

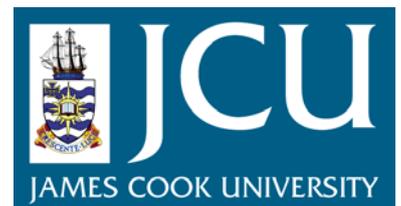
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This file is part of the following reference:

Duncan, Brad G. (2006) *The maritime archaeology and maritime cultural landscapes of Queenscliffe: a nineteenth century Australian coastal community*. PhD thesis, James Cook University.

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Appendix F-4: Landscapes of Navigation of Port Phillip Bay

1) Lighthouses/ Signal Stations

A) Pt Nepean

I) Pt Nepean Lighthouse: Choice of Location for the New Heads Lighthouse

The first lighthouse for the Heads was proposed by Capt Hobson, of HMS Rattlesnake in 1836, during his survey of Port Phillip Bay. He proposed it be located at Pt Nepean, and Governor Bourke selected a site there in 1837. However, several ships masters recommended the light should be placed on Middle Bluff Head (Shortland's Bluff), which would aid navigation through the Rip. No further action was taken until 1941, when the new Governor (La Trobe) recommended a lighthouse be built at Shortland's Bluff (Noble 1979:42; Raison, 1997:1-2).

Prior to 1844, there was a clear need for a lighthouse to be constructed at the Heads to stem the occurrence of shipwrecks there (*Thetis* and *Princess Royal*). Only 750 square miles had been surveyed in Port Phillip Bay at that time, and the dangers of the Rip were recognized as the effects of the tidal and geological features. The advantages of a lighthouse at Shortland's Bluff were touted over the Points Lonsdale and Nepean, as ships could sail along a bearing of clear water to the former, but had to estimate offshore clearance positions of at the latter option (MMH 6/3/1844:4).

II) Nepean Rock Beacon

Red cone shaped beacon on Nepean Rock (dry) used as a thwart mark to clear Corsair Rock in 1858 (NTM VGG 22/6/1858:1135).

III) Point Nepean Beacon

This marker was located just above the high tide mark at Pt Nepean. It was a white cone shaped beacon 20ft high, which bore east and west with Nepean Rock Beacon when in line, and low lighthouse with Shortland's Bluff flagstaff marks position of Corsair Rock (NTM VGG 22/6/1858:1135).

IV) Eagles Nest Point Lighthouse

This white concrete tower was 83ft high, 218 ft above high water, and had a fixed light, which could be seen 18 nM to seaward, with a red light visible from Cape Patton to Cape Addis approx 3nM offshore and an auxiliary white cautionary light which was only visible inshore of that distance to warn of too close proximity to the coast (Yule 1897: 427). The light was built between 1884 – 1897.

B) Shortland's Bluff Lighthouses and Beacons

I) Shortland's Bluff Lighthouse (First High Lighthouse)



Figure F-4. 1: Original Lighthouse at Shortland's Bluff in 1857. Note the Shortland's Bluff Low Light Timber Tower to the right, and the Point Lonsdale Beacon in the distance (Photo PH1, Queenscliff Historical Society Collection).

The danger of navigating the Heads was recognized by local mariners from at least 1841, when pilots at Shortland's Bluff requested that a disused flagstaff at Melbourne be installed at Shortland's Bluff to act as a signal staff for broadcasting tidal movements and communication with incoming vessels (LTGL 41/667: Lewis 1839). By 1841, a lighthouse had been proposed for Shortland's Bluff and Cape Schank (GA 24/4/1841:2; LTGL 41/908- Cole and Brown 1841), at the direction of Governor Gipps, and these were later instituted by Gov La Trobe (Boys 1841; LTGL 42/401: Thomson 1842). There was great competition for the anticipated appointment as the first light and signal keepers (LTGL 39/86: Scard 1839; LTGL 42/17: Simson 1842; LTGL 42/478, Hilland 1842; LTGL 42/1530: Newby 1842; LTGL 42/516: James, 1842; LTGL 42/2041: Gleeson 1842), and many suggestions as to where the light should be located (predominantly at Shortland's Bluff, and for the construction of lead lights to guide vessels through the West and South Channels (LTGL 40/319: Sutton 1840; LTGL 41/532:Lewis 1841).

Construction of the first lighthouse began in 1842, when the tender was awarded to Mr Beaver to build a lighthouse, storeroom and residence (LTGL 42/404: Thomson 1842). Sandstone was quarried from the base of Shortland's Bluff (Cuzens 1912:1), and used to construct a 60 ft high tower (109ft above sea level), with 18 x 17ft accommodation quarters (for the light keeper and his assistant) (Stokes 1843 [chart]) which were constructed by 1849 and formed the lower story of the structure (Argus 9/2/1849). The tower was 8ft in diameter at the base and 6ft 6 inches at the top (Raison 1997:2). The lamp which was constructed in Sydney (Argus 9/2/1849) lantern was delivered in 1843, and the light was first lit on March 29th (PPG 29/3/1843:2). The continuous light stood 152ft above sea level (NTM 29/4/1843:2) and as it was visible for only 14 nM was not well considered. The lower lightkeepers cottage pointed to the end of the shoal off Pt Nepean and formed a leading mark with the light. Stanley commented in 1849 that the light was only visible

outside the heads between the bearings south half west and south west half west, and that Pt Lonsdale was a more suitable lighthouse location (Argus 9/2/1849)

The use of sandstone as a building material proved to be a poor choice for the area, as it crumbled in the damp environment leaving the light structurally unsound. Although interim repairs were undertaken to whitewash and plaster the building, an internal red gum supporting frame had to be built inside the light 1(LTGL 43/2037: Bunbury 1843; LTGL 43/2087: McCann 1843; Cuzens 1912:1; Raison 1997:2). It was advocated that the light was underpowered, and its elevation was too short to be seen by vessels outside the Rip close in to shore (MMH 6/3/1844:4; LTGL 43/2027: Bunbury 1843) and by February 1844 the lamp had been moved to the edge of the cliff, presumably to address this problem (PWONTM 20/2/1844). By 1847, a new lantern was ordered from England (Raison 1997:4). The lantern mechanism from the light was removed from the lighthouse and placed on a temporary stand in late April 1849 (GA 17/5/1849:2), until the modifications to the lighthouse tower had been completed in 1850 (Raison 1997:4). It was during this time that the *Princess Royal* went ashore at Pt Lonsdale, and her Captain blamed the obscuring of the light, which had been placed on a platform above the pilots houses, for the wreck of the ship (GA 1/3/1849:2; Noble 1979:43).

Furthermore, it was suggested that a second light, possibly a lightship moored near (the as yet unnamed) Corsair Rock, could provide the necessary warning and lead marks required to enter the Bay (MMH 6/3/1844:4), which was supported by a number of other newspapers (GA 10/6/1848:2). Although wrecks still occurred at the Heads, and the want of further lighthouses or misplacement of the current lighthouse inside the Heads rather than at Point Lonsdale (GA 1/3/1849:2) were blamed, some newspapers criticized the vessel masters themselves for recklessness and bad behaviour (GA 1/3/1849:2). Instances were also reported where the light had been unlit during the evening.

Port Phillip Heads is becoming rather an interesting locality, from continuous arrival and departure of vessels, and it will of course become much more so, when the extra lighthouse is erected, the electric telegraph at work, to say nothing about the quarantine station. Of course, we shall have to erect two guardian fortresses, bristling with cannon, but no such item appears in the estimates (GA 12/11/1852:2).

The Ballarat gold rush led to a shortage of men in the area, and it was difficult to find men to work the lighthouses in 1853. In that year, Messr Simpkin (and his family) arrived at Shortland's Bluff to act as an assistant lightkeeper under the Superintendent Mr Foy. At this time the central tower was surrounded by a room on each side for the men. The light itself was composed of 26 oil lamps with large silvered reflectors and fitted with a circular frame and an all round light that used sperm oil. Capt Nicholson, master of the Govt Schooner Empire also assisted with lighthouse duties at this time, and also looked after the buoys in the channels. The oil barrels were unloaded over the side of the vessel and towed ashore, where they were transferred to the lighthouse by a dray (Simpkin n.d.:2). Waste oil from the lamps (drip oil) was often given to the local indigenous population who used it as a form of sunscreen (Simpkin n.d.:4).

By 1860, the original lighthouse was being replaced as it was too close to the cliff edge (GA 6/11/1860) and stood on the site of a planned battery (Raison and Beavis 1998:10). The light was still operating in 1861, when it was described as a painted white circular stone tower, 108 ft high (ASL) visible from the south to SW sectors up to 16 nM (VGG 15/1/1861:77). When it was finally dismantled, the stone from the lighthouse was used in the construction of the residence Doongarra in Hesse St, and in the back portion of the house located on the Bank of Victoria site (Cuzens 1912:1).

The site of the lighthouse is now occupied by gun emplacements, but evidence of its former existence is visible at the northern side of Shortland's Bluff, where the quarry used to provide stone for its construction can still be seen.



Figure F-4. 2: Quarry used to construct the 1842 lighthouse, Shortland's Bluff.

II) Shortland's Bluff Low Light (Timber) Lighthouse Tower



Figure F-4. 3: Shortland's Bluff Timber Lighthouse Tower 1860 (Watercolour by R. Cossamore. Photo: WD55, QHM Collection).

While improvements were made to the original lighthouse, La Trobe discussed the possible installation of a second leading lighthouse with ships masters and pilots, who recommend a second light to lead vessels through the Heads. The Harbour Master at the time objected to the installation of a second light, on the grounds that it was likely to cause further loss of life and property when vessels tried to enter the harbour at night. However, the gold rush led to increased vessel traffic at

the Heads, and after separation from NSW in 1851 La Trobe ordered that another light be built for this purpose. A contract was let to a Mr Moody in 1852 for a prefabricated timber structure to be delivered to Queenscliff, for installation on piles driven into sand atop the dunes at the back beach. The lantern was manufactured in Melbourne (GA 12/11/1852:2; Raison 1997:4).

When constructed in 1854 (Raison 1997:5) the new light was painted white and stood 80 ft above sea level, displayed a fixed red light, and was known as the Low Lighthouse, and the original Shortland's Bluff light was the High Lighthouse. A cone shaped iron beacon on Swan Point and the Shortland's Bluff Flagstaff were both used as open lead indicators on this lighthouse to clear the obstacles on either side of the channel (Burdwood 1855:121).

The light was still in operation until at least 1861, when it was described as painted white timber structure with a fixed red light standing 80 ft (ASL) and visible for 12nM in the SW to SW1/4 W sector (NTM VGG 15/1/1861:77). The structure was replaced in 1863 by the new Low Lighthouse (GA 1/1/1863:2), and was re-erected at Pt Lonsdale.

III) Shortland's Bluff Flagstaff/ Signal Mast

This flagstaff constructed around the same time as the Low Light Tower (1854), and in addition to being used to communicate with shipping, it was operated in conjunction with the Low Light Tower as a western open lead to clear Pt Nepean and Corsair Rock (Burdwood 1855: 121; Raison 1997:5). The fortress signal staff was used in conjunction with the old lower light as a lead mark through to clear Corsair Rock, and had to be replaced when the signal station was demolished to make way for the new telegraph station in 1863. This was replaced with a stone obelisk on the site of the wooden light, and the eastern wall of the telegraph station became the rear mark (Raison, 1997: 11).

IV) Queenscliff Signal Station/ Lookout House



Figure F-4. 4: Shortland's Bluff High Light, Signal Station and Mast c.1878. Note Wreck Bell in right hand side of Signal Station (Photo PH23, QHM Collection).

In 1842, a Signal Station was established by the Telegraph Department inside the current grounds of the Queenscliff Fort. The current wooden tower is 41 ft high and set on a concrete base. The top of the tower has an elevation of 103ft ASL, with the truck of the Mast. The signal station recorded vessels entering and leaving the port, and also kept watch over events in the Bay. Vessels were required by law when entering or leaving the port to display flags indicating their number of house

flag, along with the number of their destined port identity until they were signaled by the station (Jarrat 1865:48). The signal station was demolished to make way for the new telegraph station in 1863 (Raison 1997: 11), and appears to have been moved again sometime between 1863 and post 1882 (McWilliams 1865 plan; QHS Photo PH19).

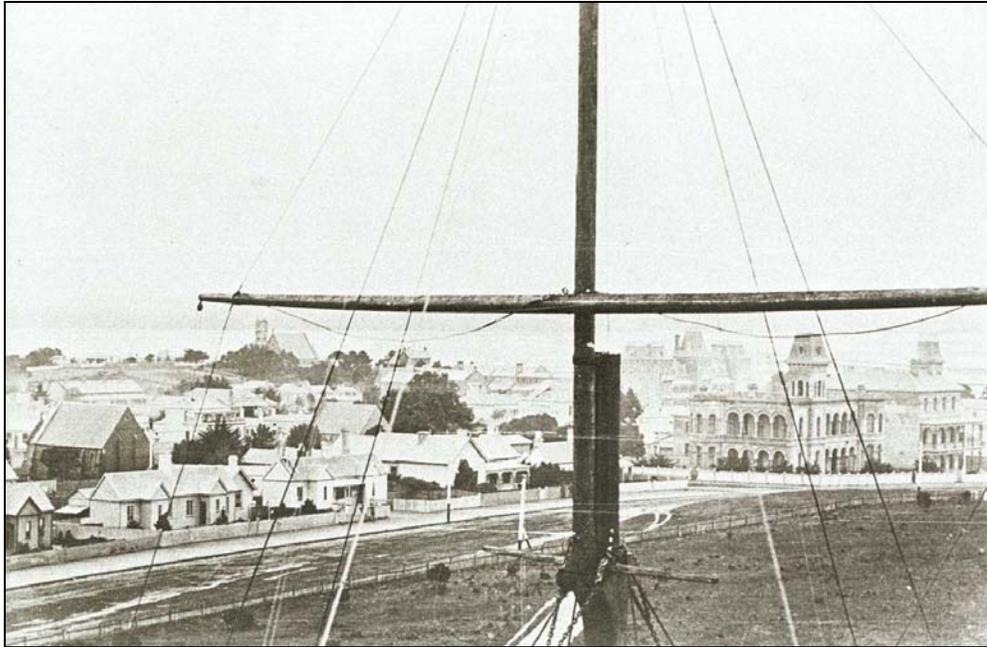


Figure F-4. 5: Signal Station Mast, c.1882 from High Lighthouse (PhotoPH19, QHS Collection).

2) Shortland's Bluff High and Low Lighthouses/ Accommodation

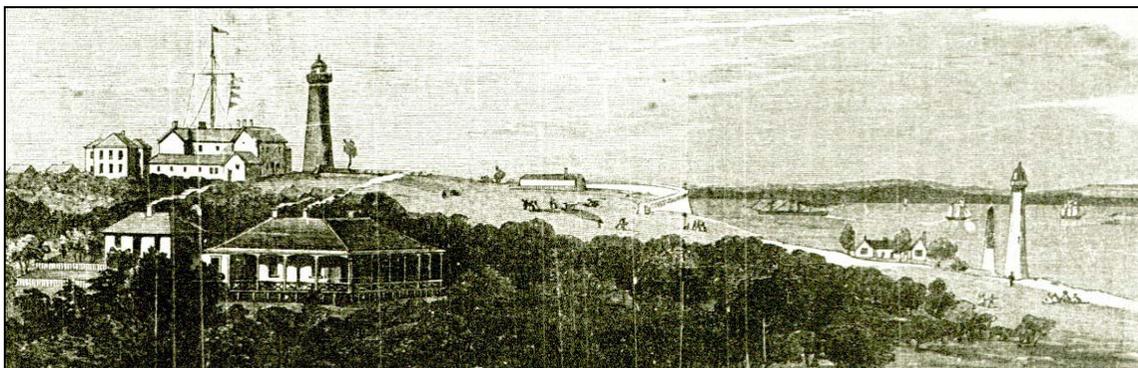


Figure F-4. 6: Shortland's Bluff Lighthouses 1864 (After ISN, 16/12/1864. Photo WD69, QHM Collection).



Figure F-4. 7: Shortland's Bluff Lighthouses and Accommodation From West, c 1870. Note Flagpole at Left of Lower Lighthouse (After: Photo WD50, QHM Collection).

