Phaeton (1889)
Wreck Inspection Report

1889-90 LLOYD'S REGISTER. PHŒ

1 ✠ for Special Survey. Official No. Code Letters.	2 Ship's Name. Master, and Dates of Appointment to present Owner's Service & to Ship. Ship's Late Name.	3 Material, Rig, &c. No. of Decks, &c.	4 Regist'd Tonnage Net. Gross. Under Deck.	5 Registered Dimensions. Length. Breadth. Depth.	6 Moulded depth. Freeboard amidships ft. in.	7 Engines of Steamers. Builders of Engines. Materials. Repairs of Ships, &c., if Classed.	8 Built. Where. Builders' Names.	9 When	10 Owners.	11 Port belonging to.	12 Port of Survey.	13 Years Assigned, Letters, &c.	14 Character if Assigned, for Hull and Stores. Also Date of Last Survey.
321 ✠ 86289 HGWQ	Peveril Master, Burgess 3MstSr 2Dks(Stl)3trB 5BHds Waters -89	ScwStm Steel Cem	1975 3036 2854	349·0|40·1|26·9 P30ftBD80ft F51ft	29 „ 6 S8 „ 11 W6 „ 3½	C.2Cy.41"&78"-48" (a) 85lb 1,90350HP GourlayBros.&Co.Dun. ✠LMC1.87	Dundee GourlayBrs&C ✠LMC1.87	1883 2mo WB	Williamson, Milligan&Co. ssLiv.No1-87 = CellDB282ft4	Liverp'l Liv. 56ts FPT7 6ts	Cff. LA&CP	w	100A1 ~~12,89~~ 1,90
322 ✠ 87732 JCPL	— Well deck Sr Masson 1Dk(Irn)IrnBms 5BHds	ScwStm Steel Cem	436 700 530	190·2|27·6|13·9 Pg-BD103ftF23ft	15 „ 0 S1 „ 3½ W1 „ 5	C.2Cy.25"&49"-36" (a) 80lb 95HP Muir&Houston,Glasgow ✠LMCA,86	Pt.Glasgow W.Hamiltn&C ✠LMCA,86	1883 11mo	Maclay&M'Intyre ssGlsNo1-86	Glasgow	Gls. LA&CP	j	100A1 ~~2,89~~ 7,89
323 ✠ 76307 JRQV	— Sr T.Keig 1Dk 5BHds	TwnScwStm Iron Cem	219 561 435	207·6|26·0|13·0 P64ftBD48ft F60ft		C.4Cy.24"&44"-24" (a) 80lb ✠LMC6,81 128HP BarrowCo.(Lim.)Barrow	Barrow BarrowCo. (Lim.)	1884 5mo	Isle of Man SteamPacketCo. WB =	Douglas I.M. AT15ft12 tns	...		
324 ✠ 62473 HDTG	Phæton Burnt R.Mudge89-89 r&YM5,87 CF	Bk Comp	576 596 548	151·4|30·4|18·0 RQD30tns srp89	19 „ 9	..... Iron frame planked	Sunderland J.Blumer&Co.	1868 6mo	W.Yeoman	London Cont. Sld. Dec	Gls. A&CP	19 87-13	A 1 4,89 Burnt 9,89
325 ✠ 55487 HTQF	Phantom R.Jones -88 r&YM10,88 ptIB	Bg Wood	249 258 240	114·2|24·2|14·5		.....	Salcombe Evans	1867 12mo	H.Parry	Carnrvn Cont.Pmd. Dec.	Pmd. A&CP	12 87- C8 4	A 1 10,88

M. McCarthy

Technical Data

Site Name: *Phaeton*. **Date lost:** 1889

Finder: N/A. Site is marked on charts as a visible wreck

Date of Inspection: 2/11/2004
Personnel:
OIC M. McCarthy (Department of Maritime Archaeology, WA Maritime Museum)
G. Henderson (WA Maritime Museum)
A. Granger (Parks Australia)
W. Murray (Parks Australia)
R. Thorn (Parks Australia)

Approximate Location
c. 1Nm SE of Horsburgh Island in Port Refuge at the north west corner of the lagoon at the Cocos (Keeling) Islands

GPS. 12°05. 673'S., 96°51. 336'E (Datum Used...WGS 84...)

Chart No: BA 2510: South Keeling

File No: 239/81 **File Name**: Cocos Island Area

Sailing Directions:
Enter the roads of Port Refuge which lie south of Horsburgh and Direction Islands at the north-west end of the South Keeling lagoon, Cocos (Keeling) Islands. The remains of the *Phaeton (*1889) are marked on the charts as a visible hazard towards the north west. From a distance, the wreck initially appears as an unidentifiable object protruding from the sea, though on approach a discernible shape becomes evident in the water and the stem becomes recognisable as such.

