

INTERIM REPORT

on the

ABROLHOS ISLANDS FIELD EXPEDITION

4 – 17 May 1992

Compiled by

Jeremy Green, Myra Stanbury *et al.*
Department of Maritime Archaeology

Ian MacLeod *et al.*
Department of Materials Conservation

and

Martin Gibbs
Department of Archaeology
University of Western Australia

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Special thanks are due to the Director of Fisheries, Neil McLaughlin, for permission to visit the Abrolhos Islands and staff of the Fisheries Department of Western Australia for logistical help in the form of transport and accommodation at the Fisheries camps at Beacon and Burnett Islands. In particular we thank Perth Operations personnel Jim Lilburn, Phil Mosel and Tony Cappelluti; and Geraldton based staff – Wayne Godenzie, Regional Manager; Randall Owen, Abrolhos Islands Manager; Rod Casey, skipper of the PV *Baudin*, and crew Dennis Rhodes and Joe Miller.

As with past maritime archaeological field-work projects, the assistance of volunteers has been a valuable asset. With respect to the *Batavia* project we sincerely thank Martin Gibbs, Historical Archaeologist (Department of Archaeology, University of Western Australia) for his excellent supervision of the land archaeological work on Beacon Island. Claire Davy and Ross McGuffie of the Maritime Archaeological Association of Western Australia (MAAWA) also provided welcome and energetic assistance with the digging and sieving, and participated in the underwater projects. Student volunteers Ben Green (John Curtin Senior High School, Fremantle) and Joshua Harvey (Cape Town, South Africa), enthusiastically helped with all kinds of activities ranging from boat-handling assistants, land archaeology, snorkel surveys and position-fixing, camp maintenance and cooking.

The hospitality and cooperation of the Abrolhos Islands crayfishermen, especially those residing on Beacon Island – Bill and Roderick Dransfield, John Gliddon and Ian Power – Pigeon Island and West Wallabi, greatly contributed to the convenience with which the various projects could be undertaken and made the trip most enjoyable.

Finally, we thank the Director and Trustees of the Western Australian Museum for their continued support for maritime archaeological projects.

Introduction

During the period 4 – 17 May 1992, a team of maritime archaeologists and conservators from the Western Australian Maritime Museum, an historical archaeologist from the University of Western Australia, Maritime Archaeological Association of Western Australia (MAAWA) and student volunteers, undertook a field trip to the Houtman Abrolhos. The field-work was designed to implement the strategies incorporated in two proposals submitted to the Department of the Arts, Sport, the Environment and Territories (DASET) as part of the Western Australian Museum's 1992–93 submission for funding for work relating to historic shipwrecks protected under the Commonwealth *Historic Shipwrecks Act 1976*.

The two proposals were as follows:

A. COMMONWEALTH SUBMISSION PROPOSAL NO. 4. (1992)

BATAVIA SITE MANAGEMENT PLAN [DEPT. OF MARITIME ARCHAEOLOGY.]

OBJECTIVE

To conserve and protect shipwreck sites and associated material as a cultural resource of the nation.

STRATEGY

Develop management plans for particular wreck sites, including recovered relics.

BACKGROUND

Develop a management plan for the *Batavia* site in conjunction with the Maritime Archaeological Association of Western Australia (MAAWA).

B. SUBMISSION PROPOSAL NO. 14 (1992)

BATAVIA WRECK ANALYSIS [DEPT. MATERIALS CONSERVATION.]

OBJECTIVE

To conserve and protect historic shipwreck sites and associated material as a cultural resource of the nation.

STRATEGY

Research into historic shipwreck/maritime archaeology in Australia.

BACKGROUND

That monies be allocated to allow a period of intensive field-work to be carried out on the *Batavia* wreck site. The purposes of the field-work are to:

- i) determine the effects of prior archaeological investigations on the integrity of the site;
- ii) take measurements of massive iron artefacts still on site to determine their current rate of deterioration; and
- iii) investigate the possibility of future *in situ* conservation of artefacts on the site.

The information gained from the above investigations will be used in the management of this archaeological resource. The proposed field-work will be carried out, with Jeremy Green as team leader, as part of a larger archaeological study of the *Batavia* and associated land sites. In this way, costs will be minimised.

This report will present the preliminary results of the field-work. More detailed accounts of specific aspects of the work related to the *Batavia* wreck site are in preparation and recommendations formulated as a result of the work will be used to develop the management plan for this site.

Logistics Expedition Personnel

DEPARTMENT OF MARITIME ARCHAEOLOGY

Jeremy Green
Myra Stanbury
Patrick Baker
Colin Powell

DEPARTMENT OF MATERIALS CONSERVATION

Ian MacLeod
Vicki Richards
Jon Carpenter

HONORARY HISTORICAL ARCHAEOLOGIST

Martin Gibbs (University of Western Australia)

MARITIME ARCHAEOLOGICAL ASSOCIATION OF WESTERN AUSTRALIA

Claire Davy
Ross McGuffie

STUDENTS

Ben Green (John Curtin Senior High School, Fremantle)
Joshua Harvey (Cape Town, South Africa)

Itinerary

DAY	DATE	TIME	DEPART	ARRIVE	TRANSPORT	DRIVER/SKIPPER
1	4 May	0600	WAMM Fremantle		Land Cruiser + <i>Seaspray</i>	Green/Baker
		1300		Geraldton	Truck + gear Cons. Utility	Powell/Carpenter MacLeod/Richards
		1400		Launch <i>Seaspray</i> Load <i>Baudin</i> Overnight at Separation Point		
2.	5 May	0745 1230	Geraldton	Beacon Island	PV <i>Baudin</i>	Rod Casey (Fisheries Dept.)
3.	6 May			Beacon Island		
4.	7 May			Beacon Island		
5.	8 May			Beacon Island		
6.	9 May			Beacon Island		
7.	10 May			Beacon Island		
8.	11 May			Beacon Island		
9.	12 May			Beacon Island		
10.	13 May	0800 1000 1300 1600 2230	Beacon Island	Easter Group Pelsaert Group Geraldton Perth	PV <i>Baudin</i> Truck + Utility Private car	Rod Casey Carpenter <i>et al.</i>
11.	14 May			Pelsaert Group		
12.	15 May			Pelsaert Group		
13.	16 May			Pelsaert Group		
14.	17 May	1300 1630 1830	Pelsaert Group Geraldton	Geraldton	PV <i>Baudin</i> Landcruiser	Rod Casey Green/Baker
15.	18 May	0100	Fremantle			

Aims of the expedition

Apart from the main objectives outlined in the two proposals, the specific aims of the expedition were to carry out the following work:

Wallabi Group

BATAVIA – WRECK SITE

- video
- clean up site
- feasibility of moving Max Cramer's weight underneath 'Henrieta's' anchor
- anchor stability ('Henrieta's' anchor)
- conservation analysis

BATAVIA – INSIDE REEF

- pottery distribution analysis
- GPS positions of sites

BATAVIA – BEACON ISLAND

- land excavation of selected sites
- geomorphological analysis to assess changes

BATAVIA – WEST WALLABI

- GPS positions of stone structures and wells associated with *Batavia* survivors

Easter Group

- search for the *Cochituate*

Pelsaert Group

- examination of *Zeewijk* nail barrel and timber sites
- GPS fixes of:
 - *Zeewijk* underwater sites
 - *Zeewijk* land sites on Middle Island
 - historic wreck sites off Pelsaert Island – *Ben Ledi* and *Windsor*
 - historic land sites on Pelsaert Island

Batavia Site Management – Day Book
 Jeremy Green, Myra Stanbury et al.

MONDAY, 4 MAY 1992

Landcruiser, *SeaSpray* Truck and Conservation Ute to Geraldton. Met at Fisheries Wharf at 1300hrs. Met up with Randall Owen (Fisheries Abrolhos Islands Manager) he was flying out to Rat Island in the helicopter. Met Rod Casey of the Fisheries PV *Baudin* (crew: Joe and Dennis). Unloaded the truck, launched the *SeaSpray* (has a damaged starboard bow rail, also launching a bit difficult, the trailer needs the disks skimmed). Tested out radio; unable to contact MADWAM on private frequencies; contact on Seaphone OK. Retired to Separation Point Caravan Park.

TUESDAY, 5 MAY 1992

Loaded the Fisheries boat PV *Baudin* at 0745. Departed about 0830 arrived Beacon Island at about 1230. Unloaded the boat and set up the camp. Randall Owen with his jet boat was on the island to meet us. Tested the radios, checked the GPS.

NB 1853.24 m = 1 nautical mile or 1 min of latitude.

GPS Position outside Beacon Island camp – 'Dransfield House'

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Outside hut	28°28.53	113°47.06	31.7	0959.09	16:9	18:8	19:5	1.8

Wind NW light medium swell.

WEDNESDAY, 6 MAY 1992

0830 *Seaspray* to the inside reef with Ben, Pat, Ian, Vicki, Jon to check out hookah and conservation drill. *Araldite* to inside reef with Colin, Clare, Ross and Josh to collect pottery. After dive *Seaspray* to inside reef join *Araldite* check GPS and pottery. Saw old Beardman jugs and plate frags laid in 1986 for pottery distribution experiment (Garrat & Prince).

GPS Position of the inside reef, next to Star Picket 1:

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Inside Reef	28°29.30	113°47.43	48.7	1113.54				2.3

Josh, Ross joined *Seaspray* team and went to main site at about 1130. Ross, Jeremy and Ian stayed on board rest of team snorkelled on site. Sea from NW, not large swell but rough wind blown waves–swell. Not possible to anchor. Returned to Beacon Island for lunch.

GPS Position –Cairn on Beacon Island.

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Beacon on Beacon Island	28°28.53	113°47.01	25.1	1336.25	15:9	25:9	28:9	1.7

ARTEFACT REGISTRATION 6 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BAT 21654	1	21	Jug, handle frag	Inside reef - Nr SP1
BAT 21655	2	21	Jug, base sherds	Inside reef - Nr SP1
BAT 21656	4	21	Jug, body sherds	Inside reef - Nr SP1
BAT 21657	1	21	Jug, Seigberg, body sherd	Inside reef - Nr SP1
TOTAL	8			

THURSDAY, 7 MAY 1992

Morning 0800 Ian, Jon, Vicki, Pat, Jeremy and Ben to the *Hadda* site. First attempted to find site using GPS, this failed so we used the chart and located the site. Conservators did measurements on site, collected averaged GPS position.

GPS Positions – Hadda

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Hadda 2	28°28.37	113°47.44	51.9	1109.23	11:9	23:9	28:9	2.6

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Hadda 3	28°28.39	113°47.45	32.4	1148.05	11:9	23:8	28:9	2.7

Afternoon 1330 to inside reef. Collected fake jugs in numbered bags, leaving duplicate numbered bags on site. Total of 15 plate and jar fragments recovered together with 2 coins and 65 stoneware, 8 earthenware and 1 majolica, 2 stone and some miscellaneous.

Took another GPS position on the inside reef which gave a slightly different position to the first.

