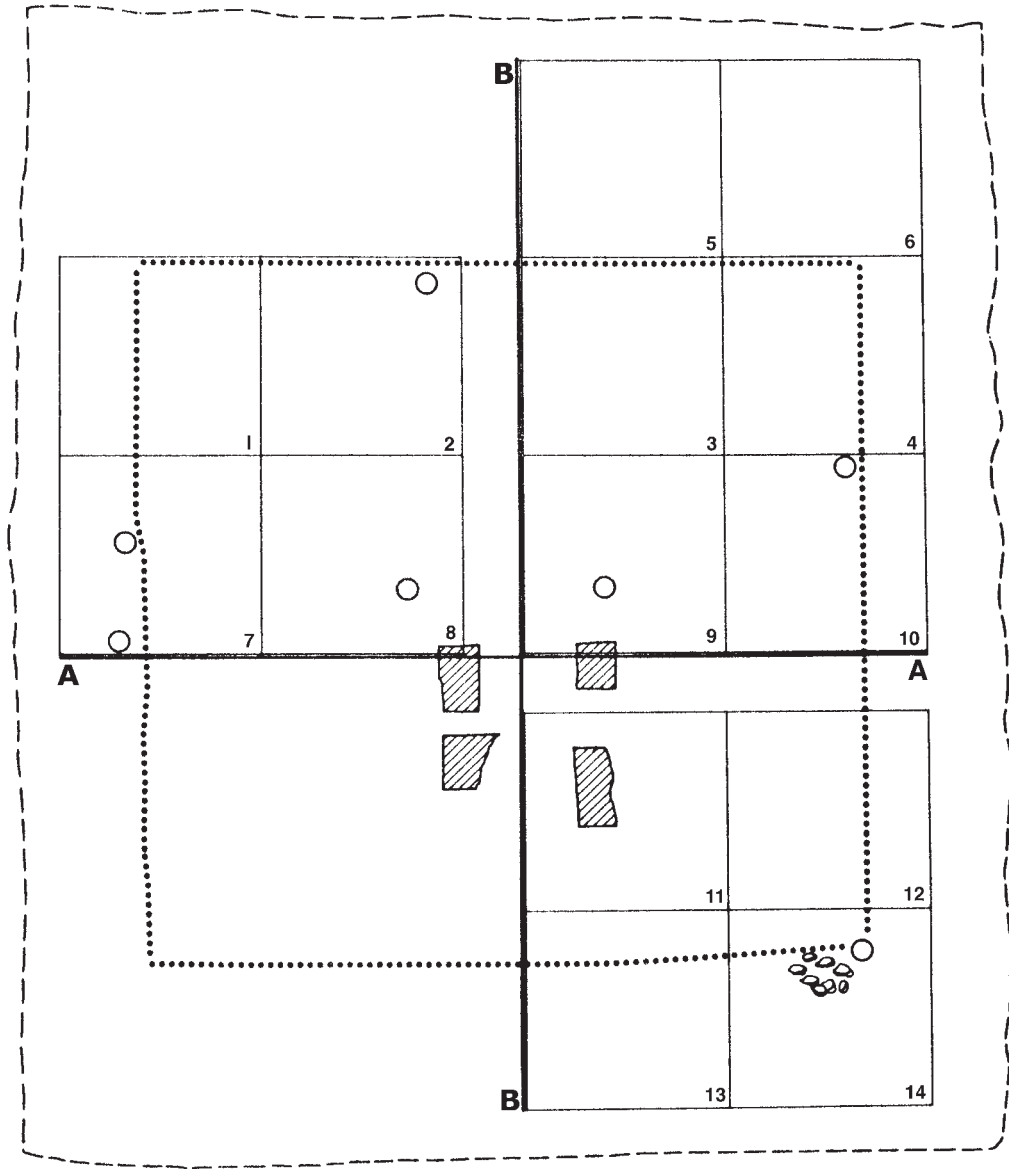
Excavations in VSFI/7 revealed two further post holes immediately outside the line of red clay and 500 mm apart. Additional post holes were located in VSFI/8, VSFI/9 and VSFI/10 (Figure 27). In addition, in VSFI/8 and VSFI/9, and later in VSFI/11, three of the four central stone blocks were uncovered and were found to be sitting on the sterile basal deposit, while the subsequent occupation deposit had built up around them. In VSFI/11 a section of the quadrilateral area contained by the stones was excavated, where although the stratigraphy was identical to the other areas uncovered more whole shells were excavated.

In VSFI/14, the seventh and final post hole was located exactly at the junction of the southern and eastern limits of the red clay stratum. Immediately outside the line of the clay, resting on the sterile sand, a rough circle of small stones was uncovered.

VSFI excavations – artefacts

A variety of ceramic, glass and metal objects was recovered throughout the excavations, both within and outside the suggested area of the building floor. Cultural material was present in both the shell and clay deposits throughout the excavations, indicating that the red clay was not merely a base on which the shell was deposited. Among the more exotic finds recorded were two three pronged metal forks, a brass reed from a harmonica, and in VSFI/9 an iron foot, possibly from some sort of brazier. Beneath the red clay in VSFI/10 a stone, similar in shape to the conical pounder of McCarthy's *et al.* (1946:68) classification was excavated. This object is made of granite, a material foreign to the region, and there is no reason to doubt that it is an Aboriginal artefact. Of the glass 13.7% was initially sorted as possibly having been utilised by Aborigines, but almost half of this came from the lower spit. Some of these pieces may reflect accidental breakage by shod feet on the compacted floor surface, but some appear to be genuine flaked artefacts.

VSF I Ground plan and excavations



- post holes
- squared blocks
- natural stones
- approximate distribution of red clay
- approximate area of shell mound
- topsoil and shell
- shell
- grey shell
- uncrushed shell
- crushed shell
- red clay
- burnt sand (and charcoal)
- brown grey sand
- sterile sand

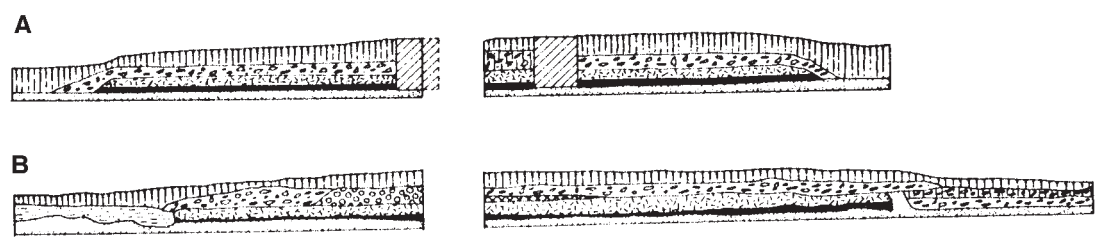


Figure 26. Shell floor no.1. Ground plan showing excavation squares and stratigraphic sections.



Figure 27. VSF I excavations. Stakes indicate positions of postholes.

In addition to the glass, pottery and metal listed in Tables 32-34, one plain 4-hole bone button was recovered from VSF1/1/1 and 55.6 gm of bone. This included cow/buffalo, pig, kangaroo, bird, fish and crab.

Summary of VSF1

The general correlation of post holes and the red clay distribution suggests that the boundaries of the building have been well defined by excavation. That no post hole was discernible at the north-eastern corner is puzzling, and there appears to be no satisfactory explanation for this gap. That the indications were missed during excavation is possible, but in view of the distinctive appearance of the other post holes, this seems unlikely. The two post holes in the western wall are interpreted as an entrance.

The burnt layer between the sterile sand and the red clay may be equated with a similar layer in the officers' mess (see below) and interpreted to represent the initial clearing of the area by fire (Figure 24, stratigraphy). This interpretation was strengthened by the present excavations. It appears that immediately following the burning off, the clay floor was laid down, sealing the burnt layer. Beyond the area of the clay the remains of the burning subsequently dispersed. If the burning had taken place any considerable time before the introduction of the clay, the stratigraphy could be expected to be the same outside the area of the clay.

The function of the four stones is uncertain, but they were possibly used as a firm base on which to stand some object. It is tempting to associate the iron leg excavated adjacent to these stones with this object. A brazier is perhaps the best suggestion (see Chapter 8) and although the excavations within the area of the stones did not recover any evidence of charcoal pieces, the shell here was largely unbroken, suggesting that this area was not walked upon.

The presence of the Aboriginal artefact beneath the red clay and the pieces of utilised glass in the lower spits indicates

the possibility that Aborigines were in this area prior to the construction of the building, and it is tempting in this light to associate the circle of stones excavated in VSF1/14 with a hearth. However this suggestion is necessarily conjectural.

Table 32. Glass from VSF1 excavations according to type: number and weight in grams.

AREA	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VSF/1/1/1	4	86.1			13	24.4	17	110.5
VSF/1/1/2					7	10.6	7	10.6
VSF/1/2/1	3	42.3			16	34.2	19	76.5
VSF/1/2/2								
VSF/1/3/1					15	10.9	15	10.9
VSF/1/3/2	4	4.4			10	20.5	14	24.9
VSF/1/4/1	2	9.2			25	48.1	27	57.3
VSF/1/4/2	3	1.3			2	2.5	5	3.8
VSF/1/5/1	4	17.2			12	16.4	16	33.6
VSF/1/5/2					2	1.6	2	1.6
VSF/1/6/1					12	43.0	12	43.0
VSF/1/6/2					4	6.5	4	6.5
VSF/1/7/1					5	8.5	5	8.5
VSF/1/7/2	1	0.4			2	9.5	3	9.9
VSF/1/8/1	1	3.2			21	24.3	22	27.5
VSF/1/8/2	1	1.4			8	11.5	9	12.9
VSF/1/9/1	3	9.9			40	57.3	43	67.2
VSF/1/9/2	7	12.5			20	41.9	27	54.4
VSF/1/10/1	3	2.0			27	39.8	30	41.8
VSF/1/10/2					2	11.7	2	11.7
VSF/1/11/1					5	8.2	5	8.2
VSF/1/11/2	7	27.9			7	9.5	14	37.4
VSF/1/12/1	3	7.9			15	24.2	18	32.1
VSF/1/12/2								
VSF/1/13/1	6	89.2	2	58.5	13	50.5	21	198.2
VSF/1/13/2	1	0.3			7	113.5	8	113.8
VSF/1/14/1	4	10.3	2	52.5	63	58.4	69	121.2
VSF/1/14/2					2	1.0	2	1.0
TOTAL	57	325.5	4	111.0	355	688.5	416	1125.0

Table 33. Pottery counts from VSFI excavations according to type.

	1/1	2/1	3/2	4/1	4/2	5/1	7/1	7/2	8/1	8/2	9/1	9/2	10/1	11/1	11/2	12/1	12/2	13/1	13/2	14/1	14/2	TOTAL	
Transfer																							
Printed		1	1			1	1		1		1	4		1	2		2		3	5			23
Undecorated																							
White Glaze					1																		1
Salt Glaze																							
Stoneware		1		1			5		9		2	1	2	1		1		1		6			30
Pipe Bowls								1															1
Pipe Stems	3	2				1	1	2	1	1	2	2	2	3	2	2	1		1	1	3		30
Blue On White																							
Porcelain	1						1																2
Gna-Kwun													1										1
TOTAL	4	4	1	1	1	2	8	3	11	1	5	7	5	5	4	3	3	1	4	12	3	88	

Table 34. Metal from VSFI excavations. Weight in grams. Only squares/spits with metal are shown in table.

	1/1		1/2		2/1		3/1		3/2		4.1		5/1		6/1		7/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Uniform Buttons					1								2		1			
Plain Buttons															1			
Harmonica Reed	1	3.8																
Boot Heel							1	15.5										
IRON																		
Nails <30 mm							2	5.1			1	2.6						
Nails 30-50 mm	1	6.2					2	9.0			2	9.6	3	18.8	2	6.8	1	3.3
Nails 50-80 mm			1	7.5					1	5.1			1	18.0	2	15.5	4	21.5
Nails >80 mm											1	16.9						
Fork					1	20.5												
Stove Foot																		
Unidentified		9.7		19.6		39.9		59.7				18.7		55.1				39.7
COPPER																		
Nails <30 mm					1	0.7	3	6.1			1	1.5	2	2.0	1	2.8		
Nails 30-50 mm					1	2.8					1	4.3						
LEAD																		
Unidentified		42.2																

	7/2		8/1		8/2		9/1		9/2		10/1		10/2		11/1		11/2	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Uniform Buttons																		
Plain Buttons																		
Harmonica Reed																		
Boot Heel																		
IRON																		
Nails <30 mm																		
Nails 30-50 mm							1	17.7	5	18.4	2	11.9						
Nails 50-80 mm													1	9.3				
Nails >80 mm																		
Fork							1	19.8										
Stove Foot									1	210.7								
Unidentified		35.3		50.5		13.6		81.6		9.9		21.1				72.3		40.3
COPPER																		
Nails <30 mm																		
Nails 30-50 mm							1	5.2					1	3.5				
LEAD																		
Unidentified										30.1								

	12/1		12/2		13/1		13/2		14/1		14/2		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uniform Buttons													4
Plain Buttons													1
Harmonica Reed													1
Boot Heel													1
IRON													
Nails <30 mm													3
Nails 30-50 mm						2	9.6						13
Nails 50-80 mm								1	21.4	1	9.2		19
Nails >80 mm												2	27.8
Fork													2
Stove Foot													1
Unidentified		23.7		3.2		78.0		14.5		25.9		68.9	
COPPER													
Nails <30 mm													8
Nails 30-50 mm								1	0.4				5
LEAD													
Unidentified													

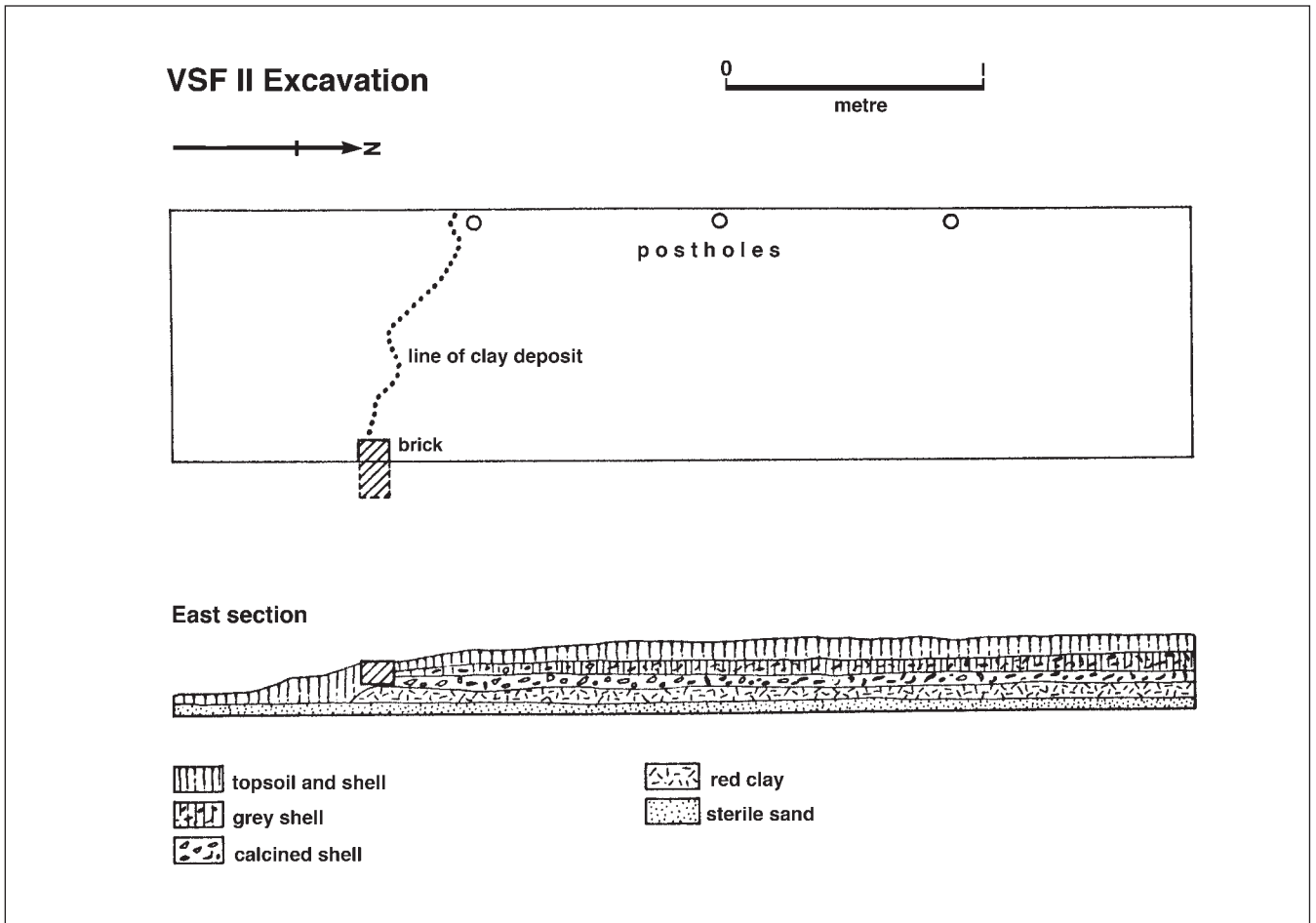


Figure 28. Shell floor no. 2. Ground plan showing excavation and section.

SHELL FLOOR No. 2 (Code prefix VSFII)

During the initial 1966 survey a trial trench was dug through a shell floor similar to the one just described. This was located at the northern end of the square approximately 6 m west of



Figure 29. VSF II stratigraphy. Two strata of shell flooring are visible, the lower one being heavily calcined.

the quartermaster's store (VQS). The shell mound covered an area of approximately 5 m by 7 m, oriented roughly east-west along the long axis.

VSFII excavation

The mound had suffered extensive damage from the re-growth of the vegetation in the area, but an area 4 m by 1 m was excavated across the mound (Figure 28). The results obtained were substantially the same as were to be obtained on the more extensive excavations of VSF I.

After passing through the topsoil layer two strata of shell flooring were encountered, the lower one being heavily calcined, and thus indicative of burning (Figure 29). This shell flooring rested on a stratum of red clay which overlaid the basal sand. Along the western edge, three post holes were uncovered which passed through the shelly and clay strata into the sand. These posts were not as substantial as those later excavated in the other shell floor, having a diameter of about 50 mm, but were in a straight line and probably indicate the western limit of the building. At the western end of the eastern edge a brick was uncovered in the section and this coincided with the southern extent of the red clay, which marks the southern edge of the building, although at this end it was eroded and irregular in outline.

VSFII finds

Finds occurred throughout the shell and clay deposits in plentiful fashion, consisting of pottery, glass and metal. In general, the stratigraphy and finds from this site can be equated with those from the other excavated shell floor.

Seven gm of bone fragments were recovered from the excavation, of which only the lower left molar of a large dog was recognisable.

Table 35. Glass from VSFII excavations according to type: number and weight in grams.

TYPE A		TYPE B		TYPE C		Total	
No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
17	85.3	2	13.1	138	656.8	157	755.2

Table 36. Pottery counts from VSFII excavations according to type.

Transfer Printed	16
Saltglaze Stoneware	13
Unglazed Wheelmade	1
Pipe Stems	3
Pipe Bowls	1
Blue On White Porcelain	1
Macassan	1
TOTAL	36

Table 37. Metal from VSFII excavations. Weight in grams

	No.	12/1	Wt.
Uniform Buttons	1		
Plain Buttons	2		
Uniform Insignia	1		
Percussion Cap	1		
IRON			
Nails <30 mm	6		14.4
Nails 30-50 mm	32		94.9
Nails 50-80 mm	6		52.3
Nails >80 mm	4		109.1
Unidentified			251.1
COPPER			
Unidentified			13.1
LEAD			
Unidentified			103.0

OFFICERS' MESS (Code prefix VOM)

VOM architecture

At the south western extreme of the settlement proper, and at the southern end of the town square the remains of a stone-walled building were located and identified as the officers' mess.

The walls, constructed of a double thickness of cemented rough-hewn ironstone blocks, had suffered extensive damage from falling trees, and although the ground plan could be recorded accurately, no entrance could be positively identified. Certainly no entrance had existed in either the eastern or western walls and it seems most likely that access had been through a single entrance in the southern wall. From contemporary paintings, the officers' mess had consisted of a two storey building similar in design to the quartermaster's store, and thus probably had been one of the prefabricated buildings shipped from Sydney.

Excavations revealed the use of shell for flooring as in other areas of the settlement. Three post holes were uncovered (Figure 30) but no immediate structural interpretation could be made of them. No indication of the central post supports found in VQS and VSD were located, but since this building was rather smaller than these other buildings this structural support was probably not needed. Finally the excavations revealed

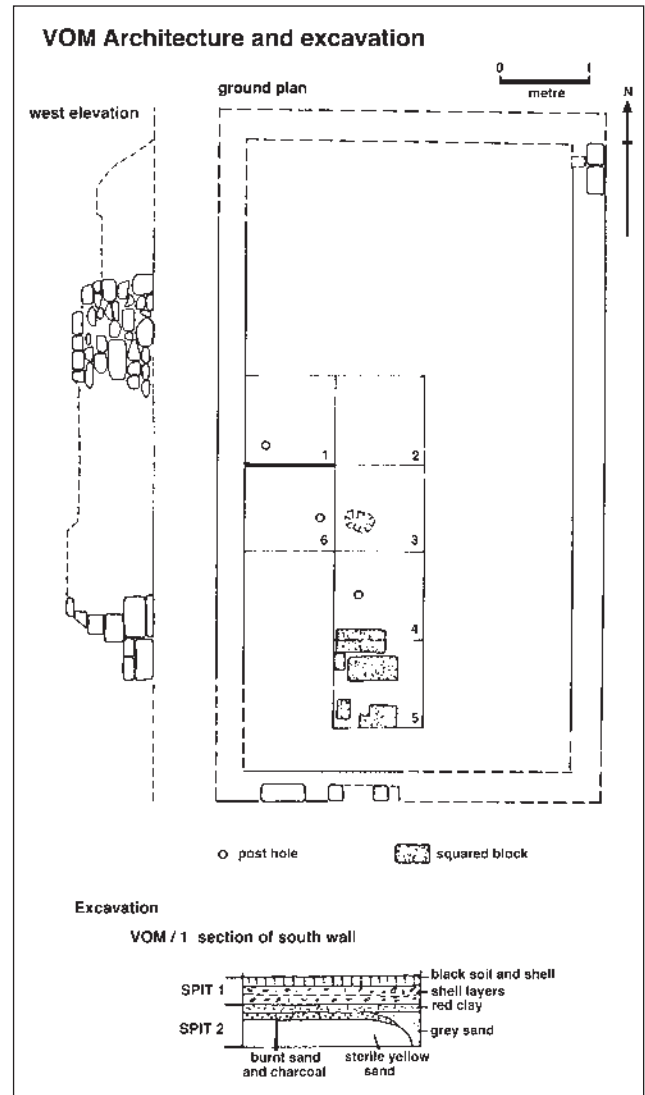


Figure 30. Officers' Mess: ground plan, elevation of standing western wall, plan of excavation squares and stratigraphic section.

that the foundations, as with the round chimneys, were not set on wider footings and extended to a depth of approximately 400 mm below present ground level.

From McArthur's (Macarthur watercolour NLA) painting of the settlement it is probable that this building was completed and occupied in 1839. The quality of the masonry is poor, and is most reminiscent of the earliest chimneys of the married quarters. It is reasonable to suppose that the stone foundations which remain were built at the same period.

VOM excavations

Six square metres of the floor area were excavated (VOM/1–VOM/6, see Figure 30). VOM/1 was begun against the centre of the western wall to investigate the wall foundations. After passing through the top level of black soil and shell deposit, the familiar shell flooring was encountered which continued to a depth of 150 mm where a red clay deposit was found. The material so far excavated was designated Spit 1 and the red clay was excavated down to sterile sand as Spit 2 to determine whether the clay contained cultural material. Cultural material was recovered from this layer which eventually gave way to the normal sterile sand. Dividing the clay from the sterile sand, however, was a thin stratum of burnt sand and charcoal. A post hole in the southwest corner of the square was found to pass through the red clay.

Because of the shortage of time it was decided to extend the excavations from a square adjacent to VOM/1 towards the south in an area free of major tree disturbance, firstly to uncover the red clay deposit, then to complete the excavations if time allowed. Consequently the uppermost spits in VOM/2 to VOM/5 were excavated. In VOM/4 the edge of a squared stone block was encountered and a further four blocks were uncovered in VOM/5. Although these presented a level surface, their size and distribution were irregular and it seems that rather than paving, they possibly constituted a firm foundation on which a heavy object was placed. This interpretation is aided by the finding of a considerable number of pieces of iron in the area, unfortunately too fragmentary for identification. The red clay surface was quite level, except for two shallow depressions; a further post hole was uncovered in VOM/4.

As there was insufficient time to excavate the lower spits in each of these four squares, we instead excavated Spit 1 in VOM/6. It was hoped that we might recover the missing fragment of the shako plate which had been found in pieces in VOM/2 and VOM/3 (see Chapter 5). This square revealed a third post hole similar in size and shape to the earlier two, the three forming a straight line, but unfortunately we failed to recover the missing piece of the metal insignia.

Apart from this insignia, glass, pottery and metal were recovered throughout the excavations. Again, a high proportion of the glass (33.3%) appears to have been possibly utilised by the Aborigines and this is best explained by Aboriginal occupation of the area subsequent to the abandonment of the settlement by Europeans.

VOM discussion

These excavations raised a number of questions. The quantity of nails associated with the lower level of VOM/1 does not have any immediate explanation, nor does the general paucity of them in the finds from the upper level if the structure was destroyed at the time of European abandonment. The stones in VOM/5 have no satisfactory explanation at present, although further excavation in the southern area of the building might reveal further information. Finally, the three post holes have no apparent structural significance for the building during its European phase. From the stratigraphy it is clear that they were made after the initial stages of European occupation, for

they were dug through the red clay stratum. It is possible that they were undetected although present in the shell stratum and may relate to a rudimentary structure built inside the walls by Aborigines after 1849. It might be inferred from the high proportion of glass which was possibly utilised by Aborigines and which was recovered from the upper spits inside the house that the area was occupied by these people subsequent to European abandonment.

Table 38. Glass from VOM excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VOM/ SURFACE			2	587.0	14		2	587.0
VOM/1/1	14	45.3			14	82.5	28	127.8
VOM/1/2	2	6.2	2	11.7	12	54.4	18	72.3
VOM/2/1	1	1.8			9	61.5	13	63.3
VOM/3/1	9	27.6			7	33.0	18	60.6
VOM/4/1	1	1.9			16	30.0	8	31.9
VOM/5/1	15	53.9			10	146.8	31	200.7
VOM/6/1	3	72.1	4	136.3	82	60.8	17	269.2
TOTAL	45	208.8	8	735.0		469.0	135	1412.8

STORE D (Code prefix VSD)

VSD architecture

During the initial survey the site of a large building was noted to the north of the line of cottages which served as the married quarters. This was positively identified from the contemporary map (Figure 4) as a storehouse marked 'D', and this designation was retained. A stone wall built into a bank on the western side marked one extremity. At the north-eastern corner, the stone foundation of a wall was visible at ground-level and this marked the opposite extremity. The rubble of the building, consisting mainly of bricks, was visible in between these markers. No architectural feature, except the wall at the western end stood above ground. This wall, made of cemented, rough-hewn ironstone, was divided at the centre by a gap of 1.2 m, flanked on either side by stone buttresses standing 520 mm out from the wall. It was assumed that steps

Table 39. Pottery counts from VOM excavations according to type. Only squares/spits with pottery are shown in table.

	VOM/1/1	VOM/1/2	VOM/2/1	VOM/3/1	VOM/5/1	VOM/6/1	VOM/Sur	TOTAL
Transfer Printed	1	6	9		2	1	1	20
Salt Glaze Stoneware	4	3	7	3	2	12	1	32
Pipe Stems	1		2			2		5
Pipe Bowls			1					1
TOTAL	6	9	19	3	4	15	2	58

Table 40. Metal from VOM excavations. Weight in grams

	VOM/1/1		VOM/1/2		VOM/2/1		VOM/3/1		VOM/4/1		VOM/5/1		VOM/6/1		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uniform Insignia							1								1
Belt Buckle				1	19.7										1
IRON															
Nails <30 mm										2	4.0				2
Nails 30-50 mm			13	34.5	1	3.5				2	7.8	4	16.6		20
Nails 50-80 mm			2	15.0						2	16.4	3	11.6		7
Ring												1	28.0		1
Angle Iron			1	16.0											1
Unidentified	37.4			19.0	23.9		204.3	240.1		377.3			69.0		

had led down between these buttresses to the lower level, although the drainage problems that this would have created during the wet season were immediately apparent, as the ground slopes down towards this locality on the western side. The tops of these buttresses had been carved to receive some form of wooden post, in the shape of a letter F (Figures 31

and 32). With the eastern extreme of the building already visible, it was decided to excavate at the western end to determine the relationship of the standing wall with the building, and to try and fix the position of the wall line on the southern side. An open cut drain on the eastern side led to the top of the cliff.

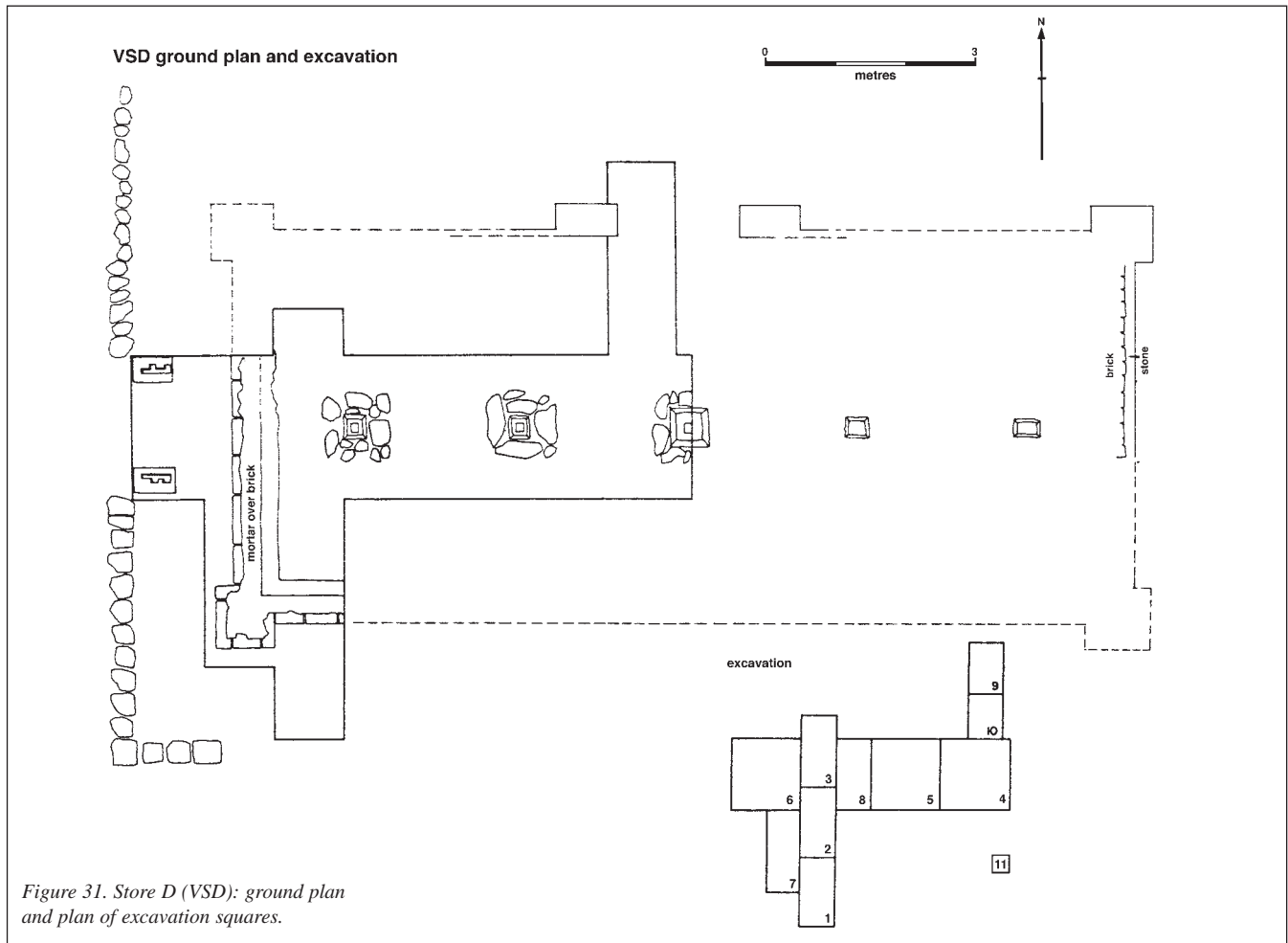


Figure 31. Store D (VSD): ground plan and plan of excavation squares.



Figure 32. Excavation of VSD, western end, looking north. The retaining wall is on the extreme left and one of the internal post supports is visible.

VSD excavations

An area 1 m by 2 m (VSD/1) was begun on the southern side, 2 m east of the standing wall (see Figure 31). Many bricks covered the area and the spit was taken down to a depth of 220 mm. At the northern end of this square the foundation wall of the southern side of the building was located at a depth of 100 mm. The finds, mainly nails and glass, were plentiful. VSD/1 was then continued towards the north with the excavation of VSD/2 and VSD/3. These were also 1 m by 2 m and were both excavated in two spits, the first to an average depth of 200 mm, the second to the basal clay. This second spit varied in depth between 120 mm and 150 mm, except where the original foundation trench had been dug. Here the depth was greater. In both these squares, after passing through the black topsoil and bricks, a layer of bricks and rubble was encountered which gave way to compact and thin (20 to 30 mm) layers of shell and sand which constituted the flooring. Beneath this, sterile red clay was encountered which proved to be the natural base (see section, Figure 33). In both VSD/2 and VSD/3 the most finds were associated with the shell floor, i.e. Spit 2.

Both VSD/2 and VSD/3 on the western side followed along what appeared to be the internal face of the western wall of the building. In addition, what appeared to be the side of a

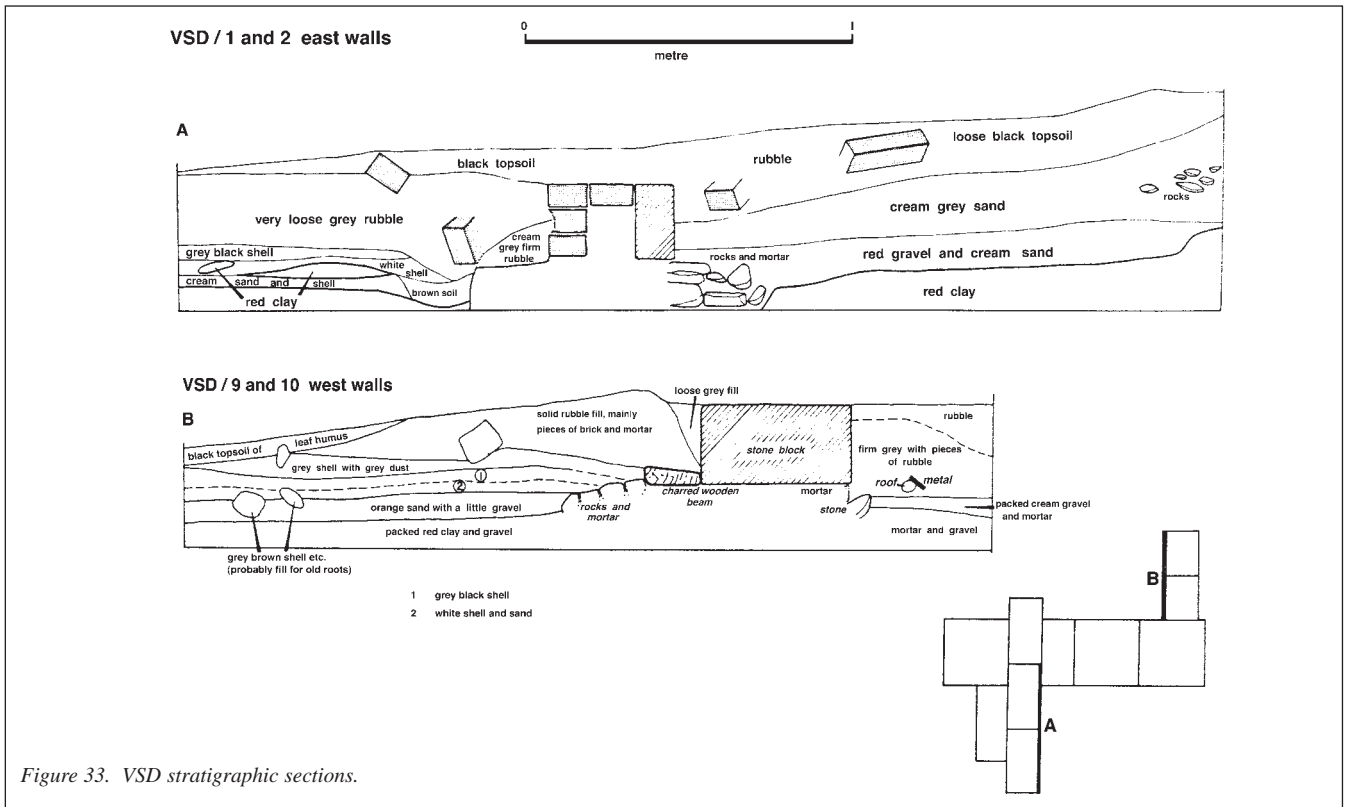


Figure 33. VSD stratigraphic sections.

small cairn of cemented ironstone boulders was uncovered on the eastern side. At the eastern end of the building, where the depth of deposit was less, squared stone post-supports were visible at surface level. As this cairn was in a direct line along the axis of the building, it was decided to excavate along this axis to examine the centre of the building, to uncover fully the cairn in VSD/3, and to excavate the area between the western wall uncovered in VSD/3 and the steps. Consequently VSD/4,

measuring 2 m by 2 m was excavated, again in two spits. Fewer bricks were encountered, the topsoil deposit quickly yielding to the familiar shell flooring. Spit 1 was taken to a depth of 200 mm. The deposit proved shallower than at the western end and the red basal clay was encountered when Spit 2 was only 80 mm deep. Both VSD/4/1 and VSD/4/2 should be associated stratigraphically with VSD/2/2 and VSD/3/2. There appeared to be no purpose in excavating in spits in this area, so that VSD/5, VSD/6, VSD/7 and VSD/8 were taken out as single units. VSD/7 revealed that the south-west corner of the building was buttressed and thus similar to the exposed north-east corner (Figure 34, see also Figure 32). The two unexcavated corners were assumed to be similar. When excavated, the central squares VSD/4, VSD/5, VSD/6 and VSD/8 also showed that the cairn in VSD/3 was one of a line of 5 post supports running along the long axis of the centre of the building (Figure 35).



Figure 34. Excavation of VSD, western end, looking south. This shows how the stone and brick foundations have been set on wider concrete footings. Note how none of the walls remain above foundation level, indicating deliberate destruction of the building when the settlement was abandoned.



Figure 35. Excavation of VSD looking east. Three of the five central internal post supports are exposed here.

VSD/4 and VSD/5 both yielded quantities of glass and iron, including several bottle seals (one G↑R, the other W↑R) and two cannon balls, probably half-pounders.

The excavation of VSD/6 uncovered the outer, stone edge of the foundations which gave no hint of a doorway, which in turn cast doubt on the idea of steps leading between the buttresses discussed above. Eventually the true interpretation was reached when excavation showed that the wall had been built between these two buttresses. The buttresses formed the foundation for wooden steps leading to the upper storey. Finds from the square were predominantly nails which were recovered in considerable numbers. VSD/7 was excavated to reveal the corner of the foundations and taken to the basal clay. At this point VSD/1/2 was also excavated to the basal clay.

In the course of moving the overlying spoil an entrance in the northern wall had been revealed immediately below the surface. A trench 1 m by 1.5 m (VSD/9) was excavated to examine this entrance and Spit 1 was taken to a depth of 200 mm, at which point the charred remains of a wooden beam, presumed to be a doorstep, was encountered (Figure 36). Outside the building line rubble in a firm grey matrix was uncovered, while inside, the deposit was solid rubble of bricks and mortar, changing at the bottom to a grey level with pieces of shell. A second spit (VSD/9/2) was taken down to a maximum depth of 140 mm at the southern end. In this spit the excavation passed through occupation layers of shell similar to those described above; outside the building the rubble layer continued until, at a depth of 100 mm below the level of the charred beam, a packed layer of gravel and mortar was encountered representing a rudimentary pathway. Below this the deposit gave way to the familiar red clay.

VSD/10 was excavated to join VSD/9 and VSD/4 in the hope of explaining a discontinuity in the northern face of VSD/4. Spit 1 was taken down to remove the top layer of soil and debris, which in this area was not as thick as in VSD/9. Spit 2 passed through several layers of shell and then gave way to the yellow beach sand which had been seen to stop abruptly in VSD/4. For purposes of comparison, this sand was removed down to the sterile layer as a separate spit (VSD/10/3). The disconformity proved to be the charred remains of a beam which projected through the eastern face



Figure 36. Excavation of VSD: detail of entrance in northern wall showing the charred remains of the timber doorstep.

of VSD/10/3. Cultural material was recovered from all three spits. Spit depths were: VSD/10/1, 200 mm; VSD/10/2, 140 mm; and VSD/10/3, 80 mm.

VSD discussion

Certain general observations can be made on the excavations of Store D. As with the hospital, the ground had been levelled prior to building and the wall at the western end had been constructed to contain the soil which otherwise would have been washed around the building during each wet season. (This same action had been noted behind the excavated area for the hospital, where no effort was made to stabilise the bank there.) Into this levelled surface the foundation trenches were dug and the foundations of cemented rocks laid, being wider than the walls built on top of them (see Figure 34). As the walls exist at present they comprise an outer facing of dressed masonry, with each block varying in length, but all standing approximately 230 mm high and approximately 120 mm thick. With the possible exception of some of the work on the hospital kitchen, the standard of this stonework is the highest in the settlement.

Readings taken at seven random points around the foundations showed that the height of this stone varied less than 5 mm around the entire perimeter of the building. Inside this stone facing, a double row of bricks had been constructed to a height of three courses on the footings, bringing it level with the top of the stone facing.

What happened after this is less clear, for none of the walls stand above this point. That this is so may safely be interpreted as the result of deliberate destruction at the time of abandonment. However, traces of a whitewash line around the outer edge of the top of the stone facing were recorded, which suggests that the wall above this level was set back this distance from the edge of the facing. Also imprints in what mortar remained on the top of this foundation gave a clue as to how the first course of bricks was laid, with the outer facing of bricks being set lengthways along the building line, and the internal facing being set at right angles to the outer facing, that is, across the building line. Since the length plus the breadth of a brick, plus the whitewashed margin almost exactly coincides with the width of the existing foundation, we can assume the foundations were deliberately laid using dimensions to accommodate the available bricks. This in turn indicates a level of professionalism not always seen in other buildings in the settlement. Exactly how the upper courses of brickwork were laid is unclear, as the evidence has now gone. However mid- to late-nineteenth century brick walls examined in Melbourne frequently show inner and outer walls following the standard off-set 'brickwork' pattern with every fourth course laid crossways to tie the brickwork in and it is likely that similar techniques were used on this building.

From the hundreds of bricks recovered from the excavations at VSD together with the archaeological evidence recorded, it is safe to say that the entire lower storey was constructed of this material, with a square buttress at each corner rising to the second storey, following the line of the stone foundation buttresses. The only entrance to this lower storey that we uncovered was a door in the northern wall, but given the symmetry seen elsewhere in the settlement, another might have existed in the southern wall. An upper storey of timber was reached by an external stairway at the western end. If any internal stairway existed, no traces of it were located in the areas excavated.

In general, the finds reflect the nature of the building's use. Only twenty pieces of pottery were recovered, and the majority of these came from outside the building, nine pieces coming from VSD/1, three pieces from the external area of VSD/9, and one piece each in VSD/6 and VSD/7. Nails were

recovered from all areas, however all the cannon balls came from the internal excavations. Glass was recovered both within and outside the confines of the building, with the heaviest concentration appearing in VSD/1. Much of the glass was vitrified, reflecting the destruction of the building by fire.

From the historical sources (more fully outlined in Chapter 8) this building was originally constructed on piles and served as the first hospital in the settlement. It can reasonably be identified as the white building immediately to the left of the tent in the centre of the frontispiece (dated 1839). The second phase of the building has been dated (on the historical evidence) to 1840–41 when it was rebuilt on the same site, and the burnt timber beam excavated in VSD/10/3 may represent meagre evidence of the earlier building, as it is difficult to associate this stratigraphically with the final destruction of the building in 1849. This deliberate destruction took the form of burning the wooden structure and destroying the brick walls of the lower storey, since none of the brick walls stand above foundation level. During its second phase the building was used as a store for dry goods.

Table 41. Glass from VSD excavations according to type: number and weight in grams. Only squares/spits with pottery are shown in table.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No	Wt	No	Wt	No	Wt	No	Wt
VSD/1/1	4	123.8			101	158.1	105	281.9
VSD/1/2	2	14.4			94	185.8	96	200.2
VSD/2/1					1	4.1	1	4.1
VSD/2/2					24	53.3	24	53.3
VSD/3/1					3	34.9	3	34.9
VSD/3/2					17	65.6	17	65.6
VSD/4/1	1	1.5	3	28.7	126	388.1	130	418.3
VSD/4/2					13	82.8	13	82.8
VSD/5/1	1	10.1	1	10.0	165	458.5	167	478.6
VSD/6/1	1	2.0	1	8.5	14	151.9	16	162.4
VSD/7/1	4	71.4	1	124.0	55	180.5	60	375.9
VSD/8/1			1	9.9	25	54.0	26	63.9
VSD/9/1	1	5.9	2	107.4	46	121.5	49	234.8
VSD/9/2	3	12.9			45	116.5	48	129.4
VSD/10/1	2	31.6	1	44.1	31	105.2	34	180.9
VSD/10/2			1	86.8	26	36.5	27	123.3
VSD/10/3					1	1.5	1	1.5
TOTAL	19	273.6	11	419.4	787	2198.8	817	2891.8

Table 44. Metal from VSD excavations. Weight in grams. Only squares/spits with metal are shown in table.

	1/1		1/2		2/1		2/2		3/1		3/2		4/1		4/2		5/1	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Plain Buttons							1						1					
Collar Stud																		
Brass Knob			1	14.1														
Musket Ball												1	31.6					
Cannon Ball																	2	421.7
IRON																		
Nails <30 mm	7	11.4	15	31.0			23	42.6	1	1.7	13	21.4	9	13.1			6	6.1
Nails 30-50 mm	34	92.0	5	13.2			60	179.2	11	25.6	50	120.2	12	27.1	1	1.7	15	28.3
Nails 50-80 mm	18	96.8	6	30.4			8	45.1			3	16.5	3	17.4			1	7.0
Nails >80 mm							2	60.6										
Screw							1	1.5			1	2.5						
Hinge											1	42.0						
Angle Iron																		
Unidentified		62.9		30.1		198.1		191.5		50.7		187.1		85.1				62.4
COPPER																		
Nails <30 mm																		
Nails 30-50 mm	2	9.0					1	3.7									2	4.2

continued overleaf

One hundred bricks taken from the excavations were measured and none show more than fractional variance from a standard size: length 244 mm breadth 121 mm, depth 72 mm. Interestingly, these are marginally larger than modern bricks, but closely approximate the same length to breadth and length to depth ratios.

Only 2.3% of the glass could be classified as possibly utilised by Aborigines, and this tends to verify the classifications of the glass that were employed, since the high proportions of type A glass in other instances come from concentrations of deposit located outside buildings. Of the 19 pieces of glass in type A from this site-unit, only four come from within the building, and stratigraphically can be regarded as having been deposited after European abandonment.

Table 42. Pottery counts from VSD excavations according to type. Only squares/spits with pottery are shown in table.

	1/1	2/2	3/2	6/1	7/1	8/1	9/2	TOTAL
Transfer Printed		3	1	1			1	6
Undecorated								
White Glaze	2						1	3
Featheredge (Blue)							1	1
Salt Glaze								
Stoneware	2							2
Pipe Stems			1		1	1		3
Blue On White								
Porcelain	4							4
Rim Glazed Stoneware	1							1
TOTAL	9	3	2	1	1	1	3	20

Table 43. European stone from VSD excavations. Weight in grams. Only squares/spits with stone are shown in table.

	VSD/1/2		VSD/4/1	
	No.	Wt.	No.	Wt.
Slate Fragments			2	1.0
Slate Pencil	1	1.5		

Table 44 (cont.)

	6/1		7/1		8/1		9/1		9/2		10/1		10/2		10/3		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	
Plain Buttons																		2
Collar Stud			1															1
Brass Knob																		1
Musket Ball																		1
Cannon Ball			1	214.0	1	105.4							3	778.3				7
IRON																		
Nails <30 mm	14	25.5	4	5.7	8	12.0			5	7.6	10	16.4	4	10.2	4	14.7		123
Nails 30-50 mm	95	295.5	12	38.6	7	14.4	6	14.7	11	36.0	18	48.7	9	22.8				346
Nails 50-80 mm	30	219.0	1	8.3			2	10.1	3	19.5	6	31.3						81
Nails >80 mm	4	74.4									1	25.7						7
Screw																		2
Hinge																		1
Angle Iron	1	66.2																1
Unidentified	305.8		267.8		157.4		50.3				83.5	305.8						1
COPPER																		
Nails <30 mm					1	1.6												1
Nails 30-50 mm					5	15.9												10

BAKE HOUSE (Code prefix VB)

VB architecture

Within the area of the town square were the remains of what appeared to be a collapsed stone cottage over-grown with vegetation. The loose debris was carefully removed and the remains of a baking oven were revealed (Figure 37). Apparently the western wall had collapsed outwards and the roof had fallen in, however a sufficient amount of the structure remained to interpret the technology of the building. It had

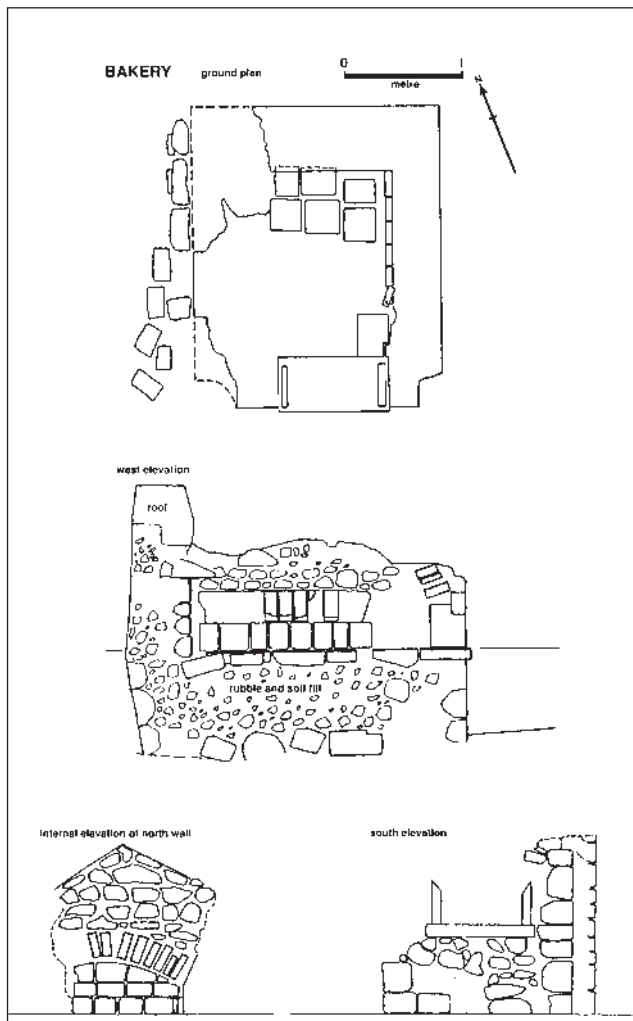


Figure 37. Bakery (VB) ground plan and elevations.

been poorly constructed in cemented, rough-hewn masonry with walls 400 mm thick, and with whitewashed exterior. Vertical timber posts had been placed at the south-eastern and south-western corners (Figure 38).

The interior had been completely filled with clay and rubble to a height of 900 mm, then a platform of squared stone blocks was laid down, and the oven constructed within the area of the walls above this. Its sides were of squared stone blocks and the arched, barrel-vaulted roof was brick (Figure 39). Above and around the oven smaller pieces of rubble were cemented to form a pitched roof. On the eastern side a section of the roof remains and imprints in the cement suggest that tiles (probably wooden shingles, since no ceramic tiles were recovered) were affixed as additional protection against the rain (Figure 40).

The design of the oven was particularly simple. A fire is made inside the oven which heats the entire structure. When sufficiently hot, the fire is raked out, the bread placed inside and the entrance blocked until the baking is completed.

In clearing the building apart from some glass and pottery fragments, various finds were made, some of which substantiate this interpretation. In front of the entrance a hard clay 'floor' had formed, associated with deposits of charcoal.



Figure 38. Bakery looking north.



Figure 39. Collapsed western wall of the bakery showing solid fill construction beneath a barrel vault of masonry and brick.

A large sheet of copper, whose shape approximated the shape of the opening in the southern wall, was found nearby. To judge from the nail holes in this sheet and the manner in which the edges were curled over, this sheeting was probably used to fireproof a wooden oven door.

Table 45. Glass finds from clearing bakery, according to type: number and weight in grams.

TYPE A		TYPE B		TYPE C		TOTAL	
No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
4	36.1	6	292.9	89	516.2	99	845.2

Table 46. Pottery finds from clearing bakery, according to type.

	VB/sur
Transfer Printed	2
Undecorated White Glaze	16
Salt Glaze Stoneware	1
TOTAL	19

Figure 40. Detail of bakery roof. Impressions in the cement suggest the roof was originally covered with wooden shingles.



Table 47. Metal finds from clearing bakery. Weight in grams.

	6/1	
	No.	Wt.
Belt Buckle	1	13.0
IRON		
Nails 50-80 mm	5	42.8
COPPER		
Sheet	1	1047.0

THE SMITHY (Code prefix VS)

VS architecture

Immediately to the south of the road leading to the jetty, and approximately 20 m from the cliff top, the stone remains of the smithy were located. Mr W. Bateman of Darwin had visited the site in 1957 and had photographed this structure with the square stone chimney standing to a height of about 6 m but by 1966 this had been demolished by a falling tree. Fortunately, when the rubble was removed, sufficient remained of the structure to infer the probable technology of the forge (Figures 41 and 42).

The forge was constructed of dressed masonry, bricks for the chimney, and rubble. Most of the masonry blocks had been hewn from the quarries in the settlement, but the structure incorporated a yellow friable sandstone whose nearest known source is at the mouth of Port Essington, about 27 km away. A shipping beacon had been built at the mouth of the harbour with this material in 1845 (see below), and since it is known that the forge was not completed until some time in 1846 (HRA I xxvi:374) it is possible that stone cut for the beacon, but not used, was taken back to the settlement and eventually incorporated into the forge. It is the only instance of non-local stone being used in the settlement.

VS excavations

A 1 m by 1 m trench (VS/1) was excavated abutting the western end of the northern side to examine the foundations (Figure 42). The first spit (VS/1/1) was taken to a depth of 80 mm. Below the black topsoil was a reddish pebbly matrix, which gave way to a stratum of red ironstone rock fragments. Quantities of metal were taken from this spit. The second spit tested the possibility that this rock stratum represented a floor.



Figure 41. Remains of the smithy (VS) looking west. The stone block in the foreground suggests an external post for a verandah to shelter the stoker.

This layer was 100 mm to 120 mm thick and consisted of small hard packed, angular pieces of rubble. On the northern side of this spit, the excavation passed into yellow sand and quantities of flat-topped iron nails began appearing in the



Figure 42. Detail of the forge area of the smithy. See text for explanation.

Table 50. Metal from smithy surface collection and excavations. Weight in grams.

	VS/ Surface		VS/1/1		VS/1/3		VS/1/4		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
IRON									
Nails <30 mm Unidentified		164.5		501.7	152	317.2	38	85.6	190
COPPER									
Unidentified		2.5		40.7				50.6	

sieves. The remainder of the spit was excavated without passing into the interface between the rubble and the sand and confirmed the impression that the rubble was completely sterile and thus likely to be introduced flooring.

VS/1/3 carried the excavation into the yellow sand to a depth of 280 mm, and quantities of nails were recovered. The final spit, VS/1/4, was taken into sterile sand to a depth of 520 mm, where the bottom of the foundations was reached. Nails were present again in the upper part of this spit, and two were found beneath a lump of cement adhering to the side of the foundations and protruding 150 mm from it.

VS discussion

Although the excavation was too small to produce conclusive evidence, the stratigraphy clearly separates into two periods of European occupation, divided by the sterile rubble stratum. Whether this rubble does represent a floor would require substantiation by further excavation. A satisfactory alternate explanation is that the rubble reflects the initial construction of the forge in 1846. If this is so, the earlier material must indicate an earlier structure and as blacksmith facilities must have been required in the settlement before this time, they also may have been at this spot. Possibly, a ship's forge sited here served these early needs.

The remains of the smithy indicate some idea of the technology involved. Referring to the simplified ground plan (Figure 43), A represents the stoking hole, through which the fire was fed and probably fanned with a bellows; B is the ash box over which a metal grille was probably placed, fitting into the slot visible in Figure 42. The sloped stones, C, contained the fire, and the smith worked from the northern side at the point of the sloped stone, D. E seems to represent a channel that may have facilitated air flow across the fire, but which also might have been fortuitously created in the destruction of the structure. Even if enclosed, this channel appears too wide; however, along the eastern edge of this channel the absence of mortar suggests a narrower channel which may have been operated as a passage for air pumped into the base of the fire.

No general reconstruction of this building is possible on the present evidence, although the stone post support outside the structure (Figure 41) suggests that the stoker was protected from the sun by some form of verandah.

Table 48. Glass finds from smithy surface collection and excavation, according to type: number and weight in grams.

	TYPE C	
	No.	Wt.
VS/Surface	5	24.4
VS/1/1	32	94.5
TOTAL	37	128.9

Table 49. Pottery finds from smithy surface collection and excavation, according to type.

	Surface	1/1	TOTAL
Salt Glaze Stoneware	1		1
Pipe Stem		1	1
TOTAL	1	1	2

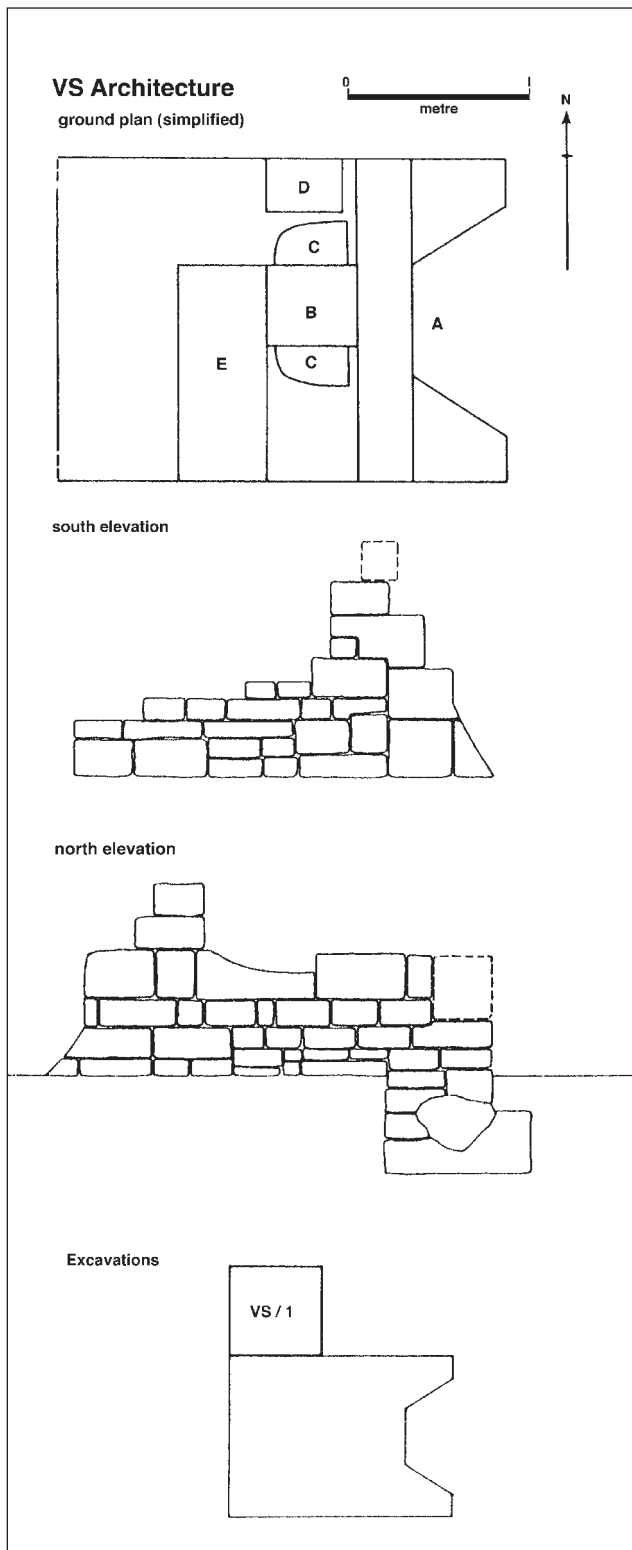


Figure 43. Smithy: ground plan, elevations and plan of excavation.

COWRIE HOUSE (Code prefix VCH)

VCH architecture

The remains of a rubble wall were noted north of the quartermaster's store and southwest of the hospital complex. In the process of clearing this single wall for recording, a curious structure was revealed. The standing southern wall of a building, roughly square in plan was cleared of surrounding rubble. On its western side the wall continued for almost one

metre and an internal buttress in the centre of the wall formed a recess in the south-western corner which initially was thought to be a fireplace. Adjoining this buttress an additional wall had been constructed, which appeared to form a narrow entrance way (Figures 44 and 45).

The western section, which formed a possible fireplace, was constructed of small rough-hewn ironstone boulders bonded with clay and mud, while the eastern or 'entrance' section was an incongruous mixture of well-formed masonry blocks and rough hewn boulders. When the floor level was reached, it was found that the floor also consisted of these masonry blocks. When the thin layer of topsoil was removed it was found that the entire floor area was a stone pavement.

During these clearing operations, quantities of glass and some pottery were recovered, and many pieces of hoop iron

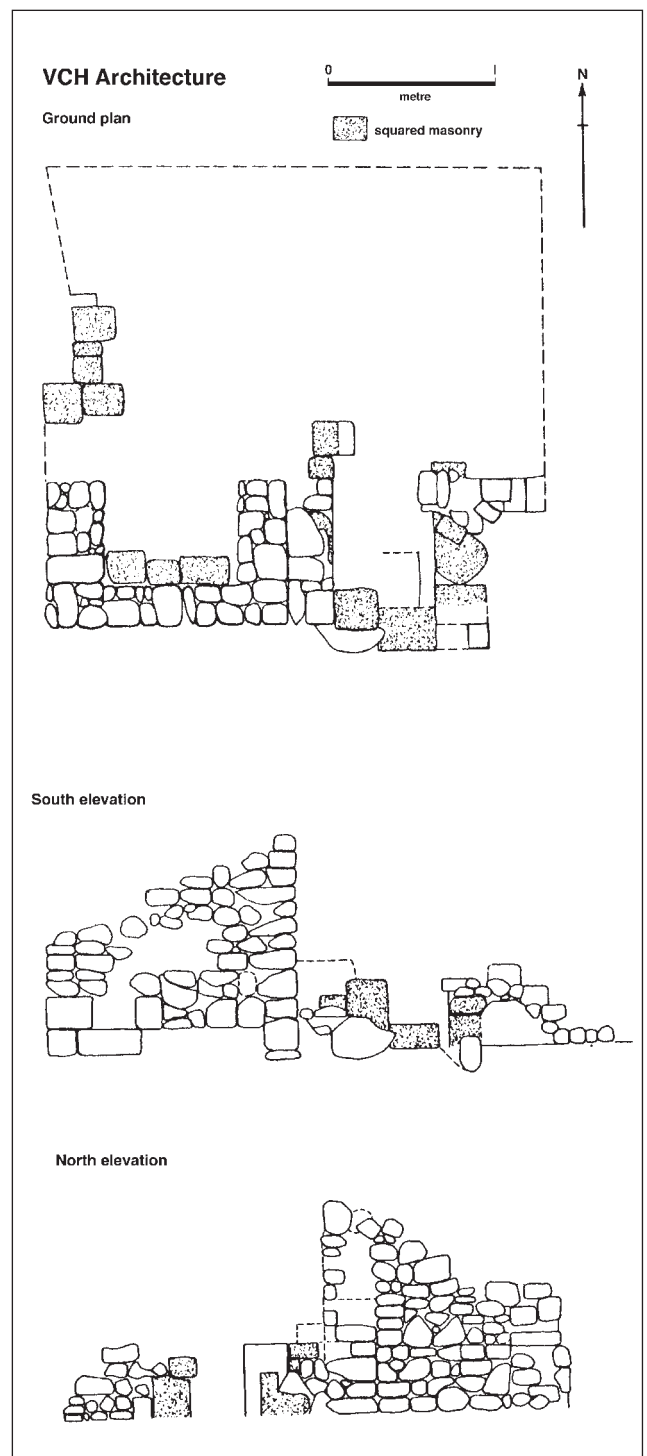


Figure 44. Cowrie House (VCH): ground plan and elevations.



Figure 45. VCH looking south-west. Note the paved floor of this structure.

were found in the entrance area. Some objects were also found outside the building. These finds were kept separate and the three areas were designated as follows:

- VCH/1: the south-eastern corner
- VCH/2: the area outside the building
- VCH/3: the south-western corner

No finds were made in the remaining floor area.

As the floor area was reached in the south-western recess, large numbers of cowrie shells were uncovered. They were located in two piles, one in each corner of the recess. In all, 142 cowries were recovered from this area, and a further six were found in VCH/2. Since this structure does not appear on the contemporary map (Figure 4), the building was called the Cowrie House.

VCH discussion

This structure presents a number of problems. Although on the perimeter, the building is within the confines of the settlement, yet it was not recorded by McArthur on his map. In style it differs from the other buildings in the settlement, particularly in the use of a paved stone floor which is unique in this settlement. The masonry blocks almost certainly came from elsewhere in the settlement, and their re-use in conjunction with roughly shaped boulders differs from the rest of the settlement, as does the use of mud cement for bonding the stones.

There appears some doubt also as to the initial interpretations of 'fireplace' and 'entrance'. The south-western recess contained neither hearth stones nor evidence of fires. The shells there were found in piles apparently as they had been left. The majority of the glass and pottery also came from this area. Two squared stones blocked the entrance in the south-eastern corner, and although it was thought at first that these might have fallen from above, it seems more likely that

they were *in situ*. The quantities of hoop iron from this area have no immediate explanation.

The finds are equally uninformative. Most of the pottery, with the exception of the sherds of a glazed, wheel-made pot, would not be out of place elsewhere in the settlement. The coin, a supika, is similar to two others excavated in the settlement, and the identifiable glass is similar to the numerous examples excavated elsewhere. But most puzzling are the cowrie shells. Their very number precludes the possibility of their use as house decorations. Even though the six varieties present could all have been collected in Port Essington (and probably were) they may have some form of commercial significance rather than to be the product of idle collection. Although shell money was used extensively in Melanesia it was frequently of a different form (ground beads) to the use of cowries as monetary exchange (Lewis 1929). However Einzig (1949: 63, 89, 115, 102–3, 285) reports the use of cowries as money in New Guinea and New Caledonia, as well as Indo-China, China, India and Africa. However, there is no record of cowrie shells having particular value amongst Australian Aborigines. Cowries were not found in the excavations of the Aboriginal middens associated with the settlement, nor were any of the present collection broken, so that their use as a food source can be discounted. Two species, *Cypraea annulus* and *C. moneta*, are the ones popularly accepted as having currency value and these species comprised only 37.8% of the present collection.

From the archaeological evidence, the earliest this building could have been constructed is towards the end of the European settlement at Victoria, when some of the masonry blocks could have been obtained for its construction. The evidence of the finds, although inconclusive, suggests that the occupancy of this building might be equated with the settlement. If the house was built after the European abandonment, it might be asked why it was built at all. Within the settlement the site has no particular advantages, and even today the addition of doors and a roof would convert the

hospital kitchen into a functional two-roomed house. The available evidence suggests that the Cowrie House should be dated to the period of European occupation. However the differences in architectural techniques and the presence of the cowries set it somewhat apart. One explanation is possible. It is known that while the settlement was in existence a European trepanger named Rae (or Ray) had a camp 6–7 km from the settlement in Knocker Bay (Sweatman ML A1725:273) and it may be presumed that some interaction took place between him and the settlement. Rae had previously worked for Captain Mackenzie of the *Heroine*, who traded around Australia and the Indian Archipelago, and on one occasion Rae, accompanied by thirteen Malays, is recorded having been landed by Mackenzie at Turtle Island (Nautical Magazine and Naval Chronicle April 1847:172) in order to collect trepang.

Since ships arriving in Port Essington anchored at Victoria, Rae may well have had some sort of residence or store room at the settlement, for storing his trepang, turtle shell, and perhaps cowries to be used for trading elsewhere.

Table 51. Glass from Cowrie House (VCH) excavations according to type: number and weight in grams.

	Type A		Type B		Type C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
VCH/1	9	100.9	2	332.3	69	338.3	80	771.5
VCH/2					12	41.4	12	41.4
VCH/3					1	2.4	1	2.4
TOTAL	9	100.9	2	332.3	82	382.1	93	815.3

Table 52. Pottery counts from VCH excavations according to type.

	VCH/1	VCH/2	VCH/3	TOTAL
Transfer Printed	6			6
Undecorated White Glaze	8		1	9
Unglazed Wheelmade	1			1
Pipe Stems	2			2
Polychrome Porcelain	2			2
Rim Glazed Stoneware	4	2		6
Unidentified	2			2
TOTAL	25	2	1	28

Table 53. Metal from VCH excavations. Weight in grams.

