

**MANLY FERRIES**  
***BALGOWLAH, BARRENJOEY and BARAGOOLA***

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*Baragoola* in the 1980s, in her final years as a government-operated ferry. (Tony Prescott)

## **INTRODUCTION**

The popular image of the Manly ferry during the present century has very much evolved around the "class" (to use a naval term loosely) of six very similar double-ended screw steamers built for the Port Jackson Co-operative Steamship Co. Ltd. and the Port Jackson and Manly Steamship Co. Ltd. between 1905 and 1922. These six steamers were to be eclipsed in size, speed, accommodation and glamour by the Scottish-built *Dee Why* and *Curl Curl* of 1928 (*The Log*, May 1977) and *South Steyne* of 1938 (*The Log*, August 1983, November 1983). However, the smaller boats were to prove more economically practical in the long-term and two of them, both to be described in this article, are still in service while the Scottish boats have been withdrawn.

Up to the early years of this century, the Port Jackson company operated a fleet consisting almost entirely of paddle steamers. The reason for the relatively late transition to screw propulsion lay in the necessity of using double-ended ships due to the configuration of Sydney Harbour with its many coves and the difficulties of turning in the Circular Quay terminus. Smaller double-ended ferries had been found to operate quite successfully with screw propulsion, but the Manly service had speed and heavy weather requirements which necessitated fine bows on the ships. A propeller at the "forward" end of the ship tended to restrict the vessel's speed. On all the screw steamers up to *South Steyne*, the Port Jackson Company adopted the unsophisticated method of increasing engine size and power to gain extra speed - a technique of little concern in prosperous years but extravagant in lean years.

In 1935 the company decided to test the feasibility of diesel-generated electric propulsion, and began the conversion of *Bellubera* in that year (*The Log*, Nov. 1978). By allowing the two propellers to operate independently, this method of propulsion greatly increased efficiency and reduced costs. An increase in speed was made possible without a great increase in engine power.

The steamers *Balgowlah*, *Barrenjoey* and *Baragoola* were the last three in the class of six mentioned earlier. The class evolved from two earlier vessels designed by Walter Reeks, the unorthodox Sydney naval architect. The first, *Manly* of 1896, was designed for the Port Jackson Company's former rival, the Manly Co-operative Steam Ferry Co. Ltd. (which merged with the Port Jackson Company in 1896). *Manly* was the first double-ended screw steamer in the service, but had a wooden hull which allowed the long propeller shaft to get out of alignment. The second, *Kuring-gai* of 1901, was built of steel with an iron frame at the Balmain works of Mort's Dock and Engineering Co. Ltd. Her camber keel - one of Reeks' experiments to reduce the resistance of the forward propeller gave her unpredictable handling qualities. Both *Manly* and *Kuring-gai* retained the paddle steamer style of placing the wheelhouses around the funnel in the midships section of the bridge or sun deck (at this stage no more than a fixed awning over the passengers' promenade deck).

The class of six steamers, the names of which began with the letter "B", was designed by Mort's Dock and Engineering, initially under the guidance of former chief draughtsman Andrew Christie, and built at the Woolwich yard - except for *Baragoola* which was built at Balmain. They were among the largest ships built in Australian yards at the time and, on the admission of Mort's executives, were built by the dock more for prestige than profit. For the Port Jackson Company, the cost was slightly higher than having them built in the UK, but this was offset by the cost of sailing them out to Australia. This advantage had reduced to nothing by the 1920s. The lines of the steamers were similar to *Kuring-gai*, but far more graceful. The camber keel was replaced by a straight keel and the wheelhouses were moved to each end of the sun deck. The symmetrical layout was balanced by a single tall funnel amidships.

The first two steamers, *Binngarra* (1905) and *Burra-bra* (1908), did not live up to their sleek appearance, being capable of little over 13 knots. They were of 442 and 458 gross tons and 190.5 and 195.3 feet in length respectively, with a capacity of about 1400 passengers each. *Kuring-gai* and *Binngarra* were replaced by *Curl Curl* and *Dee Why*, and *Burra-bra* was replaced by *South Steyne*, eventually becoming a naval vessel in World War Two.

