THE LONG JETTY : A CASE STUDY IN SALVAGE ARCHAEOLOGY

By

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Abstract.

In July 1984 the Western Australian Maritime Museum became aware of plans to build a marina in the vicinity of the Long Jetty. Challenger Harbour (as it was named),was designed for the yachts of the contenders for the America's Cup Challenge in 1987.

The plans showed that a significant portion of the visible remains of the jetty would be covered by the northern groyne of the new harbour. The Museum instigated an immediate assessment of the impact of the harbour works on the jetty area.

A budget of $2,000AUS was allocated and the expected time to the beginning of construction was one month. The aims of the project were to map the remaining jetty structure, ascertain the spread of material and to gauge the extent to which it would be covered or disturbed by the development. A representative sample of material from the threatened area was plotted on the site plan and raised by museum divers.

These artifacts were later catalogued, conserved and prepared for display for public information and study purposes. Due to the enhanced public awareness created by the Long Jetty display, pressure was brought to bear to force the realignment of the harbour works so that all but a small section would be affected.

Historical Background

The Long Jetty is situated in Bathers Bay, Fremantle and has been the site of continuous European occupation since the settlement of the Swan River Colony in January 1829.

It was the centre for trade and communications for the Colony and served as the port of transhipment for both Perth and Fremantle until the opening of the Fremantle Harbour in 1897 userped it's role as the Colony's gateway to the world.

By the late 1860's the existing harbourage facilities of Fremantle were becoming inadequate to deal with the increased volume of shipping. Several plans had been mooted to construct a harbour at the mouth of the Swan River, but as reported in the *Fremantle Herald* on October 24, 1868, the colony lacked the finances and the technology to cut a deep channel through the bar at the river mouth.

The Correspondence of the Fremantle Town Trust of August 1871 show that as an alternative, the Governor instigated the construction of a deep water jetty at Anglsea Point, just to the north of the ::th Jetty.(see Map1)

Tenders for construction were advertised in the Government Gazette of August 20, 1872. The first section of the new jetty was built with jarrah, a local hardwood well known for it's capacity to resist bio-degredation.

The Colonial Secretary's Records of Februrary 7, 1874 record that construction was completed in December 1873, and the Public Works Department Plan No.19 shows that the jetty measured 15 feet

wide (4.57m) and extended in a south westerly direction to a length of 750 feet (288.6m) with the depth of water at it's extremity at 12 feet (3.6m).

Ocean Jetty as it was named, could accommodate vessels up to 700 tons, however larger vessels were still required to anchor offshore.

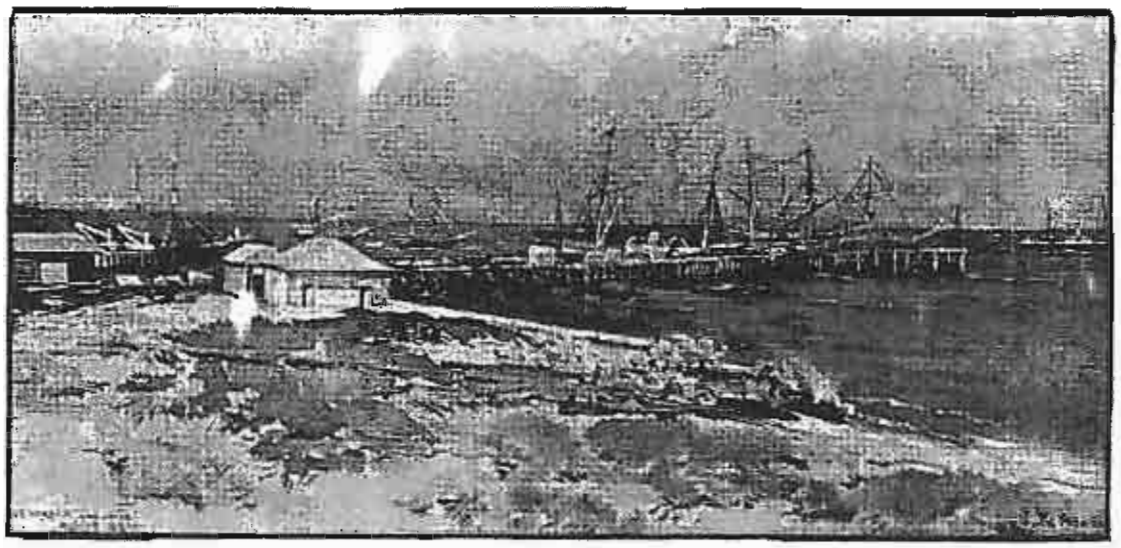


Fig.1. South Jetty and Ocean Jetty.(J.P.Ashton, 'Fremantle Harbour and Jetty Aug 15, 1887')

Much of the Colony's export commodities were bulky cargoes such as wool, wheat and timber, requiring shipment in vessels generally too large to berth at the Ocean Jetty.