	VCH/1		VCH/2		VCH/3		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	
Coin			1				1
IRON							
Nails 30-50 mm	2	11.1			1	4.7	3
Nails 50-80 mm					1	20.7	1
>80 mm	1	17.4					1
Unidentified		193.6				2510.0	
COPPER							
Nails 30-50 mm	1	5.4	1	5.6			2

Table 54. Shell from VCH excavations by species.

	VCH/2	VCH/3	TOTAL
<i>Cypraea lynx</i>	2	9	11
<i>Cypraea annulus</i>		11	11
<i>Cypraea moneta</i>		45	45
<i>Cypraea arabica</i>	4	46	50
<i>Cypraea errones</i>		19	19
<i>Cypraea eglantina</i>		8	8
Unidentified		4	4
TOTAL	6	142	148

ABORIGINAL MIDDEN No. 1 (Code prefix VAM)

During the initial survey, a number of low open shell middens were noticed along the foreshores of Port Essington. Two were recorded in close proximity to Victoria, one above the cliff line on the western side of Minto Head, the second behind the beach to the south of the settlement. Glass was noticed on the surface of both. At its highest point the midden on Minto Head appeared to have a possible depth of 600 mm and during the survey a trial trench was excavated on the eastern side of the tree which was growing in the centre of the curved midden (Figure 46).

VAM excavations

The trial trench (VAM/1) measuring 2 m by 1 m was excavated in two spits, the first to an average depth of 50 mm, the second to sterile sand which was reached at a depth of 150 mm. Glass was recovered in both spits although the majority came from the upper spit. During the first full field season VAM/2 and VAM/3 were begun in the centre of the midden and taken down in 50 mm spits in order to increase the sample of stratified glass. There were two related aims in this objective. The first was to get a collection of glass from a context where its use as a raw material to produce tools was unambiguous. The second more general reason was to concentrate efforts on examining the wider interaction between Aborigines and Europeans in this settlement.

In VAM/2 glass was found in the first three spits, the greatest quantity being recovered from Spit 1. In VAM/3 the glass did not extend beyond the second spit. By Spit 4 in both squares the excavation had passed into compacted shell which was devoid of implements. Since neither square had produced glass in the quantity located in the trial trench, VAM/2 was abandoned and VAM/3 was quickly excavated in 150 mm spits until sterile sand was reached, and the excavation was concentrated in the area of the trial trench, VAM/1.

Here two further squares VAM/4 and VAM/5 were excavated immediately to the east of VAM/1 and separated from it by a 300 mm baulk. Finds of glass were again plentiful, being concentrated in the top 100 mm of the deposit. VAM/6 was dug to the north of VAM/4 to increase the sample, and this square proved equally rich in glass. The total depth of midden in this area was 150 mm. Following these excavations a surface collection was made to increase the sample.

As a result of examination of the material in the laboratory and an age determination by radiocarbon analysis for the earliest occupation of the site an interpretation of a change in function of the midden was postulated (see discussion below) which led in the 1967 season to a further small excavation being made in an area just off the midden. Here an area 2 m by 1 m was cleared of its grass cover and excavated as VAM/7. The area, completely devoid of shell, yielded 86 flakes of glass in the top few centimetres of the deposit.

VAM finds

Apart from the glass very few finds were made. On the surface, five pieces of pottery, and a piece of copper sheeting were recovered, and a piece of iron was excavated in VAM/5/1. Three pieces of stone were recovered, one on the surface, one in VAM/5/1 and the third, a fragment of slate, was found in Spit 2 of the column sample that was taken to identify the shell species present. The other pieces of stone were of a creamy quartzite, a stone foreign to the area, but plentiful in White's (1967) plateau excavations in the Oenpelli area, c. 110 km to the south. The piece found on the surface showed some

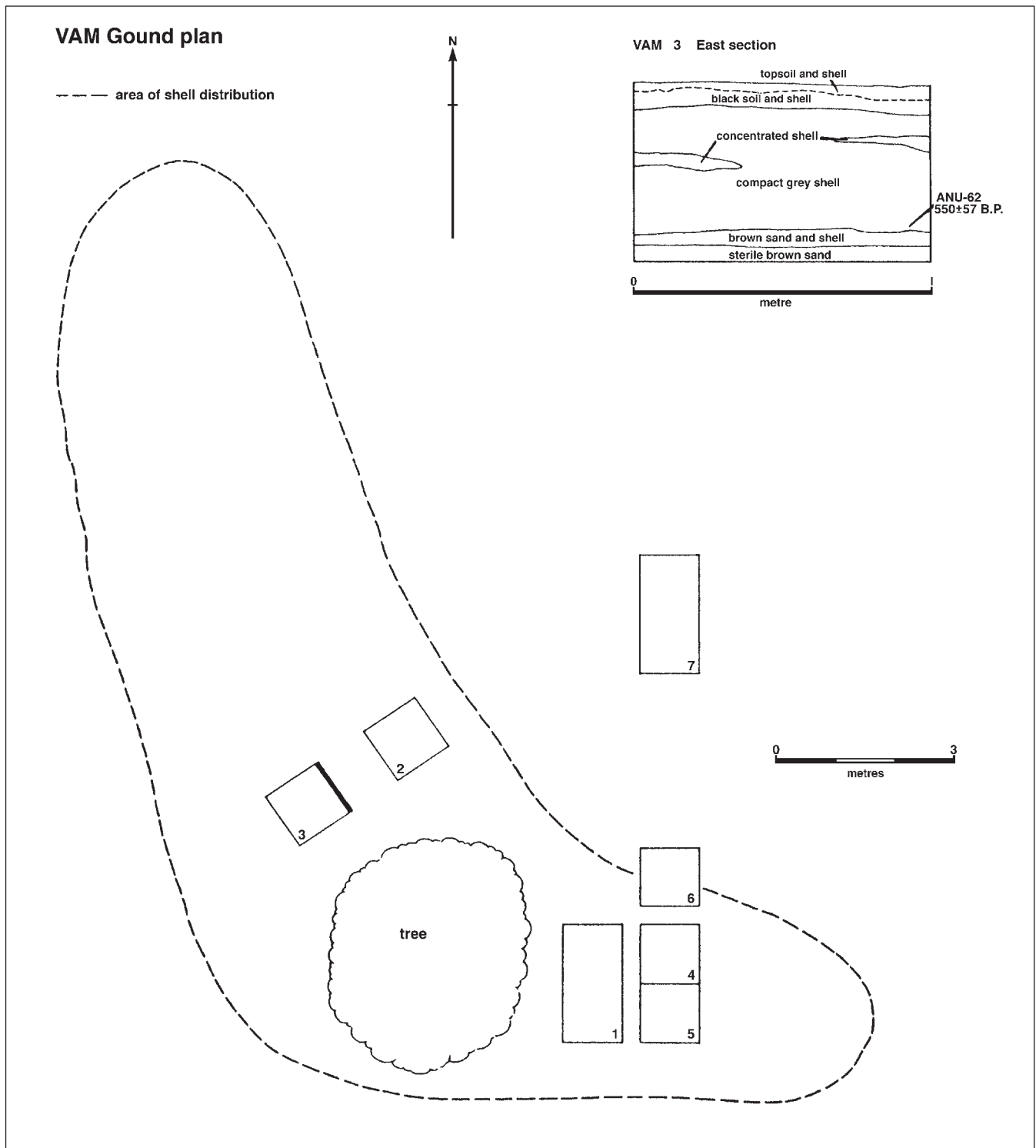


Figure 46. Aboriginal midden no. 1 (VAM) showing ground plan, excavation plan and stratigraphic section.

evidence of retouch. The only other cultural material recovered was ochre, both red and yellow, which occurred throughout the deposit, and some of which bore rubbing scratches. Traces of ochre were noticed in one half of a bivalve shell which may have been used as a palette, which was also paralleled in White's (1967:227) excavations. Because of the chalky, friable nature of much of the shell, the positive identification of shell artefacts by the method used by White (presence of use polish) was impossible. However several halves of bivalves were noticed with smooth semi-circular indentations in their edges which may have been caused by their use as scraping tools. One shell was recovered with a hole bored through its centre and Dr D.F. McMichael (Curator

of Molluscs, Australian Museum Sydney) suggests that this was probably man-made. In the absence of suitable stone in the area, it is reasonable to suppose that shell was used as an effective substitute.

Of the 540 pieces of glass recovered from the excavations and surface collection, 362 pieces (67.0%) were initially sorted as possibly having been utilised by Aborigines. Only one piece could be placed in category B (i.e. pieces recognisable by form, such as bases or necks), although a number of utilised base fragments had been sorted as Type A. The implication of these results is that selected pieces were being carried onto the midden from elsewhere in the settlement.

VAM shell sample

A column sample measuring 300 mm by 300 mm was taken from the southern corner of the east wall of VAM/3 in eleven 50 mm spits, screened through 5 mm mesh sieves to reduce the bulk, bagged and brought to the laboratory where each spit was passed through a set of square mesh sieves. Five sieves were used, having the following mesh measurements: 38 mm, 25.4 mm, 19 mm, 12.7 mm, 9.5 mm. Initially four categories were established, A being the material retained in the largest sieve, B the material retained in the next two sieves, and C and D being the material retained in the fourth and fifth sieves. A preliminary indication suggested that categories A and B might be combined.

The column sample consisted almost entirely of shell, but in addition pieces of charcoal and coral were recovered in all levels, glass was recovered in the top 3 spits and ochre was present in Spits 4 and 10. No bone, and only a single flake of stone was recovered (from Spit 2). A fragment of crab claw in Spit 7 was the only indication of food remains apart from the shell. The density of shell is high throughout the midden. A comparison with the most dense sample taken by White (Malangangerr, column sample 1) (White 1967:146) gives a total volume weight of shell from the present site 4.3 times as great as that at Malangangerr, although the samples were exactly equal in size. The density of shell at the Minto Head site is listed in Table 55.

Table 55. Aboriginal midden no. 1 (VAM): weight in grams of shell from column sample, by spit. See text for details.

Spit	1	2	3	4	5	6
Weight	2071.1	1904.0	1650.4	2976.6	3117.1	2286.9
Spit	7	8	9	10	11	TOTAL
Weight	3015.7	3047.4	2819.6	987.1	153.0	24028.9

The immediate problem concerned with the examination of the shells in this sample was to investigate the varieties of shellfish that were exploited, and to determine any change in species exploitation through time. Twenty different species were isolated in the collection, all of which can be collected in the immediate environment today. The shells represent two principal types, those collected from the shallow sandy-mudflat bay to the west of Minto Head and the rock/coral reef types which are available on the shoreline of Minto Head itself. Table 56 illustrates that the former group constitutes the majority of the shell types, in all spits being >75%.

Table 57. Shell species from VAM by spit expressed as percentage by weight for each spit in the column sample. Key lists Family in upper case, then species present. ARCIDAE: a) *Anadara maculosa* Reeve; b) *Anadara (Jegillarca) granosa* Linné; c) *Imparilarca hubbardi*; d) *Barbatia* sp? (possibly *ustularca renuta*); e) *Trisidos youngei*. VENERIDAE: f) *Tapes ?watlingi* Iredale. MYTILIDAE: g) *Septifer bilocularis* Linné. OSTREIDAE: h) *Cassostrea commercialis* Iredale and Roughley. GARIIDAE: i) *Asaphis deflorata* Linné. MURICIDAE: j) *Chicoreus rosarius* Perry. THAIDIDAE: k) Various genera. PTERIIDAE: l) *Pinctada* sp.? (possibly *maculata* Gould). CARDITIDAE: m) *Cardita crassicostata*. Volutidae: n) *Cymbium umbellatus*. Chamidae: o) *Chama jukesi*. PLACUNIDAE: p) *Placuna placenta* Linné. GALEODIDAE: q) *Syrinx arvanus*. LARDIIDAE: r) *Regozara flava*. FISSURELLIDAE: s) *Fissuredea jukesi*. TURBINIDAE: t) *Turbo porcata* Reeve.

Spit	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
1	87.9		2.6			4.2	0.8	0.6	0.3	0.1	0.1	0.1		1.9						1.4
2	64.9		1.0			11.4	0.6	19.5		0.8	1.3	0.3								0.2
3	61.0		0.8			16.6	7.2	5.2		0.2		7.7	0.9	0.4						
4	69.5		3.7			15.0	8.6	0.5	0.1		0.1	2.5								
5	83.1	0.2	5.0			9.3	1.0	1.0	0.2	0.1	0.2									
6	69.2	0.1	3.2			20.4	4.0	0.4		1.1	0.4	1.2								
7	56.5	0.3	3.7			27.2	6.5	1.7		0.8	0.4	2.8		0.5						
8	63.6		4.5			25.6	3.1	1.0			0.2	1.5		0.1	0.1				0.2	0.1
9	66.5		0.8		1.0	17.4	4.1	1.3			0.2	4.8		1.5	0.3	1.1	0.9			
10	56.4	2.5	-	-		7.0	6.8				2.6	26.9								
11	48.2		2.4	2.2		-	3.4	6.7			-	36.5	0.6							

Table 56. Aboriginal midden no. 1: percentage of shallow sandy-mudflat shell species from column sample, by spit.

Spit	1	2	3	4	5	6
Percentage	95.1	77.6	87.0	90.8	97.8	94.1
Spit	7	8	9	10	11	
Percentage	90.6	95.4	92.5	85.8	89.9	

The composition of shell species in each spit was calculated by weight in grams. This measure was preferred to number because breakage made it impossible to calculate species numbers accurately. Here it must be remembered that *Anadara maculosa*, which represents the largest proportion of each spit is also a much heavier shell than the other species. The average weight of whole shells was calculated for this species and for *Tapes ?watlingi* and *Septifer bilocularis* (the other two most common species represented) and found to be 17.7 gm, 4.3 gm, and 2.2 gm respectively, so that for example, in Spit 7, *Tapes ?watlingi* is more prevalent than *Anadara maculosa*, despite the weight content being less than half. Both shells are roughly the same size, so that the food content of each is considered here to be roughly equal.

After category A (+B) had been analysed, two spits of the C category were sorted and although some differential breakage was apparent this was not significant for the present test, so that categories C and D were merely weighed, and the analysis rested on the A (+B) category. The results are listed in Table 57.

VAM radiocarbon 14 estimation

A quantity of charcoal pieces was submitted to the Department of Geophysics and Geochemistry, A.N.U., for radiocarbon age determination. This sample was collected from VAM/SS/10, and may be taken to represent the first period of concentrated occupation of the site. The result was: ANU-62, 550 ± 57 B.P. (c. 1400 AD).

VAM discussion

The most important aspect of the excavation of this midden is that it provided a quantity of stratified glass on which to base the analysis of possible Aboriginal glass artefacts from other areas in the settlement (see Chapter 4). However it also provided sufficient additional information to attempt some interpretation of the midden itself.

The midden began to form about 500 years ago with the exploitation of the pearl oyster *Pinctada* sp., supplemented by the common rock oyster and the mudflat species *Anadara maculosa*. In Spit 9 *Pinctada* became less important, although it continued to be collected throughout the entire life of the site. Another mudflat species, *Tapes? walingi*, absent in the lowest levels, together with *A. maculosa* later provided the bulk of the shell food represented in the midden. In Spit 3 the representation of the sandy bay-mudflat types falls below 90% for the first time since the two early layers. The common rock oyster, although present in small quantities in Spits 9 to 4, reasserts itself, and in Spit 2 represents 19.5% of the total weight of shell and the mudflat shells fall to 77.6%, but in the latest occupation the latter group again became predominant.

It is tempting to correlate the change in shell type percentage with the introduction of glass in Spit 3, which can be reasonably dated to c. 1838 AD, the beginning of the European settlement. There is one historical reference to the Aborigines being employed in collecting oysters for the settlement (Brierly 1848 ML A501-4:14 November) and this activity may be reflected also in the Aborigines' own diet. It may also signal a change in site use. The VAM site is much nearer the sandy bay-mudflat habitat and the early dominance of species from this area is as expected. But if the midden was more frequently occupied during the European presence (that is, it became more like a base camp) resources may have been brought to it from further afield. After the Europeans left, it reverted to its earlier use as a more transitory camp.

Although the evidence is slight, this change can also be perceived in the other site evidence. The absence of bone and any implements in the lower levels supports the view that the site was used only as a place for eating shellfish. The arrival of the Europeans was associated with two changes. Glass implements were carried onto the midden and the midden itself expanded in the direction of the settlement. The main body of the midden runs parallel with the cliff and comparable middens in a similar orientation were noticed elsewhere in Port Essington. The inference is that a larger group or a more permanent one occupied the site, which spread towards the settlement. Glass was employed on the site, while the three pieces of stone recovered in the excavations, together with the bored shell, were all in layers containing glass. Significantly the volume of shell in Spits 2 and 3 was markedly less than in the earlier ones. During the 1967 season, a trench VAM/7 was excavated outside the area of the midden to test the possibility of this expansion; and quantities of glass were recovered in the first few centimetres. The top spit of the midden probably represents post-European occupation – an inference reflected in the proportions of shell returning to those found in the middle occupation of the midden.

Table 58. Glass from VAM surface collection and excavations according to type: number and weight in grams. Note category SS = shell sample.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Surface	145	1879.5			61	381.8	206	2261.3
VAM/1/1	39	257.9			16	99.4	55	357.3
VAM/1/2	12	101.9			4	24.8	16	126.7
VAM/2/1	11	64.5			5	22.6	16	87.1
VAM/2/2	2	3.1			2	3.2	4	6.3
VAM/2/3	1	2.0					1	2.0
VAM/3/1	5	26.6			6	6.6	11	33.2
VAM/3/2	1	18.8			1	4.4	2	23.2
VAM/4/1	33	101.9	1	19.8	19	72.5	53	194.2
VAM/5/1	26	128.6			6	33.6	32	162.2
VAM/6/1	28	81.7			20	49.1	48	130.8
VAM/7/1	50	200.4			36	77.5	86	277.9
VAM/SS/1	1	10.1					1	10.1
VAM/SS/2	7	14.2			1	8.6	8	22.8
VAM/SS/3	1	5.1					1	5.1
TOTAL	362	2896.3	1	19.8	177	784.1	540	3700.2

Table 59. Pottery counts from VAM surface collection according to type. There was no pottery in the excavation of this site-unit.

	Surface
Transfer Printed	3
Undecorated White Glaze	1
Pipe Stems	1
TOTAL	5

Table 60. Metal from VAM surface collection and excavations. Weight in grams.

	VAM/Surface		VAM/5/1	
	No.	Wt.	No.	Wt.
IRON				
Unidentified				17.2
COPPER				
Unidentified		42.1		

Table 61. Stone from VAM surface collection and excavations. Weight in grams. Note category SS = shell sample.

	VAM/Surface		VAM/5/1		VAM/SS/2		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Quartzite	1	21.9	1	24.7			2	46.6
Slate					1	0.8	1	0.8

ABORIGINAL MIDDEN No. 2 (Code prefix VAMII)

The second Aboriginal midden was located immediately behind the northern end of the beach to the south of the settlement, and just to the north of the building remains identified as belonging to the cattle ranchers who began living there during the 1870s. Because glass was present on the surface two 1 m by 1 m squares (VAMII/1, and VAMII/2) were opened up during the 1966 season.

Both squares were excavated in 50 mm spits down to sterile sand. The deposits throughout were shelly in a black soil matrix, and no stratigraphy was discernible.

VAMII finds

Glass occurred in all spits in both squares so that the earliest occupation of the site may be dated to the beginning of the Victoria settlement. However, because of the close proximity of the 1875 establishment the finds were treated with caution and two of the clay pipe stems were subsequently identified as being manufactured by McDougall of Glasgow whose factory was founded in 1846. This firm did not appear in the Glasgow trade directories until 1852 (Iain C. Walker pers. comm.) so that it is unlikely that this firm exported to Australia during the occupation of Victoria and it seems more reasonable to associate these pipes with the latter occupation of the cattle ranchers.

However, a glass bottle seal marked 'John Alberty Bordeaux Vieux Cognac 1815' can more readily be associated with the Chateau Margaux seals excavated in the settlement proper, where they were introduced by Dumont d'Urville in 1839 (see Chapter 4). The metal, and the remainder of the pottery excavated in this midden provides no positive dating information, but it bears superficial resemblance to that excavated in the settlement, and there is no strong reason to

doubt that the Aborigines occupied this site at the time of the settlement of Victoria as well as later when the cattle ranchers were there.

The shell species in this midden are similar to those in the midden on Minto Head, with the exception that *Tapes watlingi* was absent. The rock oyster is much more common, and probably reflects the difference in the immediate environment of the two sites. More important however is the structure of the midden itself. Whereas the Minto Head site can be regarded more in the nature of a shell refuse dump, the present site appears more likely to have been a living site, because shell is much less dense and bone food remains are present which reflect the fact that Aborigines continued to hunt traditional foods, at the same time as they ate some meat which they probably obtained from the Europeans. A total of 144 grams of bone were recovered from the excavations, of which the following animals were recognised as being present: cow/buffalo, fish, dugong, bandicoot (*Isodon macrourus*), kangaroo (*Macropus antilopinus*), and lizard (probably *Amphibolurus barbatus*).

Table 62. Aboriginal midden no. 2 (VAM II): glass from surface collection and excavations according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Surface	14	108.2	4	264.7	32	145.0	50	517.9
VAMII/1/1	3	6.8			1	0.7	4	7.5
VAMII/1/2	13	77.8			18	45.0	31	122.8
VAMII/1/3	9	53.8			18	52.8	27	106.6
VAMII/2/1	6	37.1	1	15.4	6	17.4	13	69.9
VAMII/2/2	15	66.3			21	65.8	36	132.1
VAMII/2/3	4	22.0			6	20.0	10	42.0
TOTAL	64	372.0	5	280.1	102	346.7	171	998.8

Table 63. Pottery counts from VAM II excavations. Only squares/spits with pottery are shown in table.

	VAMII/1/2	VAMII/1/3	VAMII/2/2	TOTAL
Salt Glaze Stoneware			1	1
Pipe Stems	2	1		3
TOTAL	2	1	1	4

Table 64. Metal from VAM II excavations. Weight in grams. Only squares/spits with metal are shown in table.

	VAM II/1/2		VAM II/1/3		VAM II/2/2		VAM II/2/3		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Brass Ferrule					1				1
IRON									
Nails 30-50 mm			4	9.5					4
>80 mm					1	11.5			1
Unidentified		35.1		123.5		23.2			104.7
LEAD									
Unidentified		4.5							

GENERAL SURFACE COLLECTIONS (Code prefix V/GEN SUR)

Because of the undisturbed nature of the site it was accepted that little contamination of surface deposits would likely have taken place under the impact of the few visitors to the site between 1850 and 1950. Thus artefacts collected on the surface have been included in the collections for analysis. If these were found in association with a site-unit, they have been analysed in conjunction with that site-unit.

However concentrations of deposit were collected in some general areas and these have been analysed separately. Four main areas within the settlement were noticed where surface collections were made, 1) the beach area near the jetty, 2) the town square, 3) the cliff slope in front of the hospital, and 4) the cliff slope adjacent to the married quarters. This last area produced a large number of artefacts and these were given the code prefix VCC.

A fifth area to the west of the settlement produced a scatter of glass and stone in conjunction with presumed Aboriginal shell deposit. This area was designated VWM.

Table 65. Victoria general surface collection: glass according to type: number and weight in grams.

	TYPE A		TYPE B		TYPE C		TOTAL	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Cottage Cliff (VCC)	8	317.1	10	214.8			18	531.9
Hospital Slope			25	2555.0	68	190.8	93	2745.8
Beach (Near Jetty)	4	23.0	11	1297.7	82	263.3	97	1584.0
Western Mudflat (VWM)	31	536.6	2	79.9	12	80.4	45	696.9
Town Square	1	11.6	1	11.6			2	23.2
Beach (South of Settlement)	11	187.8	11	750.0			22	937.8
General 1967	5	446.2	2	159.7			7	605.9
TOTAL	60	1522.3	62	5068.7	162	534.5	284	7125.5

Table 66. Victoria general surface collection: pottery counts.

	Cottage Cliff VCC	Hospital Slope	Beach near jetty	Town Square	TOTAL
Transfer Printed	80	4	8	19	111
Undecorated White Glaze	23	4	3	6	36
Featheredge (Blue)	1				1
Flowing Blue	1				1
Salt Glaze Stoneware	17	2	6	5	30
Unglazed Wheelmade		1			1
Pipe Stems	3				3
Pipe Bowls		1			1
Blue On White Porcelain	27	1	1		29
Polychrome Porcelain	6		1		7
Undecorated Porcelain	10				10
Spatter Ware	9				9
Line Decorated	1				1
Macassan	1			1	2
Unidentifiable				1	1
TOTAL	179	13	19	32	243

Table 67. Victoria general surface collection: metal. Weight in grams.

	Cottage Cliff (VCC)		Hospital Cliff Slope		Beach Near Jetty		Town Square		TOTAL
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Uniform Insignia							1		1
Musket Ball			1	11.0					1
Lead shot			1	0.6					1
Coin							1		1
Belt Buckle	1	16.8							1
COPPER									
Nails <30 mm					18	34.5			18
Nails 30-50 mm					15	65.2			15
Nails 50-80 mm					3	17.2			3
Unidentified						36.4			

Table 68. Victoria general surface collection: European and Aboriginal stone numbers.

	Cottage Cliff (VCC)		Western Mudflat (VWM)	
	No.	Wt.	No.	Wt.
Gunflints	2	25.1		
Hammerstone			1	128.2
Slate Spear Point			1	34.7

OTHER ARCHITECTURE

In addition to the excavations described above, a number of other pieces of architecture were recorded. Descriptions of these follow.

Magazine

The magazine stands on Adam Head and is all that remains of the principal fortification of the settlement. From contemporary sketches, this consisted of a large, square, timber tower or blockhouse, and magazine defended on the land side with a ditch and palisade, and on the sea-side with a castellated timber breastwork. It was complete by 1841 (see also McArthur to Admiralty 16 July 1840 in Barrow to Stephen 2 July 1841: CONSW201/313).

The magazine is constructed of masonry with a pitched stone roof, and is sunk into the ground to minimise damage in the event of an explosion. The walls are 400 mm thick and at its highest point the building stands 2.5 m high. Internally the walls are in the shape of a barrel vault (Figures 47-49).

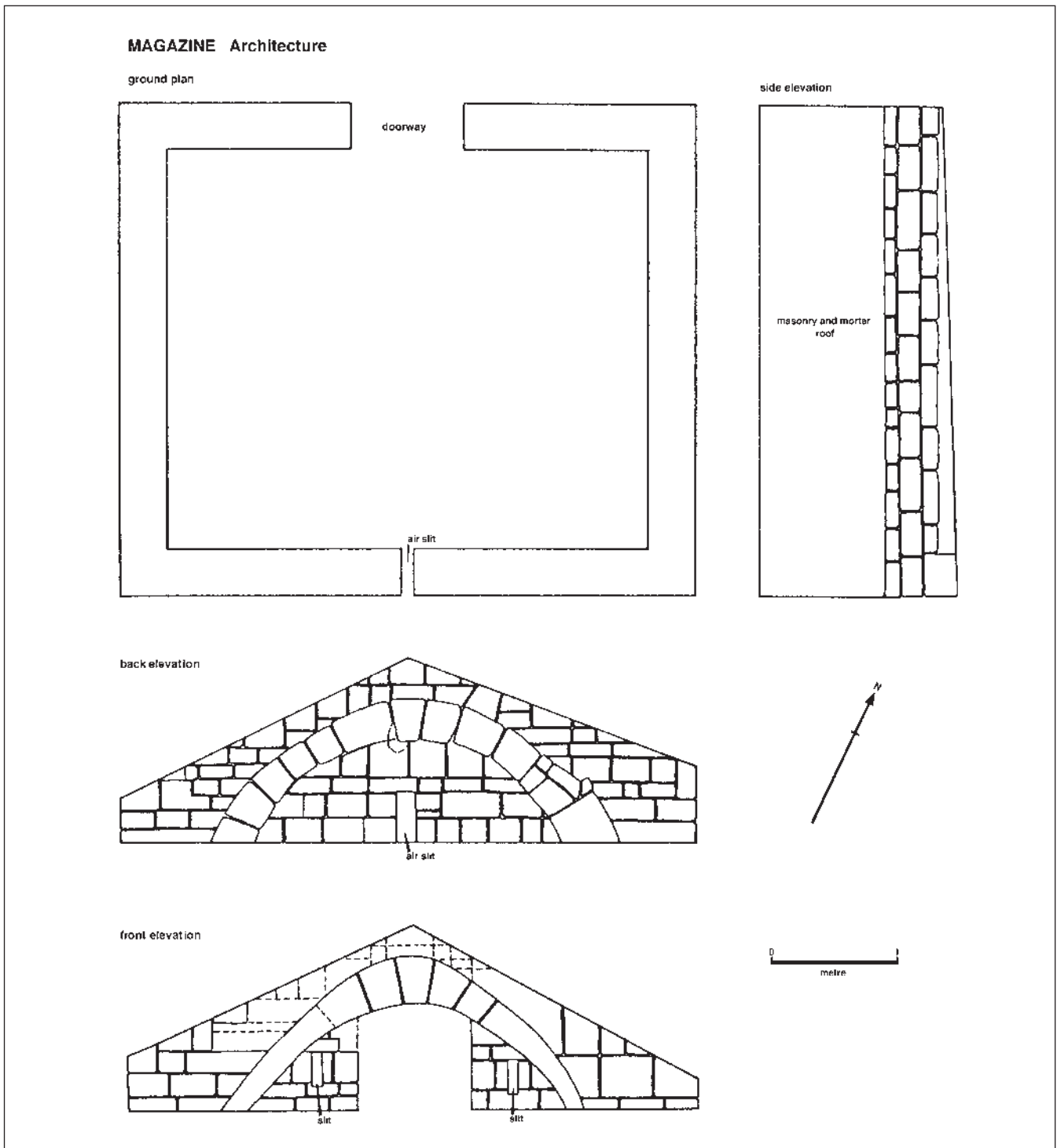


Figure 47. Magazine: ground plan and elevations.



Figure 48. Magazine looking east.



Figure 49. Interior of magazine.

Kilns

Three kilns were located within the settlement. The first of these (Figure 50) was behind the beach to the south of the settlement, and was constructed of ironstone pebbles bonded with clay in the shape of a truncated cone. At present it stands to a height of 1.8 m and has an internal diameter at the base of 1.66 m. The front of this kiln has collapsed and it is assumed that it originally had an arch at this point. The kiln is free-standing with a stone floor and was perhaps used for making charcoal (see Chapter 8).



Figure 50. Kiln no. 1.

The second kiln (Figure 51) was located below the eastern cliff immediately to the north of the jetty. This was constructed of large ironstone blocks and stands at present 1.82 m high with a base diameter of 1.85 m. It has an arched opening



Figure 51. Kiln no. 2.

in the base and an earth bank behind. Remains of lime on the clay floor indicate its purpose as a lime kiln and its technology must have been the same as that of the third kiln for which it may have been the prototype.

The third kiln (Figures 52) is located to the west of the settlement and is a classic example of an early nineteenth century lime-kiln (Hudson 1965:138). A similar kiln has been documented from the Nepean Peninsula in Victoria (Bridges et al. 1966:41-2) and others probably still exist. Constructed of rough-hewn stone in the shape of a truncated cone, the kiln was constructed by first excavating into a bank 3.5 m high. The soil from this excavation was distributed onto the mudflat in front of the kiln to form a working area below. The kiln itself was then built, with the inner and outer faces of the walls of cemented rough-hewn stone filled with rubble and cement. A retaining wall was then constructed on either side. The space behind was filled with earth to enable loading from the top. The kiln stands 3.5 m high; the internal diameter of the base is 2.8 m. The walls are 900 mm thick, which gives an estimated external diameter at the base of 4.6 m. The external diameter at the top is 2.2 m and the diameter of the opening at the top is 600 mm. On the western side an arched opening 800 mm high and 750 mm wide gives easy access into the kiln. The floor is the natural clay and there is nothing to suggest that there was ever a grating in the kiln. On the eastern side a smaller blocked passage may have been used to introduce a cross-draught into the kiln, since the location is protected from the south-easterly breeze. It would seem that the action of the kiln was intermittent rather than continuous, and that after each firing the kiln was cleaned out from within.

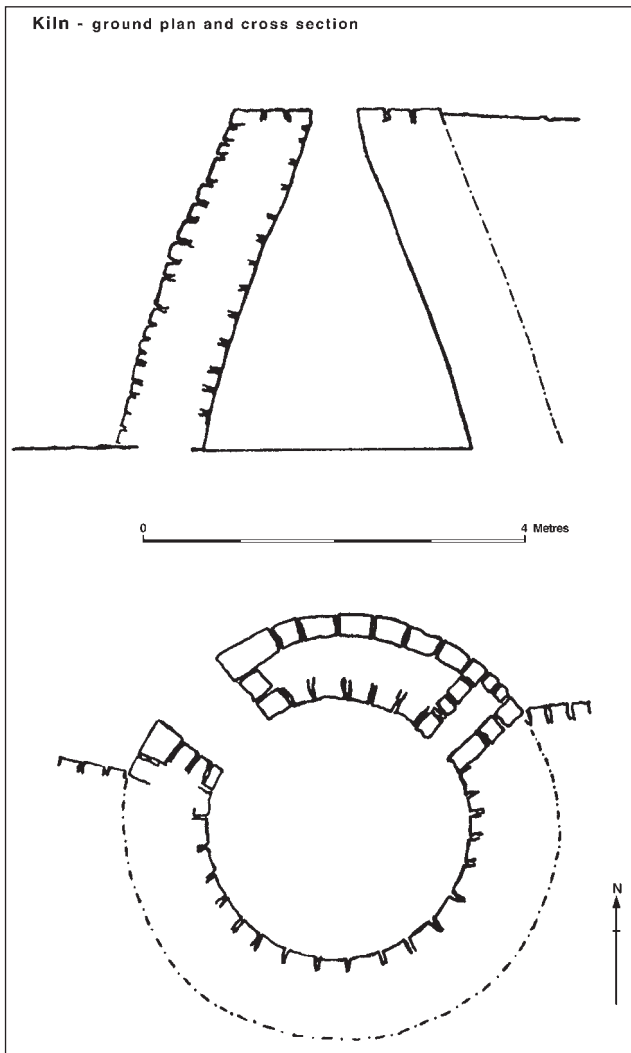


Figure 52. Kiln no. 3: ground plan and cross-section.



Figure 53. Kiln no. 3 showing how it was built into the 4 metre high bank and protected with a retaining wall on each side. The lower entrance to the kiln is in the shadow of the tree.



Figure 54. Entrance to kiln no. 3 from within, showing thickness and construction of walls.

Cemetery

Apart from four stone vaults, no traces above the ground of the majority of graves in the cemetery were recognised, and no excavations were carried out in the area.

Of the four vaults, all are constructed of dressed masonry. Two are flat-topped, one has an arched top and the fourth is surmounted by an obelisk. This last vault (Figure 55a, 56) can be positively identified as belonging to Emma, the wife of Lieutenant Lambrick, who died 12 October 1846 (Port Essington Correspondence RMAP).

In about 1912 an attempt was made to restore the inscriptions on these four graves by inscribing them in wet cement. Apart from Mrs Lambrick's vault no evidence has been found to substantiate these identifications, and that on

vault D is positively wrong. The information in the other inscriptions listed below is also frequently in error.

Figure 55a

Vault A: 'In memoery of Mrs Lambrick and child, dearly belove wife of Lutiant Lambrick 47 R.G.M.T. Hobart, died Port Essington 1838-1848.'

Figure 55b

Vault B: 'Sacread to the memory of Farther Von Anslowe German missioner, Smith Point Port Essington 1845.'

Figure 55c

Vault C: 'Sacread to the memory of the Dr of the settlement, died Port Essington 1838-1848.'

Figure 55d

Vault D: 'Sacread to the memeoery of Captin Crawford, 47 Rigmnt Hobart, died Port Essington 1838-1848.'

Figure 55. Plans and elevations of the four visible vaults in the cemetery.

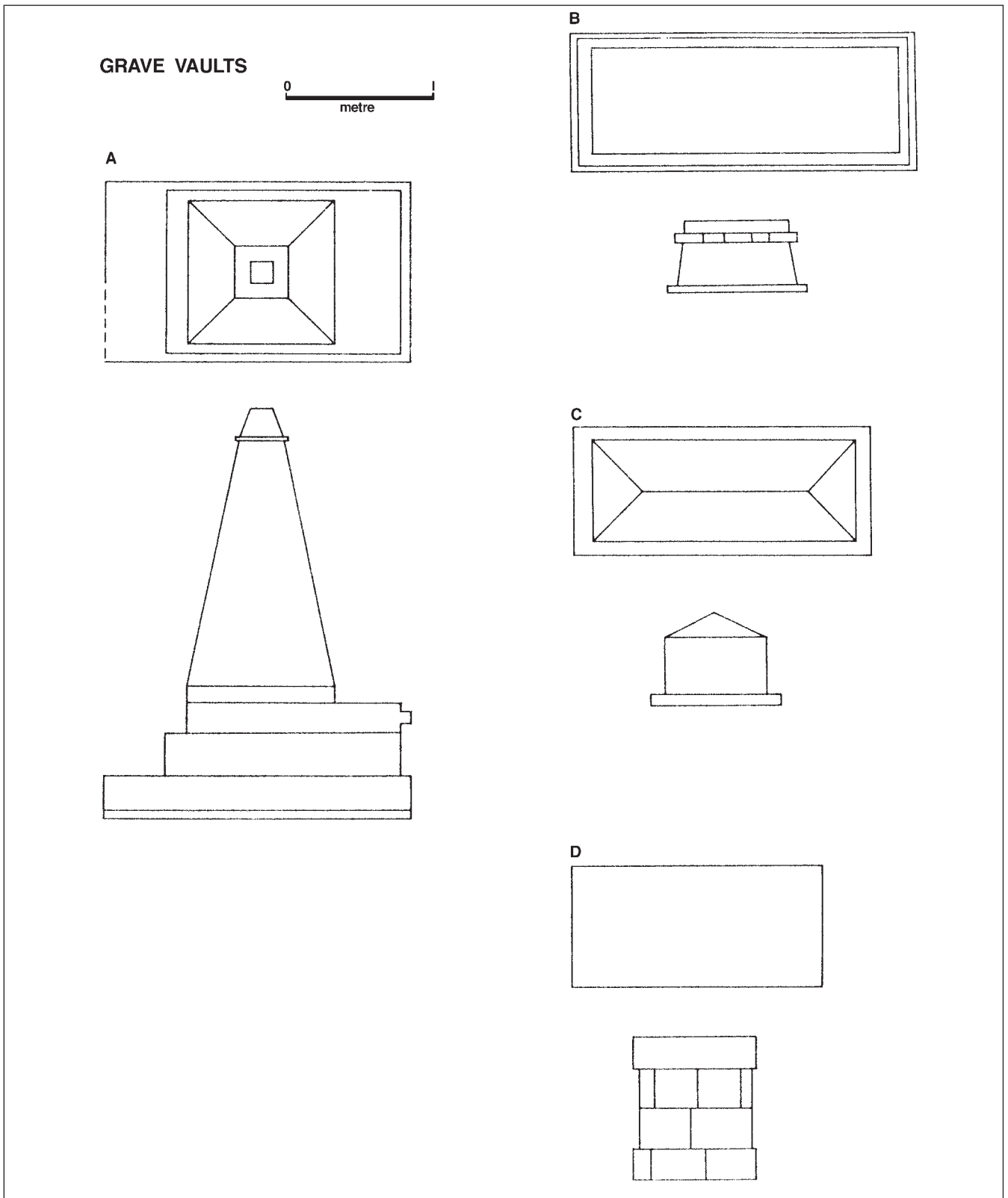




Figure 56. Cemetery vault belonging to Mrs Lambrick, wife of the Quartermaster.

Jetty

The jetty was constructed of dressed masonry blocks on the southern side, with rubble ironstone fill. It was badly damaged in the hurricane in 1839 (see Chapter 8) and was never rebuilt in its original condition. Its dimensions at present are difficult to estimate, but it is approximately 50 m long. A single squared block on the northern side suggests that originally the jetty was 6.25 m wide. At the shore end of the northern side a line of closely spaced timber piles, now snapped off at ground level, show the position of the retaining wall for the roadway that ran from the jetty. Two ironwood piles, still in position, abut the southern side (Figure 57).

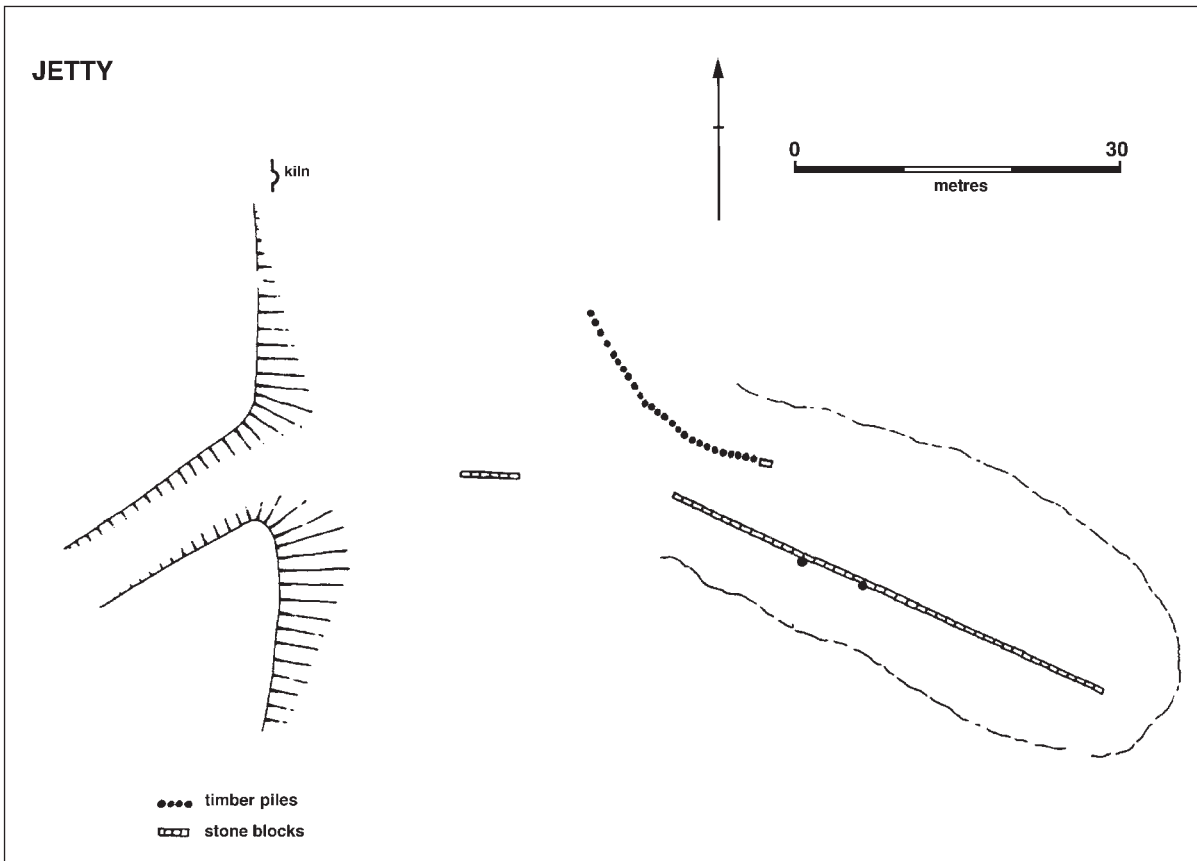


Figure 57. Plan of the remains of the jetty and the road cut through the bank leading to the settlement. See Figure 3 for location.

Government House

This was a prefabricated wooden building, and its position is now only marked by a jumble of small stone pilings on which it stood. The masonry foundations of the outhouse behind it remain, however, and the ground plan of this structure can be seen on Figure 5.

Wells

Five wells were recorded in the area of the settlement (see Figure 3). Of these the one near the beach to the south may not have been associated with the settlement but rather with the Macassans or the later European cattle ranch.

All the wells were dry and the deepest well is at present only seven metres deep. This is the well in the area of the town square and timber planking about 400 mm below the present ground level indicates the ground level at the time of occupation. No other superstructure is present on or around the other wells, and surprisingly no finds were recovered from within them.

Sawpit

This pit was cut into the cliff immediately to the north of the small lime-kiln near the jetty. At present the pit is 5 m square in ground plan, and is 1.8 m deep. No superstructure remains, and its function is corroborated by McArthur's contemporary map (Figure 4).

Stoneline

Immediately west of the hospital 69 stones in a line 24 m long were recorded. From the McArthur map (Figure 4) this represents the western extreme of the ordinance store.

Earthworks

Indications of earthworks were recorded from four locations in the settlement:

- around the fortification on Adam Head (see Magazine, above)
- running between the site of government house and the eastern cliff line
- a gun emplacement on Minto Head
- the earthwork behind Minto Head which can be equated with the site for a blockhouse on the McArthur map.

The ditch and bank near government house measures 100 m in length and is bounded on the eastern side by two sets of stone blocks through which the road to the south must have passed. From the bottom of the ditch to the top of the bank measures 1 m and the width of the ditch and bank is 6m. The gun emplacement on Minto head is illustrated in Figure 58, and the ditches here appear to be to keep the platform in the fork of the Y free from water. In places the ditch is stone-lined and at its deepest point is 1 m deep.

The earthwork behind this approximately 25 m square on the external dimensions and has a similar ditch and bank to that guarding the southern approach to the settlement. There was no indication that either of these fortifications was ever complemented with a palisade.

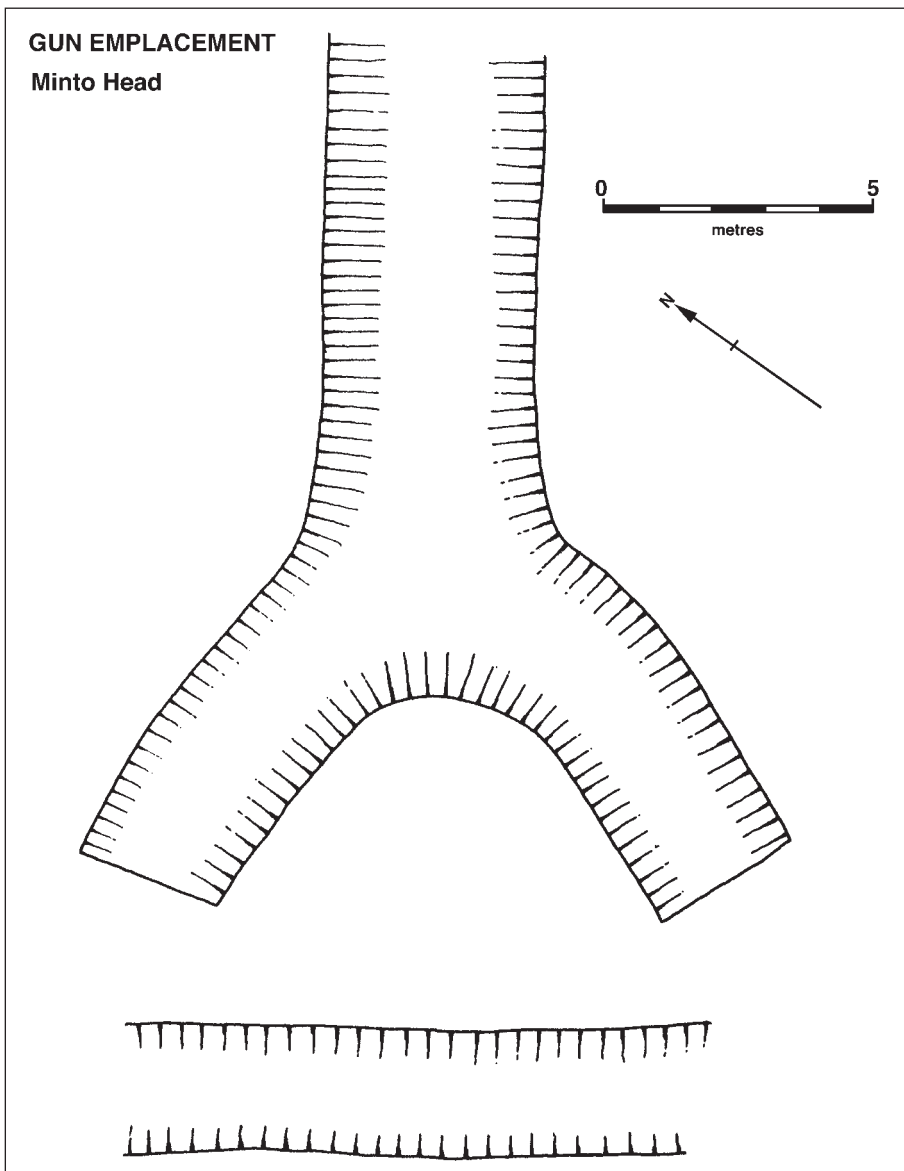


Figure 58. Gun emplacement on Minto Head. See Figure 3 for location.

Quarries

Two stone quarries were located within the settlement as indicated in Figure 3. The quarry to the west had a maximum depth of 7 m, while the quarry to the north was 3 m deep.

ARCHITECTURAL REMAINS OUTSIDE THE SETTLEMENT

Convalescent Stations

The ironstone remains of architecture associated with the period of the settlement were located in three places in Port Essington. Two of these are known from historical sources as convalescent stations (see Chapter 8) and were located at Coral Bay and Spear Point.

Lack of time did not permit clearing and recording.

Smith Point Beacon

This structure was built in 1845 (see Chapter 8) from coral conglomerate quarried on the spot. Time did not allow extensive clearing but inspection suggested that a circular tower was built to an approximate height of 2.5 m above the immediate ground level. This was of solid fill and made of blocks c. 450 mm by c. 200 mm. The faces of these blocks were carefully cut so that the outside curvature of the structure was continuous. In the lower section these blocks were cemented with lime mortar. The approximate diameter of this section is 4.5 m.

Above this section a second curved and inward sloping tower was built, also of solid fill construction, leaving a parapet of 900 mm on the top of the lower story. This second section was dry-built and stands to an average height of 1.2 m.

The position of the beacon, on a rise at the tip of Smith Point gives the structure a total height of 7.4 m above the high water mark.

Amongst the dislodged masonry, one block was inscribed 'E CRI'.

Chapter 3

Pottery

In essence, pottery from the nineteenth century is no different to prehistoric pottery in regard to its archaeological potential. It is of little intrinsic value, fragile, subject to fashion and hence change, and because of its durable nature it remains in the archaeological record.

Working from these premises it is therefore possible to use pottery from historic sites in much the same way as pottery is used in prehistoric sites. Classifications can be evolved in order to use pottery as space/time markers, for inferring basic economics, inferring standards of technical development, and so on up the inferential scale. Some (for example Deetz 1965) have argued that social organisation may be reflected in pottery because it is a material reflection of culturally patterned behaviour, but whether this would be true in a small, closed society like the marine garrison at Port Essington is problematic.

In attempting to classify the Port Essington pottery the purposes of such a classification should be understood. While the analysis was not needed to date the site or identify the inhabitants, the short life of the site provided a good situation for testing the ability of the collection to do these things. A second test of this kind was to examine the distribution of pottery within the settlement to see what inferences might be made about the various house sites, whose nature was known from the historical record. The analysis was also designed to determine the origins of manufacture of the ceramics. The implications of these origins provide insight into the processes of daily life at Port Essington. For example, the large majority of wares were made in England. Thus for everyday utensils the settlement was dependent upon manufacture from the other side of the world, a nineteenth century reflection of an emerging global economy, even if the pottery was consigned via merchants from Sydney. This also has implications for the level of self-sufficiency of the marines at Port Essington (and also for the settlers at Sydney).

The pottery and other remains from Port Essington also serve as indicators of the rate and volume of diffusion of English manufactures into this area, and of the time lag of this diffusion.

The major difficulty in establishing an effective typology was the lack of comparative material with which to assess the present assemblage. While there are a number of works relating to the pottery industry in England at this period, for example Godden (1963, 1964) and the extensive reference lists he cites, almost all are written from the point of view of the antique collector, and scant attention is paid to the utilitarian pottery that comprises the present collection. The vast number of patterns and variety of styles has deterred any systematic study in this direction. As a result, authors freely admit the difficulty of identifying unstamped examples in more than a general way. During 1967, I visited potteries and specialist pottery museums in England to gather information relating to the Port Essington collection, but detailed work needs to be done over a number of years.

Archaeologists in America and Canada have worked on sites comparable in time to Port Essington but no reports I could obtain have attempted detailed analyses of the ceramics. One detailed unpublished report has been used (Pilling nd) and from other reports, types similar to the Port Essington collection have been identified from the illustrations and an attempt has been made to follow what terminology is already in use (Gjessing *et al.* 1962; Jury and Jury 1959; Pierson 1962;

Poc 1963; Shenkell and Westbury 1965; Smith 1962, 1963). However, in many instances this has proved unsatisfactory and I have been left to invent my own procedures and terminology.

ARNOLD PILLING'S CLASSIFICATION

Pilling (nd) has set up a taxonomic system which divides his ceramics initially into two *Classes*, porcelain and earthenware, on the basis of translucence. *Class* is subdivided into *Ware*. Neither of these divisions is meant to imply any historical unity, this being claimed for the next subdivision, labelled *Type*. Where specific wares can be isolated within a *type*, such as 'Willow Pattern' within 'Transfer Printed Type', this he terms a *Sub-Type*. A further division into *Item* or *Group* allows Pilling to discuss specific pieces. Finally, he uses *motif* to mean a specific design unit, and *pattern* is a combination of specific units.

This is a useful taxonomy which I have modified and adopted. With the present assemblage however, there appears to be as much confusion as validity in attempting to differentiate the collection on the basis of hardness of fabric, which is the criterion Pilling uses at the *Ware* level of his classification. The majority of the Port Essington collection consists of what is commonly called 'china'. The distinction between this and 'stoneware' is technically one of firing temperature and it is more practical to describe differences in fabric at the *Type* level.

Finally, Pilling analysed his collection (which consisted of 185 sherds compared to 1561 from Port Essington) in terms of:

- Fabric, which he confusingly refers to as biscuit. Here he describes colour, hardness, fracture, presence of bubbles, and homogeneity; and
- Glaze, again describing hardness, fracture, presence of bubbles, crackle, colour, and pattern colour. Some attention was also given to decoration pattern and vessel form.

THE PORT ESSINGTON POTTERY CLASSIFICATION

While Pilling's analysis may point the way to significant factors in analysing nineteenth century ceramics in the future, the factors he has chosen do not present ways for making meaningful divisions for an archaeological taxonomy at present. The significance of crackle, for example, which may be deliberate or accidental, and can occur during or after firing, needs to be validated by examination of numbers of comparative collections, so that it is understood just what the significance of different types of crackle is. Similarly the Mohs scale of hardness test, which he employs, is at best inexact (Shepard 1963:115-6).

Given the present state of knowledge, decoration and vessel form suggest themselves as the best indicators of cultural and temporal change in nineteenth century ceramics. Pottery in this period was no longer a craft but rather a mass-produced manufacture, which resulted in a general conformity in shapes and standards of wares, as well as a great increase in individual designs, which nevertheless fall into general broad

categories of decoration. This is particularly true of the transfer printed wares which make up almost half of this collection. The point is made at greater length in the discussion (below). Decoration colour appears to be a further valid indicator which has to be taken into account. It is on these factors that the present analysis is based.

The pottery is divided into two *Classes*, porcelain and earthenware. The earthenwares are divided into two *Groups*, the white clay wares and the coloured clay wares. Both classes are divided into *Types*, the first level at which any historical unity is implied. In the case of Transfer Printed Ware, this type is divided into *Sub-Types*. Within each type or sub-type specific *Items* are described. Ascending numbers are ascribed to each item to facilitate cross-reference with the plates and text. Each *item* is analysed according to form (the original total form of the object), thickness, base and rim diameter, decoration colour, and decoration. Rim and base diameters have been measured on a 'Ceramicule', a set of concentric circles designed by Colin Smart (Department of Anthropology ANU) to measure prehistoric pottery and the bracketed percentage for each type artefact described here indicates the amount of rim or base remaining. It was found that a fairly accurate diameter could be estimated on 10% of the rim or base; however in most cases this is reported to the nearest centimetre. To standardise the colours, the British Colour Council Dictionary of Colour Standards (British Colour Council 1934) is used in the abbreviated form, BCC, plus the appropriate number. Table 69 presents a key to the colours represented in the Port Essington collection.

This classification represents a first faltering step towards presenting a workable taxonomy for archaeologists in this field, which will need greater definition as work progresses in historical archaeology. It has obvious shortcomings. In a number of instances sherds from a single vessel will fall into different types, where, for example, different design elements are represented. Thus, comparisons of the numbers of different types are suspect. Only where all the motifs of a design can be recognised and placed within a single type can this difficulty be overcome. This would require much fuller documentation of designs than exists at present. What the classification does attempt is to present ranges of decorative motifs which were employed in pottery making in this period. It was decided as a conscious policy to present as large and detailed a description as possible, hoping that this would prove of most value to future workers. An attribute analysis was considered as the best alternative, as this would have overcome some of the limitations discussed above. It was discarded for three reasons

- the motifs do not recur often enough to indicate quantitative trends at this close level;
- the number of attributes was too great to analyse without extensive use of a computer; and
- the final product would not have been as useful for future workers.

CLASS 1 – PORCELAIN

All porcelain represented in this collection is of the true hard paste variety. Difficulty was experienced in distinguishing between British and Asian porcelains in terms of fabric and glaze, and only the pieces decorated with the Willow Pattern can positively be identified as British. Of the others, the group represented by Items 4 and 5, below, are attributed to Asian manufacture in terms of shape rather than decoration, and the large remainder may safely be assumed to be Asian in origin.

TYPE A – UNDECORATED PORCELAIN – 39 sherds (Items 1–3)

Note: Although these items are listed here as a separate category they may only represent undecorated fragments of vessels which were originally decorated.

Distribution: VM, VCC, VMQ. Forms: footed bowls or cups. Of the six base sherds represented, the bottom of the foot is unglazed in each case. Thickness: 15 mm to 55 mm. Fabric colour: BCC 1. Glaze colour: between BCC 1 and BCC 7.

Item 1 VM/5/1 (5), Figure 59-a, 60-h.

Form: cup with handle. Thickness: 35 mm. Base diameter: 40 mm (50%).

Item 2 VM/9/1 (37), Figure 60-o.

Form: cup or bowl. Thickness: 3 mm to 55 mm. Base diameter: 60 mm (estimated).

Item 3 VM/5/1 (14), Figure 60-l

Form: bowl. Thickness: 3 mm. Base diameter: 140 mm (9%).

TYPE B – OVERGLAZE POLYCHROME PORCELAIN – 78 sherds (Items 4–11)

Distribution: VM; VM1, VHk, VCC. Forms: cups, straight-sided bowls, plates, lids. Thickness: 15 mm to 85 mm. Fabric colour: BCC 1 to BCC 7. Glaze colour: BCC 1 to BCC 7.

Table 69. Key to BCC colours present in the Port Essington collection.

1. White	2. Ivory	3. Cream	7. Nettle Grey
9. Mistletoe	10. Almond Green	19. Coffee	22. Apple
23. Malachite Green	24. Green Beetle	27. Rifle Green	28. Amethyst
29. Plum	38. Ruby	43. Alice Blue	44. Steel Blue
45. Saxe Blue	46. Mineral Blue	55. Tangerine	58. Rust
59. Copper Brown	60. Chestnut	61. Stone White	64. Banana
66. Buff	67. Almond Shell	70. Peat Brown	71. Gault Grey
72. Khaki	73. Mace	76. Green Muscat	78. Olive Green
80. Cedar Green	87. Empire Blue	89. Lido	96. Nasturtium
99. Water Green	103. Grass Green	104. Brunswick Green	105. Cossack Green
112. Sulphur	115. Old Gold	125. Brick Red	126. Guardsman Red
133. Terra Cotta	136. Purple Brown	138. Fawn	140. Clove Brown
146. Salvia Blue	147. Smalt	149. Stewart Blue	150. Lapis Lazuli
145. Mazarine Blue	156. RAF Blue	159. Raspberry	160. Garnet
165. Parchment	187. Squirrel	188. French Grey	191. Cambridge Blue
194. Pompadour	195. Delphinium	196. Larkspur	197. Royal Blue
192. Juniper	201. Opaline Green	204. Cinnamon	205. Olive Wood
218. Union Jack Blue	219. Purple Navy	220. Jet Black	226. Charcoal Grey
230. Howard Green	232. Pastel Yellow	233. Tuscan Yellow	

Decoration colour: a wide range of which the following are predominant; yellow (BCC 112), green (BCC 9, BCC 23, BCC 99), red (BCC 96, BCC 125, BCC 126, BCC 159), gilt (BCC 115), and blue (BCC 45, BCC 219). Decoration: all motifs above the glaze are hand painted. The most predominant motif is a floral one. In addition some underglaze blue decoration is present. This takes the form of a double blue line running horizontally around either the interior or exterior of the rim, or around the foot of the vessel. In one instance a similar line runs internally around the base of a bowl.

Item 4 VM/GEN SUR (1), Figure 59-b

Form: curved lid with unglazed edge. Thickness: 4.5 mm. Rim diameter: 220 mm (10%). Decoration colour: BCC 219, BCC 125, BCC 115. Decoration: the border is decorated with a band of dark blue overlain with gilt asterisks. An additional line of dark blue dots lies within the border, joined with gilt and red.

Remarks: This piece, together with Item 5, represents a group of 24 sherds with similar decoration. The decorative motif is unusual in this collection and within this type. However, in terms of shape it seems reasonable to ascribe this group to Asian manufacture.

Item 5 VM/9/1 (36), Figure 60-a

Form: cup. Rim diameter: 75 mm (15%). Base diameter: 60 mm (8%). Decoration: see Item 4.

Item 6 VCC/GEN SUR (88), Figures 59-c, 60-c.

Form: straight-sided bowl with everted rim. Thickness: 4 mm. Rim diameter: approx. 160 mm. Decoration colours: BCC 23, BCC 159. Decoration: external only, a floral motif.

Remarks: In contrast to the other items within this type, the glaze is dark (BCC 7) and heavily crackled.

Item 7 VMII/1/1 (5), Figures 59-d, 60-k.

Form: bowl. Thickness: 3 mm to 9 mm. Decoration colours: BCC 9, BCC 45, BCC 156. Decoration: internal and external underglaze decoration with the double line motif, together with external floral decoration.

Item 8 VM/9/1 (35), Figures 59-e, 60-I, 78-a.

Form: bowl with small pedestal foot. Thickness: 2.5 mm (body) to 4.5 mm (base). Base diameter: 25 mm (50%). Decoration colours: BCC 9, BCC 126, BCC 115. Decoration: external in blossom tree motif.

Remarks: painted on the underside of the base is a date mark of the Emperor Tao Kuang (1821–1850).

Item 9 VM/9/1 (39), Figure 60-f.

Form: bowl described in Item 8. Rim diameter: 100 mm (13%).

Remarks: Part of Item 8? Interior of lip unglazed suggesting that the bowl was lidded (see Item 10).

Item 10 VM/9/1 (45), Figures 59-f, 60-g.

Form: flanged lid. Thickness: 25 mm. Rim diameter: (at flange) 100 mm (11%). Decoration colours: BCC 9, BCC 126, BCC 115. Decoration: external floral motif.

Remarks: Despite the difference in decoration, this lid perhaps belongs to the vessel described in Items 8-9. Note that the rim diameters match.

Item 11 VMII/1/1 (11), Figures 59-g, 60-e.

Form: bowl. Thickness: 2 mm to 3 mm. Decoration colours: BCC 96, BCC 126. Decoration: underglaze, double line internally and externally at rim. Overglaze decoration externally in abstract motif.



Figure 59. Port Essington pottery: Undecorated Porcelain (a); Overglaze Polychrome Porcelain (b-g).

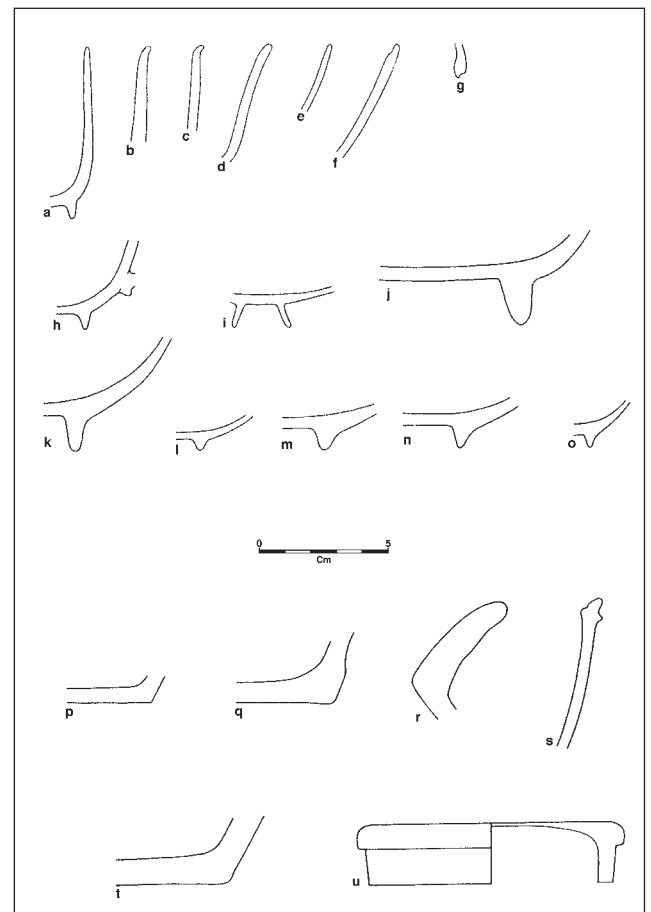


Figure 60. Port Essington pottery: pottery profiles (1).

TYPE C – BLUE ON WHITE. PORCELAIN – 100 sherds (Items 12–21)

Distribution: VM, VMII, VCC, VQS, VSD, VH, VHK, VMQ, VSF. Forms: mainly footed bowls, some plates. Thickness: 2 mm to 10 mm. Fabric colour: BCC 1 to BCC 7. Glaze colour: BCC 7 to BCC 71. Decoration colour: mainly blues (BCC 43, BCC 45, BCC 150) merging to green (BCC 78) and grey (nearest BCC 226). Decoration: consists of hand-painted underglaze designs of floral, geometric and figurative motifs. The double line motif used internally and externally at the rim is common and also occurs around the foot.

Remarks: the foot is always unglazed on the bottom; in one item the base is unglazed; in two items a section of the internal wall is unglazed. Glaze crackle occurs frequently but not predominantly.

Item 12 VCC/GEN SUR (117), Figure 61-a.

Form: plate or dish with unglazed base. Thickness: 6.5 mm. Decoration colour: BCC 149. Decoration: solid geometric pattern unusual in this collection.

Item 13 VQS/4/1 (26), Figures 61-b, 60-m.

Form: footed bowl with base and internal face of foot unglazed. Thickness: 5 mm (base) to 8 mm (lower body). Base diameter: approximately 220 mm (5%). Decoration colour: BCC 149. Decoration: double line motif on foot; on the interior similar lines running around the circumference of the bowl, together with registers of parallel short lines running at right-angles to the circumference of the vessel.

Item 14 VCG/GEN SUR (125), Figures 61-c, 60-n.

Form: footed bowl. Thickness: 4.5 mm to 6.5 mm. Base diameter: 140 mm (13%). Decoration colour: BCC 149. Decoration: externally around the foot with three parallel lines; internally in a free floral motif.

Item 15 VM/S/1 (11), Figure 61-d.

Form: plate. Thickness: 6 mm. Decoration colour: BCC 195. Decoration: a continuous fern motif around the border.

Remarks: the internal face below the border is unglazed.

Item 16 VCC/GEN SUR (63), Figure 61-e.

Form: indeterminate. Thickness: 5 mm. Decoration colour: BCC 145. Decoration: on one side (external?) only, a complex figurative pattern.

Item 17 VM/10/1 (26), Figures 61-f, 60-b.

Form: straight-sided bowl with slightly everted rim. Thickness: 3 mm to 5 mm. Decoration colours: BCC 197, BCC 78. Decoration: internal and external undefined figure pattern.

Item 18 VCC/GEN SUR (64) Figure 61-g.

Form: bowl. Thickness: 5 mm to 8 mm. Decoration colours: BCC 45 to BCC 230. Decoration: floral/figurative motif applied internally and externally.

Item 19 VCC/GEN SUR (36), Figures 61-h, 60-d.

Form: bowl with slightly sloping and everted rim. Thickness: 4 mm. Rim diameter: 160 mm (10%). Decoration colour: BCC 149. Decoration: continuous leaf motif internally on lip, and externally.

Item 20 VCC/GEN SUR (211), Figure 61-i

Form: bowl. Thickness: 6 mm. Decoration colour: BCC 45. Decoration: external figurative motif.

Item 21 VMS/E (17) + VM1911 (46), Figures 61-j, 60-j.

Form: footed bowl. Thickness: 5 mm to 9 mm. Base diameter: 190 mm (13%). Decoration colours: BCC 43 to BCC 230. Decoration: indeterminate splotches and lines internally and externally. Internal base decorated with large spiral motif.

Remarks: unidentifiable mark on bottom of base.

TYPE D – TRANSFER PRINTED PORCELAIN – 3 sherds (Item 22)

Distribution: VCC. Form: plate. Thickness: 3.5 mm to 7 mm. Fabric colour: BCC 7. Glaze colour: BCC 7. Decoration colour: BCC 87. Decoration: underglaze transfer decoration of the less common ‘mosquito’ variation of the Willow Pattern.

Remarks: all three items comprising this type can be attributed to a single plate.

Item 22 VCC/GEN SUR (201) Figure 61-k, 67-e.

Form: plate with indented edge. Thickness: 7 mm. Rim diameter: 240 mm (11%). Base diameter: Approx. 130 mm (5%).

