

A REPORT OF THE 1981 LEEMAN EXPEDITION

by

Mark Staniforth

(Unpublished Post-graduate Diploma in Maritime Archaeology
Course Wreck Survey Report No. 2)

Report—Department of Maritime Archaeology, Western Australian Maritime
Museum, No. 119

<u>CONTENTS</u>	<u>PAGE</u>
INTRODUCTION	1
THE EXCAVATION AND RECORDING	2
SURVEY WORK AND THE USE OF A TOWBOARD	4
THE ARTEFACTS	4
CONCLUSIONS	7
REFERENCES AND ACKNOWLEDGEMENTS	7

INTRODUCTION

History of the Site

The wrecksite at Drummond Rock was first reported to the W.A. Museum in 1967 by Rick Hammond (Fisheries Department) and Laurie Payne (Crayfisherman -). The first examination of the site was in 1969 by a Museum team after the death of Laurie Payne. In subsequent years the site has been re-examined by two Museum teams as a part of the Wreck Inspection programme (Sledge 1974 and McCarthy 1980) and by divers from MAAWA (George Green and Denis Robinson 1979).

There has been considerable confusion over both the nature and the location of the site since its discovery. Firstly because it was believed for many years that the original finder (Payne) had raised cannon, muskets and a pistol from the site prior to his death. Secondly the different reported positions of the site as being 2-300 metres south of Snag Island and the names Snag Island and Drummond Rock being used interchangeably.

More recent information has led Museum staff to believe that the wrecksite at Drummond Rock is modern (post 1900) and that Payne may have known of a second site somewhere on the outer reefs south of Leeman which could be termed historical. It is possible that Payne raised material from this site and that after his death these were assumed to have come from the Drummond Rock site. This theory is supported by a later report by Barry Paxman of large copper bolts found on an outer reef near Leeman which could not be relocated at a later date.

Aims of the Expedition

The expedition was undertaken with two main aims in mind. Firstly to finally settle the arguments as to the nature, dating and location of wrecksite material close inshore near Leeman, in particular the Drummond Rock site. Material raised from the site during previous expeditions indicated that the wreckage was from a vessel of the early 20th century and it was hoped that further material would enable a more accurate dating or perhaps identification of the vessel.

The second aim was to provide valuable field experience for the students of the Maritime Archaeology Graduate Diploma course prior to their involvement in the 1982 Museum expedition to the Rapid wrecksite at Ningaloo. For this reason a number of the tools and techniques used for search, survey, excavation and recording a wrecksite were utilized to give the students the widest possible range of experience in the short time available.

The Site

The wrecksite lies in 3 metres of water 10 metres south-west of Drummond Rock near Leeman (latitude 29°57'S, longitude 114°58'E) on the West Australian coast. Drummond Rock is a small limestone islet lying about 100 metres from the main shoreline and is completely surrounded by a table-top limestone reef which is usually covered by less than 0.5 metres of water. Drummond Rock is protected from the open ocean swells by a series of offshore limestone reefs

approximately 2 km and 8 km offshore which allows diving operations to be carried out in most weather conditions.

The wrecksite lies in a gully 15 metres long by 6 metres wide with submerged reef on all sides except for two narrow gaps on the west and north-west sides. The reef has numerous overhangs, caves and tunnels around the site. The sea-bottom in the gully consists of seagrass and weed growing in sand overlying a solid limestone base. The site was an excellent one to work as it was very sheltered and clearly delimited by the surrounding reef. On a good day the water visibility exceeded 4 metres which was quite adequate for photography, however, the visibility was often reduced to less than 1 metre during weeding and the airlifting operations.

The visible wreckage on the site consists of a long rock obelisk (or plinth) which lies parallel and close to the reef on the eastern side of the gully. An area of jumbled iron work lies to the west of the gully and scattered ballast stones and blocks of rock lie all through the gully. The majority of the material lies in an area 5m x 5m towards the northern end of the gully and it was decided to concentrate on this area during the expedition.

The Excavation

Although there was evidence of material through the gully it was decided that due to the limited time available that the airlifting and clearing of the site would be restricted to the immediate area of the obelisk and the iron concretions. In order to facilitate the use of the airlift (4" PVC pipe hookah powered) the area first had to be weeded by a team of divers wearing gloves to remove the seagrass and kelp which covered the area.

On completion of the weeding a rough working site plan was drawn and used to plan the continuing work on the site. Prior to any disturbance of the sand and material on the site a stainless steel wire was laid to the west of the working area to act as a base line (320 magnetic). The baseline was 12 metres long and was used as the basis for all measurements and photography done on the site.