GPS Position – Inside reef

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Inside Reef	28°29.31	113°47.41	17.6	1416.97	11=9	14=9	25=9	1.5

ARTEFACT REGISTRATION 7 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BAT 1158	1	17	Piece of stone	Inside reef - Nr SP1
BAT 1159	1	17	Piece of black stone ?	Inside reef - Nr SP1
BAT 21658	1	21	Jug, Westerwald, sherd	Inside reef - Nr SP1
BAT 21659	2	21	Jug, Raeren, sherd	Inside reef - Nr SP1
BAT 21660	1	21	Jug, cordon, neck sherd	Inside reef - Nr SP1
BAT 21661	1	21	Jug, sherd w/part mask	Inside reef - Nr SP1
BAT 21662	1	21	Jug, mask sherd	Inside reef - Nr SP1
BAT 21663	6	21	Jug, medallion sherd	Inside reef - Nr SP1
BAT 21664	4	21	Jug, Seigberg, sherds	Inside reef - Nr SP1
BAT 21665	5	21	Jug, base sherds	Inside reef - Nr SP1
BAT 21666	1	21	Jug, part neck w/handle	Inside reef - Nr SP1
BAT 21667	1	21	Jug, neck sherd	Inside reef - Nr SP1
BAT 21668	2	21	Jug, handle sherds	Inside reef - Nr SP1
BAT 21669	39	21	Jug, body sherds	Inside reef - Nr SP1
BAT 21670	5	22	Earthenware sherds	Inside reef - Nr SP1
BAT 21671	3	22	E'ware, brown glaze sherds	Inside reef - Nr SP1
BAT 21672	1	23	Majolica sherd	Inside reef - Nr SP1
BAT 21673	1	21	Southeast Asian stoneware	Inside reef - Nr SP1
BAT 21674	1	21	Southeast Asian stoneware	Inside reef - Nr SP1
BAT 3898	1	34	Lead	Inside reef - Nr SP1
TOTAL pieces	77			

Batavia – Pottery Survey
 Claire Davy, Ross McGuffie et al.

Bag No	Description	Distance (m) from #1	Closeness to #1	Bearing (deg) to #1	Bearing (deg) from #1
1	Jug IV Part neck w/handle - no mark	33.10	12	165	345
4	Jug I Body sherd w/ part marks	17.70	6	165	345
5	Jug IV Body sherd, part V mark; green; fits with 11	28.20	9	185	005
6	Jug IV Body sherd - no mark; green; fits with 14	28.30	10	170	350
7	Jug IV Body sherd - no mark; green; fits with 14	38.90	15	140	320
8	Plate ? No - to be identified	13.70	4	170	350
9	Plate 2 Sherd 2:5 (see 1989 Day Book)	10.60	2	170	350
10	Plate 2 Sherd 2:7 (ditto)	8.50	1	180	000
11	Jug IV Body sherd - horizontal line; yellow vertical paint daub; fits with 5	31.20	11	170	350
12	Plate 5 Sherd 5:4 (see 1989 Day Book)	16.35	5	180	000
13	Jug V Lower part of jug - base and body; mark on base and body V; green.	38.70	14	160	340
14	Jug IV Body sherd marked IV	35.60	13	170	350
15	Plate 2 Sherd 2:1	12.05	3	175	355
16	Jug I Lower parts x 2 fit; no mark on piece with no base.	27.80	8	160	340
18	Jug I ? Body sherd, brown.	19.70	7	190	010
-	Jug I Body sherd, brown; fits w/unmarked piece 16. Put w/16 for replacement.	Not recorded	Not recorded	Not recorded	Not recorded
28	Jug I Body sherd; fits with 16	9.30		180	000

FRIDAY, 8 MAY 1992

Strong SE wind.

Morning, conservators to *Hadda* site.

Paddy Berry (Head of Natural Sciences, Western Australian Museum) arrived by helicopter.

Afternoon no boat work

1700 with Bill and Rod Dransfield to Big Pigeon to meet local fishermen and discuss our projects.

Met up with many familiar faces from 1970s expedition days. Worthwhile PR.

SATURDAY, 9 MAY 1992

Moderating SE wind

Morning Main site, Jeremy, Colin, Ian, Vicki, Jon and Ben. Low but unpredictable swell very sloppy, marginal for diving, hookah reels not long enough to reach site. Abandoned diving on site.

Inside reef pottery collection Colin, Vicki, Jon and Jeremy. Found iron fitting of some sort.

ARTEFACT REGISTRATION 9 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BAT 1160	3	12	Coal pieces	Inside reef - Nr SP1
BAT 1161	1	14	Whetstone, piece	Inside reef - Nr SP1
BAT 1162	1	17	Small piece stone	Inside reef - Nr SP1
BAT 21675	1	22	Apothecary jar, base frag	Inside reef - Nr SP1

BAT 21676	2	22	E/ware, brown glaze sherds	Inside reef - Nr SP1
BAT 21677	7	22	Earthenware sherds	Inside reef - Nr SP1
BAT 21678	1	22	Earthenware sherds, thick	Inside reef - Nr SP1
BAT 21679	4	23	Majolica sherds	Inside reef - Nr SP1
BAT 21680	1	21	Jug, neck with mask	Inside reef - Nr SP1
BAT 21681	1	21	Jug, handle	Inside reef - Nr SP1
BAT 21682	1	21	Jug, handle/neck sherd	Inside reef - Nr SP1
BAT 21683	1	21	Jug, base of handle	Inside reef - Nr SP1
BAT 21684	1	21	Jug, neck sherd	Inside reef - Nr SP1
BAT 21685	1	21	Jug, mask	Inside reef - Nr SP1
BAT 21686	3	21	Jug, medallion sherds	Inside reef - Nr SP1
BAT 21687	3	21	Jug, base sherds	Inside reef - Nr SP1
BAT 21688	23	21	Jug, body sherds	Inside reef - Nr SP1
BAT 21689	1	21	Jug, Seigberg, neck sherd	Inside reef - Nr SP1
BAT 21690	1	21	Jug, Seigberg, base sherd	Inside reef - Nr SP1
BAT 21691	1	21	Jug, Cordon, neck w/part medallion sherd	Inside reef - Nr SP1
BAT 21692	1	21	Jug, Seigberg, part 'Jan Allers' medallion	Inside reef - Nr SP1
BAT 21693	1	21	Jug, Cordon, blue/grey 'rose' medallion cf BAT 2304	Inside reef - Nr SP1
BAT 21694	1	21	Jug, Cordon, blue/grey 'ball' medallion cf BAT 2571	Inside reef - Nr SP1
BAT 21695	1	21	Jug, Westerwald, mid-body/handle base sherd	Inside reef - Nr SP1
BAT 21696	1	21	Jug, Raeren, neck/shoulder sherd	Inside reef - Nr SP1
BAT 21697	4	21	Stoneware, thick & blackish	Inside reef - Nr SP1
BAT 21698	1	23	Majolica sherd	Inside reef - Nr SP1
BAT 21699	4	22	Earthenware sherds	Inside reef - Nr SP1
BAT 21700	1	21	Jug, lower part, small size	Inside reef - Nr SP1
BAT 21701	1	21	Jug, mask sherd	Inside reef - Nr SP1
BAT 21702	1	21	Jar, rim sherd	Inside reef - Nr SP1
BAT 21703	1	21	Jug, handle	Inside reef - Nr SP1
BAT 21704	1	21	Jug, Medallion sherd	Inside reef - Nr SP1
BAT 21705	1	21	Jug, wide mouth, everted rim and handle sherd. NEW TYPE for BATAVIA	Inside reef - Nr SP1
BAT 21706	1	21	Jug, neck sherd	Inside reef - Nr SP1
BAT 21707	2	21	Jug, Cordon, grey/blue medallion sherds	Inside reef - Nr SP1
BAT 21708	2	21	Jug, base sherds	Inside reef - Nr SP1
BAT 21709	1	21	Jug, medallion sherd, v. small	Inside reef - Nr SP1
BAT 21710	1	21	Jug, Raeren, shoulder sherd	Inside reef - Nr SP1
BAT 21711	22	21	Jug, body sherds	Inside reef - Nr SP1
BAT 3899	2	34	Lead sheeting	Inside reef - Nr SP1
BAT 3900	1	32	Copper/bronze fragment	Inside reef - Nr SP1
BAT 3901	1	34	Lead sheeting - holes x 7	Inside reef - Nr SP1
BAT 5076	2	51	Coin - 2 halves fit	Inside reef - 200°/32 m to SP1

BAT 5077	2	51	Coin - 2 halves fit	Inside reef - 200°/32 m to SP1
BAT5078	1	51	Coin, complete	Inside reef - 200°/32 m to SP1
BAT5079	1	51	Coin, complete	Inside reef - 200°/32 m to SP1
BAT5080	1	51	Coin, complete	Inside reef - 200°/32 m to SP1
BAT5081	1	51	Coin, complete	Inside reef - 200°/32 m to SP1
TOTAL pieces	119			

SUNDAY, 10 MAY 1992

Site undivable. Collected pottery on inside reef.

MONDAY, 11 MAY 1992

ESE, moderate swell. All team less Jeremy and Myra to West Wallabi. GPS of the forts failed because the instrument lost its memory.

Afternoon test pottery returned to site.

ARTEFACT REGISTRATION 11 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BAT 1163	1	14	Sharpening stone?	Inside reef - N of SP1
BAT 21712	1	22	Earthenware sherd, glazed	Inside reef - N of SP1
BAT 21713	1	23	Majolica sherd, blue line	Inside reef - N of SP1
BAT 21714	1	22	Earthenware sherd, thick	Inside reef - N of SP1
BAT 21715	6	21	Jug, body sherds	Inside reef - N of SP1
BAT 21716	1	21	Jug, base sherd	Inside reef - N of SP1
BAT 21717	1	21	Jug, handle sherd	Inside reef - N of SP1
BAT 21718	1	21	Jug, handle sherd	Inside reef - N of SP1
BAT 21719	1	21	Jug, rosette medallion sherd	Inside reef - N of SP1
BAT 21720	1	21	Jug, Seigberg, medallion	Inside reef - N of SP1
BAT 21721	1	21	Jug, Westerwald, body	Inside reef - N of SP1
BAT 4632	1	44	Case bottle base	Inside reef - Nr SP1
BAT 5082	11+8	51	Silver coins, halves + frags	Inside reef - 200°/32 m to SP1
TOTAL pieces	36			

TUESDAY, 12 MAY 1992

Last full day on island. Swell increasing, E wind in morning.

Ian, Jon, Vicki, Ben, Colin, Claire, Ross and Josh to *Hadda* for conservation measurements. Then to inside reef to collect iron concretion. On return the site looked better, wind dropped off and swell was dropping. Ian, Vicki, Jon, Claire, Ross and Jeremy to main site. Swells still too high to work, team except Jeremy snorkelled on site. Pat went to West Wallabi to take GPS measurements.

GPS positions West Wallabi

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Coastal "Fort"	28° 27.89	113°42.33	77.7	1035.03	15=7	23=9	28=9	3.2
Inland "Fort"	28° 27.73	113°42.18		1106.43				
Cairn near well	28° 27.82	113°42.03	35.8	1126.12	15=9	21=9	14=9	1.8
"Cavern" Well	28° 27.92	113°42.38	40.9	1156.48	15=9	21=7	28=9	1.5

ARTEFACT REGISTRATION 12 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BAT 21722	1	21	SE Asian jar, rim sherd	Inside reef - N of SP1
BAT 217 23	1	21	SE Asian ? black S/ware sherd	Inside reef - N of SP1
BAT 217 24	1	29	Porcelain, neck sherd of Kendi ?	Inside reef - N of SP1
BAT 217 25	4	22	E/ware jug or Testje sherds	Inside reef - N of SP1
BAT 217 26	2	22	Earthenware sherds, thick	Inside reef - N of SP1
BAT 217 27	1	21	Jug, Cordon, handle sherd	Inside reef - N of SP1
BAT 217 28	1	21	Jug, base sherd	Inside reef - N of SP1
BAT 217 29	1	21	Jug, rosette medallion - sm	Inside reef - N of SP1
BAT 217 30	1	21	Jug, rosette medallion - lg	Inside reef - N of SP1
BAT 217 31	1	21	Jug, heraldic medallion	Inside reef - N of SP1
BAT 217 32	1	21	Jug, mask sherd	Inside reef - N of SP1
BAT 217 33	12	21	Jug, body sherds	Inside reef - N of SP1
BAT 5083	1	51	Coin - date 1620	Inside reef - N of SP1
BAT 80376	1	82	Iron bolt concretion	Inside reef - N of SP1
BAT 80377	1	82	Iron chainplate? concs	Inside reef - N of SP1
BAT 80378	1	82	Iron chainplate? concs	Inside reef - N of SP1
BAT 80379	1	82	Iron chainplate? concs	Inside reef - N of SP1
BAT 80380	1	82	Iron chainplate? concs	Inside reef - N of SP1
BAT 80381	1	82	Iron chainplate? concs	Inside reef - N of SP1
BAT 80382	1	82	Iron chainplate? concs	Inside reef - N of SP1
TOTAL pieces	35			

WEDNESDAY, 13 MAY 1992

0630 Fisheries boat, *PVBaudin* tied up and loading commenced. 0800 departed Beacon Island to head for Rat Island in Easter Group towing *SeaSpray* and Piper. 0900 arrived at Rat Island, left Randall and headed 258° dis. 3.2 nm to West Reef, The Vee. *Baudin* anchored inside reef. Team on *SeaSpray* except Colin, Ian and Martin snorkelled, looking for the wreck *Cochituate*; was not found. Heavy swell over the reef. Two dolphins surfed in on swell and swam with boat. 1200 picked up Randall from Rat Island and departed for Pelsaert Group. 1330 arrived at Burnett Island, unloaded. Jeremy, Pat, Randall, Colin, Myra and Ben stayed at Burnett with *SeaSpray* and Piper. Rest left for Geraldton.