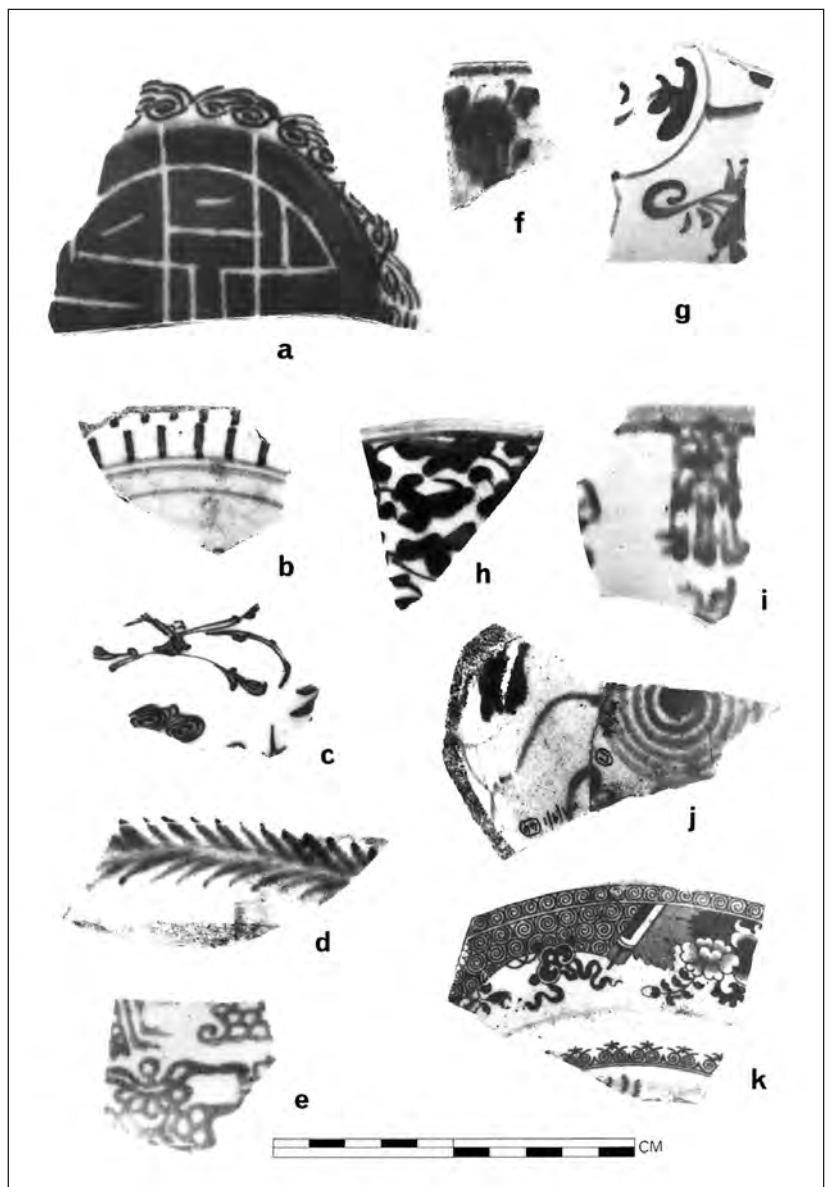


Figure 61. Port Essington pottery: Blue on White Porcelain (a-j); Transfer Printed Porcelain (k).

CLASS 2 – EARTHENWARE

GROUP 1 – THE WHITE CLAY WARES

All wares in this group are of the hard paste variety. Since hardness tests appear a dubious way to distinguish between the utilitarian wares of this period, no scale of differentiation on this basis can be applied to distinguish and isolate what are called 'stone china' wares from slightly softer white clay wares. Although some technical differences may occur, it is more useful to regard all the white clay wares of this period as hard paste.

TYPE A – TRANSFER PRINTED WARE

Of the total collection, 46.7% falls into this type and meaningful sub-types can be established. The divisions are made initially in terms of decoration colour, and secondly on the basis of decoration subject matter.

SUB-TYPE AA – GREEN FLORAL TRANSFER WARE – 23 sherds (Items 23-27)

Distribution: VM, VMII VCC, VQS. Thickness: 3 mm to 6 mm. Fabric colour: BCC 1, BCC 2. Glaze colour: BCC 1. Decoration colours: BCC 10, BCC 80, BCC 191, BCC 192. Decoration: 11 sherds are decorated with a similar pattern (see Item 23). The floral patterns are predominantly executed against an open background in this sub-type. Item 26 is the exception.

Item 23 VM/14/1 (3), Figures 62-a, 68-k.

Form: deep plate or bowl. Thickness: 5 mm. Rim diameter: 140 mm (13%). Decoration colour: BCC 80. Decoration: register of floral motifs contained in minor geometric motifs.

Item 24 VM/S/L (1), Figure 62-b.

Form: vessel described in Item 23.

Item 25 VM/GEN SUR (8), Figures 62-c, 78-b.

Form: plate. Thickness: 5 mm. Decoration colour: BCC 80. Decoration: see Item 23.

Remarks: this sherd probably belongs to the vessel described in Items 23-24. Mark on the base is a flower decorated plaque inscribed '—OWERET' (probably 'FLOWERET'). Below is the letter 'M'. This single letter was used extensively by the Minton pottery, and its use is equated in time to the period c. 1822-36 (Godden 1964:439).

Item 26 VMII/1/1 (35), Figure 62-d.

Form: indeterminate. Thickness: 4 mm. Decoration colours: BCC 191, BCC 192. Decoration: floral motif set against a 'closed' (stippled) background.

Item 27 VCC/GEN SUR (28), Figure 62-e.

Form: plate. Thickness: 3.5 mm. Base diameter: approx. 100 mm (9%). Decoration colour: BCC 10. Decoration: combined floral and geometric motifs executed in a fine stipple.

SUB-TYPE AB – GREEN SCENIC TRANSFER WARE – 14 sherds (Items 28-31)

Distribution: VMII, VSD, VH. Thickness: 3 mm to 7.5 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 22, BCC 104, BCC 191, BCC 192. Decoration: various exotic scenes. The main motifs are architectural, human and animal representations.

Item 28 VMII/1/1 (8) + (15), Figure 62-f.

Form: deep plate. Thickness: 4 mm. Base diameter: 100 mm (19%). Decoration colour: BCC 191. Decoration: Eastern townscape with minarets and towers.

Remarks: this scene is a common one in this collection, being also found on the blue printed wares. Miss Sue Davis (London Museum, pers. comm. January 1967) identified it as part of the 'Bosphorus' pattern, which enjoyed popularity during the relevant period, being made by several Staffordshire potteries, such as Samuel Alcock of Burslem and Davenport of Longport.

Item 29 VH/S/0 (1), Figure 62-g.

Form: indeterminate. Thickness: 7.5 mm. Decoration colour: BCC 192. Decoration: head and shield of a man in armour.

Item 30 VMII/1/1 (17), Figures 62-h, 78-c.

Form: indeterminate. Thickness: 3 mm. Decoration colour: BCC 191. Decoration: carriage drawn by two horses and driven by a bare-footed boy wearing a smock and cloak.

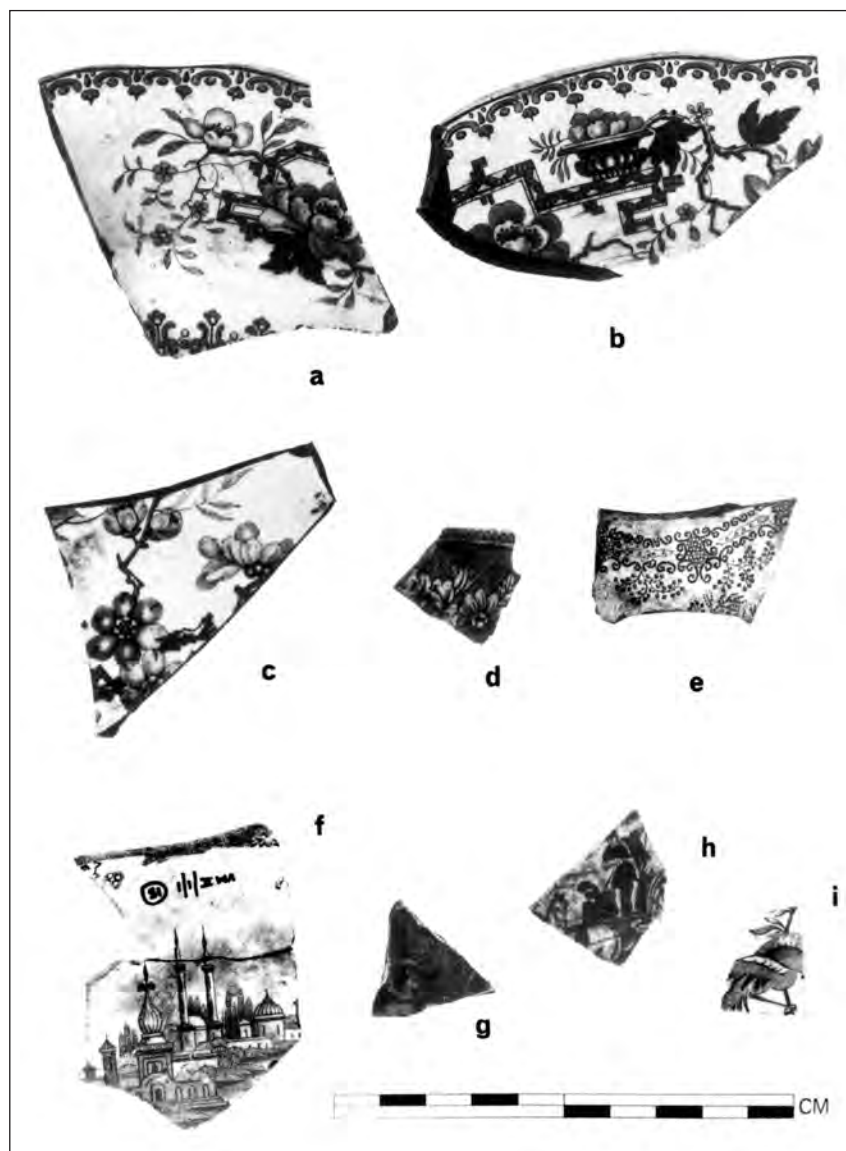


Figure 62. Port Essington pottery:
Green Floral Transfer Printed Ware (a-e);
Green Scenic Transfer Printed Ware (f-i).

Remarks: impressed asterisk on base. Identified by Miss S. Davis (London Museum) as part of a pattern called 'Venice', used by Copeland and Garrett 1833-1847.

Item 31 VMII/1/1 (41), Figures 62-i.

Form: indeterminate. Thickness: 3 mm. Decoration colour: Between BCC 22 and BCC 104. Decoration: a cock standing on a branch. Background 'open'.

Remarks: a copy of this motif in a similar colour was noted on sherd VSD/6/1 (3). This latter example comes from a different vessel.

SUB-TYPE AC – GREEN GEOMETRIC TRANSFER WARE – 10 sherds

Distribution: VM, VMII, VCC, VOM. Thickness: 2 mm to 4 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colour: BCC 104, BCC 191. Decoration: the decoration on these items is generally sparse; the most common motifs being horizontal lines, vertical chevrons and dotted connecting arcs.

SUB-TYPE AD – GREEN AND RED FLORAL TRANSFER WARE – 1 sherd (Item 31)

Item 31a VMII/1/1 (60).

Form: indeterminate. Thickness: 3.5 mm. Decoration colours: BCC 160, BCC 201. Decoration: internal, a small leaf pattern in green; external, a floral motif in red, bounded by a scroll motif.

SUB-TYPE AE – RED FLORAL TRANSFER WARE – 20 sherds (Items 32–36)

Distribution: VM, VCC, VSF. Thickness: 2 mm to 7 mm. Fabric colour: BCC 1. Glaze colours: BCC 1, BCC 61. Decoration colours: BCC 28, BCC 29, BCC 58. Decoration: 11 sherds in this sub-type have an identical distinctive floral motif against an open background. The other floral examples employ both open and closed backgrounds.

Item 32 VM/10/1 (8), Figures 63-a, 68-f.

Form: thin-walled bowl. Thickness: 3 mm. Decoration colour: BCC 29. Decoration: bunched ferns and flowers.

Item 33 VM/S/0 (4), Figure 68-c.

Form: bowl with everted rim. Thickness: 3.5 mm. Rim diameter: approx. 180 mm (7%). For decoration colour and decoration: see Item 32.

Item 34 VM/GEN SUR (23), Figure 63-b.

Form: bowl. Thickness: 3.5 mm. Rim diameter: very approx. 140 mm (4%). Decoration colour: BCC 28, BCC 58. Decoration: floral motif against open background with scroll motif along border. The petals of one flower have been hand coloured beneath the glaze.

Remarks: this is the only example of hand colouring a transfer in this collection.

Item 35 VM/S/L (15), Figure 68-a.

Form: cup. Thickness: 2 mm to 2.5 mm. Decoration colour and decoration: identical to Item 34, but decorated internally and externally.

Item 36 VCC/GEN SUR (162), Figure 63-c.

Form: plate. Thickness: 5.5 mm. Decoration colour: BCC 28. Decoration: leaf motif against a closed (stippled) background.

SUB-TYPE AF – RED SCENIC TRANSFER WARE – 6 sherds (Item 37)

Note: the six sherds in this sub-type belong to a single vessel.

Item 37 VOM/5/1 and VOM/2/1 (8, 9, 10, 11, 12), Figure 63-d.

Form: wavy-rimmed bowl. Thickness: 5 mm (rim) to 7 mm (body). Rim diameter: 220 mm (15%). Decoration colour: Between BCC 28 and BCC 29. Decoration: external geometric motifs; internal border of combined floral and geometric motifs with an architectural motif of a towered building surrounded by trees.

SUB-TYPE AG – BROWN FLORAL TRANSFER WARE – 6 sherds (Item 38)

Distribution: VM, VMII, VOC, VMQ. Thickness: 2.5 mm to 4.5 mm. Fabric colour: BCC 1. Glaze colour: BCC 1, BCC 2. Decoration colour: BCC 19. Decoration: various floral motifs; all examples employ a closed background.

Item 38 VM/GEN SUR (14, 15, 53) Figures 63-e, 67-h

Form: shallow bowl (total height 30 mm). Thickness: 3 mm. Rim diameter: approximately 160 mm (7%). Base diameter: 80 mm (17%). Decoration colour: BCC 19. Decoration: internal flower and vine motif on semi-closed background.

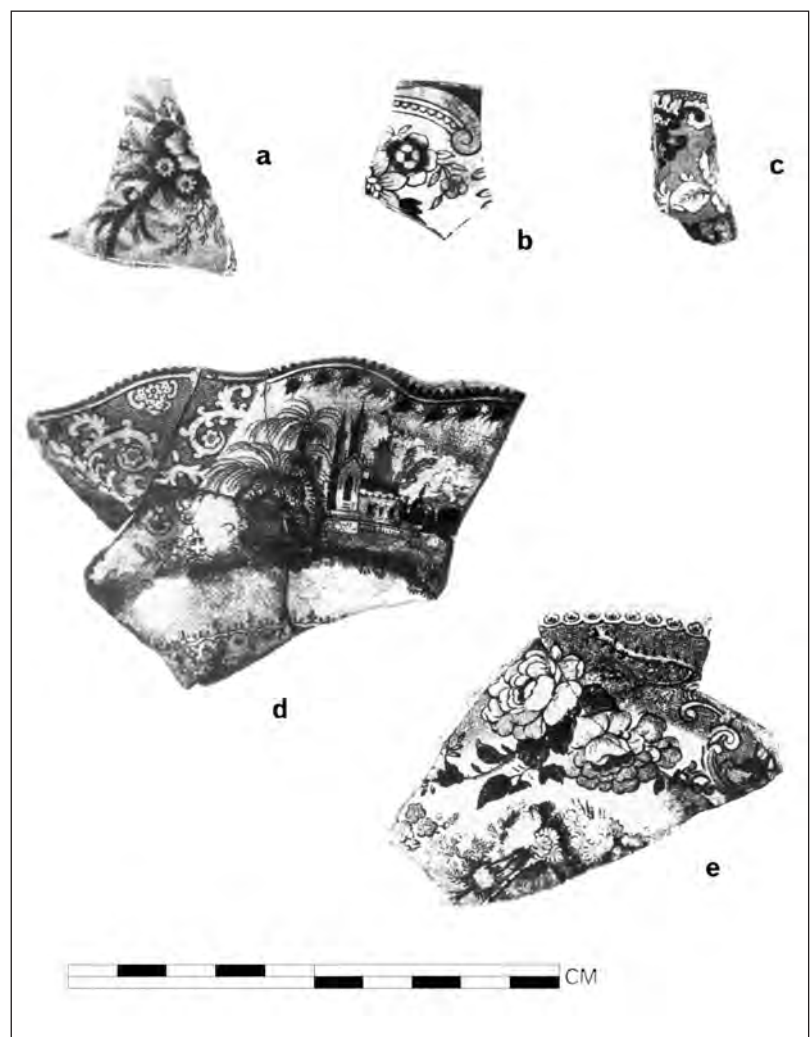


Figure 63. Port Essington pottery: Red Floral Transfer Printed Ware (a-c); Red Scenic Transfer Printed Ware (d); Brown Floral Transfer Printed Ware (e).

*SUB-TYPE AH – BLUE SCENIC TRANSFER WARE –
104 sherds (Items 39–45)*

Note: although items decorated with the Willow Pattern belong to this sub-type, they are treated in a separate category below.

Distribution: VM, VMII, VCC, VMQ. Thickness: 2.5 mm to 10 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 89, BCC 145, BCC 146, BCC 149, BCC 150, BCC 194, BCC 197, BCC 218. Decoration: the scenes employed in this sub-type are most commonly architectural, pastoral and aquatic. The 'Bosphorus' pattern observed in green (above, Item 28) occurs on 15 sherds in this sub-type, which represents at least three and possibly five vessels. In addition 47 sherds have been isolated as belonging to a single large bowl or ewer (Item 39). Most patterns are bordered with either geometric or floral motifs, or a combination of both.

Item 39 VM/GEN SUR (8, 99) and VM/9/1 (6) and VM/10/1 (55) and VM/14/1 (1, 14, 29), Figures 64-a, b, 68-q, 78-d.

Form: large bowl or ewer. Thickness: 5 mm. Rim diameter 320 mm (17%). Base diameter: 150 mm (45%). Decoration colour: BCC 197. Decoration: external stylised leaf motif, which is also used internally around upper walls. The internal base carries a monastery scene, with a monk sitting on steps leading up a hill. Crosses stand on either side of the steps. On other sherds of this piece (not illustrated, but see Item 40) can be seen a distant convent or monastery.

Remarks: on the base is a printed stamp of the firm Copeland and Garrett, similar to Godden's example no. 1092 (1964:173). The pattern design is 'CONVENT'. The pattern appears to be a common one; it was also used by William Wridgway, Son and Co. of Hanley between 1838 and 1848 (Miss S. Davis, London Museum).

Item 40 VM/9/1 (43), Figures 64-c, 78-e.

Form: plate. Thickness: 3 mm to 4.5 mm. Decoration colour BCC 145. Decoration: the same pattern as Item 39. This sherd shows the distant convent (see Item 39).

Remarks: this sherd bears an impressed stamp of the Copeland and Garrett firm, with the number '18' below it. Elsewhere on the base there are an impressed '6' and a printed 'D'.

Item 41 VMQ/8/1, Figure 64-d.

Form: plate or dish. Thickness: 4 mm. Decoration colour: BCC 150. Decoration: Oriental family group.

Remarks: apart from the Willow Pattern, this is the only sherd in the collection which illustrates directly the earlier Oriental influence on British blue decorated earthenwares.

Item 42 VM/S/W (1 and 9), Figures 64-e, 68-j.

Form: deep plate or dish. Thickness: 4.5 mm. Decoration colour: BCC 218. Decoration: part of the 'Bosphorus' pattern discussed above, showing the domes and towers and part of the mounted horseman. The scene is surrounded by a geometric motif.

Remarks: this pattern is repeated on a number of sherds in this sub-type.

Item 43 VM/9/1 (2) and VM/13/1 (9), Figures 64-f, 78-f.

Form: plate. Thickness: 4 mm. Base diameter: 110 mm (20%). Decoration colour: Between BCC 146 and BCC 218. Decoration: the scene is representative of the exotic nature of many of the scenes used; it shows three figures reclining in front of an elaborate canopy. A river, boats, mountains and trees form the background.

Remarks: this item has the printed pattern name 'PALESTINE' on the reverse. Of interest, on the extreme right of the present example, is the geometric motif and the feet of a horse and man, both of which are recurring motifs of the 'Bosphorus' pattern. Thus it appears that some of the examples of this latter pattern in the present collection probably represent border motifs on other patterns.

Item 44 VM/S/K (3), Figures 64-g, 67-f.

Form: plate. Thickness: 5 mm. Decoration colour: between BCC 89 and BCC 194. Decoration: river scene.

Remarks: this sherd is the only plate base of this ware which does not have a ring-foot. It is also unusual in decoration, which is less exotic and more realistic, and presented in more intense colours.

Item 45 VCC/GEN SUR (61), Figure 67-o.

Form: straight-sided mug. Thickness: 2 mm (base) to 4.5 mm (wall). Base diameter: 80 mm (40%). Decoration colour: BCC 145. Decoration: external, pastoral scene.

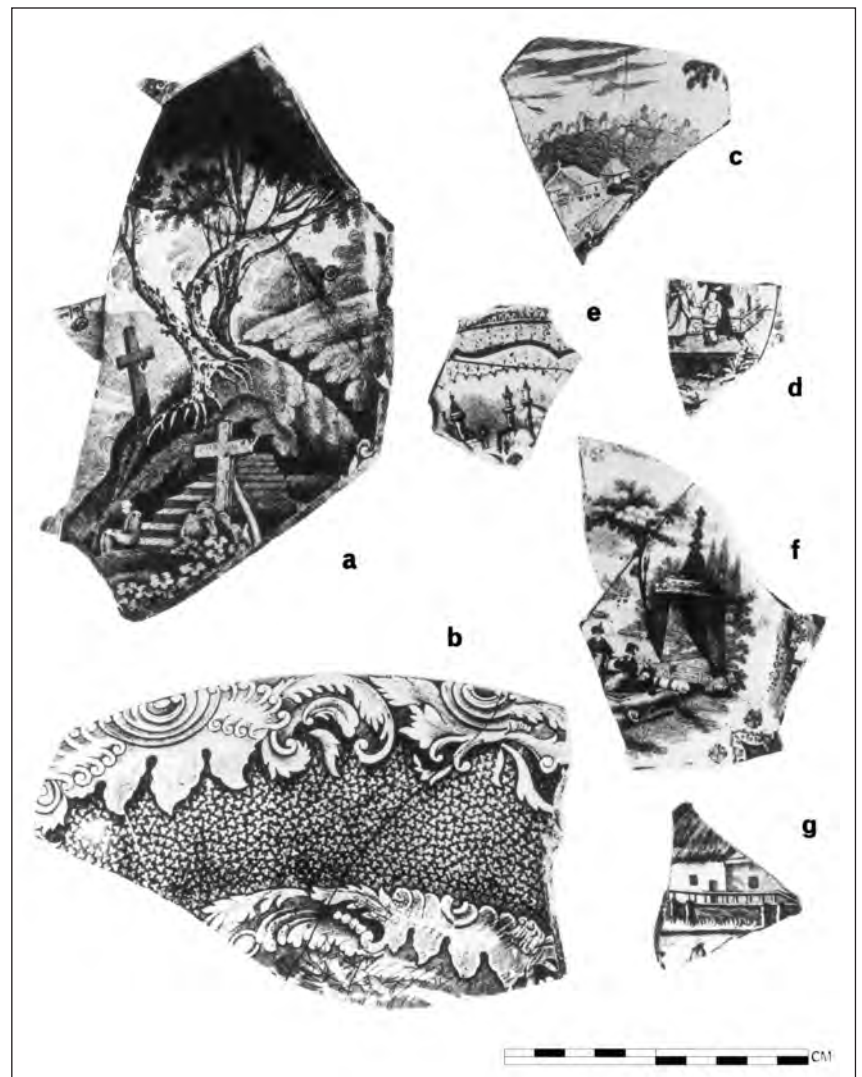


Figure 64. Port Essington pottery:
Blue Scenic Transfer Printed Ware (a-g).

*SUB-TYPE AI – BLUE SCENIC TRANSFER WARE
(WILLOW PATTERN) – 306 sherds (Items 46–54)*

Note: While the Willow Pattern belongs essentially to sub-type AH, it is extremely common in this collection, and since its component motifs are sufficiently distinct for all elements to be related to a single category, it is of more value to treat it separately.

Distribution: VM, VMII, VCC, VQS, VH, VHK, VMQ, VSD, VOM, VSF, VSFII, VCH, VB. Thickness: 3 mm to 6.5 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 89, BCC 145, BCC 146, BCC 195, BCC 218. Decoration: because of the symbolic and stylistic nature of the pattern, it lends itself to an examination of individual motifs which recur on all examples, and usually in the same place within the pattern. On plates and dishes the decoration can be divided into three registers. The border patterns of plates made during this period are of two main types, the essentially floral border called the ‘mosquito’ pattern, which was represented in the Port Essington collection on three porcelain sherds (see above, Porcelain Type D) and the less artistic and more common ‘Spode’ form which is the only one used on the earthenwares in this collection. It is also known as the ‘wheel’ or ‘wall’ border, and consists of conventional geometric motifs, cross-hatching, dotted circles, formalised floral design, ‘wheels’ and lines reminiscent of fortifications which give rise to the name ‘wall’ border. Within this border is another register of conventional geometric motifs – cross hatching enclosing diamond shapes divided into quarters by more ‘fortification’ patterns. Within these two borders, the legend of the Willow Pattern (Anon. 1963) is represented pictorially by a number of standard motifs: the mandarin’s

house, with his wealth represented by the ornate buildings and fruit trees, the fence which separates the lovers, the bridge over which they escape, the house where they hide, the boat on which they escape again, the island where they prosper, again surrounded by fruit trees, and finally after they are again discovered and die, the birds into which they are transformed. While the standardisation of these motifs is extreme, minor differences in the rendition of them might allow future work to date changes in the pattern more effectively.

Item 46 VM/S/I (2) and VM/5/1 (1, 2, 4, 7, 9, 15) and VM/6/1 (3, 11, 20, 26) and VM/7/1 (33, 34) and VM/8/1 (7), Figures 65, 67-c.

Form: plate. Thickness: 4 mm. Rim diameter: 150 mm (100%). Decoration colours: BCC 145, BCC 218. Decoration: the conventional Willow Pattern.

Remarks: this is the most common pattern in the collection. The item is unmarked on the underside except for a small circle of dots with a central dot. This piece, although unmarked, is identical in its representation of motifs to the Spode examples. A point which might be of significance is the relationship of the outer and inner registers of geometric patterns. On all the examples in this collection, the lined ‘fortification’ motif in each register is adjacent, one to the other. In an illustrated example of the pattern (Anon. 1963: cover illustration) referred to as the ‘Spode’ pattern, the floral shield device of the outer register is placed opposite the ‘fortification’ motif of the inner register. On a later example examined by me, the two registers have been placed on the plate apparently without regard to each other. In the period of production of the Willow Pattern recovered from Port Essington, however, it is reasonable to assume that the alignment of the two geometric registers followed a conscious style.

Item 47 WK/3/1 (1, 2), Figure 66-a.

Form: plate. Thickness: 4 mm. Decoration colour: between BCC 89 and BCC 195. Decoration: the motif of the escaping lovers, missing from Item 46.

Remarks: the three figures are the daughter carrying a distaff, emblem of virginity, the clerk carrying the stolen jewels, and the mandarin who pursues them with a whip. This representation, with three figures on a three-arch stone bridge is the most usual representation, and is certainly the most common in the present collection (but see Items 49, 50). Note that while the design is a close imitation of Item 46, a comparison of the trees indicates that it comes from a different engraving.

Item 48 VQS/6/1 (9, 10, 11, 12, 15, 16, 17, 18, 19), Figures 66-b, 67-a, 78-g.

Form: plate. Thickness: 5 mm. Rim diameter: 230 mm (50%). Decoration colours: range between BCC 145 and BCC 218. Decoration: conventional Willow Pattern which differs in detail from Item 46.



Figure 65. Port Essington pottery: Blue Scenic Transfer Printed Ware – Willow Pattern.

Remarks: the decoration lacks the delicacy of Item 46 both in representation (e.g. compare the bird and the fence) and in the colour of decoration. This is caused by more intense definition of outlines together with a simplification of the pattern, for example the four species of trees about the mandarin's house in Item 46 are here reduced to two. The peach blossom motif is reduced from a circle of radiating strokes around a central dot to a simple circle. Slight differences can be noted in the outer register of order decoration, where the floral elements are changed and the 'wheels' slightly overlap. This Item has a printed mark on the underside of the rim, being a pre-1837 version of the Royal arms with 'Royal Stone China' printed below. The piece is unusual (see discussion below) but is best attributed to Hicks, Meigh and Johnson, whose pottery at Shelton is dated 1822-1835.

Item 49 VM/7/1 (72) and VM/9/1 (31) and VM/10/1 (18), Figure 66-c.

Form: plate or platter. Thickness: 4.5 mm. Decoration colour: BCC 218. Decoration: variation of bridge motif which shows bridge with four (or probably five) arches. The overall pattern is large and the expanded bridge may have been used to fill the area more successfully.

Item 50 VM/14/1 (30), Figures 66-d, 78-h.

Form: plate. Thickness: 6 mm. Decoration colour: BCC 145 to BCC 146. Decoration: a variation of the Willow Pattern unique in this collection.

Remarks: many differences in the motifs are apparent. The bridge is a single arch, and the representation of it differs from the usual angular lines used to indicate the stones with which it is made. Only two figures are (apparently) represented on the bridge, but an additional figure (the faithful handmaid?) awaits in the lovers' retreat across the river. In the normal pattern this house is austere in design and has no fruit trees around it, which is a symbolic representation of the story, where the lovers are forced to live in poverty in contrast to the ornate richness of the mandarin's house and garden on the opposite side of the river. In the present item however the house is architecturally complex and large and a fruit tree is nearby. In general the pattern indicates a significant variation from the traditional pattern, with an attendant loss of meaning. This item has a printed stamp on the reverse side with the words 'Semi China' inside a double lined, diamond shaped frame. In the top corner of the diamond is a small rectangle, and in the bottom corner what appears to be a lower case printed 'l'.

Item 51 VM/7/1 (7), Figures 66-e, 67-d.

Form: bowl or deep plate. Thickness: 4 mm. Decoration colour: BCC 145. Decoration: variation of the conventional border motif.

Remarks: this rim sherd possibly belongs with Item 50.

Item 52 VM/S/J (18), Figure 67-k.

Form: bowl. Thickness: between 4.5 mm (wall) and 6 mm (base). Base diameter: 80 mm (17%). Decoration colour: BCC 145. Decoration: internal and external Willow Pattern.

Remarks: printed stamp on underside of base similar to Item 50.

Item 53 VM/8/1 (5), Figure 68-l.

Form: large bowl with everted rim. Thickness: 5.5 mm. Decoration colour: BCC 218. Decoration: internally with the conventional geometric borders, externally with an 'open' (borderless) representation of the conventional pattern.

Item 54 VM/S/L (3), Figure 67-p

Form: flanged lid. Thickness: 3.5 mm. Rim diameter: approximately 100 mm (8%). Decoration colour: BCC 44. Decoration: conventional pattern.

Remarks: the colour of decoration of this item is unusual and is the only example in this collection.

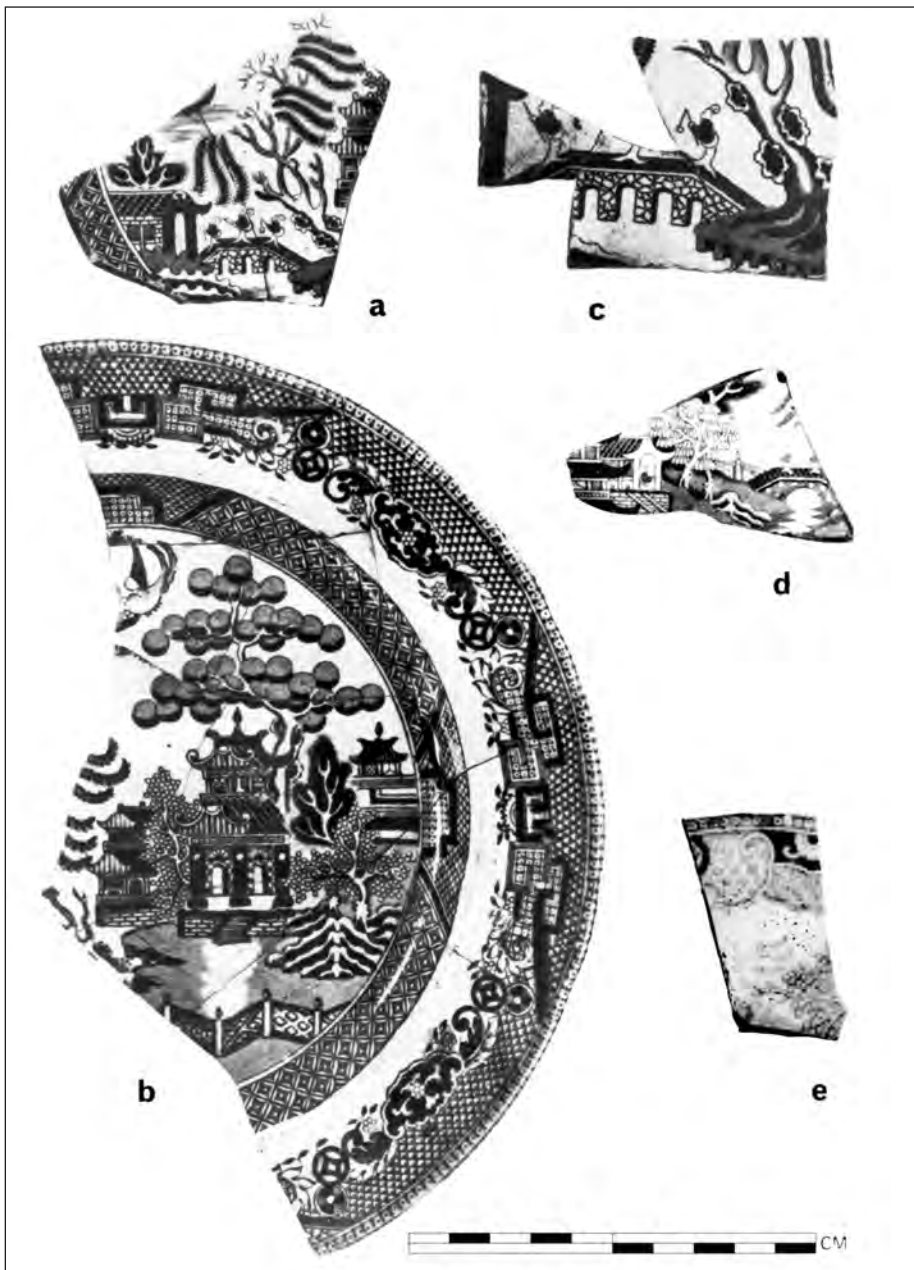


Figure 66. Port Essington pottery: Blue Scenic Transfer Printed Ware – Willow Pattern (a-e).

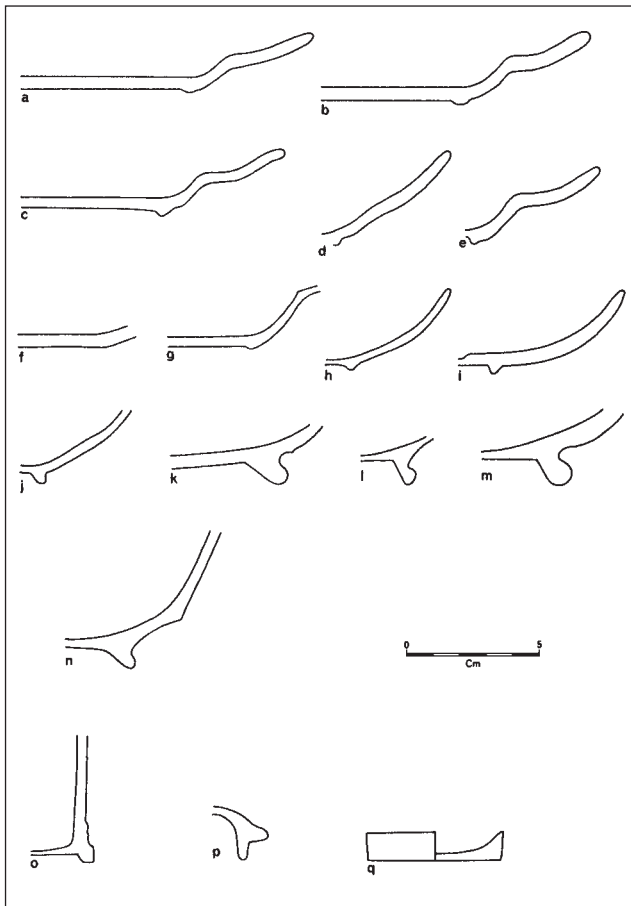


Figure 67. Port Essington pottery: pottery profiles (2).

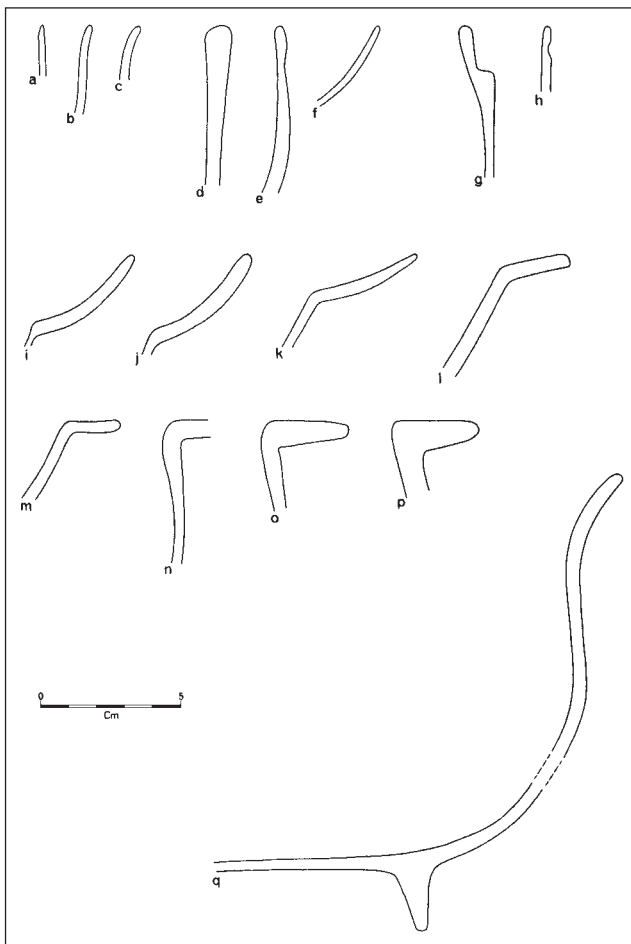


Figure 68. Port Essington pottery: pottery profiles (3).

*SUB TYPE AJ – BLUE FLORAL TRANSFER WARE –
163 sherds (Items 55-65)*

Distribution: VM, VMII. VHK, VSF, VSD, VOM VCC. Thickness: ranges between 2 mm and 11 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 44, BCC 145, BCC 146, BCC 147, BCC149, BCC 194, BCC 196, BCC 197, BCC 218. Decoration: floral decoration includes so large a number of motifs that it is only possible to analyse this broad sub-type in terms of stylistic ranges. Several naturalistic representations on a grand scale (trees and flowering bushes) are possibly sherds from naturalistic scenic decoration. A second small group in the collection consists of the patterns which attempt to reproduce realistic representations of flowers and leaves, where the artist has not only faithfully reproduced the structural nature of the subjects but has also attempted to represent petal and leaf texture. This range of decoration is in every case associated with the 'closed' background technique and is in contrast to the largest range of decoration which may be called 'representational'. Here sufficient detail is used to be able to identify the flower only on occasions. In this latter category an 'open' background is most often employed. The result is that despite the lack of detail in this group, its overall appearance is one of lightness, whereas the 'realistic' representations are often heavy and florid. This is accentuated by the use of darker blues in the 'realistic' group. Finally, this abstraction gradually results in the development of geometric shapes derived from floral inspiration; also such things as scroll leaf motifs are used as borders for more representational floral motifs, and these constitute a geometric/floral group.

The apparent pattern in the relationship between colour intensity and background technique (open versus closed) in these stylistic groups was tested in their percentage distributions, shown in Table 70. While three quarters of the collection comprise 'open' backgrounds, this table suggests a correlation between 'open' backgrounds and lighter colours and between closed backgrounds and darker colours.

Table 70. Distribution of blue floral decorative styles according to background style and decoration colour (%).

Open Background	Light (BCC 145)	Medium (BCC146- BCC 195)	Dark (BCC 218)	TOTAL
Naturalistic	1.9	3.7		5.6
Realistic				0.0
Representational	22.4	23.0	2.5	47.9
Geometric/Floral	3.1	17.4	2.5	23.0
(subtotal)	(27.4)	(44.1)	(5.0)	(76.5)
Closed Background				
Naturalistic				0.0
Realistic		0.6	5.0	5.6
Representational	3.1	1.9	8.7	13.7
Geometric/Floral	0.6	0.6	3.1	4.3
TOTAL	31.1	47.2	21.8	100.1

The percentage representations of these different styles present in this collection are Naturalistic 5.6%, Realistic 5.6%, Representational 61.5% and Geometric/Floral 27.3%.

Item 55 VCC/GEN SUR (100, 106), Figures 69-a, 68-o.

Form: bowl. Thickness: ranges between 3.5 mm (body) and 9.5 mm (rim). Rim diameter: 240 mm (11%). Decoration colours: BCC 146, BCC 218. Decoration: externally in conjunction with probable scenic motif; internally on rim in a 'realistic' motif against a closed background.

Item 56 VM/12/1 (4), Figures 69-b, 68-m.

Form: bowl. Thickness: 4.5 mm. Decoration colour: BCC 149. Decoration: externally on wall and internally on wall and lip

with a continuous 'representational' floral and leaf motif against a closed background.

Remarks: this exact pattern is represented on at least two other vessels in the collection.

Item 57 VMII/1/1 (3, 39), Figure 69-c.

Form: plate or dish. Thickness: 4 mm. Decoration colours: BCC 145, BCC 146. Decoration: 'representational' thistle pattern against an open background.

Item 58 VM/6/1 (1), Figure 69-d.

Form: steep angular vessel, possibly cup. Thickness: 4 mm. Decoration colours: BCC 145, BCC 146. Decoration: internal and external 'representational' flower and leaf pattern against an open background.

Item 59 VCC/GEN SUR (109), Figures 69-e, 68-i.

Form: deep plate or bowl. Thickness: between 2.5 mm (body) and 5.5 mm (rim).

Decoration colours: BCC 145, BCC 196.

Decoration: 'representational' leaf pattern overlain by a geometric spiral of small oval dots, against an open background.

Item 60 VM/13/1 (4), Figures 69-f, 67-i.

Form: shallow bowl. Thickness: between 3.5 mm (base) and 5.5 mm (wall). Decoration colour: BCC 194. Decoration: negative floral design of the 'representational' type against a closed background of hatched diamonds which diminish in size from the rim inwards.

Item 61 VCC/GEN SUR (116), Figure 69-g.

Form: deep plate or bowl. Thickness: 5 mm. Decoration colours: BCC 147, BCC 194. Decoration: 'representational' floral motif on an open background with some areas closed. Several flowers are abstracted to a degree where they are represented as circles with radiating ovals as petals.

Remarks: this style is not common in the collection.

Item 62 VM/S/J (12), Figure 69-h.

Form: shallow bowl. Thickness: 5 mm. Decoration colours: BCC 145, BCC 149. Decoration: 'geometric/floral' leaf motif against a closed background together with a regular pattern of asterisks. Below this another register of the leaf motif begins.

Remarks: this pattern is common in the present collection.

Item 63 VMII/1/1 (14, 48), Figures 69-i, 67-j.

Form: bowl. Thickness: 2.5 mm. Decoration colour: BCC 44. Decoration: internal and external 'geometric/floral' motif against an open background.

Item 64 VM/9/1, Figure 69-j.

Form: cup. Thickness: 3.5 mm. Decoration colour: BCC 145. Decoration: internal and external motif of clusters of fruit or blossom against an open background.

Item 65 VHK/3/1 (17, 18), Figures 69-k, 68-e.

Form: steep-sided bowl. Thickness: between 3.5 mm (rim) and 5.5 mm (body). Rim diameter: 160 mm (15%). Decoration colours: BCC 145, BCC 197. Decoration: complex 'geometric/floral' motifs. The floral motifs are against an open background and are both of standard representational form and also in some instances stylised. The geometric motifs range from complex forms with obvious floral inspirations to simple cross-hatched diamonds.

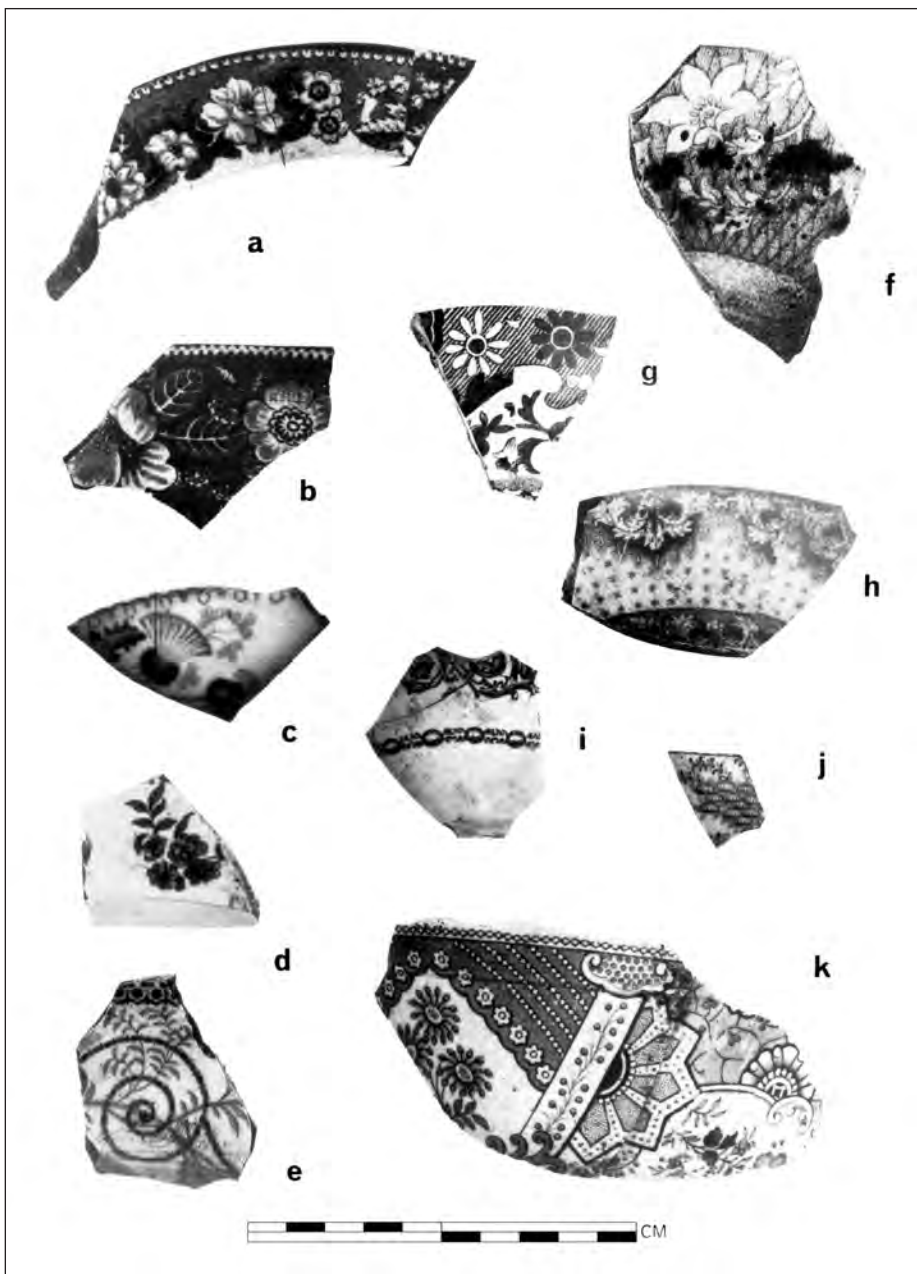


Figure 69. Port Essington pottery: Blue Floral Transfer Printed Ware (a-k).

SUB-TYPE AK – BLUE GEOMETRIC TRANSFER WARE – 98 sherds (Items 66–71)

Distribution: VM, VMII, VQS, VOM, VCC. Thickness: 2.5 mm to 11 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 89, BCC 145, BCC 149, BCC 195, BCC 218. Decoration: the use of pure geometric design as decoration in this collection is relatively rare, and although 98 sherds are included in this category some of these undoubtedly belong to patterns of which the geometric motifs are only subsidiary. Of the designs in which the geometric elements form the dominant motif all are covered by the items listed below.

Item 66 VQS/3/1 (16, 18) and VQS/4/1 (31) and VQS/6/1 (21, 22), Figure 70-a.

Form: plate? Thickness: 5.5 mm. Decoration colour: BCC149. Decoration: large central dot with twelve radiating irregular diamond shapes.

Remarks: Impressed asterisk on underside.

Item 67 VM/9/1 (13), Figure 70-b.

Form: indeterminate. Thickness: 3.5 mm. Decoration colour: BCC 195. Decoration: continuous curved lines with dotting and cross-hatching on the lip. A flower motif also occurs on this item, and others with similar decoration, which is common in this collection. However, the geometric motif makes this ware more easily recognisable.

Item 68 VM/7/1 (69) and VM/9/1 (9) and VM/10/1 (46) and VM/12/1 (1) and VM/13/1 (14) and VM/14/1 (18, 28, 31), Figures 70-c, d, 67-w, 78-i.

Form: steep-sided bowl. Thickness: Between 0.35 mm (base) and 0.75 mm (wall). Base diameter: 8 mm (35%). Decoration colours: BCC 145, BCC 149. Decoration: internally on base with complex star pattern, and on internal and external walls with alternating vertical registers of multiple chevrons and a simple geometric motif of dotted circles and scrolls.

Remarks: on underside of base is a fragmentary printed mark consisting of a crown above a scroll on which is written 'VIC....' (possibly 'VICTORIA').

Item 69 VMII/1/1 (10), Figure 70-e.

Form: plate. Thickness: 5.5 mm. Decoration colour: BCC 149. Decoration: internally on rim, solid bands of colouring and immediately below this a register of dotted arches and crosses. Where the rim curves into the body a single line runs around the body.

Item 70 VMII/1/1 (19), Figures 70-f, 68-b.

Form: cup? Thickness: 2.5 mm. Decoration colour: BCC 89. Decoration: internally and externally on the rim with a continuous geometric leaf pattern.

Item 71 VCG/GEN SUR (118), Figures 70-g, 68-p.

Form: bowl. Thickness: 8 mm (body) to 11 mm (rim). Decoration colour: BCC 218. Decoration: on top surface of rim and internally complex 'geometric/floral' motif against a closed background.

TYPE B – GREEN FEATHEREDGE WARE – 11 sherds (Item 72)

Distribution: VM, VMII. Thickness: 4 mm. Fabric colour: BCC 1. Glaze colour: BCC.I. Decoration colour and Decoration: uniform for this type – see Item 72.

Remarks: the only shapes represented are wavy-edged plates.

Item 72 VM/10/1 Figure 71-a.

Form: plate. Thickness: 4 mm. Decoration colour: BCC 105. Decoration: irregular incised lines running from rim towards centre for a distance of 10 mm to 15 mm. The colour is applied under the glaze and is caught in the incised grooves.

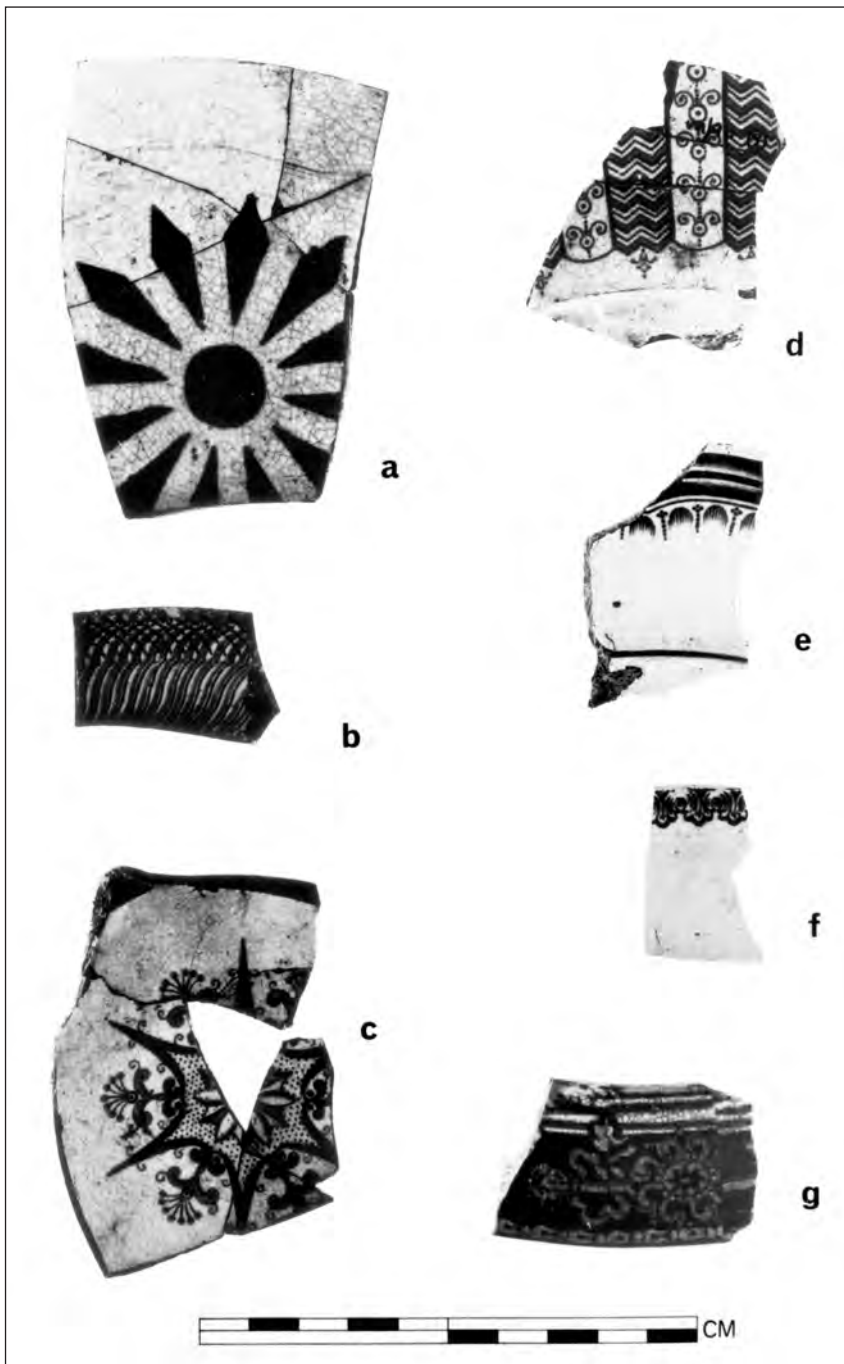


Figure 70. Port Essington pottery: Blue Geometric Transfer Printed Ware (a-g).

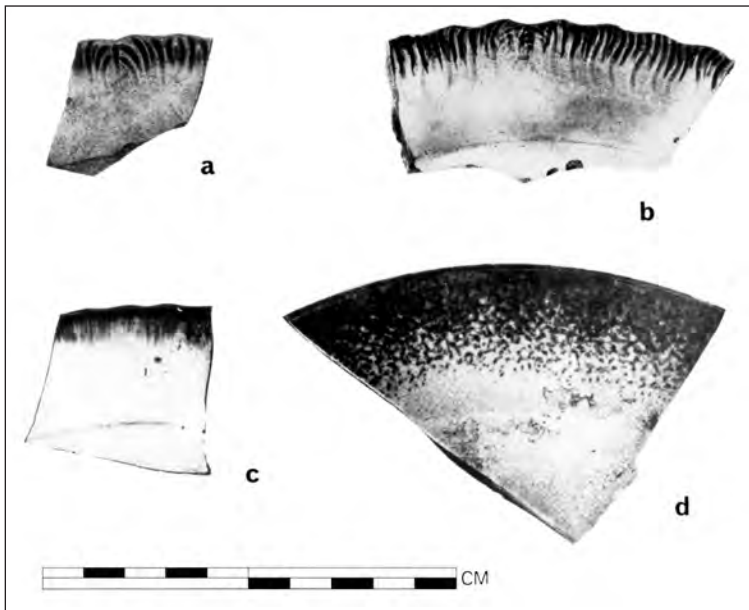


Figure 71. Port Essington pottery: Green Feathered Edge Ware (a); Blue Feathered Edge Ware (b-c); Blue Spatterware (d).

TYPE C – BLUE FEATHEREDGE WARE – 8 sherds
(Items 73–74)

Distribution: VM, VHK, VSD, VCC. Thickness: 3.5 mm to 5.5 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colour: BCC 149. Decoration: as in TYPE B, with blue instead of green. The exception is Item 74.

Remarks: wavy-edged plates only.

Item 73 VM/S/H (2), Figure 71-b.

Form: plate. Thickness: 5.5 mm. Decoration colour: BCC 149. Decoration: as in Item 72.

Item 74 VM/S/C (2), Figure 71-c.

Form: plate. Thickness: 4.5 mm. Decoration colour: BCC 149. Decoration: variant of Item 73.

Remarks: the wavy edge is less pronounced and the incised lines are finer.

TYPE D – BLUE SPATTER WARE – 17 sherds
(Item 75)

Distribution: VMQ, VQS, VCC. Thickness: 4 mm to 6 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colour: BCC 146. Decoration: a variant of the feathered edge types, where the decoration is applied to the upper face of the rim only. No incision is used and the colour is 'spattered' or sponged on to the surface, producing a mottled effect.

Remarks: all items in this category are uniform. In contrast to the feathered edge wares, all items are straight-edged plates.

Item 75 VCC/GEN SUR (33), Figure 71-d.

Form: plate. Thickness: 6 mm. Rim diameter: 240 mm (15%). Decoration colour and Decoration: as described in the general description for this type.

TYPE E – UNDECORATED WHITE GLAZE WARE – 380 sherds
(Items 76–83)

Distribution: VM, VMII, VH, VHD, VHK, VMQ, VQS, VSD, VSF, VCC, VB, VCH, VAM.

Thickness: 2 mm to 6 mm. Fabric colour: BCC 1. Glaze colour: BCC 1, BCC 2.

Item 76 VHD/DRAIN (1, 2, 3), Figure 72-a, 67-q.

Form: pestle or palette. Thickness: 2 mm (base). Diameter: 53 mm (100%).

Remarks: stands 10 mm high.

Item 77 VB/SUR (11, 12, 14, 16, 17, 19, 20, 21), Figures 72-b, 67-b.

Form: plate. Thickness: 4.5 mm (base) to 5.5 mm (rim). Rim diameter: 240 mm (34%). Base diameter: 140 mm (50%).

Item 78 VHK/2/1 (9), Figure 78-j

Form: indeterminate. Thickness: 4 mm.

Remarks: carries an impressed mark 'HACKWOOD', identified as William Hackwood of Hanley (1827–43). This is the only marked item in this category.

Item 79 VH/GEN SUR (1), Figures 72-c, 68-g.

Form: square canister. Thickness: 4.5 mm (body).

Remarks: internal flange to hold lid, and indentation at corner, apparently to facilitate holding the vessel. Height of flange above shoulder: 16.5 mm. This is a large example of a number of similarly shaped canisters in this collection.

Item 80 VM/7/1 (35), Figure 68-h.

Form: vertical vessel, possibly cup or mug. Thickness: 4 mm. Rim diameter: approximately 100 mm (5%).

Item 81 VCC/GEN SUR (III), Figure 67-g.

Form: dish or shallow bowl. Thickness: 4 mm.

Item 82 VCC/GEN SUR (11), Figure 68-w.

Form: bowl. Thickness: 3 mm (body) to 8.5 mm (rim).

Item 83 VMII/2/1 (4), Figure 67-l.

Form: bowl. Thickness: 2.5 mm (base) to 4 mm (wall). Base diameter: 80 mm (15%).

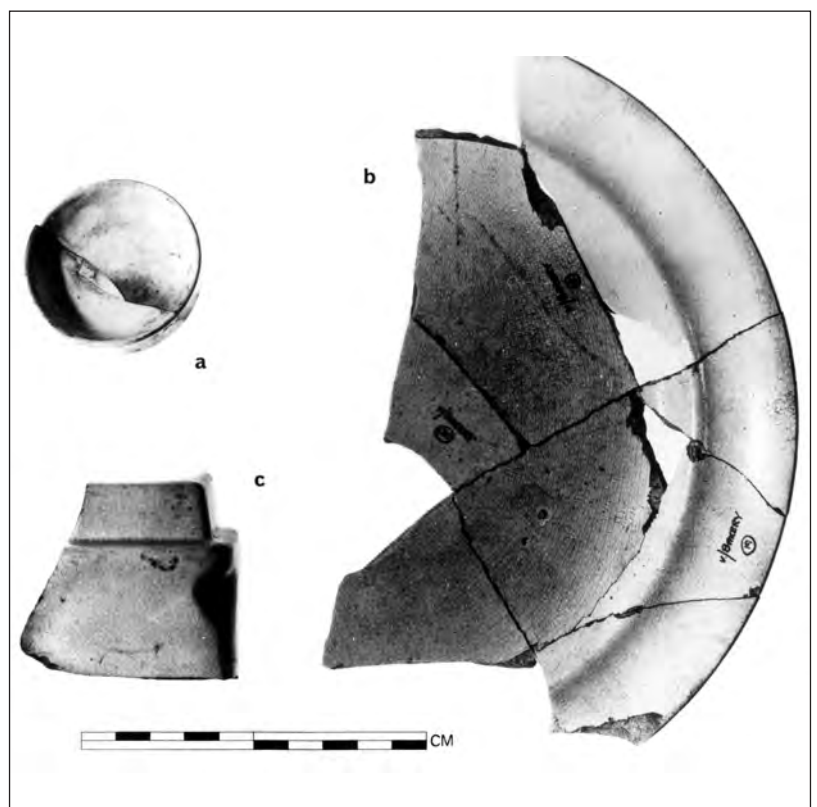


Figure 72. Port Essington pottery: Undecorated White Glaze Ware (a-c).

TYPE F – LINE DECORATED WARE – 6 sherds (Item 84)

Distribution: VHK, VCC. Thickness: 3.5 mm to 5.5 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 19, BCC 44, BCC 188. Decoration: horizontal bands of colour applied under the glaze.

Item 84 VHK/2/1, Figure 73-a.

Form: indeterminate. Thickness: 4 mm. Decoration colour and Decoration: as described in the general description for this type.

TYPE G – HAND PAINTED WARE – 12 sherds (Items 85–86)

Distribution: VM, VMII, VHK, VQS, VCC. Thickness: 2 mm to 3 mm. Fabric colour: BCC 1. Glaze colour: BCC 1. Decoration colours: BCC 24, BCC 38, BCC 46, BCC 103, BCC 149, BCC 220. Decoration: a floral motif is used on all items. Five items are painted in a single colour under the glaze, six items in two colours under the glaze, one item has three underglaze colours and the remaining item has one colour applied under the glaze, and a second above the glaze.

Item 85 VQS/4/1 (32), Figure 73-b

Form: cup? Thickness: 0.3 mm. Decoration colours: BCC 38, BCC 103, BCC 220. Decoration: a single black line internally and externally on the rim; externally, a floral motif.

Item 86 VMII/2/1 (10), Figure 73-c.

Form: indeterminate. Thickness: 3.5 mm. Decoration colours: BCC 24, BCC 149. Decoration: underglaze and overglaze floral motif.

TYPE H – FLOWING BLUE WARE – 1 sherd (Item 87)

Item 87 VCG/GEN SUR (67), Figure 73-d.

Form: indeterminate. Thickness: 4 mm. Decoration colour: BCC 149. Decoration: internal and external 'tree' motif executed in a single dotted line.

Remarks: the colour of the decoration has 'flowed' to the extent of discolouring the surrounding glaze.

GROUP 2 – THE COLOURED CLAY WARES

This group includes all earthenwares represented in the collection not included in the white clay wares. Some, such as the salt glaze stoneware, are of a hard paste variety. Others are soft paste. Both British and Asian wares are included here.

TYPE A – MOCHA WARE – 14 sherds (Items 88–89)

Distribution: VM. Thickness: 3 mm to 9 mm. Fabric colour: BCC 165. Glaze colours: BCC 1, BCC 233. Decoration colour: BCC 45. Decoration: for a detailed description of the method see Godden (1963:142-4). Briefly, a tree-like effect is produced by the chemical reaction of an acid colourant on an alkaline slip.

Remarks: the 14 sherds of this type possibly belong to the same vessel. This ware, first produced in the eighteenth century, was in production at the Copeland Works in 1852, where it was noted by Charles Dickens (Godden 1963:143).

Item 88 VM/GEN SUR (3, 11), Figures 73-e, 68-d.

Form: bowl. Thickness: 5 mm (wall) to 9 mm (rim). Rim diameter: approx. 260 mm (6%). Decoration colour: BCC 45. Decoration: external only. The decoration is contained in a register around the wall of the vessel.

Item 89 VM/GEN SUR (6), Figure 67-m.

Form: base sherd of Item 88. Thickness: 3 mm (base) to 7.5 mm (lower wall). Base diameter: 140 mm. Decoration colour and Decoration: see Item 88.

TYPE B – UNGLAZED WHEELMADE WARE – 30 sherds (Items 90–91)

Distribution: VM, VMII, VH, VMQ. Thickness: 2.5 mm to 9 mm. Fabric colour: BCC55, BCC 133.

Remarks: all the sherds in this group are wheel-made and all except three are of a dark, thin, hard-fired nature, quite unlike the unglazed South East Asian wares. The remaining three sherds are of extremely porous, soft fabric and possibly relate to what were known as 'water monkeys' – containers through which the water could seep and evaporate on the external face thus keeping the water inside at a lower than surrounding air temperature. It is possible that this unglazed earthenware was not of English manufacture but no evidence exists to decide the point.

Item 90 VM/S/E (8, 13), Figure 60-p.

Form: indeterminate. Thickness: 5.5 mm. Base diameter: 120 mm (25%). Fabric colour: BCC 133.

Item 91 VH/S/R (3), Figure 60-q.

Form: indeterminate, possibly dish or bowl. Thickness: 7 mm (base) to 9 mm (wall). Base diameter: approx. 220 mm (6%). Fabric colour: BCC 133.

TYPE C – SALT GLAZE STONEWARE – 170 sherds (Items 92–99)

Distribution: VM, VH, VSD, VMQ, VSF, VOM, VCC, VB, VAM II. Thickness: 5 mm, to 15.5 mm. Fabric colours: BCC 2, BCC 3, BCC 187. Glaze colours: BCC 29, BCC 60, BCC 61, BCC 64, BCC 66, BCC 67, BCC 72, BCC 73, BCC 76, BCC 136, BCC 138, BCC 204, and BCC 205. Decoration: any decoration is found mainly on the jars

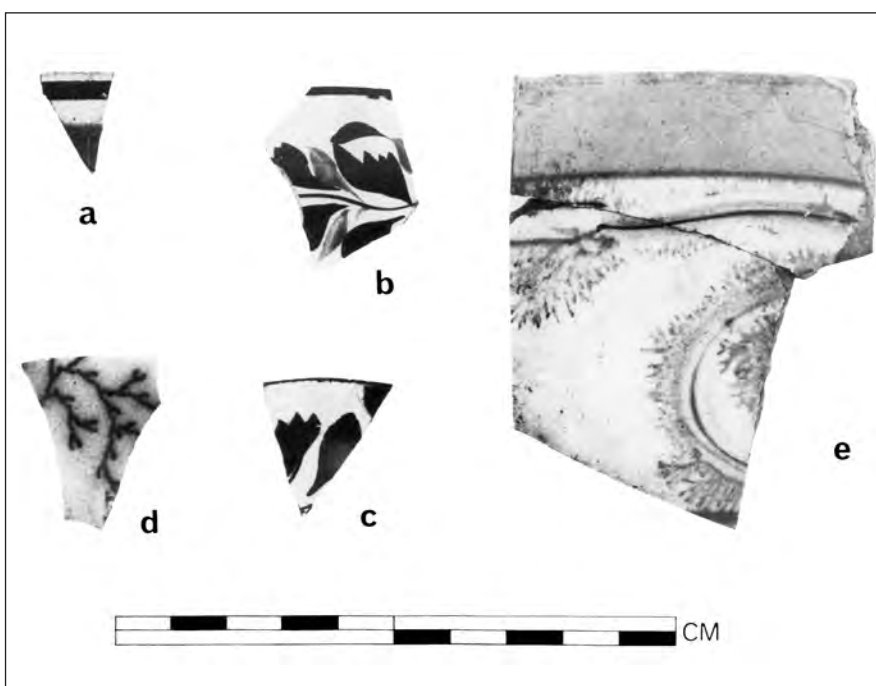


Figure 73. Port Essington pottery: Line Decorated Ware (a); Hand Painted Ware (b-c); Flowing Blue Ware (d); Mocha Ware (e).

and consists usually of one or more incised lines running horizontally around the shoulder of the pot, although similar lines can occur around the body in the centre and towards the base. It is common for the mouth, neck and shoulder to be glazed a darker colour than the body. Of the jars, all examples are glazed on the internal face; examples of both glazed and unglazed interior surfaces of bottles are present.

Remarks: vessel shapes are confined to inkwells, bottles and open mouthed jars.

Item 92 VM/S/E (4) and VM/8/1 (42), Figures 74-a, 75-a.

Form: jar. Thickness: 7.5 mm (body) to 15.5 mm (neck). Glaze colour: external BCC 73, BCC 136; internal BCC 66, BCC 76. Rim diameter: 150 mm (50%+) approx. body diameter: 250 mm. Decoration: three incised rings on shoulder.

Item 93 VM/S/E (3), Figure 75-b.