Lighters, (sailing barges) were still the main method of loading and unloading cargo, a slow and hazardous process (de Kerchove,1961;454). After successful lobbying for improved berthing facilities by vested interests in both Government agencies and private enterprise (PWD1882), the Government accepted a tender to extend the jetty.

It is recorded in the Harbour Masters Journal that the extension was completed on December 22, 1887. According to the Public Works Department Plan No. 45, this new section was 42 feet (12.8m) wide and increased the length of the jetty to 2387 feet (864.7m) allowing six vessels to be berthed in water up to 20 feet (6.0m) deep.

After the addition Ocean Jetty became popularly known as the 'Long Jetty' and it retained that name after a final extension was built in April 1896. Another 457 feet (239.2m) was added, giving the jetty a total length of 3,294 feet (1004m). This enabled eight vessels to berth however, the depth of water was only increased by 2 feet (0.6m). (Building Management Authority, 1896).

The Long Jetty reached it's zenith in the gold rush days of the early 1890's.

Fall (1972:129) notes that in 1890, 42 ships berthed in Fremantle and most required lightering, and even in 1897, when the last section of the jetty was in use, 216,000 tons of cargo in a total of

600,000 tons still had to be transhipped by lighters. With the opening of Fremantle Harbour later in that year, the Long Jetty became obsolete.

During the 1890's public bathing gained popularity and several public baths were constructed in Perth waters and around the Fremantle foreshore. One of the most popular was the Municipal Sea Baths, situated between the Long Jetty and the South Jetty.

The Sea Baths were finally demolished in 1917 and the original site is now covered by the northern sea-wall of the Fishing Boat Harbour.

By the turn of the century the jetty had been all but abandoned , but in 1904 the jetty was converted into a promenade in the style of English seaside resorts (Fremantle Harbour Trust, 1904). A protective fence was erected in 1906 and a hall built at it's extremity for entertainments, but this did not prove popular with the public and the jetty was closed to traffic in 1910 and gradually fell into disrepair. It was not until 1921 that the superstructure was finally removed and the piles cut down to the sea bed (Fremantle Town Council Minutes, February 19, 1921), leaving the original 750 feet of Ocean Jetty.

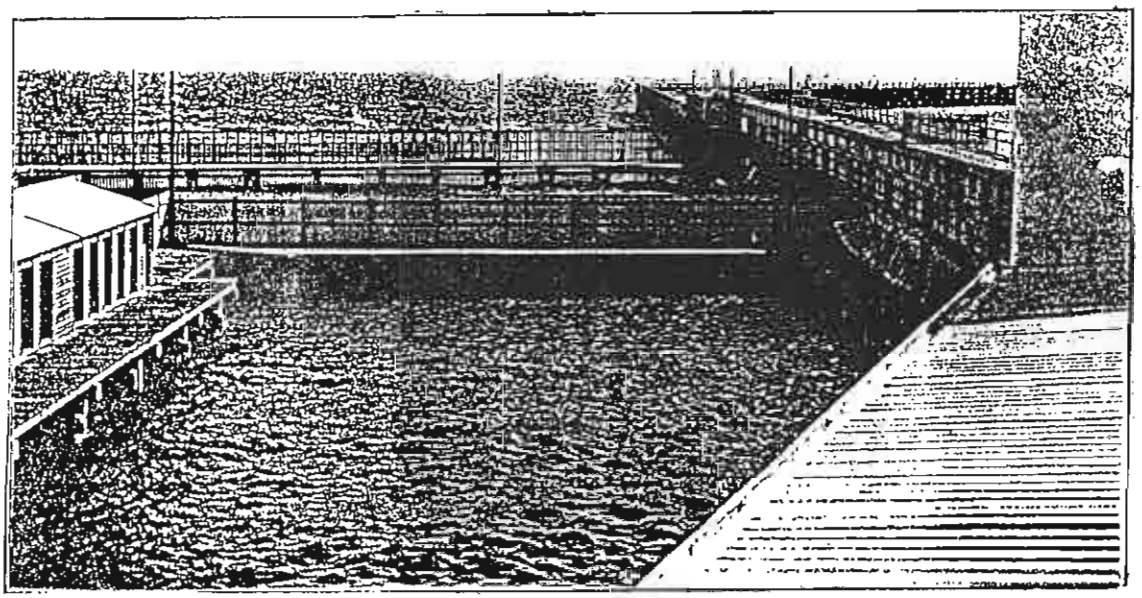


Fig.2. Fremantle Municipal Baths (Fremantle City Library, Print No.729).