The class was to reach its apogee in the next three identical vessels - *Bellubera* (1910), *Balgowlah* (1912) and *Barrenjoey* (1913). These three vessels were all just under 500 gross tons, were 210 feet in length, and had their horsepower increased to 1350 IHP (*Bellubera*) and 1400 IHP (the other two) giving them a speed of 15 knots or more. Passenger capacity of each was around 1500.

The completion of *Barrenjoey* satisfied company requirements for several years, and *Baragoola* was not built until 1922. In *Baragoola* the company sought to increase seating capacity, and stipulated a greater beam. She was only 199.5 feet in length, 498 gross tons, and 1300 IHP. She reached 15 knots on trials but subsequently suffered a speed disadvantage compared to the other boats. Her passenger capacity was 1512.

All of these last four boats were to be destined for modernisation and diesel-electric engines, but the company's post-war economic difficulties deprived *Balgowlah* of that opportunity. She went to the shipbreaker in 1953 and the engines acquired for her went into *Baragoola*. *Bellubera*, the subject of an earlier article (*The Log*, Nov. 1978), was withdrawn from service in 1973, while *Barrenjoey* (now *North Head*) and *Baragoola* are still running under the ownership of the NSW Public Transport Commission.

## CONSTRUCTION

Following the success of *Bellubera* an order was placed with Mort's Dock in 1911 for two vessels to be built to much the same design. The leading dimensions and other particulars of these ships, together with those of *Baragoola*, are shown in the table appended.

As was the case with *Bellubera*, these vessels were of riveted steel construction with single screws fore and aft, and steam steering equipment. The triple expansion engines were all manufactured by Mort's Dock and had steam reversing gear. Each vessel had two "navy-type" boilers with three corrugated furnaces in each. The promenade deck was entirely open except for two small shelters and the canopy formed by the sun deck. The main deck was enclosed, with outside perimeter seating. The two decks were connected by two double staircases. The ladies' cabin was located at the aft end of the main deck, while the crew spaces were placed on a flat forward of the boiler room. Electric lighting was fitted throughout.

The first vessel, *Balgowlah*, was, in common with her sisters, constructed at the Woolwich yard, and launched by Miss Dorothy Couldery (daughter of one of the owning company's directors) on 18 June 1912. *Balgowlah* ran trials on 25 November 1912, and a press report of the event stated that she attained a speed of 16 knots. It was also mentioned that an improvement to the design of *Bellubera* had been made in order to provide additional seating at each end of the upper deck. At a luncheon held on board, the Port Jackson Company chairman (J.J. Eyre) stated that "*Balgowlah* is as fine a boat as we could get turned out in any part of the world. With this new boat we can run 13 trips more every day than we could 12 months ago". Mr.J.P. Franki, manager of Mort's Dock, told the guests that his company built the ferries more for prestige than profit and "...we do not make 5 per cent out of them" while "there was not much difference" between the cost of having a vessel built in a local yard and placing an order with a British builder. *Balgowlah* entered revenue service on 28 November 1912.

The next vessel, *Barrenjoey*, was launched by the daughter of Mr. B. McBride (another director of the Port Jackson Company) at a ceremony held on 8 May 1913. She ran trials on 17 September 1913 from off Long Nose Point to the Sow and Pigs and return and, according to a newspaper report, exceeded the speed stipulated in the contract by one knot. Following the trials, *Barrenjoey* was moored off Cremorne Point and the guests were entertained at a luncheon held on board. At this function the owner's chairman of directors stated that, since the placing of the order for the first vessel constructed for the company by Mort's Dock (PS *Narrabeen* of 1886), £170,000 had been paid on account of new ferry steamers. Twelve years previously the fleet had comprised only five steamers with accommodation for 4300 passengers. Now there were eight (excluding cargo steamers) which could carry 10,500; during the past year the ferries had operated 32,022 trips covering 209,000 miles representing an increase of 11,648 miles over the previous year. The new steamer was placed in service on 20 September 1913.