By 1856, the threat of shipwrecks in Bass Strait had become so acute that a Joint Commission of the Colonial Governments of Victoria, Tasmania, NSW and South Australia was formed to deliberate the adequacy of existing lights and the possible installation of further facilities. The Commission recommended construction of new lights along the Victorian coast (including Cape Schank, Gellibrand Point lightship, and Shortland's Bluff leading lights), and that Commissioners report to their own states on the condition of existing lights (Bach 1982:131; Raison 1997:5; Noble 1979:47). Although suggestions had been made for raising the height of the Shortland's Bluff High Lighthouse, the Victoria Commissioner did not consider it as a matter of urgency. It was also agreed that there was no need for a lighthouse at Point Lonsdale (Raison 1997:5).

By 1859, there was increased pressure for a battery to be staged at the heads to protect the colony from potential raids against its gold supply and transport ships. The Shortland's Bluff (Original High) Lighthouse was already inconveniently placed on the site of the proposed battery, but in 1860 a proposal was adopted to proceed with the fortifications. In 1861, tenders were called for the erection of two new lighthouses on Shortland's Bluff, and contracts were let to two local Melbourne builders, Alfred Pooley and Co and C.S. Baillie to build the upper and lower lighthouses (respectively). Pooley later drowned when he fell over the reef near Bell Rock (Simpkin n.d.:8). The lamps, lens and mechanisms were manufactured by Chances Brothers of Birmingham (England). The construction of the High light was delayed due to problems in finding a suitable foundation, but the work was completed by April 1862 (Raison 1997:6). Both lights were constructed of bluestone from the Yarra River Banks, which were shaped and numbered by the local stonemason for re-erection at Queenscliff. The bluestone blocks each weighing between 3-5 cwt, were delivered via barge from Melbourne and placed on a bed of concrete 12 ft thick. It was considered to be one of the strongest buildings in the colony (GA 28/4/1862:2; QS 11/5/1912).

By 1863, a notice had been issued concerning the alteration of lights at Shortland's Bluff (GA 1/1/1863:2). The new lights stood on a line 106 ft to the west of the old lights, and mariners needed assurance that the new leads presented the safest course for deep water vessels through the Rip. The lower lighthouse was painted white to distinguish it from the upper one, which retained its natural black bluestone colour. The new High Light was 360 ft to the NNE of the former sandstone light, and the new low light was 89 ft to the WNW of the former low light tower. The new low light now had red and white sectors. When the continuous white light of the High Light was kept in line with the red sector of the Low Light, vessels knew they were safely within the confines of the narrow channel (Raison 1997:7). Both lighthouses were designed by Public Works Architects,

under the direction of the supervision of the inspector general of public works, William Wardell, but Raison (1997:8; Australian Dictionary of Biography Volume 5) suggests that they may have incorporated a feature common to English lighthouse built on rocks at sea level, where the doorways were set several metres above the ground.



Figure F-4. 8: Shortland's Bluff Lower Lighthouse, Accommodation and Flagpole 1869 (Thomas, Image b28671, SLV Collection).

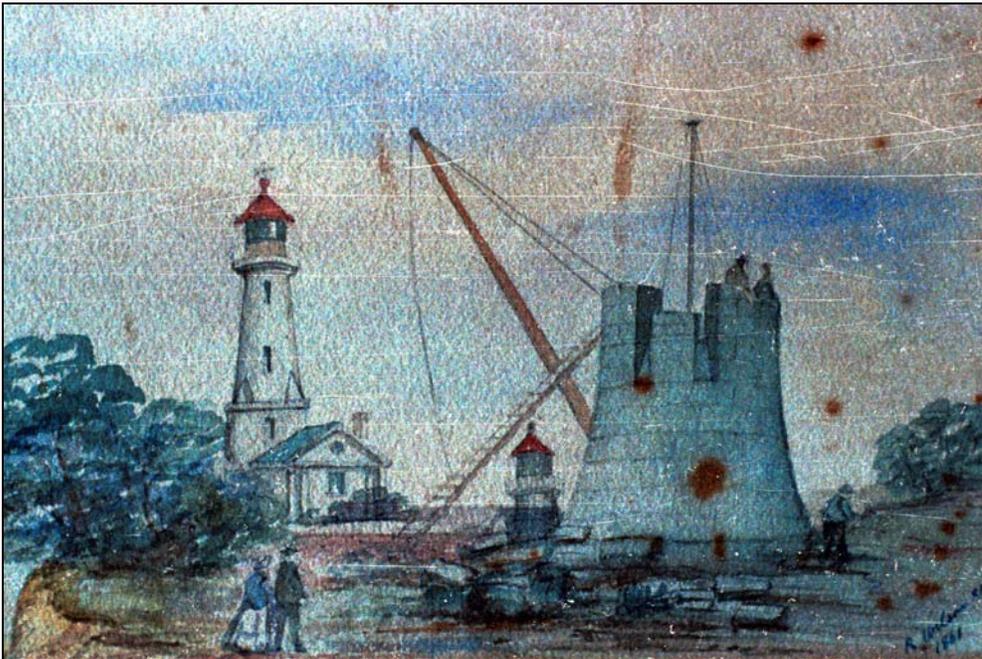


Figure F-4. 9: Shortland's Bluff lighthouses, 1861. From Left: Original Lighthouse (1842), Low Light Timber Lighthouse Tower, and High Lighthouse under construction (From Watercolour by R Wilson, Photo WD54, QHM Collection).

New accommodation was required for the lighthouse keepers, as the old sandstone structure had contained the accommodation and was demolished along with the lighthouse. In 1863, new quarters consisting of a terrace of five two story brick and stone houses were built for the upper

lighthouse keepers by James Stone at a cost of £3298. Timber houses were built for the lower lighthouse keepers by C.S. Baillie for £1297 (Raison 1997: 8-9).

I) Telegraph Station

This telegraph station was built in 1863 (Raison 1997:11) and is shown in McWilliams 1865 plan and Map HWL6092 1877.

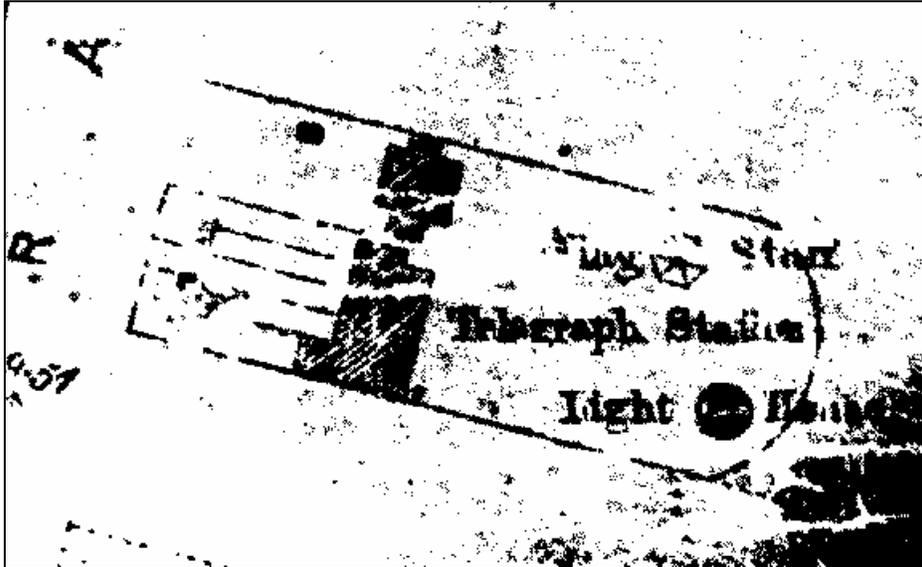


Figure F-4. 10: Telegraph Station 1865 (McWilliams 1865, QHM Collection).

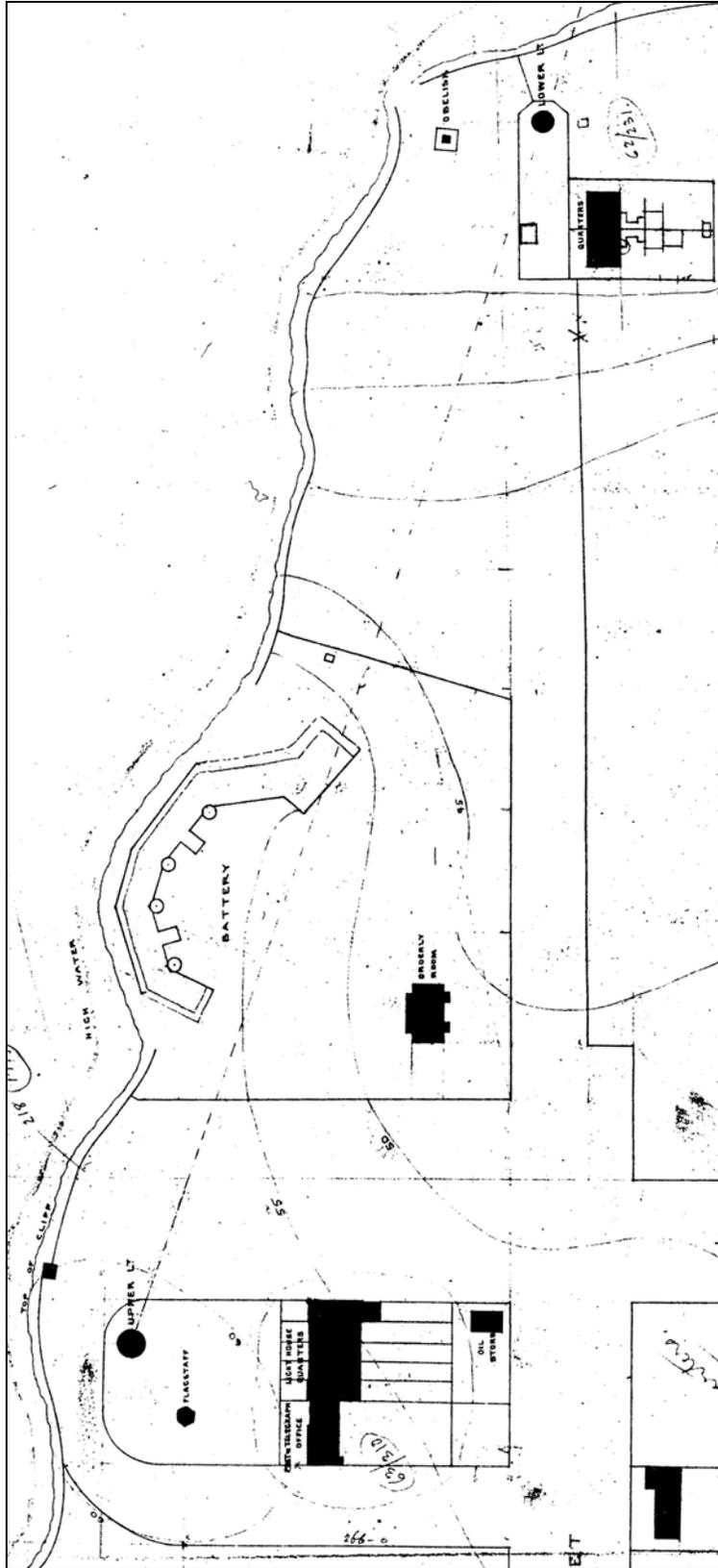


Figure F-4. 11: Shortland's Bluff Lighthouses 1877 (PWD c. 1877 [plan], QHM Collection).

II) Shortland's Bluff Obelisk

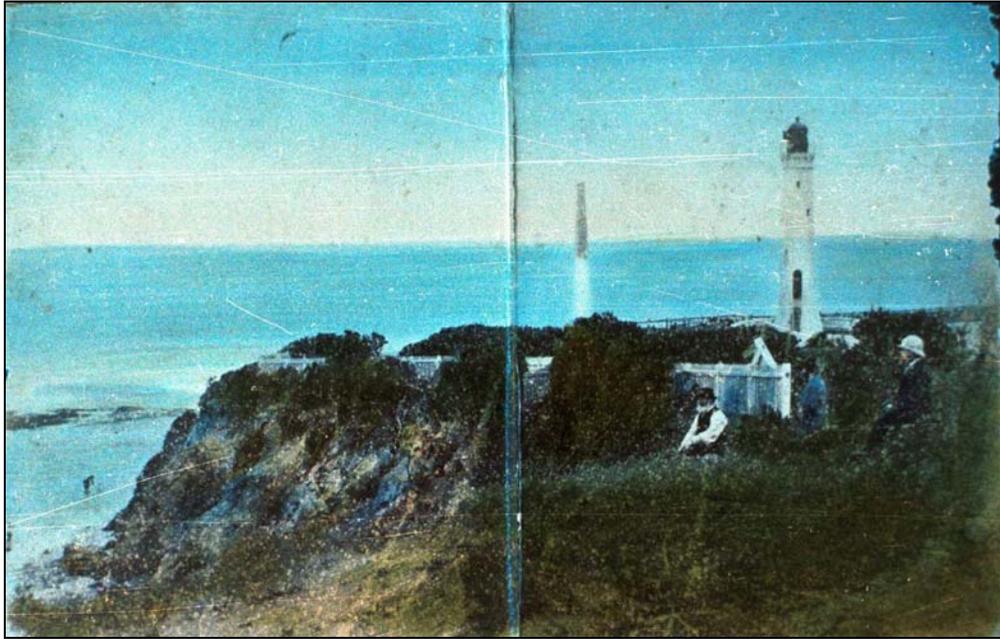


Figure F-4. 12: Obelisk and Low Lighthouse, Shortland's Bluff c. 1870. Note Duty Member of Health Officer Crew on Lookout for Incoming Vessels (Photo: PH55, QHM Collection).

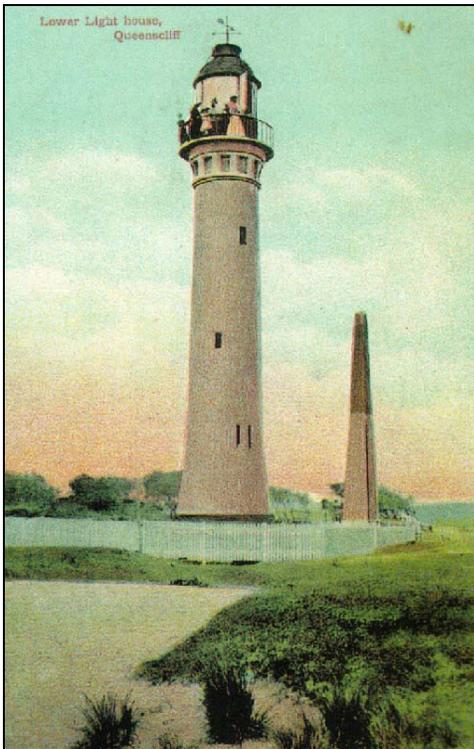


Figure F-4. 13: Low Light and Obelisk (In: Hawthorne 1998).

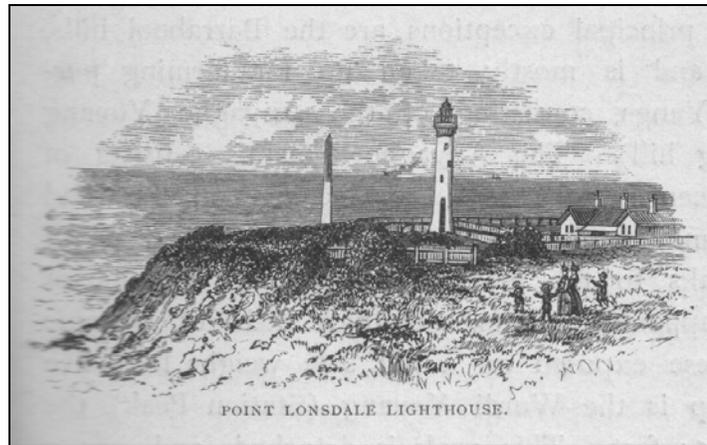


Figure F-4. 14: Shortland's Bluff Obelisk, Low Light and Lighthouse Keepers Quarters (Sutherland 1888b: 145).

When the new upper quarters were built in 1863, they were constructed in line with Telegraph Station, which necessitated the removal of the signal mast. A new lead mark for the clearance of the Corsair Rock was now required, and a stone Obelisk was constructed on the site of the former Low Light Tower, which was used in conjunction with the eastern wall of the Telegraph Station (Raison 1997:9). The obelisk was also used in conjunction with the east side of the High Lighthouse to clear Lonsdale Rock (Yule 1868:213).