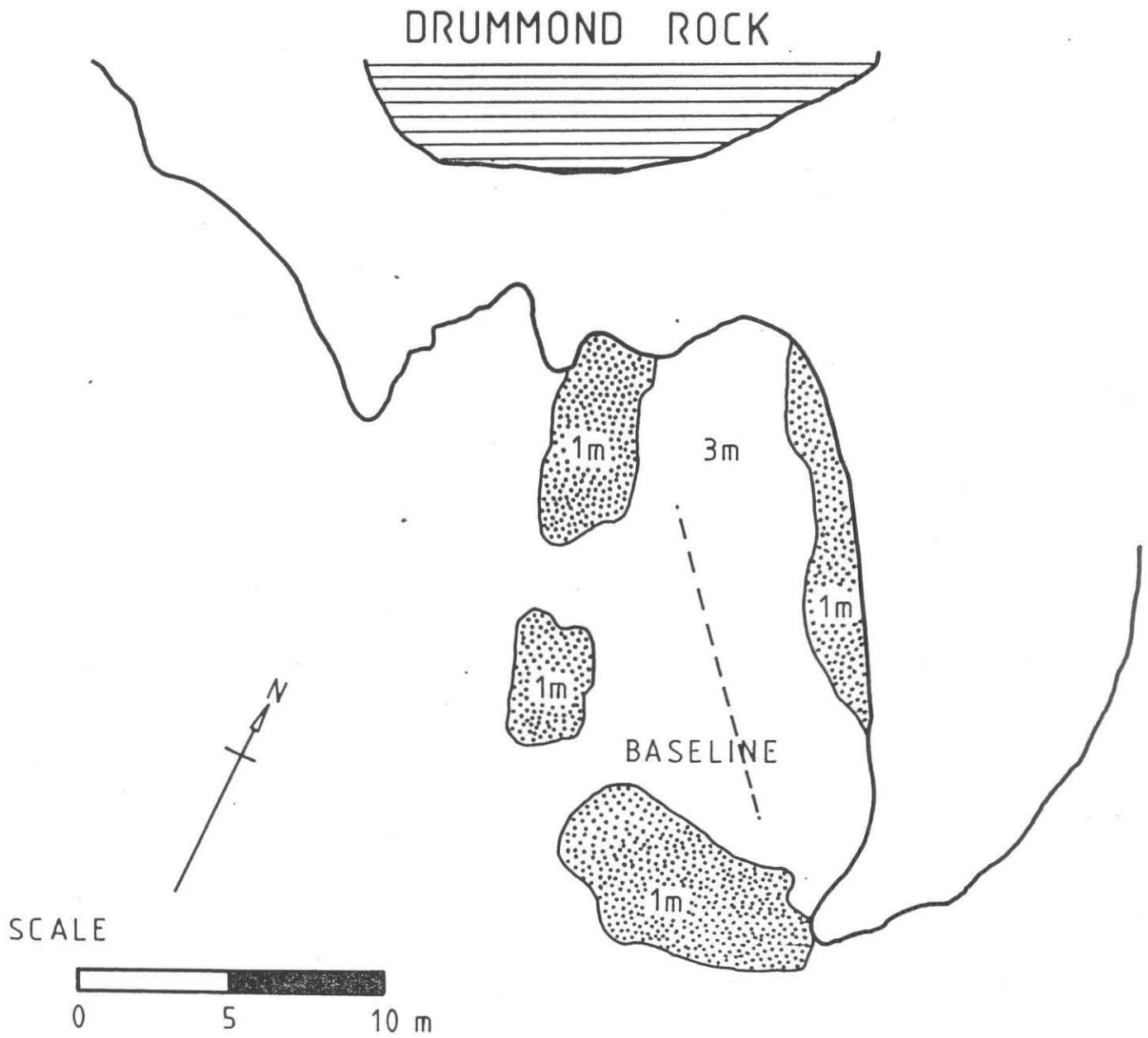
The two tape triangulation method was used to establish the positions of major features on the site. These positions were then plotted and drawn to scale on the final site plan and detail was filled in from the photography of the site. Some of the large artefacts of the site were measured and these dimensions were used in the site plan.

A sketch plan of the surrounding reefs was made by snorkling over the site without measurement this included the reefs surrounding Drummond Rock. The position of Drummond Rock was established using known bench marks on the coast near Leeman using a theodolite and standard surveying techniques.