*Baragoola* was built at the Balmain yard of Mort's Dock, and was launched on 14 February 1922 by the wife of the owning company's chairman of directors, Mr.H. McPherson. The cost of the new vessel was £80,000 as against £32,000 for *Barrenjoey* and £29,000 for *Balgowlah*. It is little wonder that the owners went to the UK for their next vessels. *Baragoola* ran trials on 11 August and entered service on 3 September 1922. As mentioned previously, *Baragoola* was slightly smaller than her near-sisters. She could be distinguished from these ships by the rounded ends of the sun deck (bridge) beyond each wheelhouse. In addition, possibly at the time of the alteration enabling her to burn oil fuel, a cowl was fitted to the funnel.

## **THE TWENTIES AND THIRTIES**

During the 1920s *Burra-bra*, *Bellubera*, *Balgowlah*, *Barrenjoey* and *Baragoola* were fitted with a small cafeteria below the main deck aft. The new steamers of 1928, *Curl Curl* and *Dee Why*, were similarly fitted. This facility was removed from all vessels during the 1930s. In August 1930 the open space on the promenade deck of *Barrenjoey* was partly enclosed; she was the first of the four vessels built during 1910-1922 to receive this improvement. The enclosed upper saloon with reversible upholstered seating therein served to make the vessels more suitable for the heavy business traffic, and was of benefit to the travelling public during the colder months and at night. *Curl Curl* and *Dee Why* had been built with the enclosed upper saloon, while *Balgowlah*, *Baragoola* and *Bellubera* were altered during 1931-1932.

In line with regulations requiring improved crew accommodation, facilities were progressively removed from the poorly-ventilated spaces below the main deck. In the 1920s all vessels were fitted with an officer's cabin behind each wheelhouse and in the 1940s additional cabins were added to the wheelhouses for the entire crews. This affected the vessels' stability and resulted in reduced passenger capacities from the 1950s.

*Baragoola* had been, during the early 1930s, the subject of an experiment involving the use of pulverised coal in the boilers. In common with similar experiments involving steam locomotives, the venture did not prove to be a success and was abandoned. One consequence had been the covering of the ship with coal dust. Between 8 March and 3 August 1939 *Baragoola* was altered to an oil burner using tar under natural draught, like the three Scottish steamers. Propellers of improved design were also fitted at this time. For a period during World War Two, the vessel



reverted to burning coal owing to difficulties in obtaining supplies of tar. In about 1948 *Baragoola* was fitted with Brown Bros. electrohydraulic telemotor steering.

In 1946 it was decided to convert *Balgowlah* and *Barrenjoey* from steam to diesel-electric propulsion, as the cost of replacing the two vessels with new boats was by then prohibitive to the company.

### ***BARRENJOEY TO NORTH HEAD***

*Barrenjoey* operated for the last time as a steamer on 12 April 1948, when she was withdrawn from service for a survey which subsequently failed her boilers. The task of converting her to a motor vessel was then taken in hand. By 30 June 1949 the fitting of new hull plates had been completed and the foundation beds were ready to receive the new equipment. This work was carried out by the original builders, Mort's Dock and Engineering, who also altered the framing of the hull. The difficult situation in relation to labour and materials which plagued post-war Australia caused the work to be unduly prolonged while costs continually increased. The name of the vessel was changed to *North Head* - presumably a symbolic act of casting aside the past, but possibly also a rationalisation of the geographic nomenclature of the company's Sydney and Hawkesbury River ferries.

The new diesel engines acquired for both *North Head* and *Balgowlah* were of the English Electric Co. Ltd. 7SKM type and had been manufactured in 1949 at its Willans works at Rugby, Warwickshire. *North Head* was fitted with four sets of four-stroke cycle single-acting supercharged oil engines, each containing seven cylinders measuring 255 mm (bore) by 305 mm (stroke), which were placed athwartships. Each engine is direct-coupled to a direct current generator supplied by the British Thomson-Houston Co.Ltd. Separate batteries provide power to excite the generators and start the engines.

