

The *Mary Ellis* Report

Team 2

Historical Background

The ketch *Mary Ellis* (official number: 106163) was constructed in Kircumber, New South Wales in 1987 by George Frost. Recorded dimensions for the vessel are L 81.8' x B 23.2' x D 7.0' (in feet). *Mary Ellis* was carvel-built with a round stern, one deck, and two masts. She was first registered with A.E. Ellis, sold to M. Arnold, R. Glenn and W. Tulloch, and then transferred to C.A. Newman, R. Glenn and W. Tulloch in 1905. Under the ownership of these last three gentlemen, she was engaged in coastal trade voyages up and down the West Coast of South Australia (Figure 1).

A. & E. Le MESSURIER,
Custom House, Shipping, and
General Commission Agents.
LIPSON STREET, PORT ADELAIDE.
TELEPHONE No. 65.
—♦♦♦—
COASTING VESSELS
Despatched as follows :—
Stansbury—s.s. CERES, Thursday, 8.30 a.m., returning same
day; and Saturday, at 8.30 a.m., returning Monday, leaving
Stansbury at 11 a.m.
Port Vincent—s.s. CERES, Tuesday, at 8.30. a.m., returning
Wednesday, 10 a.m.
Port Elliston, Venus, Scales, Streaky, Denial, and Fowler
Bays, Point Sinclair—The Wollomal, Eclipse, Lillie
Hawkins, Rachel Cohen, and Mary Ellis about every 14 days.
Port Wakefield—Annie Watt and Percy and Lillie May, Wednes-
day and Saturday.
Ardrossan—Wellington, every Saturday afternoon.
Port Broughton—Victor, about every 17 days.
Port Pirie—Mary Webster and Dianella, Friday, at 5 p.m.
Arrangements can be made to call at any Port.

Figure 1: Coastal Trade Schedule (Source Unknown).

The Wrecking Event

While on a voyage between Port Adelaide and Venus Bay, *Mary Ellis* was caught in a gale on April 5th, 1907 off North Neptune Island, South Australia with Captain Newman in command. Strong winds smashed the bow-sprit and the masts broke loose; the crew jury-rigged the vessel, and ran for the nearest harbor. Nearing shore, the crew attempted to drop anchors and ride out the storm, but one anchor snapped free and the other swung

around, stranding *Mary Ellis* on the beach at Sleaford Bay (Traders Under Sail: 160).

Although all hands were saved, the vessel was a total loss (Figure 2).



Figure 2. *Mary Ellis*. Image Courtesy: Axel Stenross Museum.

Artifact Dispersal

Structural elements and assorted artifacts from the *Mary Ellis* wreck site have been dispersed throughout this region of South Australia. Deck knees, frames and a meat locker from this site are displayed in the Axel Stenross Museum in Port Lincoln (Figure 2). Timbers were also used in the construction of a farmer's shed, two kilometers from Sleaford Bay (Traders Under Sail: 160) and in the construction of the vessel *Nancy* by Fred Puckeridge ('They Came on the Buffalo', Nancy Puckeridge, cited in? Chapter 48:223). The *Mary Ellis*' cargo boat *Karleena* (25 ft. in length with a 7 ft. beam) was sold at auction— by Geo. Dorward and Co. – on Wednesday May 8 1907. *Karleena* was still in use as a work boat as late as 1927 (Fading Footprints: the Hundred of Flinders: Chapter 57).

Also sold at auction were numerous artifacts salvaged from the site, including: tools, superphosphate cargo, blacksmith's tools (anvils, bellows, etc.) and "...a new 11-disc McCormack drill". The wreck itself went for 15 pounds, 10 shillings (Coln, Tumby and West Coast Recorder, Wednesday, May 15 1907).



Figure 3. Deck knees and Frames from the *Mary Ellis* at the Axel Stenross Museum. Image: E. Jateff

The Coln, Tumby and West Coast Recorder (date unknown) noted the following conversation between an unknown sailor and Captain Hayward (representative of the Marine Underwriters' Association, in Port Lincoln to assess the damage to *Mary Ellis*).

"...Well, Captain, and are you going to get the *Mary Ellis* out from the rocks...?"
"No, there's not a ghost of a show". Fieldwork performed



by Team 2 identified rocks (limestone) located between ceiling and hull planks (Figure 4) in one location. This statement backs up the Team assumption that Mary Ellis was, at one time, buried in a mix of limestone and sand.

Figure 5. *Mary Ellis*, limestone within frames. Image: E. Jateff

Site Location

The remains of the *Mary Ellis* can be found on Wreck Beach in Lincoln National Park, South Australia, which is approximately 15 km south of Port Lincoln along Proper Bay Rd. Once in the park one should park their vehicle by the Wreck Beach sign and follow a

4WD track over the dunes, (If vehicle is 4WD one can just follow the track to the beach). As the track dissipates into the beach look to the right and among the first set of dunes is the site, it should be marked with star pickets.