Form: jar. Thickness: 6 mm. Rim diameter: 150 mm (26%). Glaze colours: external BCC 60; internal BCC 204. Decoration: the shoulder line in this item has a distinct ridge.

Item 94 V/GEN SUR /67 (27), Figures 74-b, 75-c.

Form: bottle. Thickness: 4.5 mm. Rim diameter: 23 mm. Glaze colour: BCC 138.

Remarks: unglazed internally.

Item 95 VAMII/2/2 (1), Figure 74-c.

Form: bottle. Thickness: 0.75 mm. Glaze colour: BCC 61.

Remarks: this item has a high, even glaze. While it was in a sealed deposit in association with material associated with the 1840s settlement, the ware is much more similar to the salt glaze bottles of the later nineteenth century. Therefore the authenticity of this item is uncertain.

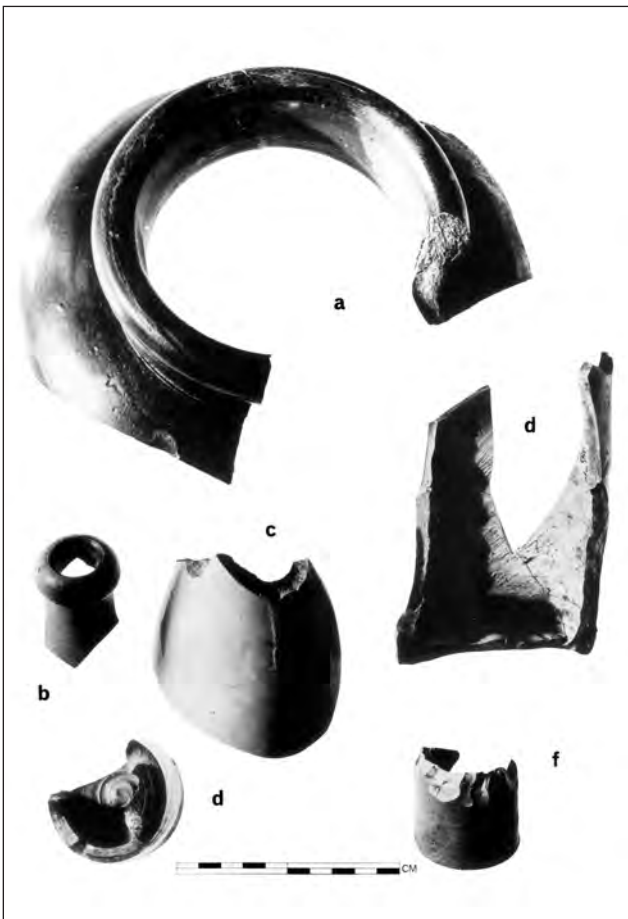


Figure 74. Port Essington pottery: Salt Glaze Stoneware (a-f).

Item 96 VMQ/1/1 (21 & 23) and VMQ/6/1 (11) and VMQ/32/1 (27) and VMQ/32/2 (4), Figures 74-d, 75-g.

Form: bottle. Thickness: 4 mm (base) to 8 mm (body). Base diameter: 90 mm (50%). Glaze colour: BCC 67.

Remarks: the surface is extremely uneven, and is unglazed internally.

Item 97 VCC/GEN SUR (1), Figures 75-d, 75-g.

Form: bottle. Thickness: 6.5 mm. Base diameter: 90 mm (35%). Glaze colour: BCC 204.

Remarks: unglazed internally, external surface uneven.

Item 98 VCC/GEN SUR (3), Figures 74-e, 75-d.

Form: inkwell. Thickness: 4 mm (base) to 6 mm (body). Base diameter: 55 mm (50%). Height from base to shoulder: 40 mm. Glaze colour: BCC 205.

Remarks: unglazed internally.

Item 99 VOM/6/1 (7), Figures 74-f, 75-f.

Form: inkwell. Thickness: 3 mm (base) to 10 mm (body). Base diameter: 45 mm (50%). Glaze colour: BCC 67.

Remarks: unglazed internally. The body has been flaked to form an Aboriginal artefact.

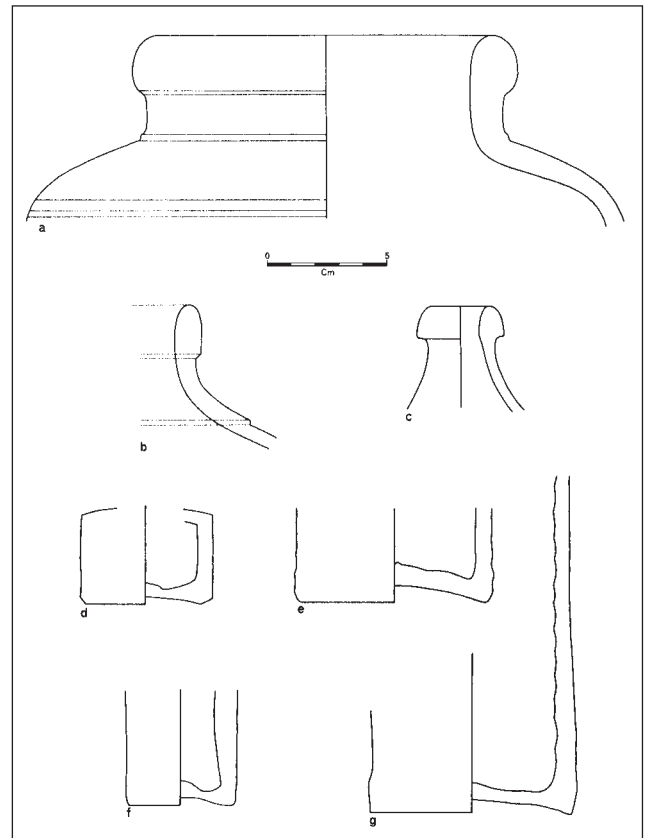


Figure 75. Port Essington pottery: Salt Glaze Stoneware profiles.

TYPE D – MACASSAN WARE – 8 sherds (Items 100–101)

Distribution: VMII, VH, VQS, VCC. Thickness: 3.5 mm to 15 mm. Fabric colours: BCC 58, BCC 59, BCC 72, BCC 204. Decoration: although formal decoration can occur on this pottery it is infrequent and is not present in this collection. Several items bear traces of slip and one rim (Item 100) has thumb impressions on the underside that does not reflect formal decoration.

Remarks: from work carried out on Macassan sites in north Australia by Campbell Macknight (1969), the most common

shape in this ware appears to be a large globular pot with everted rim. The only recognisable vessel shapes in the present collection came from such globular pots.

Item 100 VCC/GEN SUR (202), Figures 76-a, 60-r.

Form: globular pot. Thickness: 9.5 mm to 15 mm. Rim diameter: 240 mm (10%). Fabric surface colour: BCC 59. Decoration: some traces of slip on surface. Underside of rim has thumb impressions.

Item 101 VMII/3/1 (16)

Form: indeterminate. Thickness: 4.5 mm to 5.5 mm. Fabric colour: BCC 204.

Remarks: spectroscopic analysis (by C. Key, Dept. of Anthropology, ANU) of this item revealed that the filler consisted almost entirely of shell and coral particles. Although this particular type of ware occurs on Macassan sites in north Australia it is not common (Campbell Macknight pers. comm.).

TYPE E – RIM GLAZED STONEWARE – 7 sherds
(*Item 102*)

Item 102 VSD/1/2 (3), Figures 76-b, 60-s.

Form: globular bowl. Thickness: 2.5 mm to 4.5 mm. Rim diameter: 120 mm (10%). Fabric colour: BCC 133. Glaze colour: BCC 70. Decoration: band of salt glaze on lip and upper body.

Remarks: probably of S.E. Asian provenance.

TYPE F – NGA-KWUN WARE – 1 sherd (*Item 103*)

Item 103 VSF/10/1 (5).

Form: indeterminate, but possibly open-mouthed jar. Thickness: 5.5 mm. Fabric colour: BCC 7. Glaze colour: BCC 140. Decoration: glazed internally and externally.

Remarks: this ware is identical to that of two squat, flat-based jars, one an open-mouthed jar collected at Yam Creek, a Northern Territory goldfield dating to the last quarter of the nineteenth century, the second an open-mouthed jar photographed at a deserted farm house site on the south coast of New South Wales, imprecisely dated from other finds to the beginning of this century. These jars are a common household ware used mainly to contain salted vegetables and are still in use in China and Taiwan (pers. comm. N. Barnard, Dept of Far Eastern History, ANU). The name used here is from the Cantonese name for the ware.

UNIDENTIFIED POTTERY – 25 sherds (*Items 104–106*)

Amongst the unidentified sherds, three items are worthy of note.

Item 104 VM/7/1 (70) and VM/9/1 (47, 48), Figures 76-c, 60-v.

Form: lid. Thickness: 2 mm (roof) to 8.5 mm. Fabric colour: BCC 165. Glaze colours: BCC 1, BOC 27.

Decoration: glazed on external surfaces only. The attempt to glaze has resulted in a thick, opaque surface coating which has not fused with the surface. Wheel made.

Item 105 VCC/GEN SUR (35), Figure 76-d.

Form: indeterminate. Thickness: 6.5 mm. Fabric colour: BCC 159. Internal glaze colour: BCC 232. External glaze colour: BCC 70.

Remarks: this item is unlike anything in the collection, being of finer quality than the usual stone wares. The glaze is very 'glassy' and is not unlike the so-called 'Rockingham' ware from England, although it does not have the unevenness of the glaze of that ware.

Item 106 VMQ/1A/1 (1), Figures 76-e, 60-t.

Form: dish or bowl. Thickness: 10 mm. Fabric colour: BCC 204. Base diameter: 160 mm (15%).

Remarks: spectrographic analysis of this item revealed the composition of the ware as fine-grained purified clay, fused material (glass), and some sand and quartz grains. The implication is that the technical level of manufacture precludes it from being labelled primitive pottery. However, the surface finish is very coarse. The interior of the vessel has been badly discoloured by containing pitch, which has permeated the fabric to a depth of 4 mm.

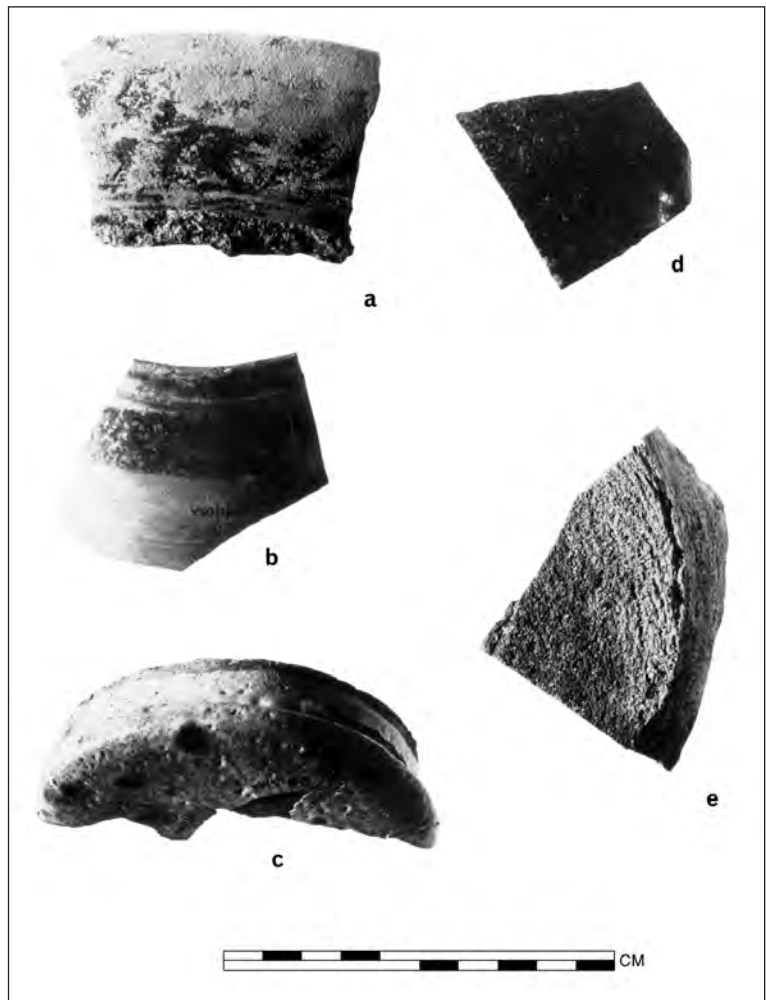


Figure 76. Port Essington pottery: Macassan Pottery (a); Rim Glazed Stoneware (b); Unidentified Pottery (c-e).

DISCUSSION

Table 71 shows the distribution of types throughout the settlement at Port Essington. As might be expected the areas where the greatest numbers of types are found together are also the areas which produced the greatest numbers of sherds. These are the three dump areas VM, VMII, and VCC. Apart from these areas the pottery appears to be distributed at random in the settlement and no valid inferences could be drawn from type distribution. Similarly, house function inferences drawn from pottery are possible only in terms of volume, and when taken in association with other artefacts.

Table 71. Distribution of pottery types at Port Essington. X = present.

LOCATION TYPE	VM	VMII	VH	VHD	VHK	VMQ	VQS	VSF	VSFII	VCC	VOM	VSD	VB	VS	VAM	VAMII	VCH
Undecorated Porcelain	X					X											
Overglaze Polychrome Porcelain	X	X			X					X							X
Blue On White Porcelain	X	X	X		X	X	X			X		X					
Transfer Printed Porcelain										X							
Green Floral Transfer	X	X					X										
Green Scenic Transfer		X	X									X					
Green Geometric Transfer	X	X								X	X						
Green/Red Transfer		X															
Red Floral Transfer	X							X		X							
Red Scenic Transfer											X						
Brown Floral Transfer	X	X				X				X							
Blue Scenic Transfer	X	X				X				X							
Willow Pattern	X	X	X		X	X	X	X	X	X	X	X	X				X
Blue Floral Transfer	X	X			X			X		X	X	X					
Blue Geometric Transfer	X	X					X			X	X						
Green Featheredge	X	X															
Blue Featheredge	X				X					X							
Blue Spatterware						X	X			X							
Undec. White Glaze	X	X	X	X	X	X	X	X		X		X	X		X		X
Line Decorated					X					X							
Hand Painted	X	X			X		X			X							
Mocha	X																
Unglazed Wheel Made	X	X	X			X											X
Salt Glaze Stoneware	X		X			X		X		X	X	X	X	X	X	X	
Macassan		X	X				X			X							
Rim Glazed Stoneware												X					X
Nga-Kwun								X									

Figure 77a shows the relative proportions of types within the collection. The white clay wares constitute 73.9% of the collection, the porcelain 14.1%, and the remainder 12%. Almost all of the porcelain can be classed as being of mainland South East Asian and probably Chinese manufacture. Two sources of entry for Chinese wares into Port Essington were the Macassan trepang fishermen and traders from Singapore or Canton/Hong Kong. The latter source is more probable on several grounds. Firstly, porcelain on Macassan sites in Australia makes up only a small portion of the total pottery assemblages, and amongst the porcelain found on these sites, the overglaze polychrome decorated type is extremely rare, the bulk consisting of blue on white ware. Of the porcelain in the present collection both types are present in almost equal proportions and together they represent 178 sherds (as well as 39 pieces of undecorated porcelain), compared with only seven pieces of Macassan pottery. Secondly, brief mention is made in the historical records to traders coming from Asia (Earl 1846:67). The relevance of the archaeology is vividly demonstrated here, for the percentage of these wares is quite significant, and these are the archaeological expression of a trade that probably formed a significant part of the economy of the settlement. This fact is not apparent in the historical record.

Of the white clay wares, 63.2% are the transfer printed wares which form the single largest group (46.7%) of the total collection. Excluding the undecorated white glaze ware, the remaining white clay wares constitute less than 5% of this group. Referring to Figure 77b, it will be noted the blue transfer wares constitute 89.8% of this type and that a single pattern, the Willow Pattern, alone represents 40.9% of the transfer printed type. These appear to be the important type distribution patterns which emerge from the analysis.

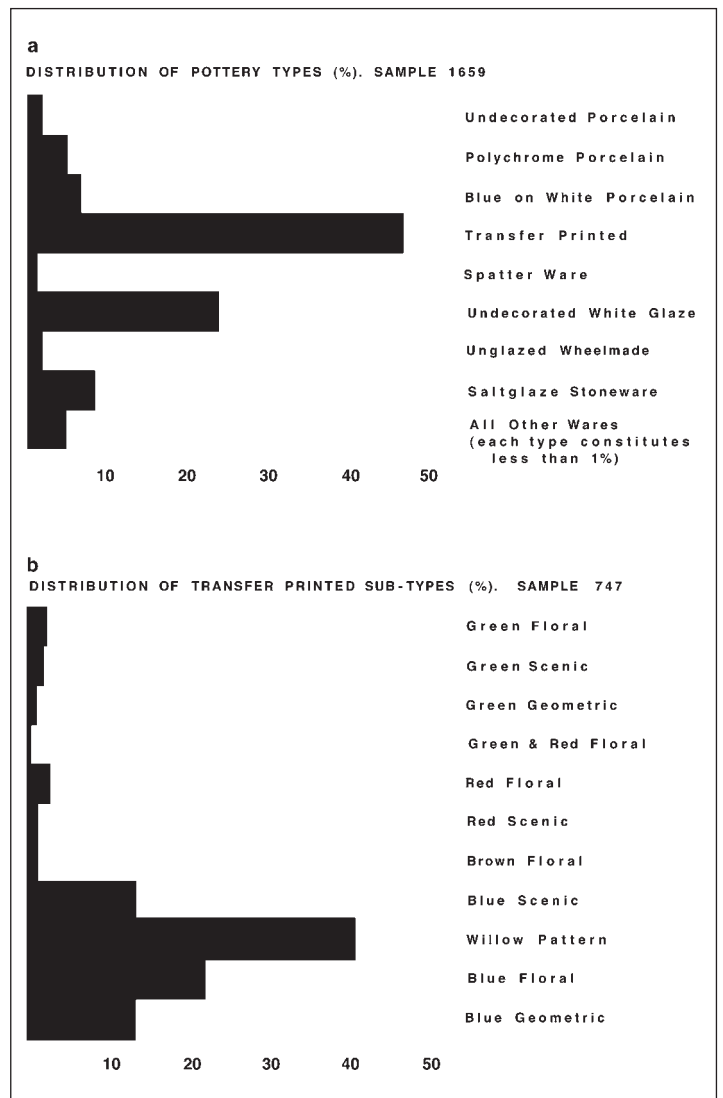


Figure 77. a) Distribution of pottery types at Port Essington by percentage; b) distribution of transfer printed sub-types at Port Essington by percentage.

Shape

In addition to suggesting overall form, some attempt has been made in the classification to record both thickness ranges and shapes. Because of the complete lack of comparative literature this has been done in the hope of assisting future workers rather than contributing to the close analysis of the present collection. However, some general trends have been noted.

1. Thickness varies considerably on individual items. While the Chinese wares are often thickest at the base with body walls thinning towards the rim, the English wares are often thinnest at the base, having thicker walls and rims.
2. Amongst the English white clay wares, the various categories of shapes show generally a high conformity. Thus featheredge plates all have wavy rims, and spatterware plates have straight rims. However, in profile (Figure 67-a-e) the plate shows a general standard form.
3. Of the English glazed wares, all plates, dishes and bowls have a ring foot with a single exception (Item 44, Figure 67-f). On shallow dishes and plates this foot is small, on bowls it is larger- and angled outwards. On the other hand, the ring foot on the Chinese bowls is more perpendicular. (Compare Figures 67-a-n and 60-h-o).
4. Bowl rims are either straight, or more commonly everted. On large bowls the everted right-angle rim is the most common, and this rim is often thick in comparison to the vessel wall.
5. The salt glaze wares are restricted to open-mouthed jars, bottles and ink-wells.
6. Angularity (Figure 67-m) and distortion of shape are not common characteristics in this collection.

Dating the pottery

Several methods are available for prescribing date ranges for nineteenth century ceramics. Where specific marked items are present good information exists from trade directories giving the life spans of the manufacturing companies and their wares. In addition, potteries frequently altered their marks so that in some instances specific periods within a firm's life can be isolated on this basis. Certain designs enjoyed only relatively brief popularity and these ranges can be estimated, while technical innovations were sometimes noted in the historical record, so that starting and end dates can be established. It can be expected that future research on the interaction of these aspects will result in the formulation of a closer chronology, which will necessarily result in changes to the basic classification attempted here. Pilling (nd:63, table 1) has already begun to explore along these lines.

Marked Items (Figure 78)

Eleven marked items are present in the collection and general descriptions are contained in the typology. Of these, Items 30, 39 and 40 belong to the firm of Copeland and Garrett (c.1833–47). The marks closely resemble two marks recorded in the Stoke-on-Trent Museum (Anon. nd:58, nos. 1889, 1943) and are similar to Godden's nos.1092 and 1093 (1964:173). Two patterns relating to

this firm, 'Venice' and '----- Convent' are recorded in the collection. In addition, Items 50 and 52 possibly relate to this firm. A similar printed mark, 'semi china' in a double-lined diamond is recorded at Stoke-on-Trent, and attributed to Spode and Copeland (Anon. nd:41, no. 272). It is possible that the use of this mark, with the additions recorded here, was carried on when Copeland and Garrett took over the factory.

Three other Staffordshire firms can be identified, William Hackwood of Hanley, 1827–43 (Item 78), Thomas Minton, 1822–36 (Item 25) and Hicks, Meigh and Johnson, 1822–35 (Item 48). The item relating to this latter firm bears a pre-Victorian Royal Arms mark with inescutcheon and crown (an indicator of the period 1814–1837) and is inscribed 'Royal Stone China'. Godden (1964:11) suggests that the use of the word 'Royal' in the manufacturer's title usually indicates a date after 1850, which of course is impossible in conjunction with this particular Royal Arms mark, and the terminal date for the settlement. Although no maker's name appears, it is best attributed to Hicks, Meigh and Johnson, who manufactured 'stone china' under a Royal Arms Mark (see Godden 1964:323, no. 2022).

Of the Chinese porcelains, Item 8 bears the date mark of the Emperor Tao Kuang (1821–50).

Type Ranges

In the present collection, the transfer printed wares offer the best possibilities for demonstrating the dating value of technical innovations.

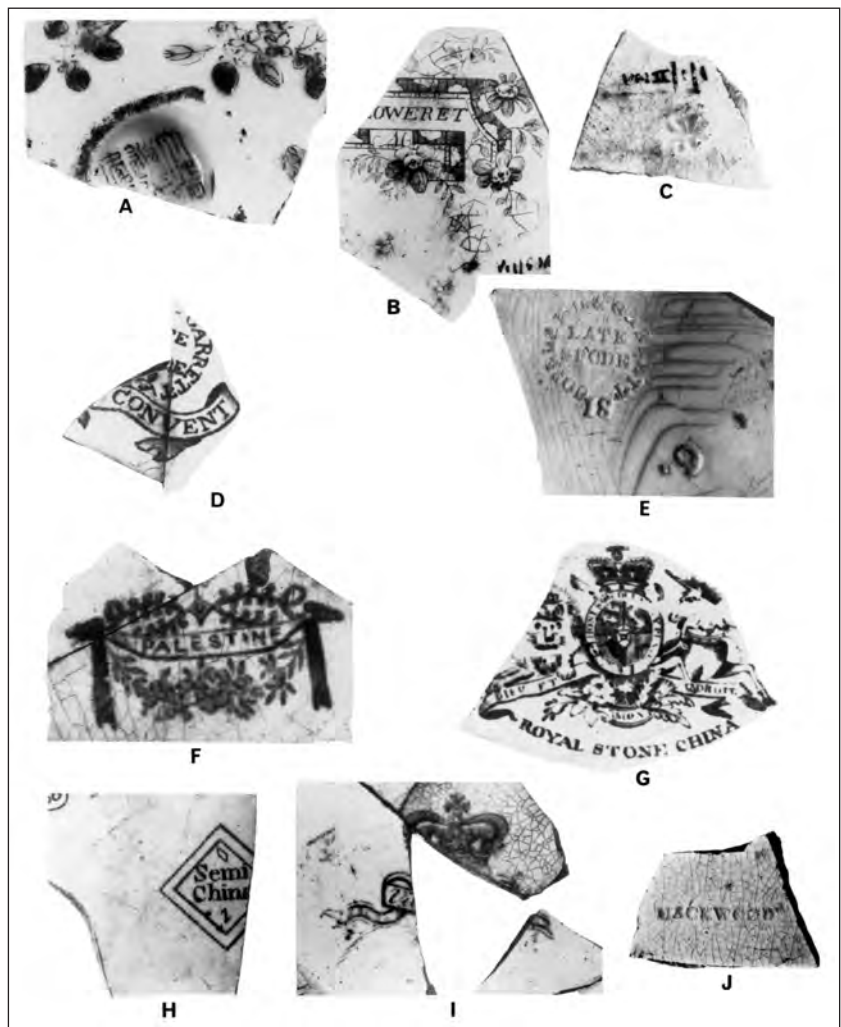


Figure 78. Pottery marks present at Port Essington: a) Item 8; b) Item 25; c) Item 30; d) Item 39; e) Item 40; f) Item 43; g) Item 48; h) Item 50; i) Item 68; j) Item 78.

Shaw (nd) includes a description of the transfer printing technique taken from a manuscript written by W.R. Ball of Deptford Pottery:

First the copper plates are heated, then the colouring is smeared over the engraving with a palette-knife, after which it is scraped off; the plate then being rubbed with a pad made from corduroy so as to remove any surplus. Next, damp tissue paper is placed on the plate which is then run several times through a heavy metal rolling press (much the same in design as an old-fashioned mangle), the rollers being covered with two or three layers of very thick felt. Then the plate is again placed upon the hot stove. This dries the paper which is then removed, leaving the imprint from the copper plate on it, then placed on the pottery which is sometimes in the biscuit, but more often in the glazed state; next we require a rubber, this being made by rolling felt round and round until it is about 21 inches in diameter, and 6 inches long, this being used to transfer the design from the paper to the pottery by rubbing, after which they (the pieces) are placed in a bath of water, to soften the paper which is then easy to remove. Next we have to place the ware in a kiln or oven so as to remove all traces of oil from the print, and at the same time make it adhere firmly to the articles, after which it is often painted by hand, then again placed in the kiln. In the case of articles such as a glass rolling-pin they are printed, painted, then varnished.

Printing on pottery had been introduced in England in the 1750s, but the Staffordshire utilitarian transfer printed earthenwares did not become a major production until the period 1780–1820, during which patterns imitated the Chinese Nankin wares being imported into Europe in this period. The Willow Pattern is an example (although its popularity has lasted long past 1820). From about 1810 Staffordshire manufacturers began producing English subjects, views and events, and even special patterns (as did the Chinese on their export porcelain) for export to America.

Writing in 1829, Simeon Shaw noted the recent introduction of red, brown, and green colours for printed decoration (Godden 1964:149), but Honey (1965:224-5) places this later, in the 1830s. Multicoloured printing began in the late 1840s. Between 1820 and 1840 a whole range of romantic and exotic scenes were used as decoration, often bordered with floral shell and geometric motifs, but these appear to have gone out of fashion during the 1840s, when floral motifs became popular. Since only the major firms employed their own engravers, the smaller potters were mostly supplied with their engraved designs by the larger firms (Godden 1964:151-2). This fact provides perhaps the best reason for attempting to set up typologies in terms of patterns and motifs, but see Dollar (1967:41, fn 18) for a different view.

In the first half of the nineteenth century many Staffordshire manufacturers continued to experiment at producing durable wares for these utilitarian manufactures, which would serve as a cross between earthenware and porcelain. Josiah Spode produced his variety of 'stone-china' in 1805. An early famous ware of this type was Mason's 'ironstone', patented in 1813. Numerous trade names of similar wares can be located such as 'New Stone', 'Semi China', 'Semi Porcelain' *et cetera*. In general, these labels have little specific dating value unless directly associated with a particular manufacturer.

As mentioned, the Willow Pattern was created as an imitation of the Nankin wares. Honey (1933:190) credits 'the young Thomas Minton' with this creation. If correct, this

would place its invention back into the eighteenth century, thus reducing its value as a datable type. However it is interesting to note that this type does not occur in the pottery collections from Fort Dundas or Raffles Bay, yet after a 10 year interval between 1829 and 1839 it is the predominant type at Port Essington. The implication that it may not have been an important export ware until after 1830 should be examined in future excavated collections. Information from American sites is too fragmentary to decide this point at present.

The proportional values of the scenic and floral types appear to support the historical trends suggested above.

The technical advances in coloured transfer printing appear to provide good dating evidence. Because cobalt was the surest colour to minimise firing failures in early mass produced pottery, this colour was predominant in transfer printing until 1840. This fact is reflected in the Port Essington collection, where blue represents 89.9% of the colour distribution in the transfer printed wares. A further refinement of this idea for dating is that the earlier pottery was predominantly dark blue (Pilling nd:11). Reference to figures quoted in the discussion of blue floral transfer ware (above) shows that only 26.7% of that type was represented in the dark range of blues, and a similar figure is obtained for the total collection.

In the Fort Dundas and Raffles Bay collections, although the sample is considerably smaller, the darker blues do predominate, and no other colours are present in the transfer printed wares from those sites. Therefore, the introduction of lighter blues may offer a tentative date marker of the second quarter of the nineteenth century.

The non-blue colours in the present collection also support the historical dates suggested for their introduction. Multi-colour printing is totally absent, except for the single sherd decorated internally and externally in different colours (Item 31).

Amongst the other wares, several types appear to be of short duration and therefore of good dating value. Pilling (nd:39) suggests that spatterware (also called sponged ware by Godden) although made before 1800 was most common in the period 1825-1840. Godden (1963:147) says, however, that this form of decoration continued into the twentieth century. Flowing blue ware, although only represented by a single sherd in this collection, is dated by Pilling (nd:36) to 1825-1860. The featheredge ware, although not as yet a closely dated type is a common utilitarian ware found at Port Essington, Raffles Bay and Port Dundas in both blue and green. It is also common in a number of American sites of the mid-nineteenth century (e.g. Pierson 1962).

On the basis of the discussion above it is possible to construct a time range graph for the closely dated attributes associated with this pottery collection. From this graph (Figure 79) it is possible to arrive at an archaeological date which closely approximates the actual date of the settlement at Port Essington. This suggests that the dating of sites without extant historical records can follow this approach with some confidence. While it is difficult to estimate the time lag for pottery to reach Port Essington this does not appear very great and is probably only of the order of several years, which is what one might expect from historical knowledge of the transportation methods of the period. Almost all of the pottery appears to fit into a manufacturing time range 1830-1845, and possibly a shorter period still.

The English wares appear to be a typical collection of utilitarian wares of the second quarter of the nineteenth century. Few, if any, appear to have been made outside the Staffordshire potteries area.

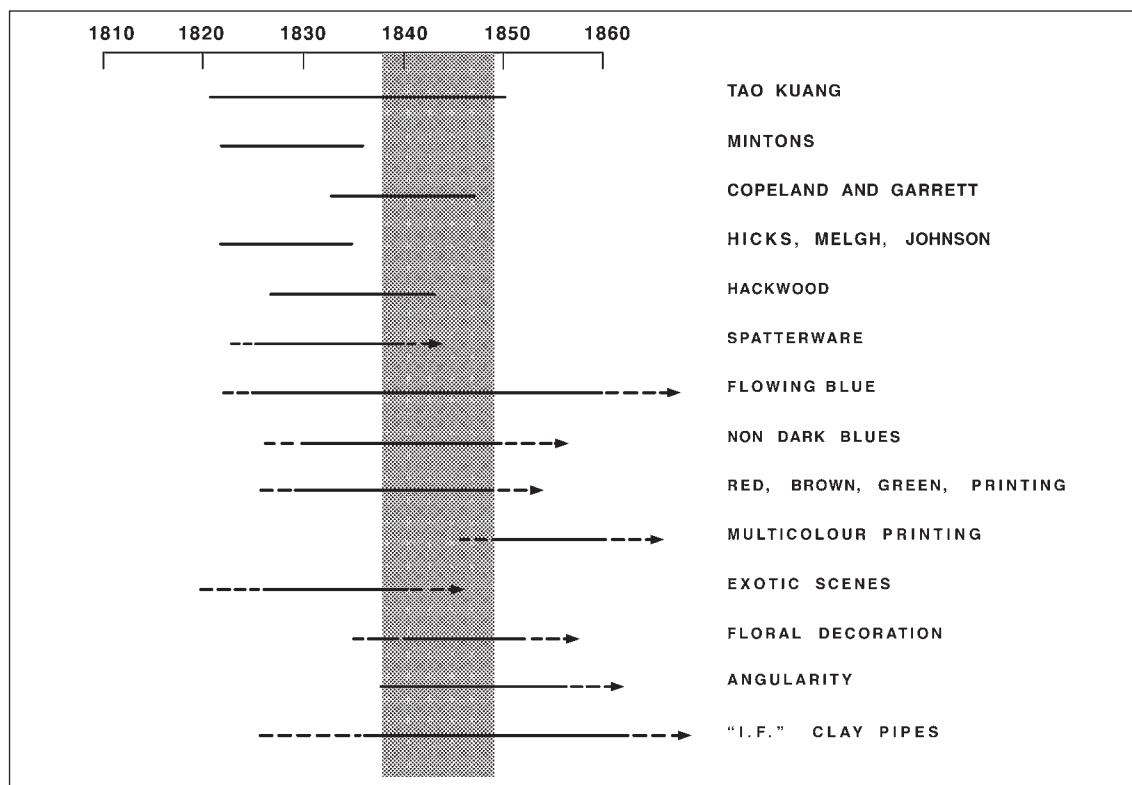


Figure 79. Time range graph for dated items in collection (see text for discussion). Shaded area represents the time period the settlement was occupied.

Clay Pipes

Unlike other classes of artefacts from historical sites, the analysis of clay pipes has been given close attention by a number of workers since the early 1950s, possibly because they occur on medieval sites. In England, Adrian Oswald (1955, 1960) approached the problem by classifying whole shapes with identifiable marks and relating them to dates from historical sources such as trade directories. In America, with a view to making greater use of archaeological assemblages (where stem fragments naturally outnumber bowls and bowl fragments) research has taken a different emphasis. Harrington (1954) began investigating the dating potential of stem length which he saw as having a definite relationship to the period of manufacture, but this had little application to the sorts of excavated material being found. Thus Harrington began to work with stem hole diameters as a function of stem-length, and constructed a stem hole diameter chart which demonstrated a general and regular reduction in diameters from c. 1620 to c. 1800. Working from Harrington's figures,

Binford (1962a) calculated a straight line regression formula from which the mean date of the pipe stem sample, and hence the mean date of accumulation could be obtained. Experiments with collections from well dated sites provided strong evidence for the accuracy of the technique. However, the technique could not be applied to sites dated after c. 1780, where the correlation 'fell to pieces' (Binford 1962a:20).

The Port Essington clay pipe collection (Figure 80)

A total of 167 stem and bowl fragments were recovered from the excavations. They were initially sorted according to area and bore diameter size using the standard technique of measurement, the fitting of the blunt ends of drill bits into the bore holes. In addition the total length of stem for each category was calculated. Taking 110 mm as the standard average length of complete pipe stems in this period, the estimated minimum number of pipes in the collection was also calculated. Table 72 gives these results.

Table 72. Port Essington clay pipe stems, distribution by location and size. Bore hole diameters measured by drill bits sized in fractions of inches other measurements in mm. See text for details on minimum numbers.

Bore Hole Diameters	Fragment Numbers			Not Measurable	Total Stem Length			Estimated Minimum Numbers
	3/64	4/64	5/64		3/64	4/64	5/64	
VM		27	6	2		91.8	14.1	10
VM II		7	1	1		18.3	1.7	3
VH		5		2		11.8		2
VHD		2		1		10.6		1
VHK		12	2			31.7	4.1	4
VSD	1	2			1.8	6.8		2
VMQ	1	17	9	6	1.6	40.1	26.9	8
VQS	2	8	2		4.6	22.9	4.2	5
VOM		3	3			5.4	13.2	3
VCC		3				13.8		2
VSF	2	26	3	6	5.2	63.4	8.7	8
VCH		1				5.9		1
VAM I		1				2.3		1
VAM II		2	1			7.5	2.7	3
TOTAL	6	116	27	18				53

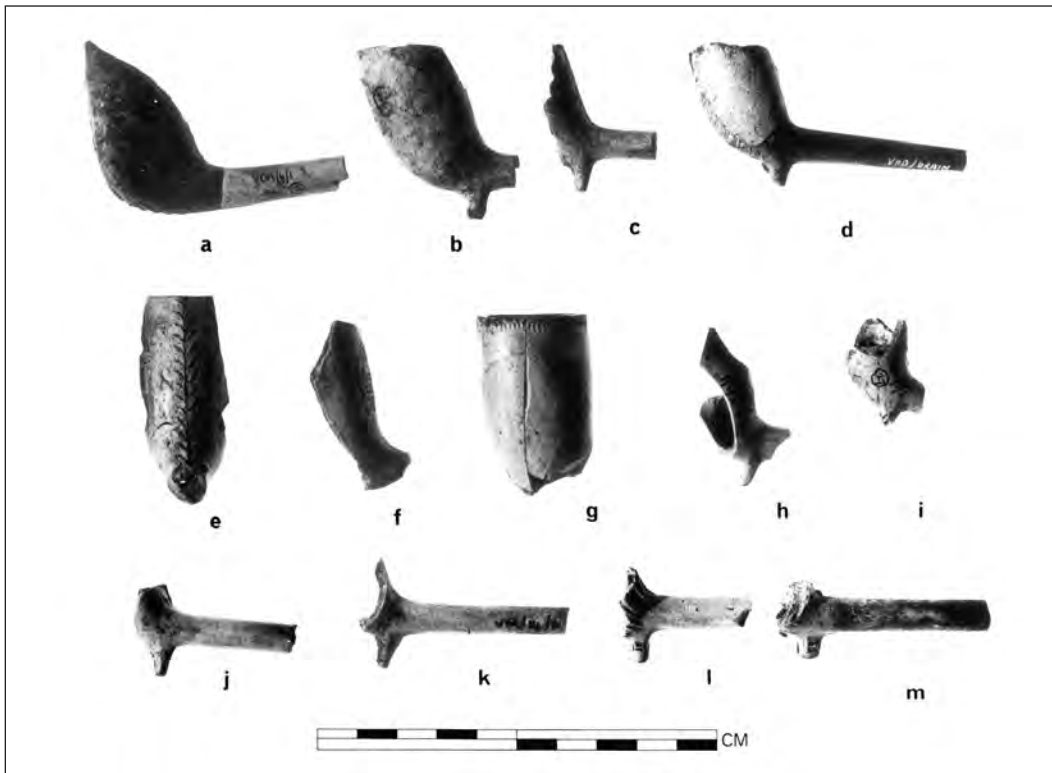


Figure 80. Clay pipes from Port Essington.

Amongst the collection 14 marked specimens have been recorded (Table 73).

Table 73. Makers' marks on clay pipes at Port Essington. Bore hole diameters measured by drill bits sized in fractions of inches.

Catalogue Number	Bore Diameter	Mark
VMQ/6/1 (10)	5/64	On bowl 'H' (see VOM/2/1 (6))
VMQ /7/2 (10)	4/64	Bowl with spur 'A. (Possibly R) H'
VM/8/1 (14)	4/64	On spur sideways 'I' (Possibly 'F')
VM/11/1 (3)	4/64	On spur sideways 'T.B.' Fluted bowl
VM/14/1 (33)	4/64	On spur sideways ? (Possibly 'A') 'G'
VM/S/1 (40)	4/64	On spur sideways ? (Possibly 'I') (Possibly 'F')
VM/S/I (38)	4/64	On spur sideways '(Possibly 'I') 'F'
VM II/1/1 (31)	4/64	Identical to VMII/1(33)
VM II/1/1 (33)	4/64	Sideways on stem above spur '9 N.G.'
VHO/DRAIN(4+6)	4/64	Sideways on spur 'I.F.'
VHK/1/1 (28)	4/64	On spur Blank on R/H side. On L/H side partly obliterated, either 'T' or 'I' sideways.
VOM/2/1 (6)	5/64	(See VMQ/6/1 (10)) On bowl 'H' and 'C'
VAM II/1/2 (1)		On stem 'Glasgow'
VAM II/1/2 (2)		Moulding on stem similar to McDougall specimens seen elsewhere in Tasmania

Dating the clay pipes

Although no significant result could be expected from the Harrington/Binford method of dating, the formula was applied during analysis of the pipes to assist the current research of Mr Iain C. Walker from the University of Bath, who is undertaking a reappraisal of Binford's methods in an attempt to refine the graph before 1780 (the point at which the Binford formula breaks down) and also to see what happens to the graph in the nineteenth century.

Firstly the mean bore diameter for the total collection was calculated (see Binford 1962a:19):

$$(3 \times 6) + (4 \times 116) + (5 \times 27) = 4.14.$$

149

Then Binford's formula $Y = 1931.85 - 38.26 X$ was applied resulting in the date 1773.45. Taking 1844 as a mean date for Port Essington, this date is then 70 years too early. On the small sample of 37 stems from Fort Dundas and Raffles Bay, a date was obtained of 1769.63, in this case approximately 57 years too early. These early dates from clay pipe dating in the nineteenth century are in accord with Walker's results elsewhere. The picture which appears to be emerging from this work is that to plot the graph as a straight line is too coarse and that the curve increases exponentially, becoming much steeper in the nineteenth century. As Binford's original base date of 1931.85 represents the point in time where the borehole disappears if the reduction in size continues at the set rate which Binford uses, such a result as the Port Essington collection represents is what one would logically expect.

The marked items are not helpful in dating the collection. The use of initials in general leads to confusion and many in the present collection are not represented in Oswald's lists for the period of the occupation of Port Essington. The exception to this appear to be those pipes marked 'I.F.' Oswald (1960:70) gives James Fisher and John Ford as being listed in Pigot's Directory for 1832. John Ford of Pentonville is listed as an exporter for the period 1826-1878; also Jesse and Thomas Ford who took over from their father, another John Ford, are listed as exporters from 1836 to 1878. They could have continued using their father's moulds or 'I.F.' could stand for Jesse Ford, or both things may have happened. On this basis I have included 'I.F.' clay pipes in the pottery time range graph (Figure 79); however its inclusion should be treated with caution. The marked items from VAM II are certainly McDougall pipes. However that firm was not founded until 1846 (Iain C. Walker, pers. comm.) and it seems that although these pipe sherds were excavated in conjunction with material best associated with the marine settlement, they may have been introduced by the 1870 cattle ranchers. On this basis they are regarded as intrusive.

The shapes represented in the present collection appear to conform to Oswald's typology. The most common shape is closest to Oswald's type 11b (Oswald 1955:248-9), although

the profile of the rear of the bowl is not as straight and sharp as Oswald's example. The foot on all examples appears to sit a little further back than Oswald illustrates. One example without foot is present (VOM/6/1 (2) + VOM/2/1(6)) and is most like Oswald's type 12c (1955:248-9) although the rim in the Port Essington example appears to be horizontal rather

than forward sloping. Large and small pipes are present. Most of the pipes are undecorated, although some fluted bowls occur. The other predominant decoration is a leaf pattern along the mould seam. On the basis of the typology Oswald presents, this collection would date to the nineteenth century, but further precise dating would not seem possible at present.

Chapter 4 Glass

Almost the total collection of glass from the Victoria excavations comprises the remains of so-called 'black' liquor bottles. In addition, some fragments of clear glass tumblers and broken wine glasses were recovered. In all, 96.6 kilograms of glass were recovered from the settlement.

The glass was sorted initially into three categories, which are listed in each of the separate excavation reports. Type A includes all pieces thought to be possible Aboriginal artefacts, Type B includes all pieces of identifiable shape (bases, necks, rims *et cetera*) and Type C includes all pieces of unidentifiable glass. Following the analysis of category A, 206 fragments of bases were re-used in the analysis of category B. Table 74 shows the distribution of the total collection. The three areas of the hospital complex, VH, VHD, VHK, are included in the table as a single group.

The average weight of the samples in each unit (squares of surface collection and excavation) has been calculated. The largest collection, from VM, which constitutes more than half the total glass collection, was subjected to an analysis of variance according to weight (Bishop 1966:57-61). The analysis demonstrated a significant difference at the 1% probability level between the three categories, both of the surface collection and the excavated material. However, there was no significant difference between the surface and excavated material in any of the three categories.

Such a result appeared self-evident between Types B and C in terms of their initial selection, because those items readily identifiable by shape were almost always larger. However, the importance of this result is a) that there was little difference in the average weight between excavated and surface items in any category, suggesting that the breakage factor was similar whether the object was buried or exposed to natural agencies on the surface; and b) that there was a significant difference between Type A and each of the other two categories in both the surface and excavated material.

Type A items were heavier than Type C items but lighter than Type B items. In cultural terms this suggests deliberate selection of the raw material (the discarded bottles) by the Aborigines, who chose the heavier pieces of glass as being more suitable for modification as artefacts. In practice this

usually meant a preference for the bases of bottles which were considerably thicker than the walls and necks. The process of modification normally resulted in these bases or 'cores' being broken, and these cores, the flakes detached from them and the retouched items that together comprise Type A, are consequently of less average weight than Type B.

TYPE A GLASS: THE ABORIGINAL ARTEFACTS

A total of 2,775 (18.2%) pieces of glass were isolated in the initial sorting as possible Aboriginal artefacts. In general, the assemblage is not a well defined one in terms of exact types which might be isolated in a comparable stone assemblage. This is probably because broken glass provides a larger number of random edges ready for use than stone. Thus, in this pre-selected group only 7.1% of the pieces bear definite secondary retouch.

As mentioned, Aborigines made special use of the heavy base portion of the bottle, and by examining the ways in which this raw material has been used the following classification of the glass artefacts has been established. Because of their broad nature it seems likely that these types may coincide with types as perceived by the original knappers, so that certain functional inferences can be drawn.

Because of the way in which these bottles were originally manufactured, the glass begins to thicken about two thirds of the way down the body wall. The bases in the Port Essington collection are formed predominantly with high conical omphaloi, that is, with much the same base shape as modern champagne bottles. In American glass terminology this is referred to as a 'kick'. In the Port Essington bottles this base can be up to 30 mm thick, providing a solid block of glass not unlike obsidian. The process appears to have been to flake the thickened part of the wall, downwards to the base, detaching flakes with similar attributes to stone flakes – a bulb of percussion, stress lines *et cetera*. Thus the base can be regarded as a core, which if broken in half, can also be flaked on the kick; it can also be utilised as a tool.

Table 74. Total collection of glass from Victoria, by type, percentage and average weight in grams.

Location	TYPE A			TYPE B			TYPE C			TOTAL No.
	No.	%	Av. Wt	No.	%	Av. Wt	No.	%	Av. Wt	
VM	1275	14.9	11.2	239	2.8	56.2	7046	82.3	3.8	8560
VMII	32	10.1	12.9	14	4.4	26.4	272	85.5	3.6	318
VH	335	15.1	13.0	61	2.7	65.6	1830	82.2	3.4	2226
VMQ	388	49.2	5.1	14	1.8	7.1	386	49.0	2.9	788
VQS	107	16.9	5.3	4	0.6	125.2	523	82.5	3.2	634
VOM	45	33.3	4.6	8	5.9	91.9	82	60.7	5.7	135
VSD	19	2.3	14.4	11	1.4	38.1	787	96.3	2.8	817
VSF	57	13.7	5.7	4	1.0	27.8	355	85.3	1.9	416
VSFII	17	10.8	5.0	2	1.3	6.6	138	87.9	4.8	157
VN	4	4.0	9.0	6	6.1	48.8	89	89.9	5.8	99
VS							37	100.0	3.5	37
VAM	362	67.0	8.0	1	0.2	19.8	177	32.8	4.4	540
VAMII	64	37.4	5.8	5	2.9	56.0	102	59.6	3.4	171
VCH	9	9.7	11.2	2	2.2	166.2	82	88.2	4.7	93
Total	2714	18.1	9.5	371	2.5	55.6	11906	79.4	3.6	14991
Surface Coll.	60			62			162			284
TOTAL	2774	18.2		433	2.8		12068	79.0		15275

Two methods of flaking the wall of the bottle appear to have been used in this collection. If the blow is directed at the broken edge of the glass, that is, the broken edge is used as the striking platform, the detached flake assumes the form of an ordinary stone flake. However, if the inside surface of the bottle wall is struck, a complete semicircular section of the inside wall detaches so that a flange of glass is produced on the outer wall of the detached flake, whose circumference is greater than the inside wall section. I was able to replicate both sorts of flakes experimentally using simple direct percussion with a hammer stone.

Figures 81a and 81b illustrate these two types. Both sorts of flake were produced at Port Essington, and they are treated as a single group in the present analysis, with the presence of the internal face being taken as the equivalent of the bulb of percussion. The important point is that both flakes produce a sharp cutting edge without the necessity of retouch. Base cores and flakes form the two common types of glass implements found at Port Essington. The retouched implements are mainly scrapers, although some 'cutting flakes' bear secondary retouch as well as usewear. An additional category of 'utilised pieces' is included where usewear occurs on pieces of glass which do not exhibit the characteristics of flakes – bulbs or percussion and so on. In this secondary analysis a large percentage of pieces originally included in Type A have been excluded and are treated as waste flakes. These are pieces which either have a bulb of percussion but lack usewear, or pieces on which the usewear flaking was probably produced by non-human agencies. The percentage type distribution is shown in Table 75.

Table 75. Glass Type A: percentage distribution of Type A glass according to artefact classification.

Location	Number	Base Cores	Flakes	Retouched	Utilised Pieces	Waste Flakes
VM	1275	7.0	9.4	8.7	22.6	52.3
VAll	32	6.3	3.1	15.6	50.0	25.0
VH	335	9.9	12.5	5.4	29.3	43.0
VMQ	388	4.1	17.0	2.1	16.8	60.1
VQS	107	1.9	16.8	7.5	23.4	50.5
VOM	45	4.4	26.7	4.4	11.1	53.3
VSD	19	10.5	15.8	10.5	42.1	21.1
VSF	57	8.8	7.0	5.3	15.8	63.2
VSFII	17	17.7	11.8			70.6
VB	4			25.0	25.0	50.0
VAM	362	8.0	16.9	8.6	21.8	44.8
VAMII	64	4.7	12.5	3.1	26.6	53.1
VCH	9		22.2	11.1	33.3	33.3
Surface Collection	60	33.3	20.0	8.3	28.3	10.0
TOTAL	2774	7.4	12.7	7.1	22.8	50.1

In this table the surface and excavated materials have been added together. Figures 82a and 82b give two histograms, showing the relationship between the excavated and surface material for the two areas in which large quantities of glass were present on the surface. In the case of VM a definite pattern is discernible. The excavated material contains a far greater number of waste flakes and consistently fewer base cores and implements than the surface material. A reasonable explanation is that during the British occupation, VM provided an area of raw material for the manufacture of

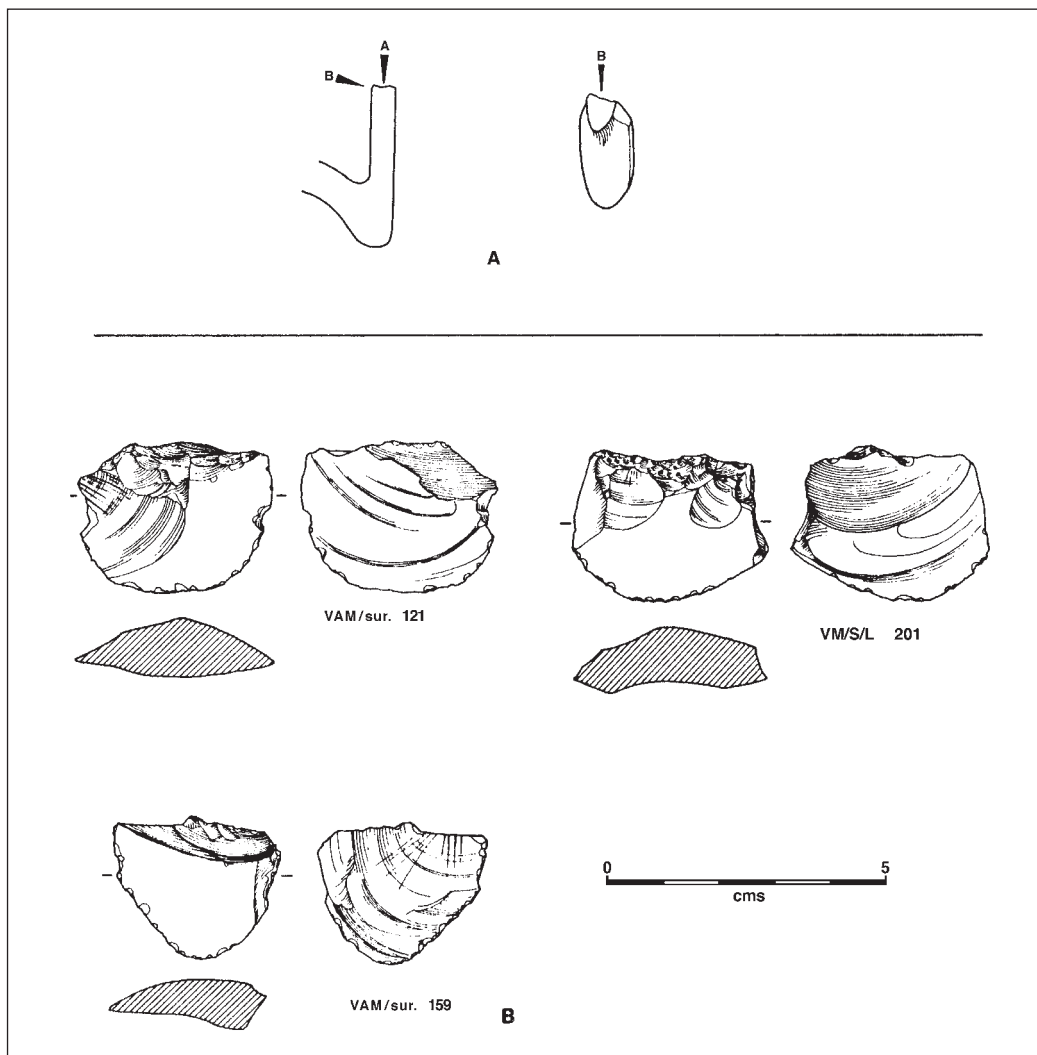


Figure 81. a) Glass flake production techniques. Both the top of the wall and the inside of the wall might be used as a striking platform. In the latter case part of the interior surface might be retained. b) Numbers 121 and 201 retain part of the interior surface, while 159 does not.

artefacts and useful cores that were taken elsewhere. Subsequent to the British abandonment, VM was occupied by the Aborigines in a more general and perhaps spasmodic fashion.

The histogram of the VH complex shows no such clear trend. One reason may be that the excavated sample is too small, but it seems more likely that there is no significant difference between the surface and excavated materials. The other areas have much less surface material, and histograms calculated for these areas show no significant difference between the surface and excavated glass.

Base Cores (Figure 83)

Two hundred and six items (7.4% of Type A glass) were classified as cores. As stated, all the cores in this collection are bases of bottles. A number of metrical calculations were made on these base cores in order to describe them more fully and to delineate the modifications made on them by the Aborigines.

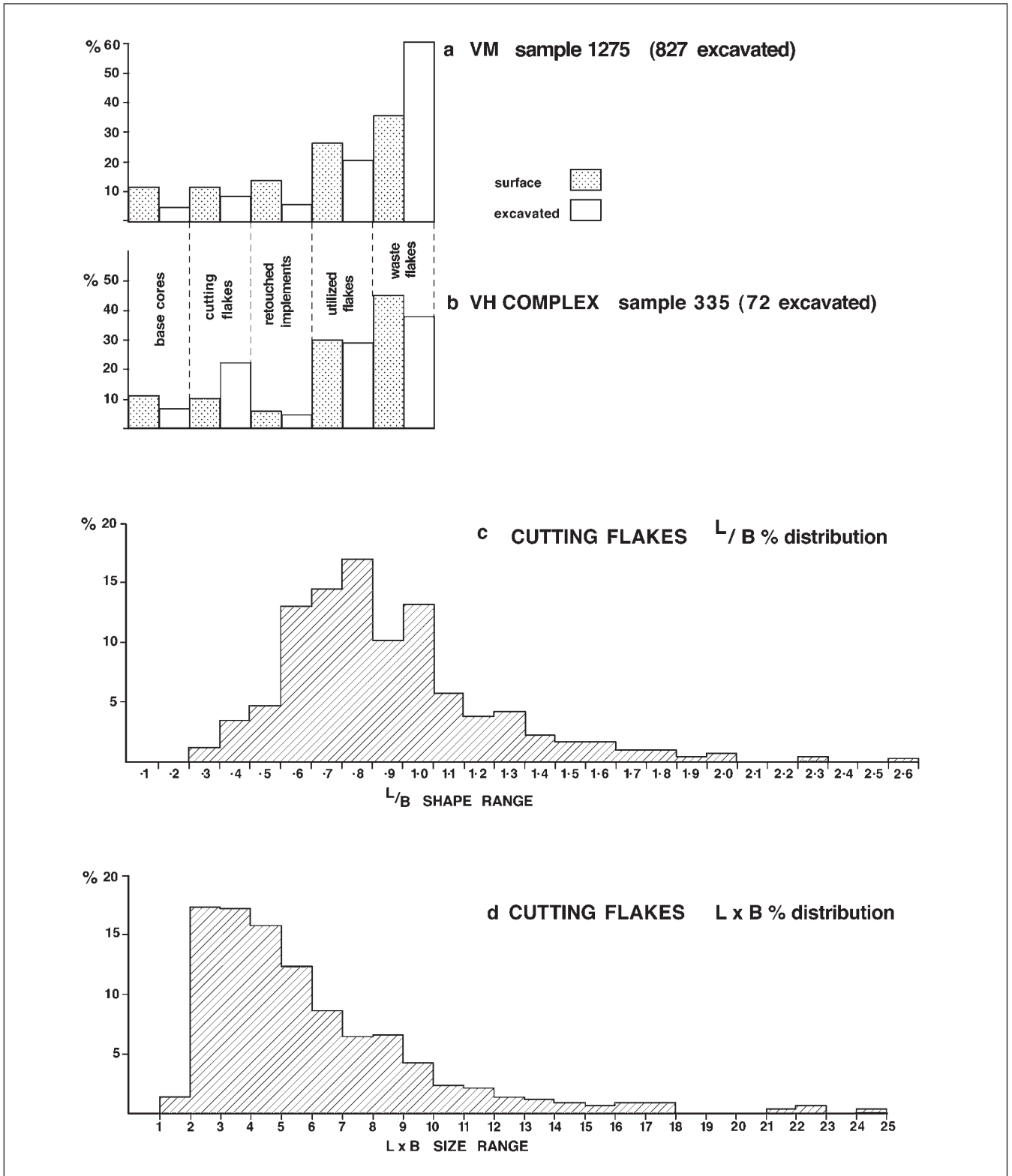


Figure 82. a and b) Distribution of glass artefact types in the excavated and surface material for VM and the hospital complex. c and d) Shape and size distributions for cutting flakes in the collection.

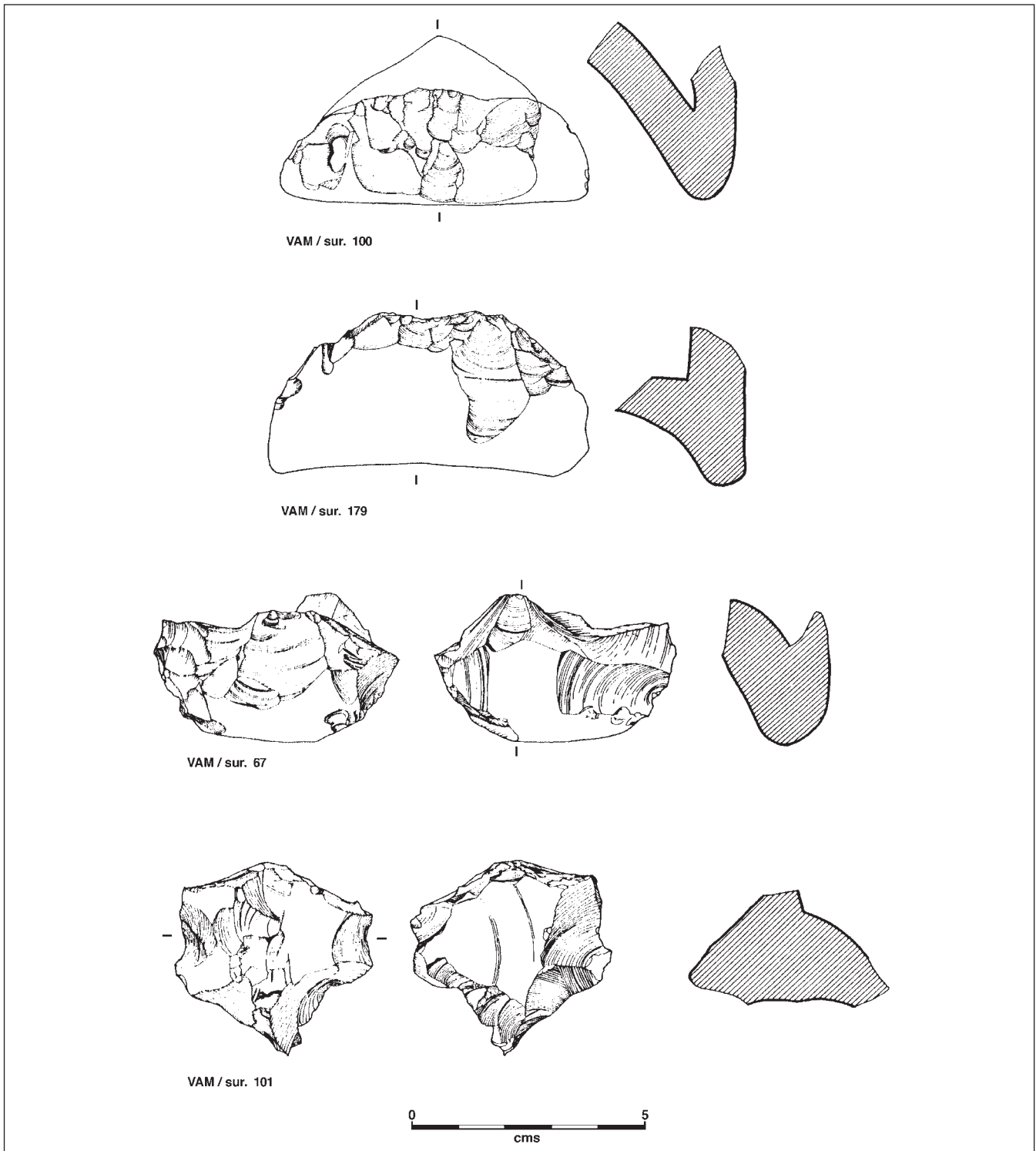


Figure 83. Bottle bases used as cores and recovered from the Aboriginal midden VAM.

Percentage of remaining base

Of the 206 items with flakes removed from the wall, only four were whole bases. On the other hand, of the collection of bases with no flakes removed, more than 60% were whole. Two reasons may explain why this breakage was deliberate rather than completely fortuitous, or even a probable by-product of flaking the walls. Firstly the kick could then be flaked, and because of its convenient curved shape also used as a tool; and secondly, the flaked wall became a convenient scraper that would have been less efficient if the base were whole.

Five ranges of the percentage of remaining base were set up and the collection was sorted into these groups (Table 76).

Table 76. Glass Type A: percentages of base remaining.

Percentage of remaining base	<25	25-49	50-74	75-99	100
	70.9%	24.8%	2.4%	0%	1.9%

This distribution emphasises the non-random nature of the use of this raw material. Once it was determined that a base was suitable as a core it was mostly worked until it was spent and obtaining new useful flakes had become difficult or impossible.

Wall Height

The maximum height of the remaining wall above base was measured for each item and correlated with the percentage of remaining base. If the collection was fortuitous no correlation could be expected. However if the bases had been deliberately flaked, the wall height should be smaller where less of the base remained, and greater where more of the base remained (Table 77).

Table 77. Glass Type A: relationship of wall height (mm) to percentage of remaining base.

Percentage of Remaining Base	<25	25-49	50-74	75-99	100
Sample (No.)	146	51	4	0	5
Average Maximum Wall Height	27.5	32.5	40.0		50.3
Standard Deviation	7	9	7		19

While this result is not conclusive, since sample sizes are disproportionate and the range of each category overlaps the next, the progression is still evident. It suggests that a real correlation exists, which relates to the deliberate utilisation of the glass as a raw material and supports the observations made in the previous test of the percentage of remaining base.

Flaking

The most general methods of flaking the walls of bottles have been described above. However a more detailed analysis of the base cores showed that unifacial flaking in both directions (the inside and outside of the bottle wall acting as the dorsal surface) occurs as well as bifacial flaking. Flaking in this context refers only to primary flaking, although some secondary flaking may occur. Deliberate secondary retouch is difficult to identify on this material, and secondary retouch has been included as an aspect of usewear dealt with below. On average, the flake scars on these base cores are roughly 5 mm by 5 mm, or larger. The use of the internal wall as the striking platform is the most common technique, and here the flake scars appear on the outer surface. This has been labelled external unifacial flaking. The opposite process producing flake scars on the inner surface has been labelled internal unifacial flaking. Table 78 gives the percentage occurrences for these flaking techniques.

Table 78. Glass Type A: percentage distribution of flaking styles on base cores.

	External Unifacial	Internal Unifacial	Bifacial
	75.2	21.9	2.9

Percentage of flaked wall

A large majority of the collection is completely flaked around the wall which remains. A set of ranges was set up and Table 79 gives the percentage of the collection within each range. This figure is obviously independent of the amount of wall remaining.

Table 79. Glass Type A: the percentage distribution of the Type A bases according to the amount of edge bearing negative flake scars.

Percentage Range of Remaining Edge that is Flaked	>25	25-49	50-74	75-99	100
Occurrence	1.47	7.28	8.25	2.43	80.58

It was noted that none of the five examples where 100% of the base remained was flaked along more than 50% of the edge. Again the overall result of this test reflects the systematic reduction of bases deemed suitable as cores.

Presence of flaking on kick

On a number of items the amount of remaining kick was so small as to be virtually absent. While on these examples flaking was regarded as not present, for the total collection 48.5% of the kicks had been flaked.

Usewear

Two common forms of usewear were noted. Bruising of the glass (small internal cracking) occurred along the flaked edges and sometimes the bases, while in many cases, small unifacial and bifacial flakes had been removed from the primary flaked edges. Similar flakes were occasionally detached from unworked edges of the kick, particularly where the natural curve of the glass would facilitate its use for scraping purposes. The percentage occurrences for usewear on the walls and kicks were calculated Table 80.

Table 80. Glass Type A: percentage occurrence of usewear on walls and kicks of base cores.

	Usewear on wall	Usewear on kick
Occurrence	68.9	64.1

The VM Sample

Following the trends noted for the surface and excavated material from VM for the total Type A glass range (Figures 82a and 82b), the respective figures for VM surface and VM excavated base cores were tabulated in Table 81. In addition the comparative figures for the Aboriginal midden, VAM, and the total collection are given.

Table 81. Glass Type A: comparisons of base cores from VM with VAM and the total collection by percentage. See text for details.

	VM excavated	VM surface	VAM	TOTAL COLLECTION
Number of Items	37	52	29	2774
Base Remaining (%)				
<25	54.1	71.2	75.9	70.9
25-49	35.2	28.9	20.7	24.8
50-74	2.7		3.5	2.4
75-99				
100	8.1			1.9
Flaked Wall (%)				
<25	2.7	1.9	3.5	1.5
25-49	16.2	3.9	3.5	7.3
50-74	13.5	9.6	10.3	8.2
75-99	2.7	3.9		2.4
100	64.9	80.8	82.8	80.6
Flaking Technique (%)				
External Unifacial	64.9	78.8	72.4	75.2
Bifacial	35.1	19.2	24.1	21.8
Internal Unifacial		1.9	3.5	2.9
Flaked Kick	35.1	69.2	48.3	48.5
Usewear (%)				
On wall	64.9	82.7	86.2	68.9
On kick	62.2	69.2	93.1	64.1

The technique of bifacial flaking in the excavated VM sample is proportionally higher than in the surface collection,

suggesting that it became less important through time. However the important trend, which is consistent throughout the other metrical analyses, is the less intense exploitation made of the VM excavated material. Only 54.1% of this sample of base cores has less than 25% of the base remaining, compared with over 70% for the VM surface material, the VAM material, and the total collection. Again only 64.9% of this collection has the total wall flaked, compared to 80+% in each of the other three groups; only 35.1% of the kicks are flaked, compared with 69.2% of the VM surface collection, and 48% of the other two groups. There is also slightly less usewear on the base cores from the VM excavated sample.

These results are consistent with the results of the histogram. During British occupation VM provided a source of raw material, when it was equivalent to a normal Aboriginal quarry site. After the British abandonment, Aboriginal

occupation could become more general, while the cessation of supplies of raw material occasioned more intense usage of what remained.

Cutting Flakes (Figures 81 and 84)

Three hundred and fifty struck flakes from the Type A collection bore traces of utilisation on the sharp cutting edge. In each case this usewear continued along the edge for more than 50% of its length, and in the majority of cases for almost 100%.

The most common form of usewear found on these flakes is what Schrire (White 1967:47) termed 'snap-break' usewear where an elliptical flake is snapped off the thin edge so that a square profile is left on that edge. In addition, minute, irregular unifacial and bifacial flaking does occur.