Photographic Recording

After weeding and initial airlifting had been done the whole gully was photographed to allow the production of a site mosaic. This was done using a free flying technique. The base line was

SITE LOCATION



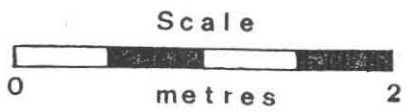
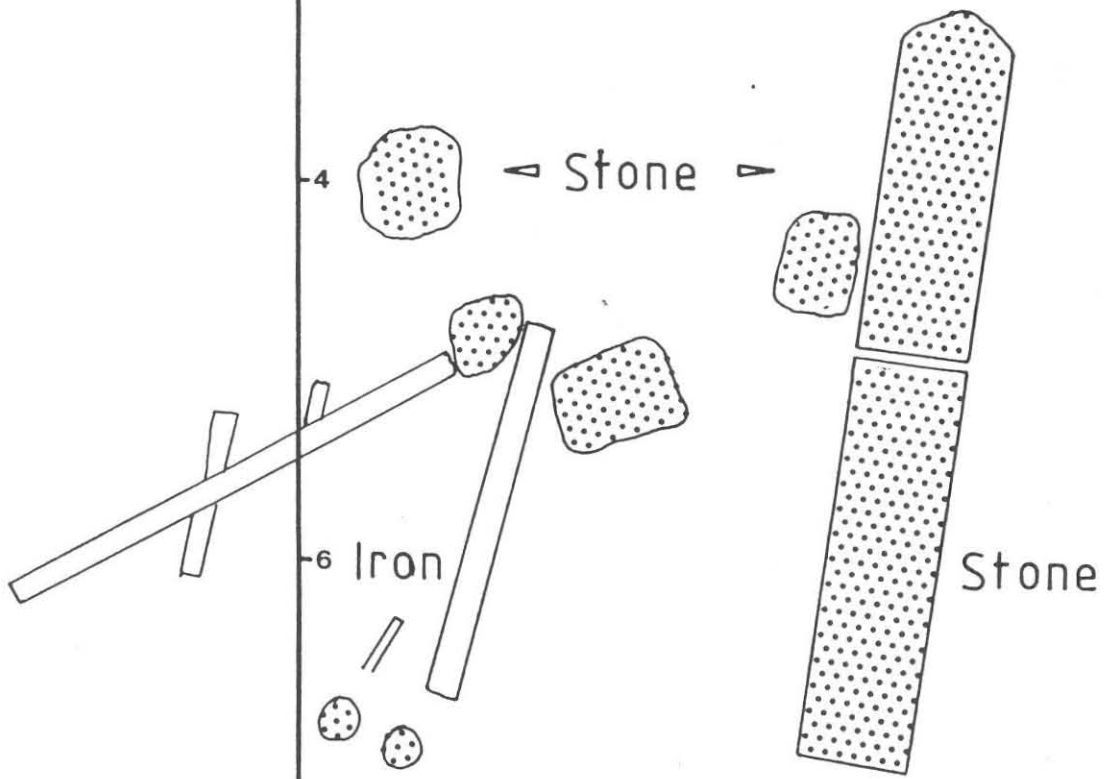
LEGEND

WATER DEPTH - X_m

SITE PLAN



Baseline



used as the starting point for the photography and a square grid frame was laid next to the south end of the base line on the west side. (Grid frame taped yellow and black). The frame was then tipped end over end up the base line to give a series of photographs. At the end of the base line the grid was tipped inwards and then end over end back down the site. The frames were tagged (white perspex labled tags) at the beginning and end of each run to allow later laying up of the mosaic. Approximately 25% overlap on the photographs allowed the mosaic to be laid up.

Tilt and scale were rectified during the printing of the mosaic using a tilting board and a 10cm square drawn on paper as a scale (Scale 1:10).

Stereo photographs of the areas of the site exposed after airlifting were taken to allow more detailed measurement and plotting on the wrecksite plan. These stereo photographs were taken with a single camera and 2 or 3 shots taken 1 m apart.

Survey Work and the use of a Towboard

As it was suspected that a second site was in the region of Leeman; several attempts were made to locate that site using divers towed behind the boat on towboards. Unfortunately the weather prevented us from searching the outer reefs (8 - 9 kms off shore). On most days the wind was too strong even to search the inner reefs (1 - 2 kms off shore). One search was made around a reef approximately 1.5 kms off shore due West of Leeman using twin towboards behind the boat.

With the divers in 7 metres of water, and 5 metres apart, and visibility of 15 metres, it was possible to effectively cover an area of approximately 30 metres with a 60% overlap. A number of problems inherent in towline searches became immediately apparent, not the least of which was the occasional 3 metre swell appearing, when the majority of the waves were only 1 metre high. The danger of such waves putting the boat, the divers, or both over the reef was quickly appreciated. The problem of the towboard shape (which should be large and flat to allow the divers to dive down rather than having to fight to get down), also became apparent.

The length of the towline caused problems as well. It must be long enough to allow the diver to be far enough behind the boat to avoid the bubbles caused by the propellers; and yet not be too long to be hauled in when a diver drops off to have a closer look at something (as the boat must be turned around to pick him up again).