Site Description

The *Mary Ellis* lies covered by windblown dunes at varying depths and some light vegetation. The site is approximately 200m NW of the water, the beach is of a very shallow slope, which places it well above the high tide mark. The surrounding dunes grow to increasingly greater heights and in some places terminated in rocky outcroppings nearer the water.

Environmental Survey

The flora on the site consisted of patches of long grass. There was also a plant resembling the consistency of an ice plant. The plant growth was sparse, probably due to the harsh winds and sand dunes that encompass the site. The fauna mainly consisted of March Flies, and Scarab Beetles.

Environment Affecting the Area

The primary environmental factors effecting the *Mary Ellis* and the excavation site in particular are sun, wind, and moisture (or lack there of). As can be assumed within an dune system there is a consistent, and sometimes gusting, amount of wind. These

processes can be responsible for the deposition of sand over the wreck or conversely the exposure of various parts at times. During work on site this wind can, (combined with the sand it moves), complicate the process of detailing exposed portions of the wreck along with cause discomfort for persons there, (particularly related to the eyes). The sun at this site can be quite intense at times, combined with the cooling wind it will invariably lead to sunburn which can add further discomfort for people. These two factors in conjunction quickly lead to a process of drying out exposed portions of the wreck. As the wreck lies fairly deep in the sand it is usually protected by a layer of cool compressed sand. When this is removed the drying causes the wood to become noticeably more brittle. The speed of this process can be easily observed by watching the overburden mounds the top layers within minutes become as dry and light as the surrounding surface sand. This process requires trips to be made to the ocean to acquire water to continuously wet the wreck.

Equipment

4 large shovels	4 tent pegs
4 hand shovels	3 30m tapes
4 trowels	3 10m, tapes
4 small green hand brushes	1 post pile driver (wanga danga)
2 large hand brushes	terrestrial magnetometer
20+ buckets	hand held GPS
2 tarps	digital camera (Nikon)
4 star pickets	2 large scale poles

small scale bar

hand held compass

north arrow

Preliminary Survey/ Mud Maps

The initial survey involved locating the site and then teams doing simple walkovers to familiarize themselves with the site paying particular attention to features such as dune depth, access and orientation. From this data pre-disturbance mud maps were created to retain a knowledge of the original spatial distribution of the site and particularly the 11 star pickets previously placed there by the park service to delineate its boundaries. Mud maps would be created through out the excavation to record features and in particular to aid in determining points necessary for trilateration.

Magnetometer Survey

Following the preliminary survey and recording, the star pickets were removed to eliminate any known ferrous objects from the site. This would allow a magnetometer survey to more precisely record any unknown disturbances in the earth's magnetic field.

To conduct this survey the magnetometer and GPS were at first synchronized, then a close meter interval pattern was walked within the area previously circled by the star pickets. Following the surveying of this area, the surrounding area was then covered but by using a greater two meter interval. Throughout this survey care was taken to keep the magnetometer orientated towards north and for the pacing of the survey to remain consistent.

Excavation

Following the successful completion of the non-disturbance survey methods, it became necessary to begin removing the sand that through the course of time had accumulated over the wreck. To mark the area of excavation two star pickets were placed 10 meters apart at the edge of the previous boundary, and then two star pickets were placed 3 meters away within the area to form a 10m by 3m rectangle. (FIGURE XX) Based upon previous research (Bullers 2005) excavating began approximately in the center of the southern boundary of the newly defined area. At approximately .75m the remains of the Mary Ellis began to be uncovered. Excavating continued in the direction of the remains which were located within this area until all areas of wreck found within the 10 by 3 grid were exposed. Once the wreck was cleared of the majority of the overburden a process of hand troweling and brushing was employed to further detail and uncover the wreck.



Figure 6 : The Mary Ellis buried pre-survey, (direction: southwest).

Trilateration

Once the *Mary Ellis* was sufficiently cleared of sand trilateration was used to accurately place points of significance into scaled drawings. The first step for this process was to

establish a fixed base line of 9.95m across the southern boundary using a tape measure secured with tent pegs. From these fixed positions it was the possible to spatially locate points of interest on the wreck particularly the intersection of scantlings and the position of various types of fasteners. Due to the vertical variation present in the hull sections of the *Mary Ellis* it was necessary to position the baseline above all points of the wreck and then use a plumb bob to mark each point. This allowed the tapes to be held in a horizontal position and eliminate any variances in actual distances that may have occurred due to vertical angles present in the measuring tapes. Furthermore due to the extensive nature of the trilateration work the wreck was divided into two distinct sections for the purposes of this process.