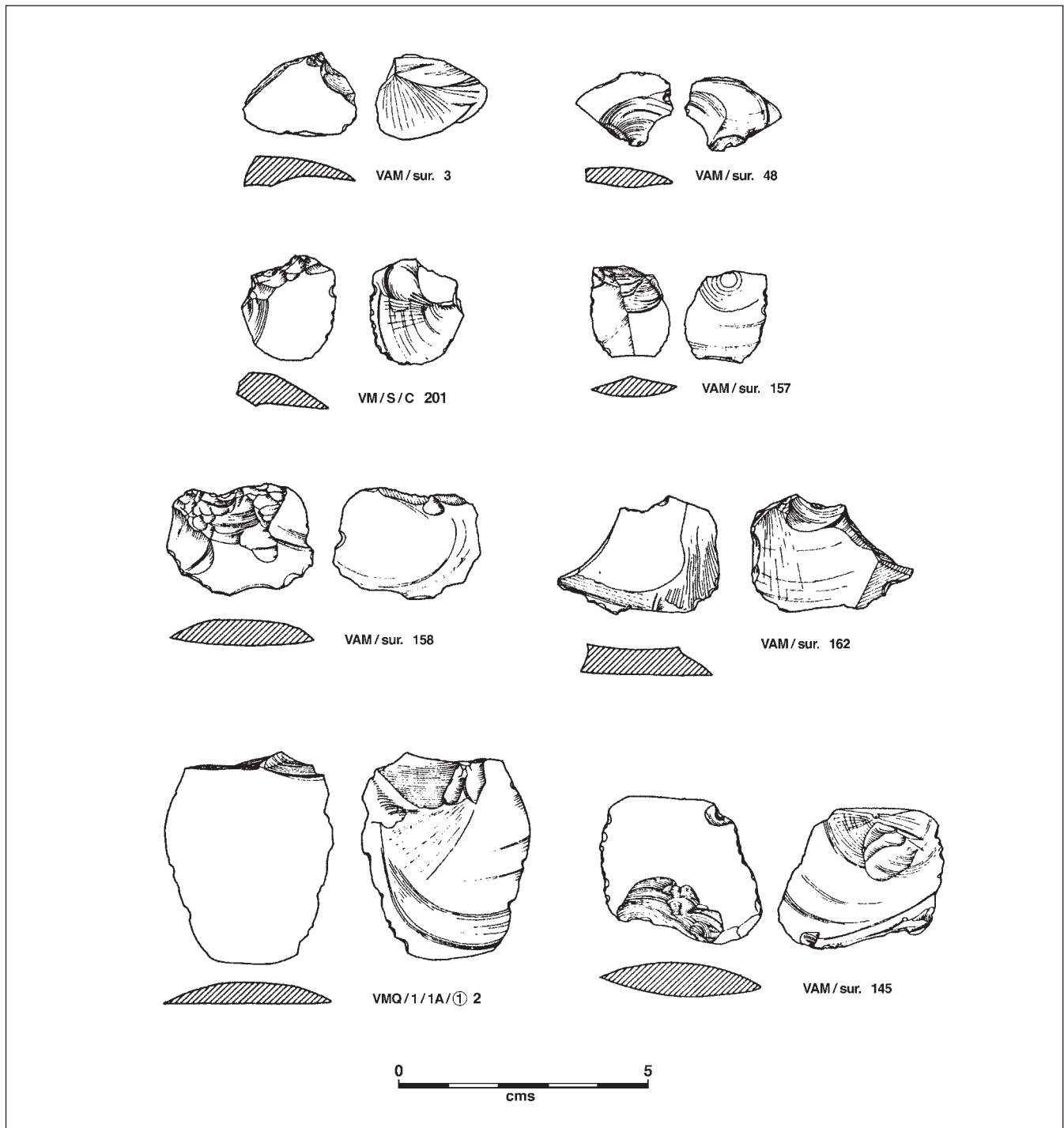


Figure 84. Cutting flakes from Port Essington.

It is extremely difficult to demonstrate that such flaking could not have occurred naturally, and therefore no detailed analysis of usewear was carried out. What seemed important during the analysis was that such usewear did not occur on all struck flakes, being absent particularly on the smaller flakes. In order to test this observation the VM excavated material was chosen as a sample. From the 504 items designated waste flakes, those with bulbs of percussion present (i.e. those that could certainly be regarded as struck flakes) were isolated. This group numbered 148 items (29.4% of the waste flakes). Weight was chosen as an indication of size and the average weight of this group was 1.7 gm. Of the VM excavated material sorted as utilised cutting flakes the average weight per item was 4.2 gm. Thus the struck flakes with utilisation are on average significantly heavier than the struck flakes without utilisation.

On the basis of this observation two metrical calculations were made in order to indicate the shape and size ranges of these cutting flakes. Two measurements were taken on each flake: *length*, being the maximum length of the flake at right angles to the striking platform, and *breadth*, being the maximum breadth at right angles to the length measurement. By dividing length by breadth a shape range was obtained. For example, 0.5 indicates that the length is equal to twice the breadth; 1.0 indicates that length equals breadth; 2.0 indicates that the length is equal to half the breadth. Figure 82c shows the percentage distribution of the cutting flakes according to shape. From this histogram it will be seen that 68.9% of the collection falls into the range of 0.5 to 1.0; that is, the majority of the collection falls into the category of 'side-struck' flakes, which ranges from flakes which are twice as broad as they are long, to flakes which are approximately square. Also of interest are the few examples of flakes which are much longer than they are broad (see discussion below). In general, however, the shape range is seen as reasonably limited.

By multiplying the length and breadth measurements, a size range was obtained; Figure 81d gives the percentage distribution. Eighty four percent of the collection falls within the range 3–9 sq cm and 50.2% of the collection is within the range 3–5 sq cm. Again the collection contains a few large struck flakes, but the majority of the cutting flakes fall within a limited range. The significance of size is discussed below.

A common aspect of these cutting flakes was the presence of primary flake scars. These were noted on 87.7% of the flakes and they occurred always on the dorsal surface of the flake, in the region of the striking platform. Thus they represent flakes taken from higher up the bottle wall, as it was worked towards the base.

Retouched Implements (Figure 85)

A total of 196 items appeared to have been deliberately retouched for use as implements (Table 82). Of these 17 (8.7%) were cutting flakes which differed from the category of

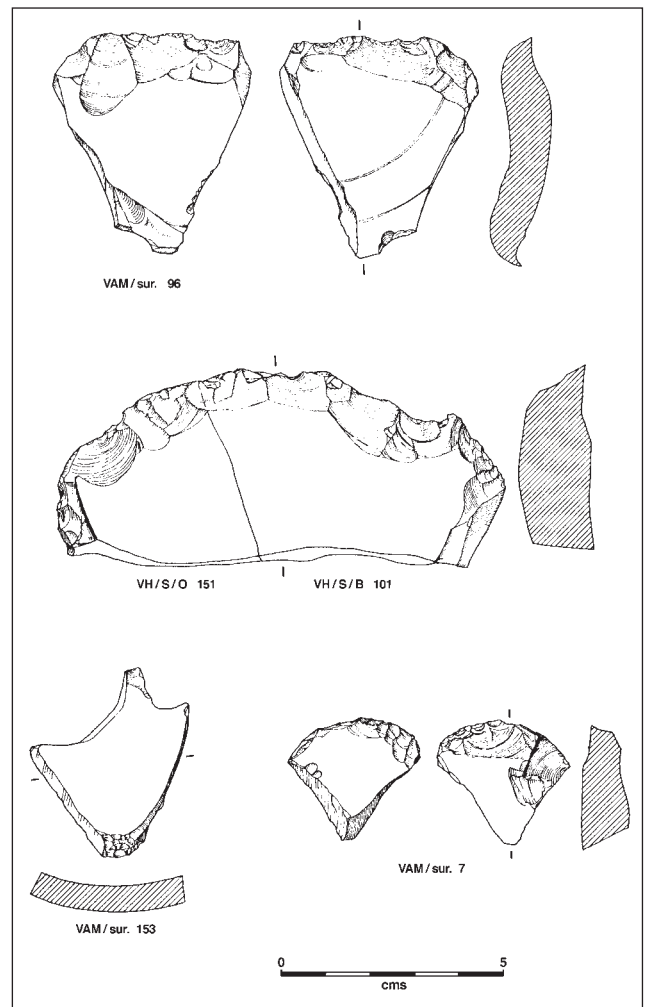


Figure 85. Scrapers made on bases. While scrapers are the most ambiguous artefacts to identify (see text for discussion) three of these four pieces came from the Aboriginal midden VAM.

cutting flakes described above only in that they appeared to be deliberately retouched. All the remaining items fell into the generic category 'scraper'. Very few of these had been made on struck flakes, and could be sorted on morphological grounds into 'side' and 'end' scrapers, but the division is perhaps more apparent than real. The 'side' variety occurs on 142 examples, while the 'end' variety occurs less frequently on 44 examples. Occasionally both occur on a single item. This explains the discrepancy in numbers in Table 82.

Each of these categories was analysed in respect to manner of flaking, presence of usewear and primary flaking, weight, and presence of percussion bulb. In addition, the number of retouched edges on the scrapers and the general shape of these edges were recorded.

Table 82. Glass Type A: analysis of retouched implements. Weight in grams. Total artefact numbers here exceed 196 artefacts because side and end scrapers can occur together on a single item.

	Flaking			Number of Retouched Edges				Weight			Edge Shape				
	Number	Bifacial	Unifacial	1	2	3	4	Average	Standard Deviation	Struck Flakes	Use Wear	Primary Flaking	Straight	Concave	Convex
Cutting Flakes	17	8	9	17				8.9	4.9	16	16	12			17
Side Scrapers	142	8	138	87	39	14	1	13.9	13.4	9	137	79	112	28	11
End Scrapers	44	1	44	30	6	4	1	11.8	10.0	2	39	17	14	5	25

Retouched cutting flakes

In shape and size these cutting flakes fall within the range of the utilised cutting flakes described above. However most are at the large end of the scale. Of the 17 items with retouched edges, 8 are retouched bifacially, 9 are retouched unifacially, 16 items have a definite bulb of percussion; 16 bear traces of usewear, again predominantly 'snap-break' fracture; and 12 items have primary flaking on the dorsal surface about the striking platform. The average weight of these items is 8.9 gm, with a standard deviation of 4.9.

Side Scrapers

Despite the apparent presence of deliberate retouch on these scrapers, their authenticity as Aboriginal artefacts is difficult to verify. Random pieces of glass were used, and although the average weight for the 142 classified items is 13.9 gm, the standard deviation for the collection is 13.4. (The weight range extends from 1.1 gm to a single item weighing 109.3 gm.) Nevertheless the average weight indicates that heavy pieces were selected. Flaking is common on more than one edge, and 211 flaked edges are represented on the 142 items (Table 83).

Table 83. Glass Type A: number of side scrapers according to number of flaked edges present.

No. of flaked edges	1	2	3	4	Total
No. of items	87	39	14	1	142

Nine scrapers are made on struck flakes.

Flaking is predominantly unifacial, occurring on 138 items, while bifacial flaking occurs on only eight items (four have evidence of both). The flaked edges are predominantly straight, this occurring on 112 items, while convex edges occur on 11, and concave edges on 19 items.

Perhaps the most convincing aspect of these scrapers is that primary flaking occurs on 79 items and usewear is present on 137 items.

End scrapers

In general, the reservations held for the side scrapers are also true for the end scrapers. While there is an average weight of 11.8 gm for this category, the standard deviation of 10.0 is still large. Only two struck flakes have been used, and bifacial flaking occurs only once. Unifacial flaking occurs on all 44 items. Again, however, there are 56 flaked edges on the 44 items, and usewear occurs on 39 items, while primary flaking occurs on 17 items. Also of interest is that on these end scrapers the edge is convex on 25 items, concave on 5 items and straight on only 14 items.

A summary of the retouched implements is contained in Table 82.

Utilised Flakes

Six hundred and thirty one items in the collection were classified as utilised flakes. These are most usually random pieces of glass which have had various sharp edges utilised, presumably for cutting. Again there is little form in the pieces utilised, which range in weight from 1.0 gm to 96.1 gm. However the average weight is again high, 14.1 gm, with a standard deviation of 9.7, again suggesting that the tendency is towards the heavier pieces of glass. The usewear is the same as that described for the cutting flakes, which really form a specialised group within this category.

Waste Flakes

Upon re-examination in the laboratory the remainder of the glass initially sorted as Type A was placed in the category of waste flakes. These represent struck flakes that have no usewear, or pieces on which the flaking and/or usewear is random and therefore dubious. This group numbers 1382 items. It is of interest that amongst the 233 items in this category from VMQ, 167 (71.6%) are in fact struck flakes without usewear. This is the highest percentage for any area and accords well with the interpretation of this area representing a flaking floor. From the other areas, the percentage is normally about 20% for struck flakes in this category.

Also of interest is that the average weight of the waste flakes, 2.9 gm, is considerably lower than all other categories of Type A glass, confirming the general impression gained throughout the analysis that only the heavy, thick pieces of glass were utilised by the Aborigines.

DISCUSSION – TYPE A GLASS

The ease with which broken bottle glass can be accidentally fractured along the margins is self-evident and this casts doubt on all pieces claimed as implements, except where the form is so refined that authenticity cannot be doubted, as in the case of Kimberley points (bifacial points with serrated edges).

The present analysis shows that the Type A glass from Port Essington does possess formal attributes within the broad categories suggested. Little stress has been placed on the nature of the flaking, striking angles, usewear, *et cetera*, and this has been done deliberately. Until detailed studies can be made on natural fracture, and upon deliberate fracture produced in the laboratory, and the results compared with authenticated Aboriginal collections, little can be said on these finer points of glass working technology. The aim of the present analysis has been to authenticate the Port Essington collection on other grounds.

Before dealing with the results of the present analysis it is relevant to discuss a number of factors relating to glass artefacts in general. It is apparent that in most countries where indigenous stone using societies came into abrupt contact with Europeans, glass was often used as a substitute for stone. In Australia this has been noticed specifically in relationship to the pressure-flaked biface points from the Kimberley area, where the transition from stone to glass was made with little apparent alteration in technique or finished product. The technique for manufacturing this implement type from both stone and glass has been described by Mahony (1924) and Elkin (1948). While the implement type in glass has been reported as far south as Rottneest Island, near Fremantle in Western Australia (Serventy 1967), and is present in the upper levels of Ingaladdi (D. J. Mulvaney pers. comm.) to the east, its northern distribution does not apparently reach the Oenpelli area, although bifacial points do occur without serrated edges. No points of any description have been recovered at Port Essington.

Australian ethnographic literature contains a number of references to the use of glass by Aborigines. Backhouse (1843:433) illustrated a spear barbed with glass which he saw on the south coast of New South Wales; R. L. Dawson (1935:22) noted that bottle glass scrapers were used in the Clarence River area to sharpen spears; Scott (ML:44) and R. Dawson (1890:13–15) also mention Aborigines using glass. Jukes (1847:24) makes reference to the Torres Strait Islanders' keen demand for bottles, which he suggests were broken and the fragments used for shaving and cutting hair.

Apart from Kimberley points, references to existing glass

implements in Australia are less common. Tindale (1941) has published a 'scraper' from Kempton, Tasmania fashioned from the base of a glass bottle, which conforms to the shape of stone notched scrapers 'of well-defined Tasmanian type'. Tindale remarks that no date can be ascribed to the glass, however from the illustration the bottle is apparently of English manufacture and dated definitely to post-1820. The terminal date could reach to 1870 for this specimen.

I have examined three hafted glass 'knives', two from the Queensland Museum and one from the Australian Museum, Sydney (discussed below in relation to cutting flakes). The only large collection of glass implements, so-called, was published by McCarthy and Davidson (1943) from Singleton, N.S.W. and comprises 'a large series' of side, end, concave and nosed 'scrapers' and 'piercers'. I examined this collection in the Australian Museum and could not refute its authenticity on the form and flaking of these implements. However, bearing in mind Van Hoepen's (1961:161) conclusions that trimming, identical in every respect to stone implements, may be produced fortuitously on broken glass, and the dubious nature of the area in which the Singleton collection was made, I visited the area accompanied by Mr Davidson in March 1967.

We collected 269 pieces of glass and 82 pieces of pottery in the general area indicated by Davidson. These were recovered from the eroding terrace along the river, immediately to the north of the railway bridge. The pottery included 63 pieces of white earthenware, all decorated by the transfer printed technique in predominantly floral patterns. Blue was the most common colour, but greens and browns were also present. Four clay pipe fragments bearing two makers' names, 'Burns Cutty Pipe' and 'McDougall of Glasgow' were recovered. The glass was mainly 'black' glass, but opaque green, royal blue, light blue and purple glass also occurred, as well as modern beer bottle glass.

Only eight of the 269 pieces could be considered implements in terms of flaking. In McCarthy's terminology one of these would be termed an 'end-scraper' and three 'side-scrapers'. Of the others, three are of indeterminate form, and the eighth item is the flaked base of a beer bottle with moulded date underneath, 1938 (Figure 86). Thus the flaking is presumably the result of accidental breakage.

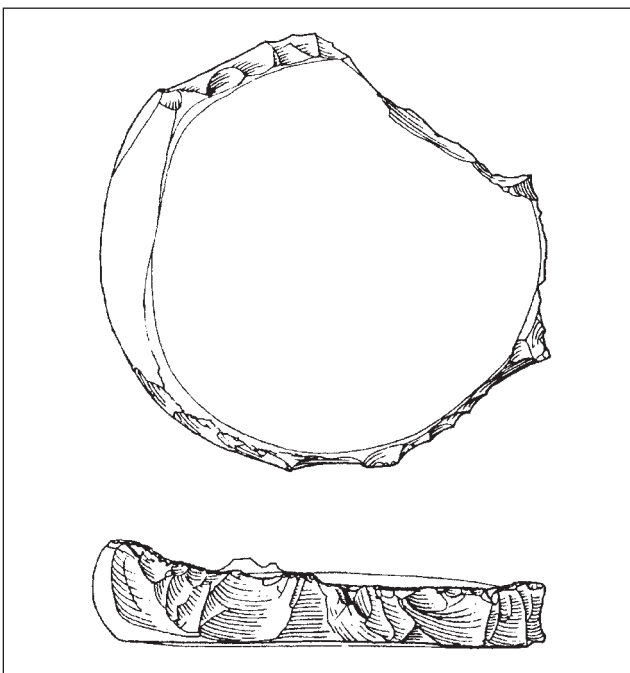


Figure 86. A non-artefact from Singleton, NSW, produced accidentally on a 1938 beer bottle base. See text for discussion.

This collection was made in a cleared field which must in the past have been heavily ploughed. The types of glass in this collection are the same as those in the Australian Museum and were collected in sufficient proximity to those of the 1943 collection to throw doubt on the authenticity of that collection. Although both collections were found in close association with Aboriginal stone artefacts, this connection could be spatial and not cultural. For some miles along the Hunter River stone implements can be found eroding out of the gravel layer a few inches below the topsoil. In the immediate area of this collection, although no houses exist at present, indications of early European structures (sandstock bricks and foundations) are visible and may have provided the source of this glass.

While it is possible, in view of the ethnographic evidence, that some of the 1943 Singleton collection is authentic, the demonstration that some of it is not must cast doubt on the entire collection. The point of this discussion is that the immediate environment offers an alternative explanation. The high degree of specialisation of this glass industry, containing only 'scrapers' and 'piercers' is also suspicious, since these 'implements' are the easiest types to produce fortuitously. In contrast to the Port Essington collection, neither the 1943 collection nor my own collection from Singleton contains any struck flakes.

Unlike the environment at Singleton, the environment at Port Essington provides few natural agencies to explain the flaked glass. The area has been mostly deserted since 1849; no clearing or ploughing has occurred since then and there are no roads in the area. Cattle, together with damage caused during the initial dumping of the glass are the most likely natural explanations, yet these seem an insufficient explanation given the large number of items in the collection.

Also of significance is the percentage distribution of Type A glass around the settlement (Table 74), where it can be seen that the three areas with the highest proportion of Type A glass are the two Aboriginal middens and VMQ, where excavation demonstrated that Aborigines sat outside the structure during British occupancy and made implements. The authenticity as artefacts of glass pieces found stratified in an undisturbed Aboriginal midden cannot really be doubted.

A recurring theme noted in the analysis of the material has been the tendency to utilise the heavier sections of the bottles for the manufacture of artefacts. This tendency has been noted elsewhere in the world, by Sir Bartle Frere amongst the Bushmen (Beaumont 1961:161), who purchased cheap German scent because the bottles, 'thickened towards the lower part ... could, by a blow in a particular direction, be splintered so as to form excellent arrow-heads.' E. H. Man (1932:160-61) writing on the Andaman Islanders also noted their use of glass 'chips' and stated, 'the method by which they are obtained is the same [as flint], the thick lump of glass forming the bottom of beer and wine bottles being selected for the purpose, and never the thinner portions.'

Against this background the typological analysis has demonstrated the most significant trends. Amongst the base cores several formal patterns were noted.

- The base itself is almost always broken where apparent utilisation of the edge has taken place, whereas bases are less seldom broken when deliberate flaking is absent.
- There appears to be some relationship between wall height and the amount of base remaining on apparently utilised items.
- If the flaking was fortuitous it would be reasonable to expect internal unifacial flaking to occur at least as often, if not more often, than external unifacial flaking, since the blow to produce the latter has to be made on the internal

wall surface. At Port Essington external unifacial flaking is more common.

- Where flaking does occur, it most commonly appears along the total remaining wall edge, and this is unlikely to occur fortuitously.

Although bifacial flaking occurs only 65 times in the total collection of Type A glass, the fact that it is present is a strong indication of deliberate fracture. I carried out a series of experiments by smashing glass on a concrete path, treading on glass, hitting pieces of glass together, etc., and found it impossible to produce bifacial flaking of the size and regularity that occurs in the Port Essington material.

The analysis of the cutting flakes provided a significant piece of evidence for judging the authenticity of the collection, this being the size of the utilised struck flakes. In my experiments breaking glass I found that flakes with bulbs of percussion could be manufactured accidentally, but never of the size of the Port Essington cutting flakes, unless a deliberate striking technique was employed. In the archaeological collection some flakes were shown to be much longer than they are broad, and on a base core from VM/8/1 two flake scars measuring 43 mm by 16 mm and 41 mm by 15 mm were noted. On a base core from VM/9/1 a flake scar measuring 52 mm by 12 mm was recorded, and part of the flake taken from this base was fitted back onto the core. In all these examples, the detached flake was extremely thin and it seems likely that these flakes could only have been produced by using a pressure flaking technique.

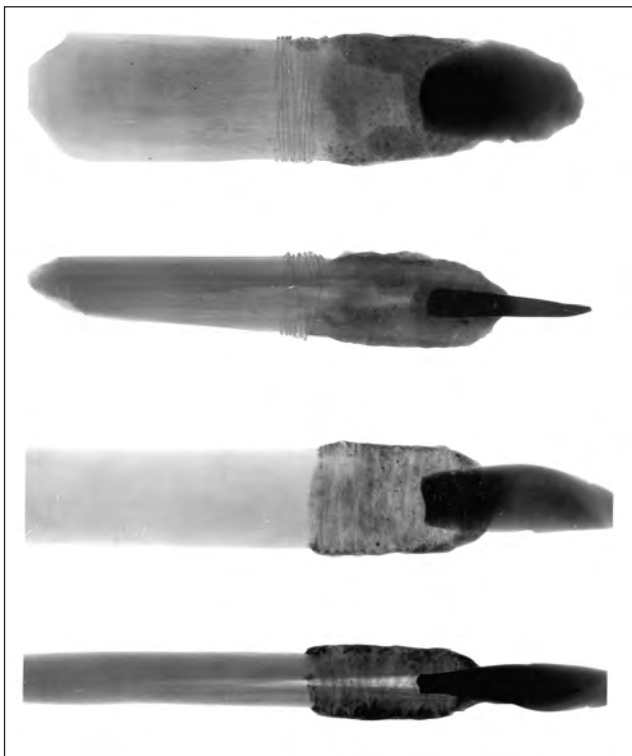


Figure 87. X-rays of two hafted glass cutting flakes from north-west Queensland now in the Queensland Museum. Top Q.E.588, bottom Q.E.2291.

As discussed, in the course of examining museum collections three glass 'knives' were examined. Specimen E.54602 in the Australian Museum collection, has as its provenience 'Central Australia' and has a struck flake of glass which measures 32 mm in length mounted sideways onto a handle with gum. Two hafted glass implements from north west Queensland are in the collection of the Queensland Museum (Q.E.588, Q.E.2291). X-ray photographs show that

these two knives were made by inserting struck flakes of glass into split wooden handles, compacted with string and gum (Figure 87). One flake measured 59 mm by 20 mm and the other 43 mm by 28 mm. The important point about each of these three specimens is that none has retouched edges, although all bear signs of usewear similar to those from Port Essington. On the basis of only a single cutting flake from Port Essington (VAMII/1/1(1)) with traces of gum on the surface, no claim of direct evidence for hafting of the Port Essington cutting flakes can be made. However the use of non-retouched flakes in ethnographic specimens lends support to the authenticity of the Port Essington cutting flakes and their classification as a distinctive glass tool type.

The analysis of the retouched implements points up the difficulty of verifying the authenticity of claimed glass artefacts. Any section of bottle glass placed on a hard surface and with pressure applied against the natural curve of the glass will produce 'scrapers'. But taking into consideration

- the average weight of the claimed artefacts compared to the wider collection
- the technology recorded for both flakes and cores
- the presence of some bifacial working
- the difference in edge shapes between 'side' and 'end' scrapers
- the presence of retouch on some cutting flakes, and
- the environmental setting

then the authenticity of glass implements at Port Essington is not open to serious doubt. At the same time there appears to be no way of positively identifying single glass artefacts, but commonsense should suggest the probable validity in terms of the above discussion.

At Port Essington, then, we may safely assume that the Aborigines quickly utilised this new material in an area lacking suitable stone. The implications of the archaeology are that this material was collected from the European rubbish dump and often modified there, and then taken onto the Aboriginal midden for utilisation for cutting and scraping activities. This analysis reflects some degree of specialised usage of the bottles available but the technology was not complex, as, for example, when compared to Kimberley bifacial point production. It is best seen as a transference of stone techniques to glass in an area where, from the present archaeological evidence, stone played a minor role in the technology and economy of the Aborigines, and what stone used was imported (see Chapter 5).

TYPE B GLASS

A total of 239 pieces of glass were initially sorted as items which would assist in the shape classification of the glass from Port Essington. The majority of these pieces are fragments of dark green ('black') bottle glass, and consist of base, neck and rim fragments. In addition, 15 prunts, or glass seals, were recovered, and a number of other items made of glass.

Two whole bottles (Figure 88) and a third with the lip missing were recovered from the excavations and these appear to reflect the main types in the collection as a whole. Figure 89 illustrates the measurements taken on both the whole bottles and the fragments where possible.

In all, measurements were taken from 85 bases and 134 rims and necks. No measurement was taken unless more than 50% of the base or rim was present so that these figures represent minimum numbers. In view of the utilisation of bases by the Aborigines it is not surprising that almost twice as many rims as bases are represented in the present category. While the collection represents a minimum of 134 bottles, an

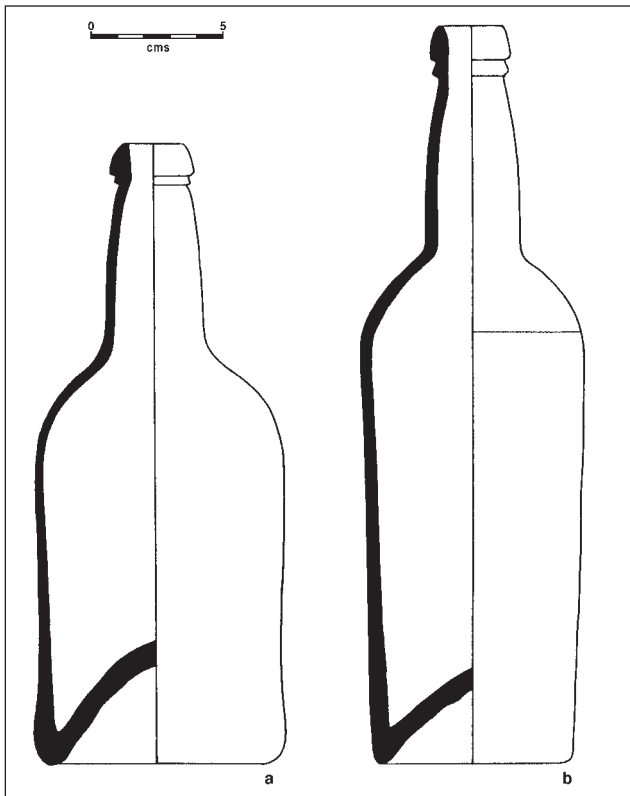


Figure 88. Complete bottles from Port Essington. Left V/GEN SUR/Hospital (39), right VM/14/1 (37).

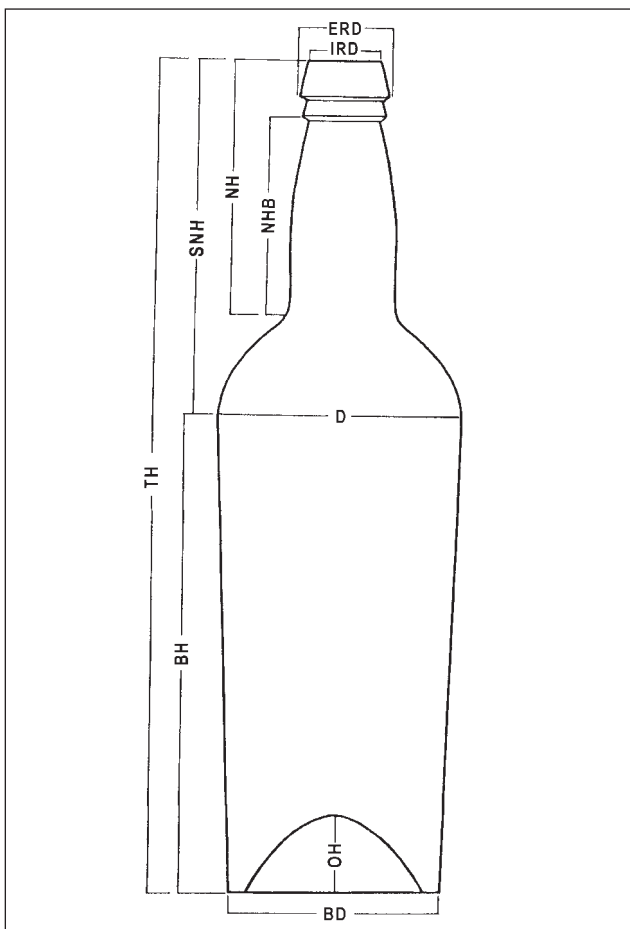


Figure 89. Measurements taken on Type B glass where measurable. Key: TH: total height; SNH: shoulder and neck height; NHB: neck height below rim; OH: omphalos or kick height; D: maximum diameter; BD: base diameter; ERD: external rim diameter; IRD: internal rim diameter.

upper limit is difficult to calculate. The mean average weight of the two whole bottles is 726.6 gm. The calculated weight of 134 bottles would then be 97364.4 gm, which is in excess of the total weight of glass recovered (96580 gms). However, from the rim fragments not included in the analysis, perhaps an additional 30 bottles are represented. Clearly, calculations on weight are simplistic and to be avoided.

A large majority of the bottles in the collection are of English manufacture. There appear to be no glass bottle manufacturers in Australia until the last quarter of the nineteenth century. Trade directories list manufacturers in Sydney and Melbourne in 1879, but large scale production of bottles in Australia did not take place until the twentieth century (H.L. Brown, Museum of Applied Arts and Sciences, Sydney pers. comm.). Dutch bottles (square case bottles, presumably but not certainly containing gin) and wine bottles in a lighter green glass, perhaps French (see bottle seals, below), are also in the collection.

The best account of English bottle manufacture has been written by Hume (1961) where he presented a general typology to illustrate the development of English bottle shapes from about 1650 to 1850 (1961:102-5, figs. 3-5). Of immediate interest here are numbers 21 to 23 of Hume's classification (Figure 90). Number 21 represents the evolved cylindrical form with tall body and short neck. Of importance in this item, where the string-rim had previously been a single

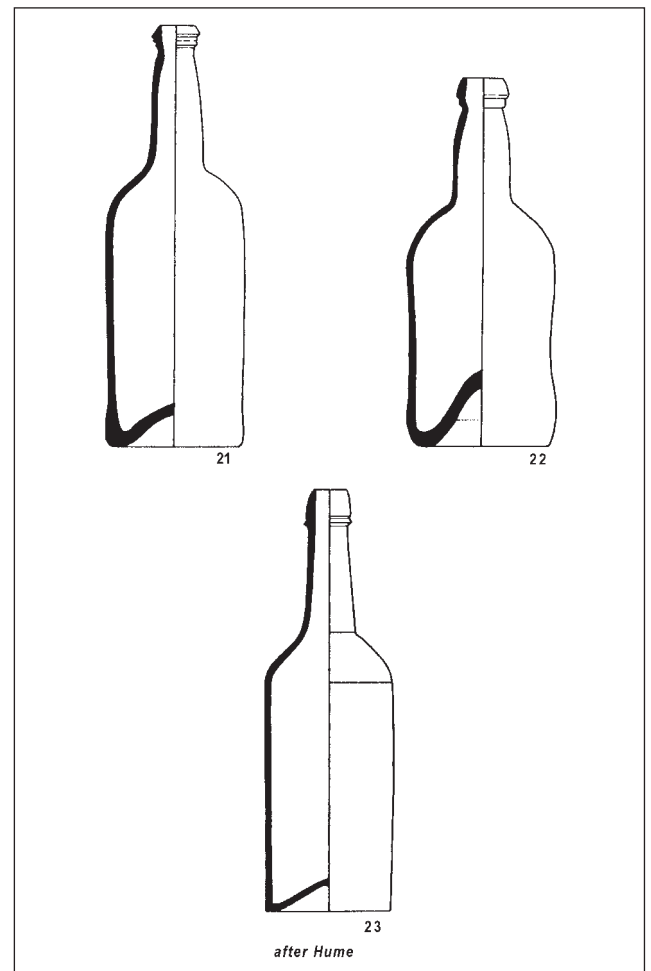


Figure 90. Bottle shape types from Hume's (1961) classification. Number 21 is a free-blown evolved cylindrical form with tall body and short neck, with a thickened mouth tooled downwards over the string-rim. Number 22 is a free-blown squat cylindrical form with short convex neck, dated to c. 1790-1820, see for comparison Figure 88a. Number 23 is a machine-made bottle made by Ricketts of Bristol and dated to c. 1814-1853.

glass strip around the neck, it now becomes a thickened mouth tooled downwards over the string-rim. This variation increases in number 22 which is a squat cylindrical form with short convex neck. Hume dates number 22 to about 1790–1820, and this example is closely related to one of the whole bottles from Port Essington (V/GEN SUR/HOSPITAL (39) (Figure 88a). Number 23 in Hume's typology is a machine-made bottle made by Ricketts of Bristol and dated by Hume to about 1814–1853.

The invention of machine-made bottles was important, not only because of improved manufacture, but also because size could be standardised. According to Hume (1961:94) the technique was perfected in 1811 by Jacob Ricketts and his son Henry, and the latter enrolled a patent for this bottle in 1822 (Ricketts 1822). By this method, the body of the bottle was formed by blowing the glass into the mould, and the shoulder and lower neck was formed by the opening top section of the mould. This is apparent from the illustration attached to Ricketts' patent, which shows that the top section of the neck was free-blown, and that the string-rim must have been attached later, not as Hume suggests (1961:94), in a single operation.

Of the two whole examples in the present collection, one is a blown bottle, the other bears the mould marks at the junction of the shoulder and body wall, and running vertically up opposite sides of the shoulder and lower neck (Figure 88b). A large number of examples of this technique are found in the Port Essington collection. However, no instance of a moulded string-rim was present in the collection, all rims having been attached after the bottle was made. Olsen noticed a similar technique on a collection of bottles from Florida (Olsen 1965:105–7) which included Ricketts bottles, and were dated to the period 1835–1842. Olsen identifies this technique by the uneven appearance of the rim which 'fuses with the mold seam'. However, from his illustration, 2c, he appears to confuse the mould seam with a striation on the bottle neck often found on these bottles.

The form of the kick on the Ricketts bottles appears fairly standard, being relatively shallow, and having the name of the maker moulded on the base. This practice was in use in the Ricketts factory from 1822 at least, since it is illustrated in Ricketts' patent. This base appears to have a central nipple on some examples but not on others. This form of base appears to be almost completely absent in the Port Essington bottles, where the high conical kick is the form employed, usually with the central indentation of the pontil present. Thus I assume that specific Ricketts bottles are not present in this collection, but instead that the majority of the collection represents an early form of machine-made bottle made essentially in the technique patented by Ricketts, and using a simpler form of 'pricker-up' which continued to produce the high conical kick found on earlier blown examples.

Rims

Figures 91 and 92 present a classification of rim shapes present in the Port Essington collection. However, Hume's (1961:102) warning that bottles are often far from regular and that profiles may alter depending on which side a bottle is viewed from must be emphasised. While such discrepancies were overcome to some extent by machine manufacture, variation still occurs. However, with machine made bottles, large collections may afford reasonable information from metrical analysis, as the Port Essington bottle fragments demonstrate. While no two are exactly alike, the bottles from this collection possess the same sort of relationships as pieces of hand-made utilitarian pottery where the potter is trying to replicate a single form.

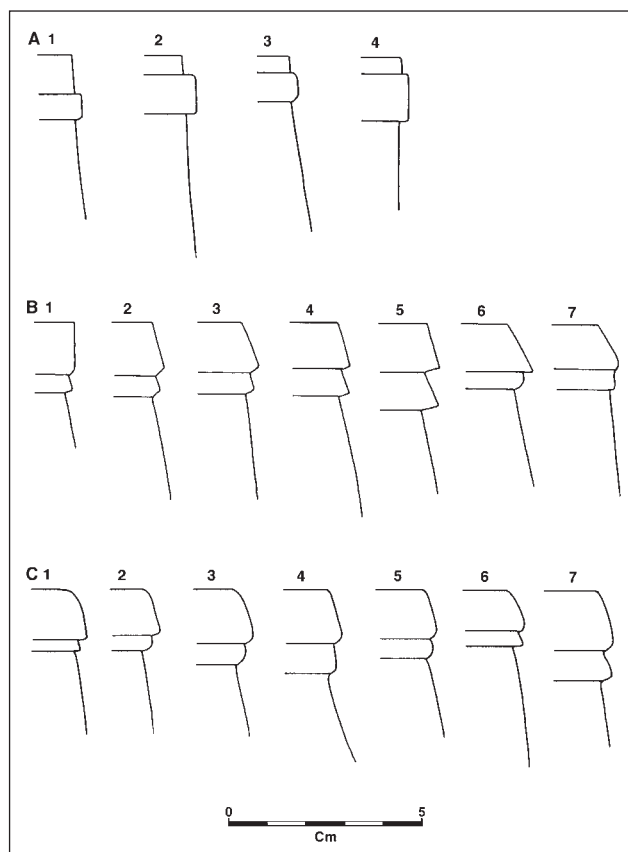


Figure 91. Rim types from the Port Essington collection.

The rims in the present classification have been arbitrarily arranged on morphological grounds. The A series (Figure 91) illustrate the variation in simple strip string-rims which are normally associated with free-blown bottles, although the items in this category are too fragmentary to determine whether any come from machine made bottles. Klein (1952:128, fig. 3.2) illustrates three examples to demonstrate the difference between English and Continental strip string-rims. In the Continental type, the rim is carelessly applied, the end often overlapping the beginning, and this occurs in the present collection, particularly in Figure 91 A1, but this evidence is too flimsy to ascribe Continental origin to the items in this category.

More distinctive are the Continental bottles with long necks, narrow at the bottom and bulbous at the 'top' (Klein 1952: figs. 21, 29) which bear this type of Continental rim. This type is certainly present at Fort Dundas on Melville Island (Specimen 11-3633 from the Pilling Collection in the R.H. Lowie Museum of Anthropology, Berkeley, California; plus two items I collected at Fort Dundas on Melville Island in 1967). Some of the A1 series from Port Essington are indistinguishable from these in terms of the string-rim. Thus the possibility of Continental, probably Dutch, manufacture should not be overlooked for these items, and Hume who commented on the Port Essington bottles (pers. comm.) believes that all the A series string-rims from Port Essington are from bottles of non-English origin.

Series B and C (Figure 91) form the bulk of the collection and illustrate the wide range of variation in bottle rims in the collection. Unless whole examples are present it is impossible to relate these rims to free-blown or moulded bottles. Of the two whole bottles in this collection, the free-blown example has rim shape C1; the moulded example has rim shape C7. The sizes of the rims differ greatly but there is nothing to suggest that this relates to methods of manufacture.

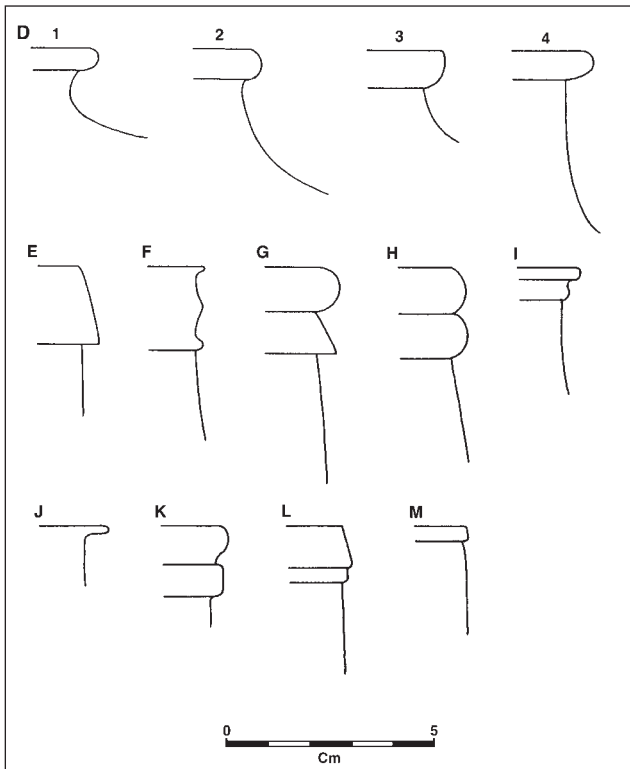


Figure 92. Case bottle rim types from the Port Essington collection.

As discussed above, all these rims appear to have been applied after the bottle was made, presumably by using a hot rolling technique. None of the examples use the method described by Hume (1961:105, item 22) of rolling the lip of the neck down over the string-rim while the glass is still hot, although one example of this technique was collected at Fort Dundas by John Morris of Darwin, who kindly lent his entire collection for study.

Series D (Figure 92) represents rims from case bottles. One seal in the collection marked 'AH' can be identified as a Dutch manufacturer and this seal presumably came from a case bottle, so that this collection may comprise either Continental bottles, or both Continental and English types. In general the group is reasonably homogeneous, except for D4 which possesses a longer neck than the other examples. I have located no parallels for this long variety.

Types E to I illustrate all the other variations of 'black' bottle rims in the collection and represent single Items except for E, in which category there are four examples.

Types J, K and L are all manufactured in light green glass. J and L are bottle rims; K is a narrow jar mouth. Type M is a bottle rim in clear glass.

The numerical division of the collection of 134 rims into these categories is given in Table 84.

Table 84. Glass Type B: numerical distribution of rims according to type.

AI	A2	A3	A4					Total	
5	2	2	1					10	
B1	B2	B3	B4	B5	B6	B7			
1	5	10	7	2	1	2	28		
C1	C2	C3	C4	C5	C6	C7			
14	8	2	8	6	8	17	63		
D1	D2	D3	D4						
10	1	8	2				21		
E	F	G	H	I	J	K	L	M	
4	1	1	1	1	1	1	1	1	12
Total								134	

Two measurements (Figure 89, ERD and IRD) were made on this collection. This was done initially for each type, but the results were so similar within series that it appeared reasonable to group the series. Tables 85 and 86 show the results, giving the maximum and minimum values, mean average, and standard deviation.

Table 85. Glass Type B: external rim diameter measurements (mm) according to rim type.

<i>External Rim Diameters (mm)</i>					
Series	No	Maximum	Minimum	Mean	SD
A	10	43	30	32.5	3.7
B	28	36	27	32.3	1.6
C	63	36	28	32.0	1.6
D	21	45	38	41.5	1.7
E	4	34	28	31.8	2.3
F	1	30			
G	1	37			
H	1	30			
I	1	34			
J	1	20			
K	1	46			
L	1	25			
M	1	19			

Table 86. Glass Type B: internal rim diameter measurements (mm) according to rim type.

<i>Internal Rim Diameters (mm)</i>					
Series	No	Maximum	Minimum	Mean	SD
A	10	24	19	19.9	2.4
B	28	23	16	20.5	1.5
C	63	24	16	20.2	1.5
D	21	23	14	17.9	2.1
E	4	20	18	19.3	0.8
F	1	19			
G	1	20			
H	1	20			
I	1	18			
J	1	9			
K	1	31			
L	1	11			
M	1	15			

Excluding the single items from these tables, it appears that while exact measurements may mean very little, each group is sufficiently homogeneous to suggest meaningful ranges for bottle rims in this period. Series B and C are almost identical, and selecting the larger types out of these two groups, there is little difference in the ERD and IRD measurements for the larger and smaller types. The A series shows the greatest variation, but if the single item in Type A4 (already discussed as large and atypical) is removed the ERD measurements form a closer group (Table 87).

Table 87. Glass Type B: external rim diameter measurements (mm) for Type A, excluding A4.

No	Maximum	Minimum	Mean	SD
9	34	30	31.3	1.4

Where the necks were intact (sample = 40) two further measurements were made on this group, neck height (NH) and neck height below rim (NHB) (Tables 88 and 89).

These tables indicate a fairly wide variation in neck height which apparently cannot be explained by the varying heights of rims. That is to say, that no closer standardisation of neck heights could be obtained for the individual types in any series by grouping the larger and smaller rim types together. The

figures do, however, provide measurement ranges for future comparative study.

Table 88. Glass Type B: neck height measurements (mm) according to rim type.

<i>Neck Height (mm)</i>					
Rim Type	No	Maximum	Minimum	Mean	SD
B	7	92	76	87	5.2
C	15	97	74	86.5	5.0
D	16	45	17	29.9	12.0
F	1	121			
G	1	84			

Table 89. Glass Type B: neck height below rim measurements (mm) according to rim type.

<i>Neck Height Below Rim (mm)</i>					
Rim Type	No	Maximum	Minimum	Mean	SD
B	7	74	57	68.6	5.6
C	15	80	57	68.7	5.4
D	16	38	10	22.9	10
F	1	101			
G	1	58			

Bases

Of the 85 'black' glass bottle bases in the collection, two are moulded, eight are square case bottle bases and 75 have the conical kick, usually associated with free blown bottles, but which in the present collection must be associated in fairly large numbers with the moulded bottle technique as well (see discussion on Ricketts bottles above). As previously stated, many of these bases have a pontil indentation in the centre of the kick, which in the case of the moulded examples is presumably made by the pricker-up, described in Ricketts' patent.

Two measurements were made on the bases in the collection, the diameter at the base (BD) and the maximum height of the omphalos or kick (OH). It was found that both measures produced a series of slightly different measurements when repeated. Thus these measurements were seldom as exact as reported here; for example a second BD measurement taken at right-angles to the first might give a difference of 2 mm. Thirteen items could not be measured, reducing the sample to 62. Table 90 summarises the results.

Table 90. Glass Type B: distribution of circular bases according to base diameter (mm) and kick height (mm).

Base Diameter	Sample Number	Kick Heights								Not Measured
		13	21	25	30	34	40	44	53	
70	1									1
73	5		1						4	
78	36		7	10	5	3	9	1		1
82	23			1	6	2	4	5		5
90	8		1					1		6
96	1								1	
113	1	1								
Total	75	1	9	11	11	5	13	7	5	13

From this analysis, it can be seen that there is little apparent correlation between the base diameter and the height of the kick except that 17 examples of the 36 with a base diameter of 78 mm have a kick height of either 21 mm or 25 mm, while only 1 example of 23 items with a base diameter

of 82 mm has a kick height less than 30 mm. Together these two groups comprise almost 80% of the collection and suggest a norm for base diameter for the bottles of this period.

Of the five examples with a base diameter of 77 mm, four have a particularly high kick (53 mm). These items are in a lighter green glass than the majority of the collection and all came from a single area, VM. In this area a number of French wine bottle seals were recovered in similar coloured glass, and it is reasonable to assume that these bases belong to French wine bottles.

Of the eight examples of case bottle bases all are square. One example is 69 mm along each side and has a single line diamond-shaped mark moulded on the base. The other seven all measure 74 mm along each side and four moulded base marks are present; two examples of a single-lined cross, one 'asterisk' mark, and a single-lined square. One example with a high (20 mm) kick and bearing a pontil mark is present. Such moulded base marks as described here are of little value for identification and were used from the late eighteenth century onwards (Hume 1961:93, fn 17).

In view of the introduction of the Ricketts' moulding technique so early in the nineteenth century, and the undoubted presence of bottles made in a similar manner at Port Essington, it is surprising to have an almost total lack of 'black' glass moulded bottle bases in the collection. Only two examples are present, both having a base diameter of 80 mm (a size not found in the collection of bases with conical kicks); one has a kick height of 8 mm, the other of 18 mm. The example with the lower kick has a central nipple, a feature missing on the other example. In view of the general absence of conventional moulded bases in this collection it is reasonable to conclude that other moulded bottles present at Port Essington almost always possessed bases with conical kicks. The two whole examples in the collection certainly possess this sort of base. Apart from these 'black' bottle bases, however, five moulded bases were recovered, manufactured in a light green glass. Two examples are cylindrical with a diameter of 78 mm and a kick height of 13 mm. The remaining three examples are square with sides measuring 68 mm, but with the corners cut (making the cross-section an uneven octagon). Each has a round kick 17 mm high.

COMPLETE BOTTLES

As mentioned above two whole bottles and a third with the rim missing were recovered from the excavations.

1. V/GEN SUR/HOSPITAL (39) Figure 88a.

This item is a free blown bottle, with the rim shape Type C1, its weight is 691.8 gm and has a volume of 700 ml, measured to the base of the neck. The measurements delineated in Figure 89 are as follows: TH: 237 mm; BH: 124 mm; SNH: 113 mm; NH: 81 mm; NHB: 63 mm; OH: 44 mm; BD: 90 mm; D: 93 mm; ERD: 32 mm; IRD: 20 mm.

In general this bottle is very uneven; it rocks on its base and is not symmetrical. It is typical of Hume's type No. 22, to which that author ascribes a date 1790–1820 (Hume 1961:105).

2. VM/14/1 (37) Figure 88b

This bottle is moulded in the Ricketts' method, but with a high conical kick. The shape of the rim is Type C7; weight 762.0 gm; volume 710 ml, again measured to the base of the neck. Other measurements are: TH: 288 mm; BH: 159 mm; SNH: 129 mm; NH: 90 mm; NHB: 65 mm; OH: 30 mm; BD: 78 mm; D: 85 mm; ERD: 30 mm; IRD: 20 mm.

At present no firm date can be ascribed to bottles of this type. A *terminus ante quem non* of 1811 might be applied on the basis of the moulded body but this is of little value in determining a close date of manufacture. As discussed above, the practice of subsequently attaching string-rims by hand to otherwise moulded bottles has been noted in Florida (Olsen 1965:105–7) in a collection dated to the period 1835–1842. This date range coincides nicely with the present collection, so that the association of these two techniques might have chronological significance in a typological sense.

3. VM/13/1 (27)

This bottle is complete except that the rim has been broken off. It has been made by the same technique employed for VM/14/1 (37) but the glass is amber rather than black. Its weight is 646 gms; volume 730 ml. Other measurements are: TH: 304 ± 5 mm; BH: 163 mm; SNH: 135 ± 5 mm; NH: 95 ± 5 mm; NHB: 80 mm; OH: 30 mm; BD: 78 mm; D: 85 mm. This bottle is slightly larger than VM/14/1 (37).

GLASS BOTTLE SEALS

From the middle of the seventeenth century until about the 1870s bottles sometimes bore on the shoulder a glass prunt or seal which served the purpose of a label. These were inscribed with a crest, a name or initials, sometimes a date, or an address. Ruggles-Brise (1949:15) has divided these seals into two groups; proprietary seals and factory seals. In the later nineteenth century the use of these seals dies out, presumably because of the introduction of moulded lettering on bottles, although Hume (pers. comm.) reports a bottle with a glass seal made in France in 1905. Some present-day liquor bottles still bear moulded versions of these seals as decoration.

Fourteen seals were recovered from the Port Essington excavations, six from VM, four from VSD, two from VH, one from VAM II, and one in the general surface collection. These fall into three distinct groups.

The Château Margaux Seals (Figure 93)

Five seals bear various inscriptions of this Bordeaux vineyard. Three are stamped 'CHATEAU MARGAU', a fourth 'CHATEAU MARGAUX' and the fifth 'CHATEAU MARGAUX' beneath a grape cluster. The last example is in 'black' glass, all the others being light green.

Château Margaux, from the Médoc region of Bordeaux achieved lasting fame when the Bordeaux Wine Official Classification of 1855 was created for the Paris Exposition of that year. The classification named the Grand Crus Classés (great classified growths) in five divisions. Château Margaux was one of only four wines to be assigned the ultimate Premier Cru (first growth) status in a classification that remained unchanged for over a century.

It was thus a very superior wine to be drinking at Port Essington.

Unfortunately the vineyard holds no records that might give a closer dating to these seals than can be arrived at archaeologically.

At least one other seal in the collection may be regarded as being related to these French wine bottle seals. This is inscribed 'John Alberty Bordeaux Vieux Cognac 1815' (Figure 93-f). See also item VM/11/1 (29), a glass stopper, discussed below.

It is highly doubtful that the British government would supply outposts such as Port Essington with vintage French wine, nor is there any obvious trade source to account for this



Figure 93. French bottle seals from the Port Essington: a) VM/11/1; b) VM/SUR/67; c) VM/12/1 (100); d) VM/6/1 (1); e) VM/S/W (1); f) VAMII/2/1 (1).

commodity. The answer is found in the French account of the visit of the *Astrolabe* and *Zélée* to Port Essington in April 1839. The leader of the French expedition, Dumont d'Urville related that on 7 April:

A cinq heures nous étions tous réunis à la table de M. Bremer; il avait mis toute la colonie à contribution pour nous traiter splendidement. Si nous en avions été réduits à cela, nous eussions couru risque de faire pitense chère, mais grâce à de bonne viande de buffle, un superbe dindon, et d'excellentes volailles provenant de Timor, le tout assaisonné de vieux vin de Sauternes et de Bordeaux, nous eûmes un charmant dîner (d'Urville 1841-55 (VI):280 n.19).

[At 5 o'clock we (d'Urville, his officers and one assumes the British officers) were all together at Monsieur Bremer's table. He had gotten the whole settlement to contribute to a splendid treat for us. If we had been reduced to this, it would have been woeful; but, thanks to beautiful beef, superb turkey and excellent Timorese poultry, accompanied by vintage Sauternes and Bordeaux, we had a charming dinner.]

The clear implication here is that the French supplied the meat and wine. On this basis it is reasonable to see these seals as the archaeological expression of this single meal. The recovery of these seals in the rubbish dump adjacent to the government house site adds weight to the argument.

The 'Crown' Seals (Figure 94-a-h).

This group of eight seals comprises four items inscribed 'V↑R'; two seals inscribed 'W↑R'; one seal inscribed 'G↑R';

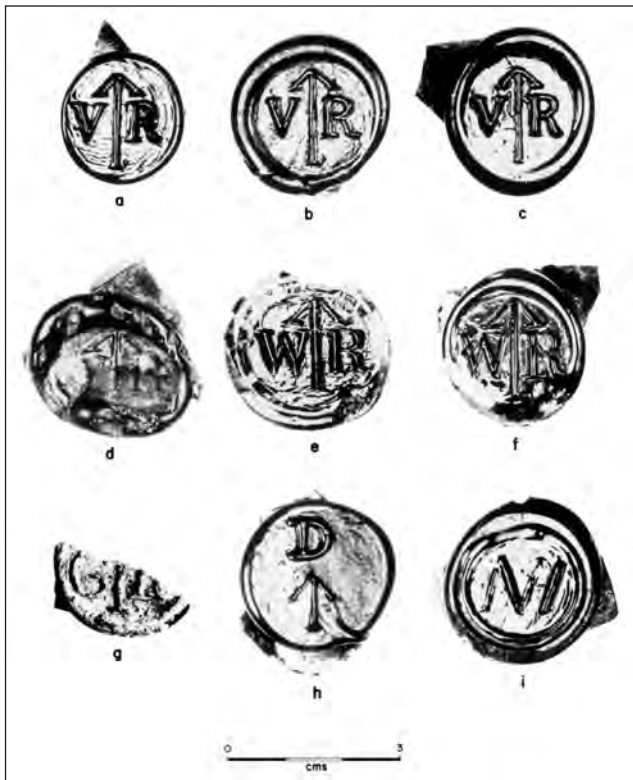


Figure 94. English and Dutch bottle seals from Port Essington: a) VH/S/D (13); b) VSD/8/1 (142); c) V/GEN SUR/Town (34); d) VSD/5/1 (1); e) VH/S/U (23); f) VSD/6/1 (2); g) VSD/4/1 (4); h) VM/11/1 (31); i) VM/6/1 (3).

and one seal inscribed '↑D'. These are seen as referring to Queen Victoria, William IV, and George IV, and presumably the bottles to which they were attached were Government issue of some sort. The present insignia of the Department of Defence in Australia, 'D↑D', provides an interesting parallel to the 'D↑' seal.

The 'AH' Seal (Figure 94-i)

One seal bearing the initials 'AH' can be identified as belonging to A. van Hoboken. A merchant and ship owner of this name lived between 1756 and 1850 and owned a distillery in Delft under the name of van Hoboken en Rogge.

The firm of A. van Hoboken en Zonen had 23 ships in 1842 (W. R. Klein pers. comm.) and the connection between the 'AH' seal in the present collection and Hoboken cannot be doubted. I collected a similar seal at Raffles Bay, where the association could be either with the British settlement there, or with a Macassan trepang site in the immediate vicinity, and Campbell Macknight (pers. comm.) has also collected similar seals from a Macassan site. In Darwin I examined three case bottles that had been collected in the Pine Creek area of the Northern Territory. One bore an 'AH' seal similar to those collected and mentioned above. The other two bore a similar seal on the shoulder and the moulded inscription on the side 'A. VAN HOBOKEN ROTTERDAM'. A fourth case bottle, also from Pine Creek, bears the same moulded inscription on the side and a moulded 'AH' seal on the shoulder (in the possession of Carmel White, Sydney).

OTHER GLASS ITEMS (Figure 95)

VM/14/1 (38) (Figure 95-e)

Glass phial sometimes referred to as an opium phial, although such a phial might well have contained other things.

VM/S/E (1) (Figure 95-c)

Glass stopper in translucent white glass, oval in cross-section, but this is possibly due to damage by fire.

VQS/7/1 (2) (Figure 95-a)

Circular glass stopper.

VQS/7/1 (29) (Figure 95-b)

Circular glass stopper similar to VQS/7/1 (2), but slightly smaller.

VM/11/1 (29) (Figure 95-d)

Green glass circular stopper, with heart-shaped top. The top has moulded lettering, reading 'BREVET E' on one side and 'E EYQUEM' on the other. This might translate as 'patented by Eyquem.' Château d'Ychem is a Bordeaux region vineyard in the Graves area, renowned for its sauternes, but it is unknown whether it was ever bottled in stoppered bottles. Given its connotations and that it was located at VM with all the Château Margaux seals (see above), and that d'Urville specifically mentioned 'vin de Sauternes et de Bordeaux' it seems reasonable to associate this stopper with the French visit. No other information has been obtained that offers closer dating.

Sauternes from Château d'Ychem were (and are) as exclusive as Château Margaux. As with the red wines, in 1855 the best sweet Bordeaux wines were classified as Grand Crus Classés in a separate list. Nine wines were classed as Premier Cru, including Château d'Ychem, but it was considered to be so outstanding it alone was accorded the status of Premier Cru

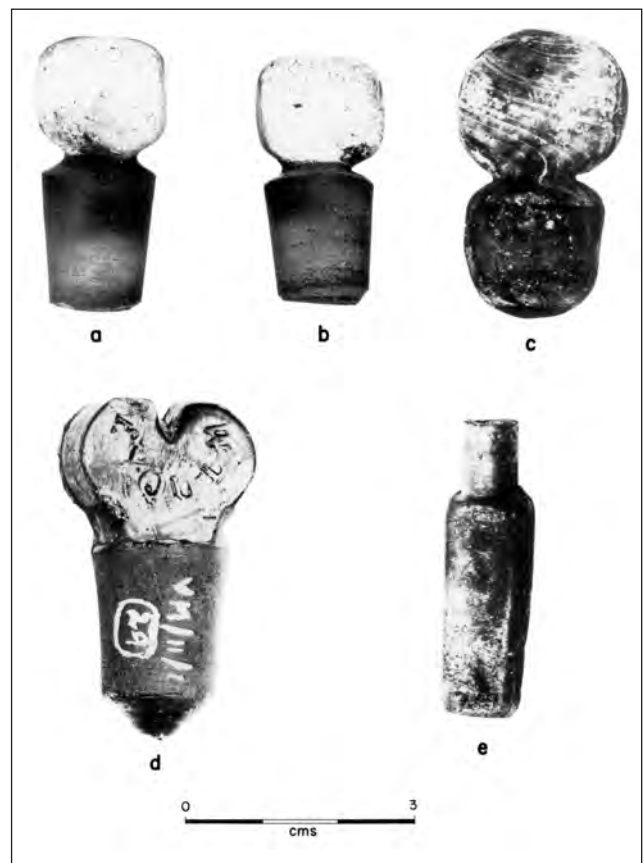


Figure 95. Glass stoppers and a small glass phial from Port Essington: a) VQS/7/1 (2); b) VQS/7/1 (29); c) VM/S/E (1); d) VM/11/1 (29); e) VM/14/1 (38).

Supérieur. If this stopper is from a Sauternes bottle, then it can only reasonably be associated with d'Urville's visit.

Drinking glasses

Lastly, a number of base fragments of wine glasses and tumblers were recovered. Of the wine glass bases two had a diameter of 62 mm and one of 74 mm and were of plain design. The most common form of tumbler appeared to have vertical fluted sides. Unfortunately all the wine glasses and tumblers were very fragmented and some had apparently been flaked by Aborigines, so that no other detailed measurements could be obtained.

DISCUSSION – TYPE B GLASS

The analysis of the bottles from Port Essington has thrown up a number of points of interest. It is clear that the manufacture of moulded bottles in the first half of the nineteenth century in Britain produced bottles which vary from the typical Ricketts bottles, but which were made by a very similar technique. It is not possible so far to illustrate correlations between such things as base diameters and kick heights to differentiate between the last period of free-blown bottles and the early moulded types, but it is suggested that if measurements could be obtained from a large collection of whole examples, patterns of ranges might emerge to enable archaeologists to differentiate base and rim fragments of the two types found in archaeological deposits.

Dating the bottles in the present collection is at best inexact. Just how long bottles stay in circulation is unclear, but from the present collection one whole example, and perhaps many more fragments of free-blown bottles are represented in a site which did not begin until 1838. Thus the terminal date of the manufacture of free-blown bottles may have to be extended beyond the accepted date of 1820. Certainly the free-

blown example from Port Essington has a more evolved string-rim than Hume's example Number 22. Alternatively, the life of any single bottle can be quite long. The evidence of what I have termed 'Crown' seals indicates a date of before 1830 for one seal in the collection and a date of before 1837 for two seals. These seals in the present collection (one G↑R, two W↑R, four V↑R) do suggest as archaeological evidence at least a starting date for the settlement which is reasonably close to the historical date. It is of interest that Ruggles-Brise makes almost no mention of this type of seal except to say that the City Museum in Winchester has one seal with a rather crude anchor and the letters G.R. (Ruggles-Brise (1949:51). However, in her lists of seals (1949:137) Ruggles-Brise refers to this seal as 'G.R. with arrow between the letters' and also makes reference to a VR seal and a WR seal. Hume (pers. comm.) has also sighted a VR seal from British Columbia.

At first sight, the apparent volume of bottle glass from Port Essington recalled Margaret Kiddle's (1961) suggestion that drunkenness in early Australia could hardly be overestimated. However, allowing that this collection contains the remnants of 200 bottles and represents perhaps 20% of all the bottle remains in the settlement, and that an average of fifty men were stationed at Port Essington over the eleven years of the settlement, this represents only 0.035 bottles per man per week, or about two bottles per man per year. The best assumption that can be drawn from this evidence is that bottled liquor was either supplementary to casked liquor or irregularly available or restricted to particular groups, such as officers, or combinations of these.

TYPE C GLASS

Table 74 gives the details of the unidentifiable glass in the collection in terms of number and percentage. A further breakdown of this table can be obtained from the individual site reports above. No further analysis was made of the Type C glass.

Chapter 5

Metal, Stone and Bone

METAL

A wide range of metal artefacts was recovered from the excavations and these are presented in Tables 91, 92 and 93, according to the nature of the metal. In addition to these tables, a large quantity of unidentified iron, mainly hoop-iron, and unidentified scrap lead and copper, was recovered. These have been presented in the individual reports by weight and are not discussed further here.

Iron and lead

Apart from the hoop-iron, nails are the most predominant iron artefacts in the deposit. In general they are badly decayed and fragile and the exact measurements of all but a few items were impossible. Instead, they have been grouped into ranges. For example, as Table 91 indicates, of the 1,954 iron nails in the collection, 81.7% are less than 50 mm (2 inches) in length. The application of machinery to nail manufacture was first made in the United States at the end of the eighteenth century, and 120 American patents were taken out on machines that cut nails between 1790 and 1825 (Fontana and Greenleaf 1962:45; Fontana 1965). In contrast, machine made nails in England appear not to have been made until their production was begun in Birmingham in 1811 (Martineau 1866:613).

Fontana and Greenleaf present a number of useful criteria based on technological improvements in the industry which help to date the nails in question. All the nails from the Port Essington collection are cut nails, and may be most easily recognised by the manner in which two sides of the shank run parallel while the two opposite sides taper away from the head. In the early American and English machines this taper was achieved by turning the nail plate upside down at each stroke so as to continue the taper by reversing the cut. This produced nails with a particular cross-section (Fontana and Greenleaf 1962:fig. 11q). Between 1810 and 1825 machinery was developed which obviated the need to reverse the plate and which produced a nail with a different cross-section (Fontana and Greenleaf 1962:fig. 11r). Martineau (1866:614)

however, still describes this turning operation in use at about the mid-1850s in England, so that this dating criterion may not be effective in Australia (where imported English nails as well as locally made nails were used), at least in time equatable to the American situation. Because of the eroded nature of the nails in the present collection, it is impossible to record the cross-sections of many nails.

Although a large number of nail shapes and sizes were in existence in the nineteenth century, the nails from Port Essington are almost all 'common cut nails with a square crowned head' (Figure 96-a-d), similar to the fencing nails illustrated in an 1876 catalogue published by Fontana (1965:92). The major exceptions are nails less than 30 mm in length excavated in large numbers from VS, which have large

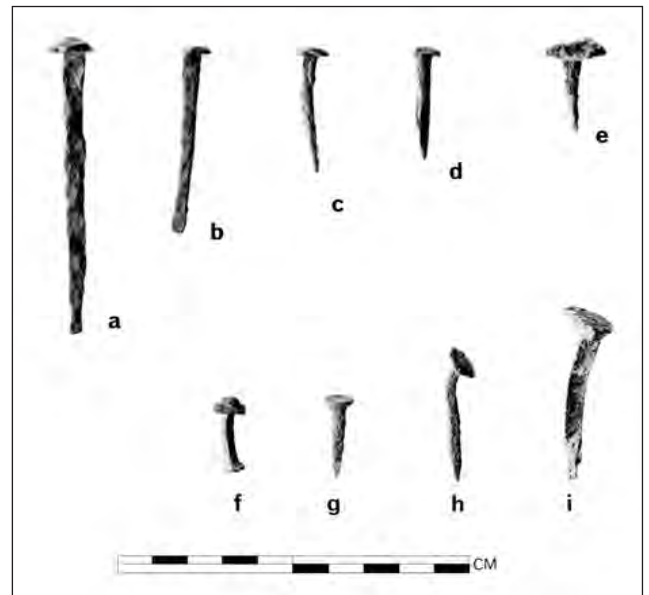


Figure 96. Nails from Port Essington: a-d) iron cut nails with square crowned heads; e) iron tufting nail; f) copper rivet; g-h) square shanked countersunk copper nails.

Table 91. Distribution by number of all identified iron and lead artefacts for the whole site. Nail measurements in mm.

Iron	VM	VMII	VH	VHD	VHK	VMQ	VQS	VOM	VSD	VSF	VSF11	VB	VS	VAMII	VCH	Gen/Sur	TOTAL
Nails < 30	28	4	37	21	16	4	66	2	123	3	6		190				500
Nails 30-50	122	12	34	339	40	27	97	20	346	20	32			4	3		1096
Nails 50-80	58	19	9	89	5	8	13	7	81	13	6	5			1		314
Nails > 80	10	8		7		1	2		7	3	4			1	1		44
Belt Buckles												1					1
Rings			1					1									2
Screws	3								2								5
Hooks	3																3
Hinges	1						1		1								3
Locks							1										1
Nuts						1											1
Bolts	1																1
Angle Iron	1							1	1								3
Pins						1											1
Forks										2							2
Boot Heels	4						1			1							6
Stove Feet										1							1
Lead																	
Shot																1	1
Cannon Balls									7								7
Musket Balls		4		2			1	1								1	9

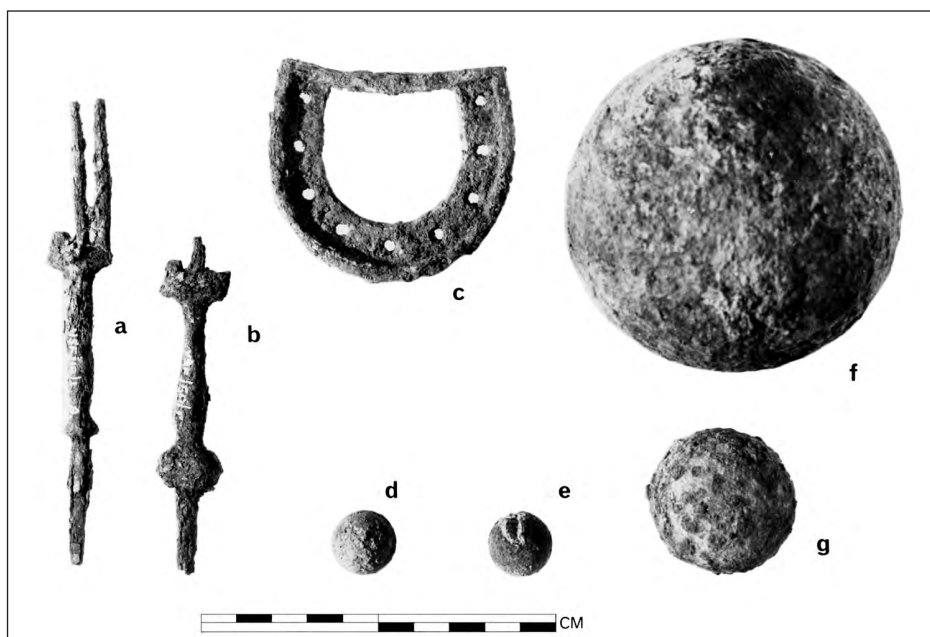


Figure 97. Iron and lead artefacts from Port Essington: a-b) three-tined forks from VSF I; c) boot heel from VM/12/1; d-e) musket balls from VM II/1/1; cannon ball from the collection of J. Calaby, Canberra; g) canister shot from VSD.

mushroom heads (Figure 96-e) and are called tufting nails in the 1876 catalogue (Fontana 1965:92). At least some nails were manufactured at Port Essington (Anon.1843a:29, see McArthur to Bremer, 3.11.1841).