The area to the South of Snag Island was thoroughly searched on two occasions using the towline method. In 2 - 4 metres of calm water this proved an easy task; and also revealed the tricks which an unusually shaped piece of reef can play on the unwary. Several times pieces of reef which projected upwards from the sand and weed were mistaken for parts of a wrecked vessel. It maybe that pieces of reef similar to these are the basis for reports of a shipwreck 200 - 300 metres South of Snag Island (some of the reef we examined resembled the ribs, planking and sternpost of a vessel).

Examination of the Artefacts From the Drummond Rock Site

BRASS BOTTLE TOP LEEMAN 2570

This artefact was found by the previous Wreck inspection of the site by Mike McCarthy (October 1981). It is a Brass screw on bottle top with an overall diameter of 2.6 cm, cap diameter of 2.0 cm, and a height of 0.8 cm. The rim has indentations (32 on the circumference and part of the seal is still present inside the top. There are 2 - 3 screw threads inside the top with a separation of 0.25 cm. The artefact is coated in a thin black concretion layer and there is some evidence of preferential dezincification and copper corrosion products. The construction is very thin and light; though the object is unbroken.

BRASS BOLT WITH NUT LEEMAN 2565

Again this artefact was found by the previous wreck inspection of the site. The bolt is of Brass and is 17 cm long with a diameter of 2.5 cm on the unthreaded section. The unthreaded section is 9.5 cm long, and broken at the end. The threaded section is 7.5 cm long, with 15 visible threads (0.3 cm apart) before it enters the nut. The nut is 4.5 cm square, 2.2 cm deep, and has a 2.5 cm hole running through it. There are approximately 6-7 threads in the nut. The nut is rounded at all corners. The bolt end does not protrude from the other side of

the nut, instead being recessed 0.4 cm. There are copper copper corrosion products, and signs of abrasion and dezincification, particularly on the nut.

BRASS BOLT IN WOOD DR 14

The artefact was excavated by the leeman expedition, December 1981 in the iron concretion area. The bolt is 29 cm long with a diameter of 2.5 cm. The unthreaded section is broken. The thread d section is 7.5 cm long with 24 visible threads (0.3 cm apart) and has a diameter of 2.2 cm. The bolt is of the sam type as LEEMAN 2565, more complete, but without the nut. The bolt goes through a piece of wood 21 X 13 X 4.5 cm. It is a dark red wood (possibly Australian hardwood). The wood has been attacked by teredo and is covered in organic growth. A certain amount of iron staining is present. The bolt shows signs of copper corrosion, has been sand abraded at the threaded section, and some limestone concretion appears on it. At least two othe bolts of similar dimensions were observed on the site.

BRASS SCREWS TYPES a - e

There were a number of Brass screws found during this expedition enough in fact to produce a simple typology. The different types are illustrated in the following pages, with the data for each as below:

TYPE	NUMBER OF	LENGTH cm	WIDTH cm	HEAD WIDTH cm	THREADS No.	WIDTH	LENGTH TO THREAD
a	3	5.2	0.5	0.9	13	0.3	1.3
b	2	---	0.5	1.0	--	0.3	2.5
c	2	3.8	0.6	1.2	8	0.3	1.2
d	1	5.3	0.9	1.3	8	0.5	1.3
e	2	8.0	0.6	1.3	17	0.3	2.0

BRASS INDICATOR DR 10

This artefact was found at the North-east end of the obelisk. Overall length is 6.2 cm, wiuth 0.5 cm, and depth 0.25 cm. There is a groove 0.4 cm deep and 0.1 cm wide in the bottom of the artefact. The object has some black concretion on the left hand side (very thin, almost like a paint layer). The black concretion also appears on the back of the circular section of the object, while the rest appaers clean if somewhat abraded. The hole which appears on the left of the object does not continue through the side, and the pointer on the other side is only recessed 0.1 cm. The artefact is solid and unbroken.

BRASS PLATE DR 13

This object was foundat the North-east end of the obelisk. It is 7.4 cm square, with a hole 3.3 cm in the centre. The plate is 0.2 cm thick. It is possible that the artefact is a brass flange, perhaps off a pump. There is concretion on both sid s, and the front appears worn, while the back is pitted (possible dezincification). Copper corrosion products appaer on the object. The artefact was probably much thicker, being worn down by chemical and physical attack.

T SHAPED LEAD PIECE DR 7

This piece, found by this expedition, comes from the north end of the obelisk. The piece is 8.3 X 3.3 X 0.1 cm, and is presumably lead sheathing of some description. It is badly bent at the edges and some notches are present. The object is covered in lead corrosion products, and is probably not complete.

GRANITE ROCK DR 1

This object was mistaken for coal and subsequently raised.

IRON CONCRETION DR 2

This concretion, probably cast iron measured 6 X 4 X 2 cm. Another piece (8 X 5 X 5 cm) appeared to be cylindrical in shape. It was solid with orange corrosion products; while the smaller pieces were completely corroded away.