THURSDAY, 14 MAY 1992

After heavy squall, went to *Zeewijk* site and obtained GPS positions. Weather subsequently excellent.

Star Picket 13 was still in place. Strong current c. 2 knots running; difficult to swim. Jeremy, Pat, Myra Colin and Ben examined area around Star Picket 13. Large slabs of plate coral have collected around the Star Picket.

Nail barrels close to the picket have broken up – samples taken from the worst barrel for identification. Barrels to the north-east and east still relatively intact.

The **iron bars** have also broken up and were scattered over a wide area. The concreted remains of what appeared to be a wooden billet crate were found to the east of the Star Picket and a copper plate associated with it was recovered. Possibly this could be a name plate, but no evidence of writing has yet been observed. Small tack holes were situated at intervals around the edge with one copper tack still *in situ*. Samples of at least four different sizes of bars were raised for examination: some are roughly square in section and others rectangular. It appears that they were of solid wrought iron which has now corroded away leaving the concreted casts.

The **iron gun** situated 9 m east of SP13 has a longitudinal section of concretion lying along its western side as if it has been sliced off. A broken piece of the concretion was raised for possible analysis. [NB Jet boats were seen to pass close by the area in less than 1 m of water. They were also working in the surf zone on the outside of the reef.]

Moving about 150 m eastwards, an area of flat sandy bottom was searched for the timber remains; only glass bottle fragments were found. Realising the grid squares on the map were 500 m (not 50 m) the *SeaSpray* was moved to a distance of c. 1.2 km due east of SP13 and a search for the timbers in Areas D and E commenced. Patrick saw remains of iron chainplates and recovered a wooden pulley sheave from the south side of a large coral 'bommie' believed to be close to Area D, but no timber was seen.

Went to **Gun Island** for late lunch. Disturbed a seal basking on the beach by the guano jetty. Walked to old WAM campsite. Pieces of glass located around Rock Holes 1 and 2 (see Map of Gun Island). Returned to camp, arriving c. 1600 hrs.

GPS Positions – Zeewijk inside reef

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Area B/13	28°52.75	113°49.10	37.3	1059.12	11=9	23=7	28=9	2.6
Lump not important	28°52.68	113°49.77	34.5	1252.10	14=9	25=9	28=9	1.8
Lump with pully sheave	28°52.62	113°49.86	41.1	1308.10	14=9	25=9	28=9	1.6

ARTEFACT REGISTRATION 14 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
ZW 5600	1	64	Pulley sheave	GPS Lat. 28°52.62; Long. 113°49.86.
ZW 5604	1	32	Copper patch with tack + iron concretion: ? from billet crate	Area B, SP 13 – near billet crate concretion
ZW 5605	1	17	Stone	Area B, SP 13
ZW 5606	1	44	Wine ('onion') bottle, top section	150 m east of SP 13 in flat sandy sea-bed
ZW 5607	6	44	Wine ('onion') bottle sherds: 1 base; 1 side; 4 neck	150 m east of SP 13 in flat sandy sea-bed
ZW 5608	c.20	84	Iron billet samples	Area B, SP13
ZW 5609	1	86	Concretion sample from iron cannon	Area B, SP13
ZW 5610	1	81	Cannon ball fragment	Area B, SP13
ZW 5611	1	84	Nail barrel sample	Area B, SP13
ZW 5612	4	84	Nail barrel samples	Area B, SP13
ZW 5613	5	44	Case bottle sherds: 1 base; 4 wall	Gun Is. near Rock Holes 1&2
TOTAL pieces	42			

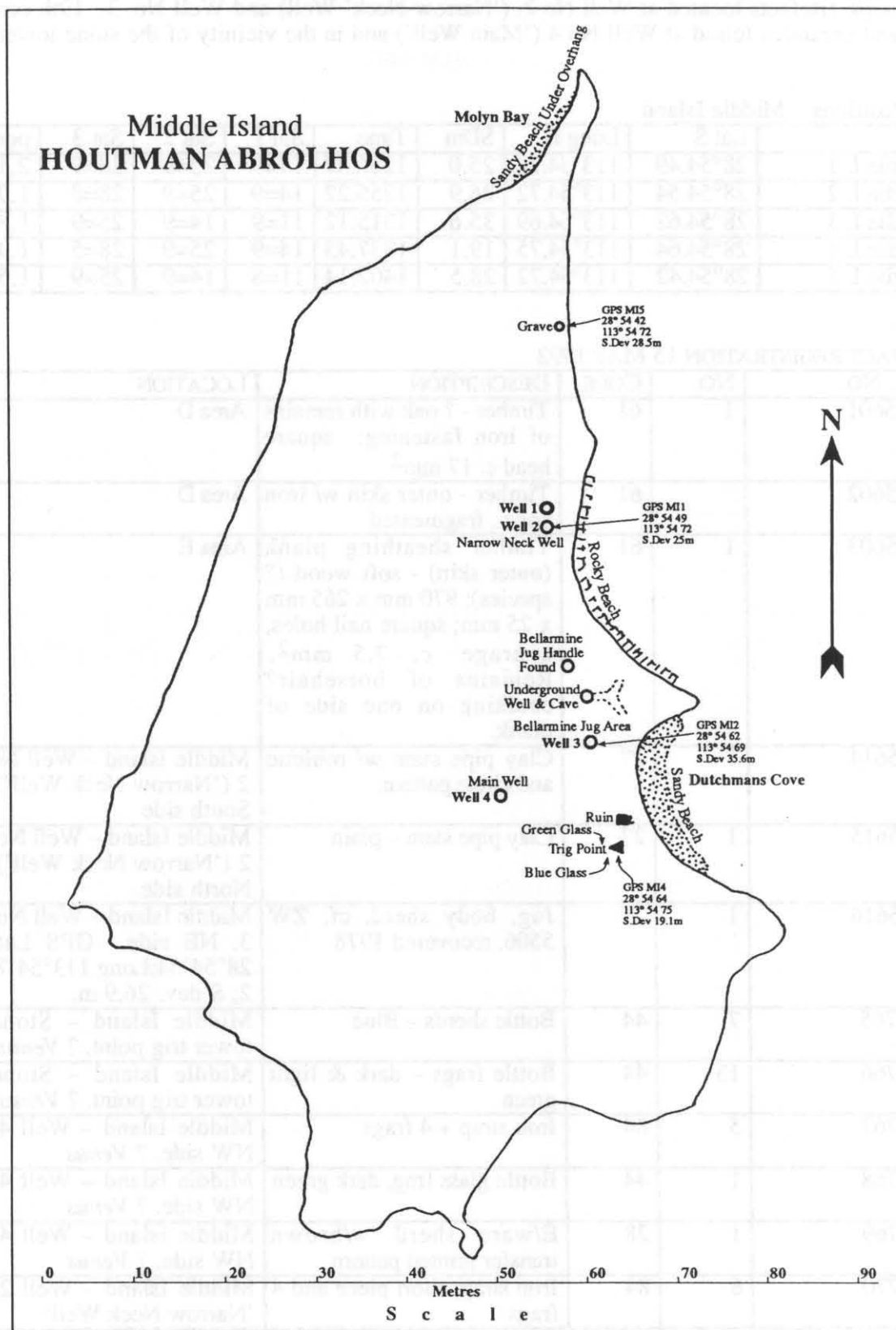
FRIDAY, 15 MAY 1992

Weather good again. Returned to *Zeewijk* site. According to previous site reports, Area D is confirmed to be 1200 m, due east of SP13 and Area E 45 m north of Area D, with a large coral lump in between the two areas.

Course set from SP13 on GPS and *SeaSpray* anchored. Jeremy located piece of timber with remains of iron fastening and this was raised. Patrick then located some degraded pieces of outer skin timbers held together by a thin veneer of iron corrosion products (from the iron fastening nails). This was lifted onto a plastic lid and carefully raised. Initially, it was thought that this was all that remained of the timbers recorded in 1978 until these outer skin timbers were observed.

The timbers were fanned clear and recorded on video film. They lie on an area of flat, hardened sea-bed with very little sand cover. One piece of timber was raised as an example and for timber analysis. The dimensions are: 970 mm x 265 mm x 30 mm. The ends are square cut (not scarphed) and the plank is studded with square nail holes; one surface has indications of caulking remains (? horsehair).

Proceeded to Middle Island for lunch. Landed at Molyn Bay at the north end of the island.



Map of Middle Island, Pelsaert Group, Houtman Abrolhos, showing GPS positions, 1992.

Middle Island. Nos are as follows: 1. is Well No. 1, No. 2 is Well 3, No. 3 is Well 4, No. 4 is tower trig point and No. 5 is grave. Refer Myra's Field Book for further details.

Zeewijk artefacts located at Well No 2. ('Narrow-Neck' Well) and Well No. 3. 19th century glass and ceramics found at Well No 4 ('Main Well') and in the vicinity of the stone tower trig point.

GPS Positions – Middle Island

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Middle I. 1	28°54.49	113°54.72	25.0	1236.47	14=9	25=9	28=9	2.1
Middle I. 2	28°54.54	113°54.72	26.9	1255.22	14=9	25=9	28=8	1.7
Middle I. 3	28°54.62	113°54.69	35.6	1315.12	11=9	14=9	25=9	1.8
Middle I. 4	28°54.64	113°54.75	19.1	1337.45	14=9	25=9	28=5	1.4
Middle I. 5	28°54.42	113°54.72	28.5	1402.14	11=8	14=9	25=9	1.5

ARTEFACT REGISTRATION 15 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
ZW 5601	1	61	Timber - ? oak with remains of iron fastening: square head c. 17 mm ²	Area D
ZW 5602		61	Timber - outer skin w/ iron conc., fragmented	Area D
ZW 5603	1	61	Timber sheathing plank (outer skin) - soft wood (? species); 970 mm x 265 mm x 25 mm; square nail holes, average c. 7.5 mm ² . Remains of horsehair? caulking on one side of plank.	Area E
ZW 5614	1	27	Clay pipe stem w/ roulette and circle pattern.	Middle Island – Well No 2 ('Narrow Neck Well'), South side
ZW 5615	1	27	Clay pipe stem – plain	Middle Island – Well No. 2 ('Narrow Neck Well'), North side.
ZW 5616	1	21	Jug, body sherd, cf. ZW 5506, recovered 1978	Middle Island – Well No. 3, NE side. GPS Lat. 28°54'54; Long. 113°54'7 2; S dev. 26.9 m.
MI 3765	7	44	Bottle sherds – Blue	Middle Island – Stone tower trig point. ? <i>Venus</i>
MI 3766	13	44	Bottle frags – dark & light green	Middle Island – Stone tower trig point. ? <i>Venus</i>
MI 3767	5	84	Iron strap + 4 frags	Middle Island – Well 4, NW side. ? <i>Venus</i>
MI 3768	1	44	Bottle glass frag, dark green	Middle Island – Well 4, NW side. ? <i>Venus</i>
MI 3769	1	28	E/ware sherd w/brown transfer printed pattern	Middle Island – Well 4, NW side. ? <i>Venus</i>
MI 3770	6	84	Iron strap, short piece and 4 frags	Middle Island – Well 2, 'Narrow Neck Well'
MI 3771	8	44	Bottle glass, light green	Middle Island – Well 2, 'Narrow Neck Well'
TOTAL pieces	46			

SATURDAY, 16 MAY 1992

Visit to Pelsaert Island.