Site Photographs:
Colour: *Phaeton* (MADWAM Collection/ Parks Australia collection)
Video: *Phaeton* (Parks Australia collection/ MADWAM Collection)

Site Conditions on inspection
Sea and Swell: Moderate seas, moderate swell, producing sharp, short waves on site.
Surge: Moderate (for snorkellers)
Visibility: 20m plus
Current: Moderate
Sea-bed coverage: The wreck lies on a sand bottom.

Chemical Measurements : To be assessed on a subsequent inspection**.** These data would include temperature, salinity, Ph, dissolved O_2, corrosion potentials.

Biological Data:
Colonising fauna: Parts of the site are heavily colonised by coral. Fish life is prolific.

Site Condition and Integrity:
Though in an exposed location that can be subject to moderate to heavy seas (a product of the prevailing South-East Trade Winds) and from the heavy seas and swell associated with the occasional cyclone, the wreck has reached a point of stasis in respect of the natural environment. The ironwork in the forward section is heavily concreted or is colonised by corals. The exposed fastenings (of which there are many) are all lightly coated in copper corrosion products. The iron-work aft is scattered on the seabed.

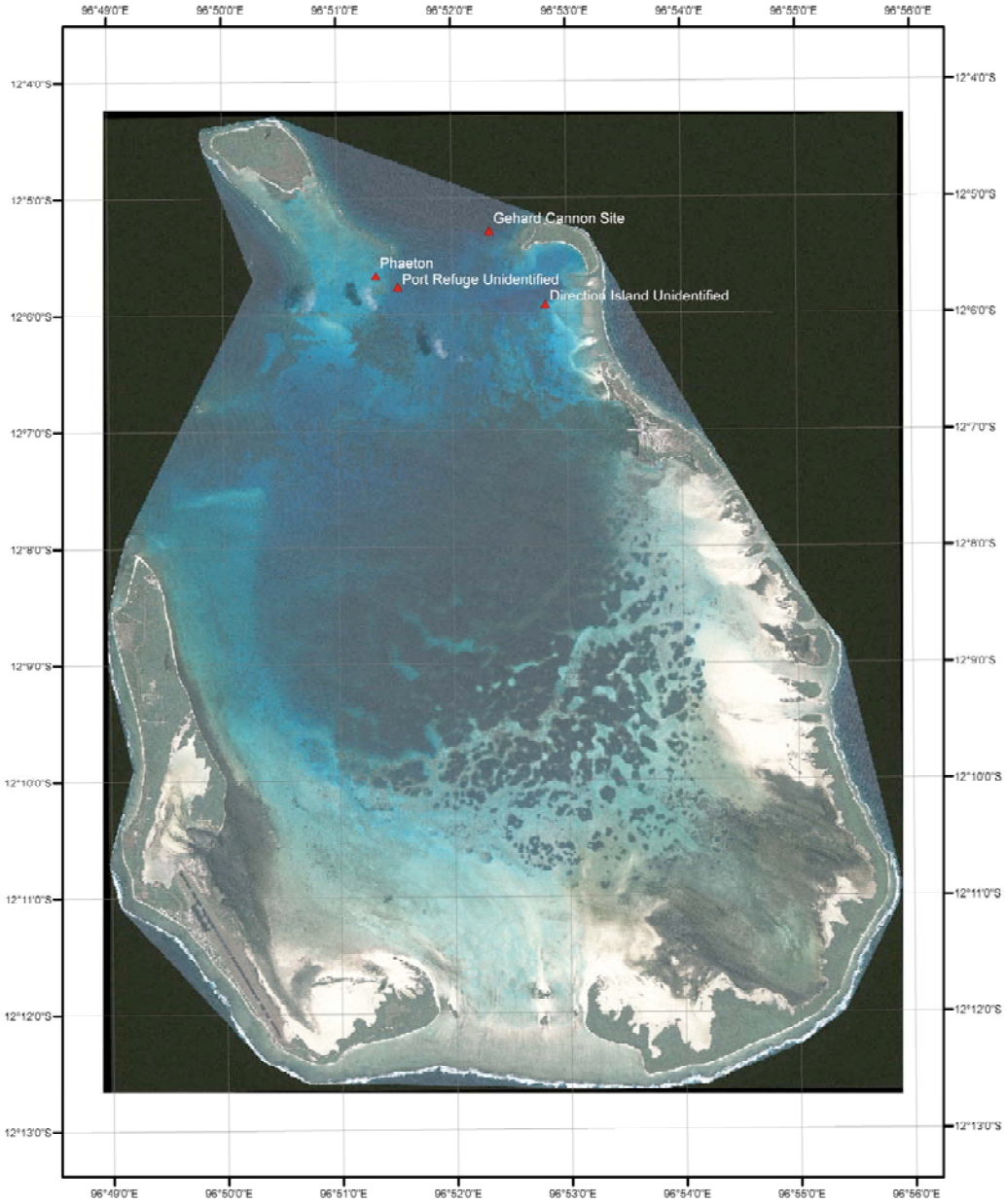
Management considerations:

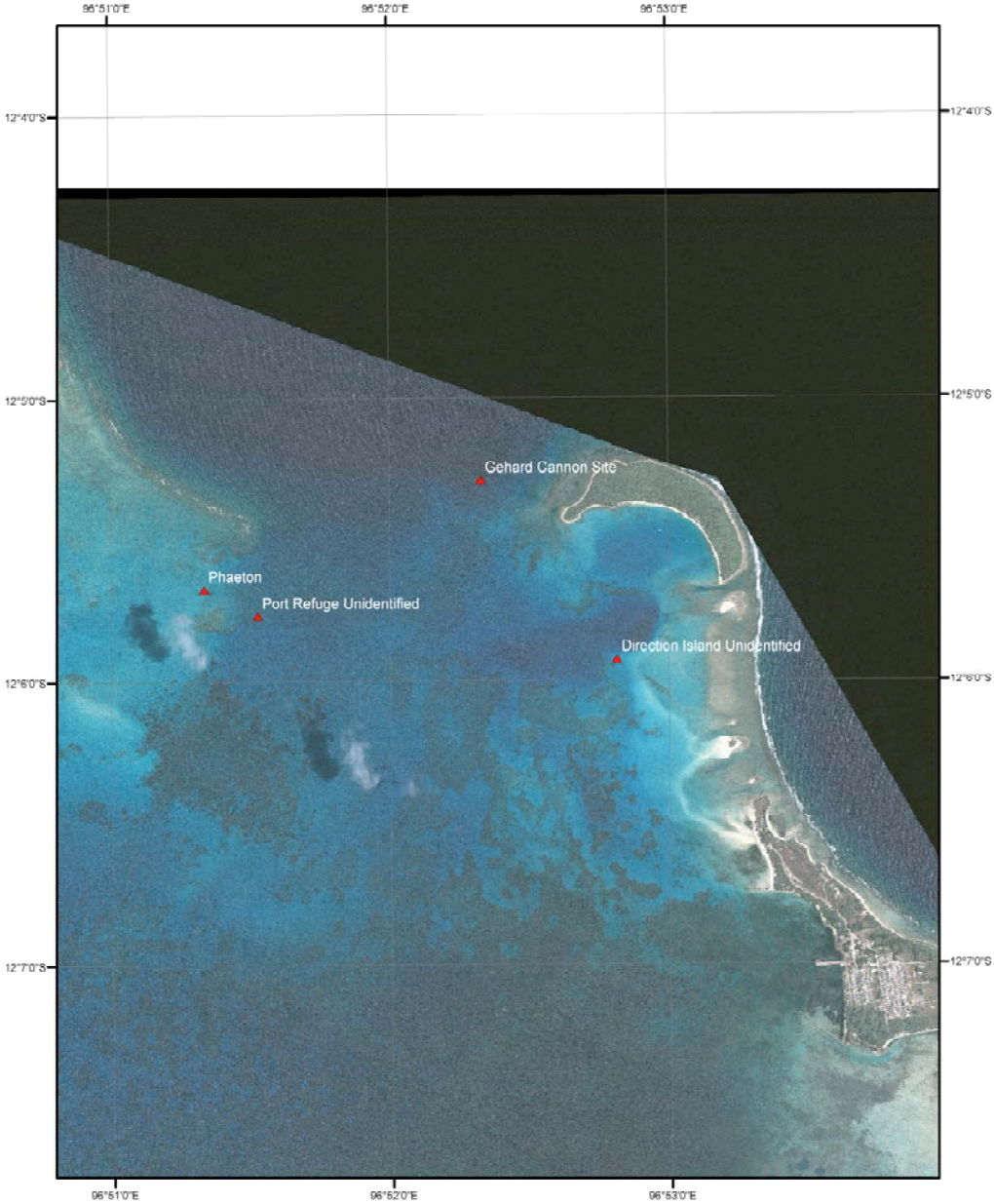
Natural Forces: The wreck lies intact for most of its length on a sand bottom in c. 4m of water in a warm-water coralline environment. The wreck can be subject to the effects of wave action in heavy seas and very occasionally (in cyclonic conditions) to very heavy seas and swell. Those elements of the site capable of being loosened by seas and swell have long since dropped into the wreck or onto the seabed.

Present and future Human forces: The wreck has been the object of recreational and tourist visitation for decades. There is nothing loose and of attraction to souvenir hunters left on site. Apart from collision by a large boat, there is little danger that the forepart of this site would be damaged by human hand.
On the other hand, the stern section has been broken up to lie scattered on the seabed. Given that the vessel on which this inspection took place dragged its anchors in the short, but steep seas prevailing during the inspection, there exists a danger that boats could drag through this section and their chain and anchor become entangled.

Projected General site Stability in view of the above: This wreck is very strong and stable in all bar its stern section. This part would normally only be susceptible only to damage by anchoring amongst the wreckage. Local operators tend to anchor on the sand alongside the site and it is expected they will continue to do so, thereby presenting no real risk to the wreck.