Long Jetty site.

The visible remains of the jetty extend out to sea in a southwesterly direction from the shore for 200 metres. Approximately 30 piles protrude from the water at low tide but on a high tide only one can be seen. Many submerged piles are discernible from the surface giving a clear indication of the width of the jetty and the direction to which it extends but its western extremity is obscured by deeper water. The water depth graduates from 0-5 metres along the length of the jetty.

Excavation Methodology.

The Long Jetty represents an atypical underwater archaeological site in that rather than being an homogeneous capsule of cultural material as in the case of a shipwreck, the artifacts were lost over a 90 year time span, randomly located over a vast area, and originated in several different countries, therefore this site should not be considered in the same manner as an individual, shipwreck. Moreover, the sea bed has been continually 'tilled over' by the action of storms and later by bottle collectors using excavation tools such as air lifts and water dredges, effectively destroying any stratigraphgy that may have existed.

The temporal constraints were such that the initial phases of the project ie. archival research, seabed search and excavation were run concurrently. With such a limited budget, the project could not have been completed without the skilled volunteer assistance of members of the Maritime Archaeological Association of Western Australia. MAAWA divers were responsible for conducting a systematic swimline search for artifacts lying on the seabed in the area to be covered by the proposed groyne. Areas with high concentrations of material were marked with buoys for further investigation by Museum divers. While diving operations were in progress, the author instigated the archival research. Museum staff included the project leader / archaeologist, a diving conservator, a boat skipper /diver and a mechanic /diver.

Other volunteer assistance was provided by 'work experience' students from a local high school.

The search phase was hampered by the less than optimum conditions. The low visibility normally encountered in rough winter seas was compounded by an outgoing flood of silted water from the Swan River due to heavy winter rainfalls and 'white-outs' caused by the commencement of limestone filling into the waters adjacent to the Long Jetty (Robinson 1984).

Approximately 7,500 square metres of the estimated total area of 50,000 square metres was excavated and from this small area, only a tiny fraction of the material was recovered as a representative sample from a heavy concentration of artifacts in a layer over one metre deep.

The greatest concentration of material was located in and around the remaining piles and extended 25 metres either side of the jetty remains. Excavation using a waterdredge proved too slow considering the vast area to be examined and the depth of the overburden to remove as many artifacts were buried to a depth of two metres below the seabed.

A gross excavation tool was used to great effect to expose large areas of artifacts in a short time. A cowling was fitted over the stem of the Museum workboat to divert the propeller wash down onto the seabed below. By running the boat engine at 1000 rpm, a hole approximately 5 metres wide by 1 metre to 1.5 metres deep could be excavated in water 5 metres deep over a period of twenty minutes.This system worked best at a depth of 3-4 metres but proved too gross a tool for depths less than 3 metres.The boat skipper was responsible for maintaining the search pattern by taking angle and distance measurements from the tallest jetty pile. The first lanes ran parallel with the jetty piles on the southern side beginning 5 metres out from the jetty with subsequent lanes 5 metres apart and the holes made at 5 metre intervals.

T.. position and depth of the holes was monitored by divers on the seabed who relayed instructions on the required strength and direction of the propeller wash to the boat skipper. An airlift was used in areas too shallow for the propeller wash and in amongst some of the piles that were inaccessible for the boat.

A general pattern emerged showing greater concentrations of artifacts in the area 0-10 metres south of the jetty piles and again in the area 15-25 metres south of the jetty which indicated that the barren section corresp(ided with the alignment of vessels moored alongside the jetty. The type of artifacts found indicates that most of the material in the 0-10 metre area was either dropped from the side of moored vessels or from the jetty itself whereas the artifacts found in the 15-25 metre area tended to have a greater association with shipping and less with the jetty. A stratigraphical analysis of the excavation was not attempted, primarily because it was known that the artifacts and the sandy matrix which cont'.ned them was subject to disturbances from storms and later, from widespread and indiscriminate excavation by bottle collectors. The time constraints imposed on the project, precluded any attempt to establish the degree to which any stratigraphical information may exist.