GPS Positions on Pelsaert Island: Main Guano Jetty Guano; Loading Area next to *Moresby* Bench Mark (SW Corner of structure); Centre Jetty of the Guano Settlement Area; *Windsor* iron work at NE of Boiler (30 m W of structure); and *Ben Ledi* Site ironwork on shallows.

GPS Positions – Pelsaert Island

Site	Lat S	Long E	SDm	Time	Sat 1	Sat 2	Sat 3	pdo
Guano Loading Jetty (alt=10 m)	28°58.19	113°57.35	42.0	1029.51	11=9	23=8	28=9	2.6
Centre Guano Jetty	28°58.84	113°57.24	34.3	1139.32	14=9	21=9	25=9	1.3
<i>Windsor</i>	28°59.26	113°55.98	40.0	1207.14	14=9	21=9	25=9	1.5
<i>Ben Ledi</i>	28°56.30	113°58.07	21.0	1334.53	14=9	25=9	28=9	1.4

Went to Pelsaert Island main guano jetty. Tried to find survey points, found one (HMAS *Moresby* offset - Station 8 on 1979 Guano survey). Went to *Windsor* and took GPS positions. Trawled for fish, caught one and a half. Went to lake by *Ben Ledi* site and had lunch. Waded to *Ben Ledi* site and took GPS position. Myra and Pat went to mangroves; found lots of glassware, iron fragments and some pottery inshore from *Ben Ledi*, and 3 large softwood spars/masts. Colin, Jeremy and Ben went fishing again, saw shark, seal and didn't catch one fish. Very low tide on trip home, but got there in the end (at 1700).

ARTEFACT REGISTRATION 15 MAY 1992

REG. NO.	NO.	CODE	DESCRIPTION	LOCATION
BL 3772	60	44	Bottle sherds, dark green	Pelsaert Is. ? <i>Ben Ledi</i>
BL 3773	55	44	Bottle sherds, light green	Glass scattered on coral beach ridges inshore from site, south of lake.
BL 3774	4	44	Bottle sherds, light green	ditto
BL 3775	2	44	Bottle sherds, light green	ditto
BL 3776	5	44	Bottle, preserve, light green	ditto
BL 3777	1	84	Iron strap	Scattered in same area as glass
BL 3778	1	32	Eye (from sail), brass	ditto
BL 3779	7	28	Earthenware plate sherds, glazed with green lines. Mark on reverse: ? 'Ironstone'	ditto
BL 3780	3	28	Earthenware sherds, purple transfer printed pattern.	ditto
BL 3781	2	44	Bottle base, hexagonal, light green	Coral beach ridge north of <i>Ben Ledi</i> site
BL 3782	2	61	Wood samples from masts or spars for analysis	Beach ridges north of <i>Ben Ledi</i> site.
TOTAL pieces	142			

TUESDAY 5 MAY 1992

Reviewed existing plans of island and excavation notes brought by Myra. Spoke to she & Jeremy regarding earlier excavation work and finds across the island. No base plan currently exists of either. Most of the pre-1980s work can only be located to general areas. As a priority there is a need for a base plan showing:

- a. past excavations (both professional and amateur); and
- b. discoveries of skeletal material etc. and any other material both surface and sub-surface.

Most descriptions of where excavations took place, etc., seem to be located in relationship to structures, some of which are no longer extant, or may have been rebuilt.

It appears that the material mostly occurs on an axis (drawn SE from the beacon). The area around 'Johnson's House' and Dr Royce's House' seems to have a particularly high density of finds. Story related of people finding some surface material, as well as digging in around these buildings.

Initial walk over island with Myra shows a far greater number of structural features past and present than suggested by maps derived from aerial photographs, particularly around the south-east end of the island. Adjacent to 'Pop Marten's House' are concrete foundations, signs of a former wash-house made of beer bottles, old toilets, etc. The 'prison' structure on extreme SE is not plotted on aerial photo plan.

Orientation of island use appears to have changed since the construction of the northern jetty. Tracks etc. shown on earlier plans are now unused and may not be visible.

A building history of the island is required, as well as further plotting on the base plan. Points to consider:

- a. Identify all features past and present. Need to give all structures a number which transcends ownership and use changes. Possibly extend the current Fisheries numbering system (although this seems inconsistent... check with Randell).
- b. Identify previous toilet pits. [Not only subsurface disturbance, but material removed from the pits thrown outwards.]
- c. Former trackways across island... etc.
- d. Given known distribution of finds, eventual removal of concrete pads should give access to possibly undisturbed deposits. As part of building history, establish approximate dates of construction, do survey of current foundations of structures and any other features...

1986 base plan has AMG references on it which should allow site to be gridded - try to fix several known points to AMG references. End of jetty seems to be the standard point for the MADWAM surveys, if used as a cross reference/bearing.

Possible future sampling along a SE base line (unfortunately runs through most of the houses and yards. Jeremy suggests excavation along the west and south-west of the island. This is a well vegetated area, away from the houses (which seem to have been the focus of activity). There is fairly heavy mutton bird disturbance, but this is throughout island. Run a base line from the beacon due south? Check tomorrow. Possible probe survey to establish soil depths across various areas. Options for excavation programme:

- a. North-south baseline from beacon (west side of island). Previously unexcavated areas, but good depth of soil?
- b. South-east baseline through axis of island.
- c. Sample pits adjacent to (or at least in the supposed area of) previous diggings to try and get some context for the existing collections. [General impression is that best value can be made if of previous work if treated as sampling of various areas....]

Stray bits:

- a. wind direction varies.
- b. offloading point for wreck salvage ? SW beach? Distribution form a node...who controls distribution.
- c. early separation into various group structures, similar to shipboard? Account suggests several camps.
- d. do breakdown of changing population structure.

WEDNESDAY 6 MAY 1992

Fixed position of beacon as AMG ref 7/725/775 - 68/467/720, according to 1: 500 scale (1 cm=5 m) map derived from aerial photograph (1986). Had to do a bit of fooling around to calculate positions, etc. The small scale makes it a bit difficult.

The north-south transect line is taken from AMG ref 7/725/785 - 68/467/720, which is a point 7.5 m directly east of the beacon. Established the baseline by theodolite, using star pickets at several unmeasured distances to give something to align with (although vegetation actually limits visibility between). The baseline passes through several different areas, but there appears to be a reasonable depth of soil all along. Just south of the datum is a very low area (swale) with low vegetation which is the probable area of the 1963 'Site C' (possible protection from wind?). This rises to a higher, sandy area with higher vegetation and dense muttonbird disturbance. Moving towards the south end of the transect the vegetation falls again, but the area is also currently active as a nesting area for (terns?). Most southerly square is in vegetation just above beach.

Established points for test pits at twenty (20) metre intervals from datum:

- a. One pit north of the datum (backsighted towards the museum shed).
- b. Seven pits to the south of the datum.

Cleared vegetation with Myra and Claire. Because of the location of the datum adjacent to the backyard of a hut (set up in a gap in a fence and therefore difficult to clear either side), it is not possible to excavate at that point. Given time, it would be worth digging a pit slightly offset from the baseline.

Strung out the first three squares along the north end. The 20 m point on the baseline is the north-west corner of the squares. Cheated by using a metal one-metre square to set corners. Very difficult to get pegs in because of coral fragments. Will start excavating tomorrow as soon as I can get initial heights (and find a permanent bench mark for heights... maybe an edge of the beacon?).

Have not decided on square/pit numbering system as yet. While it would be best to use the AMG grid ref, it would probably be easier for now to simply give test pit numbers (north to south, with TP2 being reserved for the proposed pit next to the datum).

If time allows, it would be worth taking a transect eastward from the baseline, moving towards the area between Johnson's and Dr Royce's houses where the higher concentrations of material have been found.

THURSDAY 7 MAY 1992

Cleared a square at the axis of the baselines (TP2). Unfortunately this also involved removing some of Dransfield's windbreak hedge. Established the dumpy half way between the beacon and the axis (about three metres east). The fixed height is taken on the top southern edge of the concrete plaque holder attached to the beacon. There doesn't appear to be any other easily visible (and durable) points which might be there in several years time.

Started excavations in TP1 - 3 (north to south). Decided on five centimetre arbitrary spits. Rough outline of excavations here, but need to check notebook for details.

Fixed (datum) height = 7.40 Height of dumpy = 1.61 m

Problems with excavation:

- a. Guano and sand generally unconsolidated, sides of pit slumping inwards.
- b. Heavy concentrations of coral within the pit (slabs make levelling etc without removal very difficult).

Test Pit 1 (TP 1).

Initial heights: NW-2.44, NE-2.42, SE-2.50, SW-2.55, MID-2.48

Joshua and Claire

Low vegetation, no immediately obvious mutton bird disturbance. Humic layer at top, with crushed shell sand deposit beneath, but no guano visible (may be lower). Very low section of island, possibly storm washed? Completed to spit 2 (10cm, but may dig by shovel to see if change occurs lower).

Test Pit 2 (TP 2).

Initial heights: NW-1.79, NE-1.81, SE-1.78, SW-1.78, MID-1.82

Myra and Ross (morning). Myra and Ian in afternoon

Upper layers badly disturbed in over-enthusiastic vegetation removal. Artificial shell/sand mix gave way to relatively deep guano deposit. Slabs of coral (largest up to 40cm+ on some dimensions) removed in about Spit 3 to allow further digging. Problem with depth of spit 3 due to over-enthusiastic digging (fell to about 24cm).

Completed square to spit 6 (40cm), at interface with a light sandy coral layer ('bedrock').

Only interesting find was the negative of a coin in concretion, possibly discarded from an early museum expedition.

Test Pit 3 (TP3).

Initial heights: NW-2.56, NE-2.65, SE-2.67, SW-2.60, MID-2.65

Martin

Fairly low vegetation. Into guano (increasingly dark) and coral. Large slabs in Spit 2, removed to get at deposit below, but still guano with (smaller) coral pieces below. Completed to Spit 3.

In theory, the presence of the large slabs of coral should give the lowest possible point that Dutch material might be found (not including things falling between the cracks), ie. I can't see how the slabs got there later... except, there is guano above AND below... how does that happen?? Quick talk with Patrick and Jeremy who suggest it is simply filtration through the loose coral.

Bill Dransfield visited and confirmed that site 'C' was in the low lying sand area southeast of TP3. recalled digging, and something about 44 gallon drums being used but could't elaborate on how the digging was done or other details. Also told how (Maeve Dransfield) found a seal skeleton under coral slabs, towards edge of the coral shelf in the same area. Meat storage? Also asked him about casual collecting and digging. Says only a few pieces on surface, but at one stage quite a lot of small digging about.

Talked to him a bit about history of fishing and the various changes to people and the camps. Says that there has already been a photo survey. Says that high vegetation only recent. formerly low (like current low areas). Relationship between human activity and vege growth.

FRIDAY 8 MAY 1992

Commenced excavation of TP 4 and 5 (morning) and TP 6 in afternoon. I drew sections for TP 1-3 (north and west sides only). Moved dumpy level further south (actually south-west of original position. For extra details on pits, etc, see notebook.

Fixed height (datum) = top: 0.5, Middle= 0.285, bottom=?

Initial heights;

TP4 NW=1.87, NE=1.87, SE=2.06, SW=1.91, MID=1.935

TP5 NW=1.55, NE=1.575, SE=1.57, SW=1.59, MID=1.50

TP6 NW=1.64, NE=1.73, SE=1.85, SW=1.77, MID=1.74

NOTES:**Test Pit 4 (TP4)**

Directly on muttonbird mound. Five centimetre spits, although Spit two was done to level (volunteers misunderstood that the spit was to be excavated to contour. Finished to base of Spit 3

and started slightly on Spit 4 (a little bit of overexcited digging into Spit 5. Yielding material (bone and metal fragments). In Spit 3 there was a copper(?) pin and some larger bones, including a rib which may be seal. Over-digging into spit 5 shows further large bones.