Satellite image showing access to site:




96°51'0"E
96°52'0"E
96°53'0"E
12°4'0"S
12°5'0"S
12°6'0"S
12°7'0"S
Gehard Cannon Site
Phaeton
Port Refuge Unidentified
Direction Island Unidentified

Description of Site

Over the course of a very short inspection conducted on snorkel, it became evident that this wreck which lies bows to the north-west is in two parts.

The fore-part and midships section aft to a break in the hull at the 40m mark from the bow are intact and are lying virtually upright on a sand bottom. The iron frames of the fore part of the wreck are all intact from the sea surface down to the keel, i.e. from around the turn of the bilge. This situation presents an immensely strong 'cup' or 'vessel' that is filled with cemented and concreted iron wreckage (anchor, chain, beams, mast sections &c). [1] Some wreckage lies outside the hull. Where exposed to the action of the seas, all the woodwork, outer and ceiling planking appear to have disappeared, leaving only their fastenings projecting from the iron frames. The iron stem projects above the surface, for example, and it carries large copper alloy through bolts that were set into the ironwork to secure the heavy timbers of the bow. These timbers have long-since disappeared. The frames immediately aft of the stem also carry lines of copper alloy bolts, each with a head and a thread on which a copper alloy nut is hove down, but again each is devoid of the timber planking they once secured. Further aft and closer to the keel, the copper-alloy sheathing is intact, and possibly some of the timbers underneath the sheathing may remain.

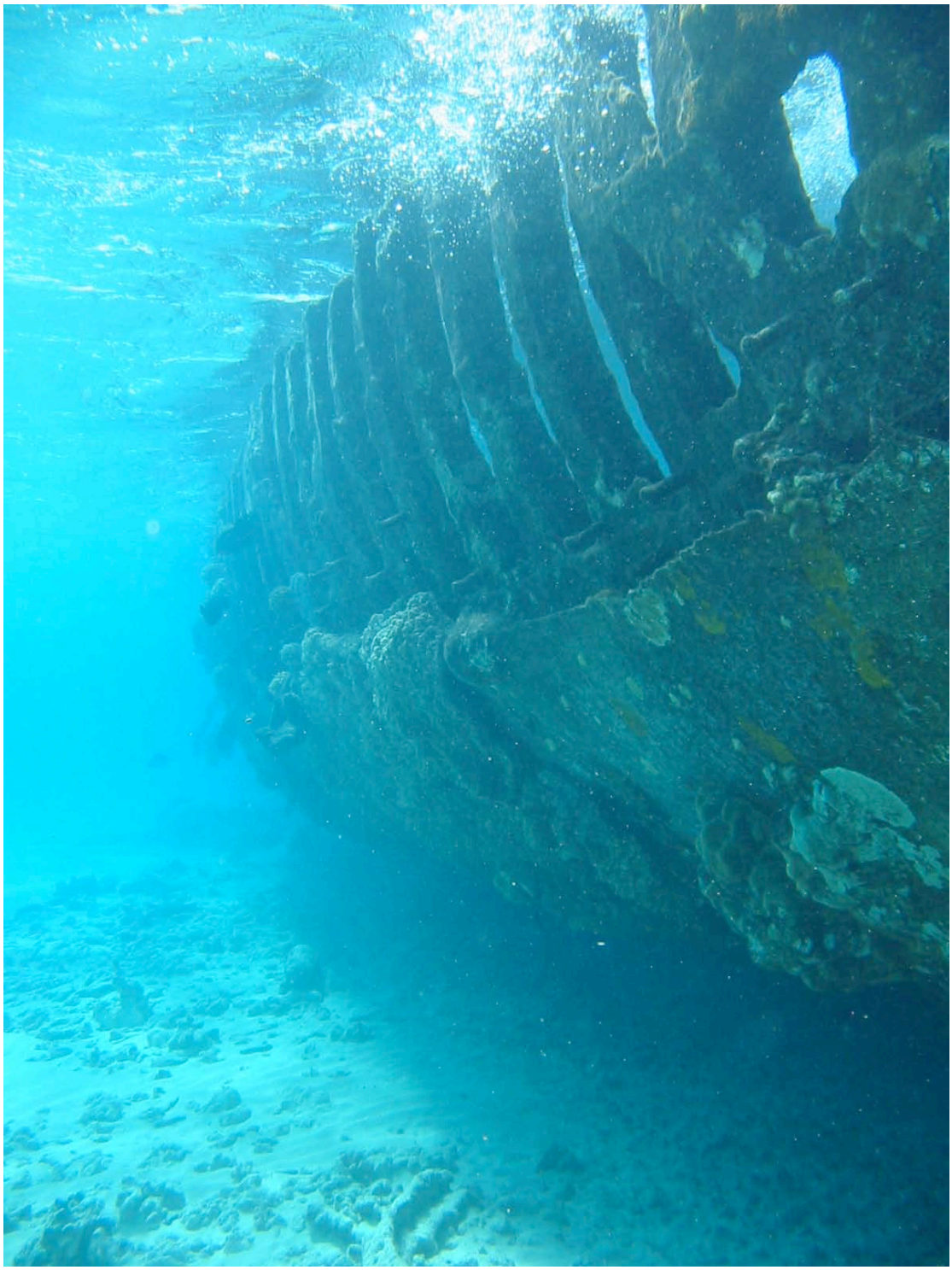
Aft of this intact section lies the stern, which, in contrast with the bow and midships section, is completely disarticulated and lying flat on the seabed. Adding to the problems in this section, each of the elements comprising the stern were difficult to recognise out of context in the short time available on this inspection. Preliminary indications are that this area has been torn apart with considerable force, to lie scatted on the sand bottom.