COPPER RIVET DR 3

This artefact measured 4.5 cm long and had a diameter of 1.0 cm. It exhibits the typical green copper corrosion products on one side, but is clean on the other - indicating that it was buried.

GREEN GLASS FRAGMENTS DR 4

These fragments measured 1.5 X 1.0 X 2.0 cm and 3.0 X 2.0 X 0.4 cm. The first was of a light green while the second was of a darker green colouring.

COPPER NAIL DR 5

This nail measured 3.0 cm long and had a diameter of 0.2 cm square, with a head of 4 mm. There was no sign of concretion, and only a small patch of copper corrosion products. The nail is bent out of shape.

PORCELAIN FRAGMENT DR 6

This fragment measured 2.0 X 1.5 X 0.4 cm, and had a transparent glaze on both sides. It is slightly curved, with iron staining on the edges.

ASSORTED COPPER NAILS DR 8

Also in this category are the brass screws types a - e as described above.

SLEDGE HAMMER HEAD DR 9

POTTERY JUG BASE DR 11

LARGE SCREW HEADED BRASS ROD DR 12

CONCLUSIONS

Through an examination of the site and the artefacts which have been excavated, the conclusion has been reached that this site is not that reported by Payne as the material is too modern. This means that the second site may still be located in the future. This expedition has provided valuable experience for the Maritime Archaeology Students and also for the others who participated.

REFERENCES

Leeman File (217 / 80) and Wreck Inspection Files Maritime Archaeology Department, W.A. Museum.

ACKNOWLEDGEMENTS

I would like to acknowledge the help of Mike McCarthy (Museum), Jeremy Green and Patrick Baker and other members of the Maritime Archaeology Department, W.A. Museum. I would also like to thank the members of the expedition, from the student body, and from M.A.A.W.A.

Special thanks go to Steve Cushnahan for completing this report, and for providing the illustrations.