A number of the other iron artefacts from the collection fall into a general architectural category. Iron screws appear not to have been in general use in the settlement and those in the collection probably were used in furniture. Two iron forks were excavated in the shell floor of VSF I (Figure 97-a-b). Each of these forks has three prongs, an iron shank, and a tang which was probably set into a bone handle. A similar piece of cutlery from Raffles Bay still has the bone handle intact. It resides in the collection of the Historical Society of the Northern Territory.

A number of iron boot heels were also recovered (Figure 97-c). Seven pieces of canister shot were recovered from the floor of VSD where they had presumably been stored. All are of a similar size (Figure 97-g) and give an average weight of 217 gm, that is, they are almost exactly half-pounders. In addition two larger cannon balls were collected in 1965 by John Calaby, C.S.I.R.O. Division of Wildlife Research. Mr Calaby generously given the objects to be included in the present collection. These items weigh 2,583 gm (5.69 lb) (Figure 97-f) and 2,375 gm (5.24 lb) respectively and were interpreted as being originally six-pounders.

Of the lead recovered at Port Essington, the only recognisable objects were nine musket balls, which weigh 30.6 gms each (Figure 97-d-e). One four hole iron button was recovered. Its diameter is 19 mm. An iron belt buckle (Figure 102-c) was also recovered near the bakery.

Copper

Apart from pieces of scrap copper, the only artefacts of this metal are three coins, two items of uniform insignia and nails that are, as one might expect, less frequent than iron nails (Table 92). Again these have been placed in size ranges. The main type is the square-shanked cut nail with large counter-sunk flat head which is found in a number of sizes (Figure 96-g-i). The second type is a form of copper rivet with small flattened head and square blunt shank with diamond-shaped washer (Figure 96-f). Most of these nails were collected behind the beach, and presumably come from a broken-up boat. However the 40 copper nails less than 30 mm in length from the hospital kitchen are of this variety. Their use in the construction of this building is obscure, unless they were used to attach the shingles in the absence of shingle clouts. This seems a

laborious method of attaching shingles, but no other explanation of these rivets presents itself. Two small copper 'scales' (Figure 100-a-b) each with three holes in the 'top' straight edge of the 'scale' were recovered and seem almost certain to be scales from either an epaulette or a shako chin-strap. The two examples here are of different size, the smaller measuring 20 mm along the straight edge; the larger, 30 mm.

Copper coins

Three almost identical coins of Southeast Asian origin were recovered. These were identified for me by Dr N. Barnard, Department of Far Eastern History, A.N.U., as 'supikas'. According to Dr Barnard they are probably counterfeit coins of which many similar examples flooded into entrepôts such as Singapore during the nineteenth century (Schjøth 1929: plate 89). Schjøth has illustrated similar coins, from which it is possible to make identifications as follows:

V/Gen. Sur/Town square (37) (Figure 98-a)

Obverse: Schjøth No 1464, Plate 89

Reverse: Schjøth No 1480, Plate 89

VCH/2 (40) (Figure 98-b)

Obverse: Schjøth No 1463, Plate 89

Reverse: Schjøth No 1484, Plate 89

VHK/2/1 (63) (Figure 98-c)

Obverse: Schjøth No 1489, Plate 90

Reverse: Schjøth No 1501, Plate 90

Table 92. Distribution by number of all identified copper artefacts for the whole site. Nail measurements in mm.

	VM	VMII	VH	VHD	VHK	VMQ	VQS	VSD	VSF I	VCH	Gen/Sur	TOTAL
Nails <30	10			1	40	3	1	1	7		18	81
Nails 30-50	3	5	1		1		2	10	5	2	15	44
Nails 50-80					1						3	4
Screws	2											2
Nuts & Bolts						1						1
Uniform Insignia	1								1			2
Coins					1					1	1	3



Figure 98. *Supikas*, coins of Southeast Asian origin, showing obverse and reverse: a) V/Gen. Sur./ Town Square (37); b) VCH/2 (40); c) VHK/2/1 (63).



Figure 99. Royal Marines officer's shako plate from officers' mess excavations.

The first two coins relate to the reign of Ch'ien lung (1736–1795), and the third to the reign of Chia-ch'ing (1796–1820). The various obverse designs relate to provincial mints. Schj oth No 1480 refers to Yunnan province; No 1484 to Szechuan province; No 1501 to the Chihli mint.

Brass

A number of different brass artefacts (Table 93) were recovered from the excavations which can be grouped as follows.

Uniform Insignia

From the floor of the Officers' Mess four pieces of a Royal Marines shako plate (Figure 99) were recovered during the excavations. This consists of an irregular shaped shield of radiating lines, topped by a crown and bearing in the centre an anchor. Above the anchor is the legend 'GIBRALTER' and below, the motto of the Royal Marines 'PER MARE [PER TERRAM]'. The last fragment was not recovered. From the excavations in VQS, a medallion bearing the 'Royal Crest' (crowned lion standing astride a crown) was recovered (Figure

100-d). This measured 45 mm in diameter, and has been identified as a shako chinstrap terminal, although it is similar to a harness ornament in the collection of Professor A.C. Thomas of the University of Leicester (pers. comm. 11.11.1966). Professor Thomas' example comes from the Military Train in the Crimea (1859-1865). My identification is based on an example examined in the Royal Marines Barracks Museum, Portsmouth.

- Two brass wreaths (Figure 100-e-f) were recovered, one each from VMQ and VQS. Each has two eye hooks on the back. They are part of the insignia worn by other ranks of the Royal Marines on the glengarry, the 'pork-pie' or 'pill-box' cap. Complete, these wreaths enclosed a small brass half-hemisphere of the globe, separated from the wreath, and with a separate bugle above.
- A free-standing crown and anchor (Figure 100-c) was excavated from VM/9/1, measuring 62 mm in length. One fluke of the anchor was missing, but this was recovered from the adjoining square, VM/10/1. There appears no way of indicating whether this was a marine or naval insignia. (But see uniform buttons below).

All these insignia would originally have been gilded.

Table 93. Distribution by number of all identified brass and pewter artefacts for the whole site.

Brass	VM	VMII	VH	VHD	VHK	VMQ	VQS	VOM	VSD	VSF	VSF11	VAMII	Gen/Sur	TOTAL
Uniform Insignia	2	1				1	2	1			1		1	9
Uniform Buttons	5	2	1			1	1			4	1			15
Plain Buttons	6	1				2	2		3	1	2			17
Percussion Caps	7					1					1			9
Harmonica Reeds	1									1				2
Collar Studs		2							1					3
Belt Buckles								1					1	2
Furniture Knobs	1						1		1					3
Keyhole					1									1
Brooch Frames						1								1
Rings	1			1										2
Ferrule												1		1
Spike							1							1
Hinge		1												1
Washers						2								2
Pewter														
Uniform Buttons	1		1			1	1			4	1			9

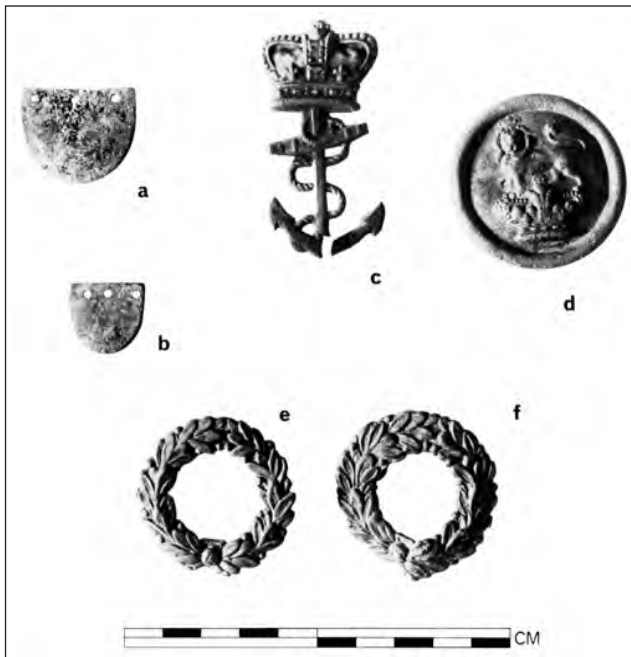


Figure 100. Uniform insignia from Port Essington: a-b) copper 'scales' from epaulettes or shako chin straps (VM, VSF I); c) crown and anchor naval insignia (VM); d) royal crest shako chin strap terminal (VQS); e-f) other ranks Marine cap insignia (VMQ, VQS).

Uniform Buttons

An extensive typology of naval buttons has been set up by Michael Lewis (1945) where he lists a number of datable innovations in the evolution of these buttons. Four brass buttons were excavated, all from VM (Figure 101-a-d). All are identical in design. Each consists of a raised anchor and cable, with crown above, against a lined background; the whole surrounded by a raised circle, with the outer rim decorated with large indentations, which is the precursor of the true 'rope-rim' which appears on naval buttons at the end of the nineteenth century. In shape, these buttons have a flat base and a convex face. They are made in two pieces, with a single eye hook. Of the present examples, one has a diameter of 17 mm, the others diameters of 15 mm. Gilt is still present on the larger example, and it may be assumed that all were gilt buttons.

All four buttons are inscribed on the reverse side. The large example (VM/8/1 (43)) (Figure 101-a) is stamped

'TREBLE GILT STANDARD'; two of the smaller buttons (VM/14/1 (39) and VM/10/1 (56)) (Figure 101-b-c) are identical and are stamped 'EXTRA STANDARD'; and the third small example (Figure 101-d) is stamped '& S FIRMIN', i.e. Firmin and Son(s), button makers.

Referring to Lewis' classification the buttons are almost identical to that author's type D.2 (Lewis 1945:plate 3), which came into use in 1827 and was worn by commissioned officers, master's mates, and midshipmen. The slight difference which occurs is that on the present buttons the cable ring lies to the right of the shank instead of on the shank as in Lewis's example. However, on Lewis's type D.1 the ring lies to the right, although this button has the addition of a laurel wreath and was worn only by flag-officers.

On the Firmin button, and VM/8/1 (43) the anchor stock slopes down on the right. On the other two examples it is horizontal.

It is reasonable to identify these buttons as naval rather than marine in origin, and may well have come from a discarded garment which also may have been the source of the free-standing crown and anchor described above. According to Parkyn (1956:4) the precise designation 'FIRMIN & SONS' was used only in the period 1824-1826. However, specimens in Professor Thomas's collection make it reasonably certain that this designation can occur up until about 1850.

At this point it is expedient to include uniform buttons made of pewter (Figure 101-e-g). Altogether nine of these buttons were recovered, four from VSF I, and one each from VM, VH, VMQ, VQS and VSFII. All are convex shaped with a single iron eye hook set in the back. Eight are identical in design, bearing a raised crown and anchor, surrounded by a laurel wreath, with the legend 'ROYAL MARINES' above. Each of these carry the maker's name on the reverse. Seven are inscribed 'NUTTING LONDON', the eighth 'M GOWAN LONDON'. The ninth button in this group has a crown above '59' and has been identified as the other ranks button of the 59th Foot (2nd Battalion, East Lancashire Regiment) of the type worn between 1840 and 1859. No maker's name is discernible. The marine buttons are a normal early pattern of other ranks coatee button. Professor Thomas states that these pewter buttons went out of use in 1855, and that an example of a similar button in his collection is dated to 1830. Little is known of the makers recorded here, although Nutting is an early nineteenth century manufacturer. The Royal Marines contracted for the manufacture of their buttons to a number of firms, so that no very close date can be obtained from this

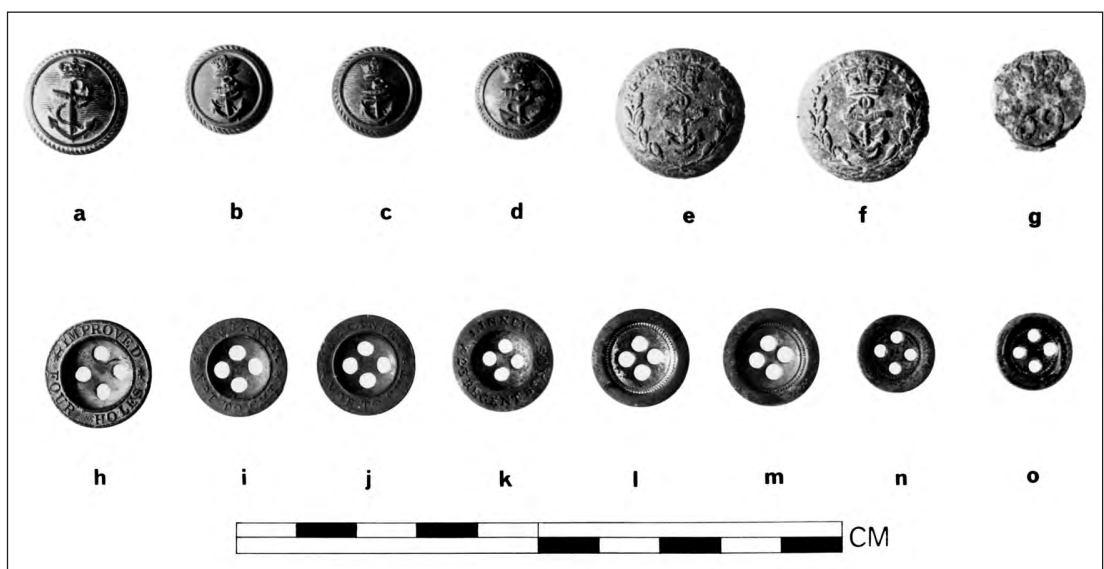


Figure 101. Buttons from Port Essington: a-d) brass naval buttons (VM); e-f) Royal Marines pewter buttons (VSF I); g) other ranks pewter button of the 59th Foot (2nd Battalion, East Lancashire Regiment) (VSF I); h-o) four hole brass buttons from various site-units.

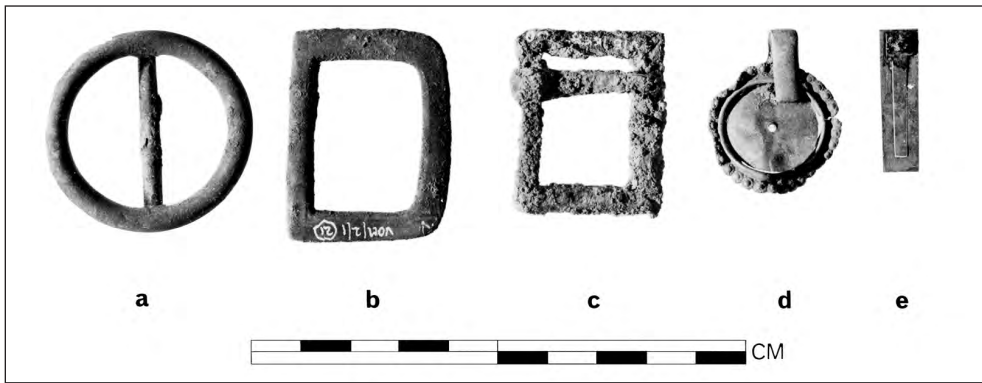


Figure 102. Brass and iron artefacts from Port Essington: a-b) brass belt buckles (VOM and general surface collection); c) iron belt buckle, surface collection near VB; brass brooch or cameo holder from VMQ; e) harmonica or accordion reed (VSF I).

source of information. However taking into account the buttons and insignia, Professor Thomas (pers. comm.) was able to conclude, without knowing the date of the settlement: 'I would guess that none of these items are earlier than c. 1830 and probably refer to military occupation between 1830 and 1860. If one had to pin it down, the earlier half of this period might be preferred.'

Fourteen plain brass buttons were recovered from the excavations (Figure 101-h-o). Nine have a diameter of 16 mm, the others a diameter of 13 mm. The smaller ones are only slightly concave, with four holes, and bear traces of black enamel. None of these are inscribed. Of the larger ones, all have four holes, and have flat rims with concave centres. Four are unmarked and bear traces of gilt. Of the others, three are identical and are inscribed on the front 'GUARANTEED NOT TO CUT'. These examples also have traces of gilt. Another is inscribed 'IMPROVED FOUR HOLES'. The final example is inscribed 'A. LINNEY & SON. 23 REGENT ST'. All the buttons in this group can be regarded as shirt, coat, or fly buttons typical of the period.

Other brass items recovered from the excavations include nine percussion caps, several belt buckles (Figure 102-a-b) two harmonica reeds (Figure 102-e) and a brooch frame from VMQ (Figure 102-d), together with other items listed in Table V-3.

The metal collection as a whole reflects a number of aspects of life at Port Essington. The military nature of the settlement is reflected not only in the uniform insignia and buttons, but also in the various sorts of ammunition. Further aspects of the architecture have also been recorded in the nails recovered, and the finds in all cases support archaeologically the historical identifications of the various structures. For example the one feminine artefact, the brooch holder, was excavated from the floor of one of the married quarters; the officers' shako plate came from the floor of the officers' mess; the four other ranks' coatee buttons were recovered from the floor of one of the single men's houses. Nothing in the collection suggests a date other than that which is known historically. Apart from Professor Thomas' extremely accurate

assessment of the date of the buttons and insignia, the presence of the percussion caps (discussed below in relation to gunflints), machine cut nails and harmonica reeds all point to a mid-nineteenth century date for the settlement. The mouth organ or harmonica was invented in Berlin in 1821 by Friedrich Buschmann, who also invented the accordion in the following year. The reeds in this collection may come from either instrument (Sachs 1940:406).

STONE

Aboriginal stone artefacts

Twenty seven pieces of stone which could be associated with the Aboriginal occupation of the area were recovered from the excavations and surface collections. The artefacts are of a number of materials; creamy quartzite, hornblende gneiss, chert, porphyritic dolerite and slate, none of which stone types occur naturally in the Port Essington region. Table 94 gives the distribution of artefacts.

The single core in the collection (VM/S/1 (55)) is of creamy quartz and appears to have been a leilira blade which had previously been broken. From this piece indiscriminate flakes had been detached. One flake, possibly from this core, was recovered (VM/8/1 (143)) and bears snap-break usewear along the thin edge. It is reminiscent of the glass cutting flakes described in Chapter 4. The hammerstone (Figure 103-c) is a small water worn pebble with pecking on one end. The pounder (Figure 103-a) conforms in shape to the conical pounder of McCarthy's et al. (1946:68) classification, although it is a small example standing only 77 mm high. Stratigraphically it is earlier than the house site VSF I, under which it was found. The scraper is of black chert with heavy step flaking along one edge that is concave in shape.

Amongst the implements the three spear points (Figure 103-d-f) appear to be of some interest in that they have no parallels in the literature. Five fragments of one were excavated in the area immediately outside VMQ where

Table 94. Distribution of Aboriginal stone artefacts for whole site.

	VM	VM II	VHK	VMQ	VSD	VOM	VSF	VAM	Gen Sur	TOTAL
Cores	1									1
Edge-Ground Axes									1	1
Pounders							1			1
Hammerstones									1	1
Spear Points				1					2	3
Scrapers						1				1
Utilised Flakes	1									1
Waste Flakes	3	1	1	6	2	2		2		17
Ochre				1						1
TOTAL	5	1	1	8	2	3	1	2	4	27



Figure 103. Aboriginal artefacts from Port Essington: a) VSF I/10; b) VMQ/10/2; c) VMW surface collection; d) south beach surface collection; e) VMW surface collection; f) VMQ.

evidence of glass flaking was also recorded. When reconstructed the implement was a heavily step-flaked square butt of what was probably a spear point (Figure 103-f). The step-flaking is bifacial and continues around the entire perimeter. A second flaked piece of slate (Figure 103-e) was collected from a sandbank behind the mudflat to the west of the settlement (VWM), where it was found in association with a midden scatter containing shell and some glass artefacts. The third example (Figure 103-d) was collected from the beach to the south of the settlement by the ranger's Aboriginal assistant, Sam. When Sam handed me the implement I asked him what it was, and he replied that it was a shovel-nosed spear. I commented that such spears were made only of metal but Sam shook his head and said that this was a shovel-nosed spear of 'the old people'. If this identification is correct these implements represent a type not previously recorded. The source of the slate is unknown but an anonymous observer in the 1840s noted that slate implements were being traded in from the interior (*Nautical Magazine and Naval Chronicle* 1842:88). From extensive excavations in the settlement no suggestion of slate for roofing has been uncovered and writing slates can be discounted by the thickness of these implements.

Also from VMQ, a piece of ground ochre was recovered. This piece has striations across the surface and the edges are ground (Figure 103-b).

The general lack of stone implements conforms to the wide range of ethnographic and archaeological evidence for the non-use of stone artefacts by people living on the Arnhem Land coast. White (1967) used this as evidence for the principal theme of her doctoral thesis, the dichotomy of the 'plateau' and 'plain' peoples in the Oenpelli region. While essentially true, during my fieldwork I located an axe quarry site at Reef Point on the eastern shore of Port Essington. This suggests that the use of stone by the coastal people depended on the availability of the material in the immediate environment. However the people living in the Victoria area of Port Essington do not appear to have used stone artefacts except those traded or carried into the area.

European stone

The six stone artefacts of European origin recovered from the site are five gunflints and a fragment of slate pencil. The latter artefact was excavated from outside the confines of VSD and is 36 mm in length.

The gunflints were distributed across VM, VH and VMQ, with the last two items surface collected along the cliff line near the married quarters. Four of the items are bluish-grey to almost black in colour and possibly are Brandon flints. The fifth example is honeycomb in colour and translucent.

The manufacture of English gunflints has been adequately described by Rainbird Clarke (1935) and Knowles and Barnes (1937). Figure 104-a shows the standard shape and gives the nomenclature used for gunflints. The bulb, called more correctly demi-cone of percussion by Knowles and Barnes makes the identification of flints simple, even on extremely worn pieces, or pieces which may have been re-used by Aborigines.

The gun flints from Port Essington fall into two groups. The four flints of similar material (Figure 104-b-e) are approximately the same size, ranging in heel width between 25 mm and 28 mm, approximately an inch in the imperial measure. In size they are comparable to Clarke's musket size gunflint (1935:55 and fig. 2. See also Peterson 1956:229-50). The edge on each example is extremely worn and one example appears to have been re-flaked to form a concave scraper.

The fifth example (Figure 104-f), in honeycomb flint, differs in both size and manufacture as well as material. It is larger than the other examples, measuring 33 mm across the heel. The rib flake scar is wider and the heel is less square than the other examples. It is also thinner than the other examples.

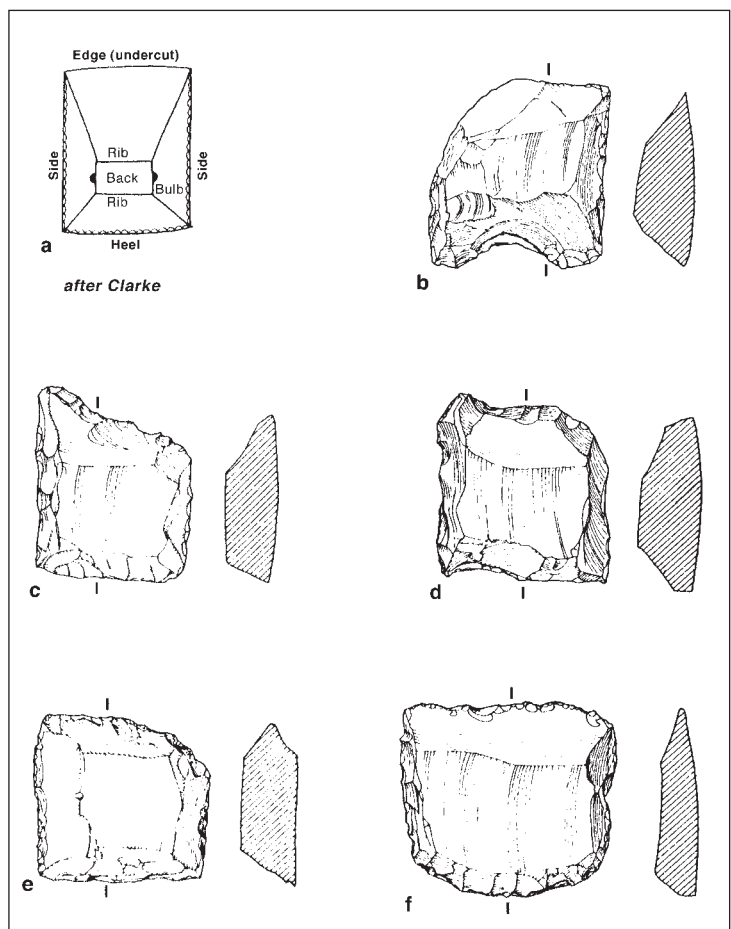


Figure 104. Gunflints from Port Essington: a) illustration by Clarke (1935) showing typical characteristics; b) VM/14/1; c) VMQ/32/1; d) VH/2/1; e-f) V/Gen. Sur./ VCC.

The heel and sides of this example has been flaked completely so that the two diagonal ridges running from the heel to the rib flake scar are no longer definite. Both Clarke (1935:51) and Knowles and Barnes (1937:207) refer to French gunflints of this period having 'gnawed heels' so that this item may be of French origin.

The presence of both gunflints and percussion caps in a military settlement provides yet another avenue for dating the settlement by archaeological means. Clarke dates the introduction of percussion caps to 1832 and notes that the sale of the last consignment of gunflints to the British Government took place in 1838. It might be expected that the changeover took place rapidly, so that the presence of both types of firearm at Port Essington offers a time range which does in fact coincide quite closely with the known historical dates.

BONE

Table 95 gives the distribution of minimum numbers of identifiable animals from the bones excavated about the settlement.

In general bone was not plentiful in the excavations and only two points of interest emerged from the analysis. Firstly the distribution of bone remains does to some extent reflect the functions of the structures excavated. The only habitation site-unit from which bones were recovered in numbers was VSF I, the shell floor of one of the enlisted men's huts. The bones from the hospital kitchen were excavated outside the building in what was essentially a dump area, and the other two concentrations of bone came from rubbish dumps.

Secondly, the archaeology confirms the documentary record (see Chapter 8) of the sorts of animals being exploited for food by the garrison; it illustrates that hunting the native animals, birds and fish was perhaps not as important for supplementing the diet, as was the importation of domestic animals for food from outside the settlement.

Finally the evidence from the Aboriginal midden (VAM II) indicates that the Aborigines still caught and ate traditional food, and with the exception of the one cow/buffalo represented in the collection, they appear not to have eaten meat from animals imported for the European garrison. However this evidence is at best inconclusive.

Table 95. Distribution of bone for the whole site: minimum number per site-unit.

Animals	VM	VM II	VHK	VSF I	VFS II	VAM II	TOTAL
Domesticated							
Cow/Buffalo	1	2	2	1		1	7
Sheep/Goat	1	1	1				3
Pig	1	1	2	1			5
Dog					1		1
Wild							
Kangaroo (<i>Macropus antilopinus</i>)		1		1		1	3
Wallaby (<i>M. agilis</i>)	1	1	1				3
Bandicoot (<i>Isodon macrourus</i>)						1	1
Lizard (? <i>Amphibolurus barbatus</i>)						1	1
Reptile			1				1
Bird		1	1	1			3
Fish	1	1	2	1		1	6
Dugong						1	1
Crab		2	1	1			4

Chapter 6

The Establishment of Port Essington

For many Australian historians the history of the northern parts of Australia has largely remained *terra incognita*, the poor relation of the political and economic growth which began and flourished in the south-east and which in many respects has not yet managed to conquer the vast spaces of the north and north-west. Between 1824 and the foundation of Darwin in 1869, abortive attempts were made to settle Melville Island, Raffles Bay, Port Essington, Escape Cliffs, Camden Harbour, and Somerset near Cape York, as well as some minor settlements (Macknight 1969b:12–21). Of these, Port Essington is remembered, not so much because it was the longest-lived of these attempts, nor because it bore witness to extreme privation and mismanagement on the part of a distant government, but rather because the settlement was the destination of Ludwig Leichhardt on his epic journey across the continent from Moreton Bay, in 1844–5. Port Essington, however, forms an important chapter in Great Britain's attempts to control this 'fifth quarter of the globe', both politically and physically.

Historians have outlined a number of reasons for this settlement. Briefly these include the opening up of trade between the north coast and the East Indies to develop tropical agriculture on a commercial scale (Howard 1925-6:60); to prevent piracy in the Eastern Archipelago (McIntosh 1958:441); to prevent a rumoured French expedition to the area from taking possession (CO 201/153: Barrow to Horton 22.1.1824); to establish a haven for ships wrecked in Torres Strait (Earl 1836; Adm. 2/1695: Adam and Parker to Stanley 30.1.1838) and as a base for surveying voyages in the area (Campbell 1834:180). The present chapter attempts to assess these reasons.

When the *Alligator* sailed into Port Essington in October 1838, all eyes must have been turned to the silent shore which was to become their home for some time. But for the commander of the expedition, Sir James John Gordon Bremer, the experience must also have recalled his first arrival at Port Essington 14 years before, when he attempted to make the first British settlement, which he eventually established on Melville Island. In many respects this new attempt was a continuation of Melville Island and its sister colony of Raffles Bay and it is necessary to turn firstly to these earlier failures.

Melville Island and Raffles Bay

The background history to the foundation of settlements at Melville Island and Raffles Bay is long and detailed and has been effectively covered elsewhere by Howard (1932–3). Briefly, the movement of the English East India Company into the eastern section of the Indian Archipelago, with the settlement at Balambangan in 1774, threw the British into close commercial rivalry with the Dutch and led to a series of essentially commercial treaties between the two nations. The first of these, in 1784 opened up trade to the British and resulted in the purchase of Penang.

During the Napoleonic Wars the British began a conquest of the Dutch East Indies (Howard 1931–2:43), ostensibly to counteract Napoleon's conquest of the Netherlands. Between 1811 and 1816 Java and its dependencies came under the governorship of Sir Stamford Raffles, whose rule quickly fostered British commercial interests in the area. But such interests were dealt a severe blow by the restoration of these territories in 1816, under the terms of the Treaty of 1814

between Great Britain and Holland. The Dutch quickly re-established themselves in Borneo, the Celebes, Sumatra and the Moluccas, and by a system of selective tariffs proceeded to exclude as far as possible British commerce in the Eastern Archipelago. One successful British answer came with the establishment of Singapore by Raffles in 1819, and following upon its early success, arose the plan for a similar commercial emporium on the north coast of Australia.

As might be expected, this new focus for British commerce was the suggestion of a private trader, William Barnes (sometimes 'Barns') who had originally been in the employ of the East India Company and subsequently had spent the four years prior to 1823 trading between the Moluccas and New South Wales (CO 201/153: East India Trade Committee to Bathurst 21.1.1824). Despite Darling's later assertion that Barnes was a man without principle and totally unworthy of notice (HRA I xiii:796), the comparison drawn between him and James Matra is fair comment on Barnes and the originality of his idea (Graham 1967:406). Barnes' initial communication with the Colonial Office was a calculated endeavour to attract attention to his scheme on two fronts, firstly the commercial advantages to be derived from a settlement on the northern coast and secondly the aggressive expansion of the Dutch in the general area. 'I have to state', he added as incentive, 'a disgraceful abuse of the British flag on the part of the Dutch Government against the natives of the Molucca Islands' (CO 201/146: Barnes to Bathurst 23.7.1823).

As Howard has pointed out, Barnes' early career in the Eastern Archipelago had been in the halcyon years of Raffles' rule in Java and he had witnessed the subsequent restrictions on British trade in the region upon the return of the Dutch. Thus this point was re-emphasised in Barnes' second communication on the subject which the Colonial Office requested upon receipt of the first (CO 202/11: Horton to Barnes 28.8.1823). Pointing out that the British had no possession in the 'valuable Eastern Islands', and that the Dutch seemed bent on the total exclusion of their rivals in the advantages of the trade in the area, Barnes suggested a settlement in the Gulf of Carpentaria, with the aim of establishing contact with the trepang fishermen from Macassar (CO 201/146: Barnes to Horton 15.9.1823).

More will be said in the ensuing pages about these Macassans, who arrived on the Australian coast each year with the north-west monsoon, collected and cured the trepang and returned to the Celebes at the end of each season on the south-east trade wind. In addition to trepang and other luxury items which were destined for the Chinese market, a large internal trade, carried on by the Bugis resulted in about 30,000 tons of junk shipping entering ports in the Indian Archipelago each year (Bach 1958:223). Batavia, Manila, Macassar and Singapore formed the major entrepôts for this trade, and Barnes' scheme was designed to intercept a proportion of it before it reached these ports. Both the internal and Chinese market trades involved a large number of items (Crawford 1820 III:184), and Barnes claimed that the trepang trade alone was worth an annual value of between £180,000 and £240,000 (CO 201/146: Barnes to Horton 15.9.1823) although this appears a gross over-estimate (Bach 1958:224). Calculating the value of trepang at forty Spanish dollars per picul, and the average cargo at 5 tons per prau, one hundred praus in one season could only net £68,000. All these figures are high and

the actual average return from the Australian part of the trade would almost certainly be less than half this figure. The most exact figures available show that the total amount of trepang exported from Macassar in 1824 was valued at £28,000 (Macknight 1969a).

Barnes' letter closed urging the establishment of an immediate settlement, 'especially as the Dutch are most anxious to form one themselves in the hope of shutting us out from the trade of the Eastern World and totally excluding us from all their ports' (CO 201/146: Barnes to Horton 15.9.1823).

Barnes' proposal had also come to the attention of the East India Trade Committee, an organisation of traders existing apparently to consider the interests of British merchants in the East (Howard 1931–2:76). In a letter signed by the Chairman of the Committee to Horton, Barnes' scheme was reiterated in some detail, and its implementation strongly recommended (CO 201/144: Begbie to Horton 13.12.1823). One significant alteration was suggested, however, that having consulted Captain Phillip Parker King, the Committee felt that Port Essington should be the site for such a settlement. King had recently returned to England after completing an initial survey along the north coast, extending that done by Flinders in 1803. King had named the Cobourg Peninsula after Prince Leopold of Saxe-Coburg. (The misspelling to Cobourg occurred in the published account of the voyage (King 1827 I:98).) King also named Port Essington, presumably after Admiral Sir William Essington, and wrote of it in glowing terms.

Fearing the Dutch might precipitate their proposed settlement once the results of King's surveys became known, the Committee urged prompt action. Bathurst therefore sought the opinion of the Admiralty, and the reply from John Barrow, at that time Second Secretary, decided the point. Barrow had spoken already to King and stated his acceptance of the commercial arguments in favour of the proposal. His main argument, however, was that the Dutch might be justified in establishing themselves in northern Australia despite any British claims to prior 'discovery' in the same manner as they themselves had taken possession of the east coast and Tasmania, while not disputing that the Dutch had made the original discovery, and that in this matter the conduct of the British might be quoted against themselves (CO 201/153: Barrow to Horton 22.1.1824). Thirteen years later, he was again to use this argument in favour of the resettling of Port Essington (CO 201/256: Barrow to Glenelg 13.12.1836). In February 1824, Bathurst wrote to Governor Brisbane (CO 202/10: Bathurst to Brisbane 17.2.1824) issuing the necessary instructions and on 24 August 1824, the *Tamar* and the *Countess of Harcourt* under the command of Bremer and accompanied by the colonial vessel *Lady Nelson* sailed from Sydney. Arriving at Port Essington, Bremer was unable to locate sufficient water, and after taking formal possession moved to Melville Island. Nevertheless, he wrote of the Port as one of the most noble and beautiful pieces of water imaginable, capable of 'containing a whole Navy in perfect security' (HRA III v:769–71). On 30 September the site of Fort Dundas was occupied. When Bremer departed in November, the detachment consisted of 112 men, 2 including the crew of the *Lady Nelson* (Howard 1931–2:83).

The history of the Melville Island settlement, and the sister settlement of Fort Wellington at Raffles Bay on the Cobourg Peninsula can be quickly passed over here (see Howard 1931–2; Graham 1967; McIntosh 1958; Bach 1958). Melville Island proved an unqualified failure and the settlement was removed in 1829 to Raffles Bay, where Fort Wellington had been established in 1827. However by the end of 1829 orders arrived for the abandonment of this second settlement also.

A number of reasons can be put forward to explain these failures. Bremer's passionate praise for Melville Island and its

potential, in a despatch written barely six weeks after their arrival (CO 201/155: Bremer to Bathurst 12.11.1824) caused Barrow to state that there never was so promising a spot in a naval, commercial and agricultural point of view (CO 201/164: Barrow to Horton 30.4.1825). Despite this, Bremer's choice of a site was in every respect disastrous. Situated in Apsley Strait, Fort Dundas was removed from the sea-lanes, and the strait itself proved difficult to navigate (Blainey 1966:85). The monotony of everyday life was emphasised by the inhospitable nature of the country and by 1826 both the *Lady Nelson* and the brig *Stedcombe*, sent as a trading vessel to the settlement by the East India Trade Committee and captained by Barnes, had been lost to pirates, although Barnes was not on board at the time. The gloom of the despatches arriving in England during 1826 was strongly felt, but rather than abandon the plan completely it was determined to try again at Raffles Bay (Howard 1931–2:86). The basis for this second attempt appears to have been the failure to establish contact with the Macassans who by-passed Melville Island completely on their voyages to the Australian mainland (although I have collected Macassan pottery at Fort Dundas). Contact with Macassans did take place at Raffles Bay, but late in 1829, when prospects of trade appeared most likely, the settlement was abandoned.

This situation underlines the thesis of the difficulty of communications which has been stressed elsewhere by Blainey who points out that Fort Dundas was as marooned 'as a beetle in a bottle' (1966:88). However other events had taken place which lessened the opportunities for successful trade. The treaty between Great Britain and Holland signed in London in 1824 had ensured the security of Singapore and, at least on paper, had given access to British traders in the eastern ports of the archipelago controlled by the Dutch (Howard 1931–2:60-3). Thus, after the loss of the *Stedcombe* the London merchants who had asked for the north Australian settlements failed to make use of them. When, in the season of 1828-29, 34 Macassan praus visited Raffles Bay there was little to be traded with them in what was essentially a military establishment (Blainey 1966:87–8; Graham 1967:419; RGS: Barker).

With one exception, the successive commandants of the two settlements appear to have been singularly inept at their tasks. Captain Laws reported that the governorship fell to whoever's 'turn it was for detached duty' without reference to the man's habits, interest or inclination. One commandant at Melville Island had almost resigned his commission rather than take such a posting, and following his arrival he had never ventured more than half a mile from his house (CO 201/264: Report 25.10.1828 in Barrow and Beaufort to Glenelg 10.4.1837). Captain Smyth, the first commanding officer at Raffles Bay, also accepted his post unwillingly, and following the first wet season during which almost the whole garrison fell ill, he gained his recall on the grounds of ill-health (Howard 1931–2:87). But from the first his despatches were depressing, denying any value in the settlement and their subsequent arrival in England sealed the fate of Raffles Bay (e.g. CO 2201/191: Smyth to Darling 30.10.1827).

Smyth, however, did make contact with the Macassan trepangers and set in motion efforts at establishing the trade that had placed the first British settlement in the area more than three years before. He wrote to the Governor of Macassar and to an English merchant reported to be living there (HRA III vi:806). However the reply, received from the Dutch Governor by the later commandant, Captain Collet Barker was not encouraging (HRA III vi:821).

With Barker's arrival in September 1828 came the first conscientious leadership seen in either of the two settlements. Sturt compared Barker's character with that of James Cook

(ADB I:57), and his career marked him as a zealous and honest soldier. To Raffles Bay he brought an energetic approach which guided the settlement through the rigours of the 1828–29 wet season. He quickly improved the housing of his garrison and extended the supply of fresh vegetables with close attendance to the gardens. Barker appreciated the need for discipline and curbed drunkenness with drilling and theft with the lash (ML A2002: Barker Journal 20.4.1829). He did not merely adhere blindly to regulations however, and with a regard for the climate, allowed some relaxation in the dress of his men (ML A2002: Barker Journal 29.10.1828). This was an important consideration in the oppressive climate.

Barker's greatest success was with the Aborigines. Both settlements had been witness to bloody skirmishes with loss of life on both sides, and these encounters had culminated in December 1827 with Smyth offering £5 per head for any Aborigines brought into the settlement for the purpose of attempting to pacify them. A party of six men located a group of some 60 Aborigines camped on a beach in Bowen Strait and without warning opened fire upon them. In the ensuing struggle a man and woman were bayoneted and some of the wounded took refuge in the sea where they were slaughtered. The bounty-hunters returned to the settlement with a wounded girl who was promptly renamed Mary Waterloo Raffles (HRA III vi:781–9 records the ensuing enquiry in Sydney).

Barker set out to rectify the animosity which had grown between the two groups and he records that on sighting some Aborigines on 2 December he left the boat and advanced alone and unarmed until he was able to exchange gifts with one of them (ML A2002: Barker Journal 2.12.1828). Barker was later to effect a similar conciliation with hostile Aborigines at King George's Sound, and it is ironical that he was speared to death at the mouth of the Murray in 1831 in similar circumstances.

The honesty of Barker's dealings with the Macassans is also evident from his journal. While forbidding them the right to make a punitive expedition against the Aborigines of Raffles Bay for an alleged offence elsewhere on the coast (ML A2002: Barker Journal 2.4.1829), Barker went to great lengths to welcome and encourage the Macassans and discussed the sorts of goods they might expect to exchange. The Macassans desired cotton cloth and handkerchiefs, scissors, knives, razors, saws, files, chisels, needles and thread, and particularly opium.

While they themselves did not want powder and muskets they thought there might be a market for such goods in Macassar. In exchange they could bring gold dust, spices, nutmeg and cinnamon, tortoise shell, rice and tobacco. One captain informed Barker that there were 60 or 70 praus on the coast that year and there was a general enthusiasm for the possibilities of trade (ML A2002: Barker Journal 24.3.1829 and 1.4.1829).

We can only speculate on how successful this trade might have been. Trepan had been the linchpin of Barnes' original scheme, and Smyth had discovered the previous season that the trepangers would not sell this commodity, stating that their proprietors in Macassar were already committed to Chinese merchants in that port (Bach 1958:229 and fn 36). A similar situation was to occur throughout the lifetime of Port Essington, and it seems unlikely that an economic market could have been set up with the Macassans without trepan as the major commodity (CO 201/320: Stokes to Gipps 20.12.1841). With the settlement flourishing, the disappointment of having to abandon it caused Barker to hesitate, until he recollected that 'obedience was better than sacrifice', whereupon he carried out the orders (Wilson 1835:172; see also CO 201/320: Stokes to Gipps 19.3.1842). It was typical of his thoughtfulness that he wrote to Admiral Gage asking that the Governor of Macassar be notified that the British had

left Raffles Bay so that traders would not be inconvenienced the following year (Wilson 1835:172). According to a later account praus did arrive to trade and settle and were disappointed to find the British gone (Earl 1836:27, see also CO 201/257: Earl to Glenelg 27.5.1836; CO 201/286: Bremer to Admiralty 4.3.1839).

The lessons of Melville Island and Raffles Bay

These early failures underlined a number of difficulties peculiar to the settlement of tropical north Australia, its remoteness and the difficulty of communications, the lack of experience of the men who tried to establish such garrisons, the sorts of privation and sickness they were to endure – scurvy, dysentery, malaria and other minor ailments being common. While subsistence gardens could be made productive, the hope of any real agricultural successes was gone, apart from such commodities as *lignum vitae*, a timber prized for ship building and repairing. The real nature and difficulty of trying to tap the trade of the Eastern Archipelago via the Macassans should have been realised, but this lesson was still to be learnt. Finally and significantly, Europeans attempting to settle a tropical environment, for the first time had been thrown together with an indigenous race of hunters and gatherers, and who, even if friendly, could not provide the plentiful labour source so necessary to European colonisation of the tropics, and who could not regularly supply food beyond their own needs with which any European settlement might sustain itself. What lessons the Aborigines who had lived in the area for the last 20–30,000 years might have to teach, perished on the intellects of those who saw them, like Dampier, as the 'miserablest People in the World' (Dampier 1927 [1697]:312). This opinion still was in vogue in some quarters in the nineteenth and even the twentieth centuries (Mulvaney 1958:135 and *passim*).

Thus with scarcely a whimper came the end of the first two settlements on Australia's northern shores and a somewhat chastened government gratefully accepted the announcement from the Secretary for War and the Colonies that the abandonment of Melville Island and Raffles Bay had saved the government £761 per annum, exclusive of the costs of communicating with the settlements (HRA I xvi:395). But while the idea was effectively dead it would not lie down and less than four months after Goderich's announcement, Hay was writing to Governor Bourke blaming Darling for acting precipitously in recommending the abandonment and advocating a further attempt at settling Port Essington (ML A1269: Hay to Bourke 21.1.1832; see also Bach 1958:232).

1829–1838. Arguments for a new attempt to settle north Australia: George Windsor Earl

In 1834 Major Campbell, a former commandant of Melville Island, delivered a long address to the Royal Geographical Society on his experiences in North Australia and the natural resources of the area (Campbell 1834:129–181). Despite the unfavourable nature of his despatches when he was there in an official capacity, he argued strongly for the commercial capabilities of the Cobourg Peninsula. 'Port Essington' he said 'is as the friendly hand of Australia, stretched out towards the north, openly inviting the scattered islanders of the Javanese, Malayan, Celebean, and Chinese seas, to take shelter and rest in its secure, extensive and placid harbour; where they may deposit the productions of their native inter-tropical isles, and receive in exchange the more improved manufactures of the natives of the temperate zone' (1834:177). Campbell also stressed the military importance of the area, and its value as a base for surveying work.

In 1836 the *Colonist* newspaper (3.1.1836 and 26.5.1836) made several references to the probable settlement of the north coast suggesting that in the first instance it would be a depot for convicts, an idea more fully propounded in 1837 by John Dunmore Lang in *Transportation and Colonization*, who argued that if it was necessary to settle Port Essington then it was 'surely fitting and reasonable that these hardships, difficulties and diseases should be encountered and surmounted by transported felons, rather than by a free emigrant population' (Lang 1837:194–200 and esp. 199). In the same year came an eloquent rebuttal of the idea of using convicts for settling Port Essington. George Windsor Earl (1837:461) observed that 'sufficient sin and misery have already been created by Britain vomiting forth her outcasts to people a country well deserving of a better system of colonisation'.

The appearance of Earl introduces a major figure in the history of Port Essington, and one whose subsequent absence in the pages of Australian history is not justified. Born in England in 1813, nothing is known of his early life, although it is apparent from his writings that Earl must have been well-educated, particularly in languages. During his life he translated articles from French, Dutch and Spanish, and appeared to be conversant with German. In addition he spoke several Malayan languages (Gibson-Hill 1959:105–6). Earl was a prolific writer and Gibson-Hill lists nine books or pamphlets in addition to 24 articles in learned journals in a bibliography of Earl's work which is incomplete (e.g. Earl 1855). His subjects ranged from the physical geography of the Indian archipelago and trade in the Arafura Sea to the ethnology of the Papuan races, the first paper on a prehistoric site in Malaya, and the colonisation of north Australia. Earl was also a cartographer of some ability and the first chart of the Arafura Sea prepared by the Hydrographic Department bears his name (Chart 1088, Arafura Sea, Atlas 1/150,000,000, 1838.)

From the end of 1829 Earl was at Swan River and Port Augusta, a settlement near Cape Leeuwin (RGSA Earl Correspondence: Earl to Washington 3.2.1837 and 21.7.1838) and in August of 1832 he shipped on a Dutch schooner to Surabaya. Following his arrival in the archipelago Earl worked on a number of trading ships, finally commanding a profitable trading voyage in 1834 from Singapore to Borneo aboard the British schooner *Stamford*. After a second voyage in this vessel he returned to England, arriving in the early part of 1835. This phase of his life is recorded in Earl's best and best-known work, *The Eastern Seas* (1837) and it provided him with much factual material for his agitation for a commercial emporium on the north coast of Australia.

A considerable number of documents are available to trace Earl's campaign in this matter and these reflect both the man's enthusiasm for his scheme and the depth of first hand information that he possessed to argue his case. However his single-mindedness shows through to a degree which sometimes borders upon the dishonest and which makes understandable the varying opinions of his character. Bremer pressed strongly for the inclusion of Earl in the subsequent expedition, arguing for 'so able and scientific a person' (RGSA: Bremer to Washington 30.9.1837). An anonymous visitor to Port Essington described him as a highly intelligent young man, 'most warm and sanguine in the well-doing of the colony' (Anon. 1842a). Sir Thomas Mitchell however disliked his 'pragmatical notions', and carried no opinion of him as an authority on anything other than the resources and population of the Indian Archipelago (ML A3599: Mitchell to King 18.12.1844).

A subsequent event cast Earl in a bad light. Upon his return to Sydney from England in 1846 to resume his post at Port Essington, instead of waiting for a certain passage on a

vessel going to Port Essington from Sydney, he travelled to Singapore via China in an attempt to get to Port Essington that way. He became stranded in Singapore for all of 1847 and 1848, during which time he drew Bills of Exchange on the Government for half-pay, a procedure totally contrary to regulations and which the Government seriously considered not honouring (CO 201/421: unsigned minute on Earl to Grey 19.3.1849). The situation was overcome shortly after; when Port Essington was abandoned, Earl was allowed his half-pay to the end of 1849 in lieu of any compensation for the loss of his post (CO 201/421: Earl to Hawes 4.9.1849). As Elliot tersely remarked however, 'I do not know that a clearer condemnation could be pronounced on Port Essington, than that one of its warmest Advocates, well acquainted with the Eastern Seas, would have consumed more than two years in a fruitless attempt to find an opportunity of reaching the place' (CO 201/424: Elliot to Merrivale, minute on Earl to Treasury 19.3.1849). Such was the elusive nature of Earl's character.

According to Gibson-Hill (1959:105), Earl was accepted in English society at about the same level as James Brooke. Upon his return to England in 1835 he became a member of the Royal Asiatic Society and later became one of the first Corresponding Members of the Ethnological Society. Gibson-Hill questioned why Earl never joined the Royal Geographical Society despite a close association – he addressed two meetings of that Society early in 1837 and again in 1845 and published a number of times in their journal. From correspondence now at hand it would appear that Earl did not have the most cordial relations with all members of that Society. In 1852 he had printed an open letter to Lord Colchester complaining of errors in a paper published by the Society, which failed to notice the address delivered by himself in 1845 (RGSA Earl Correspondence: Earl to Colchester 10.4.1852). Speaking further of this matter in a letter to Beaufort, Earl complained that

it was bad enough to be snubbed by the geologists, and to have my labours for years pronounced worthless by a set of quacks who had only a smattering of the science which they professed to lead, but to find them coolly appropriating the very theory they combined to upset, is more than even my patient nature can bear. And the worst feature of the case is that Mr Murchison, who accepted the proof sheets of Count Strzelecki's work, must have been in possession of Mr Morris' notes, which establish the correctness of my results, at the time he went out of his way to show that I was all in the wrong' (HDL In Letters E.72: Earl to Beaufort 24.4.1852).

Earl still felt this slight when he wrote to Dr Norton Shaw in 1859 (RGSA Earl Correspondence: Earl to Shaw 6.5.1859).

Thus one sees Earl in 1836 as a young intelligent and capable man, dogmatic, and with a singleness of purpose which enabled him to make enemies as well as friends. Above all, however, he alone possessed the experience and first-hand knowledge to pursue the venture to which he now turned; the establishment of a third British emporium on the north coast of Australia.

In April 1836, Earl wrote to the Colonial Office enquiring whether the Government had any intention of forming a settlement on the north coast (CO 201/257: Earl to Under Secretary of State 23.4.1836). The answer informed him that no such settlement was contemplated (CO 202/35: Grey to Earl 27.4.1836), and upon receipt of this, Earl forwarded his plan (CO 201/257: Earl to Glenelg 27.5.1836). This took the form of his first published work, a 47 page pamphlet entitled *Observations on the Commercial and Agricultural Capabilities of the North Coast of New Holland and the Advantages to be Derived from the establishment of a*

Settlement in the Vicinity of Raffles Bay (Earl 1836). The first part of this pamphlet is given over to an examination of the earlier settlements and the reasons for their failure, and Earl came to the conclusion that the hasty departure from Raffles Bay had eclipsed a successful venture. The author then argued the value of a new settlement. It would be a place of refuge for ships lost in Torres Strait, and a resort for English whalers in the area, which at that time were using the Dutch port of Koupang in Timor. In addition Earl touched on the strategic value of the area. But the bulk of his argument rested on the commercial potential of such a settlement. He claimed that trepang, tortoise shell, sago and timber could be procured there. But whereas Barnes' original plan had been to intercept the trepang collected by the Macassans, Earl emphasised instead the commercial potential of the neighbouring islands, Bali, Lombok, Java, and also the Kai and Aru Islands and New Guinea to the north. In addition a direct trade to the China markets could be anticipated. Labour could be procured cheaply from the islands, and independent Chinese and Buginese traders might be expected to settle (1836:12-14).

Earl undoubtedly felt that such a scheme could succeed and marshalled a large number of statistics to substantiate his arguments. However, he seems to have seriously underestimated the power of the Dutch over the native producers and he certainly played down the difficulties of procuring native labour, of which he was aware (Earl 1837:335-6 fn). The reply from the Colonial Office merely thanked him (CO 2202/35:Grey to Earl 30.5.1836), and a less resourceful person may have been inclined to pursue the matter no further.

However, events favoured Earl. For the remainder of 1836 he appears to have been working on his book *The Eastern Seas*, but at the end of that year the Royal Geographical Society became involved in promoting an expedition to the north-west of Australia. It should be recalled that the amount of influence societies of this nature possessed at this time was extreme, and recommendations which they made very often received more attention than the amount of knowledge behind them warranted. The Royal Geographical Society was no exception in possessing such influence and although it had only come into being in 1830 it numbered many influential men among its members. Its first president had been Viscount Goderich, the then Secretary of State for War and the Colonies. An instigator of the Society and an enthusiastic supporter of it was Sir John Barrow, who throughout the period under review was Second Secretary to the Admiralty. Barrow was a man who had favoured the earlier attempts to settle north Australia.

At the end of November 1836 the Society wrote to the Colonial Office with the proposal for an expedition to the area (CO 201/256: Washington to Glenelg 30.11.1836) and it is a mark of their influence that not only was the plan found acceptable but that the Treasury agreed to obtain a vote of £1000 from Parliament for it, to be handed to the Society to allocate (CO 201/256: Spearman to Stephen 31.1.1837). The subsequent expedition was led by Lieutenant (later Sir George) Grey (1841).

Earl must surely have heard of the expedition, and shortly after he sent John Washington, the secretary of the Royal Geographical Society, two long communications. The first of these, dated 3 February 1837, was a 33 page document entitled 'Remarks on the Fittest Season for Examining the Coasts of Australia' (RGSA Earl Correspondence: Earl to Washington 3.2.1837) and it gave a number of sources of ships and the weather they had experienced at various places and at various times. It stressed also the suitability of the Aru Islands as a potential source of supplies. The second communication, sent only four days later was entitled 'Observations on the Colonization of North Australia' (RGSA Earl Correspondence:

Earl to Washington 7.2.1837). In general it reiterated the points Earl had made previously to the Colonial Office, but it is notable that Earl's general knowledge of the area had already led him to believe that Bowen Strait might provide a better site than Port Essington. Based on information from Captain Laws, Earl now felt that Barker's Bay opposite Croker Island held a number of advantages as a commercial site. With uncannily prophetic insight Earl listed the disadvantages of Port Essington which were to be underlined in the following years.

His farsightedness in this matter was later borne out by the fact that a revenue station was established in the 1880s to intercept the Macassans at the very spot in Bowen Strait which Earl had recommended.

On 24 April Earl again wrote to the Colonial Office, this time including the proofs of 'Observations on the Commercial Resources of the Indian Archipelago', the appendix to *The Eastern Seas* (Earl 1837; CO 201/226: Earl to Glenelg 24.4.1837). Although the answer merely said that Glenelg could not, 'with propriety' comment on the interesting suggestions it contained (CO 202/36: Grey to Earl 18.5.1837), the reply can be construed as more favourable than those that Earl had received in 1836. As Howard (1931-2:93) has pointed out the difference between Earl's letters of 1836 and 1837 is that the former made almost no reference to Dutch antagonism towards English commerce, while the latter went to some lengths to underline it and the specific ways in which it was carried on (Earl 1837: 424 fn).

Sir John Barrow and the maintenance of British sovereignty in north Australia

However, by the time of Earl's 1837 communication another factor had entered upon the scene. A fortnight before, Beaufort, Hydrographer at the Admiralty and a member of the Council of the Royal Geographical Society, had written to the Colonial Office, together with Barrow, apparently in answer to an enquiry from Glenelg on the necessity of re-establishing the north coast settlements (CO 201/264: Barrow and Beaufort to Glenelg 10.4.1837). This letter introduced a new aspect of the question, that of maintaining British sovereignty over all the Australian continent, and Barrow and Beaufort based their arguments for resettlement on the necessity of preventing both Dutch and French occupation. Barrow particularly seems to have feared French intervention in northern Australia, and it is possible that Glenelg's initial enquiry arose from a letter addressed to him from Barrow in December 1836 in support of the proposed Grey expedition. Here Barrow spoke of two likely expeditions to the Pacific, one American, the other French, and wrote that 'it would be a most humiliating mortification, to witness the tricoloured flag, or that of the Stripes and Stars waving on Dampier's Land' (CO 201/256: Barrow to Glenelg 13.12.1836; see also Earl 1837:461 for reference to the proposed French expedition). Later Barrow was to re-emphasise the need 'to draw a ring-fence' around the whole of the Australian coast (see *Journal of the Royal Geographical Society* 1839:500). James Stephen, the Colonial Secretary, although he was to excuse himself several years later (CO 201/302: minute on Barrow to Vernon Smith 26.12.1840), also shared this opinion and wrote of the 'paramount importance of retaining a permanent possession of the entire coasts of Australia' (CO 2201/164: Stephen to Wood Eyre 16.5.1837). In writing to Glenelg, Barrow and Beaufort stressed the need to take actual possession, rather than merely planting the flag, repeating almost word for word the exact argument Barrow had used to support the settlement of Melville Island (CO 201/164: Barrow and Beaufort to Glenelg 10.4.1837; compare CO 201/153: Barrow to Horton 22.1.1824).

The important point of this interdepartmental correspondence is that it was all based on the need to maintain political sovereignty of the Australian coast. Lip-service only was paid to the commercial arguments laboriously put forward by Earl. Throughout these and subsequent letters, once the general plan had been accepted, phrases repeatedly appeared such as 'no time should be lost in considering what measures it may be most expedient to adopt' (CO 201/264: Stephen to Wood Eyre 16.5.1837) or 'I am afraid the plan will not bear much more delay, or we shall be forestalled' (CO 201/264: Barrow to Stephen 17.7.1837) or 'the Dutch have already got the start on us' (CO 201/264: Barrow to Stephen 11.9.1837).

The Dutch certainly did have a start, possessing at least eight settlements between Singapore and New Guinea. Following the British settlement of Melville Island, a Dutch settlement had been made on the south-west coast of New Guinea in order to 'check-mate' the British (RGSA Earl Correspondence: Earl to Washington 16.8.1838) and it appeared that such expansion was to anticipate any development of northern Australia (Graham 1967:425).

It is difficult to estimate how real or imaginary the French threat was at this time. Earlier in the nineteenth century Westernport and Swan River had been established to forestall the French (Scott 1910:276), but most historians have not carried the examination beyond about 1830. Two pieces of evidence exist to support the reality of French intentions on north Australia at this time. Firstly the rumoured French expedition did take place under Commodore Dumont d'Urville in command of the *Astrolabe* and the *Zelée*. Of course there can be no suggestion that this voyage was anything other than of a scientific nature. However, after passing into the Pacific around Cape Horn, d'Urville did sail through Torres Strait, making eventually for Raffles Bay. Throughout their eight days stay there during which time the British informed them that the British settlement was merely around the corner, the time was spent making detailed surveys of both the Bay and the nearby Bowen Strait. It is possible that d'Urville had been ordered to investigate the area with a view to future occupation. The second piece of evidence is more tenuous. In 1875, Lord John Russell recounted that during his time at the Colonial Office (1839–1841) he was visited by 'a gentleman attached to the French Government'. 'He asked me how much of Australia was claimed as the dominion of Great Britain. I answered 'the whole', and with that answer he went away' (Russell 1875:203).

Whether real or imaginary the fear of the French was a factor of extreme importance in the British moves to re-establish the north coast settlements, and it was only when application was made to the Treasury that the commercial arguments again came to the fore, with Stephen stressing the 'expediency of forming some commercial settlements on the Northern Coast of New Holland' (CO 202/36: Stephen to Spearman 28.7.1837). Because of the commercial nature of such settlements they could be established at a modest cost, but again because of the imminent danger of the French, Americans and Dutch no delay should be made in maturing plans for occupying such important positions. The letter suggested the employment of a small body of marines and convicts, and a small civil establishment, the salaries of which would total £1,465 per annum (CO 202/36: Stephen to Spearman 28.7.1837).

The financial administration of Port Essington

The first major set-back to the plans of Glenelg and Barrow came with the refusal of the Chancellor of the Exchequer to go to Parliament with the estimates for the proposed settlement. He argued that all that was contemplated was a naval survey and whatever occupation which might be necessary to secure

the post, that is to say, little more than a naval exercise (CO 201/302: unsigned minute on Barrow to Stephen 18.1.1840). Undeterred, Glenelg and Barrow pushed on without Treasury approval and created a situation which was largely to determine the eventual downfall of the settlement. Stephen was later to write, 'The fact is that this was a favourite scheme of Sir John Barrow's, and that in the original eagerness to accomplish it all financial difficulties were set aside, although they were fully perceived at the outset' (CO 201/302: Stephen's minute on Barrow to Stephen 6.6.1840).

Barrow had expected Port Essington to become a flourishing colony, but it remained officially under the control of the Admiralty and all claims were sent to that department. The Admiralty forwarded them to the Colonial Office, who, having no funds to meet them replied accordingly (CO 201/302: Stephen to Vernon Smith, minute on Barrow to Vernon Smith 26.12.1840). After lengthy discussions between these two departments and the Treasury in 1841, it was finally decided to include the costs in the Colonial Estimates for the following year (CO 202/42: Stephen to Gordon 19.6.1841). This method of meeting the finances of Port Essington continued throughout its existence. Claims were made initially upon the Admiralty, who forwarded them to the Colonial Office and thence to the Treasury to be included in the Colonial Estimates for the ensuing year (Howard 1931–2:154–6).

In December the plans for the expedition were put into effect (RMAP Port Essington Correspondence: Barrow to Savage 8.12.1837, 15.12.1837, 16.12.1837) and on 19 February H.M.S. *Alligator* under the command of Bremer, together with H.M.S. *Britomart* commanded by Captain Owen Stanley R.N., sailed from England bound for Sydney and the Australian north coast.

CONCLUSION

From the existing evidence it is reasonable to conclude that the establishment of Port Essington was made as a political manoeuvre to preserve the British sovereignty of Australia, even though it was hung upon the façade of commercial enterprise. The Treasury certainly did not view it as a trading colony nor did several contemporary writers, who stated that it was to forestall the French (Drury 1858–9:87–91; Jukes 1847 I:184–5; Sweatman ML A.1725 II:253). Indeed, if it was solely a commercial enterprise, a number of points go unexplained. In 1838 the marines left England under secret orders (RMAP Port Essington Correspondence: Royal Marines Office to Dyer, dated only 4 March), and Bremer's instructions expressly forbade him to encourage permanent settlers (Adm. 2/1695: Adam and Parker to Stanley 30.1.1838).

Throughout the history of the settlement, repeated requests to increase the garrison, and encourage land sales and occupation on favourable terms were refused. As well, Bremer's selection of the site was a classically defensive one, situated 27 km from the mouth of the Port on the highest ground and commanding the narrow entrance to the inner harbour. Earl appears the only one to have recognised this point: 'The inner harbour was selected on account of its superior capabilities for the erection of defensive works, the establishment having been formed as a naval station' (Earl 1863:33).

In the final analysis, Bremer's choice of location, as with Fort Dundas, was again to prove disastrous, firstly for the encouragement of trade, since many ships would not spend the several days required to work in and out of the harbour, but secondly because the health of the garrison continued to deteriorate because of the immediate environment and the prevalence of malaria in the settlement.

Chapter 7

The Political Background

H.M.S. *Alligator* sailed from England on 19 February 1838, arriving in South Australia on 10 July. After embarking additional marines (Adm. 53/88: *Alligator's* log 20.7.1837 to 13.2.1843) the expedition arrived in Sydney on 21 July. The Governor of New South Wales had been instructed to render the party every assistance and Gipps readily complied, and throughout the subsequent history of the settlement remained convinced of its potential and the necessity for maintaining it. The transport *Orontes* was hired in August and the business of purchasing stores was begun. These included hard rations, clothing, equipment and trade goods (Adm. 53/88: *Alligator's* log 20-7-1837 to 13.2.1843). In addition six frame houses were prefabricated for use in the settlement. The Society for Promoting Christian Knowledge donated a church in prefabricated form (Anon. 1843a:22-4) but the punt loading it in Sydney harbour sank, delaying departure until 17 September (*The Sydney Monitor* 7.9.1838).

To judge from the Sydney newspapers, the expedition created little excitement in Sydney. *The Monitor* (30.7.1838) reprinted a general article on the commercial aspects of the settlement which had appeared in the *South Australian Gazette* and Barnes wrote to the same paper wishing the expedition success (*The Sydney Monitor* 3.9.1838) but no other papers reported the expedition. However, Bremer's long report to the Admiralty suggested that there was intense interest, and that under the terms of his instructions he had been forced to dissuade 'several respectable persons' from accompanying him. He stated that 50 tradesmen would have gone with him had he been able to make small grants of land, and he pressed the government to permit the occupation of land at Port Essington by grant or sale at a reasonable price. If such a move was adopted Bremer intimated that he himself would be a candidate for land there (CO 201/286: Bremer to Admiralty 16.9.1838, enclosed in Gipps to Normanby 27.5.1839). Leading Sydney merchants, while publicly wishing the expedition success in an undated letter to Bremer (ML A109: Riley Papers:113-4) appear never to have strenuously supported the settlement, although the trading schooner *Essington* accompanied the expedition to begin trading from the new post with the islands to the north and west. However, the idea of the settlement had had the support of several merchants in England (CO 201/264: Barrow to Stephen 11.9.1837; Howard 1931-2:101) and general interest had been aroused amongst Europeans in Rio de Janeiro on the voyage to Sydney (RGSA Earl Correspondence: Earl to Washington 1.5.1838). Thus, despite Earl's remark that not a soul amongst the men appeared to care whether the expedition succeeded or not (RGSA Earl Correspondence: Earl to Washington 16.8.1838), their general reception in Sydney caused both Bremer and Earl, who had been employed as interpreter, to begin in high hopes.

Arrival at Port Essington: choosing a site for the settlement

After taking formal possession of Cape York on 20 October, the *Alligator* arrived at Port Essington on 27 October 1838. Despite Earl's suggestion of Bowen Strait as a possible site, Bremer seems to have made up his mind as to the suitability of Port Essington and sailed there directly. Although Earl was later to suggest that Bremer's instructions gave him no latitude in selecting the position for the settlement, in fact he was

instructed to go to the neighbourhood of Port Essington and Raffles Bay 'and cause both of these Places (as well as any others) to be thoroughly examined before you determine on either, and you may perhaps in the course of the examination find some other spot not far distant to which you may give a preference' (Adm. 2/1695: Adam and Parker to Stanley 30.1.1838). The spot chosen was to have 'a good and safe Anchorage, an easy communication of Shipping with the Shore, an abundant supply of fresh water, and a good soil; a Spot which is likewise easily defensible as well on the Sea as the Land side'. After several days examination of the Port, Bremer chose an area on the western side deep in the inner harbour. This choice suggests that Bremer paid attention more to the defensive side of his instructions than any other. There the settlement of Victoria, named in honour of the new monarch, rose on the plateau behind Adam Head on the highest large area of land on the shores of Port Essington. No fresh water was to be found in the immediate area, and the soil was no better than in a dozen other places in the harbour. But both Adam Head and Minto Head commanded the narrow entrance into the inner harbour, and behind the settlement the land sloped to the south and west so that any adversary might have to attack from a disadvantageous position. But the site was 27 km from the harbour mouth, unrelieved by the coastal breezes and difficult for quick access by ships under sail. In many respects it was to prove as disastrous a choice by Bremer as had been his initial choice of Melville Island 14 years before.

The subsequent history of Port Essington falls naturally into two distinct avenues of enquiry. Firstly, the internal history of the settlement illustrates the difficulties facing the men who tried to tame this strange, remote, tropical environment and the ways which they tried to do it. Superimposed upon this drama are the political manoeuvres of the statesmen who held the puppet-strings of Port Essington in another world. The former history is the focus of the present study and the latter has been dealt with elsewhere, especially by Howard (1931-2:106-61) and Graham (1967:428-43), but to understand the basic problems besetting the success of the settlement it is necessary to reiterate the outlines of the political background during the lifetime of Port Essington.