The two propeller shafts (one forward, one aft) are each connected by single reduction gearing (at a ratio of 5:1) to a 615 horsepower electric motor driving each shaft. These motors are of the shunt-wound type and are capable of supplying current at 500 volts (1000 amperes) at a maximum speed of 790 rpm. In addition, there are two auxiliary diesel engines of AEC manufacture and direct-coupled direct current generators. Each auxiliary engine is capable of developing 100 bhp at 1000 rpm (at 115 volts and 348 amperes). One set is also fitted with an Amplidyne generator of 9.2 kw capacity (115 volts, 80 amperes at 1000 rpm). The vessel's bunker capacity is 53 tons of oil fuel.

The speed and direction of the vessel are controlled directly from the bridge, but the load on the generators can be adjusted by the engineer. Irrespective of the direction of travel, the pushing propeller takes 90% of the power as against 10% at the pulling propeller. This is in order to reduce impedance to the vessel's motion caused by the pulling propeller. *North Head* has both electro-hydraulic and manual steering equipment supplied by Brown Brothers and Co. Ltd. of Rosebank Ironworks, Edinburgh. It is so arranged that, in the event of the power gear failing, the hand device will come into use automatically. Telephone communication is provided between bridge and engine room, while a public address system is installed throughout the passenger accommodation. The engine room spaces are ventilated by seven motor-driven fans, while one fan

is fitted in the funnel for the discharge of heated air. The exhausts from the main generating engines pass through Burgess silencers to the forward funnel.

The main machinery was installed by Australian General Electric Pty. Ltd. while the work of wiring the auxiliary machinery and associated electrical work, including the lighting and communication equipment, was carried out by J.W.Bartholomew and Sons Pty. Ltd. The owners were responsible for the installation of the auxiliary machinery, floor plating, decks and the steel superstructure. The three lifeboats and a dinghy, which were placed on the sun deck, were made at the company's Neutral Bay works.

With the exception of the outside seating on the main deck, all seating was enclosed and upholstered. However, passengers did not take kindly to the elimination of the open seating formerly provided at either end of the promenade deck. The camber on this deck was taken out and, as the transverse seating was removable, it was possible to hold dances on board while limited catering facilities were provided.

Following the conversion, the gross and net tonnages became 465.66 and 183.78 respectively. In terms of the Navigation Act, 1901 (NSW) *North Head* is permitted to carry 904 and 358 persons on the main and promenade decks respectively. In rough water the capacity of the main deck is reduced to 606. The total seating capacity is 1005. The conversion resulted in the number of entrances/exits on the upper deck (at each side) being increased from three to four, while there are three such openings on each side of the main deck. With two funnels of medium height, the silhouette of *North Head* resembled that of the large steamer *South Steyne* of 1938. The reconstruction also involved the provision of a raked bow and stern in place of the former straight stems.

*North Head* ran trials on 5 May 1951, and on 7 May she was commissioned by the Minister for Transport (Hon. W.F. Sheahan) at a ceremony held on board. A commemorative brass plate was placed on the aft funnel casing within the main deck. The vessel's owners expected that *North Head* would enter revenue service shortly thereafter, but the Maritime Services Board demanded the carrying out of a stability test and readmeasurement of tonnage figures for registration purposes. Stability had been adversely affected by additional steelwork and crew accommodation on the top decks, as well as by lifeboats and rafts. As a result, the liferafts were moved from the sun deck to the fore and aft ends of the promenade deck. It was then realised that in this position they would be too heavy to be lifted over the bulwarks. In order to overcome this problem, hinged sections of the bulwarks had to be fabricated to permit the wooden rafts to be pushed over direct.

One report indicates that *North Head* was recommissioned on 27 September 1951, but this may refer to the date on which final trials were carried out. It appears certain, however, that she was placed in service on 29 September. During 1965, 1966 and 1967 *North Head* was taken to Melbourne under her own power in connection with the Moomba Festival for use on excursion cruises and special charter work on Port Phillip Bay. She operated from No.3 North Wharf and was in Melbourne during the following periods: 23 February - 28 March 1965; 5 January - 14 March 1966; and 5 January - 14 March 1967.