By 1959, the obelisk was listed as a brick beacon was 50 ft high, painted white, 78 ft ASL with an occulting green light. This obelisk was used in conjunction with the High Light to mark the eastern limit of the Deep Water Channel (Ports and Harbours Branch 1959:188). It was demolished in 1976, and was replaced by the Murray Tower (Noble 1979:52).

III) Channel Deepening

When a survey of the Rip was undertaken in 1903, it was suggested that explosives could be used to deepen the entrance channel to a depth of eleven metres by 610 metres wide. A Victorian Naval Gunboat, the *Albert*, was used by the Ports and Harbours Department for the blasting operations (Noble 1979:49). The work of channel deepening in the Rip had to date taken ten years and lowered the entrance by only 7ft. After the vessel *Cufic* struck the bottom in a large swell in 1910, it was recommended that the work proceed with great haste (QS 29/7/1911; Noble 1979:50). Special signals were used when the port entrance was closed due to blasting procedures (HOA 1913:31). Work proceeded slowly over the next few years, and by 1914 it was anticipated that a uniform depth of 40ft would be provided in the Heads Channel within three years (QS 28/2/1914). In order to speed up works, explosives for the operation, which had previously been stored at Altona (near Melbourne), were now transferred to the South Channel Fort, which had ceased operating in 1914. Naval Mines were successfully tested for blasting in 1930 (Topp 1930).

Another former gunboat, the *Paluma* was seconded to replace the *Albert*, was renamed the *Rip*, and was used for blasting until 1950 when she was replaced by the minesweeper *Whyalla* (also renamed the *Rip*) by the Ports and Harbours Department. By 1916, the entrance had been blasted to a navigable depth of 12m depth and 305m wide. By 1918, pilots agreed to take vessels over 8.5m draught outwards providing they were granted absolute right of way (Noble 1979: 50).

During WWI, the Port Phillip Sea Pilots were given authority as Lieutenants in the naval reserve to control all merchant shipping entering and leaving the port. After the war, it became necessary to introduce a system for closing the Port to incoming vessels at the signal station at Pt Lonsdale. By this time the Rip channel was 13metres deep and 305 metres wide. Blasting continued until 1978, when the three channels had been constructed with the largest 15.5 metres deep and 242 metres wide, and plans had also been made to deepen the approaches to Geelong and Melbourne. Around this time experiments were undertaken using the oil tanker *Philine*, which when ballasted to 13m depth made a series of runs across the Rip bank to record its scend and the sea and swell effects on the vessel, which were recorded by specially constructed equipment in a shed ashore at Pt Lonsdale (Noble 1979:50, [CSp; LID]).

- **Pre 1901:**
 - Prior to blasting ships over 28ft depth were not permitted to through the Rip.
- **May 1901:**
 - Deepening and widening of the navigation channel began.

- **Jan 1902:**
 - Original depth 30-40ft.
 - Rip Bank was surveyed.
 - Blasting was only undertaken in slack water and in fine weather, but not at night. An explosives charge of 205kg was fired after a diver had placed it in position and all ships had been cleared from the area. Sweeping gears would then check that no pinnacles were left standing. A sweep was done every 4 years.
- **1913:**
 - Deepened to 37ft.
- **1916:**
 - Deepened to 40ft.
- **1924:**
 - Deepened to 43ft.
- **1934:**
 - Deepened to 43 ft and 1450ft wide.
- **2001:**
 - Today the maximum depth of vessels to use the Rip is 11.9m (39ft).
 - Pilots bring vessels through on the maximum high tide (QMM Display).

(a) Effects of Channel Deepening

(i) New Lights Required

The deepening of the Channel led to the construction of several new lights and beacons at Shortland's Bluff, including the Hume Tower, The Obelisk, the Murray Tower and the white diamond beacon (Noble 1979:52).

(ii) Changes in Current Direction

However the channel deepening had adverse effects on the surrounding environment. Besides affecting the new lighthouse structure, lighthouse keeper Stevens (based at Pt Lonsdale) maintained that the blasting had changed the direction of the current, which was now striking against Bay Beach in Lonsdale Bight. This had major consequence for the local topography, as rock shelves which had previously been permanently covered were now periodically exposed, and the currents had adverse effects on swimmers who were now subject to being trapped by the tide or swept away, as were bathing boxes which dotted the beach. As a result, the shoreline began to erode and the cliffs collapsed, and a half mile long seawall was installed around the 1950s to prevent further damage (Dunn 1949: 72-73; [AH]). The Rip blasting also affected shell fish stocks at Mud Island. [CS] recalled that before the Rip was blasted he used to be able to fill a fish box with cockles in half an hour, but that afterwards they all disappeared.

IV) King St Lighthouse Keepers Quarters

By 1885, the previously open fortress was enclosed, and the lighthouses keepers quarters were transferred outside the fort to King St between St Andrews and Gellibrand Streets (and have now

all been demolished). New quarters for the Lower light were also built by local builder Messrs Golightly, and have been demolished too (Raison 1997: 10).

The light of the upper light was due to be replaced in 1907 (QS 31/8/1907). The old light was made by the Chance Brothers, and was due to be replaced by a 1000 candle power light (The Kitson), along with an acetylene gas plant for the auxiliary in the lower light.

V) Hume Tower



Figure F-4. 15: Shortland's Bluff Obelisk, Low Lighthouse and Hume Tower c. post 1924 (Image a02719, SLV Collection).

With the widening of the channel through blasting operations from 1924 onwards, new beacons were required to designate the new extremities of the channel. The Hume Tower was a 92 ft high painted (white) steel framework structure with an occulting red light at 110ft ASL that was built on 1st July 1924. In conjunction with the High Light, the tower marked the western limit of the 38 ft (11m) channel over the Rip Bank, which ensured safe clearance of Lonsdale Rock (Ports and Harbours Branch 1959: 188; Noble 1979:52).

VI) Park Beacon/ Mast

Situated in the park to the immediate north of the fort, was a white flagstaff mast with a red diamond top-mark. This mast was used in conjunction with the Low Lighthouse as a transit to mark the western extremity of the outer Corsair Rock. It was also used in transit with the Obelisk to mark the western edge of the Campbell wreck which covered at half tide (Ports and Harbours Branch 1959: 188).

VII) Shortland's Bluff White Beacon

This white prismoidal Back Beach Beacon stood 25ft high at a height of 37ft ASL, 298° 10' 283ft from the Low Lighthouse. In conjunction with the High Lighthouse, it delineated the edge of Lonsdale Reef, which dries at Low Water (Ports and Harbours Branch 1959:188).

VIII) Fort Beacon

A white conical beacon 16 ft high topped with a white spar was once located inside Queenscliff Fort, and was used in transit with the High Lighthouse for a channel that provided a minimum depth of 26 ft to clear Mushroom, Yellowtail and Lonsdale Rocks, as well as to skirt the kelp beds at Victory Shoal. This route was often used by local vessels to avoid the full force of the tide (Ports and Harbours Branch 1959:194).

IX) Fort Flagstaff

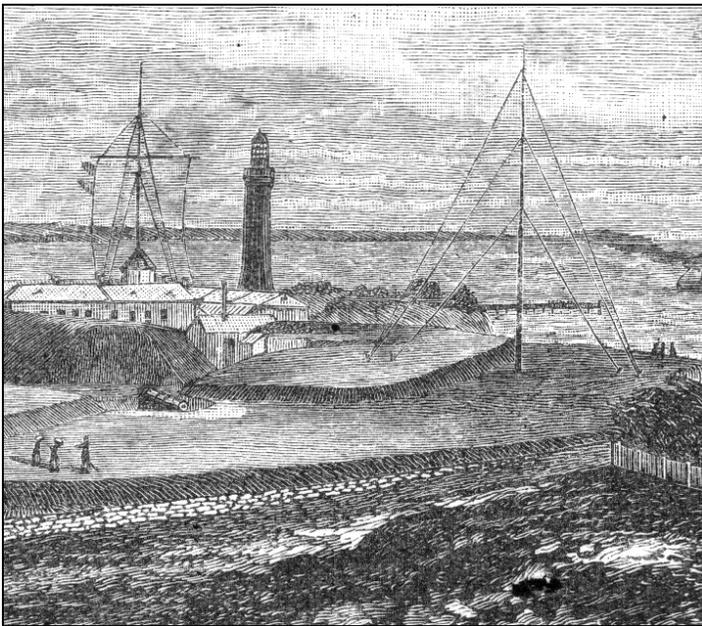


Figure F-4. 16: Fort Flagstaff (on right) from the south in 1888. Note High Lighthouse and Signal Station at left (Sutherland 1888:461).

A 53 ft flagstaff stood in Fort Queenscliff (near the NE corner of the range-finding Station), and appears in etchings of this area from 1888 (Sutherland 1888a:461). It was moved to a new position in 1952 to be used in transit with High Light when abreast of Lonsdale Rock to indicate a position west of leads, and when outside it signified a location on the western limit of 45ft Channel (Ports and Harbours Branch 1959:194).

X) Ball Beacon

Located on the SE extremity of a reef called Lighthouse Point, this 6ft high concrete beacon marked the edge of the deep water near Shortland's Bluff (Ports and Harbours Branch 1959:188).

XI) Murray Tower

This steel structure was constructed in 1974 to replace the obelisk, which was demolished shortly afterwards (Noble 1979:52; Raison 1997:12).

B) Swan Point

I) Swan Point High Beacon

A beacon was noted on Swan Island as early as 1843 (Stokes 1843 [chart]). The 50ft high iron cone shaped structure was used in conjunction with the Low Light Tower as an eastern open lead to clear Pt Lonsdale (Ferguson 1854:10; Burdwood 1855:121; Ross 1859 & 1860 [chart]). A replacement beacon had been installed by 1858 (NTM VGG 1858:1135), and was listed as white mast surmounted with a red top on the southeastern extremity of the island in 1868, and was used in conjunction with the Shortland's Bluff cliff face to clear Lonsdale Rock (GA 17/5/1875; Yule 1868:215, 1884:313). It was replaced in 1875 by an 80ft high conical tower made of redgum and oregon that was constructed in Williams town, and was taken to the site on the 11/5/1875 (GA 17/5/1875). By 1898, it had been extended to an 80ft high white beacon (probably to replace the Swan Spit Pile Light), surmounted with a red cone and ball, and was used in conjunction with the High Lighthouse on Shortland's Bluff to lead clear of Lonsdale Rock (Yule 1898:436). By 1907, the beacon was replaced with a 60ft high tubular steel structure 60ft high, painted white with a red top (HOA 1907:432). By 1913, the Swan Island Beacon had been replaced by a steel framework beacon with sloping sides, surmounted by a staff and globe, and retained its previous colours (HOA 1913:31). By 1955, a new 22m high steel framed beacon (with white slatted front and red disk top) was placed on the original site, with a triangular walled enclosure on the cope on which was a hut was built. It was used in conjunction with the inner lamp post on the New Pier and open from Shortland's Bluff to clear the shoalest portion of Lonsdale Rock area by 500ft (Ports and Harbours Branch 1959:201, 248).

II) Swan Point Low Beacons

Two beacons were located 300ft apart at the extremity of Swan Point in 1858. The northern beacon was red, and the southern black, both cone shaped with a ball over the top. These beacons were used as marks to clear the knoll in the West Channel, and beared from each other E by S and W by N (NTM VGG 22/6/1858:1134).

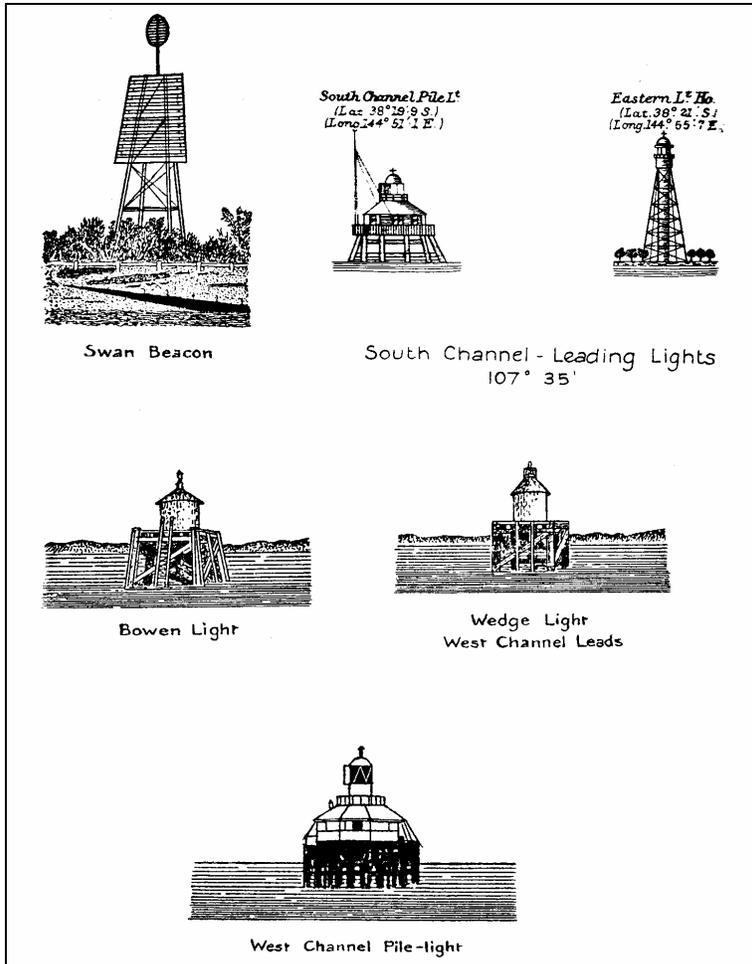


Figure F-4. 17: Channel Lights of Port Phillip in 1959 (Ports and Harbours Branch 1959:248).

C) Swan Spit Lights

I) Swan Spit Lightship #1

The Swan Spit light ship was installed sometime between 1855 and before 1860 (Burdwood 1855:124) to delineate the bank of the Swan Spit.

II) Swan Spit Lighthouse/ Pile Light

The Swan Spit Lightship was replaced by a pile lighthouse in 1860, which stood in four metres of water (Noble 1979:47). In 1860, one of two light keepers stationed at the lighthouse was lost after he failed to dock there and had to sail past on dusk (GA 14/11/1860:2). The timber lighthouse was built upon piles on the SW end of the Swan Spit in 15 feet of water, and exhibited a red fixed light that was visible from all directions. Vessels were warned not to approach closer than 180 ft of the beacon (VGG 15/1/1861:77). By 1868, the timber lighthouse exhibited both white and red sectors, with the latter indicating the entrance to the West Channel, and a fog gong was fitted (Yule 1868:216).

In 1864, the light keepers had apparently neglected the light by allowing it to go out, which delayed a number of pilots from entering the heads until daylight. The Chief Harbour Master (Capt Ferguson) and the Superintendent of lights (Mr Foy) investigated the case and forwarded their findings to the government for consideration after the light keepers admitted the negligence (GA 20/6/1864:2). The pile light was destroyed in 1881 by the vessel *Omeo*, which when drifting in calm weather completely demolished the structure (Yule 1884:313; Dod 1931:28; Noble 1979:47).

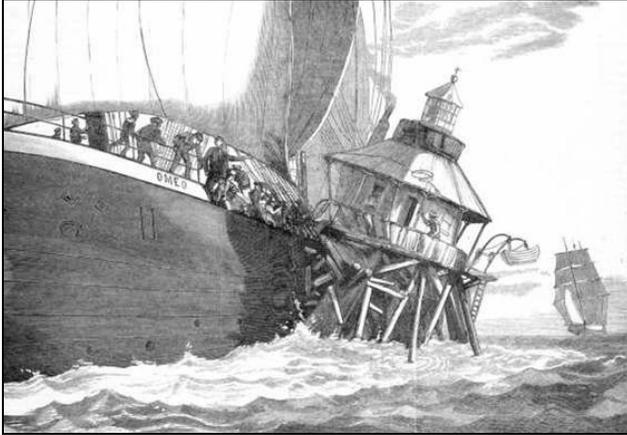


Figure F-4. 18: Vessel *Omeo* Collision with The Swan Spit Pile Light (Image: IAN, 5/10/1881, SLV Picture Collection).