Profiling

To further refine our sketches using the third dimension a process of profiling was employed, which allowed the curvature of the hull on exposed end sections to be determined. This method required that a leveled two meter aluminum bar be placed on top of two star pickets and then a tape measure was secured along this bar to give

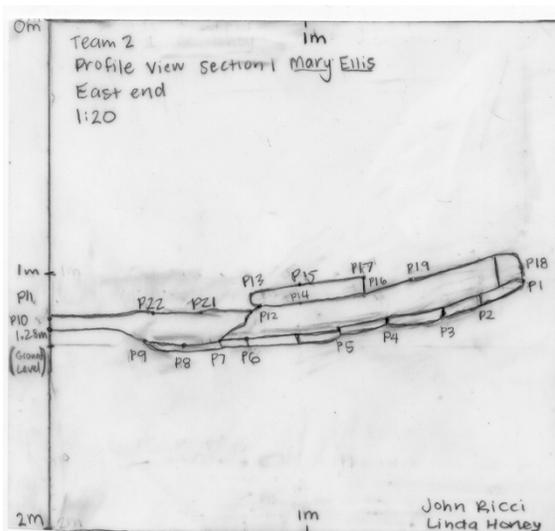


Figure 7 Profile of Section1 East End. J Ricci and L. Honey

consistent intervals between zero and two. From this bar a plum bob was dropped from a known point to each interesting feature and then the length of the plum bob was measured, yielding for every point an X and Y coordinate.

Backfilling

Ultimately following the successful collection of all necessary data it was required that the site be returned to a state similar to that of pre disturbance. This process demanded that the sand previously removed was returned to the wreck, and in a manner thick and solid enough that the wind would not re-expose it. This was necessary to protect the wreck from the elements and human activity, which have historically deteriorated its condition. **Artifacts**

Only two artifacts were recovered, drawn, and reburied at the *Mary Ellis* wreck site. Both are samples of iron fasteners (Figures 4 and 5), and are presented at actual (true) size. The measurements for Example 1 are 127mm in length, 18mm for head width, and 10mm for thickness.

Example 1:

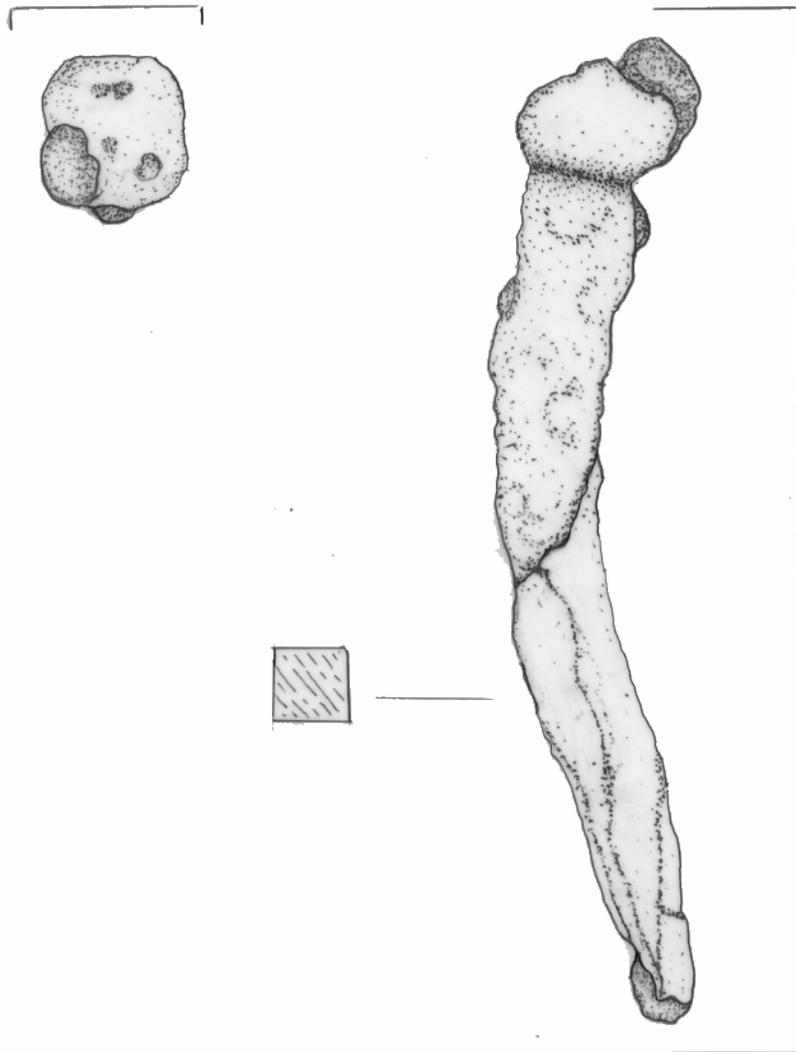


Figure 6. Iron Fastener from *Mary Ellis*. Image: Emily Jateff

The measurements for Example 2 are 89mm in length, 33mm in head width, and 15mm in thickness.