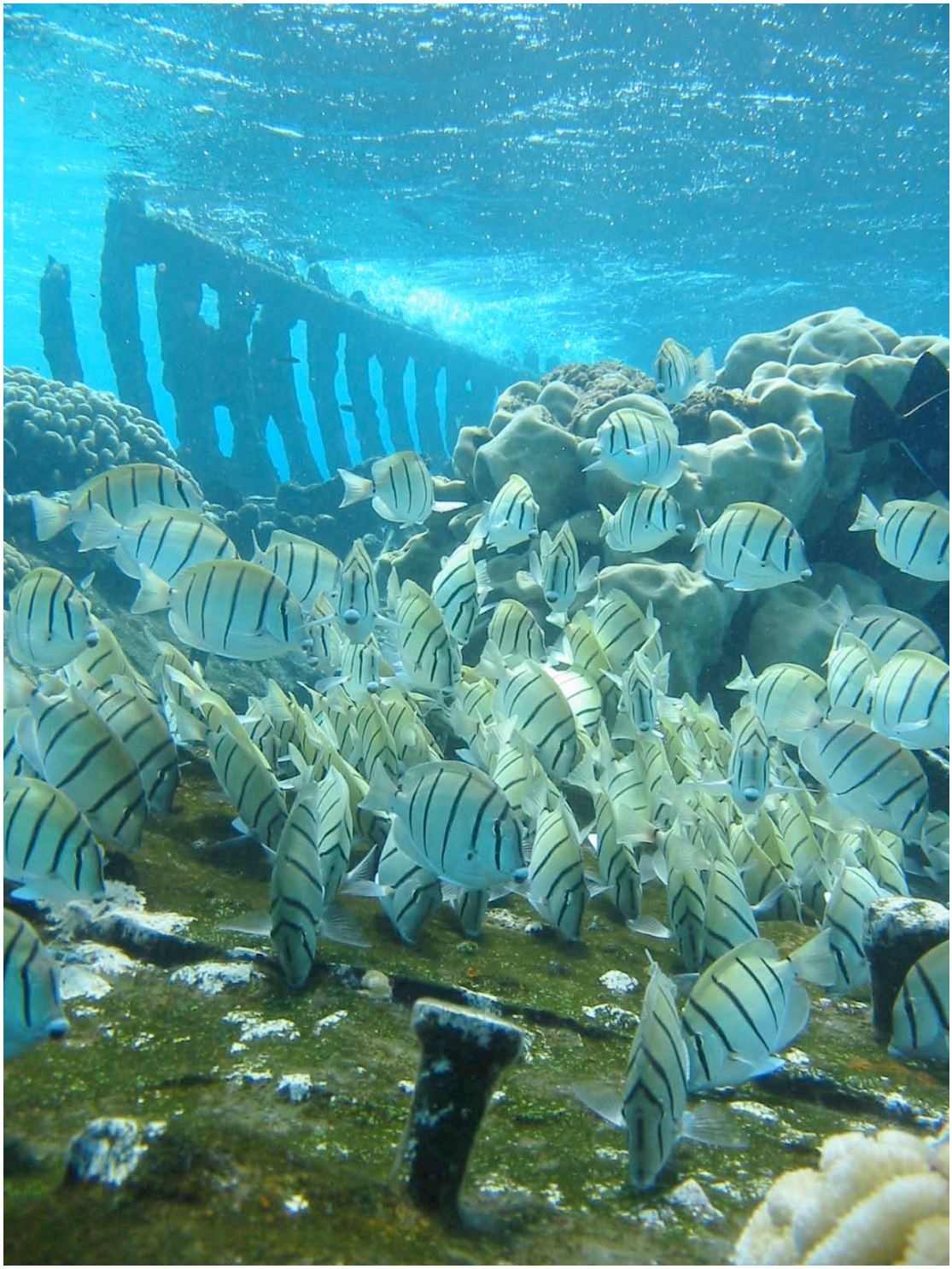
The depth to which the wreck lies buried in the sediments was not ascertained, though it does not appear to have settled to the turn of the bilge as is often the case on sand. Indications then are of a hard substrate just below the seabed.