All the visible piles (above LWM) were plotted using triangulation and a photographic record was made of every phase of the excavation.

The excavation was forced to a halt as bulldozers nudged limestone boulders closer to the section of the jetty that was to be buried. Diving commenced on July 14 and concluded on August 20 1984, with 88 hours having been spent underwater. Over 1,143 artifacts were recovered and catalogued in that time.(McCarthy, 1984 Long Jetty Day Book).

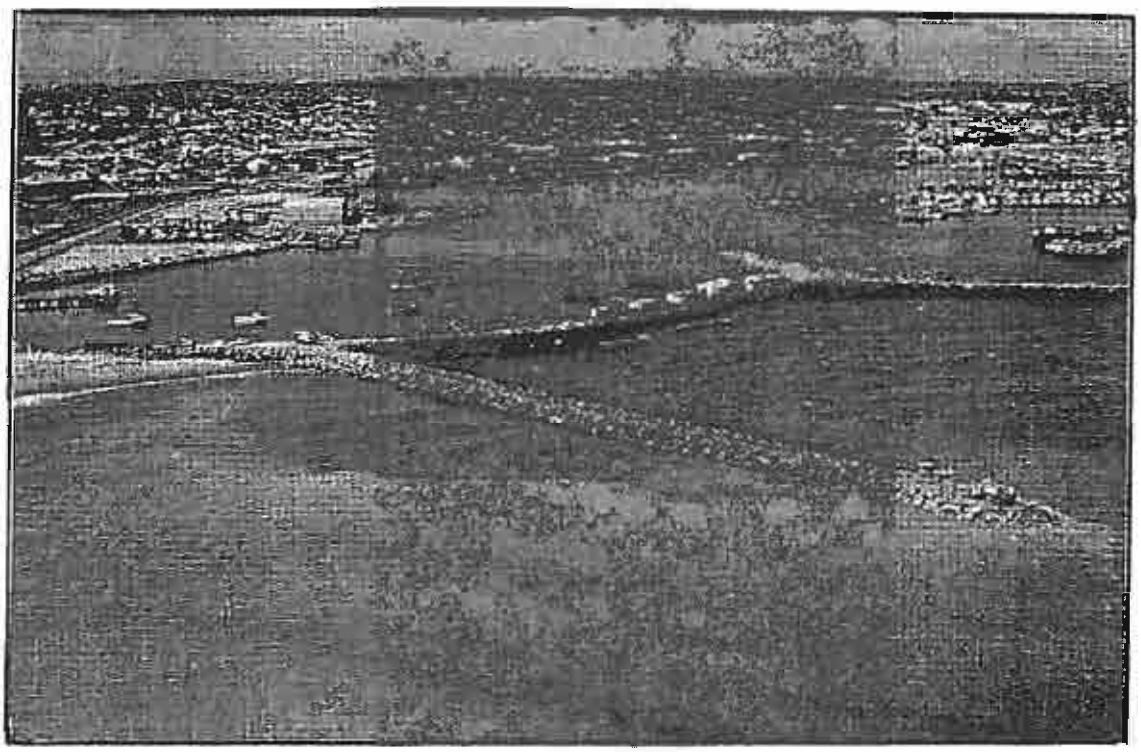


Fig. 3.Bulldozer at work on the northern groyne of Challenger Harbour. August, 1984.

Artifacts recovered from the Long Jetty site.

The vast majority of artifacts recovered are ceramics, particularly glass and stoneware bottles of various types. 279 alcohol bottles and 66 soft drink bottles, some quite rare, have been catalogued. Most are of Australian or British origin but there are also some American and British Empire examples. A range of pickle jars, sauce bottles and medicine containers were excavated, some containing their original contents. The bottles have been dated from c.1840 to c.1920 with some intrusion from modern varieties. Patents identified date from the 1870's. They include Codd, Hamilton, Lamont, Maughams with variations on these types.

The crockery (and cutlery) found was mainly of shipping company origin, with most plates, bowls, cups, saucers etc. bearing the markings of the Adelaide Steamship Company but also others such as Howard Smith, Australian Steam Navigation Compan ', Ocean Steamship Company and the Huddart Parker Line. Some domestic wares such as teapots and night soil containers were found and several pieces of Asian pottery were identified.

Among the personal belongings recovered were several leather items including shoes, the remnants of a purse and a signet ring.

Clothing items such as buttons and buckles were identified, the majority being manufactured from mother of pearl (nacre) bone (ivory) or brass. Costume jewelery and hair fasteners were also found along with childrens toys such as a whistle, a spinning top and marbles, (possibly associated with the Sea Baths).