Joshua and Ross

Test Pit 5 (TP5)

Directly on muttonbird digging, but sandy material. 5 cm spit (one), but spit two was 10 cm (completed to this level. Some bird bones and shell, but no artefacts.

Myra and Pat (Ian after lunch)

Test Pit 6 (TP6)

Also in sandy disturbed area. 10 cm spit one, and one quadrat of spit two. No artefacts found.

Had to finish early to prepare for trip to Big Pigeon island (social club).

Need to put dymo tags into bags (currently only Artline on outside.).

Need to finish all three squares tomorrow. [Four days left, two days for each two squares.]

Some thoughts:

Easiest way to do historic structures survey is to trace buildings etc from 1986 aerial photo plan and do corrections, notes etc. Take down current numbering system, and describe;

- a. foundations;
- b. current wall & roof structure (materials);
- c. estimated date of construction; and
- d. new and extra features.
etc, etc.

Might be best to ask Myra to supervise digging, take an assistant and do this all one evening.

SATURDAY 9 MAY 1992

Continued TP 4-6. Interest of volunteers generally flagging. During the afternoon only Myra and myself were digging. Possibly a function of the night before... I know that I feel the effects.

Fixed Height: 0.34

TP 4: NW=2.17, NE=2.19, SE=2.24, SW=2.255, MID=2.23

Commencing Spit 5.

TP 5: NW=1.92, NE=1.90, SE=1.97, SW=2.00, MID=1.965

Commencing Spit 7 (10 cm)

TP 6: NW=1.83, NE=1.86, SE=1.95, SW=1.88, MID=1.90

Commencing Spit 3.

Check notebook for main details.

TP 4: Continues guano deposit. Spits 4-6 (5 cm) producing bone and material. Spit 6 contained fish hook.

TP 5: Base of Spit 7 is interface with a more yellow sand unit. Mutton bird holes run along this division. Still not producing artefacts. Base of Spit 9 quadrat in SW corner.

TP 6: Coral sands, grading into yellow sands.

NOTES:

TP 5 and 6 are sterile sands, over the slightly more yellow (sterile) sands. Hard to know whether there has been major sediment build-up since 1700s, and the occupation level is simply lower. Occupation areas (Johnson's etc) are only about thirty metres (perhaps less) east of these

pits, so it seems likely that these sandy sections would have been used. Later vegetation has acted as sediment trap?? It may be worth simply continuing to dig.

SUNDAY 10 MAY 1992

Continued excavations, TP 4, 6, 7 and 8.

Problem with initial datum reading. Set up dumpy on south end of the island, but could not see the staff on the beacon (staff has only 0.5 cm increments, with no colour blocks or 'E's' to indicate 10 cm or 1 metre divisions, so it has only a very limited visibility). I therefore do not have a relative height for TP 7 and 8, (although I could calculate it from the previous day's readings in other pits, 4, 5, 6).

Datum Height: ***

TP4: NW=, NE=, SE=, SW=, MID= (NOT VISIBLE FROM DUMPY)

TP5: NW=, NE=, SE=, SW=2.18, MID=2.20 (BASE OF SPIT 9)

TP6: NW=, NE=, SE=, SW=2.05, MID=2.07 (BASE OF SPIT 5)

TP7: NW=1.70, NE=1.73, SE=1.85, SW=1.735, MID=1.77 (SURFACE)

TP8: NW=1.43, NE=1.58, SE=1.54, SW=1.56, MID=1.64 (SURFACE).

NOTES:

TP4: Continued to produce artefacts (nails) to spit 7, and excavated down to base of Spit 8, depth of 60cm(?). Guano continuing, but had to remove increasingly large pieces of coral without definite artefacts (although some small bone fragments). Have taken bulk samples from spits 4-8 (although from 7&8 I did sort out larger artefacts).

TP5: Still sandy. Did south-west corner, but no sign of artefacts, and no significant changes in sand layer, although increasingly 'yellow'. Completed to spit 9

TP6: Completed to spit 7 (70cm). Similar to above.

TP7: Sandy square, in area of intense burrowing. Low vegetation cover. (spit 1 = 10cm), spit 2 = 20cm deep). May have to clean sides of pit to bring to square.

TP8: Sandy square (similar to above). Spit 1 = 20cm. The sandy matrix in the lower half of this spit seems relatively firm.

There seems to be an increasing number of previously unreported items, incidents etc. being brought to light through casual conversation, especially with Bill Dransfield.

- a. after saying that virtually no Dutch material was found on the surface in earlier days (1960s), he then told of how his children used to run around the yard playing with/throwing musket balls and other items, and no-body thought anything of it (could be a bit of exaggeration).
- b. The Johnson's had a chopping block reputedly made from a section of Batavia mast (on south end of island, at or near to terminus of path at jetty, possibly currently under a large bush).
- c. The finding of a seal skeleton under coral slabs, adjacent to the depression area we were working in (reputedly given to Museum)
- d. The finding of a spar on Long island(?). (Reputedly given to museum; Graeme Henderson actually came up and removed it?).
- e. People were coming and digging around Johnson's House (because the skeleton had been found under it), until he poured a concrete slab to stop them.

Discussed with Jeremy, Pat and Myra the need to do comprehensive plan of features, compile from all sources (official and private) a comprehensive set of pictures of the island, vegetation, etc.

and an oral history of the early work, including getting people to pinpoint (or at least locate) where things were found, talk about island use, etc.

MONDAY 11 MAY 1992

Visited West Wallabi Island in morning. Saw both stone structures ('forts'). The beachside structure ('Weibbie Hayes's') has been recently cleared of vegetation and shows signs of fossicking. There are, however, wallaby bones in the sand inside. Walls have been reconstructed, but are still only about 1 m high. No doorway apparent, divider between the 'rooms'. strikes me simply as a habitation – probably as the base for a 'v' tent (i.e. canvas roof over top. Still, what about a door? Did not visit the wells to the (east?) of the site.

Second structure on limestone; regular walls and doorway, but no sign of artefacts (only thin layer of sand inside, and none around it. Possible wells (gnamma holes with water) within 20 m of structure.

Picked up wallaby bones (*Macropus eugenii*?) on island for comparative collection. Also turtle bones on beach. Claire picked up a dried python, about 2 m long.

Afternoon commenced section drawings, finished up to TP6. In TP 7 Myra excavated to about 1 m in north-west corner to check soil structure. Continues throughout as clean white coral sands, with no medium or large coral pieces

TP 8 has a completely different profile of orange sands (guano mixed in?) with dense concentrations of coral down to about 60 cm.

Probably will not get time to commence TP9.

Will take soil samples from all pits (10 or 20 cm depths). Key in to stratigraphic drawings.

No datum (out of range). Calculate difference from other pits.
Initial depths.

TP7: NW=2.44, Mid=2.43.

TP8: NW=1.69, NE=1.70, SE=1.69, SW=1.70, MID=1.72
(base of spit 1 at 20 cm; spits 2&3 also 20 cm each.)

TUESDAY 12 MAY 1992

Excavated TP8 down to plate coral (approx 15cm??). continued heavy density of coral pieces.
Levels: SW=2.23, MID=2.22

Completed section drawings for TP6-8. Took soil samples (approx 10 cm intervals) in all pits. Often very difficult to get material and from right positions due to collapse from higher levels, coral coverage in section, etc, etc. In TP 8 was not able to take lower levels (under about 40cm because people had begun filling in the pit a bit early. approximate sample locations are marked on the section drawings.

The difference between the sections in TP 7 and 8 is very marked. The former consists mostly of very white coral sands with only small fragments in matrix (less than 0.5 cm), while the latter, apart from an upper level of white sand, is densely packed coral in an orange sand matrix.

Volunteers filled all pits. Had to remove the star pickets from the axis and in the bushes along the baseline, although I left the most southerly picket in place. It should be possible to re-establish the baseline relatively easily (north/south from a point 7.5 m directly east of the beacon).

Will need to copy field notebook and section drawings for museum, as well as prepare the sections at some point in the future (possibly as an appendix of the main report).

Batavia wreck analysis – Conservation Day Book
Ian MacLeod et al.

7 MAY 1992

The iron cannon, that was formerly known as Dave Johnson's, was drilled with the compressed air drill and the corrosion potentials and the in-situ pH was measured.

It was readily apparent that the cannon was very heavily graphitised since the drill bit penetrated at least 50 mm before coming up against any real form of resistance.

The data pertaining to the cannon are listed below:

Ecorr. -0.586 mV vs. Ag/AgCl, sea water

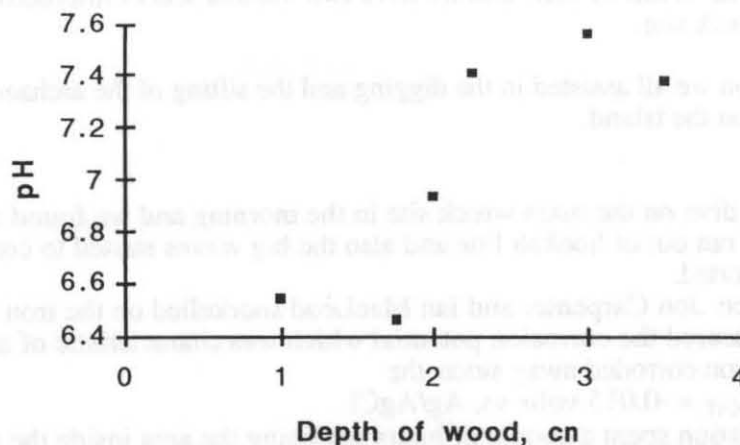
pH 6.47

These parameters show that the cannon is in an inherently unstable state and that, if the corrosion potential is equivalent to the hydrogen evolution potential for that pH, then the equilibrium value would be 5.44. Since the *in situ* pH is one unit less acidic than the value calculated above it would be consistent with the composition of the evolved gas having approximately one tenth of an atmosphere of hydrogen. When the concretion was penetrated by the drill a small amount of gas was evolved. The water temperature was 21 degrees Centigrade at a water depth of one metre.

HADDA

The site is located about five hundred metres from the jetty on Beacon Island in a shallow depression in the reef with the water depth ranging from 3.5 to 4 metres. The on-site water temperature was 23.5 degrees. The wreck site was characterised by a wide dispersal of copper alloy sheathing and a collection of similar composition material for a collection of drifts that formerly held the planking and hull timbers together. We tried to measure the corrosion potentials of the iron fittings but found that all of them were hollow- even the massive deck knees and braces were found to consist of a sludge of magnetite underneath the concretion and that upon drilling the bit simply went straight through the matrix. The data collected on this first dive on the site is summarised below.

Wood depth cm	pH
1	6.54
1.5-2	6.46
2	6.93
2-2.5	7.40
3	7.56
3.5	7.37



The measurements were repeated at another section of the timber and the following data were obtained.

Wood depth cm	pH
0.5	7.57
2.75	7.12
3	7.40

8 MAY 1992

The temperature was 21 degrees at a depth of 4 m and the visibility was at least 10 m. A total of 24 corrosion potential measurements were made on a series of brass drifts and sheathing. In general one can say that the brass has been subjected to quite extensive dezincification – the characteristic look of the cuprite patina predominates the collection of objects which are scattered across the site. Again all the iron fittings were found to be totally devoid of solid iron and given the thickness of the original knees and the massive number of brass fittings, it seems as though we can say that the *Hadda* site is another example of 'Proximity Corrosion'. This phenomena was first noted by MacLeod and North on the wreck site of the *Rapid* (1811) and it is a form of long-range galvanic coupling. The iron fittings on the site are therefore to be regarded as a source of concretions that are suitable for recovery without the need to have sodium hydroxide solutions on the island. The practical advantages for this approach are obvious.