Life aboard the lighthouse was often boring and sometimes perilous:

The light keepers at the Swan Spit Light would often catch fish from the light to feed themselves. Two light keepers was almost murdered each other one night after a card fight on there. [PF]

III) Swan Spit Lightship #2

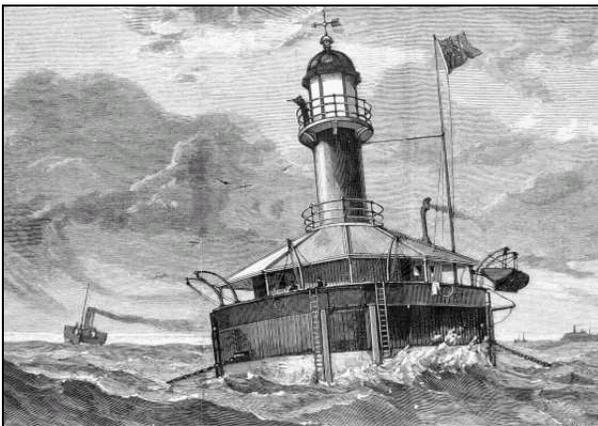


Figure F-4. 19: Swan Spit Floating Lighthouse #2 in 1886 (Engraving: S. Calvert, SLV Collection).

A new lightship replaced the former pile light by 1884, and was moored one cable ENE of the lighthouse site near the position of the black buoy. A fixed red light visible for 8M was exhibited and a gong was sounded every ten minutes in foggy weather (Yule 1884:314).

IV) Swan Spit Lightship #3

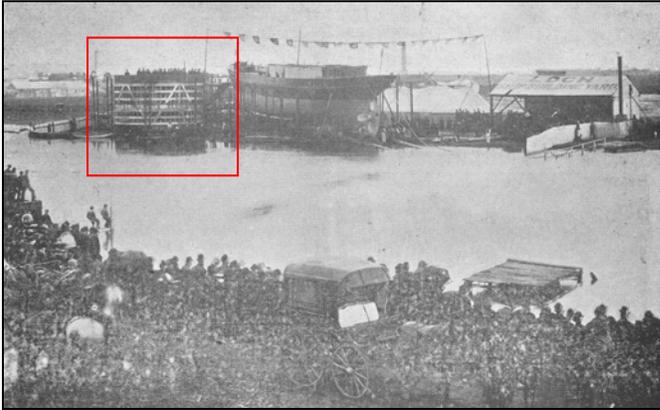


Figure F-4. 20: The launch of the Lady Loch at Lochs Shipbuilding Yard. Note the Swan Spit Lightship (#3) under construction on the left (In Michell 1909: n.p.)



Figure F-4. 21: Swan Spit Lightship #3 on location at Gellibrand's Point (In: Gibson 2000).

A new iron lightship was about to be constructed for the Swan Spit at a cost of £ 4000 in 1884 (QS 19/7/1884), and was built by Anderson, Campbell and Sloss in the Maribyrnong River near Melbourne between 1886 and 1887. The circular iron lightship was 36 ft in diameter, painted red and topped with a round iron tower topped with a red light 38ft above sea level, and was known as the “Dancing Bottle”. It began duty on 12th September 1887, and continued at this site until 10th October 1894, when it was moved to take up station at Point Gellibrand near Melbourne (COPW 1888; Gibson 2000:8; Noble 1979:47). The lightship was commanded by Capt Liddell (Cuzens 1912:1). This vessel was later modified by removing the upper superstructure (accommodation quarters and tower lantern) and placed atop a pile structure to become the Gellibrand's Point Pile Light in 1906 (Gibson 2000:10). The structure was partially demolished when the vessel Melbourne Trader collided with it in fog in 1976. The structure was considered a

hazard to shipping, and the upper building was burned to the waterline by the Port of Melbourne Authority in the same year (Gibson 2000:14).



Figure F-4. 22: Gellibrand Pile Light (ex Swan Spit Lightship #3) being burnt to the waterline 1976 (After Photo: Laurie Dilks Collection / Bob Leak Collection. Dogwatch Issues No. 57: Cover).

V) Swan Spit Gas Buoy

By 1897, the lightship had been replaced by the Swan Spit Gas Buoy, which displayed a red occulting light (six to 8 times a minute), and was anchored in 18 ft water on the Swan Spit, bearing S 80°E nearly 9M from the Swan Island Beacon (Yule 1897:436).

D) Harbour Triangulation Beacons (Duck Island/ Pt Norgate/ Swan Bay)

White prismoidal beacons 16 ft high marked the harbour triangulation stations in 1959. They once stood on Pt Norgate at the north west end of Swan Island; the north end of Duck Island, and on the western shore of Swan Bay 2.5 cables north eastward from the root of MacDonald's Jetty (Ports and Harbours Branch 1959:241).

E) Point Lonsdale Signal Station/ Flagstaff/ Lighthouses/ Beacons

I) Tide Signal Station Flagstaff / Lookout House & Telegraph Station

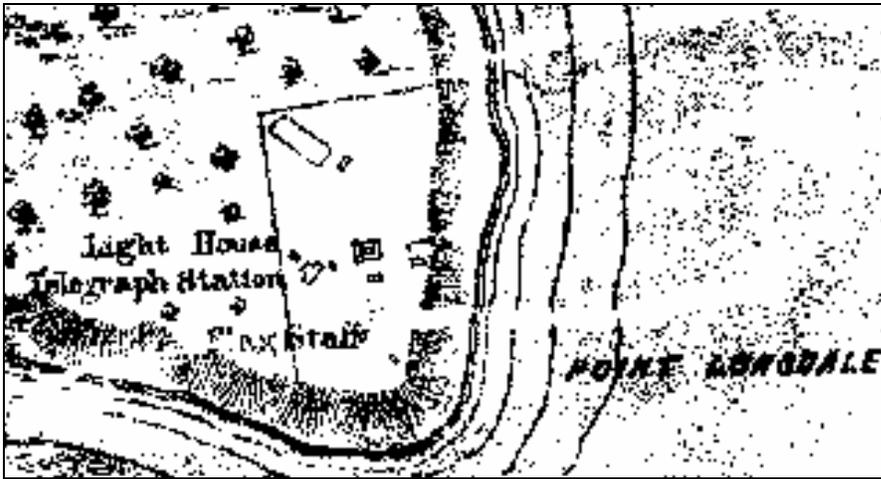


Figure F-4. 23: Pt Lonsdale Lighthouse Reserve Showing Locations of Timber Lighthouse, Telegraph Station and Flagstaff (McWilliams, c. 1863 plan, QHM Collection).

A flagstaff was in operation at Pt Lonsdale since at least 1843 (Stokes 1843 [chart]). A tidal signal station had been operating at Point Lonsdale since at least 1852, when Captain John Preston was appointed as the Signal Master (Dunn 1949: 28-9; Simpkin c.1900:2; Raison 1997:10). The operators were involved with the care of survivors from a shipwreck on many occasions (GA 2/5/1853:2). The conduct of the Mr and Mrs Potter at the Flagstaff, and Mr Foy (Superintendent of the Shortland's Bluff Lighthouse) displayed great promptitude in sending a dray to convey the emigrants from the wreck *Sacramento* to the heads, where Mrs Dod (at Government house) hospitably cared for them on this and on other occasions (GA 2/5/1853:2). The incidence of the wreck of the brig *Marmion* in 1853 was reported to the pilot and government vessels, via the flagstaff (GA 30/5/1853:2).

The flagstaff displayed colour coded pennants to signal the state of the tide. The station operated between sunrise and sunset (the only permitted hours for vessels to enter the port) and the signal keeper was also instructed to warn vessels approaching danger using the Marryatt's Signals (SVGG 2/6/1854:1306; Ferguson 1854:6). The tide signal station was operated by Capt Preston in 1858 before the lighthouse was later established there (Cuzens, In QS 27/7/1912).

Dunn (1949:29, 38) has advocated that a small colzol powered light which was hoisted up the flagstaff every night. However, Raison (1997:11-2) reported that this widely held belief amongst the community that the flagstaff operators (Preston and Fanning) operated a small light in the 1850s was false. This is reinforced by the lack of any mention of the light facility there in any of the contemporary sailing directions (Ferguson 1854; 1861; Burdwood 1855), and specific instructions that entering the port was not to be attempted at night (Supplement to the VGG 2/6/1854:1306). The tidal flagstaff also provided a tangible marker for the western Peninsula of the Bay, which consisted mainly of low sandy foothills (Ferguson 1861:6). It is however possible that if Preston did hoist a light each night, that it was intended as a locating beacon only to signal the entrance to the bay, but not for use in navigating through it.

Accommodation for the signal master was not constructed until 1857, when George Adman's was awarded a contract to construct a residence for Capt Preston, which meant the station staff may have lived in tents until that time (Raison 1997:10). However, Dunn (1949:29) states that Preston built accommodation in 1853-54 to avoid this situation, and also constructed underground water tanks (previously water was drawn from the soak in the flat area below the house), a sun dial (which is supposedly buried in the dunes) and planted several orchards. If this was the case, the earliest building may have been of timber construction.



Figure F-4. 24: Pt Lonsdale Signalman's/ Lighthouse Keeper's Cottage, Telegraph Station and Timber Lighthouse c.1882 (Photo: PH 2800, QHM Collection).

A lookout station was established at Pt Lonsdale sometime around 1858, which was later operated by Capt Preston's niece, Fanny Green from 1861-1869 (Simpkin n.d.: 6; Dod 1931:51; Dunn 1949:32-4). The station house, known locally as "House on the Hill", was supposedly built by convicts around 1857 (Dunn 1949:29). This structure had two foot thick stone walls, and was demolished in 1946 (Photo PH5963, 1943 (QHS), Dunn 1949:35, 39). Pilots delivered mail to Capt Preston (Dunn 1949:30), and the structure acted as the Pt Lonsdale post office for many years, before a lower house was constructed sometime in the 1860s (Dunn 1949:39), which was very well received by locals who no longer had to wait for their mail in the cold wind on the hill [JP].

In 1861, a branch line telegraph station (to Queenscliff) was established at Pt Lonsdale at the lighthouse reserve. The Morse instrument was replaced by a Wheatstone Machine that was worked by the lighthouse staff in 1869 (when Ms Green left to become postmaster in Malmsbury). This was replaced by a telephone when it was invented in 1878. The Queenscliff to Pt Lonsdale telephone line was the first to be used for the general public in Victoria (Dod 1931: 51). The station was still operating in 1884 (Yule 1884:307), and was still extant in 1943 (see Figure F-4.24).

In 1886, a signal master was stationed at Pt Lonsdale to attend the flagstaff. This flagstaff was also used to signal shipping mishaps, and relayed signals when the boat from the pilot schooner

Rip was swamped in the Boatswain Channel (QS 27/3/1886). The signal station was operated by signal master Mr Frank Dunk in 1888 who also operated the fog horn (QS 22/9/1888, cited in Dunn 1949:60-1). The tidal flagstaff was again noted in 1897 (Yule 1897:429). With the advent of radio services, the tidal signals became less important, and the service was discontinued in the early 1990s.



Figure F-4. 25: Pt Lonsdale Signal Station, 1943. Note the prisoner of war internment camp to the right, and the telegraph station still extant in the distance (Photo: PH5963, QHM Collection).

II) Pt Lonsdale Beacon

By 1856, an 20ft high unlit red pillar beacon with a skeleton ball was established 200ft north west of the flagstaff, and was used as the thwart lead mark in conjunction with the flagstaff to clear the obstruction later known as Lonsdale Rock (VGG 1856:438; 1858:1185). In 1858, it was listed as a 20ft high red pillar with a skeleton ball (NTM VGG 1858:1135). The beacon was located approximately 100 metres to the northwest of west of the flagstaff (Ross 1859; 1860 [charts]), and was noted again in 1868 (Yule 1868:210).

III) Pt Lonsdale Telegraph Station/ Lookout House/ Rocket Shed

Rockets for the rescues were originally stored in a gabled weatherboard structure at Pt Lonsdale in 1860 (Syme 2001:27), but later additional rocket sheds were installed closer to the most common wreck locations at Pt Nepean (stored in the Customs Shed - QS 13/8/1887), Pt Lonsdale (a new brick structure) and Sorrento by 1876, 1890, and 1899 respectively (Noble 1979:48; O'Neill 1988: 42; Boyd and Roddick 1996: 3, 11, 13; Raison 2002:27) and was also stored at Queenscliff in 1893 (Boyd and Roddick 1996: 11; Raison 2002:27).

Figure F-4.26 & 27 in approx 1866 shows a timber shed in this area. Later, a brick rocket shed was built closer to the Pt Lonsdale lifeboat pier.



Figure F-4. 26: Pt Lonsdale Brick Rocket Shed, Fog Horn Shed, Former Rocket Shed, Accommodation Quarters (?) and Tidal Flagstaff c. 1889. Note Holyhead Shipwreck on Lonsdale Reef (Photo PH532, QHM Collection).

IV) Pt Lonsdale Temporary Lighthouse



Figure F-4. 27: Pt Lonsdale Navigational Equipment c. 1866. From Left: Timber (Later Lighthouse) Tower (1), Telegraph Station (2), Tidal Flagstaff (3), Rocket Shed ? (4), and Temporary Lighthouse? (5) (Photo: PH328 QHM Collection).

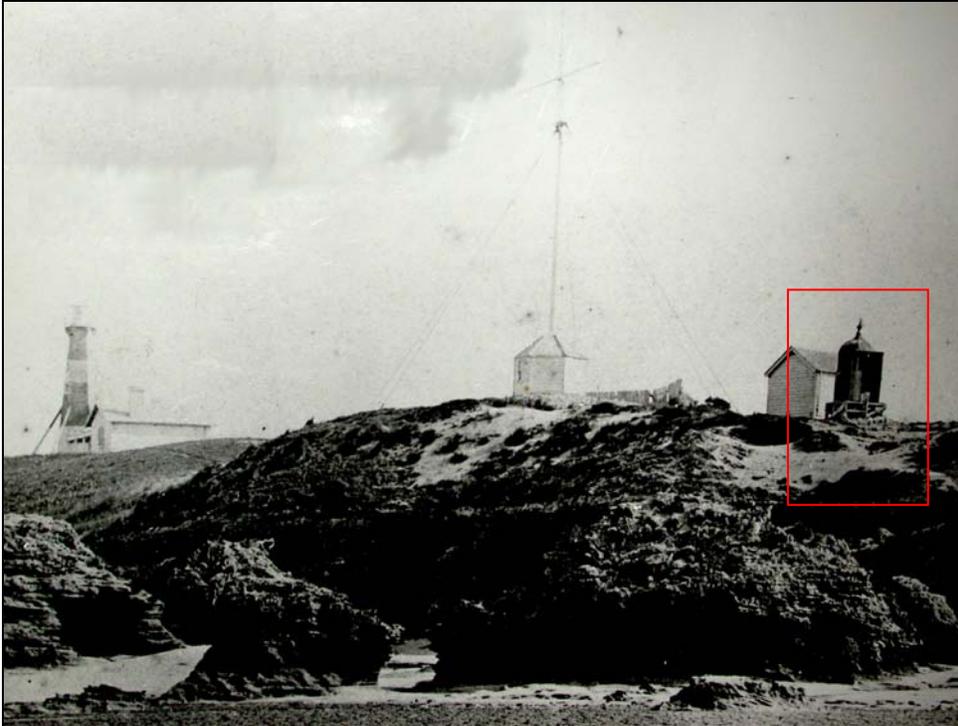


Figure F-4. 28: Pt Lonsdale Navigational Equipment c. 1866. Closer view of temporary lighthouse (Photo: PH328 QHM Collection).

After the ship *Lightening* struck an uncharted rock near Pt Lonsdale when leaving Port Phillip in 1862, subsequent surveys by Commander Henry Cox revealed two areas of submerged rocks 1400 yards SW of Pt Nepean. A temporary lighthouse was subsequently placed close to the site of the current Point Lonsdale lighthouse in February 1863. The very low structure was exhibited a narrow beam that was only visible to seaward for 7 nM (Raison 1997:11-2). The structure remained in use until 1867, when a light was placed on the old Low Light timber Tower from Queenscliff that was re-erected close to the Point Lonsdale Beacon to the west (Yule 1868:211, Raison 1997:11).