Finally it was clear that this wreck is that of a 'composite ship' i.e. a copper alloy sheathed vessel with a wooden hull secured over iron frames. This configuration provided one of the best elements of the iron ship i.e. the replacement of wooden frames and knees with a stronger, yet less bulky, iron form thereby providing substantial savings in carrying capacity. The main failing of iron hulls—the inability to counteract fouling by marine growths, resulting in vastly reduced sailing times—was obviated by the use of a wooden hull over which was secured a copper or copper alloy sheathing. The famous clipper ship *Cutty Sark,* presently preserved at Greenwich is the best known example of the composite ship today.

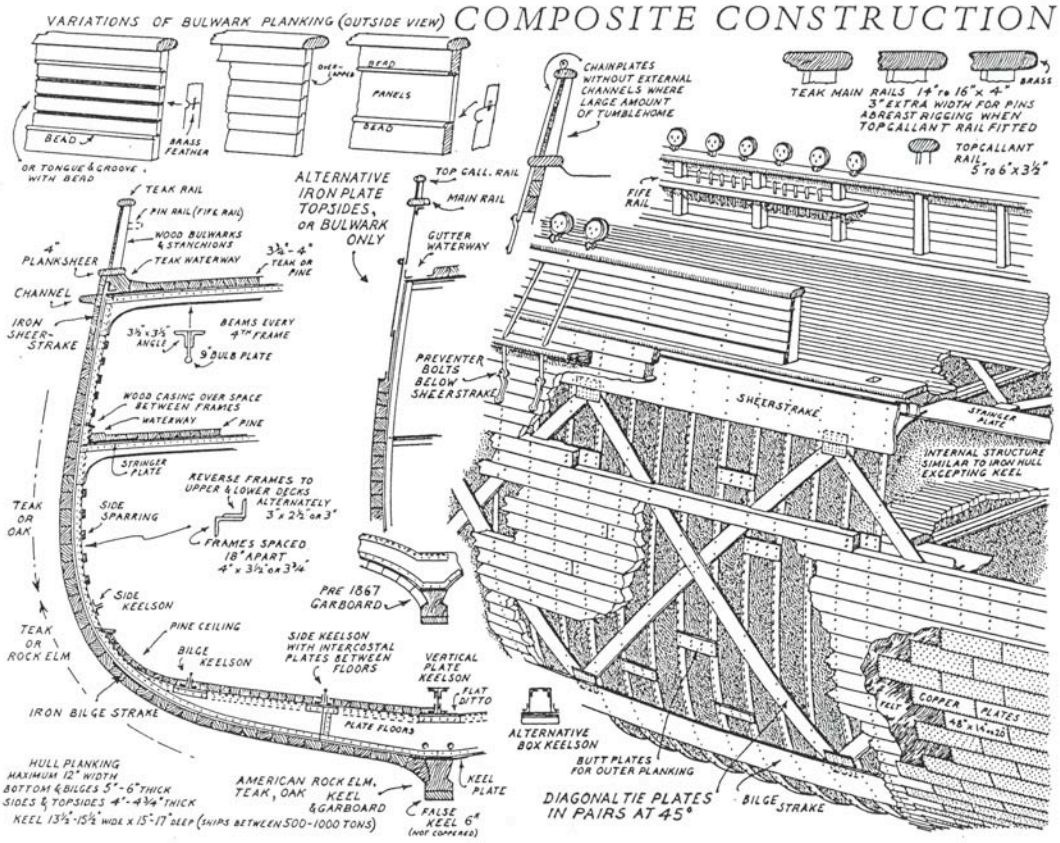
[1] Portland (or Hydraulic or water-setting) cement was often used to coat exposed ironwork on ships after 1824 when the idea was re-invented following its use on harbour works by the Romans in ancient times. It is often mistaken for concretion (a naturally-forming rock hard coating) and care needs be taken in examining concreted iron work on wrecks as a result.

Images of the site (By Robert Thorn)





The Composite Ship. From MacGregor, 1983



Site Identification Comments

In recent times locals officials and divers have referred to this site as 'the coal barge'. The question then arises whether it, or the Port Refuge unidentified wreck nearby, is actually the *Phaeton,* a wreck referred to in Pauline Bunce's socio-historical work *The Cocos Keeling Islands*, (1988). There the following appears:

> *A shipwreck is visible at low tide on the sandbank to the south-east of Horsburgh Island. This is the Pheaton [sic], a three-masted English barque that was run aground in 1889 after a fire in her hold could not be contained. Today it is occupied by myriads of coloured fish and is another favourite spot with local divers.* (Bunce, 1988:121)

While the relevant editions of *Lloyd's Register of British and Foreign Shipping* carry details under the heading *Phaeton* that fit the description of this particular wreck, i.e. as a composite ship, there remained a need—in the absence of verifiable references in Bunce's work—to secure the link. In essence Lloyd's indicate that *Phaeton* was built in 1868 at Sunderland as a composite ship that was 151.1 feet (46m) long by 30.4 feet broad, drawing 18 feet. This was at the height of popularity for the composite form. While the details of this wreck fit that general description, the inspection was unsuccessful in settling on a length for the ship given that the remains aft of the 40m line (131 feet) had been destroyed. In following the entries for *Phaeton* through Lloyds Register searching for further clues, the location of an entry for 1889 carrying the note 'Burnt' under the ship's name and 'Burnt, 9, 89' after column 14 eventually proved conclusive. The location is not provided, however.