## **DISPOSAL OF *BALGOWLAH***

When *Balgowlah* was withdrawn from service on 27 February 1951 after operating the 8.05 am journey from Manly, there was no indication that she would not be converted similarly to *North Head*. At this stage she was the last coal-burning ferry in the fleet. However, the company was in grave financial circumstances after expending £261,772 on the conversion of *North Head*. It was announced that the company could not bear the cost of reconditioning the hull of and fitting the new engines to *Balgowlah*. On 30 June 1953 she was sold to J. Stride of Glebe for breaking up, and on 7 August 1953 she was towed to Stride's yard. This unfortunate circumstance deprived the service of a much-needed diesel-electric ferry in later years.

## **CONVERSION OF *BARAGOOLA***

In 1954 *Bellubera* was fitted with new diesel generators at the State Dockyard, Newcastle. The company then decided to fit the machinery intended for *Balgowlah* into *Baragoola*. The financial factors mentioned above precluded the immediate putting in hand of the extensive work, although the machinery had been in store since delivery in 1949. The estimated cost of the work was £65,000.

*Baragoola* ran for the last time as a steamer on 9 September 1958, and work commenced on 1 December. During the intervening period she had been held as a standby vessel. The work was carried out almost entirely at the company's Neutral Bay works and involved the provision of new hull plating. The reconstruction was not as extensive as that involving *Barrenjoey*. The straight stems and open seating at the ends of the promenade deck were retained, as was the wooden seating in the smoking saloon at the forward end of the main deck. The tall funnel was replaced by a shorter and wider one which was similarly located centrally.

Machinery details are similar to those applicable to *North Head*. The vessel's bunker capacity is 39 tons of oil. In common with *North Head*, the lighting was improved and the general appearance of the passenger accommodation improved. The vessel's licensed capacity (main/promenade decks) is now 886/332 for fair weather and 594/332 otherwise. The crew of seven is the same as for *North Head* and *Bellubera*, and is a reduction of four on the number carried as a steamer. *Baragoola* ran trials on 12 December 1960 and was first operated in revenue service on 26 December 1960. Regular operation commenced on 9 January 1961.

## **THE FERRIES TODAY**

On 9 January 1974 it was reported that Brambles Industries Ltd., the new owners of the Port Jackson Company, intended withdrawing *Baragoola* on 7 February and leaving the operation of the already much reduced service to *North Head* and *South Steyne*. This announcement and a further threat to close the conventional Manly ferry service altogether precipitated the decision of the NSW Government to arrange for the Public Transport Commission to take over the service as from 1 December 1974. As a result of this, *North Head* and *Baragoola* were acquired by the government and have continued to operate on the Manly service until the present time. (Since this article was written, *North Head* and *Baragoola* were withdrawn from service in the 1980s and sold to private owners. After initial attempts at conservation, both vessels have now been effectively

abandoned. At the time of writing, *Baragoola* is laid up at Balls Head in Sydney and *North Head* is ashore and abandoned in Cairns, Queensland.)

## DATA SUMMARY

|   | <i>Balgowlah</i>                           | <i>Barrenjoey/<br/>North Head</i>                       | <i>Baragoola</i>                    |
|---|--|---|-------------------------------------|
| Official number   | 131538                                     | 131567  | 150182                              |
| Yard Number   | 38   | 39  | 42                                  |
| Tonnage<br>(gross/net/under<br>deck)                        | 499/340/424                                | 500/340/424<br>(466 gross,184 net<br>after 1954 survey) | 498/339/412<br>(224 net after 1961) |
| Dimensions (feet)   | 210.0x32.2x14.1                            | 210.0x32.2x14.1   | 199.5x34.1x14.0                     |
| Steam engines:dimn.<br>of cylinders (inches)<br>nhp/ihp     | 18 1/4, 28 1/2, 48 1/2 x<br>27<br>122/1400 | 18 1/4, 28 1/2, 48 1/2 x<br>27<br>123/1400              | 18, 28, 47 1/2 x 27<br><br>112/1300 |
| Diesel-electric<br>engines dimn.of<br>cylinders (mm)<br>bhp | -<br>-                                     | 255x305<br><br>2000                                     | 255x355<br><br>2000                 |
| Passenger capacity<br>(fair/rough weather)                  | 1517/982                                   | 1509/978<br>(later 1262/964)                            | 1512/996<br>(later 1218/926)        |

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