A piece of lead sheathing, or a lead patch, was found to be covered with the typical patina of a low energy site, i.e. a mixture of lead sulphate and the lead hydroxy chloride – confirmation of these assignments is needed using X-ray diffraction but on the basis of past experience we can be very confident of these identifications.

The E_{corr} of the fitting was -0.475 Volts vs. Ag/ AgCl

A set of measurements made on a piece of brass sheathing, that still had the total complement of brass sheathing tacks *in situ*, showed up a remarkable uniformity of microenvironments. The brass sheathing had a grey zinc-rich corrosion product overlying the initial cuprite patina and all the corrosion products were overlain by a thin layer of organic material and a fine layer of pulverised sand. The organic material is probably algal in nature.

When viewed as a total collection of data the corrosion potentials seem to form two distinct groups. The values for the collection of the bolts, sheathing etc. was:

$$E_{corr} = -0.017 \pm 0.002 \text{ (9 data points)}$$

The average values for the collection of the brass bolts in the wood was shown to be

$$E_{corr} = -0.027 \pm 0.002 \text{ (13 data points)}$$

Since the differences between the two sets of data is 10.5 mV it is 2.2 times the sum of the standard deviations it can be seen that we have two distinct sets of microenvironment for the brass fittings on the wreck site.

In the afternoon we all assisted in the digging and the sifting of the archaeological material in the various test pits on the island.

9 MAY 1992

We attempted to dive on the main wreck site in the morning and we found that the basic problem was that we both ran out of hookah line and also the big waves started to come through and so the dive had to be aborted.

In the afternoon Jon Carpenter and Ian MacLeod snorkelled on the iron concretion inside the reef area and measured the corrosion potential which was characteristic of an iron object that has had all the solid iron corroded away since the

$$E_{\text{corr}} = -0.015 \text{ volts vs. Ag/AgCl}$$

All of conservation spent a couple of hours searching the area inside the reef for material from the main wreck site and we were successful in finding several coins and fragments of original ceramic materials.

10 MAY 1992

It was still too rough to perform any diving on the main wreck site and since it was Conservation's turn to be mother of the day, we spent all our time in preparing the food for the three meals. When not preparing the food we assisted in the digging and in the sieving of the archaeological deposits.

11 MAY 1992

Excursion to West Wallabi island to inspect the 'forts' and the wells associated with the *Batavia* survivors. On our return we spent the afternoon either snorkelling on the inside reef (J.C. and V.L.R.) or assisting in the land based archaeological excavations.

12 MAY 1992

Dived on the *Hadda* site for an hour during which we obtained a sample of wood for one of the research students at Murdoch University and carried out another set of corrosion measurements. The water temperature at a depth of four metres was 20°C.

The E_{corr} values for the brass fittings were remarkably insensitive to the surface colouration in that the average value for a set of measurements on a Cu_2O patinated bolt, a square shanked broken bolt and what appeared to be a chalcocite patinated (Cu_2S) brass sheathing tack was:

$$E_{\text{corr}} = -0.017 \pm 0.001 \text{ V vs. Ag/AgCl}$$

The brass bolt that was adjacent to the area that was being excavated for the wood sample had an $E_{\text{corr}} = -0.010$ volts.

The bolt (drift) had vestiges of wood attached to it. What was very interesting was the extraordinarily complex patina on the bolt – above the parent metal was a cuprite patina (Cu_2O) followed by a grey zinc-rich corrosion product layer (most probably a zinc sulphate hydroxide) which then had a $\text{Cu}_2(\text{OH})_3\text{Cl}$ layer and this in turn was covered by a thin layer of finely divided silica and an organic brown layer that was similar to a slime.

At a sediment depth of approximately 30 cm the redox potential of the sediment was:

$$E_{\text{redox}} = -0.371 \text{ volts vs. Ag/AgCl}$$

Placing the platinum electrode in the mass of the teredo-eaten wood gave a reading of:

$$E_{\text{redox}} = -0.178 \text{ volts vs. Ag/AgCl}$$

By way of comparison, the corrosion potential of the brass bolt near the area being sampled was $E_{\text{corr}} = -0.024$ volts.

From the *Hadda* site we went to the inside reef area and recovered the hollowed out iron concretion that had been measured on 9 May. The weather conditions had become remarkably still and so in the afternoon we went with Jeremy to the main wreck site. Although the occasional big swell prevented us anchoring on the site, we were able to swim in and have a snorkel. **WHAT A SITE TO BEHOLD – THE *BATAVIA* IS WITHOUT DOUBT AUSTRALIA'S PREMIER WRECK SITE!**

From the bluffs we went to the beach and viewed the polluted ocean
and the beach from the bluff. The water was very dirty and
the beach was very dirty. Although the beach was very dirty
and the water was very dirty, we were able to see the beach
and the water. WHAT A SCENE! THE BEACH IS WITHOUT DOUBT
THE BEACH WRECK SITE!

Report on issues concerning the VOC shipwreck *Zeewijk* (1727) and recent field investigations of the wreck site

Myra Stanbury

Introduction

The VOC ship *Zeewijk* commanded by Jan Steyns, and carrying 36 guns and a crew of 208, was wrecked on 9 June 1727 on the northern edge of Half Moon Reef in the Pelsaert Group of the Houtman Abrolhos in latitude 28°53.1' south, longitude 113°78.8' east. Although cannon and wreck debris had been located in the inside reef area in the 1960s, it was not until 1968 that the main wreck site was found outside the reef. In 1976, 1977 and 1978, the Western Australian Maritime Museum undertook an archaeological survey and investigation of the wreck site and associated survivors' campsites on nearby islands (Ingleman-Sundberg, 1976, 1977a, 1977b and 1978).

Despite heavy seas at the time of wrecking, the *Zeewijk* did not break up immediately or even soon after it struck the reef; it was a week before the crew could launch the long boat and reach the safety of an island (now known as Gun Island) about 4 km to the south-east in the calmer waters of the Pelsaert Lagoon. As the ship broke up, wreckage was washed over the reef into the shallows and distributed over a wide area, to a distance of more than 1 km from the reef.

The initial aim of the *Zeewijk* investigation was to locate and accurately survey the different areas where wreck material had been deposited, both underwater and on land. Using a variety of surveying techniques ranging from swimline searches over large areas of the inside reef to theodolite mapping of the area in relation to the national survey bench mark on Gun Island, detailed maps of the various underwater wreck concentrations were produced. Surface artefacts recovered during the swimline surveys were recorded and plotted on a distribution map which served to delineate the extent of the area where wreck material had been washed over the reef and the concentrations of different artefact material (Fig. 1). Deposits of wreckage located further inshore between the reef and Gun Island were the object of separate surveys linked to the overall mapping system.

After the initial 1976 expedition, it was reported that:

Inside the reef there are four different wreck material concentrations containing cannon, timbers, part of the rigging and remains of what might have been part of the cargo (Ingleman-Sundberg, 1976: 4). Items believed to be part of the 'cargo' were located in an area of wreck concentration designated Area B (survey datum Star Picket 13) and consisted of 7 kegs of nails and concentrations of long iron bars (Fig. 2). An iron gun was also located in this area.

During the course of the *Zeewijk* investigations, at least one barrel of nails was recovered and brought to the Conservation Laboratory at Fremantle for conservation treatment; an entry on the last day of the 1978 expedition states that 'The keg of nails was finally raised successfully' (*Zeewijk* Expedition Day Book, 27.4.1978:84). Subsequently, a barrel of nails was registered as ZW 3117 (*Zeewijk* Registration Book 1:136). There appeared to be no problem until preparations for the November 1991 meeting of the Australian Netherlands Committee on Old Dutch Shipwrecks (ANCODS) were being made. In an attempt to clear the backlog of material requiring conservation treatment, Alan Kendrick of the Department of Materials Conservation, WA Maritime Museum, undertook the task of treating a small keg of nails from the *Zeewijk* storage tank, registered as ZW 5581 and thus attributed to that wreck site.

Excavation of the keg during conservation treatment revealed that it contained well-preserved iron nails. While this discovery did not initially appear unusual, close inspection of some of the better preserved nails showed that they were incompatible with the date of the *Zeewijk*. This observation, therefore, had implications with regard to the interpretation of the *Zeewijk* archaeological record and proposed future research for this wreck site.

This report discusses the problems arising and the results of a recent field trip to the *Zeewijk* wreck site to investigate the various issues.

The '*Zeewijk*' keg of nails

A small keg of nails c. 270 mm to 300 mm in diameter and c. 450 mm high was found during a check of the conservation tanks in preparation for the November 1991 ANCODS meeting. Other iron material in the tank was all registered as coming from the *Zeewijk* and it appeared that this item had somehow been overlooked in the registration process; it was thus registered on 27 December 1989 with the number ZW 5581.

ZEEWIJK WRECKSITE

1978

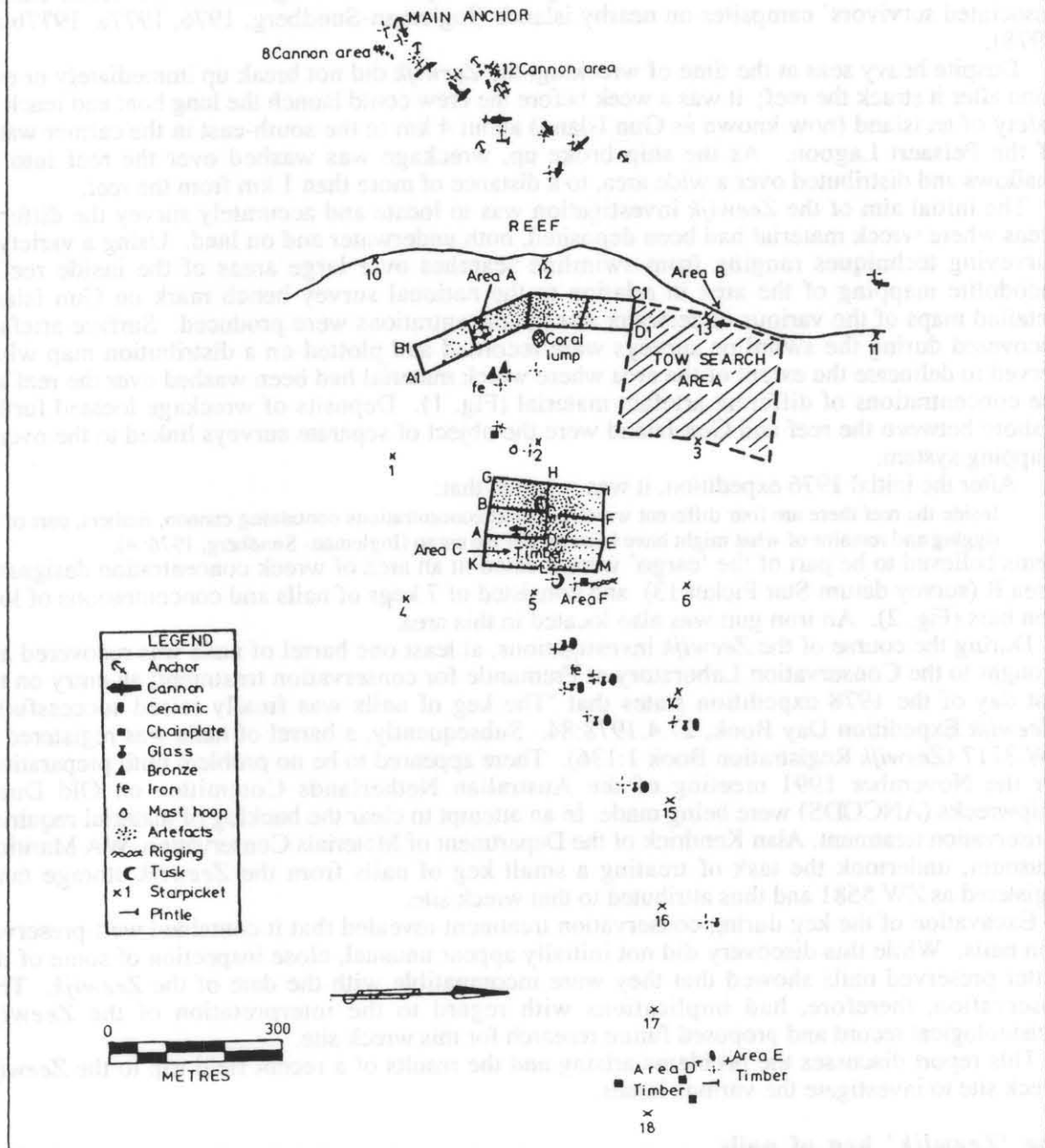


Figure 1. Zeewijk wreck site plan.