The political management of Port Essington: attempts to open the colony to settlers

Bremer remained at Port Essington for six months, sailing from there to Sydney on 3 June 1839. During that period all things prospered (HDL In Letters B.803: Bremer to Beaufort 5.4.1839; Anon. 1843a:8-12). The land parties set to work clearing, building and laying out gardens. Earl had departed aboard the *Essington* almost immediately for the Serwatty Islands to procure fresh food with which they returned to Port Essington on 15 December (Earl 1846:47-52). The *Essington* then sailed again for Dili. Bremer himself sailed to Dili in February (Howard 1931-2:115-6) and the *Britomart* under the command of Captain Owen Stanley, sailed on 18 March for Timor Laut and the Kai and Aru Islands, returning on 15 April (Stokes 1846:438-75). All these voyages assisted in publicising the new settlement as well as supplying it with fresh provisions, and each account speaks optimistically of the possibilities of trade. But both Earl and Stanley had encountered the Dutch already in the islands, and Earl at least

was aware of this threat to British commerce in the area. In a letter to Washington in the following year, Earl complained bitterly of the Dutch, who, he reported, had attacked Sandalwood Island (Sumba) possibly prompted by the settlement of Port Essington (RGSA Earl Correspondence: Earl to Washington 13.7.1840). Although tempered for publication in the Royal Geographical Society's journal by a more reserved editor, Earl's prose left no doubt of his own opinion, referring to the Dutch as 'the great enemy of our commerce' (altered to 'our commercial rival') who, he said, were behaving with their 'usual cunning' (changed to 'ability'). Although the Society published some of Earl's observations on Sumba, all references to Dutch aggression were completely omitted. Personal details of the settlement were also edited out so that first hand assessments that were being sent to England often did not reach public attention uncensored. This can be seen now only as a reflection of nineteenth century diplomacy and propriety, against which Earl seems often to have offended.

If Bremer anticipated that orders would await him in Sydney for the opening up of Port Essington to colonisation (Graham 1967:430) he was disappointed in this respect. However, he reported that interest was still high in Sydney, and upon receipt of an application to permit a Mr James Jones to go to Port Essington to cultivate sugar cane, Bremer wrote to Gipps enquiring whether he would be departing from the essence of his instructions to offer permissive occupancy at Port Essington. While Gipps could not accede to Jones' application (CO 201/288: Bremer to Gipps 7.9.1839, Harington to Bremer 7.9.1839, both enclosed in Gipps to Normanby 20.11.1839), he was persuaded of the necessity to open the settlement if it was to have any chance of success, and on 11 September Bremer issued a notice to the effect that persons of respectability wishing to resort to Port Essington for the purposes of trade might apply to lease land at five shillings per half acre (CO 201/288: enclosed in Gipps to Normanby 20.11.1839). The conditions limited such grants to a period not exceeding seven years, with all improvements to be at the expense and risk of the lessee.

The conditions offered were not attractive, since they promised no government protection or permanency, and the rental was high, being only slightly less than the upset price of land in New South Wales at the time (12/- per acre). Bremer was forced to report that although the notice caused 'considerable enquiry' he was disappointed to find nobody willing to speculate under such conditions. He urged that Port Essington lands be thrown open for sale and that the garrison be increased (CO 201/313: Bremer to Admiralty 30.10.1839 in Barrow to Stephens 18.5.1841)

The sale of lands at Port Essington became a central problem throughout the lifetime of the settlement. From the Australian end it quickly became obvious that unless Port Essington could expand and attract the trade for which it had ostensibly been established it could not become economically self-sufficient. Thus Bremer, and his successor Captain John McArthur, repeatedly pressed for this action, and Gipps added his support to their request (HRA I xxiv:659-60).

By the time the first despatches from Port Essington reached England, Glenelg had been succeeded by Russell, who therefore viewed the question of the settlement in a more detached state than his predecessor, as one of the instigators of the plan, could have done. The Wakefield system of colonisation being to the fore, Russell referred the matter to the Colonial Land and Emigration Commissioners, asking them to assess whether the settlement might be sustained by the sale of lands in the area (CO 385/19: Stephen to Land and Emigration Commissioners 28.1.1840). Thus in 1840 and in subsequent years this body issued reports on the progress and

prospects of Port Essington. The first report was exceedingly long and detailed (PPGB 1840 xxxiii 613:45-50). The Commissioners believed the port to be a good one as a refuge for shipwrecked sailors and quoted the large increases in shipping through Torres Strait that Bremer had reported in 1838 (CO 201/286: Bremer to Admiralty 18.9.1838), when 41 vessels had used Torres Strait compared with only 15 six years earlier. They also believed in the trading potential of the settlement, although they noted that the Macassans might not sell their cargoes of trepang because of Dutch controls at Macassar. On this point, however, they agreed that should this happen then the Chinese merchants would be likely to settle at Port Essington. The Commissioners viewed the strategic importance of the settlement as 'an object worthy of the attention of the British Government, even at some cost to the country'. Finally they felt that not enough evidence was at hand to comment on the agricultural potential of the area. Thus they could not recommend that investors should be sought to finance agricultural development.

However, by comparing the sale of lands at Port Phillip and Adelaide, the Commissioners concluded that since the prospects for trade were so great at Port Essington, the land at this latter place could be valued at £1 per acre, and thus the disposal of lands there would net the Crown between £200,000 and £300,000. On this basis they recommended a Government advance of £25,000 to defray the preliminary expenses of setting out a town, the basic features of which they proceeded to outline in a most unrealistic manner. For example they suggested the sale of 'town lands' at £100 per acre, to be increased to £150 in the following year, and 'rural lands' in 80 acre lots at £1 per acre, to be increased after one year to £1.10.0., at a time when fertile land in temperate New South Wales was being sold at an upset price of 12/- per acre. It was not surprising that Russell declined to direct the Treasury to sanction this advance. However he agreed that survey work should be commenced on the township and proposed the appointment of an officer of engineers and men for the task (PPGB 1840 xxxiii 613:50).

While such suggestions could be made with ease, their implementation was a different matter and Stephen in a long minute attached to the Treasury's directive to him to implement the proposed survey gave vent to his anger over the affair and his opposition to the Wakefield System in general (CO 201/303: Trevelyan to Stephen 17.6.1840). The Treasury had agreed to Russell's proposal on the basis that the costs would be repaid out of the subsequent sale of lands. Somewhat hysterically, Stephen asked where the money was to come from since the men would have to be paid and have their passages paid from civil funds. Neither the British nor the New South Wales Treasuries had any money for such purposes, and only several days before no engineer could be found to send to Canada for a similar task. Stephen followed this with a blistering attack on those theorists who had given 'currency and fashion to a most fallacious notion that what they call a self-supporting colony may be established by a Sale of Lands on a certain plan'. Stephen argued that Port Essington could be made to support itself in this way, if there were people simple enough to lend money for its support. But, Stephen claimed, this would be neither practical nor honest. Infant colonies had to be nursed and supported by the parent state (CO 201/303: Stephen to Gairdner, 26.6.1840, minute on Trevelyan to Stephen 17.6.1840). 'It seems to me', he later wrote, 'that the occupation and colonisation of New Holland and the other islands of Australia is one of those vast schemes of national policy into which Great Britain has been drawn by the current of events and with little human foresight to direct us, but which like the peopling of North America and the conquest of India must be regarded as amongst the most impressive movements of divine providence in the

government of this world'. In this scheme of things it was necessary to draw a belt of colonies around the Australian coast 'to give us the absolute and undisputed possession of the interior ... I am for planting out the French, the Dutch, the Americans and the Germans, and for keeping to ourselves a source of commercial and maritime greatness' (CO 201/329: minute dated 11.1.1842 on Bremer to Stephen 2.1.1842).

Thus the political considerations which had established the British in north Australia continued to keep them there and as, one by one, the hopes for the success of the settlement diminished and died, the assumed political necessity of the settlement caused the post to linger. This is reflected in the succeeding reports of the Colonial Land and Emigration Commissioners. Their report in 1843 reversed almost all their earlier opinions of Port Essington. The climate was unsuitable, only one shipwrecked crew had reached the port, no trade could be fostered with the Macassans, the place was out of the track of ships sailing between Sydney and Asia. Nevertheless they concluded, 'we are aware that there are reasons of quite a different nature which have been urged for maintaining a post at Port Essington' (PPGB 1843 xxix 621:12). In 1847 the Commissioners wrote, 'notwithstanding that our inquiries had confirmed our impression that the settlement had failed to accomplish the direct ends for which it was projected, the place ought, nevertheless, not at present to be abandoned' (PPGB 1847 xxxiii 809:10).

Russell was succeeded as Colonial Secretary in September 1841 by Lord Stanley. Despatches from Australia continued to suggest that Port Essington might yet prosper if traders could be attracted to the place, and Stanley asked the Colonial Land and Emigration Board to enquire to what extent the mercantile interests in England would be willing to support the settlement should it be placed on a permanent footing. Three months later the Commissioners were forced to report a total lack of interest (PPGB 1842 xxv 567:8) so that the question of a permanent settlement languished until the following November when the Parliamentary Under-Secretary, George Hope, suggested that emigration from the neighbouring islands might be encouraged (CO 201/320: minute dated 30.11.1842 on Gipps to Stanley 5.5.1842). The question was referred to the Colonial Land and Emigration Commission and their report came almost twelve months after Hope's original suggestion (CO 386/61: Elliot to Lefevre to Stephen 14.11.1843). Meanwhile, and again at the suggestion of Hope, the papers relating to Port Essington had been presented in Parliament as a last resort to publicise the settlement, and these had elicited some response from traders in England (CO 201/340: Cummins to Stanley 5.4.1843) so that interest seemed sufficient to cause Stanley to review the question of permanent settlement.

The Colonial Land and Emigration Commissioners had seen that the Land Sales Act of 1842, which required that waste lands could only be sold at the minimum upset price of £1 per acre, might well preclude the introduction of coloured settlers since they could not afford to buy the land. Instead they proposed that Port Essington might be constituted as a new colony and therefore outside of the statute governing the sale of lands in New South Wales.

Stanley decided that the settlement should continue on its impermanent basis and that it must remain an outpost of New South Wales, and hence subject to the Land Sales Act of 1842. Since the act provided for permissive occupancy on yearly leases, Stanley saw this as the way around the problem of immigration from the neighbouring islands and instructed Gipps to inform McArthur of his decision (CO 202/48: Stanley to Gipps 14.3.1844).

By the time the decision to try and sell lands at Port Essington reached McArthur, the tiny settlement had been in

existence almost six years, during which time none of the benefits suggested by Earl and others had been reaped. According to Graham (1967:434) the bloom had departed from the settlement by 1842 and the wet season at the end of that year had brought a severe epidemic of malaria which resulted in the detachment having to be relieved by fresh marines. The struggle to stay alive in such a hostile environment depressed even the spirits of the staunch McArthur, who by this time felt himself neglected and ill-treated, isolated from his wife and children and surrounded by difficulties. 'May God grant us both', he wrote to James Macarthur in Sydney in June 1845, 'hearts to understand His ways' (ML A2922: Macarthur Papers 26:288–95).

Although McArthur received some enquiries from European settlers, nothing came of them (CO 201/359: McArthur to Hope 28.1.1844 in Gipps to Stanley 1.9.1845). He could not have been surprised at this since, two years earlier, he stated that unless favourable terms could be offered no speculators would take lands at Port Essington in preference to the temperate lands to the south (CO 201/330 McArthur to Stephen 20.9.1842). However, McArthur still entertained hopes that the Macassans might be persuaded to settle, and during the early part of 1845 he made particular efforts to attract them, showing them the inland areas most suitable for cultivation and discussed the rents with them, stating that they thought the terms most reasonable (CO 201/359: McArthur to Thompson 23.4.1845 in Gipps to Stanley 1.9.1845).

In addition McArthur notified Singapore of the opening up of the settlement to a 'limited number of Chinese and Malays'. The conditions of occupation were liberal in the extreme, the rental for 'country allotments', those outside the immediate limits of the town, being one shilling per acre for the second year, following twelve months occupation gratis, and increasing to a maximum of three shillings after four years (CO 201/359: McArthur to Thompson 23.4.1845 in Gipps to Stanley 1.9.1845). But again this move failed to induce any settlers to come.

Howard (1931–2:132–3) has outlined a number of reasons for this lack of response: that the early history of the settlement had made would-be speculators dubious about the permanency of the post; that the poorer Malays could not reach Port Essington; and that the Dutch policy in the Archipelago was becoming less stringent. McArthur's disappointment was reflected in his letters. To Colonel Owen he wrote 'I am perfectly disappointed in the objects of this settlement. The Malays renew annually their payment of promises to come and settle here, but the same parties do not re-appear at all. I am not very much surprised at this. They are nothing doing in a mercantile way, and therefore are ignorant of any method of providing for themselves, everything connected with them, customs, habits, manners, knowledge has been with them like the laws of the Medes and Persians from the date perhaps that they were promulgated' (RMAP Port Essington Correspondence: McArthur to Owen 23.5.1846).

Confusions of authority

From 1838 a ship of war was always stationed at Port Essington. This duty fell in turn to the *Britomart*, the *Chamelion* and the *Royalist*, but in the beginning of 1844 orders were received for the reduction of the Squadron in the Indian and China Seas to which the Port Essington vessels had been attached. Vice Admiral Parker ordered the *Royalist* to Hong Kong for a refit and thereafter Port Essington was left without a ship (Adm. 1/5539: Parker to Admiralty 10.4.1844).

Six years after the establishment of Port Essington, confusion existed as to who had authority over it. Sir Francis

Cochrane, Parker's successor as Commander-in-Chief of the East India Squadron, wrote to the Admiralty in August 1844 and again in July 1845 seeking information as to his responsibilities towards the settlement (Adm. 1/5548: Cochrane to Admiralty 21.7.1845). A minute on this letter dated four months later stated that Port Essington was altogether distinct from his command, the settlement being 'under the Authority of the local Governor of Australia – that it is in all respects a Colony; subject to Colonial government; under the directions of H.M. Secretary of State for the Colonies'.

Thus without a ship, the settlement languished even more than before, dependent upon the Colonial transport which made an annual journey with supplies, and upon the traders who still occasionally visited the settlement. During the years 1846–1849, the Acting Pay and Quartermaster drew Bills of Exchange in favour of six traders, one from Singapore, two from Hong Kong, one from Dili, one from Surabaya, and one from Bali. All these transactions were made for food supplies, as far as they were recorded by George Lambrick, the settlement's Quartermaster, and he noted in June 1848 that in the previous ten months there had only been a 'few days' supplies of fresh meat (AONSW 4784 Lambrick letter books: see esp. Lambrick to Ramsey 15.6.1848).

In England the problem of what to do with Port Essington passed into the hands of Gladstone upon his succession to the Colonial Office in December 1845. At this time the last hopes of attracting Macassan settlers had not passed, and Gladstone sought the advice of Bremer as to the settlement's capabilities. In a detailed reply Bremer defended Port Essington strongly and maintained, as he had from the beginning, that the garrison should be increased if it was to attract anybody. Ships sailing from Sydney towards India could not be expected to delay their voyages to trade with a garrison of 60 men (CO 201/372: Bremer to Gladstone 17.2.1846).

Administrative equivocation: the decline and demise of Port Essington.

Visitors to the settlement in its later years however were almost universal in their condemnation of the place. MacGillivray (1852 I:135–8) visited Port Essington in 1848, having been there three years before and was appalled by the 'non-progressive nature of the system which had been established there' stating that there was probably no vessel in Her Majesty's navy in which the men were not better supplied with the necessaries and comforts of life than at Port Essington. Owen Stanley, Stokes, and Blackwood, all at different times engaged in survey work on the north Australian coast, condemned the settlement (Howard 1931-2:134).

Opposition to the settlement as it existed also came from an unexpected quarter, the Admiralty itself. Barrow had retired in 1845, and the following year the First Lord of the Admiralty, the Earl of Ellenborough, wrote to Gladstone demanding that the marines be withdrawn from Port Essington (CO 201/370: Ellenborough to Gladstone 2.4.1846). Gladstone's reply carried an edge of hostility to this *volte face* on the part of the Admiralty. 'As far as I can ascertain', he wrote, 'the Settlement was originally projected by Sir J. Barrow and Capt. Beaufort, whose authority at the Admiralty seems to have led to the placing (of) a detachment of Marines on shore' (CO 202/52: Gladstone to Ellenborough 2.5.1846). Although Gladstone admitted that there seemed little reason for maintaining the post if not as a naval base, he expressed the opinion that convicts might be placed there in the future, and felt himself not disposed to make a decision until he received a report from the Colonial Land and Emigration Commissioners. Ellenborough again wrote to Gladstone demanding the withdrawal of the marines, stating the irregularity of

stationing these men in permanent garrisons in Australia (CO 201/370: Ellenborough to Gladstone 6.6.1846). Gladstone replied asking Ellenborough not to press the matter, since withdrawal of the marines would inevitably destroy the settlement (CO 202/52: Gladstone to Ellenborough 12.6.1846). Gladstone agreed however that the question of the provisional nature of the settlement must be settled, and waited for the report of the Colonial Land and Emigration Commissioners, who began a full enquiry, taking evidence from Stokes, Blackwood, Crawford and Gipps (Howard 1931–2:138). Their report, eventually received in 1847 by Grey, who had succeeded Gladstone, reiterated the areas in which Port Essington had failed; Victoria was situated too far from the sea, and ships would not go out of their way to visit a port 'where neither cargo nor intelligence is to be obtained'; as a place for shipwrecked crews the settlement was too far from Torres Strait; the expected trade with the Macassans had not transpired; tropical agriculture such as cotton could be grown more easily in other parts of the Empire (PPGB 1847 xxxiii 809:48 Appendix 10).

While all these disadvantages were patently true, they were merely the superficial reasons for the failure of the settlement. Earl's scheme had been to establish a commercial emporium, a focus for European and local traders to bring their goods. Because of the manner in which the settlement was begun and administered in England speculators were precluded from going to Port Essington on terms that might have encouraged them. As Stephen had pointed out, this was the responsibility of the government, and in this the government had failed.

The Commissioners saw only two reasons for the continued maintenance of the post. Firstly it might be useful as a coaling station for steamships between Singapore and Sydney. Secondly, there was the possibility that if the coast were abandoned, foreign powers might be tempted to settle it. Thus the political considerations from which Port Essington had been born continued to breathe life into the ailing body.

However, the fear of foreign intervention in Australia had diminished over the decade of Port Essington's existence. There was no evidence that the Dutch had any intention of colonising north Australia, and in 1843 Barrow had written to Stephen that the French were 'quartering themselves on a different part of the Globe and may be satisfied with the large scope which the Pacific will afford them' (CO 201/337: Barrow to Stephen 19.9.1843).

On receipt of the Commissioners' findings James Stephen quickly dealt the *coup de grâce* to the argument of foreign intervention should the British withdraw. In a minute he wrote that no foreign Power could take possession of the area 'without a manifest infringement of the rights of the British Crown, for the mere withdrawal of the marines would not be a repudiation of our rights of dominion' (CO 201/389: minute of 23.1.1847 on Elliot, Wood and Rogers to Stephen 22.1.1847). Thus Stephen directly refuted the argument which Barrow had presented in favour of settling Melville Island, and later Port Essington. If this was Stephen's opinion one wonders why he remained silent to Barrow's argument nine years before, and in view of Stephen's own statements on planting out the Dutch and French, it would seem likely he was aware of the diminished likelihood of any such thing happening by this time.

For the remainder of 1847 and 1848, Grey allowed the settlement to linger, until in February 1849 an enquiry was sent to the India and Australia Steam Packet Company as to whether they intended to utilise Port Essington as a port of call or a coaling station. The negative reply (CO 201/420 Yates to Hawes 21.2.1849) sealed the fate of the settlement and in June 1849 Grey communicated to Fitzroy, the Governor of New

South Wales, his decision to abandon Port Essington (CO 202/56: Grey to Fitzroy 10.6.1849).

No evidence exists of McArthur's feelings as he quit Port Essington after 11 years of futile work to try and make the

place the success that King had envisaged 30 years before. If the settlement had failed, he at least had kept it going and the methods of his endeavour form the subject of the following chapter.

Chapter 8

Life at Port Essington

Archaeologists have established that the Aborigines had occupied the immediate area of the Cobourg Peninsula upwards of 24,000 years before the British first tried to settle there (White 1967). During that time they had come to terms with their environment, modifying it to some degree by the use of fire, but probably not altering the face of the country as much as hunters and gatherers in more temperate climates may have (Jones forthcoming [1971]). The region appears to have provided plentifully for the subsistence needs of its human occupants, who in turn bowed gracefully to the will of the seasons, perhaps moving with the wet and the dry seasons to places best able to support their semi-sedentary existence. Then perhaps for the last thousand years on the basis of new radiocarbon dates (Macknight pers. comm.) the north coast became the scene of a new activity, the seasonal visits of the Macassans. These people were also in tune with nature, utilising the monsoons for travel, and the natural resources for profit.

The British however brought with them a mentality based on the lush meadows of England and the genteel society of London, and with an arrogance backed by an empire which spanned the world, met the problems of planting the flag in north Australia head on. The pomp and circumstance of the parade ground might have little application in Port Essington but since it was considered necessary for discipline, the marines paraded while the white ants unceremoniously attacked the sofa in Sir Gordon Bremer's tent, although he caused it to be moved every day (HDL In Letters B.798: Bremer to Beaufort 7.12.1838).

The first garrison 1838–1844: getting started

Forty marines disembarked to form the garrison, a captain, a lieutenant, and 38 enlisted men (RMAP Port Essington personnel list). While Earl reported that the men had little interest in the success of the venture, their own despondency at such a posting can be imagined. They were a motley group whose trades ill-fitted the challenges they were to face. They comprised 18 labourers, four carpenters, two wheelwrights, two shoemakers, a carter, a gardener, a clerk, a blacksmith, a whitesmith, a tailor, a brass-founder, a stonemason, a cabinet-maker, a miner and a butcher. The fifer was listed as having no trade and may still have been a boy. The archaeology suggests that the five married quarters dated to the beginning of the settlement imply that five men brought their wives with them, although these are not listed, nor the number of children in the settlement.

With the *Britomart*, the *Alligator* and the *Orontes* in port, the ships' crews were employed to assist the garrison and the beginnings of the settlement progressed at a favourable pace. Prefabricated buildings brought from Sydney were erected, including Government House (Figure 105). Bremer had been instructed to erect such defensive earthworks as might be necessary (Adm. 2/1965: Adam and Parker to Stanley 30.1.1838) and this appears to have been done, from the remains of a square area enclosed by a ditch and bank, on the high ground on Minto Head. This is shown as foundations for a blockhouse on the McArthur map (Figure 4) but it is uncertain whether there was ever a building here. If the



Figure 105. The prefabricated Government House, shortly after it was erected. Watercolour by Owen Stanley, entitled *Government House Victoria January 12 /39*. Mitchell Library GPO 1 25200. Published with permission of the Mitchell Library.

purpose of this was to protect the settlement from Aboriginal hostility, such fears were short-lived. The intelligent handling of Aboriginal and British interactions by Collet Barker at Raffles Bay was reflected in the mostly amicable relations between the garrison and Aborigines throughout the lifetime of the settlement at Port Essington.

As well as the marine listed as a gardener, a civilian gardener had been employed for the settlement (Adm. 2/1965: Adam and Parker to Stanley 30.1.1838) and gardens were begun, land cleared and the erection of the prefabricated buildings was commenced. Bremer's complaint that the timber of the country defied the saws and tools which they had brought (Anon. 1843a:9–10) was reminiscent of the beginnings of Port Jackson fifty years before, and indeed the tiny settlement must have emulated the first few months in Sydney as improvisation and invention were brought to bear on understanding and using what local resources were available. The successful early voyages of the *Essington* and *Britomart* heightened the general optimism and Bremer wrote of the beauty of the place in ecstatic terms (HDL In Letters B.798: Bremer to Beaufort 7.12.1838). He felt assured of the fertility of the soil for growing spices, pepper, cotton and rice; stated that the harbour might contain the whole navy in perfect security; and noted that the country was providing kangaroos, geese, ducks, curlews, snipe, partridges, quail and pigeons, as well as plentiful supplies of fish when time permitted the hauling of the seine (a fishing net). Permanent water was found several miles to the west (Earl 1846:37), and in May 1839, after completing the jetty, Lieutenant Stewart of the *Alligator* spent seven days exploring the Cobourg Peninsula. He reported an abundance of water on the peninsula, with fine fertile land on the southern side, and good building timber (RGSA Stewart journal). He encountered the buffaloes which had already strayed below the neck of the peninsula after having been released from Raffles Bay and which formed the nucleus of the large herds at present in this part of the Northern Territory.

The arrival of the French

At the beginning of April the Aborigines reported a European vessel in Raffles Bay, and soon after the arrival of five Macassar praus confirmed the information. Stewart was dispatched to investigate and found the *Astrolabe* and the *Zelée* commanded by Dumont d'Urville, at anchor, with the 'French tricolour flying over two or three tents upon the shore'

(Earl 1846:56). Bremer expressed his 'great mortification' (HDL In Letters B.803: Bremer to Beaufort 5.4.1839) but sent Stewart to invite the French to visit them before they left the coast. On 6 April the French vessels anchored in Port Essington where they remained for three days (Figure 106). The visit was extremely cordial and d'Urville related that they were invited to dine on shore and supplemented the meagre British fare with, amongst other things, wines from the Bordeaux region of France (d'Urville 1841–55 (VI):280 n.19). The conviviality of that dinner was made strikingly real during excavations, by the recovery of the seals of bottles of Château Margaux and Château Ychem from the rubbish area behind Government House, together with the seal of a bottle of vintage French brandy which has been attributed to the same source.

Progress

During the first six months of the settlement considerable progress was made and the optimism of Bremer's despatches was not unfounded. By April he was able to report the completion of the pier, the hospital and the officers' quarters together with progress on the batteries and a victualling storehouse, in addition to '24 cottages and gardens, all comfortable' (Anon. 1843a:11). In point of fact these cottages can hardly have been anything other than uncomfortable. The excavation of the floor mound VSF I, identified from its position and the evidence recovered, as a single men's hut, indicates a 3 m by 3 m floor plan. This building and presumably all the single men's quarters, was either completely bark covered, or had reed walls with a thatched roof (HRA 1 xxvi:373–4). McArthur records that these huts lasted two to three years, by which time the framework would be completely destroyed by white ants, and the evidence from the excavation of VSFII (a similar hut) suggests they were probably burnt to kill the termites and new ones rebuilt on the same sites. Red clay appears to have been first employed for flooring, but possibly after the first wet season fine beach shell was used and the stratigraphy of these mounds reflects the successive layers of this flooring which became traditional in many parts of the settlement. During the wet seasons these huts were supplied with fire baskets for burning charcoal (ML A.501–3: Brierly journal entry 14.11.1848) and in the case of VSF I, this basket apparently stood on the floor stones located archaeologically in the centre of that structure. In 1848, Brierly noted ten such huts for the use of the men which

Figure 106. The French vessels *Astrolabe* and *Zelée* at anchor in Port Essington, April 1839. Lithograph by L. Le Breton. In d'Urville (1841–55: Atlas Pittoresque, plate 118).



suggests that each hut must have housed, conservatively, at least three men. Sweatman, in his journal (ML A.1725 II:256) lists the number as four.

The married quarters were of similar materials with the addition of a stone fireplace at the southern end. From Brierly's description (ML A.501-3: Brierly journal entry 14.11.1848) these houses were constructed of rushes attached to a light wooden frame by bamboo strips on the outside; 'they had little square holes for light and air, with little raised shutters like the ports of a vessel'. Today only the chimneys remain as a testimonial to the ingenuity of the Cornish marine who must have volunteered his knowledge in the absence of any more accomplished builder. His own work was not accomplished, as the detailed analysis of these structures has demonstrated, but he unwittingly left evidence of the improvisation which took place at Port Essington. He may also have been among the marines picked up in South Australia by the *Alligator*. James Wallace was aboard that ship and kept a diary (NLA MS.179) that contains a watercolour that shows a similar round chimney in South Australia. Of interest, the Australian examples provide the best dating for this type of chimney in western Cornwall, where some 60 similar chimneys have been recorded by archaeologists (Anon. 1964:107).

Captain John McArthur, acting commandant and commandant 1839-1849

When Bremer left Port Essington in June 1839, Captain John McArthur was appointed Acting Commandant, a position he held until 1844 when he was made Commandant (AONSW 4783 Lambrick letter books In Letters no. 29: Admiralty to McArthur). McArthur was a nephew of John Macarthur of Camden, being the ninth child and third son of James and Catherine (Burke 1891-5 I:227). Born 16 March 1791, McArthur joined the Royal Marines in 1809 and appears to have had an undistinguished career before his arrival at Port Essington, attaining the rank of captain in 1837 at the age of 46, although he eventually became a major general in 1857, the year in which he appears to have retired, since he is omitted from the *New Annual Army List* from 1858 onwards. (Here I have adopted the spelling McArthur used on his despatches rather than that of his more famous uncle.)

No journal and few personal letters are extant which might give information as to McArthur's personality. Brierly described him as a tall thin old man (ML A.501-3: Brierly journal entry 14.11.1848). Leichhardt said that he was proud to count McArthur as one of his friends: 'A man of so various knowledge and of so sound information is rare anywhere, but uniting it with such an amiable disposition, such willingness of communication, and if I could use the term, of conversational bartering (ready to give and to take) becomes a *rara avis* than most'. Added to this he was a good and careful observer of nature (ML C155: Leichhardt Journal 1845:440).

McArthur's skill as a watercolour artist can be judged from the frontispiece to this volume. Slightly right of centre, the distant building with the bell-tower can be identified as the church and the more distant building to the left is Government house. The contemporary map of the settlement (Figure 4) confirms these identifications. The church location is merely marked on this 1847 map with dots because this church was destroyed in 1839 by a hurricane and never rebuilt (see below). This dates this painting to sometime during 1839.

According to the *Melbourne Argus* (16.5.1931) McArthur also possessed some musical ability and these skills reflect the cultural side of his character. Several of his personal letters indicate that he felt his destiny was guided by his Maker and in prayer he gained solace for the depression of his long

banishment. More than Barker, he was guided by the Book of Regulations, and less than Barker did he possess the instinctual flair for seeing around problems in an environment that demanded improvisation. This led to conflict with a number of his men. Earl, who spoke warmly of McArthur on a number of occasions, observed nevertheless that the settlement was retarded by the fact that he was 'disinclined to do anything of consequence out of the routine' (RGSA Earl Correspondence: Earl to Washington 13.7.1840). One can appreciate the clash of personalities which caused the young, brilliant, but unhappy T.H. Huxley to write that 'the respected Captain MacArthur is with all reverence one of the most pragmatistical old fogeys I ever met with', adding that 'the commandant is very economical and unless some ship is there to divide the spoil he won't have a cow killed because it is too much and a good deal spoils!! - so the oxen live and the men die' (Huxley 1935:149). Elsewhere he observed that Port Essington was 'about the most useless, miserable, ill-managed hole in Her Majesty's dominions' (Huxley 1935:fn 1). Thus for want of any greater vision McArthur ruled by strict authority. He put down those who sought temporal relief in gambling and rum. He opposed settling the men's accounts at a pay-table, a procedure instituted by the acting pay- and quartermaster on his arrival in 1844, on the grounds that this was offering incentive and temptation to these 'desperate and ungovernable vices'. 'I need not observe', he wrote, 'that after the working hours the time must be spent in much listlessness, there are few external circumstances of excitement as in a camp, or a garrison with an enemy in front, which of itself demands and ever induces voluntary and free action - yet if these occupied men may be seen still strong in purpose to obtain liquor and will even find means to accomplish that purpose (I believe this is not overcharged) what shall we suppose may not be done in a position like this. Surely the reply is unnecessary - it is not the hours of occupation, but those of idleness which are difficult to regulate and I feel that every means which can be placed in my hands as preventives, will but barely suffice' (RMAP: undated letter (1844) McArthur to Owen).

The tropical environment and the 1839 hurricane

But while McArthur might strive to control his men, all were controlled by the environment which they tried to tame. During 1840 the maximum temperatures ranged between 31.7° C and 36.1° C and the minimums between 17.2° C and 26.1° C (CO 201/313: McArthur to Admiralty 16.7.1840 in Barrow to Stephen 2.7.1841). From more complete records maintained on board the *Alligator* between October 1838 and May 1839 the lowest minimum temperature recorded was 25.0° C and the highest maximum temperature 35.0° C (PLV MS. H16559: Tyers' Meteorological Record). In general it appears that the shore temperatures were usually hotter and that any breezes on the water were quickly dissipated by the tree cover on shore. No records of humidity are extant but for much of the year this would have been high. During this early period there was no major sickness in the garrison, and the various despatches reflect a general optimism on this point. 'I am extremely glad', wrote Earl, 'to find that Europeans do not lose their energies here, as I scarcely dared to expect otherwise' (RGSA Earl Correspondence: Earl to Washington 17.3.1840).

In June 1840, and again in May 1841, earth tremors were experienced in the settlement (CO 201/313 McArthur to Admiralty 16.7.1840 in Barrow to Stephen, 2.7.1841; C.O. 201/323: McArthur to Gipps, 3.11.1841 in Gipps to Stanley, 3.11.1842) but these did little damage and were inconsequential compared with the hurricane which had struck the settlement on 25 November 1839. The settlement had

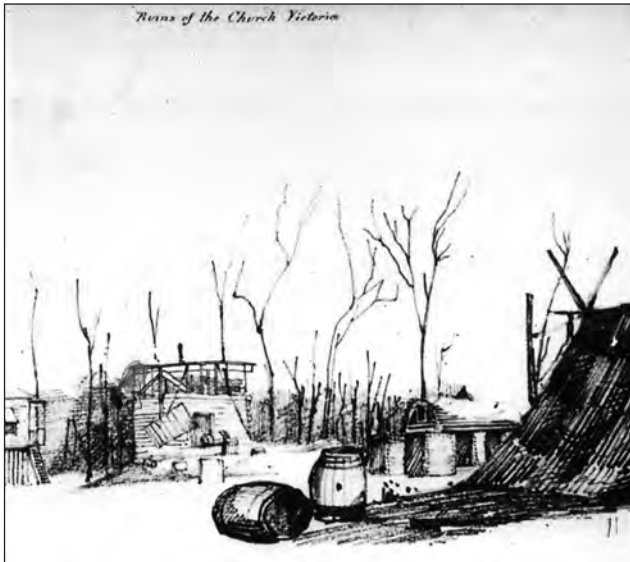


Figure 107. Remains of the church following the 1839 hurricane. Watercolour by Owen Stanley, entitled *Ruins of Church*. Mitchell Library PXC 279 f.50. Published with permission of the Mitchell Library.

experienced unsettled weather on the previous day, and gradually as the evening progressed the winds increased and the rain fell until at 11 p.m. the full fury of the storm unleashed itself upon the frail settlement. With the daylight came calm, but the scenes of devastation which greeted the garrison must have awed even the staunch McArthur. Trees and gardens were completely uprooted. The hospital, officers' mess and one store house had survived, but the improvised huts of the men were laid waste. Government house had been hurled from the piles on which it stood, the church destroyed (Figure 107), the jetty and storehouses on the beach washed away (*Sydney*

Gazette 2.5.1840). The work of twelve months had been nullified in twelve hours.

The *Britomart* and the *Pelorus* had been at anchor some distance east of the jetty. While the anchors of the former had held, the *Pelorus* was less fortunate. At 10 p.m. she began to ship heavy seas and an hour later she broke from her moorings. In desperation the crew fired distress guns and rockets, as they worked to keep the ship from running aground, but to no avail. At midnight she went aground on the eastern side of Minto Head where she was battered by the huge waves (Figure 108). When daylight came the *Britomart* sent a boat to help take off the crew, and it was found that eight men had drowned (Adm. 53/972: *Pelorus'* log entry 25.11.1839). The ship was not re-floated until the following February (Figure 109) and was eventually sold out of the Service. It thus became the second shipping disaster at Port Essington, the *Orontes* having been wrecked on an uncharted reef at the harbour mouth in December 1838.

Tropical predators

North Australia possessed no large terrestrial animals which the garrison might fear. Although several species of poisonous snakes inhabit the region there is no record of anyone from the settlement being bitten, and only one story of an encounter with a crocodile, which was shot after having carried off Sir Gordon Bremer's favourite dog (HDL In Letters B.798: Bremer to Beaufort 7.12.1838). Nonetheless those creatures that did inhabit the region proved formidable opponents for the Europeans. Rats and other animals attacked the gardens and cockroaches and flies continuously spoiled stores and food. The ever-present sand flies and mosquitoes were sufficiently irritating to cause Bremer to mention them and the painful ulcers they induced in an official despatch (Anon. 1843a:9) and amongst the mosquito population, at least one of the approximately 30 species of the *Anopheles* genus that



Figure 108. Wreck of the *Pelorus* during the 1839 hurricane. Watercolour by Owen Stanley, entitled *Situation of H.M.S. Pelorus 1839*. Mitchell Library PXC 279 f.55. Published with permission of the Mitchell Library.



Figure 109. H.M.S. Pelorus was not re-floated for 3 months after the hurricane. Watercolour by Owen Stanley, entitled *H.M.S Pelorus at low water*. Mitchell Library PXC 279 f.56. Published with permission of the Mitchell Library.

transmit the parasite *Plasmodium* that causes malaria, was present when a carrier came into the settlement. The green tree ants in their millions made clearing a slow and often painful business.

It was, however, the white ants which provided the most concerted opposition to the British settling Port Essington, and even in the lifetime of the garrison they were victorious.

In 1848 Brierly observed that both the blockhouse and the storehouse (VQS) that Lieutenant Lambrick, the acting pay-and quartermaster, and his family had occupied on his arrival in 1844, were both so decrepit because of the depredations of the white ants that neither could be used any longer, and had been abandoned (ML A.501–3: Brierly journal entry 14.11.1848). McArthur had reported that the men's huts had to be replaced every two to three years for the same reason; Bremer had noted early success against these predators by using coal-tar, but the lack of lasting success was reflected by Owen Stanley who in a report on the settlement in 1849 to the Colonial Secretary, recommended that should the Government decide to retain Port Essington, 'iron frame-work should be sent out, as it has been found impossible to guard against the inroads of the white ants by any means that experience could suggest or ingenuity devise' (HDL SL.15f: Stanley to Deas Thomson 17.4.1849).

This was not quite true, however. Accidentally the garrison had discovered a technique which aided the fight against the termites, and which, when rediscovered, was to become the most distinctive hallmark of tropical architecture in Australia – the use of piling. Including the church, seven prefabricated buildings were shipped to the settlement from Sydney and rather than excavate level areas it was found more convenient to set these buildings on piles.

The largest of these prefabricated buildings was Government House (HRA 1 xxvi:373) described by Earl (1846:88) as being 18 feet by 40 feet, with a roof of split shingles. The building usually referred to as the hospital was in fact the second hospital and was a much larger building, but it was not yet built. The first hospital was a prefabricated building which later became a store house (VSD). This, together with the ordinance store, was set on dwarf piles several feet from the ground, but the remaining prefabricated buildings were raised eight feet from the ground on wooden piles. Whether or not this was done deliberately to increase storage space is unclear, but its effectiveness for controlling the white ants soon became apparent. McArthur observed that 'this temporary method of piling in order to raise the buildings has proved very useful. Had they been fixed on the ground in the usual manner they must have been destroyed long since by vermin'

(HRA 1 xxvi:373–4). The technique was later rediscovered and employed, particularly in Queensland (Freeland 1968:207).

The archaeological evidence, where it can be defined, suggests that after the hurricane, houses were rebuilt on the sites that they had previously occupied and that certain alterations and adaptations were made to them. The church however was never rebuilt, and the timber was re-used in other buildings (HRA 1 xxvi:373).

Vernacular architecture

Throughout the whole period of the settlement the housing of the men remained as described. Projected barracks were never built. During the earlier period the prefabricated buildings were erected on temporary piling and huts were thrown up from materials at hand. The local ironstone was quarried on the spot into rough blocks and mortar was made by burning shells for lime and mixing it with clay, as demonstrated in the archaeology. The chimneys of the married men's quarters are the only remaining structural evidence of the earliest period of the settlement, apart from the few ironstone pillars that mark the site of Government House. Roofing materials appear always to have been split shingles probably made from casuarina trees, or bark, or thatch made from rushes.

In general, the technology of the architecture at Port Essington reflects the traditions of the men who built the buildings and adapted them to a strange environment. Apart from the prefabricated buildings which had timber floors, the use of beach shell flooring reflects the common use of mixed sand and lime ashes for this purpose in Britain at this time (Allen 1849-50:41; Smith 1834:22). The shells from which lime was made were burnt in kilns, of which three were recorded in the settlement. All three are of similar design, being built of stone in the shape of a beehive. The kiln to the south of the settlement is freestanding and may have been used for charring timber for charcoal (CO 201/323: McArthur to Gipps 3.11.1841 in Gipps to Stanley 3.11.1842). The example immediately north of the jetty is badly deteriorated, but could not have stood higher than 2 m. An earth platform was built behind it and excavation demonstrated that it was used to produce lime. However it appears to have been only a prototype for the third kiln, also used to produce lime, built into the cliff-face to the west of the settlement and standing to a height of 4 m. Both these kilns functioned in the same way. The large kiln had a flue as well as a larger opening at the base and in the top. It was loaded from the top with successive layers of shell and fuel and fired from beneath. When the firing had taken place the lime was shovelled out from below (Feacham 1956-7:50). This kiln remains a classic example of a pre-1850 British lime-kiln (Hudson 1965:138) and its building reflects an excellence of construction that suggests that it was probably the work of the convict masons who were at Port Essington in 1845 (see below).

The wreck of the *Pelorus* in many ways proved a blessing for the settlement, for it remained there through all of 1840, and its crew provided an important additional labour supply. One of its crew was a brick maker by trade and was able to fill an important gap in the skills of the garrison. McArthur had reported the discovery of a fine bed of clay at the head of Wanji-Wanji Cove to the south of the settlement, but experiments had failed to produce suitable bricks for want of an experienced man to burn them (CO 201/313: McArthur to Admiralty 3.11.1840 in Barrow to Stephen 10.5.1841). Private Handy, a marine serving on board the *Pelorus*, was enlisted to make bricks to be employed in enclosing the area beneath the first hospital (VSD).

The bricks that Handy produced were made the way they had been traditionally made in England and Europe for several

hundred years and essentially as they would be made in Australia until about 1870. The pug was pushed into an open topped wooden mould with a removable base. When formed, the brick would be slipped from the mould and dried for several days before firing (Freeland 1968:13-14). The Port Essington bricks were, by modern standards, extremely poor quality. They comprised c. 20% clay and 80% sand, bonded with ironstone nodules. They were not highly fired and consequently porous and soft. They were not frogged and were irregular in size, but they were a technological achievement in the tiny settlement and McArthur was elated with their possibilities (Anon 1843a:29). However, Captain Chambers of the *Pelorus* when he sailed from Port Essington in March 1841, would not allow the brick maker to stay, despite the fact that the man volunteered (Anon 1843a:21) and although McArthur reported that Private Handy's assistant from the garrison was attempting to continue production, the archaeological evidence suggests that he failed, since no other buildings apart from VSD were constructed in this material.

During the period 1840-1841 the settlement was the scene of much activity, restoring the damage of the hurricane and developing the settlement. A primitive saw-pit was excavated in the cliff to the north of the jetty and wanting any experienced sawyer, the garrison learnt to produce planking and battens for the buildings. The blacksmiths made nails, pointed the mason's tools, and constructed iron-work for the buildings, which McArthur deemed necessary following the destruction caused by the hurricane (Anon 1843a:29). It was probably the memory of that experience which determined a change in style of the buildings constructed in this period. The old hospital was dismantled and the ground excavated to provide a level surface into which solid stone and brick foundations were sunk. The ground floor was then constructed

of bricks and the prefabricated wooden structure replaced to form a second storey above, entered by external stairs from the western end. The store which was later to house Lieutenant Lambrick and his family (VQS) was also enclosed below with rough-hewn masonry which was built directly around the wooden piles (Figure 110). These were eventually eaten away by the white ants leaving gaps in the masonry. McArthur noted that much additional storage space was thus achieved (HRA 1 xxvi:374) but the walls aided the progress of the white ants and Earl Grey remarked that the later destruction of the buildings was probably thus accelerated a good deal for the sake of some additional accommodation (HRA 1 xxvi:373). The progress of Port Essington had taken one pace forward and two paces back.

The largest building complex of the settlement, the hospital, dispensary and hospital kitchen was begun in this period. A flat area 20 m by 35 m was excavated into the slope on the eastern side of Minto Head by the seamen on board the *Pelorus* (Anon. 1843a:20). At its deepest point this excavation was several metres deep and in the rocky soil the task must have been laborious with the inefficient tools at their disposal. In this level area the hospital was built upon ironstone footings c. 400 mm above the ground. Upon this was erected the prefabricated wooden structure that had been sent from Sydney in 1840 (HRA 1 xxvi:373). The stone foundations were divided into four compartments and it is reasonable to assume that the four wards in the building followed the pattern of these foundations (ML A.1725: Sweatman's journal II:257). From a watercolour of the hospital in Sweatman's journal, probably painted by Brierly, it appears that the building was surrounded by a verandah and that the four corners were enclosed to form additional rooms. Since, according to Sweatman, the doctor lived at the hospital, he may have occupied one of these rooms.



Figure 110. Quartermaster's Store, looking east. Note the original piles had been encased in stonework when this drawing was done, dating it before 1843. Watercolour by Owen Stanley, entitled *Storehouse Port Essington*. Mitchell Library PXC 281 f.63b. Published with permission of the Mitchell Library.

In external appearance the hospital had the classic features of the primitive Australian farmhouse of which the earliest example, Elizabeth Farm at Parramatta in New South Wales, had been built in 1793. The enclosed rooms at each corner were a distinctive feature, and because of the verandah, the roof line which began at the normal pitch necessarily became shallower to allow head-room, resulting in the broken-backed appearance of the roof, which was also hipped at both ends. The verandah seems certainly to have been intended to provide external access rather than shade and in this it again echoed the earliest use of the verandah in Australian architecture (Freeland 1968:22, 45–7). From the illustration by Brierly the hospital appears to have been roofed with thatch.

Although only one brief mention occurs of the hospital dispensary (ML A.1725: Sweatman's Journal II:257) this has been recorded archaeologically and was situated adjacent to the hospital in the north-west corner of the excavated area. It was a small building with the western wall built of rough masonry. The remaining walls were probably of thatch and the structure was divided into two compartments by a brick wall, where the few bricks remaining from the storehouse were utilised, thus equating it in time with the building of the hospital proper, which was reported almost complete in September 1841 (Anon. 1843a:29).

By this time also work was almost complete on the magazine and blockhouse on Adam Head (Figure 111). The magazine was built completely with masonry and set 1.5 m into the ground to minimise damage from an accidental explosion. The blockhouse, breastworks, and 2.75 m high palisades were all of timber and have disappeared without trace, but from Owen Stanley's sketch (ML C281a) the blockhouse must have stood about 9 m high. It was probably at this time that the ditch and bank fortification to the south-west of Adam Head was constructed.

The jetty had been completed in April 1839 under the direction of Lieutenant Stewart of the Alligator and he recorded that it was 100 yards long and 24 feet wide and 10 feet high at its outer end, built entirely of stone. 'I flatter myself', he wrote 'that it is the best job in the Colony ... it will answer for this port for some years to come' (RGSA Stewart journal). Less than seven months later it had been completely destroyed by the hurricane. It was rebuilt by the men of the Pelorus but McArthur recorded that it was not as strong as before (Anon. 1843a:29).



Figure 111. Blockhouse and breastworks on Adam Head. Note magazine to the left of the structure. Watercolour by Owen Stanley, entitled *The Fortress at Port Essington*. Mitchell Library PXC 281 f.119. Published with permission of the Mitchell Library.

By the end of 1841 the settlement had developed sufficiently to meet the needs of the tiny garrison. Until a decision could be reached on the opening up of Port Essington, little could be done, or needed to be done in expanding the post. All the public buildings had been erected, the men were housed, and the modest technological needs of the garrison catered for. There were sufficient storehouses, and kilns, a smithy and a primitive but effective bake house for baking bread.

Professional architecture

The second phase of architectural expansion was brief but recognisable from the structures which arose. In January 1844 20 picked convicts, all masons and quarrymen, sailed from Sydney to construct a beacon at Raine Island in the Barrier Reef (Ritchie 1967:300). Completing the work there in September they embarked on the *Fly* for Port Essington, where Captain Blackwood deposited the convicts while he went to Sourabaya (ML A1531-3 Deas Thomson papers III: Blackwood to Deas Thomson 18.4.1845). Their arrival at the settlement was opportune, for a week earlier McArthur had reported the re-commencement of work on the beacon at Smith Point at the mouth of the port. The work had been begun by the ship's crew of the *Chamelion*, but proved unsatisfactory and what had been constructed had been condemned and removed (RMAP Port Essington Correspondence: McArthur to Owen 18.4.1845). From the remains at Smith Point it would appear that the newly arrived convict masons took over the work and the beacon became a solid round tower of blocks of coral conglomerate quarried on the spot. One dislodged block is inscribed 'E CRI' and one ingenious suggestion is that this is part of 'LUCE CRISTI' and thus probably associated with a Catholic missionary who lived in the area several years later. However the fine gothic lettering would suggest that it was the work of a qualified tradesman. The beacon was finished at the end of 1845 (ML A.501-3: Brierly journal entry 14.11.1848).

The finest piece of architecture in the settlement, the hospital kitchen, has to be associated with the four months the convict masons spent at Port Essington. In striking contrast to the other architecture in the settlement, this building has all the aspects of professionalism. The Georgian symmetry, reflected in the ground-plan, is apparent, and the design was almost certainly a stock pattern. Smith (1934:38 and passim) gives a number of standard designs, of which his No.1 is very similar to the Port Essington hospital kitchen. In the detailing of the building professional expertise is also apparent. Wide footings were sunk into the ground and the floor level raised above the surrounding ground level. The doorways and windows were rebated to take timber frames and sills, all corners were quoined with finely chiselled blocks, and the elaborate chimney, since it served two fire places, was constructed with two flues which were parged.

The large lime-kiln to the west of the settlement, already discussed, reflects similar expertise, and lacking any documentary evidence can be attributed to the same period on this basis. Finally, the smithy was rebuilt at this time and had a fine stone chimney standing approximately 6 m in height, which has fallen in the last twelve years. The base remains, however, to suggest the technology of the structure, and because it contains some blocks of coral conglomerate which were presumably brought back to the settlement from Smith Point, can be dated to 1846. This date is in accordance with a brief reference to the smithy by McArthur (HRA 1 xxvi:374).

No further building took place in the remaining years of the settlement, with the exception of several vaults in the cemetery, and the obscure structure named during field work

as the Cowrie House. On archaeological grounds this can be dated late in the life of the settlement because of the re-use of stone blocks from other parts of the site. The cowries found in the deposit can best be explained as having some commercial value and may be associated with a man named Rae (or Ray) who is incidentally recorded as having established a trepanning camp in nearby Knocker Bay (ML A.1725: Sweatman's journal II:273) and who may well have had some sort of storehouse at the settlement to facilitate the shipment of his goods.

The archaeological survey of the site recorded four wells around the settlement, although Brierly noted that only two were functioning in 1848 (ML A.501-3: Brierly journal entry 14.11.1848). The first of these was the well in the town square, which seems to have been able to maintain the settlement at all times. The second was some distance to the west, and presumably served the garden there.

Kitchen gardens and tropical horticulture

The gardens consumed much of the garrison's time and many despatches and descriptions of the settlement were taken up with this aspect of life at Port Essington. Apart from the small private gardens which were planted around each hut, two main gardens were established; one to the south of the settlement behind the beach, the other to the west in the vicinity of the cemetery.

From the outset, Bremer's despatches were full of optimism on the potential of the soil of the Cobourg Peninsula. In December 1838 he declared that every description of spice, together with sugar, rice and excellent cotton might be grown. In February 1839, despite light rains in the wet season, he reported the orange, lemon, banana, plantain and coconut trees in excellent order, and again in April he wrote, 'The soils are exceedingly rich; plantains, bananas, orange, lemon and tamarind trees are flourishing' (Anon. 1843a:9). In addition, sugar cane and cotton were succeeding and strong hopes were held for the potential of rice. Notwithstanding this, Bremer reported the want of vegetables as the major source of deprivation in the settlement.

In this, as in other aspects of the settlement, Bremer appears to have been swayed by success to the point of not acknowledging the difficulties involved. The seasons and climate were not understood, and although Armstrong had been appointed as official gardener, his practical ability appears to have been in doubt in so foreign an environment. In July 1840 McArthur reported that the winds had adversely affected the gardens. The pumpkin and maize crops had failed to produce to the extent anticipated, although the experience had led to the replanting of maize in the western garden where it improved. By the end of the year the gardens had produced c. 820 kg of vegetables, mainly pumpkins, and the melons and sweet potato were also thriving (Anon. 1843a: 14, 16-18).

This was in essence subsistence gardening. Of the agricultural potential of the area McArthur was more reticent, noting that a few people who professed some expertise were unanimous in saying that sugar, coffee, cotton, indigo and rice might all be grown successfully. Armstrong had failed with sugar cane, although McArthur, writing to Gipps at the end of 1840 (Anon. 1843a: 16-18) thought that perhaps this was due to his inexperience. McArthur noted that any success would require 'skilful, practical men', whereas in his own garrison there were not enough men to maintain the gardens in sufficient quantity to sustain themselves all the year around.

Gradually the settlement learnt by experience. In September 1841 McArthur's report reflected the general successes and failures of the crops, together with the increasing dependence on the tropical crops with which they

were slowly becoming acquainted. It is of value to quote this despatch at length:

The gardens have produced well; we have cut nine very fine pines; fifty-five bunches of bananas, some of them containing six dozen each, of excellent flavour. The cocoa-nuts do not seem to thrive. The orange has not yet bloomed; two lemons, of large size and well-flavoured, have been gathered, and there are many coming forward on two of the trees.

Melons decidedly degenerate, but having received some new seed from Sydney, I hope to improve them by giving some attention in selecting and reserving the fruit intended for seed. But I am told that this is an universal complaint of this plant.

Sugar-cane will doubtless answer well here, all visitors, who appear acquainted with its properties, speaking well of our grown specimens, and they have not been at all attended to.

Indigo, and the cotton, though totally neglected, have attracted much attention.

The soil appears to be peculiarly favourable to arrow-root. I have made some, and it proves to be of an admirable quality. We have more than sufficient, I hope, to supply our hospital, and the next year's crop will be (if as successful), at least, tenfold more.

Two bread-fruit plants were brought here from the islands about 12 months since, and I have given much attention; but am very doubtful if they will spring. We have also two mangoe plants; but they do not grow, and the loquat has failed. I must remark that it has been a considerable disadvantage to the pursuits of gardening that I have not had time to devote, or the hands requisite to apply to it. There are too many objects to be effected with so limited a detachment.

A few seeds of the Amboyna pea, discovered amongst some maize landed from a vessel, succeeded beyond all expectation. When served at table we generally deemed it quite equal to the common kinds of green peas; since its introduction all the species of island beans and calavances have been discarded, and only valued on account of their beautiful foliage and splendid appearance when in blossom, producing a large cone of flowers, in colour and form resembling the well-known may-duke. It is curious that none of the live stock will eat any of these productions, not even when intermixed with other food that is acceptable to them.

We have now, by supplying the ships' crews, exhausted our stock of potatoes; it would have served the garrison very well until the next rains. This is decidedly our most profitable vegetable; it will always be cultivated with the least labour. We have not had a satisfactory trial of the yams, but are fully prepared for it on the approach of rains.

I regret having miserably failed with the potatoe onion, introduced also from the islands. I purchased and planted 80 pounds, and only saved a few for the sick, with about one pound reserved for seed. They were put (by advice) in the ground in December, and the continuous wet weather completely destroyed them.

I propose this season to extend the potatoe plantations. Indian corn and Amboyna peas will also merit attention.

I have only employed two men for the last three

months as gardeners; their attention is now directed exclusively to watering the plants, and watching against depredations (Anon. 1843a:30).

The processes of learning by experience were thus often painful and slow. Earl reported, for example, that under cultivation the yam, sweet potato, and other root crops flourished too luxuriantly to produce (RGSA Earl Correspondence: Earl to Washington 9.6.1841) and Leichhardt noticed that melons and pumpkins although large were quite tasteless (ML C155: Leichhardt Journal 1845:433). Leichhardt noted the introduction of the cactus *Opuntia ficusindica* ('prickly pear') for the cultivation of cochineal insects, which had been suggested in his report by Captain Everard Home (Hodgkinson 1845:115-9). Prickly pear is one of the few introductions of this period which still thrives at Port Essington.

In 1849 Owen Stanley reported that the first garden (that to the south of the settlement) had been a complete failure, although the second was still supplying coconuts, pineapples, bananas, jack fruit, and oranges (HDL SL.15f: Stanley to Deas Thomson 17.4.1849). However Stanley viewed the settlement with disfavour throughout its existence, and in summary it would be fair to say that McArthur's diligent application to the problem resulted in reasonable success in keeping the garrison supplied with fresh vegetables.

Earl noted that these efforts were supported by information and gifts of plants and seeds from the governors of Amboyna and Dili and especially from the consul-general of Portugal at Singapore (Earl 1846:105-14). Earl's remarks on the gardens substantiate what has already been said. It is interesting to note however, that he maintained his belief in the agricultural potential of the region. Although admitting the failure of coffee, he claimed success for sugar cane and spices, and in particular for cotton. The first variety grown was the type common to the Archipelago, which, although it succeeded, was not of high quality. In April 1842 seeds of Bourbon and Pernambuco cotton were planted and Earl submitted the product to an English cotton broker who pronounced it of good quality. Since all such experiments were carried out on a limited scale, Earl felt that the potential of agriculture was not shown to be worthless. The history of Northern Territory agriculture since suggests however that Earl was overly optimistic.

Local game and introduced livestock

Amongst the land fauna the kangaroo and wallaby appear to have been the only species utilised for food by the Europeans. Earl (1863:7) notes that kangaroo hunting was a specific task in the garrison and the excavated food remains of the Europeans include kangaroo bones. Beyond this, fresh meat seems to have come mainly from livestock introduced into the settlement from the adjacent islands. Pigs, Timor ponies, buffalo and island cattle (bantang) had been released at Raffles Bay at the abandonment of that settlement. The buffalo had strayed off the peninsula by 1839 and had greatly increased in numbers. Earl noted that herds of 40 or 50 could be found at the neck of the peninsula (Earl 1846:103) and the introduction of the buffalo fly (*Siphona exigua*), the cattle tick (*Boophilus microplus*) and the cattle disease onchocerciasis have been associated with these introduced animals (Letts nd:23-4).

These livestock introductions continued throughout the lifetime of Port Essington and included – in addition to pigs, ponies, bantang and buffalo – sheep, goats, English cattle from Sydney, poultry purchased from the Macassans, and dogs to assist in the pursuit of the kangaroo. The livestock however required more handling than McArthur had men available to perform and they constantly strayed and became wild (Anon. 1843a:30).

Again, the lack of knowledge of the environment was apparent. Campbell had noted that the sheep taken to Melville Island never became fat or fit for food (Letts nd:25) but these animals continued to be imported into the settlement. Earl recorded that of more than one hundred sheep purchased by the *Essington* during her first voyage in 1838, nearly one half died before reaching Port Essington (Earl 1846:52). Stock losses from Sydney were equally great, and McArthur reported that of 45 buffaloes embarked on the schooner *Lulworth* only 14 were landed, of which two had died before he sent the despatch (Anon. 1843a:15).

Once arrived at Port Essington the stock had to be hand-fed, since some of the indigenous flora proved poisonous and many sheep and goats and to a lesser extent the cattle died from the effects of this (Anon. 1843a:30–31). Sheep particularly seemed to have suffered in the tropical climate, but their importation was continued until Port Essington was abandoned (AONSW 4783 Lambrick letter books In Letters no. 126: Sydney Commissariat to Lambrick 3.4.1849). This letter lists 51 sheep shipped to Port Essington in 1849.

Malaria: onset

Not only the animals but also the men gradually succumbed to the strange environment. For the first four years the garrison remained free of widespread sickness and in April 1839 Bremer had written to his wife that there had been no medical cases in the garrison and that the two men who had so far been buried in 'the calm and peaceful spot' chosen as a cemetery had been from amongst the ships' crews (NLA G.743 Owen Stanley Papers: Lady Bremer to Mrs Edward Stanley 6.11.1839). But gradually the signs asserted themselves. In September 1841 McArthur reported two cases of intermittent fever and four cases of diarrhoea (Anon. 1843a:29) and twelve months later the assistant surgeon furnished a medical report for the period July to September 1842 which listed 19 cases of which five were of intermittent fever (Anon. 1843a:47). However health in the garrison was still generally good and Whipple attributed this to the good position of the settlement, the regular habits of the men, and their temperate way of life, noting the strict prohibition of liquor to any improper extent.

The wet season of 1842–43, was prolonged and severe, and with this came the first widespread outbreak of malaria. When the *Fly* visited the settlement in August 1843 Jukes found that all there had been attacked by the disease and that there had been several deaths (Jukes 1847 I: 350–1). Many were still hospitalised, and they had become a garrison of 'yellow skeletons' (Browne 1871:199). Without a labour force the little settlement was immediately paralysed and steps were hastily undertaken for the relief of the garrison.

The second garrison 1844–49: holding on

Home and McArthur both wrote to Parker, the commander-in-chief of the East India Station, who wrote to the Admiralty (RMAP Port Essington Correspondence: Parker to Admiralty 18.6.1843) and the formation of a relief detachment was begun. It was not until November 1844, seventeen months after Parker's communication that the relief party reached Port Essington. The second detachment consisted of two lieutenants, an assistant surgeon, three sergeants, three corporals, a fifer and forty-seven privates (RMAP: Port Essington personnel list) men as ill-equipped to maintain the settlement as the first detachment had been to begin it. Although the details are incomplete, the majority of men had their civilian occupations listed as labourers, and the detachment contained no masons, brick makers or bricklayers (RMAP Port Essington Correspondence: Lawrence to Owen 5.3.1844).

Malaria: taking hold

By now malaria was established in the settlement and within twelve months every man in the new garrison had suffered from it, and in 1845 and 1846 there were nine deaths, in addition to the wife of Lieutenant Lambrick (RMAP: Port Essington personnel list). One of the two Lambrick children had died before reaching the settlement, the other died at the settlement. In May 1846 McArthur requested an additional medical officer and in October 1847 Surgeon Crawford, together with an additional lieutenant, corporal and five privates, arrived at the settlement (RMAP Port Essington Correspondence: McArthur to Owen 13.10.1847). During 1847 there appears to have been some improvement in the health of the men, but again in the wet season of 1848–49, malaria laid waste to the garrison in the worst epidemic experienced in the settlement. Crawford later recalled the situation in writing to Lambrick: ‘I cannot think of Port Essington without a shudder, what a fearful state we were in in 1849 when all but yourself and two others were attacked by fever. I believe but for your immunity from fever and your great exertions and intelligence on behalf of the sick, we should have lost many more men. Do you recollect during my lucid intervals your visits to my bedside for instructions on how to treat the sick? The care of the sick and dying lasted six weeks’ (RMAP typescript: ‘Services of General George Lambrick’).

The cause and transmission of malaria was unknown at this time. Earl (1846:90–8) discussed it at some length, and came to the conclusion that throughout the Indian Archipelago it was always the land-locked harbours which were affected most by malaria. He thus attributed the cause to the mangrove swamps and mud banks which were uncovered at low tides together with the effluvia produced by the effects of the hot sun on stagnant salt-water. In support of his case he referred to the early period of the settlement stating that the hurricane had sufficiently agitated the waters of the inner harbour to purify the shoreline, and thus there was little malaria in this period. Earl reflected the popular ideas on the disease at this time, and it is of interest to note that Leichhardt discussed the problem in an analytical fashion which says much about the man (ML C155: Leichhardt Journal 1845:438–9). Firstly he dispelled the ideas that after rain malaria rose into the atmosphere. ‘After heavy rain the air smells fresh and pure; no nasty offensive exhalation rises from standing pools filled with decomposed plants or from morasses in which either ... gas, or sulphuretted hydrogen or the unknown agent which we call malaria might be engendered ... I should therefore say that the air and the country have nothing whatsoever to do with the fever of Pt. Essington’. Leichhardt recorded that he was told by two members of the garrison that the fever ceased when the country around the settlement was on fire, and that the Aborigines had told them that they used fire to keep down disease as well as to facilitate travel around the country. Assuming this to be true, it is an intriguing additional explanation for Aboriginal dry season landscape firing that is rarely discussed.

Leichhardt felt that the diet of the men was sufficiently good to eliminate this as a cause, and he and McArthur in discussing the problem noted the coincidence of outbreaks of malaria with the arrival of trading ships from Timor which had happened on several occasions. Tantalising half-clues were at their disposal but the association of these conditions with the bite of the female *Anopheles* mosquito was not to be discovered for another 50 years, during the construction of the Panama Canal.

Leichhardt noted that the disease was treated with mercury until salivation took place, when the patient was considered safe. Quinine might also have been used as this was listed in

medical supplies from Sydney (HRA I xxiii:554). McArthur, believing that the settlement was not sufficiently exposed to the sea breezes, accidentally hit upon the best practical solution available to him and sent patients to convalescent stations established at various places in the area and thus away from the established malarial habitat. Parsonson (1965) demonstrates that the anopheline mosquito lives in specific environmental conditions and that a sea breeze of c. 12 kph is sufficient to inhibit activity altogether. The average feeding flight for a female *Anopheles* mosquito is c. 180 m and by removing convalescing patients to other coastal areas, McArthur unwittingly took them away from the place where malaria might be reinforced by additional infections. These convalescent stations included Croker Island, Smith Point, Coral Bay, Observation Cliff and Spear Point (ML C155: Leichhardt Journal 1845:432; Earl 1846:91; ML A.501-3: Brierly journal entry 14.11.1848; Anon. 1843a:37). The remains of the stations at Coral Bay and Spear Point were located during fieldwork but were not excavated.

Apart from malaria the garrison suffered continuously from a number of other ailments. Ophthalmia caused perpetual distress, and scurvy and diarrhoea occurred frequently. One case of cholera was recorded, and a number of other diseases reported. When the settlement was finally abandoned, one return showed that of the original garrison of 64, only 37 men were evacuated. Of the others, 14 had previously been relieved because of ill-health and 13 had died, a death rate of more than 20% in less than five years among mostly young men (McIntosh 1958:17).

Small group personality conflicts

In a garrison so small, personal disputes were inevitable and often grew out of all proportion to their causes. Nevertheless they had a disruptive effect on the administration of the settlement and occasionally impeded its progress.

In the first few months of the settlement hostilities flared between Bremer and John Armstrong, who had been appointed as botanist and gardener at Port Essington. Armstrong wished to pursue the scientific side of his appointment, but Bremer, naturally concerned with the immediate wants of his garrison, denied any knowledge of the botanical collecting aspect of Armstrong’s position, although it had been specifically stated in Bremer’s instructions (RBGK RICH 1171: Armstrong to Smith 23.11.1839). After Bremer left the settlement Armstrong’s dissatisfaction continued with McArthur, and in July 1840 he refused to continue working in the gardens (NMMA CHR/23 MS 63/017: McArthur to Chambers 20.7.1840) and eventually left the settlement in November 1840, going to Timor from whence he wrote complaining bitterly of the selfishness, pride and ignorance that were the predominating rules by which Port Essington was governed (RBGK RICH 1171: Armstrong to Aiton 7.12.1840).

When Bremer returned to Sydney in July 1839 the *Sydney Morning Herald* (10.7.39) and the *Australian* (20.7.39) printed long and flattering accounts of the settlement and its progress. In May the following year the *Sydney Monitor* and *Commercial Advertiser* (4.5.1840) printed a 5,000 word letter purporting to come from residents at Port Essington who signed themselves Paul Pry and Quite Correct and who launched a bitter attack upon these earlier reports. ‘We cannot of course judge’, they wrote, ‘of the appearance Victoria presented to the admiring eyes of the *Alligator’s* [crew] as they were about quitting these ‘delightful shores’; but on a closer view we can safely answer that the idea of a village, and especially a considerable one would not, by many be easily conceived – ‘twenty four cottages!’ (kennels) ‘with gardens!’

and 'all comfortable'; excessively so! particularly during the late hurricane, when they all came tumbling about the ears of their occupants'.

From here the dispute passed into the pages of the *Nautical Magazine and Naval Chronicle* (1842:86–8) which published an anonymous refutation of the adverse newspaper report which the writer attributed to officers of the *Britomart*. Owen Stanley, the captain of the *Britomart* privately accused the naturalist John Gilbert, who was at Port Essington at this time, of writing this article, which said Stanley, imputed neglect of duty on the part of himself and his officers (NLA G.743 Owen Stanley Papers: Gould to Gilbert 24.8.1844). In consequence, it was probably Stanley who wrote to the *Nautical Magazine* (1843:662-5) not denying that the *Britomart's* officers had been responsible for the original newspaper letter, but giving total support for the sentiments expressed in it and reiterating them at some length, concluding that should the government wish to retain Port Essington then they should make it a penal settlement if severity of punishment were to be the object in view. This letter is signed 'An Officer in H. M. Navy', but can be attributed to Stanley with reasonable certainty.

Such publicity of course did the settlement great harm at a time when the government was attempting to open land leases there. Bremer, considerably upset, wrote to Chambers, captain of the *Pelorus* which was still at Port Essington, demanding that he swear that he had no knowledge of the letter (Adm. 50/262: Bremer to Chambers 2.12.1840). Chambers was likely innocent of the charge, but the basis for Bremer's suspicions was another long feud which took place throughout the period the *Pelorus* was at Port Essington (late 1839 to March 1841).

When Bremer had been unable to return to Port Essington in 1839 he had ordered the *Pelorus* to go there with the supplies that were urgently required by the garrison, and that ship had been subsequently wrecked in the hurricane. This, reported Earl (RGSA Earl Correspondence: Earl to Washington 13.7.1840), was the cause of much discontent, as the ship had been about to return to England, and the officers held Bremer responsible for their misfortune. In another letter, Earl complained of the want of fixed government, stating that since Bremer's departure, Kuper, Bremer's son-in-law and then captain of the *Pelorus* had 'taken the reins out of McArthur's hands on the plea of being senior officer' (RGSA Earl Correspondence: Earl to Washington 17.3.1840).