V) Pt Lonsdale (Timber) Light Tower (Ex Shortland's Bluff Low Light Timber Lighthouse)

When the Low Light (timber) Tower at Shortland's bluff was dismantled, the prefabricated structure was moved to Point Lonsdale, and re-erected close to the site of the Point Lonsdale Beacon in December 1863. The previous beacon was then removed, as the new tower performed the same daylight function. The replacement tower was painted red and black bands. However, a light was not placed on the tower until 25th February 1867, and the temporary light was then removed. The temporary light was superseded by green and red sector lights that could be used to differentiate a vessel's position outside or inside of Lonsdale and Lightening Rocks (Yule 1868:211; Dunn 1949:39; Raison 1997: 11). This lighthouse remained in service until the present Point Lonsdale Lighthouse was constructed in 1902 (Raison, 1997:12). The former tower remained on the site until 1912, when a Mr Robert Thompson used the demolished structure for firewood (The Hydrographic Office Admiralty 1913:30; Dunn 1949:69).



Figure F-4. 29: Pt Lonsdale Timber Light Tower c. 1867 (Photo PH4560, C. Nettleton, QHM Collection).

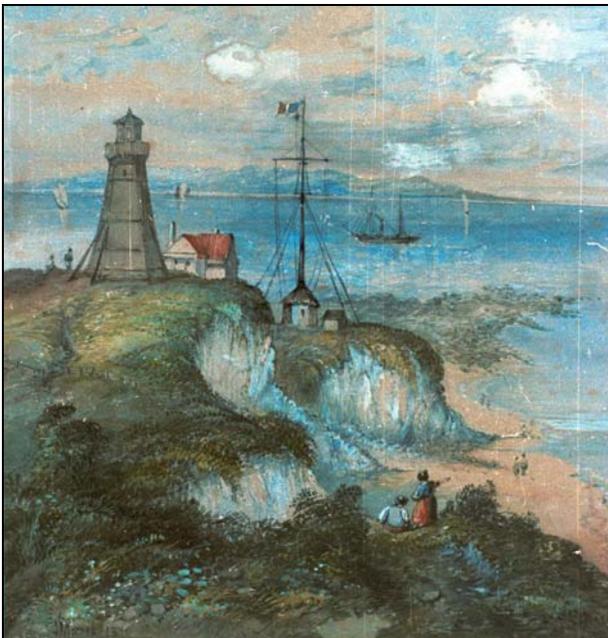


Figure F-4. 30: Pt Lonsdale Lighthouse, Telegraph Station/ Lookout Hut, Tidal Flagstaff and Possible Lookout Shed/Rocket Shed c1870 (Watercolour: J Morris, Photo: WD52, QHM Collection).

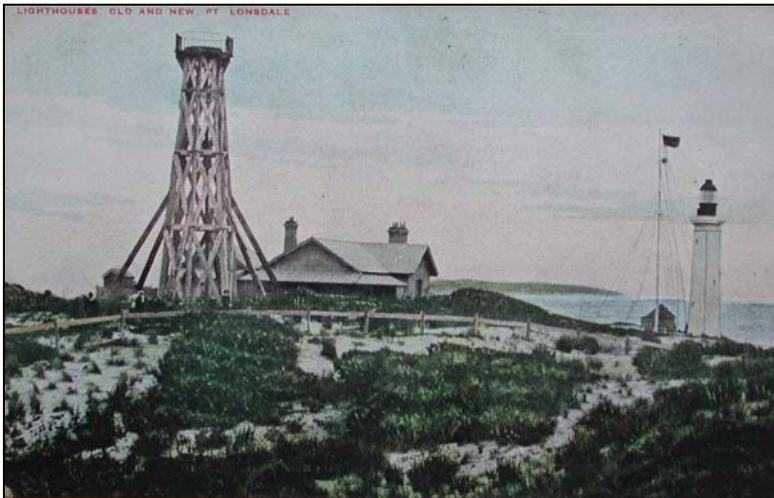


Figure F-4. 31: Pt Lonsdale timber lighthouse, Telegraph Station, Tidal Flagstaff and Concrete Lighthouse c.1909 (Peter Ferrier Collection).

VI) Pt Lonsdale Lookout House

A lookout house was noted at Pt Lonsdale in 1868 -1897 (Yule 1868:210; 1897: 430). The exact nature of the structure was not indicated, although it is presumed that it functioned as a shelter for those on watch for passing shipping and vessels in distress, and could refer to the telegraph station noted above.

VII) Fog Horn

In 1882, the ship *George Roper* went ashore at Lonsdale Reef after its tow the steam tug *Despatch* inadvertently strayed too close to shore in fog (Dunn 1949:56), leading to the total loss of the vessel. The tragedy highlighted the need for an acoustic warning in thick weather. A fog horn was delivered to the town by the steamer *Despatch* in August 1886, and was erected a week later at Pt Lonsdale. The horn was steam powered, and could be heard as far as Queenscliff and the Quarantine Station at Portsea (GA 13/8/1886; QS 21/8/1886; Dunn 1949: 60). Dunn (1949: 60-citing QS 22/9/1888) recorded that the horn was originally a hot air engine, which was replaced with a steam powered version in 1888, and that a sound rocket was fired every five minutes until enough steam was generated to sound the horn. The horn emanated a distinctive sound like “a sick cow” that often woke local residents from their sleep. The Fog Signal was noted again at Pt Lonsdale in 1897 (Yule 1897: 429). The steam driven fog horn was replaced by an electrical horn sometime around the late 1980s/ early 1990s, but has been recently renovated back to its original condition [LID].

VIII) Pt Lonsdale Lighthouse

In 1889, it was reported that the new lighthouse for Point Lonsdale would be similar to the one land on the south side of the South Channel (McCrae Lighthouse), and would be imported from England (QS 19/8/1899), but it never eventuated. A new concrete lighthouse was built by the Coates Brothers Builders and first lit on 20th March 1902 (Dunn 1949:68). It was 70ft high, painted white, 120ft ASL and its occulting light was visible for 17nM. It displayed two sector lights, white and red, to delineate the safes approaches to Port Phillip Bay and dangerous areas

contiguous to the coastline respectively. The light was also used for navigating the South Channel to the Heads (The Hydrographic Office, Admiralty, 1907:425, 488-9). The light was based on a traditional design, but was the first concrete (Portland Cement) building in Victoria. An octagonal structure was later built in 1950 at its base to house the Keepers Station and Observation Room, and is still used as a Port Control Tower today (Allom Lovell and Associates 1984:181, Raison 1997:12).



Figure F-4. 32: Pt Lonsdale Lighthouse and shed (Photo PH83, QHM Collection).



Figure F-4. 33: Pt Lonsdale Signal Station and Lighthouse c. 1925 (Photo PH5326 QHM Collection).

IX) Scend Shed



Figure F-4. 34: Pt Lonsdale Scend Shed (1), Fog Horn Shed (2), Lighthouse (3), and Tidal Signal Station (4) c. 1940 - pre 1950 (Photo: H32492-3873 SLV Picture Collection).

This shed was used to measure the pitch and plunge of vessels caused by waves entering the heads. The shed seems to have been constructed within the structural remains of a former searchlight emplacement.

F) Lonsdale Bight Beacons

Two new beacons had been installed in Lonsdale Bight by 1907, and led vessels through the rocky flat (1/2 mile outside the heads through which the new channel had been dredged) and Corsair Rock in 42ft deep water (HOA 1907: 428). By 1913, two lead beacons had been mounted in Lonsdale Bight. The front beacon was a white triangle with a white disk topmark, and the rear was an inverted black and white striped triangle (HOA 1913:31).

G) Popes Eye Fort Beacon

Changes to the character of the Popes Eye Fort Beacon from flashing to occulting were noted in 1913 (HOA 1913:32).

3) Channels

Many accounts recognized that vessels of different sizes used the West and South Channels differentially, and that small craft used the West Channel, whilst deeper drafted ships always used the South Channel (Jervois 1879:4; QS, 22/5/1884).

A) West Channel

As early as 1841, plans were under way for buoys marking the West Channel, to be laid by the Customs revenue cutter *Ranger*. Two white buoys were installed on the east bank, and a red one on Popes Eye (GA 21/7/1841). Sir George Gipps, Governor, gave an undertaking to the Chamber of Commerce on 28/10/1841 (Boys 1841) that this channel would be kept well buoyed. The survey cutter, the *Loelia*, was stationed at the Heads under command of Capt Cox who supervised the laying of buoys, and took soundings of the channels (Cuzens 1912:1). By 1853, the channel was still unlit at night. Springhall (pers comms) maintained that channels were kept clear of silt by the action of propellers scouring the route

In the 1960s and 70s we took vessels up the West Channel that had less than 17ft draught. The vessels' draught decided which channel was used. The Princess Tasmania that crossed Bass Strait used the West Channel. The propellers from the ships keep the channels clear when they are using them. The grass and sand pinnacles grow up if the channel is not being used and they get blocked. That's what happened to the smaller channels in the Bay. [CSp]

I) West Channel Lightship #1

By 1854 (Burdwood 1855:124; Register of the National Estate), a lightship had been placed in the northern eastern extremity of the West Channel, and replaced the North Fairway black buoy. The West Channel Lightship was moored in three- four fathoms of water at the northern end of the West Channel. The vessel had three masts, (two of which displayed balls – the symbol for a vessel at anchor) and these and the hull were painted red. The vessel displayed two white lights, which could be seen for 9nM in all directions (which was increased to 10nM by 1861). In the event of the vessel breaking loose, the balls would be removed, and two red lights displayed (one

over the davit, and the other over the stanchion near the ensign staff, and a bright flare shown every 15 minutes during the night (VGG 15/1/1861:77; Yule 1868: 225). The ship was run by Capt Fysh (Cuzens 1912:1) or Liddell (Noble 1979:8).

II) West Channel Pile Light #1

A Pile Lighthouse was erected in 1881 to replace the lightship (Noble 1979:48). The lantern and upper tower from the lightship were removed to the new pile light (Register of the National Estate listing). The lighthouse stood on piles in 15ft water, on the north east side of the West Sand, from which a fixed white light was exhibited between the bearings NE by E (through west), and S. E $\frac{1}{4}$ E., with a fixed red at all other directions. The light was elevated 31 ft above high water, and had a maximum range of 11nM (Yule 1884:325). The light retains its original Newel stair access, and was important for its role during foggy conditions (Register of the National Estate Listing).

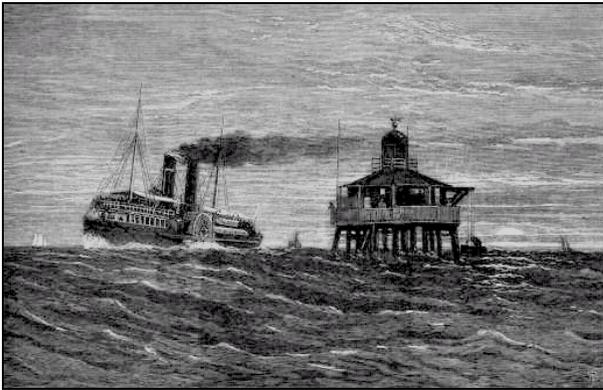


Figure F-4. 35: “Passing the West Channel (Pile) Light” in 1882 (AS 25/2/1882, SLV Collection).

III) West Channel Lightship #2



Figure F-4. 36: West Channel Lightship #2, when originally stationed off Gellibrand's Point, c. 1861-1895 (Calvert, IAN 5/8/1885, SLV Collection).

VI) Monash Light, Wedge Beacon/ Grimes Pile Light, Woodriff

These two beacons were constructed in 1930 to lead vessels through the southern section of the West Channel. Monash Light is located at Pt Nepean on the hill behind the Quarantine Station. Wedge Beacon was named after the surveyor in John Batman's expedition, is located on Popes Eye Bank, and had a white hut located on four piles in about 2.5 metres of water (Noble 1979:47). Upgrades to these lights were proposed in the mid 1950s (DPW 55/245:1955), along with the construction of the Grimes and Woodriff Pile Light (DPW 55/37:1955; DPW 53/471:1953).

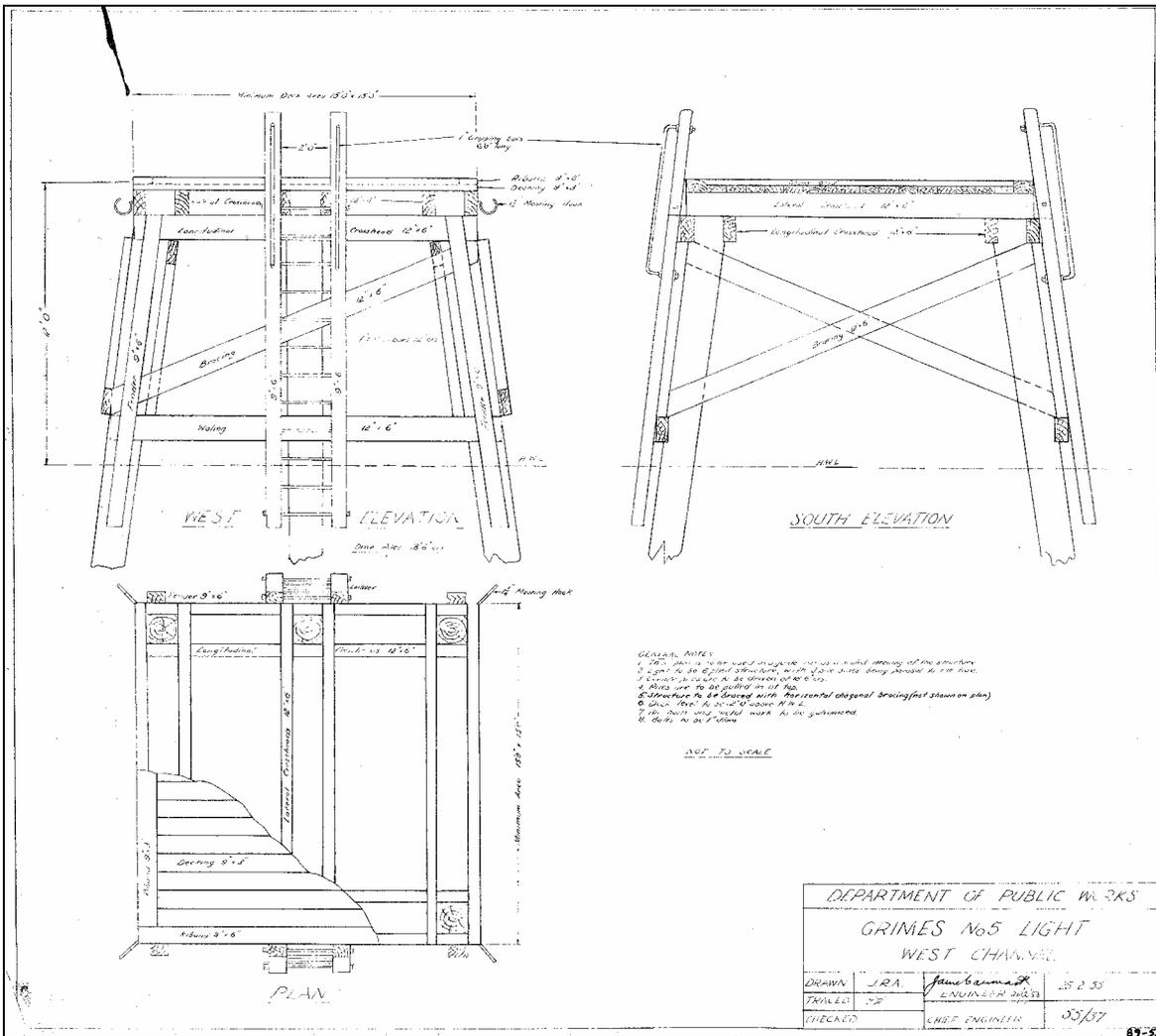


Figure F-4. 38: Plan of Grimes #5 West Channel Light (DPW 55/37:1955 plan, QMM Collection).