Fire at sea is a reasonably common occurrence and the account reproduced above indicates that *Phaeton* was deliberately run ashore in the September of 1989 after a fire in the hold could not be contained. This particular wreck's position, on gently sloping bottom, tucked in behind the reefs at the entrance to Port Refuge and with bows to the north-west supports a scene where with a prevailing south-easterly trade wind, a ship comes into Port Refuge, on fire and is immediately turned down-wind and run ashore on the nearest safe stretch of sand.

Once in a safe, shallow haven, any prudent skipper with a fire in the hold (i.e. forward of the helm), normally turns away from the wind to keep the fire and smoke blowing forward clear of the wheel (and presumably the crew who would have gathered there). By this means control and order is best maintained and the danger to life is minimized.

All this fits well into Bunce's un-referenced account above, allowing it to be concluded that this site is that of the *Phaeton*.

Lloyd's 1889 entry for *Phaeton.*

With explanatory notes collated from various registers.

See notations *'Burnt'.*

1889-80 LLOYD'S REGISTER. PHŒ

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321 ✠ 86289 HGWQ	Peveril	ScwStm Steel 3 MstSr ~~A. Burgess~~ 2 Dks(Stl) 3 trB 5 BHds Cem Waters -89	1975 3036 2854	349·0	40·1	26·9	29 " 6 Sd " 11 W6 " 3½	C.2Cy.41"&78"-48" (s) 85lb B3[illegible]1,90 350HP Gourlay Bros.&Co.Dun.	Dundee Gourlay Brs&C ✠LMC1,87	1883 2mo WB	Williamson, Milligan&Co. as Liv. Cell DB282 ft 4 56 ts FPT	Liverp'l No 1-87	Cff. LA&CP 6ts Liv.	w	100A1 ~~10,88~~ 1,90	
322 ✠ 87732 JCPL	— Well deck	ScwStm Steel Sr Masson 1 Dk(Irn) Irn Bms 5 BHds Cem	436 700 530	190·2	27·6	13·9	15 " 0 Sd " 3½ W1 " 5	C.2Cy.25"&49"-36" (a) 80lb E2[illegible]2,89 95HP Muir&Houston,Glasgow	Pt.Glasgow W.Hamiltn&C ✠LMC3,86	1883 11mo	Maclay&M'Intyre as Gls. No 1-86	Glasgow	Gls. LA&CP	j	100A1 ~~2,89~~ 7,89	
323 ✠ 76307 JRQV	—	TwnScwStm Iron Sr T.Keig 1 Dk 5 BHds Cem	219 561 435	207·6	26·0	13·0		C.4Cy.24"&44"-24" (a) 80lb ✠LM(6,84 128HP BarrowCo.(Lim.)Barrow	Barrow BarrowCo. (Lim.)	1884 5mo	Isle of Man SteamPacketCo. * I.M. WB =	Douglas AT15 ft 12 ts	...			
324 ✠ 62473 HDTG	Phæton Burnt	Bk Comp R.Mudge 89-89 F&YM5,87 CF	576 596 548	151·4	30·4	18·0	19 " 9	..... Iron frame planked	Sunderland J.Blumer&Co.	1868 6mo	W.Yeoman	London Cont. Sld. Dec 87- A&CP	Gls.	19 13	A 1 4,89	Burnt 9,89
325 ✠ 55487 HTQF	Phantom	Bg Wood R.Jones -88 F&YM10,88 ptIB	249 258 249	114·2	24·2	14·5		.....	Salcombe Evans	1867 12mo	H.Parry	Carmrvn Cont.Pmd. Dec. 87-	Pmd. A&CP	12 C8 4	A 1 10,88	

Column 1.

HDTG = Code letters

Column 3.

Bk = Barque

Comp = Composite (built)

F&YM5,87CF = Felt and yellow metal May 1887 fastened with copper or yellow metal

Column 5.

RQD30tns = Raised quarter deck

srp89 = Some repairs 1889

Column 11.

Cont. Sld. Dec 87= Continued Sunderland December 1887

Column (15).