Earl may have been confused on this point, and it was likely Chambers rather than Kuper who usurped McArthur's authority. In January 1840, Bremer despatched Captain Chambers in the *Alligator* to Port Essington from Trincomalee with orders to take command of the *Pelorus* after handing over his ship to Kuper, and to take his further orders from Kuper (NMMA CHR/23 MS 63/017: Bremer to Chambers 28.1.1840). These orders were quite explicit, instructing him that although the garrison was placed on the books of the *Pelorus* for purposes of victualling, he was not to interfere with the garrison under McArthur's command, and was to offer every assistance to the settlement (NMMA CHR/23 MS 63/017: Kuper to Chambers 18.3.1840). This Chambers did not do, claiming that as senior officer at Port Essington he was the first authority in the place, and authority vested in McArthur by Gipps gave McArthur no authority over Chambers, nor the naval marines in the settlement. The long correspondence between the two (NMMA Chambers Papers CHR/23, CHR/24 *passim*) reflects this basic conflict over a number of extremely minor issues. But Chamber's destructionist policy in conjunction with McArthur's blind adherence to regulations seriously impeded the progress of the settlement and the repercussions of the tension between the two unsettled the whole garrison.

Eventually the dispute was laid before Sir Gordon Bremer, who in December 1840 wrote to Chambers reiterating the instructions he had been given and stating that McArthur was in complete command of the garrison 'and must not be interfered with, but assisted in every way' (Adm. 50/262: Bremer to Chambers 2.12.1840). It is possible that Chambers did not receive this letter, for on 17 March 1841 he sailed from Port Essington, refusing to leave behind the brick maker, and also refusing to disclose his destination to McArthur (CO 201/323: McArthur to Gipps 3.11.1841 in Gipps to Stanley 3.11.1842).

Although Chambers was in the wrong in this instance, McArthur's intractable personality was unsuitable for the post he commanded. Nor was this instance isolated. In 1848 he called on Owen Stanley to adjudicate in a dispute between himself and Lambrick (HDL SL.15f: Stanley to McArthur 13, 14, 15.11.1848) and Huxley wrote that although there were only five officers in the settlement, 'there is as much petty intrigue, caballing and mutual hatred as if it were the court of the Great Khan' (Huxley 1935:149).

Such passions were not the sole prerogative of the officers however. Leichhardt recorded that on reaching Port Essington, and announcing that Gilbert had been speared to death on the journey, an unnamed marine broke down in despair, for he had volunteered to go to Port Essington with the explicit intention of killing Gilbert when the latter arrived there for having seduced the marine's sister (ML C155: Leichhardt Journal 1845:431).

The tyranny of isolation

If the marine survived the rigors of the following years he must surely have expiated his guilt. The loneliness of the isolated settlement meant long hours of boredom, and Port Essington can be seen as a microcosmic example of the situation which was repeated a hundred times in the early history of Australia – those small, artificial, male-dominated societies that gave rise to the Australian legends of hard drinking and mateship. McArthur tried to curb drunkenness in the settlement, and felt no compunction at sentencing marines to seven days in irons on bread and water for being drunk and fighting (NMMA Chambers Papers CHR/23: McArthur to Chambers 10.3.1841) but the substitutes he offered for entertainment and relaxation – a theatrical performance (Christie nd: entry for 24.8.1839), a regatta, and athletics (CO 201/323: McArthur to Gipps 3.11.1841 in Gipps to Stanley 3.11.1842) were perhaps poor substitutes for those who wished to escape their banishment in a bottle of rum. The harmonica reeds recovered in the excavations bear testimony to the simple entertainments to be had living in the Australian bush, and the growth of Australian bush ballads from the traditional songs of England are readily understood in conditions such as those at Port Essington. There can have been little relevance in the news that the Bishop of York had been thrown from a horse, but was feeling better, or even that in France Ledru Rollin had been removed from office and that other members of the Republic were 'tottering' (ML A.501–3: Brierly journal entry 16.11.1848) in a settlement which years before had been so short of supplies that all the men were barefooted (Anon. 1843a:16), and dressed 'almost entirely' in cotton cloth purchased from the Macassans (RGSA Earl Correspondence: Earl to Washington 9.6.1841).

Aboriginal contact

Any fears that the Aborigines might be hostile towards the garrison were quickly dispelled and the two groups lived harmoniously throughout the lifetime of the settlement. This

can be attributed partly to the work that Barker did at Raffles Bay, partly to the fact that the Aborigines were accustomed to the visiting Macassans (and the effects which that contact had had upon them) and partly to the deliberate policy of non-confrontation that was adopted by the British at Port Essington. Although the garrison hunted the kangaroo and wallaby, fished and ate shellfish, the Europeans were too few to threaten the economic basis of Aboriginal life. Indeed, to some extent the Aborigines appear to have supplied the settlement with foodstuffs, collecting shellfish, turtle and the hearts of the cabbage tree palm for the garrison (*Sydney Morning Herald* 21.6.1840) although they could never be induced to work in the settlement for more than several days at a time.

However the Aborigines were eager for the goods that the British brought with them, particularly metal, cloth and tobacco. Sweatman recorded that 'every child that can walk has a pipe in his gills and I have seen men get absolutely intoxicated on smoke alone' (ML A.1725: Sweatman's journal II:272). Sweatman felt, however, that they had not adopted the European vices as much as might have been expected, and were not very fond of liquor. The prevailing attitude of those who wrote about the Aborigines at Port Essington was that they were naive, fun-loving curiosities and even McArthur, who was well-disposed towards them, on several occasions expressed amazement when they exhibited the human emotions of kindness, sympathy or humour (e.g. Anon. 1843a:31).

McArthur's policy towards the Aborigines, as in other things, was governed by his instructions and regulations. A good deal of petty pilfering took place throughout the lifetime of the settlement and whenever offenders were located they were punished. Usually this took the form of solitary confinement for a night, which seems to have been considered greater punishment than flogging by the Aborigines. One point in McArthur's conflict with Chambers was when the latter had an Aborigine flogged without first informing McArthur, who was distressed not by the act, but rather because it undermined the idea of authority vested in himself alone, by which the concepts of British justice might be inculcated in the indigenous people. To some degree McArthur succeeded in this policy and he recorded an incident where a wronged man came to him demanding justice (NMMA CHR/23 MS 63/017: McArthur to Chambers 27.1.1841). The clearest example of McArthur's attitude to the task of bringing European law to the Aborigines came in 1847, when the single occurrence of bloodshed between the two groups took place. Two native men and a boy had stolen from the settlement, and Sergeant Masland was sent across the harbour in a boat to arrest them. The arrests were made, and the goods recovered, but returning to the settlement in the evening the prisoners freed their bonds and dived overboard. The boy was recaptured, but after vainly attempting to recapture the other two, and calling upon them to 'halt in the name of the Queen' one of the men was shot dead. McArthur sent Masland to Sydney to stand trial for murder, where he was exonerated (ML A.501-3: Brierly journal entry 4.11.1848). McArthur appears to have been less concerned with the loss of life than with his own personal record, and noted 'It is to myself peculiarly painful as I have been want to look back with satisfaction on the years during which it has been my gratification to say 'No blood has been shed'' (RMAP Port Essington Correspondence: McArthur to Owen 13.10.1847).

The influences of each group upon the other remained superficial. Clothes were distributed to cover the nakedness of the Aborigines but McArthur reported that these always disappeared immediately (Anon. 1843a:18) presumably traded into the interior together with iron. On his trip to the interior of the Cobourg Peninsula in 1839, Stewart (RGSA

Stewart journal) recorded Malay and European metal objects in a bark shelter. Metal was exchanged for stone weapons and implements for which few local materials were available on the coast. In this they were continuing a practice begun with goods obtained from the Macassans (*Nautical Magazine and Naval Chronicle* 1842:88).

From the archaeological evidence recovered from the excavation of the two Aboriginal middens near the settlement there is some evidence that the immediate region became a focus for the local tribe and that they became perhaps more sedentary during the life of the settlement. The analysis of glass implements illustrates the degree to which they became conversant with this new and ideal raw material for making implements, and a mention is made of the blacksmith making iron spikes with which to tip their fishing spears (NMMA CHR/23 MS 63/017: McArthur to Chambers 29.10.1840) replacing, presumably, wooden prototypes.

The lasting legacy of European contact, however, was as in other places, disease. Although no records are extant, it is reasonable to suppose that the Aborigines did not escape the malaria epidemics which beset the garrison. Previously both the habit of burning the bush, and a semi-nomadic life must have reduced to a minimum any malaria introduced by Macassans. There is some evidence of venereal disease (MacGillivray 1852 I:159) and it was also recorded in the garrison, so that it was very likely transmitted from this source to the Aborigines. Small-pox was known to the Aborigines when the Europeans arrived in 1838 (Adm. In Letters B.798: Bremer to Beaufort 7.12.1838) and may have been a result of Macassan contact. Later in the century this disease reduced an estimated 200 Aborigines on the peninsula to 28 (PC Howitt Correspondence: Robinson to Howitt 8.6.1880). McArthur reported in 1841 that the Aborigines had suffered severely from catarrh, chest complaints and ophthalmia (Anon. 1843a:31).

Interactions with Macassans

As might have been foreseen by the experience of Raffles Bay, any intended interception of the Malay trepang industry never took place. McArthur referred to this in 1842 (Anon. 1843a:38) by which time any real hope of establishing a commercial port via this avenue was gone. However the Macassans visited the settlement each year, partly for protection from the Aborigines, with whom there was occasional bloodshed (Anon. 1843a:13). and partly to carry on minor trading with the garrison. This consisted of some poultry, cloth, salted fish, rice, sugar, mats, baskets and Chinese earthenware (ML A.501-3: Brierly journal entry 4.11.1848; Anon. 1843a: 27, 32). From the amounts of this last item recovered in the excavations it is doubtful if all the Chinese pottery in the settlement came from this source, and it might equally be the archaeological expression of a reasonable (given the size of the garrison) trade carried on with the settlement by private traders with their bases either in the Dutch ports of the Archipelago or from Singapore or Hong Kong. Few precise details of these traders are extant and there appears to have been only one continuous visiting trader, Earl's friend d'Almeida, who visited the settlement annually from Singapore from 1842 to 1848 (Earl 1846:67).

The overland route

Throughout the period of his tenure as Governor of N.S.W. Gipps remained strongly in favour of the retention of Port Essington, and as early as 1840 he put forward a proposal for exploration for a land route to the place (CO 201/299: Gipps to Darling 28.9.1840). The explorers Edward Eyre and

Charles Sturt were interested in undertaking such an expedition and put forward a proposed scheme for the journey (HRA 1 xxiii:245-7) but since the estimated costs were £5,000 the proposal was not adopted. The idea was not forgotten, however, and in September 1843 the Legislative Council of N.S.W. set up a select committee to enquire into the feasibility of an expedition to find an overland route. Evidence was taken from a number of people, including Sir Thomas Mitchell and Earl, who was in Sydney at this time. Earl convinced the committee that Port Essington might yet become a flourishing entrepôt, and the *Sydney Morning Herald* (12.9.1843) came out in strong support for the scheme during the proceedings. The advantages to be derived from an overland route, said this newspaper, included obviating the dangerous sea passage through Torres Strait, opening up a ready supply of cheap labour from the north, and providing the means of exporting horses, cattle and possibly even sheep to India, particularly if the England-India steam route were to be extended to Port Essington.

The findings of the select committee were favourable to an attempt being made, and the Legislative Council asked for a vote of £1000 to put the plan into effect. However the depression of the early 1840s allowed no money for such expeditions and Gipps reluctantly refused, but immediately

wrote to the Colonial Office asking their advice (HRA 1 xxiii:245-7). The reply was that the project might be approved when sufficient funds were available.

In October 1844, Gipps wrote to Stanley enclosing a second proposal for an expedition to Port Essington from Eyre, which created some conflict with Sir Thomas Mitchell, who had already offered (and virtually claimed the right) to lead any official expedition (HRA 1 xxiv:50-51). In passing, Gipps noted that a gentleman named Leichtardt [sic] was preparing to lead a small private expedition from Moreton Bay to Port Essington. The story of that epic of Australian exploration must be passed over here but the party left Moreton Bay in September 1844 and had been given up for lost when on 17 December 1845 McArthur was surprised by the arrival of 'a thin, spare, weather-beaten and bent down man, wearing a long beard and well worn habitements' (RMAP Port Essington Correspondence: McArthur to Owen 26.12.1845). Leichhardt wrote, 'I was deeply moved at finding myself again in a civilised society, and could scarcely speak, the words growing big with tears and emotion. And even now, thinking that I have been enabled by a kind providence to perform such a journey with so small means, my heart sobs with gratitude within me' (ML C155: Leichhardt Journal 1845:429).

Chapter 9

Conclusions

DENOUEMENT: SUCCESS OR FAILURE?

On 10 June 1849, Grey wrote to Fitzroy informing him that Port Essington was to be abandoned, since it had failed to realise the advantages expected from its formation (CO 202/56: Grey to Fitzroy 10.6.1849). On 12 November the news reached the forlorn garrison when H.M.S. *Maeander* arrived to expedite the relief, and was met with much rejoicing. The settlement was destroyed by fire, as the archaeological evidence has confirmed, and Captain Keppel (1854:490) related that this was done on orders to prevent any re-use of the buildings. On 1 December 1849, led by the band, the garrison marched to the jetty for the last time and embarked for Sydney. Unimpressed by the pomp and circumstance, the Aborigines scavenged among the ruins, while McArthur turned his back on eleven years in the Australian tropics.

A limpet port

The earlier chapters have outlined the reasons given for the formation of the settlement at Port Essington and the ways in which these failed to come to fruition. Speculations on whether Port Essington could ever have succeeded miss the point. If Port Essington had had another Raffles, if the administration and finance of the settlement had been more efficient, if the Anglo-Dutch treaties had been better implemented in practice, are questions that blur the single fact that in terms of the overriding political considerations given to drawing a ring-fence about the Australian coastline, then Port Essington was a success despite the costs. It was not a question of whether other powers had designs on Australia by the late 1830s, but rather that the British government thought they did.

Port Essington, then, can be seen as a successful political manoeuvre which extends Blainey's (1966:82-96) concept of the limpet ports of the 1820s well into the 1840s. That the settlement lingered beyond 1845, by which time the French threat had diminished, with France transferring its interests to the Pacific, is best explained by the problems of communication which plagued the settlement from the beginning. A second reason was the lingering importance of a northern land base for the surveying voyages which were carried on in northern Australian waters between 1837 and 1849. This fact was recognised before the expedition left England in 1838 (Adm. 2/1695: Barrow to Bremer 30.1.1838) and was alluded to throughout the lifetime of the settlement (e.g. HDL SL24: Wickham to Beaufort 27.8.1839; CO 201/320: Stokes to Gipps 19.3.1842 in Gipps to Stanley 5.5.1842; AONSW 4783 Lambrick letter books In Letters: Commissariat Office Sydney to Lambrick 3.4.1846). In addition, Port Essington did prove a haven for some shipwrecked crews. In 1841 the crew of the *Montreal* reached the settlement (HDL SL.15P: Stanley to Beaufort 1.11.1844) and in 1843 the survivors of the *Hyderabad* and *Coringa Packet* arrived in Port Essington (McIntosh 1958:14). In April 1846 the *Heroine* struck a reef and foundered on a voyage to Port Essington. The survivors were carried to Port Essington in the *Enchantress* and *Sapphire* (RMAP Port Essington Correspondence: McArthur to Owen 23.5.1846; Essenhigh 1846:550-1). In general, however, the settlement was too far from the Barrier Reef, the cause of most disasters.

A missionary presence

Amongst the survivors of the *Heroine* who reached Port Essington was a Roman Catholic priest, Father Angelo Confalonieri, who had embarked with two lay brothers to begin missionary work amongst the Aborigines of northern Australia (Christie 1943). Despite the loss of both assistants and all his belongings, Don Angelo determined to continue his work, and given assistance by McArthur and the garrison, he quickly learnt the Aboriginal dialect in the area and went to live at Black Point where he became the first missionary in the north. Pottery and glass fragments c. 100 m south-east of the present ranger's house perhaps marks the site of his dwelling. Despite his devotion he seems to have had little success with the Aborigines and two years later died, presumably of malaria. The pathos of his hardships at Port Essington was reflected in the account of his death given by MacGillivray (1852 I:157-8) who recounted how in his final delirium he died denying the existence of God.

During his brief time at Port Essington, Father Confalonieri travelled over much of the Cobourg Peninsula, mapping and recording Aboriginal tribal distributions and compiling a vocabulary of the local dialects. He also translated parts of the New Testament and prayers into the language of the people with whom he lived (Flynn 1963:48). The vault in the cemetery at present inscribed with the name of a German missionary is thought to contain his remains (see chapter 2).

For McArthur, the perfunctory note of thanks which he received from the Admiralty (RMAP Port Essington Correspondence: Parker to McArthur 17.1.1851) could have been but small consolation for the apparently wasted years he spent at Port Essington. Yet under his guidance the tiny outpost continued to exist within, if not with, the hostile environment in which it was placed. The difficulties of his command were ones of distance, discipline and disinterest. These he faced with the only weapons at his disposal, the Books of Regulation and Revelation. If his view was limited, nevertheless by painful trial and error he helped demonstrate the problems of colonial expansion in tropical Australia, and some of the ways to overcome them.

European legacies

This settlement together with its predecessor at Raffles Bay was responsible for introducing the buffalo which formed the nucleus of the large herds now in the Northern Territory, as well as the banteng cattle which range over the Cobourg Peninsula. With its experiments in horticulture it pointed up the limited potential of the area for any agricultural development, which even with a hundred years of technological improvement remains largely true today.

Perhaps the most lasting monument to the endeavour of the first Europeans at Port Essington lies in the fact that the settlement provided a base for investigations and observations into a number of fields of natural science, so much so that the Cobourg Peninsula is at present a flora and fauna reserve. Many residents and visitors wrote detailed accounts of the language, customs and habits of the Aborigines so that the area is among the best ethnologically documented area in north Australia (e.g. Keppel 1853; Sweatman ML A1725; Leichhardt 1847; Jukes 1847; MacGillivray 1852).

Within the settlement a number of people collected specimens of various forms of natural history from both the land and the sea. Despite Armstrong's protestations about being unable to collect while at the settlement he did manage to send many specimens back to the Royal Botanic Gardens at Kew (Mountford 1964:2-3).

An early visitor to the settlement was John Gilbert, one of Gould's collectors who arrived at Port Essington in July 1840, on board the *Gilmore* and remained there until the following March. During this time he collected more than 200 specimens of birds representing 90 species, as well as insects, plants, reptiles, fish and mammals. While at the settlement he demonstrated that the huge mounds in the region (often 4.5 m high and 18 m in circumference at the base) were, as the Aborigines said, the nest-mounds of the jungle fowl, and not, as King and others had suggested, Aboriginal tumuli. The greatest prize, however, was the discovery of the Gouldian or painted finch (*Peophila gouldiae*) which was to become 'the most prized example of its group in the world' (Chisholm 1941:43-5).

The zoologist John MacGillivray made several visits to Port Essington on board H.M.S. *Fly* and H.M.S. *Rattlesnake*. While on board the former vessel, MacGillivray and another member of the ship's company Lieutenant Ince, spent four months in the settlement and MacGillivray (1846) published an account of a collecting trip carried out at this time. In addition, the publication of the voyage of H.M.S. *Rattlesnake*, undertaken by MacGillivray (1852) contained a number of appendices on vocabularies, birds and mollusca collected on the voyage, including specimens from Port Essington. T.H. Huxley was assistant surgeon on the *Rattlesnake* at this time, but apparently did little collecting at Port Essington. Jukes' (1847) account of the voyage of the *Fly* contained similar appendices. Members of Dumont d'Urville's expedition, as well as Leichhardt also collected in the vicinity of Port Essington. It has thus become a type area for aquatic and land animals, birds, and insects in northern Australia.

THE USE OF ARCHAEOLOGY IN AUSTRALIAN COLONIAL HISTORY

Documentary history and historical archaeology

Like any other aspect of the discipline, historical archaeology can justify itself as an intellectual pursuit in the methodology it will develop for the analysis of the artefacts recovered by excavation. For any sense of lasting value, however, it must widen our perspectives of the past. Almost 15 years ago Harrington (1955:1124) observed that excavations on historic sites contributed historical data in considerable quantities but resulted in little history. While the same might be said of much historical research that uses only documents, the resolution of this problem always lies in the interpretation of the evidence, be it a governor's despatch or a gunflint. The differences in research techniques and aims in archaeology and documentary history are highlighted in this study, where both sources of evidence are abundant but have frequently met only peripherally.

Some differences are obvious because of the nature of the evidence. The documentary historian frequently deals with the individual and the particular event, or sets of them, while the archaeologist examines general trends and 'culture'. We might pursue these sorts of differences *ad nauseam*, but they need not concern us here too long. This is not to say they are not important but rather that they are well understood (see for example Atkinson 1960: Wainwright 1962). Arguments as to whether archaeology is history or science or anthropology (for archaeology as anthropology see Willey and Phillips 1958:2;

Binford 1962b) suggest that archaeologists who limit themselves to a rigid point of view on such matters are denying the fundamental potential of the discipline. The rapid development of scientific techniques in a dozen disciplines that border archaeology, the socio-cultural emphasis of anthropology and the written word all demand that archaeologists adopt an integrated approach to their subject, modifying their research techniques to any given situation. The prehistoric archaeologist in Australia must use the information of the geologists and palaeobotanists but equally he must attend to the wealth of ethnographic data in a country which less than 200 years ago was populated exclusively by hunters and gatherers.

In carrying archaeological research into the recent historical past, archaeologists have created a new driving force to add impetus to both anthropology and history. Disappointingly, my review of overseas (in most instances North American) historic sites excavations suggest that too frequently the archaeological cogwheel is spinning but is yet to be attached to the shafts of either history or anthropology. Of course there are exceptions. Watkins' and Hume's (1967) work on Yorktown's 'poor potter' is an excellent example, not only of archaeology widening the perspectives of American colonial history, but also correcting misleading evidence in the documents. The work of Dethlefsen and Deetz (1966) on gravestones indicates the contribution historic archaeology can make in an anthropological direction.

In short, while one might agree that archaeology *per se* is not an historical subject that reconstructs history from objects (Cleland and Fitting 1967:133), unless the end product of the research is historical (or anthropological) interpretation then it is of little value beyond antiquarianism or the personal satisfaction of antique collecting. The use of archaeology as an historical research technique requires the archaeologist's understanding of problems inherent in documentary research, no less than it requires the historian's awareness of the sort of evidence (and its limitations) which archaeology produces. At the same time, inferences drawn from archaeological evidence are too often met with scepticism by historians wedded to documentary evidence.

The use of documentary sources in archaeology is not novel. Walker (1967:23-34) discusses their use in Classical and Near Eastern archaeology, as well as on medieval sites. Nor is the archaeology of recent historical times a new discipline. In the 1878 volume of the *Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society* Isaac Fletcher published a paper on the archaeology of the West Cumberland coal trade (Hudson 1965).

What is new is the sort of documentary evidence available and the wealth of this material. In Australian history, for example, there are (as the preceding pages have demonstrated) at least fragmentary references to the social and technological aspects of the settlement at Port Essington. The archaeology of the site has emerged as a different plane of enquiry, used to complement these sources and enlarge the blurred documentary evidence, adding detail to some aspects such as architecture, and presenting a broad picture in other aspects, such as the undocumented limited technological competence of the garrison. Ideally, then, the archaeologist will not only use the documentary sources but will carry out both the documentary and archaeological research oneself. If the work is divided then the historian should be as familiar with the archaeology as the archaeologist, and vice versa. As this work has demonstrated, the use of documentary sources before, during and after fieldwork has assisted and been assisted by the archaeology and Chapter 8 has attempted to unify the evidence. For the historical archaeologist to merely excavate,

analyse and then hand over his material to the historian, who has never been involved with the site or its problems, is the same as a prehistoric archaeologist handing over field notes and finds to another archaeologist to interpret for him – not impossible but entirely unsatisfactory. At its worst this results in the archaeology and history of a site being written up totally independent of the relationship of one upon the other, and a number of North American sites could be quoted as examples of this practice.

This can be seen to be the result of conservation and restoration being the basis for much of the work carried out so far. If tourism is to remain the *raison d'être* of historical archaeology then the result will often be a half-way house to Disneyland, leading not only to the situation where often there is a 'desire by some to improve upon history' (Walker 1967:121) but also to the total neglect of artefact study and often even the non-publication of the excavated artefacts. Without the self-generation of information within the discipline it cannot develop.

The methodology of historical archaeology

The results of the present enquiry have demonstrated that while the methodological problems confronting nineteenth century historical archaeology are not inherently different from archaeology in general, nevertheless the problems of the normal use of established techniques become intensified after the industrial revolution. Despite Dollar's (1967:13–21) doubts on the value of typological analysis and dating techniques adapted from other fields of archaeology typology and seriation of ceramic and glass and metal artefacts from nineteenth century sites still appear to offer good prospects for dating unknown sites.

As an example of this it is a useful exercise to attempt to ascribe dates to the Port Essington occupation on the basis of the archaeological evidence alone. As seen above (Chapter 5) one expert ascribed a date 1830–1860 for the uniform buttons and other uniform insignia. The evidence of the glass seals suggested the early part of Victoria's reign, and the other bottle evidence (less conclusive) intimated perhaps the second quarter of the nineteenth century. The identifiable ceramics also suggested the period 1830–1850. Significantly the collection lacked any positive suggestion of a date outside the period 1820–1865. On this evidence it would certainly be reasonable archaeologically to suggest a commencement date for the settlement of c.1835. A terminal date appears much more difficult to establish since this has to be arrived at on negative evidence, i.e. the non-appearance of positively late artefacts. However it would again seem archaeologically reasonable to put this date at c. 1855–1860. Therefore the excavations at Port Essington do lend authenticity to the use of these dating methods on undocumented sites. They would be precise enough, for example, to distinguish Port Essington from Fort Dundas (1824–1829) and Fort Wellington (1827–1829), if the geographical locations of these three sites were unknown historically.

One factor not taken into account in this test was the time lag for the diffusion of these English artefacts to Port Essington. Given the historical knowledge of the settlement it is possible to say that in the case of this settlement the diffusion lag was very small, probably of the order of 2–4 years. Additional work on other nineteenth century sites in Australia should clarify whether this is the sort of time lag that might be anticipated as a general principle on Australian sites. Certainly on the historical knowledge of nineteenth century communications this is the sort of time gap that might be expected.

This brief discussion of the archaeological dating of the Port Essington artefacts underlines a point made originally by Walker (1967:116) that apart from some of the ceramic evidence, the dating of the collection was done on the basis of no real typology at all, but rather from the reasonably precise historical dating of specific examples. The point of this is that the historical archaeologist has at his disposal an excellent technique for off-setting the disadvantages of working with mass-produced artefacts, and provided the information is fed back into any constructed typology, as was attempted with the ceramic analysis, it will, help refine and verify that typology, in a manner which is denied other branches of archaeological research. Then, for undated sites, a reasonably refined archaeological method for dating will be available.

The archaeology of historical sites, used in conjunction with historical evidence does appear to be providing a basis for testing the validity of general archaeological techniques. For example it underlines the potential danger of site sampling techniques widely used in all prehistoric sites. The French wine bottle seals from Port Essington provide a case in point. Given no other evidence it would have seemed reasonable to have interpreted the number of these seals (5 out of a total of 15) as the archaeological expression of trade, or some other significant contact between the French and English. As the historical evidence has shown, however, this is best explained as a single brief encounter, and the excavations by chance happened to recover perhaps all the French seals to be found at Port Essington.

As Dollar (1967) has stressed, interpretations are likely to be made on distorted evidence. Few would deny that archaeology in the recent historical past is at best a clumsy and costly research technique, but it is one that with diligence can at least be made less clumsy. If Dollar is worried that archaeology at present cannot provide absolute history, then the same holds true for prehistoric archaeology, and perhaps also for documentary history. If the past exists only in the minds of those who are thinking about it in the present and therefore in the interpretations which are put upon it (Barth 1965:109), it must be accepted that we shall never say everything. But this does not mean that we should not say anything.

The potential information which only historical archaeology can provide for the European colonisation of Australia is as yet but half realised. It is hoped that in some measure the present work has taken a step towards leaving 'those dreary wastes of Colonial Records' to pay some attention to the 'humbler sources' (Mulvaney 1966:454).

Bibliography

PRIMARY SOURCES

Historical Records of Australia

Series I, volumes: xiii, xxiii, xxiv, xxv, xxvi.
Series III, volumes: v, vi.

Parliamentary Papers

1. Great Britain. *Reports of the Colonial Land and Emigration Commissioners.*

1840, xxxiii, 613.
1842, xxv, 567.
1842-43, xliii, 3.
1843, xxix, 62l.
1847, xxxiii, 809.

2. New South Wales.

V. and P., Legislative Council, 1843, Vol. II. *Report of the Select Committee of the Legislative Council appointed to ascertain the practicability of an Overland Route to Port Essington.*

CONTEMPORARY NEWSPAPERS

Nautical Magazine and Naval Chronicle, 1842-1847.
New South Wales Colonist, 1834-1840.
New South Wales Monitor, 1836-1840.
Port Phillip Patriot, 1840-1846.
Sydney Gazette, 1824-1848.
Sydney Morning Herald, 1831-1849.
The Australian, 1824-1849.

DEPOSITS OF UNPUBLISHED PRIMARY SOURCES

Archives Office of New South Wales

4783-4. George Lambrick, Letter Books, 2 vols.

Hydrographic Department, London

B.1. Miscellaneous Letters. Remarks on the Most Eligible Routes from Port Jackson to Various Places at Different Seasons.
B.69, 72, 105, 124. Letters of G. Windsor Earl, 1850~3.
B.798. Letters of Sir J.J. Gordon Bremer, 1838-9.
OD.100. Australia, North West Coast: Directions by Commander Wickham to Lieut. J.L. Stokes, H.M.S. *Beagle*, 1841-2. Description of the N.W. Coast, from Port Essington to Victoria River, with an account of tides etc.
SL.15b-f. Letters of Owen Stanley, 1841-9.
SL.15g. Miscellaneous Correspondence of Captain C.B. Yule.
Uncat. MS. Letters of Captain G. Wickham of H.M.S. *Beagle*.

Mitchell Library, Sydney

A109. Alexander Riley, Papers and Documents 1817-1856.
A501-4. O.W. Brierly, Journal with Sketches, 1846-1849.
A1269. Despatches of the Secretary of State for the colonies.
A1531-3. Papers of Edward Deas Thomson.
A1725. John Sweatman, Journal of A Surveying Voyage to the N.E. Coast of Australia and Torres Sts, in Her Majesty's. Schooner, *Bramble*, Lieut. C.B. Yule, Commander, 1842-47, vol. 2.
A2002. Journal of Captain Collet Barker.
A2160. Typescript memoirs of Emmeline de Falbe (née Macarthur).
A2922. Macarthur Papers, vol. 26.
A3599. Letters and Papers Chiefly from the Correspondence of P. P. King. Lethbridge Collection.
AA38. Midshipman O'Reilly's Log of H.M. Sloop, *Pelorus*.
B212. C.J. Tyers, Field Book 1838.
B756. W. Scott, Notes on Aborigines, Port Stephens.
C155. L. Leichhardt, Journal 1845.
C158. L. Leichhardt, Expedition to Port Essington 1844-45, Field Book.
C165. William Phillips, Journal of Expedition with Leichhardt 1844-45.
PXC 281. Owen Stanley, Voyage of the Rattlesnake, vol. 1
C 292(2). Oswald Brierly, watercolour paintings in M.J. Scott's 'Album of Watercolour Drawings and Sketches'.
F3/49. B.D.L., Rough Plan of the course, distance, etc. of the proposed migration of livestock from N.S.W. to Swan River and Port Essington.

National Library of Australia, Canberra

MS. 71. Archer Papers.
MS. 179. James Wallace, Journal Kept on Board H.M.S. *Alligator*.
MS. 4412. James Thomas Stanton, Log Books of H.M.S. *Rattlesnake* and *Fisgard*. Nan Kivell Collection.
G743. Microfilm Letters of Owen Stanley 1837-1850.
Macarthur, John (1791-1862). Watercolour on paper. *General view of Port Essington, N.T., Australia* 1840.

National Maritime Museum, Greenwich

MS. 63/017. CHR/4 Log of H.M.S. *Pelorus*, 4 March 1840 to 1 April 1841.
CHR/6-25 Papers and Correspondence of Captain Chambers, H.M.S. *Pelorus*, Port Essington, 1840-41.
MS. 60/049. STK/5 Log of H.M.S. *Beagle*, 25 March 1841 to 29 December 1841.
STK/11 Correspondence of J. Lort Stokes 1841.

Public Library of Victoria

H.16559. C.J. Tyers, Meteorological Record Kept on Board H.M.S. *Alligator*, 27 October 1838 to 25 May 1839.

Public Records Office, London

1. Admiralty

- 1/72. Commodore C.M. Schomberg to J.W. Croker, 8 September 1829.
1/192. James Brisbane to Croker, 30 November 1829.
1/194. Owen to Croker, 1 October 1829.
Laws to Gage, 30 May 1829.
Darling to Laws, 30 May 1829.
Laws to Gage, 10 July 1829.
Laws to Gage, 6 August 1829.
Barker to Laws, 3 August 1829.
Laws to Barker, 3 August 1829.
Barker to Gage, 12 August 1829.
1/195. Owen to Croker, 30 November 1829.
1/216. Capel to Dawson, 18 July 1835.
1/553. Vice Admiral Parker to the Admiralty, 10 April 1844.
1/5544. Hope to Barrow, 23 February 1844.
1/5548. Cochrane to the Admiralty, undated.
2/1695. Parker to Stanley, 30 January 1835.
Barrow to Admiralty, 30 January 1838.
Barrow to Bremer, 30 January 1838.
Barrow to Bremer, 30 January 1838.
Parker to Bremer, 30 January 1838.
Barrow to Maitland, 30 January 1838.
50/262. Journal of the Proceedings of Commodore Sir J.J. Gordon Bremer, Commander-in-Chief, East India Station, 17 January 1840 to 30 January 1841.
53/88. Log of H.M.S. *Alligator*, 20 July 1837 to 13 February 1943.
53/972. Master's Log of H.M. Sloop *Pelorus*, 7 April 1837 to 6 July 1841.
53/1613. Log of H.M.S. *Bramble*, 1 April 1843 to 11 November 1843.
53/2859. Master's Log of H.M.S. *North Star*, 3 March 1843 to 10 September 1843:37.

2. Colonial Office

N.S.W.

201/13	201/288	201/359	202/10
144	290	361	11
146	302	370	35
153	303	372	36
155	313	389	42
164	320	420	52
191	323	421	56
256	329	424	
257	330	434	
264	337	445	
266	340		
286	351		
385/19			
386/61			

Royal Botanical Gardens, Kew

John Armstrong, Papers 1837-1840. Relating to Armstrong's position as Botanist and Gardener at Port Essington.

Royal Geographical Society Archives, London

- Captain Collet Barker. List of Arrivals at Raffles Bay. Uncatalogued manuscript.
Correspondence of G. Windsor Earl to the Society, 1837-1859. Including:
Specimens of the Language of the Natives of Adelaide South Australia. Collected 1838.
Remarks on the fittest Season for Examining the Coasts of Australia. Hampstead, 3 February 1837.
Observations on the Colonization of North Australia. 7 February 1837.
Notes Respecting Torres Straits, Cape York. Sydney, 17 July 1839.
Extracts of a Letter from, containing an account of the Proceedings of the Dutch at Timor and Sandal Islands etc. Port Essington, 9 June 1841.
On the Disposition and Nature of the Islands of the Indian Archipelago. Recd. 2 June 1845.
Notes to accompany a map of Cambodia. Singapore, 2 May 1851.
Program of Discovery in the Western Half of New Guinea from 1828 to the present time. Paper delivered to the British Association in 1853.
Letters of Owen Stanley to Captain Washington, 1841.
Lieutenant Owen Stanley. Sailing Instructions for Timor Laut.
Lieutenant Augustus L. Kuper. Journal of a Voyage to Timor Laut, the Aru Islands etc. in Her Majesty's Brig, *Britomart*, March 1839.
Lieutenant P.B. Stewart. Journal of an Expedition into the interior of the Cobourg Peninsula in May 1839.

Royal Marines Archives, Portsmouth

- Letters of Captain John McArthur to Maj. Gen. Owen, 1843-49.
Port Essington Correspondence. Details of First and Second Detachments.
Typescript: Services of General George Lambrick, Royal Marines, Kt. S.F. Late ADC, to the Queen, 1864-1870.
Admiralty Orders, 1837-1849.

Private Collections

- A.W. Howitt, Correspondence between E.R. Robinson and A.W. Howitt. (In possession of Mrs N.H. Walker, Lakes Entrance, Victoria.)

SECONDARY SOURCES

- Allan, J. 1959 *Australian Shells*. Revised edition. Melbourne: Georgian House.
Allen, C.B. 1849-50 *Cottage Building: Or Hints for Improving the Dwellings of the Labouring Classes*. London.
Allen, J. 1967 The Cornish round chimney in Australia. *Cornish Archaeology* 6:68-73.
Animal Industry Board Northern Territory 1966 Report on Cobourg. Unpublished typescript.
Anon.[Charlotte Barton 1796-1867] (By a Lady Long Resident in N.S.W.) 1841 *A Mother's Offering to Her Children*. Sydney: The Sydney Gazette. See entry for Wighton, this bibliography.

- Anon. 1840-41 Port Essington, Climate and Colonization &c., &c. *South Australian Record*, 2 and 3.
- Anon. 1842a *A Passage from Sydney Through Torres Straits to Port Essington and Madras*. Sydney.
- Anon. 1842b Review of G. Grey's Journals of Two Expeditions of Discovery In North-West and Western Australia, during the years 1837, 1838, and 1839. *The Dublin Review*, 13.
- Anon. 1843a *Copies or Extracts of any Correspondence Relative to the Establishment at Port Essington*. London: House of Lords.
- Anon. 1843b Port Essington. *Arden's Sydney Magazine*, October.
- Anon. 1846 Commercial Relations of the Indian Archipelago. *Frazer's Magazine for Town and Country*, 34.
- Anon. 1849 English and Dutch in the Indian Archipelago. *Tait's Edinburgh Magazine*, January.
- Anon. 1852 The Straits Settlements, and the Indian Archipelago. *De Bow's Southern and Western Review*, April.
- Anon. 1861 The French in Australia and Polynesia. *The New Monthly Magazine*, 123.
- Anon. 1880 *The New Annual Army List*. London: War Office.
- Anon. 1963 *The Story of the Willow Pattern Plate*. London: The Richards Press.
- Anon. 1964 Survey of 'Round Chimneyed' Houses. *Cornish Archaeology*, 3:107.
- Anon. no date Pottery Marks in Stoke-on-Trent Museum. Typescript.
- Atkinson, R.J.C. 1960 *Archaeology, Science and History*. Cardiff: University of Wales Press.
- Bach, J. 1958 Melville Island and Raffles Bay, 1824-9. An Unsuccessful Settlement. *Journal and Proceedings of the Royal Australian Historical Society*, 44 (4):222-38.
- Backhouse, J. 1843 *A Narrative of a Visit to the Australian Colonies*. London: Hamilton, Adams and Co.
- Baker, A. C. 1954 Some Account of the Anglo-Dutch Relations in the East at the beginning of the 19th Century. *Journal of the Singapore Branch of the Royal Asiatic Society*, 27.
- Barrett, C.L. 1940 Ruins of the Far North. *Walkabout*, 1 September.
- Barrett, C. L. 1941 *Coast of Adventure*. Melbourne: Robertson and Mullens.
- Barrett, C.L. 1943 *Up North: Australia above Capricorn*. Melbourne: Robertson and Mullens.
- Barth, J. 1965 *The End of the Road*. London: Penguin Books.
- Bastin, J. 1954 Raffles and British Policy In the Indian Archipelago 1811-1816 *Journal of the Royal Asiatic Society, Malayan Branch*, 28 (1):84-119.
- Beaumont, P. 1961 The Problem of Glass Implements, *Bulletin of the South African Museums Association*, 7(8).
- Bennett, S. 1865 *The History of Australian Discovery and Colonization*. Sydney: Hanson and Bennett.
- Bethell, L.S. 1958 Review of *French Exploration in Australia* by L.A. Triebel and J.C. Batt. *Papers and Proceedings of the Tasmanian Historical Research Association*, 7(1):13-14.
- Beurdeley, M. 1963 *Chinese Trade Porcelain*. Vermont: Charles E. Tuttle.
- Biddle, M. 1968 Archaeology and the History of British Towns. *Antiquity* 42 (166):109-116.
- Binford, L.R. 1962a A New Method of Calculating Dates from Kaolin Pipe Stem Samples. *Southeastern Archaeological Conference Newsletter*, 9(1):19-25.
- Binford, L.R. 1962b Archaeology as Anthropology. *American Antiquity* 28 (2):217-25.
- Bishop, O.N. 1966 *Statistics for Biology*. London: Longman.
- Blainey, G. 1963 *The Rush That Never Ended*. Melbourne: Melbourne University Press.
- Blainey, G. 1966 *The Tyranny of Distance*. Melbourne: Sun Books.
- Boyce, C. 1914 The Rise of the Staffordshire Potteries. *Connoisseur*, 38.
- Bridges, A.F., VJ.K. Collins and E. McCraw (eds) 1966 *The Peninsula Story: Sorrento and Portsea – Yesterday*. Book 1. Sorrento: The Nepean Historical Society.
- British Colour Council 1934 *The British Colour Council Dictionary of Colour Standards*. London, British Colour Council.
- Browne, C.A. (ed.) 1871 *Letters and Extracts from the Addresses and Occasional Writings of J. Beete Jukes*. London: Chapman and Hall.
- Burke, J.B. 1891-95 *A Genealogical and Heraldic History of the Colonial Gentry* 2 vols. London: Harrison and Sons.
- Campbell, A.J. 1919 Notes on Birds from the Gouldian-Gilbert type-locality. *Emu*, 18:172-88.
- Campbell, J. (Major) 1834 Geographical Memoir of Melville Island and Port Essington, *Proceedings of the Royal Geographical Society*, 4:129-81.
- Campbell, W.S. 1912-13 The Earliest Settlements in the Northern Territory of Australia. *Journal and Proceedings of the Royal Australian Historical Society*, 3 (3):81-113.
- Chisholm, A.H. 1938 John Gilbert and Some Letters to Gould, *Emu*, 38.
- Chisholm, A.H. 1941 *Strange New World: the Adventures of John Gilbert and Ludwig Leichhardt*. Sydney: Angus and Robertson.
- Christie, E.M. 1943 Angelo Confalonieri. Typescript, 1943, State Public Library of Victoria.
- Christie, E.M. no date Journal of B.F. Helpmann, July 1837 to May 1840. State Public Library of Victoria.
- Clarke, R. 1935 The Flint-Knapping Industry at Brandon, *Antiquity*, 9 (33):38-56.
- Cleland, C.E. and J.E. Fitting 1967 The Crisis of Identity: Theory in Historic Sites Archaeology, *The Conference on Historic Site Archaeology Papers*, 2 (2):124-138.
- Clune, F. 1939 *To the Isles of Spice*. Sydney: Angus and Robertson
- Collard, E. 1967 19th Century Porcelain in Canada. *The Antique Dealer and Collectors' Guide*, September.
- Conigrave, C.P. 1925 Back to Jungle. *Sydney Morning Herald*, 16 June.
- Conigrave, C.P. 1937 British Military Settlements in North Australia. *Journal and Proceedings of the Royal Australian Historical Society*, 23 (5):368-376.
- Craig, W.W. 1925 *Moreton Bay Settlement*. Brisbane: Watson.
- Crawford, J. 1820 *A History of the Indian Archipelago*. 3 vols. Edinburgh: Archibald Constable and Co.
- Curr, E.M. 1886 *The Australian Race*. 4 vols. Melbourne: John Ferres, Government Printer.
- Daly, H.W. 1887 *Digging Squatting and Pioneering Life in the Northern Territory of South Australia*. London: Sampson, Low, Marston.
- Dampier, W. 1697 *A New Voyage Around the World*. London: J. Knapton.

- Davies, S.H. 1903 Early Discoveries in the Northern Territory. *Queensland Geographical Journal*, new series, 4.
- Dawson, R.L. 1935 *Australian Aboriginal Words and Names*. Sydney: W. C. Penfold and Co.
- Dawson, R. 1830 *The Present State of Australia*. London.
- Deetz, J. 1965 *The Dynamics of Stylistic Change in Arikara Ceramics*. Illinois Studies in Anthropology 4. Urbana, Illinois: University of Illinois Press.
- Dethlefsen, E. and Deetz, J. 1966 Death's Heads, Cherubs and Willow Trees: Experimental Archaeology in Colonial Cemeteries. *American Antiquity*, 31, (4):502-10.
- Dollar, C. 1967 Some Thoughts on Theory and Method in Historical Archaeology. *The Conference on Historic Site Archaeology Papers*, 2 (2):3-30.
- Drury, B. 1858-1859 Discussion relating to a paper entitled 'On the Search for Leichhardt, and the Australian Desert' by Rev. W.B. Clarke, *Proceedings of the Royal Geographical Society of London*, 3:87-91.
- D'Urville, J. S. C. Dumont, le Comte 1841-55 *Voyage au Pole Sud et dans l'Océanie sur les Corvettes Astrolabe et la Zélée, Exécuté par Ordre du Roi, pendant les Années 1837-1838-1839-1840, sous le commandement de M.J. Dumont D'Urville, capitaine de vaisseau*. 7 vols. Paris: Gide.
- Earl, G. Windsor 1836 *Observations on the Commercial and Agricultural Capabilities of the North Coast of New Holland*. London.
- Earl, G. Windsor 1837 *The Eastern Seas, or Voyages and Adventures in the Indian Archipelago in 1832-33-34*. London: William H. Allen and Company.
- Earl, G. Windsor 1842 Notes on Northern Australia and Neighbouring Seas. *Journal of the Royal Geographical Society* 12:139-141.
- Earl, G. Windsor 1846 *Enterprise in Tropical Australia*. London: Madden and Malcolm.
- Earl, G. Windsor 1849-50 On the Leading Characteristics of the Papuan, Australian and Malayu-Polynesian Nations. *Journal of the Indian Archipelago and Eastern Asia*, 3:682-9; 4:1-10; 66-74; 172-81.
- Earl, G. Windsor 1853 *The Native Races of the Indian Archipelago*. London: Hippolyte Bailliere.
- Earl, G. Windsor 1855 *Coast and Convoy Signals for Use During Night or Day*. Sydney.
- Earl, G. Windsor 1863 A Handbook for Colonists in Tropical Australia *Journal of the Indian Archipelago and Eastern Asia*, new series, 4, part 1:1-187.
- Einzig, P. 1949 *Primitive Money*. London: Eyre and Spottiswood.
- Elkin, A.P. 1948 Pressure Flaking in the Northern Kimberley Australia. *Man*, 130:110-13.
- Ennis, H. 1825 Remarks on Board His Majesty's Ship *Tamar*. *Monthly Magazine*, August 1825, September 1825, October 1825, November 1825.
- Essenhigh, R. 1846 Article in *The Nautical Magazine and Naval Chronicle*, October 1846.
- Etheridge, R. 1893 A Description of Some of the Implements and Weapons of the Alligator Tribe, Port Essington, North Australia. In J.J. Fletcher (ed.) *The Macleay Memorial Volume*. Sydney: The Linnean Society of New South Wales.
- Feacham, R.W. 1956-7 Castlehill Wood Dun, Stirlingshire. *Proceedings of the Society of Antiquaries of Scotland*, 90:24-51.
- Fitzpatrick, B. 1939 *British Imperialism and Australia 1788-1833*. London: George Allen and Unwin.
- Flinders, M. 1814 *A Voyage to Terra Australis*. 2 vols. London: G. and W. Nicol.
- Flynn, F. 1963 *Northern Gateway*. Sydney: F. P. Leonard.
- Fontana, B.L. 1965 The Tale of a Nail: On the Ethnological Interpretation of Historic Artifacts. *The Florida Anthropologist*, 28 (3:2):85-111.
- Fontana, B.L. 1965 On the Meaning of Historic Sites Archaeology. *American Antiquity*, 31 (1):61-5.
- Fontana, B.L. and J.C. Greenleaf, 1962 Johnny Ward's Ranch: A Study In Historic Archaeology. *The Kiva*, 28, nos. 1 and 2:1-115.
- Fox, C. 1951 The Round Chimneyed Farm Houses of Northern Pembrokeshire. In W.F. Grimes (ed.) *Aspects of Archaeology in Britain and Beyond: Essays presented to O.G.S. Crawford*. London: Edwards.
- Freeland, J.M. 1968 *Architecture in Australia*. Melbourne: F.W. Cheshire Publishing.
- Gallagher, J. and R. Robinson 1953 The Imperialism of Free Trade. *Economic History Review*, second series, 6 (1):1-15.
- Gibson-Hill, C.A. 1952 Documents Relating to John Clunies Ross, Alexander Hare. *Journal of the Malayan Branch of the Royal Asiatic Society*, 25 (4):7-300.
- Gibson-Hill, C.A. 1959 George Samuel Windsor Earl. *Journal of the Malayan Branch of the Royal Asiatic Society*, 32:105-53.
- Gjessing, F., J.W. Griffin, J.C. Harris, A. Manucy, H.G. Smith, J.T. Van Campen and D. Wiles 1962 Evolution of the Oldest House. Florida State University. *Notes in Anthropology*, 7.
- Godden, G.A. 1963 *British Pottery and Porcelain 1780-1850*. London: Arthur Barker Ltd.
- Godden, G.A. 1964 *Encyclopaedia of British Pottery and Porcelain Marks*. London: Herbert Jenkins.
- Graham, G.S. 1967 *Great Britain in the Indian Ocean*. Oxford: Oxford University Press.
- Grattan, C.H. *The Southwest Pacific to 1900*. Ann Arbor: University of Michigan Press.
- Grey, G. 1841 *Journals of Two Expeditions of Discovery in North-West and Western Australia, during the Years 1837, 1838, and 1839*. London: T. and W. Boone.
- Harrington, J.C. 1954 Dating Stem Fragments of Seventeenth and Eighteenth Century Clay Tobacco Pipes. *Quarterly Bulletin of the Archaeological Society of Virginia*, 9 (1).
- Harrington, J.C. 1955 Archaeology as an Auxiliary Science to American History. *American Anthropologist*, 57 (6): 1121-30.
- Hodgkinson, C. 1845 *Australia, from Port Macquarie to Moreton Bay; with Descriptions of the Natives, Their Manners and Customs, the Geology, Natural Productions, Fertility, and Resources of that Region; first explored and surveyed-by order of the Colonial Government*. London: T. and W. Boone.
- Honey, W.B. 1933 *English Pottery and Porcelain*. 5th edition, 1965. London: A. and C. Black Ltd.
- Howard, D. 1925-6 English Activities on the North Coast of Australia during the First Half of the Nineteenth Century. *Bulletin of the Institute of Historical Research*, 3:60.
- Howard, D. 1931-2 The English Activities on the North Coast of Australia in the First Half of the Nineteenth Century. *Proceedings of the Royal Geographical Society of Australasia, South Australian Branch*, 33:21-194.
- Howard, F. 1865 Marine Survey of Northern Territory, 20th December 1865. *South Australian House of Assembly Report* 84.

- Hudson, J.P. 1961 Seventeenth Century Glass Wine Bottles and Seals Excavated at Jamestown. *Journal of Glass Studies*, 3:79-89.
- Hudson, K. 1965 *Industrial Archaeology*. London: J. Baker.
- Hughes, G.B. 1949 Porcelain or Pottery? *Country Life*, February 18.
- Hume, I.N. 1961 The Glass Wine Bottle in Colonial Virginia. *Journal of Glass Studies*, 7:90-117.
- Huxley, J. (ed.) 1935 *T.H. Huxley's Diary of the Voyage of H.M.S. Rattlesnake*. London: Chatto and Windus.
- Irwin, G. 1955 Nineteenth-Century Borneo: A Study in Diplomatic Rivalry. *Verhandelingen van het Koninklijk Instituut voor de Taal-Landen Volkenkunde (van Nederlandsch-Indie)*, 15.
- James, T. 1850-51 On Labourers' Cottages. *Report and Papers of the Associated Architectural Studies*, 1.
- James, T. Horton 1838 *Six Months in South Australia*. London: J. Cross and Simpkin and Marshall.
- Jones, R.M. 1971 The demography of hunters and farmers in Tasmania. In D.J. Mulvaney and J. Golson (eds), *Aboriginal Man and Environment in Australia*, pp. 271-287. Canberra: Australian National University Press. Editor's Note: This paper was cited as 'forthcoming' in the Allen thesis, under the working title: The Neolithic Revolution in Tasmania.
- Jukes, J. Beete 1847 *Narrative of the Surveying Voyage of H.M.S. Fly*. 2 vols. London: Lords Commissioners of the Admiralty.
- Jury, E.M., and M. Jury 1959 The Establishments at Penetanguishene: Bastion of the North 1814-1856. University of Western Ontario. *Museum of Indian Archaeology Bulletin* 12.
- Kent, J. 1855-7 Letter from, J. Kent to Dr. Norton Shaw, dated Sydney, August 12, 1855, *Proceedings of the Royal Geographical Society, London*, 1.
- Keppel, H. 1853 *A Visit to the Indian Archipelago in H.M. Sloop Maeander*. 2 vols. London: Benteley.
- Kerr, B. 1962 The Dorset Agricultural Labourer 1750-1850. *Proceedings of the Dorset Natural History and Archaeological Society*, 84:158.
- Kiddle, M. 1961 *Men of Yesterday*. Melbourne: Melbourne University Press.
- King, P.P. 1827 *Narrative of a Survey of the Intertropical and Western Coasts of Australia, performed between the years 1818 and 1822*. 2 vols. London: Murray.
- Kira, Tetsuaki 1962 *Shells of the Western Pacific in Colour*. Osaka: Hoikusha Publishing Company Ltd.
- Klein W.H.A. 1952 Antiebe Gebruksflessen in Suriname. *Nieuwe West-Indische Gids*. Jrg. 45.
- Knorr, K.E. 1963 *British Colonial Theories 1570-1850*. (Original 1944.) Re-issue, London Frank Cass and Co. Ltd.
- Knowles, F. and A.S. Barnes 1937 Manufacture of Gunflints. *Antiquity*, 11 (42):201-07.
- Lang, J.D. 1837 *Colonization, or the causes of the comparative failure of the transportation system in the Australian Colonies, with suggestions for ensuring its future efficiency in subserviency to extensive colonization*. London: A. J. Valpey.
- Le Guillou, Elie 1844 *Voyage autour du Monde de L'Astrolabe et de la Zelée: sous les ordres due contre-amiral Dumont D'Urville: pendant les années 1837, 38, 39 et 40*. 2 vols. Paris: Berquet et Pétion.
- Leichhardt, L. 1847 *Journal of an Overland Expedition in Australia from Moreton Bay to Port Essington*. 2 vols. London: T. and W. Boone.
- Letts, G.A. no date A review of early settlement in the Northern Territory with special reference to livestock introductions. In Animal Industries Branch Report on the Cobourg Peninsula. Unpublished report.
- Lewis, A.B. 1929 *Melanesian Shell Money in Field Museum Collections*. Chicago Field Museum of Natural History Publication 268. Anthropological Series, 19 (1):1-36.
- Lewis, J. 1922 *Fought and Won*. Adelaide Thomas and Co.
- Lewis, M. 1945 Naval Buttons. *Mariner's Mirror*, 31:56-83; 114-43.
- Little, W. 1904 The Evolution of the Bottle, illustrated from a Westmoreland Dust-bin. *Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society*, new series, 4.
- Macdonald, J.D. 1945 *Old English China and Pottery in Australasia*. Sydney: The Shepherd Press.
- MacGillivray, J. 1852 *Narrative of the Voyage of H.M.S. Rattlesnake*. 2 vols. London: T. and W. Boone.
- MacGillivray, J. 1846 Ornithological Excursion to the North Coast of New Holland. *The Zoologist*, 4.
- Macknight, C.C. 1969a The Macassans. Unpublished PhD thesis. Department of Anthropology, Research School of Pacific Studies, Australian National University, Canberra.
- Macknight, C.C. (ed.) 1969b *The Farthest Coast: A Selection of Writings Relating to the History of the Northern Coast Of Australia*. Melbourne: Melbourne University Press.
- Macknight, C.C. 1976 *The Voyage to Marege: Macassan Trepangers in Northern Australia*. Melbourne University Press.
- Mahoney, D.J. 1924 Note on Making Stone Spear Heads in the Kimberley District, Western Australia. *Report of the Australasian Association for the Advancement of Science*, 17: 474-75.
- Man, E.H. 1883-5 *The Andaman Islanders*. 2nd edition 1932. London: Royal Anthropological Institute of Great Britain and Ireland.
- Martineau, R.F. 1866 Cut Nails. In S. Timmins (ed.) *The Resources, Products, and Industrial History of Birmingham and the Midland Hardware District: a series of reports, collected by the Local Industries Committee of the British Association at Birmingham, in 1865*. pp. 613-16. London: Robert Hardwicke. Second Impression, Cass Library of Industrial Classics 1967. London: Frank Cass and Co. Ltd.
- Masson, E.R. 1915 *The Untamed Territory: the Northern Territory of Australia*. London: Macmillan.
- McCarthy, F.D. and F.A. Davidson 1943 The Eloura Industry at Singleton, Hunter River, N.S.W. *Records of the Australian Museum*, 21(4):210-30.
- McCarthy, F.D., E. Bramell and H.V. Noone 1946 *The Stone Implements of Australia*. Australian Museum Memoir 19.
- McCrae, H. (ed.) 1934 *Georgiana's Journal*. 2nd edition, 1966. Sydney: Angus and Robertson.
- McCutcheon, W.A. 1966 The use of documentary sources in the N. Ireland survey of Industrial Archaeology. *Economic History Review*. 2nd series, 19 (2):401-12.
- McIntosh, A.M. 1958 Early Settlement in Northern Australia. Parts 1 and 2. *The Medical Journal of Australia*, 1(1958) (13):409-15; (14):441-49.
- McKenzie, ? (Captain) 1847 Observations on making the Passage to the Eastward Through Torres Strait, and the Monsoons in the Timour Sea. *Nautical Magazine and Naval Chronicle*, March and April 1847.

- Moorehead, A. 1966 *The Fatal Impact. The Invasion of the South Pacific 1767–1840*. London: H. Hamilton.
- Morris, J. [no date] A brief study of Tiwi-Larrakia Feuds. Unpublished paper read to the Historical Society of the Northern Territory.
- Mountford, C.P. (ed.) 1964 *Records of the American-Australian Scientific Expedition to Arnhem Land*. Volume 2: *Anthropology and Nutrition*. Melbourne: Melbourne University Press.
- Mudge, J. McClure 1962 *Chinese Export Porcelain for the American Trade, 1785–1835*. Newark, Delaware: University of Delaware Press.
- Mudie, R. 1829 *The Picture of Australia: exhibiting New Holland, Van Dieman's Land, and all the settlements -from the first at Sydney to the last at Swan River*. London: Whittaker, Treacher, and Co.
- Mulvaney, D.J. 1958 The Australian Aborigines 1606–1929: Opinion and Fieldwork. *Historical Studies Australia and New Zealand*, 8 (30):131-51 and (31):297-314.
- Mulvaney, D.J. 1966 Beche-de-mer, Aborigines and Australian History. *Proceedings of the Royal Society of Victoria*, 79 (2):449-457.
- Musgrave, A. 1932 *Bibliography of Australian entomology 1775–1930 with bibliographical notes on authors and collectors*. Sydney: Royal Zoological Society of New South Wales.
- Neilson, F.G.P. 1848 Analysis of the Census in New South Wales. *Journal of the Statistical Society of London*, 11:38-54.
- Olsen, S.J. 1965 A Seminole War Fort in North Florida. *American Antiquity*, 30, (4):491-94.
- Olsen, S.J. 1965 Liquor Bottles from Florida Military Sites. *American Antiquity*, 31 (1):105-07.
- Osgood, C. 1956 *Blue-and-White Chinese Porcelain: A Study of Form*. New York: The Ronald Press.
- Oswald, A. 1955 The Evolution and Chronology of English Clay Tobacco Pipes. *The Archaeological Newsletter*, 5 (12):243-50.
- Oswald, A. 1960 The Archaeology and Economic History of English Clay Pipes. *Journal of the British Archaeological Association*, 23 (3):40-102.
- Palmer, J.B. 1962 Clay Pipe Dating. *New Zealand Archaeological Association Newsletter*, 5 (3):192-3.
- Pantin, W.A. 1947 The Development of Domestic Architecture in Oxford. *Antiquaries Journal*, 28:120-50.
- Parkyn, H.G. 1956 *Shoulder-Belt Plates and Buttons*. Aldershot England: Gale & Polden.
- Parsonson, G.C. 1965 Artificial Islands in Melanesia: The Role of Malaria in the Settlement of the Southwest Pacific. *New Zealand Geographer*, 22 (1):1-21.
- Pasco, C. 1897 *A Roving Commission*. Melbourne.
- Peterson, H.L. 1956 *Arms and Armour in Colonial America 1526-1783*. Harrisburg: Stackpole.
- Peterson, H.L. 1962 *The Book of the Gun*. London: Paul Hamlin.
- Phillips, J.G. 1956 *China-Trade Porcelain*. Cambridge: Harvard University Press.
- Pierson, L.M. 1962 Tabby Ruin Test Excavation. *The Florida Anthropologist*, 18 (2):125-35.
- Pike, D. (ed.) 1966-67 *Australian Dictionary of Biography*. 2 vols. Melbourne: Melbourne University Press.
- Pilling, A. [no date] (post 1954) Ceramics from the Farallon Islands. Ms in the R.H. Lowie Museum of Anthropology, Berkeley, California.
- Poc, S.R. 1963 Archaeological Excavations at Fort Gadsden, Florida. Florida State University. *Notes in Anthropology*, 8.
- Ricketts, H. 1822 An Improvement in the Art or Method of Making or Manufacturing Glass Bottles, such as are used for Wine, Porter, Beer, or Cider. Patent No. 4623, (A.D. 1821). Enrolled January 23, 1822.
- Ruggles-Brise, S. 1949 *Sealed Bottles*. London: Country Life.
- Russell, J. 1875 *Recollections and Suggestions 1813–1873*. London: Longmans, Green And Co.
- Sachs, C. 1940 *The History of Musical Instruments*. New York: W.W. Norton & Company.
- Schefer, C. 1912 La Monarchie de Juillet et l'expansion coloniale. *Revue des deux Mondes*, tome XI, Ire livraison: 152-84.
- Schjöth, F. 1929 Chinese Currency. 1965 Edition, edited by V. Hancock. Iola, Wisconsin: Krause Publications.
- Schrire, C. 1982 *The Alligator Rivers: Prehistory and Ecology in Western Arnhem Land*. Terra Australis 7. Canberra: Department of Prehistory, Research School of Pacific Studies, Australian National University.
- Scott, E. 1910 *Terre Napoléon. A History of French Explorations and Projects in Australia*. (Second ed. 1911.) London: Methuen and Co.
- Scott, E. 1940 Taking Possession of Australia – the Doctrine of Terra Nullius (No Man's Land). *Journal and Proceedings of the Royal Australian Historical Society*, 26 (1):1-19.
- Searcy, A. 1912 *By Flood and Field*. London: G. Bell & Sons, Ltd.
- Searcy, A. 1907 *In Australian Tropics*. London: Kegan Paul, Trench, Truber.
- Serventy, P.E. 1967 Aboriginal Artefacts at Rottneest Island. *West Australian Naturalist*, 10 (5):123-4.
- Shann, E.O.G. 1926 *Cattle Chosen: the Story of the First Group Settlement in Western Australia, 1829–1841*. Oxford: Oxford University Press.
- Shaw, J.P. [no date] The Potteries of Sunderland and District. Ms Durham Museum and Art Gallery.
- Shenkell, J.R. and W. Westbury 1965 The Marine Hospital at Fort Saint Marks. Florida State University. *Notes in Anthropology*, 12:1-97.
- Shepard, A. 1963 *Ceramics for the Archaeologist*, Publication 609. Washington: Carnegie Institution of Washington.
- Smith, G. 1834 *Essay on the Construction of Cottages Suited for the Dwellings of the Labouring Classes*. Glasgow: Blackie and Son.
- Smith, H.G. 1962 El Morro. Florida State University. *Notes in Anthropology*, 6.
- Smith, H.G. 1963 Roque 226. Florida State University. *Notes in Anthropology*, 9.
- Spencer, W.B. and F.J. Gillen 1928 *Wanderings in Wild Australia*. 2 vols. London: Macmillan.
- St. John, H. 1853 *The Indian Archipelago: Its History and Present State*. 2 vols. London: Longman, Brown, Green, and Longmans.
- Stokes, J. Lort, 1846 *Discoveries in Australia, with an account of the Coasts and Rivers explored and surveyed during the voyage of H.M.S. Beagle (1837–43)*. 2 vols. London: T. and W. Boone.
- Tarling, P.N. 1957 British Policy in the Malay Peninsula and Archipelago, 1824–1871. *Journal of the Malayan Branch of the Royal Asiatic Society*, 30:1-228.
- Tarling, P.N. 1958 The Relationship between British Policies and the Extent of Dutch Power in the Malay Archipelago

- 1784–1871. *Australian Journal of Politics and History*, 4:179-92.
- Tarling, P.N. 1962 *Anglo-Dutch Rivalry in the Malay World 1780–1824*. Cambridge: Cambridge University Press.
- Tindale N.B. 1941 Tasmanian stone implement made from bottle glass. *Papers and Proceedings of the Royal Society of Tasmania*. 1941 pp. 1-2.
- Tindale, N.B. 1925 The Natives of Groote Eylandt and the West Coast of the Gulf of Carpentaria. *Records of the Australian Museum*, 3 (1):61-102.
- Triebel, L.A. and J.C. Batt, J.C. 1957 *The French Exploration of Australia with Special Reference to Tasmania*. Hobart: Government Printer.
- Wainwright, F.T. 1962 *Archaeology and Place Names and History*. London: Routledge and Kegan Paul.
- Wakefield, H. 1962 *Victorian Pottery*. New York: Thomas Nelson and Sons.
- Walker, I.C. 1967 Historic Archaeology – Methods and Principles. *Historical Archaeology*, 1:23-4.
- Walker, I.C. 1967 Some Comments on Clyde Dollar's 'Some Thoughts on Theory and Method In Historical Archaeology'. *The Conference on Historic Site Archaeology Papers*, 2 (2):105-23.
- Ward, J.M. 1958 *Earl Grey and the Australian Colonies 1846–57*. Melbourne: Melbourne University Press.
- Watkins, C.M. and I.N. Hume 1967 The Poor Potter of Yorktown. *Contributions from the Museum of History and Technology. Paper 54. United States National Museum Bulletin*, 249. Washington: Smithsonian Institution Press.
- Weaver, H. 1848 *Hints on Cottage Architecture, Being a Selection of Designs for Labourers' Cottages*. Bath: Joseph Hollway.
- White, C. 1967 *Plateau and Plain*. Unpublished PhD thesis, Department of Prehistory, Research School of Pacific Studies, Australian National University. For a published version see C. Schrire, this bibliography.
- Whittell, H.M. 1949 The Visits of John Gilbert, Naturalist, to Swan River Colony. *Journal and Proceedings of the West Australian Historical Society*, 4 (1):23-53.
- Whittell, H.M. 1954 *The Literature of Australian Birds: a history and a bibliography*. Perth: Paterson Brokensha.
- Wighton, R. (ed.) 1979 *A Mother's Offering to Her Children (1841)*. Facsimile Edition. Milton Qld: The Jacaranda Press.
- Wildey, W.B. 1876 *Australasia and the Oceanic Region*. Melbourne: George Robertson.
- Williams, S.B. 1949 *Antique Blue and White Spode*. London: B.T. Batsford Ltd.
- Willey, G.R. and P. Phillips 1958 *Method and Theory in American Archaeology*. Chicago: The University of Chicago Press.
- Wilson, T.B. 1835 *Narrative of a Voyage Around the World*. London: Sherwood, Gilbert, and Piper.
- Wright, H.R.C. 1950–51 The Anglo-Dutch Dispute in the East, 1814-24. *Economic History Review*. 2nd series, 3 (2):229-39.

In 1966 Jim Allen undertook the first professional excavation of a European site in Australia. The 1840s military settlement of Victoria was established at Port Essington, the northernmost part of the Northern Territory and was the end point of Ludwig Leichhardt's epic journey in 1844-45. This settlement was the longest lived of three failed attempts by the British to establish a settlement on the northern coast of Australia before 1850. Its history reflects many of the dominant themes of wider colonial history - isolation, tropical disease, poorly equipped and inexperienced colonists, inept government bureaucracies and relations with the Indigenous population.

By looking at both the material evidence produced by archaeological excavation and the written sources, Allen sought to integrate both sorts of evidence to produce an eclectic history that was neither social nor political nor economic in its primary emphasis, but combined all three. When his research was presented as a doctoral dissertation at the Australian National University in 1969 its main theoretical thrust concerned the problems of this data integration and this remains a central issue in the discipline of historical archaeology in Australasia.

Some 40 years on, ASHA's decision to launch its new monograph series by publishing this work has several purposes. At one level this monograph is of historical importance in establishing where the discipline began in this country. It explains both the theoretical and methodological problems Allen faced and how he sought to overcome them. At another level it provides the data from an important excavation that has not been previously published. On a third level it provides a particular sort of historical account of a small but important chapter of Australia's European beginnings that could not have been written without the dual sources of written documents and archaeology. Together they reflect a poignant episode in our past. In the decade following this work Port Essington became the subject of a four part ABC-TV drama, a musical composition by Peter Sculthorpe and paintings by Russell Drysdale.

Port Essington will appeal as a reference book to both students and practitioners of historical archaeology and to people interested in Australian colonial history.

After Port Essington, Jim Allen established an academic career in prehistoric archaeology in Australia and the Pacific. He is currently Emeritus Professor in the School of Historical and European Studies in La Trobe University.



SYDNEY UNIVERSITY PRESS
www.sup.usyd.edu.au