Appendix F-4: Landscapes of Navigation of Port Phillip Bay

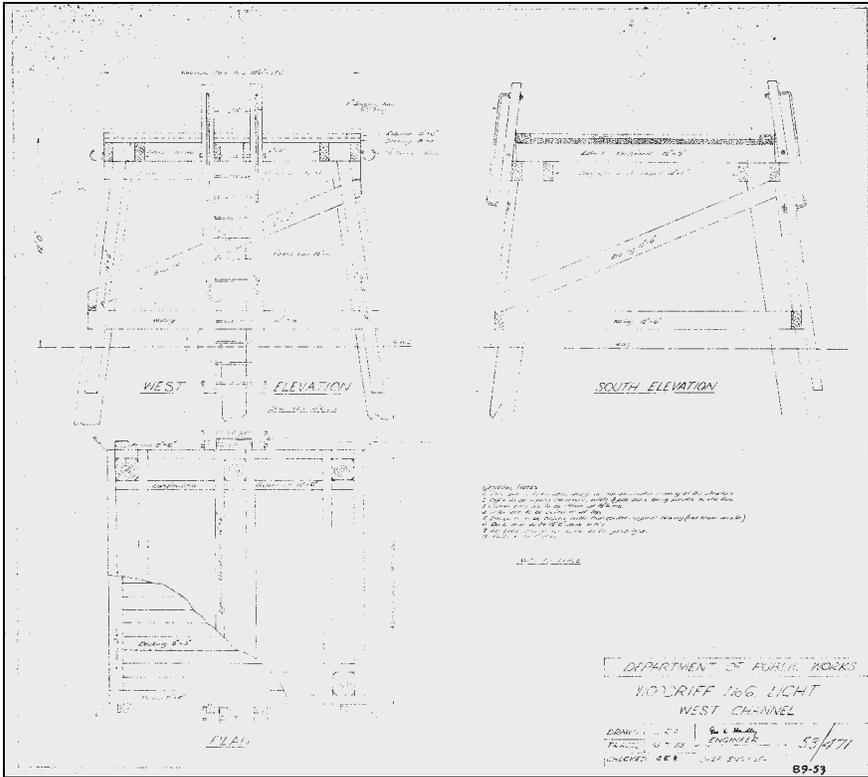


Figure F-4. 39: Plan of Woodriff #6 West Channel Light (DPW 53/471:1953, QMM Collection).

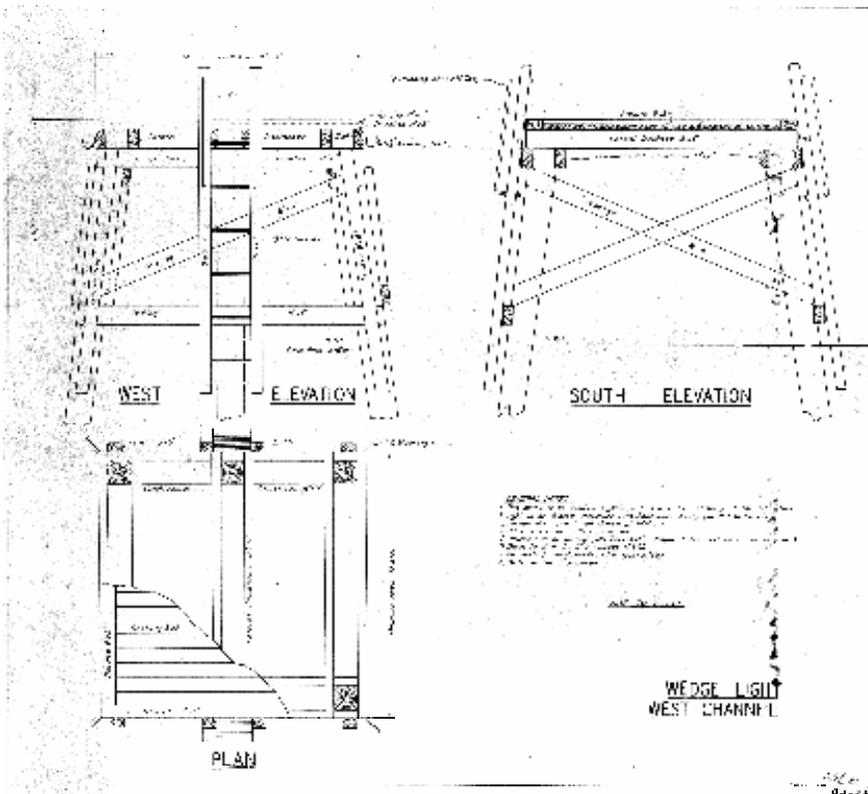


Figure F-4. 40: Plan of Wedge Light, Popes Eye, 1955 (DPW 55/245:1955, QMM Collection).

VII) Coles Channel Marker (also known as White Lady)

Constructed in 1947, as a lead mark in conjunction with the Shortland's Bluff High Light for safe passage through the inner reach of the West Channel (Noble 1979:48).

B) South Channel

There were no lights in the South Channel in 1855 (Draper 1900:8). Around 1903, a dredge had been hired to deepen the eastern end of the South Channel (Noble 1979:50).

I) Eastern or High Light

These leads were established in 1873, to guide vessels through the South Channel. The Eastern or High Light was a thirty metre high tower erected at the foreshore base of Arthur's Seat, which displayed a flashing white lead light to indicate the channel, and red sector lights for the sandbanks. The light is still known as the Eastern or McCrae light. (Noble 1979:49).

II) South Channel Pile Light

Built in 1874, this lighthouse was part of a network of leads to guide vessels through the South Channel. This pile light was stationed by two light keepers, who maintained constant watches, and operated tidal and fog signals until 1910, when the personnel were removed. The inside of the personnel quarters still display paintings of passing vessels done by the keepers (Noble 1979:49). The structure contained a spiral stairway access to the tower, a living room, bedroom, office and water closet. The Australian Sketcher (17/1/1880) illustrates how the lightkeepers would always meet passing vessels (eg the Williams) to obtain newspapers and magazines. The light became redundant in 1985, and the upper part of the structure was relocated in 1998 to the Rye Channel when it was threatened by passing shipping, although its piles still remain in situ on the original site. (Anderson 1997b:7). For many years the (William John) Ferrier family lived on the South Channel Lighthouse (around 1911). Adverse weather often prevented the re-supply of the lighthouse, and the family had to feed themselves on fresh fish and potatoes for up to six weeks at a time (Ferrier 1991:1). [LF] maintains that his father (William) was once stationed here, and that his family of eight children grew up here. William Ferrier painted many murals of passing vessels on the walls of the light, which were removed to the Polly Woodside Museum in 1979 (Austral Archaeology 1997:7).

The light was manned until 1925, when acetylene gas lights were introduced. The light operated until 1985, when it was it was decommissioned (Austral Archaeology 1997:7, 8).

III) Dredge Cut

As blasting operations at the heads increased the size of the vessels entering the port, the restricted depth of water at the eastern end of the South Channel (8m) curtailed its use by larger ships. A dredged channel (later known as the Dredged Cut) was begun in 1909 to increase the water depth to 9.5m, 122 metres wide and 2.5 km long. This was increased over the years to its current depth of 13 metres deep, 229 metres wide, and 2043 metres long, which enabled any vessel capable of crossing the Rip to also navigate the South Channel (Noble 1979:52).

IV) Hovell Pile Beacon

This pile lighthouse beacon was constructed in 1924, and marks the eastern extremity of the Middle Ground Sand Bank, where shipping enters the South Channel (Noble 1979:52).

C) Straight Cut Channel

A proposal was raised in 1907 to dredge a straight cut channel directly from Hobsons Bay to the Heads, as a means of saving vessels steaming time. The proposition was apparently taken seriously, as a survey of the proposed route was begun in 1907 by the Engineer of Ports and Harbours, but was interrupted to undertake other works (QS 30/7/1910).

D) Boatswain Channel

[PF] maintains the inner (boat) channel through Pt Lonsdale was constructed using dynamite in the 1880s, as an alternative route for fishermen to avoid the worst of the weather and currents through the Rip, but this is disputed by other members of the community [JB; LID]. The boat of the pilot schooner Rip capsized in the *channel which divides the reef* in 1886 (QS 27/3/1886). This channel, along with the channel between Corsair Rock and the Campbell shipwreck was used by fishermen to avoid the worst weather in the Rip, and took advantage of the shelter it provided from boat winds and currents [HM].

E) South Channel/ West Channel – Vessels Routes

Vessels of heavy draught are brought up through the South Channel, the other steering a shorter course for the lay up the West Channel (Mark Three, In. QS 24/5/1884).

4) Anchorages

A) Observatory Point Anchorage

First shown on a chart in 1843 (Stokes 1843).

B) Popes Eye Anchorage

First shown on a chart in 1843 (Stokes 1843).

C) Queenscliff Anchorage

First shown on a chart in 1860 (Ross 1859-60). There were 4 English vessels with over 1200 passengers that were forced to anchor inside the heads awaiting pilots in 1853 (GA 27/4/1853:2).

D) Capel Sound Anchorage

First shown on a chart in 1862 (Symonds and Henry 1836 [updated 1862]). Draper (1900:12) reported that Capel Sound at the east of the South Channel was used as an anchorage in contrary winds.

E) Quarantine Ground Anchorage

First shown on a chart in 1860 (Ross 1859-60). There was an anchorage located to the north of the Quarantine ground where vessels were laid up for quarantine inspection (Draper 1900:13).

F) West Channel Anchorage (North of)

First shown on a chart in 1862 (Symonds and Henry 1836 [updated 1862]). Used by vessels about to proceed down the West Channel when encountering unfavourable winds, tide or weather.

G) Indented Head Anchorage

First shown on a chart in 1862 (Symonds and Henry 1836 [updated 1862]).

H) Stingaree Bay Anchorage

Used by fishermen to anchor fishing boats.

5) Archaeological Signatures of Navigational Features: Pile Lights, lightships and other buoyage facilities

A) Pile Lights and Buoys



Figure F-4. 41: Lyall Mills and the author at the modern West Channel Pile Light.



Figure F-4. 42: Archaeological remains of the old West Channel Pile Light.

Due to its unusual geology and bathymetry, Port Phillip Bay has one of the most complicated navigational networks in Australia [CSp], and large numbers of lead markers were installed in this area to navigate the many channels. Additionally, due to the size of the bay, many pile lights were installed as guides through the channels. Several navigational sites were visited in southern Port Philip, as well as Hobsons Bay (see also Duncan 2004a, 260-263). The archaeological signature of these sites are characterized by either square or octagonal arrangements of extant piles or stumps, along with structural timber beams and planks and iron fittings. Many of these lights were occupied by lightkeepers in the nineteenth century (Swan Spit, South Channel, West Channel and Gellibrand Pile Lights), and thus presented a marked contrast to their later unoccupied counterparts. Occupied sites were immediately identifiable by the presence of nineteenth century bottles, ceramics and other artefacts, and even sinkers, which were scattered across all the sites (except for the West Channel Pile Light, where bottles were not present), along with structural materials of the accommodation quarters (eg fireplace/chimney bricks, lead water tanks and downpipes, tidal signals, iron rails, and corrugated iron) in cases where the site had been demolished [DL; LM; PF]. In some cases (Swan Spit Pile Light) personal items such as dolls heads have been found in the immediate area indicating the presence of children on board, despite oral traditions from lightkeepers that regulations prevented access to staff only. This suggested that families may have been visiting fathers onboard the pile lights, and that children were playing on the verandahs outside whilst the parents caught up inside, an observation that is supported in local folklore. Although families did indeed later reside on pile light structures (eg Gellibrand and South Channel Pile Light), this pile was demolished well before that period, and occurred when concerns were expressed that lighthouse keepers about the vigilance of lightkeepers, and it was reported that two lightkeepers were on board when it was run down by the ship *Omeo*.

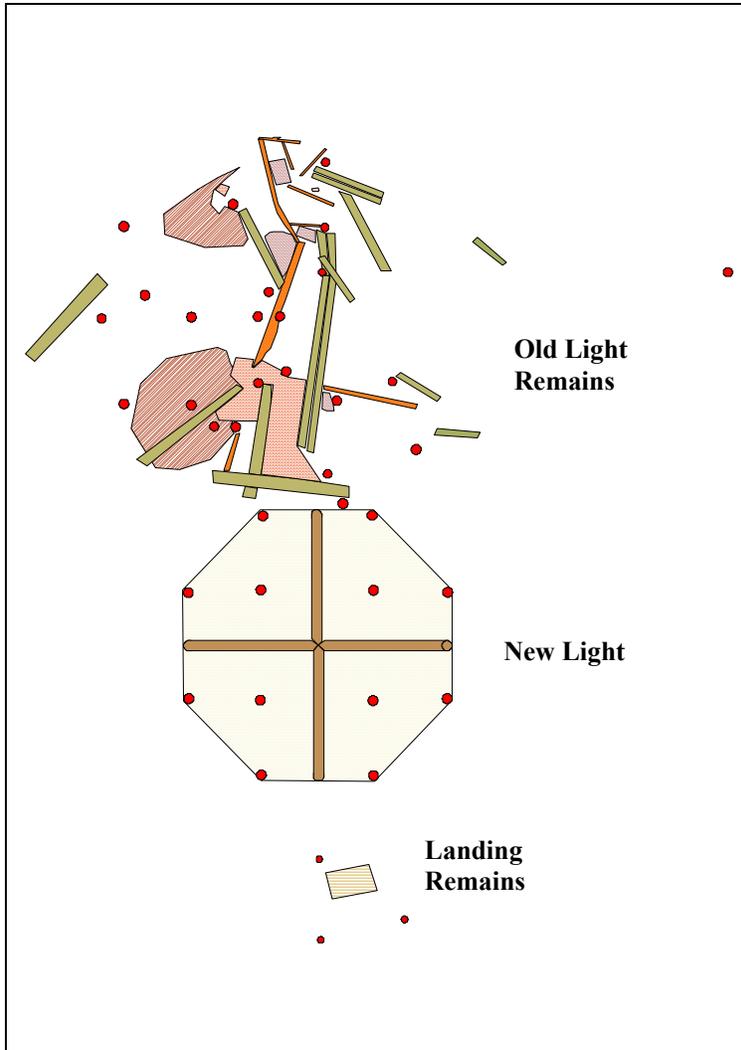


Figure F-4. 43: Underwater survey of old and new West Channel Pile Light.

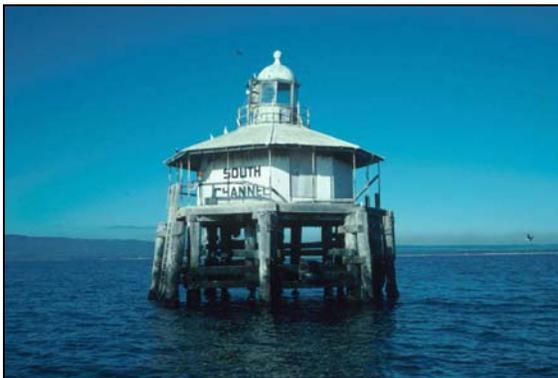


Figure F-4. 44: South Channel Pile Light in 1994 (Photo: Brad Duncan).



Figure F-4. 45: Underwater survey of the South Channel Pile Light (Photo: Liz Kilpatrick, Heritage Victoria).

The sites signatures also varied by location, and three out of four were located on the edge of channels, except for the Gellibrand Light (Melbourne) which was located near a peninsula in shallow water close to Hobsons Bay entrance. Most lights were generally located in shallow depths (under 10m) on the edges of the banks which they delineated, except for the South Channel Light which by necessity stood in 60ft water to mark the dogleg turn of the South Channel. Several divers reported that artefacts scatters were limited to within 10m of manned lights, an observation that was reinforced during the author's inspection of the West Channel Pile Light. Of note the Swan Spit Pile Light lies in two separate locations, after it was struck by the vessel that demolished it carried the upper structure approximately 250m before it fell from the bow. These pile lights are much more robustly constructed than their unmanned equivalents.



Figure F-4. 46: Peter Ferrier with the Swan Spit Pile Light Drain Pipe.

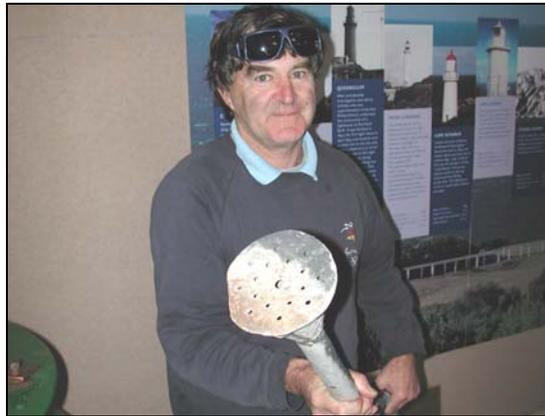


Figure F-4. 47: Peter Ferrier and water downpipe from the Swan Spit Pile Light.



Figure F-4. 48: Dolls Head recovered from Swan Spit Pile Light, Peter Ferrier Collection



Figure F-4. 49: Fire brick recovered from Swan Spit Pile Light, Peter Ferrier Collection.