Burnt 9,89 = Burnt September 1889

Wreck- site History

(i) Contemporary Salvage:
As the fire on board *Phaeton* appears not to have been contained and as this wreck lies bows downwind of the prevailing South-East Trades, it is expected that the (downwind) forepart of the wreck, at least) would have eventually been consumed in the flames, leaving only the ironwork and those parts below water intact. As one clue, an anchor and its chain remain in the intact forward section, apparently inextricably tangled, possibly as a result of the collapse as the wreck burned. Normally these items would have been removed for use elsewhere. Further, it may be that the stern was not destroyed in the flames as a result of it being upwind, though it is interesting to note that it is the most damaged section today. Was it (contrary to all that has been recorded above) the part consumed and distorted by the flames, or was it (more likely) the only part worth salvaging for the timbers, fittings and fastenings after the fire, hence the destruction evident there?
Either way, the easy accessibility of the site would have ensured that this wreck was heavily and expertly salvaged soon after it was wrecked. As indicated in the other inspection reports for this region, it is known that the Clunies-Ross family prized shipwreck materials and even stored them for the purposes of a ship-building and repair facility they had established by the mid 19th century. The family and their workers are known to have stored salvaged timbers and to have built vessels of excellent quality (Souter, G., ND). As indicated elsewhere, clearly a sophisticated shipbuilding, ship-repair and ship-breaking capacity existed within less than 3 nautical miles of this wreck, somewhere near the Home Island settlement. As with other accessible sites in the islands all useful materials are expected to have been recovered. Given its iron frame, perhaps the use of explosives could explain the disarticulated nature of the stern section? Certainly the damage appears not to have been the result of cyclones given the intact nature of the bow.
The answer to this conundrum awaits further on-site analyses and this issue could be a useful focus for them.

(ii) When found in modern times and by whom.
It is evident that this wreck has been a feature of the lagoon since it first came ashore.

(iii) Modern Salvage.
Indications are that the wreck was heavily salvaged in the 19th century and possibly later.

(iv) Casual Diver interference, if any.
Nil.

(v) Modern diver use, if any.
Though they have considered it to be a mundane 'coal barge', dive shop operators regularly take tourists to the site as a shallow water snorkel after a deeper dive outside the lagoon. Parts of the wreck are also suitable for the glass bottomed boat. The fish life is varied and prolific, rendering the wreck doubly of interest.

Assessment of Site Significance

(i) Archaeological/Technical: The remains are those, not of a coal barge, but of vessel built at the high-point of composite shipbuilding. With the exception of the stern, which has been destroyed, and of the planking which has gone, the remains exhibit all the salient features of the composite ship. The wreck is easily accessible, and the remains lie in shallow and in normally very benign conditions. As such this wreck represents a good opportunity for archaeologists to access and study a site of this nature.

(iii) Scientific
The wreck provides a useful opportunity to monitor the site formation processes at work in a warm water corraline environment and also to examine the rate of colonisation of artificial structures, in this case an iron-framed vessel by coral.

(iv) Educational
Given its normally benign, easily accessible and very shallow environment, this wreck provides a very useful tool for the Island schools and for visiting groups seeking to access an historic wreck.

(v) Recreational/Tourist
The benign, easily accessible and very shallow environment combine with the fish life and corals and with normally excellent visibility to render this site of great potential for charter operators as a second dive, following decompression or deep dives, for snorkellers and for visitors travelling in the glass-bottomed boat facility.

(vi) Cultural
This wreck has tangible links to the period when the islands were both a haven and a hazard for ocean-going sailing ships. It has links to the period when a boat-building, wrecking and ship repair facility existed under the supervision of the Clunies-Ross family. Ancestors of the present Cocos (Keeling) people living on Home Island are certain to have been involved in the salvage of this vessel.

Recommendations & Management Proposals

1) Lying in Commonwealth waters, being over 75 years old, having significance under the terms of the criteria listed above, this wreck should be protected under the terms of the *Commonwealth Historic Shipwrecks Act*.

2) Any management strategy, would hinge upon the wreck becoming recognised not as a pedestrian 'coal barge' as it has been known in recent times, but as a relatively well-preserved and very accessible example of the composite ship type i.e. as a real maritime heritage asset, reflecting the 'clipper ship era'. This realisation would be effected through the dissemination of the information contained in this report, and in the 'wreck access and interpretation' measures outlined below.

3) Once its historic nature and its protected status is recognised by all stakeholders visitation by charter operators could be encouraged. The site should be marked with interpretive materials below water advising visitors of the significance of the site, of its features and of its importance to the people of the islands and to the tourist industry on which they have come to increasingly rely. Similar could be erected near the island boat ramps.

4) Though not essential, a safe mooring zone adjacent to the wreck could be established and it could be clearly marked with buoys that could also display information about the site and about its protected status.

5) A wreck map and information pamphlets on this and on other maritime sites in the region should be produced. Information about the construction of the vessel and its similarities to more famous examples could be presented to advantage, adding yet another attraction for visitors.

Acknowledgements

Author would like to acknowledge the assistance of A. Granger, J. Green, G. Henderson, W. Murray and R. Thorn.

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Souter, G. ND., *The Story of Cocos*. Unpublished history prepared for the Clunies-Ross family. Cocos Islands Historical Society.

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