Clay smoking pipes of different makes and styles and smoking paraphenalia such as match strikers were discovered. A bell rattle, possibly from a horse harness was recovered and is now part of the Long Jetty display Maritime Museum.

Coins, mostly copper, were found in the vicinity of the jetty.The inner mechanism of a mantle clock was uncovered by the propeller wash and several bullets and bullet cartridges were recovered.Ships fittings of iron and occasionally brass were found, also lead scuppering, rigging, ropes and chains. A large auger was found in the vicinity of the piles, which may have been used in the construction of the jetty. Several other miscellaneous tools and items of machinery were also located in close proximity to the jetty.

Huge quantities of coal litter the sea bed, presumably bunkering coal lost overboard whilst loading.

Building materials such as water pipes, bricks and tiles of early manufacture were recovered.

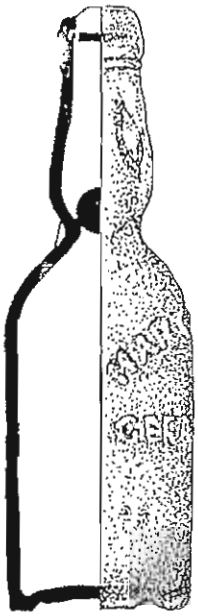
Scattered throughout the area is an immesurable quantity of timber, ballast blocks, unidentifiable concretions, and other unidentified objects.

As a testament to the mobile nature of the site, the internal mould of a barrel containing solidified cement was found to have rolled along the seabed for a distance of approximately 50 metres. It had moved in a southerly direction towards the seawall of Challenger Harbour after a winter storm. (See Figure 3).

Selection of artifacts recovered from the Long Jetty site.

MoH

5 CM.



LJ 287
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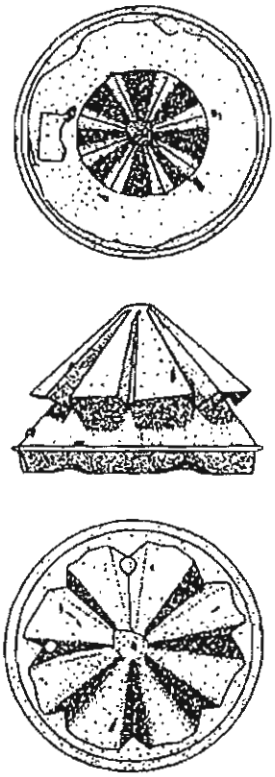
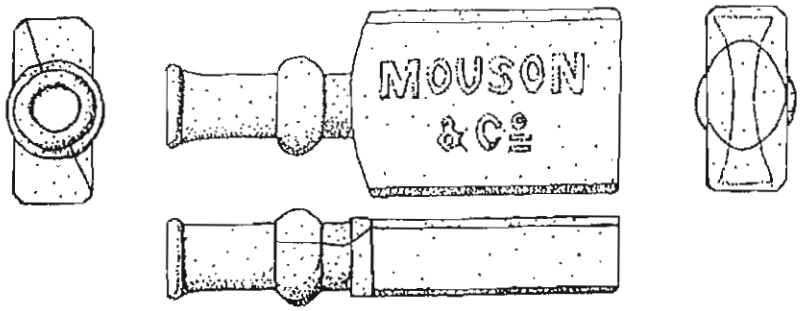


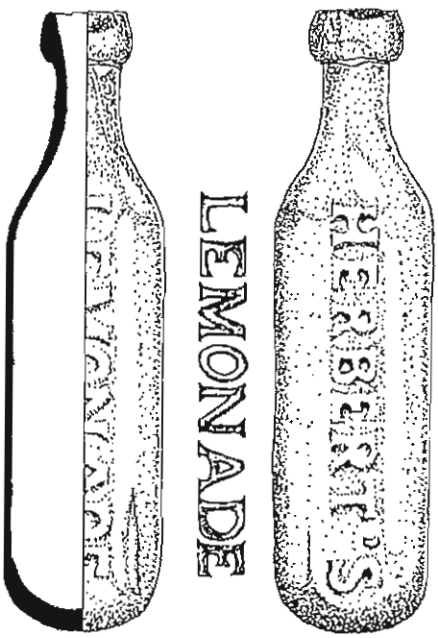
Lantern Cap

5 cm.



Perfume Bottle LJ 169

5cm.



lemonade bottle

5CM.

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