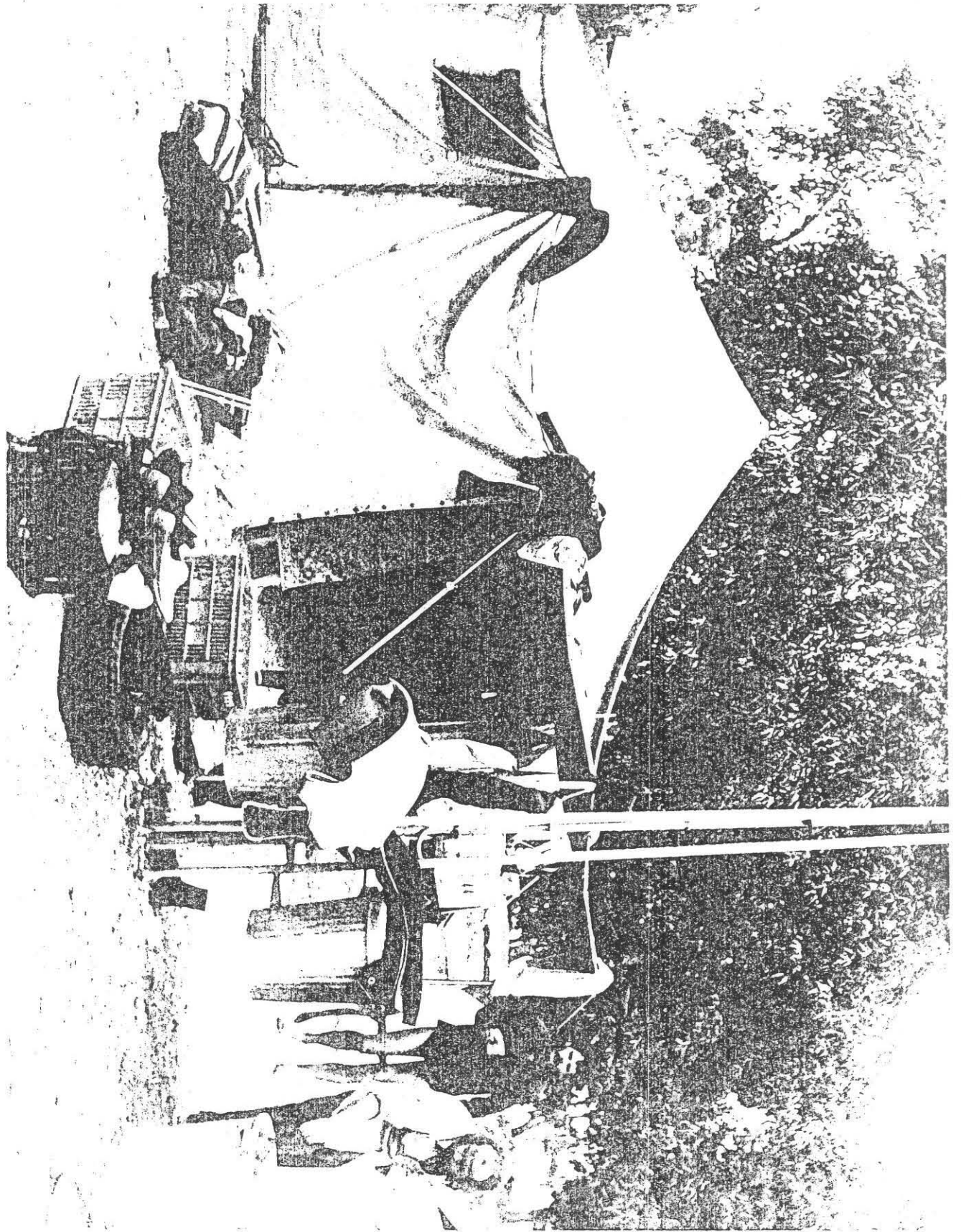


Figure 1 - Camp site at Snag Island Caravan Park, Teomania

Figure 2 - Getting to Boat into the water.

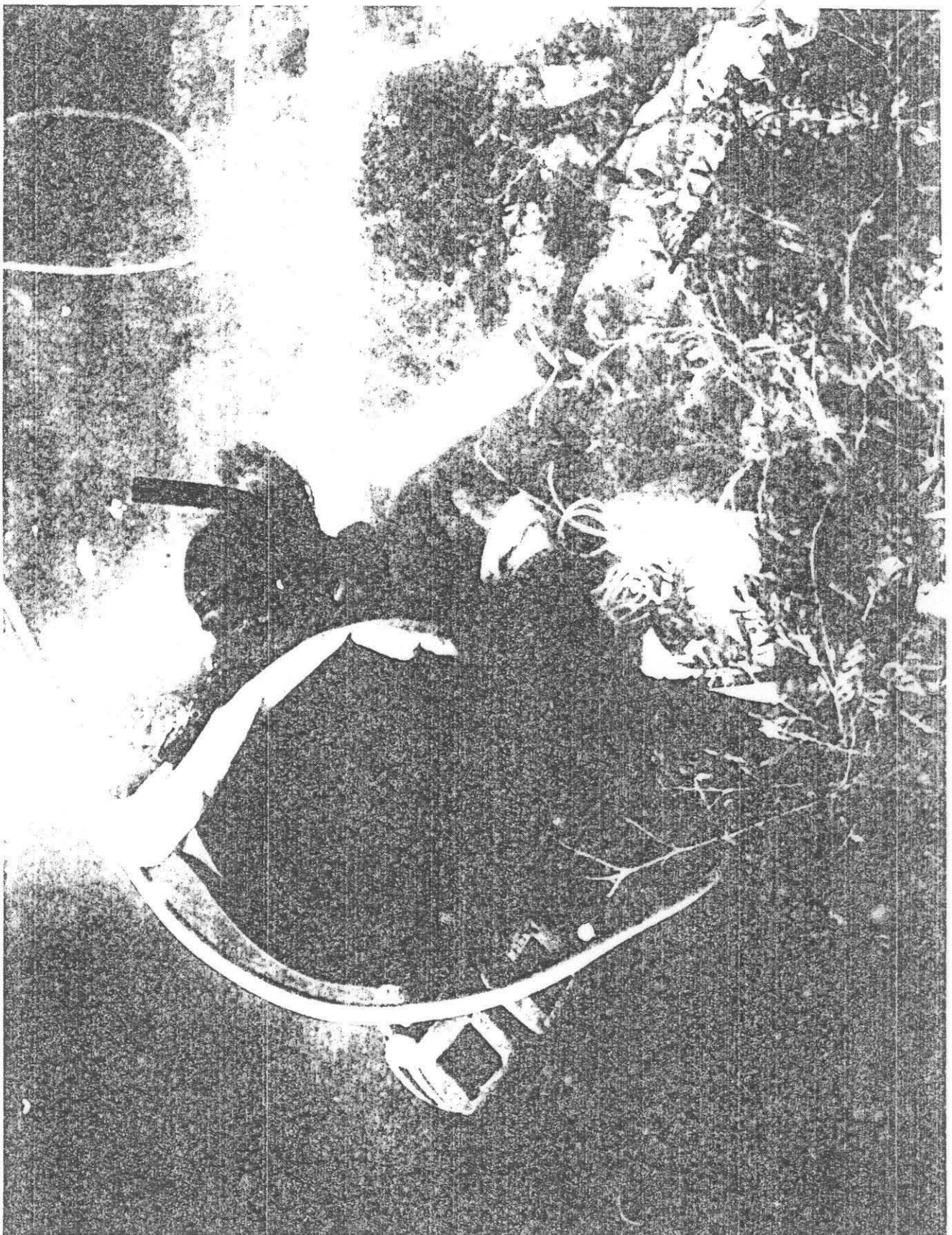


Figure 4 - Tying the concrete block to the Airtilt.