Figure F-4. 50: Swan Spit Pile Light Lead Roofing.

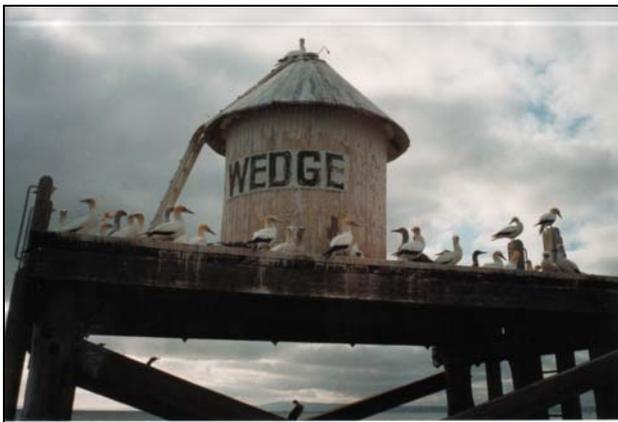


Figure F-4. 51: Wedge Beacon Hut in 1990.



Figure F-4. 52: Wedge Unmanned Pile Light shed structure before restoration, at the Queenscliff Maritime Museum.



Figure F-4. 53: Wedge Unmanned Pile Light shed structure before restoration, at the Queenscliff Maritime Museum.

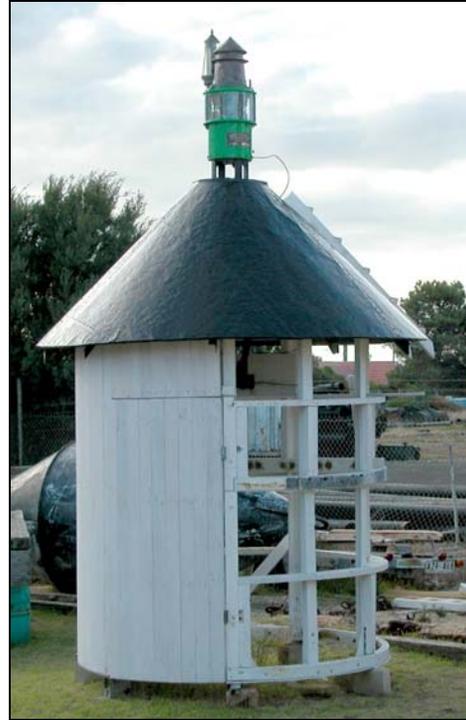


Figure F-4. 54: Wedge Unmanned Pile Light shed structure after restoration, at the Queenscliff Maritime Museum.



Figure F-4. 55: Grimes West Channel Marker Pile Hut #5, Queenscliff Maritime Museum.



Figure F-4. 56: Unmanned pile light - Coles Channel Pile Beacon.



Figure F-4. 57: Wedge Beacon Base (with Light Hut Removed) and Modern Wedge Beacon 2002.



Figure F-4. 58: Underwater Remains of Woodriff Pile Light (Photo: Malcolm Venturoni Collection).



Figure F-4. 59: Underwater Remains of Woodriff Pile Light (Photo: Malcolm Venturoni Collection).

Other unmanned features visited included the Coles Channel Pile Light, which apart from a gas bottle rack and spartan other fallen structural components were archaeologically sterile. The superstructure on these structures was more lightweight than manned piles, with much smaller huts built on top of a concrete base. Similar structures (Grimes and Woodriff Pile Lights) were simply pushed over into the water when replaced by singular pile beacons, and archaeological evidence of the former structures is still evident near #6 and #5 West Channel lights [GR; MV].

Two admiralty anchors and two clump or mushroom anchors (with 6ft long shaft and 4ft diameter bowl) arranged in a cross pattern and connected with chain were reported by a number of informants [DL; LM; PF; TA] at the northern end of the West Channel, which coincided with historical documentation for the West Channel Lightship. Goldsmith Carter (1945: xix) historical observation of lightship mooring configurations in England provided further verification that this was probably a lightship mooring. A similar setup associated with the Swan Island Lightship may also be located on Swan Spit, where a diver [PF] has located a large anchor and length of chain.

It appears from cartographic analysis and archaeological investigations that lightships were initially installed to delineate dangerous shoal areas, and there were later successions to pile lights, and then isolated singular pile beacons. This theory was tested at the location of the Geelong lightship, where isolated artefacts dating to the 1860s were found at the location of the former Geelong lightship site, but no anchors or chain were evident. However, a former beacon pile was discovered contiguous to this location in the anticipated area.

Furthermore, many circular lightships were used in Port Phillip in the nineteenth century, and at least one of these, the Gellibrand Lightship (nee Swan Spit Lightship #3) was converted to a pile light by removing their above water superstructure and placing it atop piles. This structure was visited for comparative analysis, and a substantial ballast mound (15m wide at the base and 5m wide at the top, and 6m high) was discovered within 2m of the surface, with scattered deposits of nineteenth century glass and ceramic artefacts, and remains of numerous timber piles, structural iron and iron wire strewn around the site (see Figure F-4.61-.62). According to Gibson (2000: 10), the ballast stone was installed in 1906, when the piles (which had been insufficiently driven into the seabed as they struck bedrock) began to move in the large swell and fetch generated in southerly winds. Further stone was installed in 1938. Remains of the upper tower structure of the pile light were removed prior to the torching of the light in 1976, and are now located at the Polly Woodside Museum in Melbourne.



Figure F-4. 60: Gellibrand Pile Light Tower, Polly Woodside Museum, Melbourne.



Figure F-4. 61: The Point Gellibrand Pile Light c. early 20th century (State Library of Victoria Collection).



Figure F-4. 62: The underwater remains of the Point Gellibrand Pile Light during the 2002 inspection.



Figure F-4. 63: Diver inspecting the Gellibrand Pile Light in 2002 .

Further navigational sites delineating channels were also located or identified. Former navigational marker buoys were characterised by anchors and chains in the West and South Channels that ran contrary to the current direction (as opposed to lost ships anchors which would normally lie in the same direction as the current, or have large coils from their extended length), and appear to have been left behind when the buoys were removed or replaced [DL; PF]. A navigational mooring block and chain was also found near the *Clarence* shipwreck by the author, and more square concrete blocks and chain were reported by Allen on the north west side of the West Channel. A number of remains of the actual beacon mooring buoys itself were evidenced by either intact barrel (Pt Lonsdale [TA]) or surviving hoops (South Channel [LM; MS]). Iron mooring buoys and isolated finds of mooring chains were also reported outside the study area at Melbourne [PT]. Pile and beacon sites were often evidenced by broken lens glass (1cm thick clear, red or green), or remains of batteries [DL; PF], and were observed by the author at Pt Nepean pier and the West Channel Pile Light sites.



Figure F-4. 64: Barrel Buoy Navigation Marker, Queenscliff Maritime Museum.



Figure F-4. 65: Iron Navigation Buoy, Queenscliff Maritime Museum.

Numerous former extant singular beacon piles were evident in the West Channel [GR; MV], which were to have been blasted or sawn off when they were replaced. Several discrete rough cut bluestone mounds approximately 1.5m high above the seafloor, and 2m diameter were described on the West side of the West Channel [DL; PF], and it was suggested that these could be reinforcements cairns to stop scouring around isolated beacon piles. This observation was reinforced by a former lighthouse keeper [GF] who observed similar behaviour in the 1950s to reinforce a leaning pile (#3) in the West Channel.

These archaeological signatures all provide potential information regarding former maritime routes through the landscape. Based on these observations it was suggested that the course of the West Channel had altered since it was first navigated (Ferrier, Love pers comms) as evidenced by the abundance of artefacts in shallow on the west bank of the West Channel, which was substantiated by comparing old and modern charts using the GIS geo-referencing process. Therefore, the identification of archaic navigational features has the ability to inform of former trading routes and channels, which has ramifications for the positioning and relocation of historically known shipwreck and other types of underwater archaeological sites.

B) Terrestrially Based Lighthouses

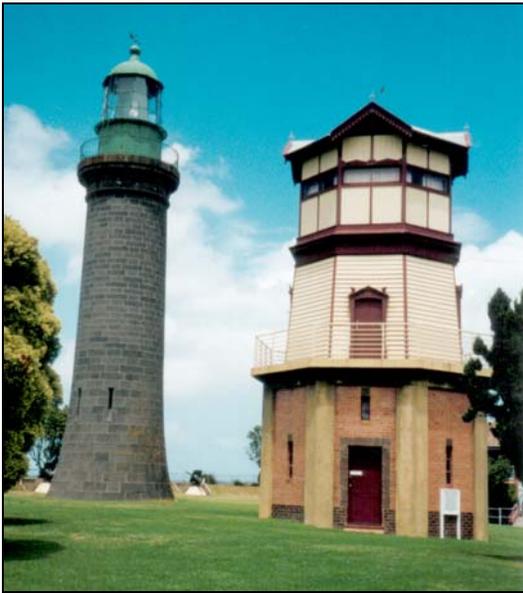


Figure F-4. 66: Shortland's Bluff High Lighthouse and Signal Station.



Figure F-4. 67: Shortland's Bluff Low Light and lighthouse keepers' cottage.

Several lighthouses were still extant at Shortland's Bluff and Pt Lonsdale, but several other lighthouses have been demolished. No direct archaeological evidence of these structures are visible, remains may exist under the dunes at Pt Lonsdale, and under gun emplacements in Fort Queenscliff. Indirect evidence survives for both structures. The earliest structure at Shortland's Bluff was made of sandstone, but was demolished when the stone began crumbling in the damp maritime environment. The site where the stone was quarried is still evident below the bluff. Two extant bluestone lighthouses are located at Queenscliff, along with the former timber signal station used for port control. Two accommodation blocks are associated with each lighthouse, the upper made of brick and stone, which also housed the telegraph station, and the lower of timber construction.



Figure F-4. 68: Shortland's Bluff Telegraph Station inside the grounds of Queenscliff Fort.

At Pt Lonsdale, the former lighthouse site is marked by the archaeological remains of the sandstone lighthouse keepers house foundations, a stone lined well, possible fence post remains, and exotic plants. A fog horn shed and original steam boilers still stand extant next to the current lighthouse, along with a scend shed, which was used to calculate the plunge or pitch of a wave in various swell conditions and its subsequent effects on vessel depth.



Figure F-4. 69: Pt Lonsdale Telegraph Station.



Figure F-4. 71: Pt Lonsdale Lighthouse and Signal Station, and tide flagstaff.



Figure F-4. 70: Foghorn Shed, Pt Lonsdale Lighthouse Reserve.



Figure F-4. 72: Pt Lonsdale Tidal signal station enclosure.



Figure F-4. 73: Pt Lonsdale Tidal Indicator Flagstaff Indicators at Queenscliff Maritime Museum.



Figure F-4. 74: Possible Former Tidal Signal Station Shed? Located at Kora-Weari Guest house, Pt Lonsdale.

Other terrestrial sites included the brick remains of the base and scattered rubble of the obelisk beacon at Shortland's bluff, which was demolished by pushing it over. This site consists of a 1m square brick base (level to the ground, with a scatter of brick rubble up to 20m away). The remains of the Park Mast are also visible as a half metre square concrete surrounds outside Fort Queenscliff's walls. A former beacon was observed in a state of collapse to the south east of the Swan Island fort, but could not be accessed due to military base restrictions. The concrete structure was approximately 3-5m high before collapse. The Pt Lonsdale Tidal signal station consists of a walled in concrete pad, with remains of iron flagstaff base and rope reel bases.



Figure F-4. 75: Obelisk remains, Shortland's Bluff.



Figure F-4. 76: Swan Island Beacon remains (modern and relict) (Photo: Photo Mapping Services, DSE).



Figure F-4. 77: Shortland's Bluff directional beacon, Murray Tower, Hume Tower and Low Lighthouse White Lighthouse.



Figure F-4. 79: Hume Tower and Low Light, Shortland's Bluff.



Figure F-4. 78: Shortland's Bluff Directional Beacon.



Figure F-4. 80: Murray Tower, Shortland's Bluff.



Figure F-4. 81: Portarlington Beacon.



Figure F-4. 82: McCrae Lighthouse, Rye.

C) Characterization of Lighthouse Sites

Examination of a number of significant lighthouse structures within the study area suggest that lighthouse precincts are characterized by the presence of several structures, including lighthouses, telegraph station, tidal flagstaff, beacons, fog horns and associated sheds, rocket sheds, and accommodation quarters. The construction materials for these will vary dependent upon the available local construction materials.

These observations are consistent with observations made from historical documentation and archaeological surveys at other light stations around the state (see Duncan 2003a, 2004a; Sutherland 1888b:55)

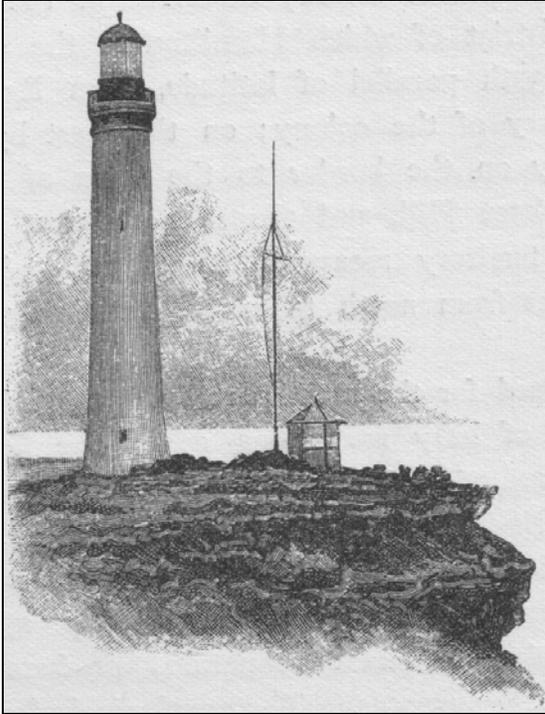


Figure F-4. 83: Cape Nelson Lighthouse Precinct showing Similar Infrastructure to the Heads Study Area (Sutherland, 1888b:55).

- **Pt Lonsdale Light:**
 - This is the landfall light for Port Phillip Bay
- **Shortland's Bluff Lights:**
 - The white light (low) and high black light viewed in line act as a main lead for ships through the great channel
 - **1842:** First lighthouse built
 - **1850:** Red gum octagonal tower built, which carried the low light.
 - **1853:** Signal master keeps oil light burning from Flagstaff
 - **1856:** The stone in the lighthouse was badly eroded and a decision was made to build new and better lights
 - **1862:** Black lighthouse completed 25m high
 - **1863:** White (low Light) completed 22m high
 - **1863:** Red Gum structure moved to Pt Lonsdale where the signal master had kept an oil light burning since 1853
 - **1880:** Foghorn Installed at Pt Lonsdale
 - **1902:** Octagonal Red and White Tower replaced by Pt Lonsdale Lighthouse (Vis 36.6M , whereas previous visibility range was 16km)
 - **1993:** Foghorn deactivated (QMM Display)

Table F-4.1 below outlines the potential and actual archaeological signatures of navigational landscapes.

Table F-4.1: Potential and Actual Archaeological Signatures of Navigational Landscapes

Appendix F-6: International Examples of Traditional Practice/ Transported Landscapes Associated with Shipwrecks

The numerous incidences of shipwrecks in the study area have produced many reactions that have similarities in many other maritime communities worldwide.

1) Lifeboats and Salvage

Lifesaving on the east coast of the UK was largely undertaken by companies of beachmen and fishermen who would put out to sea in fast open yawls to save lives and rescue valuable cargo. These men supported themselves by salvaging cargo from vessels. This work was later taken over by the locally run Volunteer Lifeboats, and then later by the Shipwrecks Institutes and Royal National Lifeboat Institution (Malster 1974; Hedges 1989: 24-5).