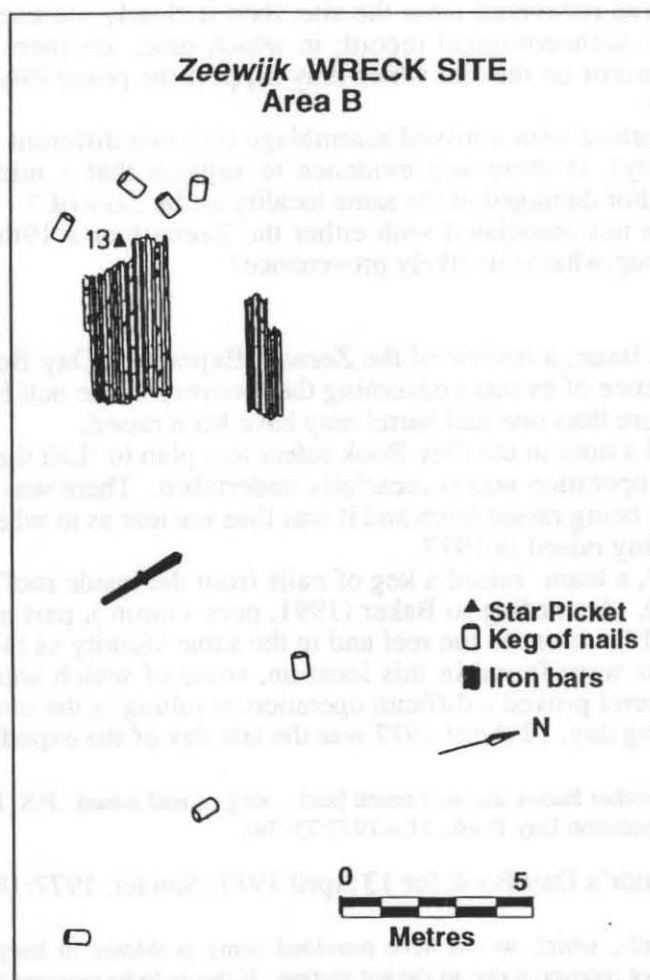


Figure 2. Zeewijk wreck site: Area B showing Star Picket 13.

One end of the barrel is intact; it is made of three pieces and appears to have been sealed with some kind of caulking. There are remains of nine staves (the entire barrel probably being comprised of 12 staves). Eight of the nine 10 mm thick staves are about 95 mm wide with one being only 50 mm wide. A number of withes (usually made of willow, but as yet these have not been analysed) are still *in situ*, at least three around the lower part of the barrel and one higher up. A groove alongside the latter appears to have held an iron band.

Conservation of the barrel was commenced by Alan Kendrick. As the nails in the barrel were slowly excavated it was noticed that they were circular in cross section and had die marks around the neck, where the nail had been held prior to the fashioning of the head. Samples of the nails were sent to Robert Varman (historical archaeologist) for identification. He confirmed that this type of 'wire' nail has a broad date of 1850s to 1880s.

The flange on the head, alignment of the brackets under the head and the two? part? point and two rows of die grips (?) suggest an early date. For an Australian import, I would suggest an 1860s-1870s date. The wire nail took over from the machine wrought Ewbank's patent in eastern Australia during the very late 1860s and early 1870s (Varman, Letter dated 8 April 1991, WAM File MA 455/71).

Nails of a similar type are illustrated in Varman's doctoral thesis and are referred to as 'Rose Headed' wire nails (Varman, 1986, Fig. 145, Type 1).

The problem

Issues arising with regard to the keg of nails were as follows:

1. If the keg is not compatible with the date of the *Zeewijk*, was it in fact raised from the *Zeewijk* wreck site, or has it been incorrectly registered and wrongly attributed to this shipwreck?

2. If the keg **was** recovered from the site, then it clearly represents an intrusive element in the *Zeewijk* archaeological record; in which case, are there any other artefacts in the collection and/or on the site which may support the possibility of a mixed archaeological assemblage?
3. If we are dealing with a mixed assemblage (i.e. two different shipwrecks wrecked in the same locality), is there any evidence to suggest that a mid 19th-century vessel was wrecked and/or damaged in the same locality as the *Zeewijk*?
4. If the keg is not associated with either the *Zeewijk* or a 19th-century shipwreck in the Pelsaert Group, what is its likely provenance?

ISSUE 1.

Concerning the first issue, a review of the *Zeewijk* Expedition Day Books was undertaken to try and clarify the sequence of events concerning the recovery of the nail barrel raised in 1978 and to ascertain whether more than one nail barrel may have been raised.

On 25 April 1978 a note in the Day Book refers to a plan to 'Lift the keg of nails in afternoon' and on 27 April this operation was successfully undertaken. There was no referral, however, as to where the barrel was being raised from and it was thus unclear as to whether this keg was the same one referred to as being raised in 1977.

On 11 April 1977, a team 'raised a keg of nails from the inside reef' (*Zeewijk* Expedition Day Book, 11.4.1977:72). According to Baker (1991, pers. comm.), part of a barrel was raised from Area B (Star Picket 13) - close to the reef and in the same vicinity as two deposits of iron bars. A total of seven barrels were found in this location, some of which were complete. Raising and recovering the nail barrel proved a difficult operation, resulting in the overturning of the aluminium dinghy. The following day, 12 April 1977 was the last day of the expedition and a note in the Day Book read:

Recovery of all marker buoys and nail barrel [sic]... Keg of nail raised...P.S. Keg of nails lost outside guano jetty (*Zeewijk* Expedition Day Book, 11.4.1977:73-74).

The field conservator's Day Book for 13 April 1977 (Sander, 1977:18) reports that

...the drum of nails, which would have provided some problems in keeping wet [during transport to Fremantle], was not recovered due to the net parting...If this is to be recovered next year, a 44 gal drum, less one end, will be required for its immersion, and subsequent transport.

The evidence thus indicates that only **one** part barrel of nails was recovered from Area B in April 1977 and that in the course of towing the barrel more than 4 km across the shallows to Gun Island, the cargo net broke and the barrel was temporarily 'lost' in the waters off the guano jetty on the east side of the island. The same barrel was then apparently re-located and successfully raised in 1978.

Concreted pieces of an iron barrel registered ZW 3117 show that the nails were square-shanked iron nails (5-6 mm²), similar in size to nails recovered from the *Batavia* and *Vergulde Draeck*. This would mean, therefore, that these are compatible with the date of the *Zeewijk* whereas those from the second barrel ZW 5581 are not.

ISSUE 2.

Considering the second scenario, i.e. assuming **two** barrels were raised, and that the barrel in question represents part of a 19th-century ship which has been wrecked or damaged in the same area, a review of the *Zeewijk* archaeological findings was carried out to see whether there were any indications of other potentially intrusive artefacts.

SUMMARY OF ARCHAEOLOGICAL FINDINGS RELATING TO THE ZEEWIJK

Accounts of the wrecking of the *Zeewijk* in Journals kept by the Officers and crew vividly describe the way in which the ship struck the reef and was broken up by the heavy surf. Large sections of the wreck including heavy cannon were thrown over the reef and washed inshore. During the archaeological investigations of the *Zeewijk*, an extensive area on the inside reef between the main wreck site and Gun Island was surveyed and wreck deposits mapped with an accuracy of approximately ± 0.5 m. Four major concentrations of material were identified by Ingleman-

Sundberg in 1976 and 1977 (Areas A-D (Ingleman-Sundberg, 1976:7-8; 1977). Two additional areas (E and F) were located in 1978 (Ingleman-Sundberg, 1978).

MAJOR WRECK MATERIAL CONCENTRATIONS INSIDE THE REEF

- A. Two single iron cannon surrounded by broken glass from wine bottles, a few iron items and a small number of ceramic pieces. 1-2 m depth on a mainly flat sandy bottom. Area known to fishermen and divers and has been object to collection.
- B. One iron cannon, 7 kegs of nails and 2 concentrations of iron bars. Test excavation did not reveal any other finds.

Samples of the iron bars in the *Zeewijk* collection were re-examined and compared with iron billets recovered from the *Vergulde Draeck* (1656). Whereas the *Zeewijk* bars were roughly square in cross section with hollow centres (giving the appearance of modern iron tubing), remnants of those from the *Vergulde Draeck* were solid, thin and flat. *Zeewijk* bar ZW 2166, for example, measures 35 mm² (outside) and 25 mm² (inside), giving a 'wall' thickness of 5 mm; the *Vergulde Draeck* bars are approximately 30 mm x 10 mm in cross section.

The possibility of the iron bars or 'tubing' being 'modern', and their association with the kegs of nails, gave rise to some suspicion as to whether or not a second barrel of nails (i.e. ZW 5581) may have been raised from Area B. If so, then this assemblage of material (or part of it) could possibly have been deposited after the *Zeewijk* was wrecked.

- C. One iron cannon (2.6 m long, 800 m from main site), iron hooks, chain plates, part of a mast cap, lot of broken glass and ceramics. The items lay loose on a sandy bottom in about 1.5-2 m of water. The area was located as a result of a swimline tow that followed traces of iron wreckage which had been plotted on the underwater survey.

The iron hooks were found in the near vicinity of the cannon and 'might have been the hooks which once held the gun carriage in place' (Ingleman-Sundberg, 1976: 8).

The following observations were of particular interest and suggested that there may possibly be two different wrecks in the locality:

It is interesting to note that within 30 m of the cannon there are chain plates and timber. Also, the glass and ceramic found in the area is in a much better state of preservation than elsewhere on the inside reef. The fragments found are generally twice the size and sometimes even bigger than fragments found in the underwater survey area. Furthermore, the area yields wine glasses and a lot of ceramic; finds which were only occasionally found in the other areas.

The size of the glass and ceramic fragments and the difference in the state of preservation warranted further investigation.

Wine glass remains from the *Zeewijk* present an interesting collection some having the clear lustre of English lead glass and others the more cloudy appearance of lime glass. Stem fragments included a variety of baluster, Silesian and drawn stem forms, many of the styles persisting into the 19th century.

Lead glass was a comparatively recent innovation at the time of the *Zeewijk* but chemical analysis of three samples of *Zeewijk* wine glass stems has recently demonstrated the presence of lead (Honey & Lynch, 16.9.1991, WAM File MA 445/71). Interestingly, they found the *Zeewijk* samples to be similar to a sample from the *Eglinton* (1852) in terms of the analyses performed, and the lead content (approximately 40%) to be high in comparison to that for modern tableware lead/silicate glasses (approximately 20-30%).

These conclusions tended to suggest that perhaps some of the *Zeewijk* wine glasses were of a later date even though their styles were compatible with the early 18th century. However, it was known with certainty that the *Zeewijk* samples sent for analysis were recovered from the main wreck site, outside the reef, and that there could be no dispute as to their provenance and date. The results, however, demonstrate a potential difficulty in identifying 18th and 19th century glassware both stylistically and/or chemically. As an archaeological dating tool, therefore, such glassware may not provide definitive dates.

- D. Parts of the rigging and timbers. Sandy bottom surrounded by coral 3.2 km from the reef. 6 pieces of timber, chain plates and iron conglomerates visible and partly buried in the sand.