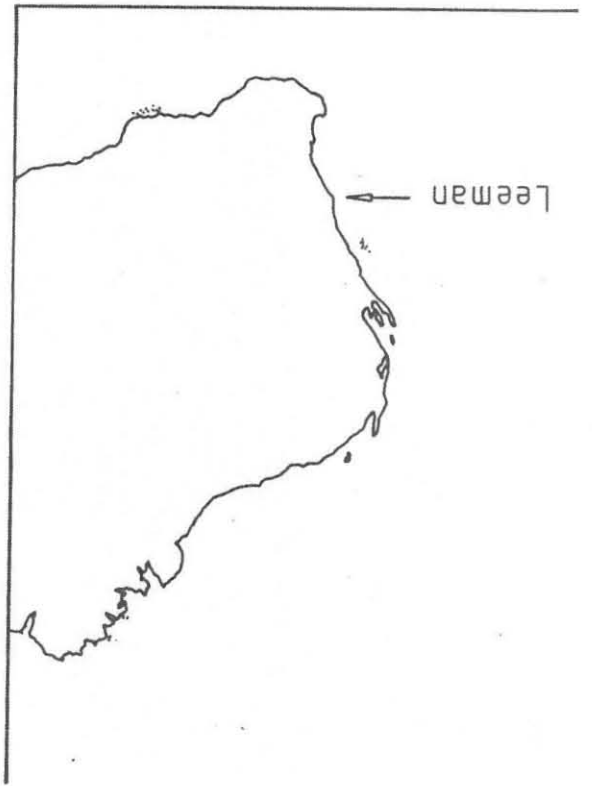
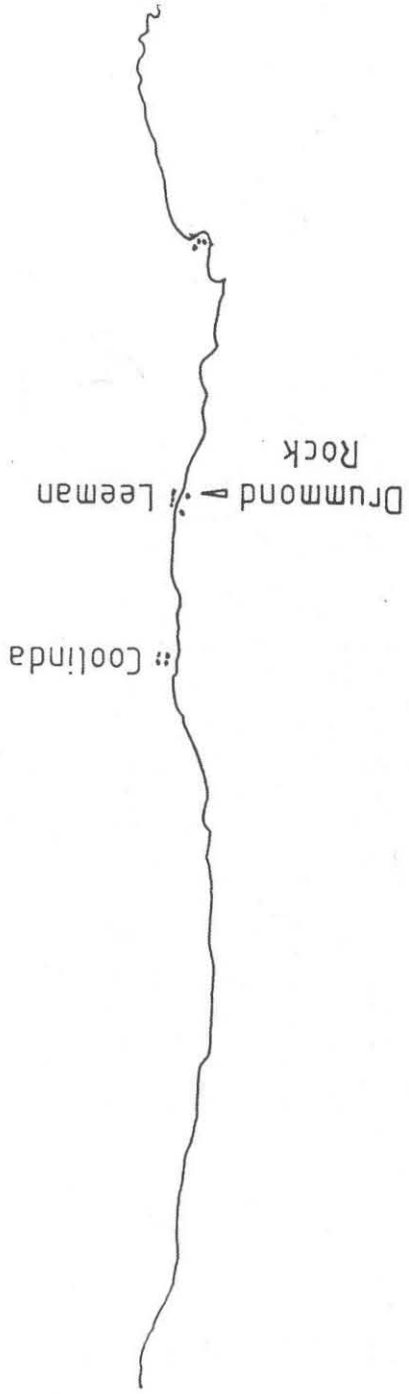


Figure 3 - Preparing to dive on the site at Snag Island.





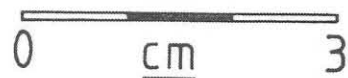
LOCATION OF THE SURVEY AREA



Brass Artefacts from the
Drummond Rock Site.