Example 2:

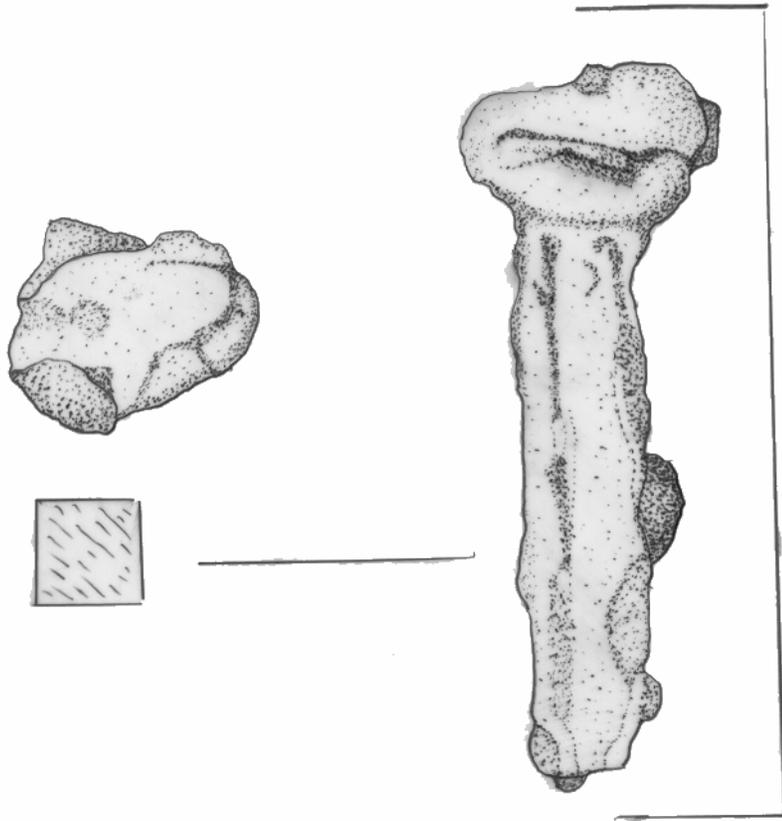


Figure 7 . Iron Fastener Sample from *Mary Ellis*. Image: Emily Jateff

Discussion

Throughout this field school run by Flinders University, the students have conducted a thorough survey and inspection of the *Mary Ellis*. From her unveiling, to her reburial, the *Mary Ellis* was methodically documented by the various teams. Although the wreck was only exposed at the surface for a few days, evidence of damage to the wreck was evident due to environmental conditions such as exposure to the sun, and strong winds. Though the survey was brief, there was enough time to; conduct a magnetometer survey, expose the wreck, trilaterate the timbers and the numerous iron fastenings, take photos, draw mud maps, and profile the wreck. The costs were low, because the teams never raised the wreck's timbers, which meant no conservation costs, or maintenance that a traditional excavation would merit. The *Mary Ellis* was an excellent example of the benefits of low budget excavation..

The short working life of the *Mary Ellis* (1897-1907) is another element of interest to maritime archaeologists. As a carvel-built ketch used for trade, the *Mary Ellis* was exposed to the rugged coastline of South Australia. One of the purposes for this survey was to study Australian shipbuilding techniques, and to investigate the adaptations that were made to make a ship succeed in South Australia's rough waters. The *Mary Ellis* was extensively rebuilt to face these environmental conditions.

The *Mary Ellis* is a wreck that would be an appealing candidate for further study. A perplexing element of the wreck is the vast amount of iron and treenail fastenings embedded in her timbers. Traditionally, the treenails were preferred to be used beneath the waterline. The wooden treenails would swell while exposed to the water, creating an air-tight seal that ensured no leakage. The *Mary Ellis* however, contains a combination

of treenails and iron fastenings which are perplexing considering that iron rusts when exposed to water. Perhaps South Australia's rugged coastline was one of the factors that lead to the widespread use of treenails and iron fastenings. An interesting research question could be to investigate why these large numbers of fastenings existed on the wreck.

Fortunately, the *Mary Ellis* is protected by the National Parks service, and they have driven starpickets around the site to ensure the wreck's protection from 4WD vehicles (Bullers 2005). Although vandalism of the wreck has consistently occurred in the past, at least the wreck is now cared for. The pre-disturbance survey was successful and methodical. Much information pertaining to the *Mary Ellis* was gathered throughout the field school by all of the teams. Further study should be conducted on this valuable wreck.

References

Bullers, R., 2005. *Quality of construction of Australian-built colonial-period wooden sailing vessels: case studies from vessels lost in South Australia and Tasmania.*