There are obvious comparisons with the lifeboat service in Britain. Yawls were adopted for use in early rescues by the Queenscliff based government boat crews (see Figure - Photo Yawl above) since their applicability for these tasks had already been proven in similar situations throughout the UK (e.g. Malster, 1974:34), as were subsequent later overseas lifeboat designs. The practices of using distress and rocket flares for communications to the wreck and to alert the lifeboat; the integral relationship between lifesaving, the lifeboat crew and the Lighthouse service; and the use of wreck bells to summon the crew has been extensively observed in Britain (Treanor, 1904:83, 97, 121, 141; Malster 1974; Goldsmith Carter 1945:12;). Treanor (1904: 46, 49) described a typical launch at Deal:

There is no harbour at Deal, and all boats are hauled up the steep shingly beach, 50 or 60 yards from the waters edge, by a capstan and capstan bars, which, when a lugger is hove up, are manned by 20 or 30 men. When hauled up thus to their position, the boats are held fast in position on the inclined plane by a stern chain rove through a hole in the keel called the "ruffles". This chain is fastened to a trigger, and when the lugger is to be launched great flat blocks of wood called "skids", which are always well greased, are laid down in front of her stem, her crew climb on board, the mizzen is set, and the trigger is let go. By her own impetus, the lugger rushes down the steep slope on the slippery skids into the sea. Even when a heavy sea is beating right on shore, the force acquired by the rush is sufficient to drive her safely into deep water. Lest too heavy a surf or any unforeseen accident should prevent this, a cable called a "haul-off warp" is made fast to an anchor moored out far, by which the lugger men, if need arise, haul their boat out beyond shallow water. The arrangements described are exactly those adopted by the lifeboats, which are also lugger rigged, and in their rig are singularly familiar to Deal men.

The rush to the lifeboat shed upon the sounding of the wreck bell bears close similarities to similar practices in Kent (Treanor 1904:65, 143), where fishermen, pilots and boatmen usually clambered to get a place on the lifeboat. This behaviour demonstrated that the lifeboat service similarly provided much needed supplementary income, (see Figure 8.48):

The Coastguard of Deal Beach called the Coxswain of the lifeboat...[who] seeing the flash of the distant guns...rang the lifeboat bell. Men sprung out of their warm beds, and, half dressed, rushed to the lifeboat. Their wives or mothers followed with the remainder of their clothes, their sea boots, or jackets and mufflers. Then came a struggle to claim a place in the lifeboat.. Deal beach at such a time is full of boatmen, some in the lifeboat loosing sails and setting the mizzen, some easing her down to the top of the slope, some seeing to the haul off warp,...others laying down the well greased

skids for the lifeboat to run on, and others clearing away the shingle which the successive tides has gathered in front of her bows. (Treanor 1904: 120)



Figure 8. 1: Volunteer Rush to Get on the Lifeboat Crew in Response to the Wreck Bell in Kent (In: Treanor 1904).

Townfolk were often eager to crew the community lifeboats, and that although crews only received a pound for night-time service and ten shillings for a day rescue to man the vessel, a hundred men came running to fill the dozen or so positions. Forty people were also engaged to help launch the lifeboat, and were collectively paid three pounds between them (Treanor 1904:84, 143). Given the dangerous nature of the work and meagre payment, other incentives must have been available, and Treanor (1904:55-6) further alluded this may have been in the possible salvage of the wrecks' cargo after the survivors were rescued:

The very same men who work the galley punts...are the hovellers in the great luggers... and also the same men who...answer so nobly the summons of the lifeboat bell.

Further observations of the salvation/salvage behaviour described above at Queenscliff were also made in England. The mariners of Deal regularly exploited doomed vessels for a "hovel", the chance of salvage:

The lugger...seeing the lifeboat..stood on into the surf of the Goodwins to aid in saving life, but also for a hovel, in the hope of saving the vessel. It was dangerous in the extreme for thee lugger, but as the men said, "They was that daring in them days, and they seed so much money a staring them in the face, in a manner o' speaking on board that there vessel, that they was set on it". (Treanor 1904:57)

The schooner had a cargo of oats, and if she could be got off would be a very valuable prize for her salvors. But "if" – and we all know that 'there's much virtue in your "if"'. However when morning broke there... many of the Deal Boatmen, whose keen eyes saw a possibility of a "hovel" came in their powerful galley punts to see about this "if" and try if they could to convert it into reality. (Treanor, 1904:102)

The contrasting humanitarian and opportunistic attitudes of small communities in Massachusetts was also observed by Thoreau (1865:5, 29, 34) where although the community provided emergency shelters for shipwrecks survivors on the beach, and often housed them in their own homes after the event, they were often indifferent to the presence of victims bodies on the beach:

This wreck had not produced a visible vibration in the fabric of the community...those bodies were but other weeds the tide had cast up, but were of no use to him...why waste time on awe and pity...(Thoreau 1865:4-5)

2) Smuggling and Looting

Looting of wrecks and smuggling were often complementary activities (Larn and Carter 1973), especially as items taken off wrecks were often deemed smuggled goods. Smuggling was a popular and integral part of many maritime communities around the world. The Rhode Island economy in was heavily reliant on smuggling during the eighteenth century when smuggled goods were openly offered for sale on the market. Despite the heavy British military presence in the region, tea, sugar and French goods were a popular contraband good, which were either hidden amongst cargo in chest or in hogsheads, or smuggled ashore and transported overland in wagons to the port of Newport. When men of war discouraged this practice, it was circumvented through the transferral of goods elsewhere further along the coast or directly into small boats at sea where goods were offloaded directly onto the beach (Schmidt and Mrowski 1988:36-39). Fishermen were extensively involved in the contraband trade, and these activities were further encouraged by a lack of sufficient Customs Officers to patrol the area. Imported French goods were considered luxury status items amongst the elite, and Schmidt and Mrowski (1988:39) suggested that evidence of smuggling may be evident in the cargoes of wrecked ships, or in rubbish dumps in the form of imported exotic alcohol and perfume bottles. This situation closely resembles the circumstances of early colonial Victoria.

The New England coast continued to harbour illegal smuggling activities including alcohol during prohibition and modern day drug trafficking, and smuggling in the Caribbean was widely accepted as a means of circumventing the economic system. With the arrival of colonial powers in Africa, the need for smuggling increased as it had in the American colonies, and a thriving trade developed in hashish, salt, ivory and tobacco, which was still operating in the early 19th century in Egypt (Schmidt and Mrowski 1988:40).

Many researchers have noted that smuggling was a major industry in many small ports of southern England (particularly around Cornwall, Devon, and Kent) in attempts to evade government taxes and duties (Vivian 1969; Schmidt and Mrowski 1988:41; White 1997:30). The whole community was involved in the trade, including the clergy and women, and local fishermen were often involved in the retrieval of submerged contraband moored to the sea floor in barrels. Smugglers resorted to lighter smaller craft and lug sails which enabled them to beach their boats in areas inaccessible to the larger craft and sail closer to the wind (Schmidt and Mrowski 1988:41; White 1997: 25-30, 36). These practices continued in the Cornwall area until at least the 1850s, by which time the customs service and their revenue cutters had significantly reduced the viability of smuggling (White, 1997: 16). During the 1820s, smugglers even resorted to constructing false compartments inside vessels to hide undeclared cargoes (Treanor 1904:41-2; Schmidt and Mrowski 1988:41).

The practice of burying smuggled or looted goods was reported in New Jersey in 1839 (Bradlee, 1923:182). Goods were found eroding from coastal sand dunes close the township of Barnegat, which was a known wrecking community (Bradlee 1923:183).

Bathurst (2006) also presents a very concise study of wrecking in the United Kingdom, which unfortunately was not available until the final stages of this thesis, but presents potential opportunities for further comparative studies of these communities with those of the study area.

There are many parallels here with these sorts of activities in Port Phillip, especially the well documented connection of fishermen with both smuggling and shipwreck looting. Given the examples above, of which many researchers document an almost universal disdain for authorities in small maritime communities (Treanor 1904:69; Goldsmith Carter 1945:15;

Westerdahl 2003b:19), it is not surprising that this small maritime community would be involved in shipwreck exploitation.

3) Beachcombing/Flotsam/Jetsam Traps

Goldsmith Carter (1945:14-5) observed traditional practices associated with wreck salvage in Alderburgh around the turn of the century. Many local mariners used traditional weather signs such as cloud shape, colour and movement, and the sound of the wind through the reeds to predict that it would be “an ideal day for a wreck”, and they henceforth gathered by the lookout tower and gazed out to sea. Furthermore, the local community knew that on days when the sea was eroding the foreshore, treasures in the form of coins, jewellery and amber would appear in the surf.

The economic importance of beachcombing has strong analogies in other contemporary societies (Thoreau 1865; Treanor 1904; Pipkin 2003:8), and was clearly a vital economic resource for this area. Thoreau (1865:27-8) recorded that beachcombers viewed the wreck debris and other flotsam as Godsend, as He (God) provided these resources where they were not available on the land. He also recorded informal etiquette systems, which entailed the use of stones or sticks to signal that flotsam piles had been collected and were claimed. This behaviour has parallels in England, where the collection of coal was also undertaken on the Goodwin Sands. Boatmen would sail out to the area known for its wrecked vessels, and collect coal at low tide (Treanor 1904:26), and Thoreau (1865) also observed similar behaviour in Massachusetts. Furthermore, the use of specialised contemporary material culture to collect coal, other debris and shellfish from the water was also noted in other communities, who also used “rakes” to collect shoreline resources (Thoreau 1865; Evans 1957:225).

4) Deliberate Wrecking

Wrecking was a common practice around the world during the early 19th century. Ships were lured ashore by creating false beacon lights that were confused with expected navigational facilities. Bradlee (1923: 12) detailed how a vessel cruising along the coast of Sandy Hook (New Jersey, USA) in 1820, saw a beam he took to be the main lighthouse and later spied two beacon lights as expected to lead vessels into the port. However, breakers were soon sighted ahead, and the vessel forced to stand off the coast. Just before dawn the lights were extinguished, and men were seen on the beach at daybreak. The captain was convinced that these men were involved in wrecking, as the lights had been located 18 miles from the actual port, and this was not the first instance of this activity, which had also been reported being undertaken along the New Jersey coast. This case bears remarkable resemblances to the *Sussex* shipwreck outlined above, where expected lead lights were confused for unexplained fires ashore. Similar cases were also reported at Barnegat in 1839, where the whole community would turn out to loot vessels that had been lured ashore with false lights and the community was regionally known as the *Barnegat Pirates*. Wreckers were also reported at Block Island in the 18th century (Bradlee 1923:183-4).

Wrecking activities were also undertaken in Florida around the Dry Tortugas region. Initial wrecking in this area was first undertaken by the local indigenous population, who took advantage of the first shipwreck incidents in the region. Later, the Bahamians combined turtle hunting with opportunistic salvage of wrecked vessels, and salvage rights claims were adjudicated in the West Indies Islands. Although some accounts existed in this area of “moon cussers” who lured vessels onto reefs with false lights, Souza (1998: 25-27) maintains that most of these activities from 1835 onwards were highly organised and often licensed wrecking (salvage) ventures, that took advantage of shipping tragedies to first save the passengers and then to exploit the vessel for economic gain. Wrecking was also undertaken in the Thunder Bay

Region, Lake Huron, USA, where many regulated wrecking and salvage firms were based in the early 20th century at the City of Alpena (US Dept of Commerce et al, 1999: 138).

Deliberate wrecking was a major problem in the UK, particularly in the first half of the nineteenth century. Bathurst (2000:28) demonstrated that how many small maritime communities around the British coastline relied heavily on shipwrecks to supplement their often meagre incomes. Many coastal populations regarded the shipwreck cargos as a perk of nautical life, and were their inalienable right to plunder. In some communities, such as the Hebrides, all basic necessities had to be imported due to a lack of suitable resources on the islands, and the islanders relied heavily on floatsam and wreckage for housing construction, heating and food cultivation/ supplementation (Bathurst, 2000: 29).

Certain areas of the British coast became known as notorious wreckers' haunts, including Cornwall and the West Country, The Scilly Isles, and The Hebrides where it was claimed that the communities ignored and often murdered shipwreck survivors to protect their own identities and activities. These practices were still being recorded in the 1840s, and Cornish wreckers, who were often tin miners or fishermen, were known to conceal their loot through burial close to the wreck site, or hidden in ponds or in the roofs and/or under flagstones in their houses (Larn and Carter, 1973:18, 19, 24, 148). Customs officials often turned a blind eye or were bribed to ignore these practices (Bathurst, 2000: 29). Wreckers often attempted to lure unwary ships onto rocks by lighting bonfires on dangerous coastlines, or where lanterns were tied to horse's tails to imitate the movement of a ship. When lighthouses were introduced, wreckers established substitute lights in the vicinity to confuse pilots into running onto a dangerous shore (Bathurst, 2000: 31). The highlanders and Islanders of Scotland were also enthusiastic wreckers, and the local minister of the Isle of Sandy was known to have prayed for wrecks to take place there. Robert Stevenson, one of the instigators of the British Lighthouse Service remarked that so many wrecks had taken place on this island that local fences were constructed of shipwreck timbers (instead of stone) and that property rents were higher on the sides of the island that experienced the most shipwrecks. The high number of wrecks on one side of the island led to increased affluence amongst the northern population, whereas the southerners were poor. On another island he noted that after a ship laden with wine had wrecked there, the villagers now took claret with their morning porridge instead of their usual drink (Bathurst, 2000: 31-32). When Thomas Smith and Robert Stevenson proposed the introduction of lighthouses along the British coast in the late eighteenth century, it was vigorously opposed by the wrecking communities, who saw their livelihood at stake (Bathurst, 2000:32).

Until 1852, when the official Receivers of Wreck were appointed under the Customs Consolidation Act, wreckers could to some extent stake a claim of salvage as a legal right as landowners could claim the 'privilege of right' to anything washed up on their foreshore. Tenants loosely interpreted this law to validate their looting, and also justified their activities as divine intervention, as the wreck was an act of God, which had been sent to ease their (the community's) hardship (Bathurst, 2000:3-4). Bathurst (2000: 30) claimed that the wrecking activities developed into part opportunism, part Queensberry Rules, and part amateur criminality.

Increased Customs and smuggling patrols during the early nineteenth century led opportunistic wreckers to stay within the guidelines of the law, by first assisting with the wrecked vessel's crew, after which they were entitled to salvage the vessel and its cargo (Bathurst, 2000:30). This practice was conclusively demonstrated by Treanor (1904), a Mission to Seaman Chaplin at Deal and the Downs on the south east coast of England. His 1904 work outlines the reliance of small maritime communities in this area on salvage work (locally called a "hovel") at the wreck trap known as the Goodwin Sands (sandbanks):

In the day they were resting longshore fashion, unless, of course, their keen sailor sight saw anywhere – even on the distant horizon, a chance of a "hovel". Ever on the lookout in case of need, galleys, sharp as a shark, and luggers full of men, would rush down into the sea in

less time that it has taken to right this sentence. ... Justly or unjustly, in olden times, Deal boatmen were accused of rapacity... True indeed, they were accused of lending to vessels in distress a “predatory succour” more ruinous to them than the angry elements that assailed them. In those times and even recently, the Deal boatmen, including... Walmer and Kingdown... numbered over 1000 men, and as there were no lightships around the Goodwin Sands til the end of the eighteenth century, there were vessels lost on them almost daily, and there were daily salvage jobs or ‘hovels’ and rescues of despairing crews; and with the trade with the men-o-war, and the piloting and berthing of ships, there were abundant employment and much salvage for all the boatmen. (Treanor 1904: 41-2)

The Goodwin Sands is very similar to the situation at Port Phillip Bay Heads, where a confluence of shipping is directed through an area of unexpected tidal influences and currents, often thick and boisterous weather, whirlpools, and many uncharted submerged obstructions (Treanor, 1904: 22, 34). Additionally, after clearing the heads, masters were faced with shifting and often uncharted labyrinth of sand banks formed by the Yarra River Delta.

Nor was wrecking isolated to English speaking countries. Rönnby (1998) noted a strong maritime influence of wrecking described in oral traditions at Södertörn in Sweden.

Wrecking activities also became part of popular literature as a consequence of their prevalence (e.g. Gibson n.d.; du Maurier (1936). In the novel “The Shipping News”, Proulx (1993: 172) used a family of former wreckers, the Quoyles, as central components of here story. In one passage, a character (Billy) recites the abundance of wrecking activities in Newfoundland:

Truth be told, there was many, many people here depended on shipwrecks to improve their lots. Save what lives they could and then strip the vessel bare. Seize the luxuries, butter, cheese, china plates, silver coffeepots and fine chest of drawers. There’s many houses here still has treasures that come off wracked ships. And the pirates always come up from the Caribbean water to Newfoundland for their crews. A place of natural pirates and wrackers.