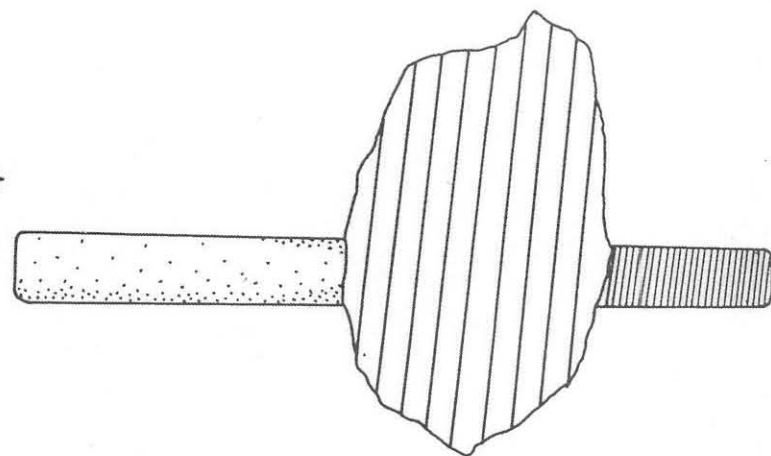
Leeman 2570

scale

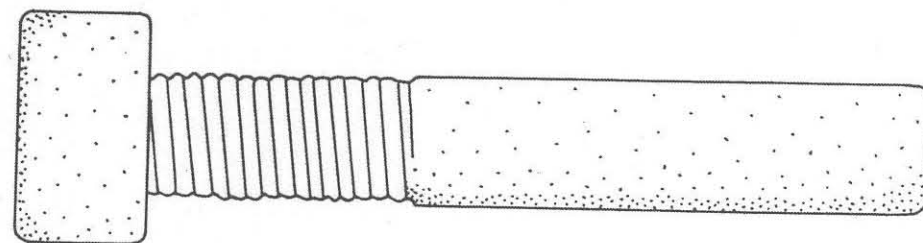
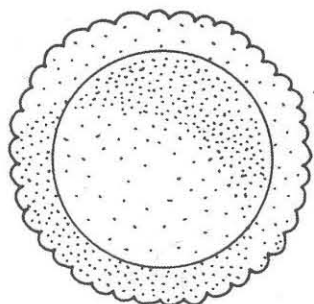


Brass Bottle Top

DR 14

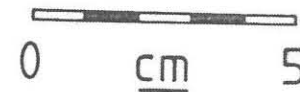


Brass Bolt in Wood.

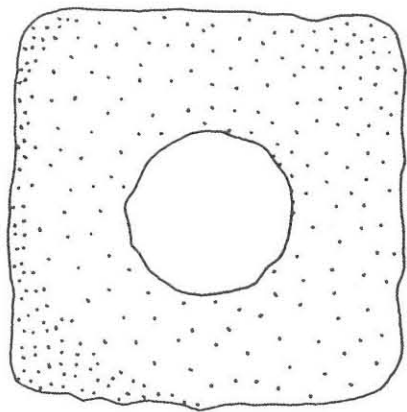


Leeman 2565

Brass Bolt With Nut

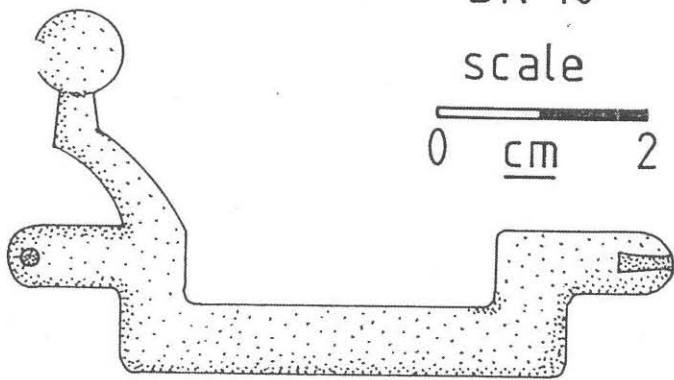
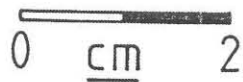


DR 13



Brass Plate.

DR 10
scale

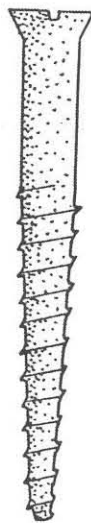


Brass Indicator.

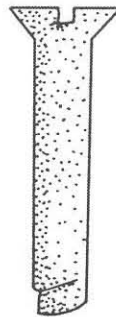
Brass Artefacts from the
Drummond Rock Site.

DR 8

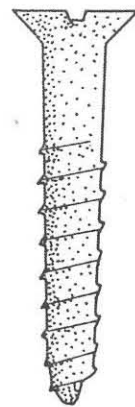
scale



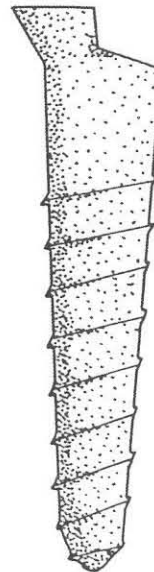
a



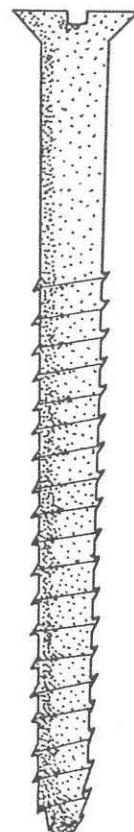
b



c



d



e

Brass Screws.