Test excavation carried out to see whether any sections or upper structure of the ship were beneath the sand which might have broken loose from the wreck. No further finds were made. [Area D was later thought to be related to Area E, i.e. part of the wreck which may have broken loose and been washed over the reef.]

- E. Timber. Situated 2.2 km from the reef, parallel to and 45 m from Area D; consists of a 6.20 m x 1.6 m section of outer skin in 2 m of water on a sandy bottom; recorded photogrammetrically and drawn to scale (Ingleman-Sundberg, 1978: Fig. 7).
- F. Rigging. Approximately 800 m from the main site, further evidence of rigging and chainplates was located but no other artefacts. [Main wreckage to north and east.]

In view of the somewhat discrete distribution of the iron rigging, chainplates and timber (Areas D, E and F), that is, their considerable distance from the *Zeewijk* main site and lack of association with other artefacts, it was felt that these areas warranted further investigation. While the strength and direction of the currents in the lagoon (Dakin, 1919; Fairbridge, 1948) may in part explain the *Zeewijk* artefact distribution, no detailed analysis has yet been undertaken to confirm this hypothesis. Thus, it seemed feasible to suggest that the material in these localities could be part of another ship. Furthermore, lack of identified *Zeewijk* timber samples from the area also made it difficult to state with any degree of certainty that the timber in Area E belonged to the *Zeewijk*.

ISSUE 3.

With regard to the third question, the unlocated wreck of the 21-ton schooner *Venus* (1851) presented as a possible second shipwreck (Henderson & Henderson, 1988: 3-7). The *Venus* was on a return voyage from Singapore to Swan River when it struck one of the reefs surrounding the Pelsaert ('Southern') Group of the Abrolhos on 10 April 1851. Leaving the ailing cook, John Williams on board, the crew and passengers rowed to Middle Island and set up camp. The vessel had visited the islands on several occasions prior to being wrecked and the crew must have known that fresh water and shelter was available on Middle Island.

As Henderson and Henderson (1988:5) remark, the *Venus* must have lain in relatively shallow, calm water for it to have held together sufficiently for Williams to lie in his bunk for almost two weeks and for the crew to make several visits to the wreck. Williams was found dead in his berth on the crew's third visit and his body taken to Middle Island for burial. In 1879, Surveyor General John Forrest visited the island and reported seeing a headstone inscribed:

Here lieth the body of John Williams Seaman, died April 1851 in the wreck of the *Venus* aged 41 years (Forrest, 1879).

The *Venus* was built on the Swan River in 1839 as a 21-ton cutter but later, in 1850, was lengthened and refitted to become a 28-ton schooner (Henderson & Henderson, 1988:6). Constructed of jarrah timber, the vessel had iron fastenings and was copper sheathed at the time of its loss (Henderson & Henderson, 1988:6).

Although there is no indication as to the composition of the return cargo on board the *Venus*, if any of the timber remains in Areas D, E or F were found to be jarrah then this would be evidence in support of the two shipwreck hypothesis.

ISSUE 4.

If there is no evidence to support the two shipwreck hypothesis, then it must be assumed that the barrel of nails does not come from the Pelsaert Group. Currently, no records have been located to indicate another provenance. One possibility is that the barrel was raised from a non-shipwreck site for conservation research purposes.

Field investigations

AREA B - STAR PICKET 13

The *Zeewijk* inside reef site was visited in May 1992 by Jeremy Green, Ben Green, Patrick Baker, Myra Stanbury and Colin Powell. Both weather and sea conditions were good although a current of about 2 knots was running over the reef. Taking the *SeaSpray* as close to the reef as was safely possible, on a bearing of 291° from the north end of Gun Island, a star picket was observed still *in situ* on the reef in a position approximately that of Area B. Snorkelling against the current was

difficult, but once the star picket was reached it was soon confirmed that this was Star Picket 13 (SP13) and thus the correct area to be investigated.

Nail barrels

Large pieces of plate coral had built up around the base of the Star Picket. The nail barrels close to the picket appear to have been broken up while those to the north-east were still relatively intact. The barrels were all heavily concreted, showing no apparent evidence of any wooden staves; they were also of a larger diameter than the barrel under question (ZW 5581). Barrel samples for identification were taken from the most degraded barrel.

Examination of the nail concretions shows that the nails would have been square and/or rectangular in section, approximately 5 mm² (max.). [Nails recovered from a barrel from the *Vergulde Draeck* have rose heads, are approximately ± 72 mm in length, have rectangular shanks with a maximum dimension of 5 mm x 4 mm, tapering to 5 mm x 1mm, with flattened points.] Evidence from the concreted barrel sample ZW 3117 indicates a similar size of nail and part of a wooden barrel stave with adherent nail concretion (ZW 172), recovered by the Broadhursts from Gun Island, also indicates the presence of tapering, rectangular-shanked nails about 70 mm long.

The correspondence of the field evidence with samples of nail concretions previously recovered from the *Zeewijk* and from the *Vergulde Draeck*, leaves no doubt that the barrels of nails in Area B are associated with the *Zeewijk*.

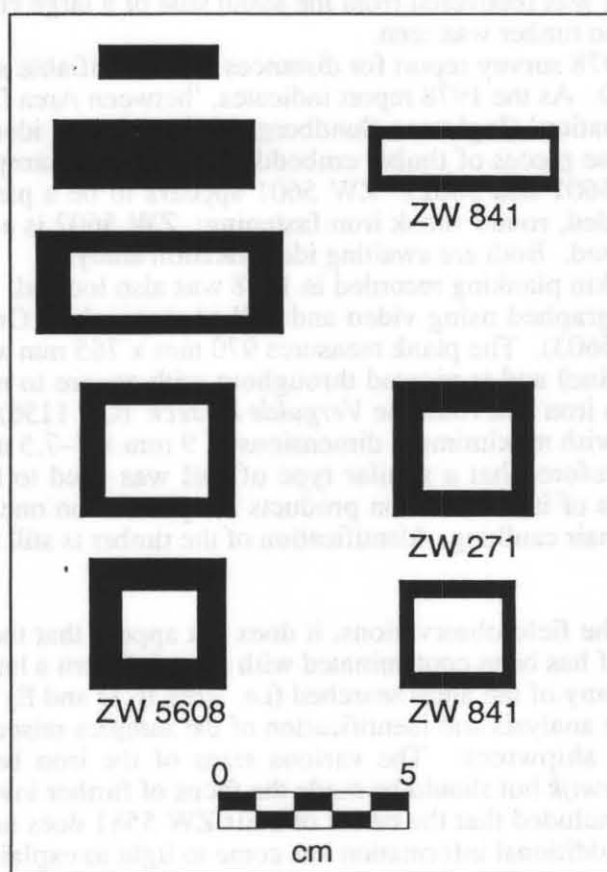


Figure 3. *Zeewijk* iron bars

Iron bars

Broken pieces of iron bars were strewn around in quantity. When previously surveyed (1976), the iron bars were relatively intact in a group (see Ingleman Sundberg, 1976:Fig. 2B). Now the bars are fragmented and scattered around. The only indication of their original location and grouping (to the east of Star Picket 13) is a long piece of flat iron concretion which appears to resemble a billet box similar to those recovered from the *Vergulde Draeck* (Stanbury & Sawday,

1991:11-12). A rectangular copper plate (ZW 5604) lying nearby was recovered and is possibly associated with the billet box. Possibly this could be a name plate, but no evidence of writing has yet been observed. Small tack holes were situated at intervals around the edge with one copper tack still *in situ*.

Samples of at least four different sizes of bars were raised for examination (ZW 5608): some are roughly square in section and others rectangular (Fig.3). It appears that they were of solid wrought iron which has now corroded away leaving the concreted casts. Examination of Area B showed that at least four different sizes of iron bars were closely associated with each other and widely distributed over the area. A representative collection was made for comparative analysis.

Iron gun

The iron gun situated 9 m east of SP13 was located. It was found to have a longitudinal section of concretion lying along its western side as if it has been sliced off. A broken piece of the concretion was raised for possible analysis. [NB Jet boats were seen to pass close by the area in less than 1 m of water. They were also working in the surf zone on the outside of the reef.]

Timbers

Moving about 150 m eastwards, an area of flat sandy bottom was searched for the timber remains; only glass bottle fragments were found. Realising the grid squares on the map were 500 m (not 50 m) the *SeaSpray* was moved to a distance of c. 1.2 km due east of SP13 and a search for the timbers in Areas D and E commenced. Remains of iron chainplates were noted and a wooden pulley sheave (ZW 5600) was recovered from the south side of a large coral 'bommie' believed to be close to Area D; but no timber was seen.

After checking the 1978 survey report for distances and identifiable sea-bed features, a second visit was made to Area D. As the 1978 report indicates, 'between Area D and Area E ...is an 18 m by 11 m huge coral formation' (Ingleman-Sundberg, 1978). Having identified this feature, divers soon began noticing loose pieces of timber embedded in the sand, samples of which were raised for identification (ZW 5601 and 5602). ZW 5601 appears to be a piece of oak with corroded remains of a square headed, round shank iron fastening; ZW 5602 is a piece of outer skin, very thin, fragile and fragmented. Both are awaiting identification analysis.

The section of outer skin planking recorded in 1978 was also located. The timbers were fanned clear of sand and photographed using video and still photography. One piece of planking was raised for analysis (ZW 5603). The plank measures 970 mm x 265 mm x 25 mm. It appears to be a soft wood (probably pine) and is pierced throughout with square to rectangular holes ranging from 5 mm to 9 mm. An iron nail from the *Vergulde Draeck* (GT 1156) measuring 138 mm long has a rectangular shank with maximum dimensions of 9 mm x 7-7.5 mm, tapering to 5 mm x 3 mm. It is possible, therefore, that a similar type of nail was used to fasten the *Zeewijk* outer sheathing. Thin deposits of iron corrosion products are present on one surface and evidence of what appears to be horsehair caulking. Identification of the timber is still awaited.

Conclusions

Based on the results of the field observations, it does not appear that the assemblage of *Zeewijk* material on the inside reef has been contaminated with material from a later period shipwreck. No artefacts were located in any of the areas searched (i.e. Area B, D and E) that were not compatible with the *Zeewijk*. Timber analysis and identification of the samples raised are expected to confirm an association with this shipwreck. The various sizes of the iron bars is not deemed to be incompatible with the *Zeewijk* but should be made the focus of further investigation.

Overall, it must be concluded that the barrel of nails ZW 5581 does not belong to the *Zeewijk*. At present, however, no additional information has come to light to explain its provenance.

References

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Search for the *Cochituate*

The *Cochituate* was a 347-ton American barque lost in the Houtman Abrolhos on 14 June 1861 while en route from Melbourne to Singapore (see Henderson & Henderson, 1988:43–46 for details). The wreck was purchased by John Wellard who sent a party of salvors to recover what they could. From a report by one of the salvage party (quoted in Henderson & Henderson, 1988:45), the wreck lay about 4.5 miles (7.24 km) from Rat Island on a bearing 'W by S'. On nearing the wreck, they discovered another reef between the wreck and their cutter, which was almost dry and extended from '70 to 80 fathoms' (420–540 ft; 128–164.5 m) east to west. The wreck was said to lie about 100 fathoms (600 ft; 182.8 m) to the westward.

Given this data, the most likely area for the wreck to have occurred is an area known as 'The Vee' at the northern area of West Reef in approximately latitude $28^{\circ}43.5'$ south, longitude $115^{\circ}43'$ east (Aus 751). 'The Vee' is a stretch of water bounded by reef on the west and east sides and open to the north. The eastern reef extends eastwards for about 2.5 km, covering a central sandy area between 0.75–1 km wide.

The PV *Baudin* anchored to the north-east of 'The Vee' and divers then proceeded in the *Seaspray*. A swimline search, commencing to the north and east of 'The Vee' and moving south, was then undertaken by 8 divers. The surf was breaking over the outer reef and the swell conditions made snorkelling difficult. A reasonable area was covered, but no sign of any wreckage was observed. Calmer conditions would have made the exercise more feasible.

