MANLY FERRIES

OF SYDNEY HARBOUR

TOM MEAD

To the men
of the
Port Jackson & Manly
Steamship Company,
who left
a tradition.

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Captain Harold Gibson in full uniform as captain for the Port Jackson & Manly Steamship Company.

Front cover: *The SS* Barrenjoey *crossing The Heads during a 60-mph south-east gale on Easter Sunday, 16 April 1927. (Fred Elliott)*

Back cover: ***PS*** The Brothers. *The first Manly ferry. (John Allcot)*

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PART VI

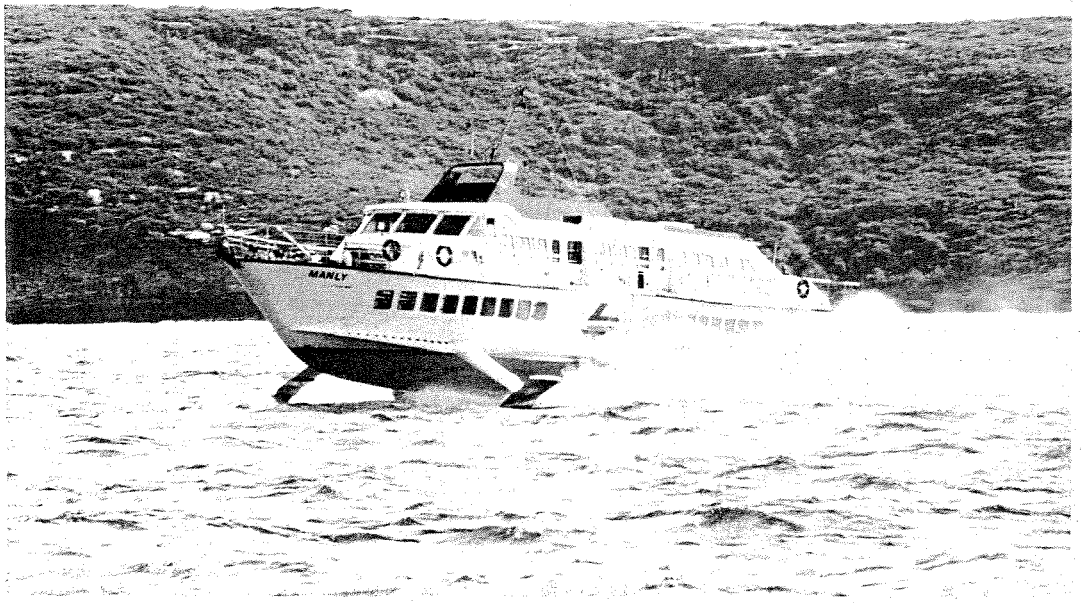
A NEW ERA

1. Fashions Change

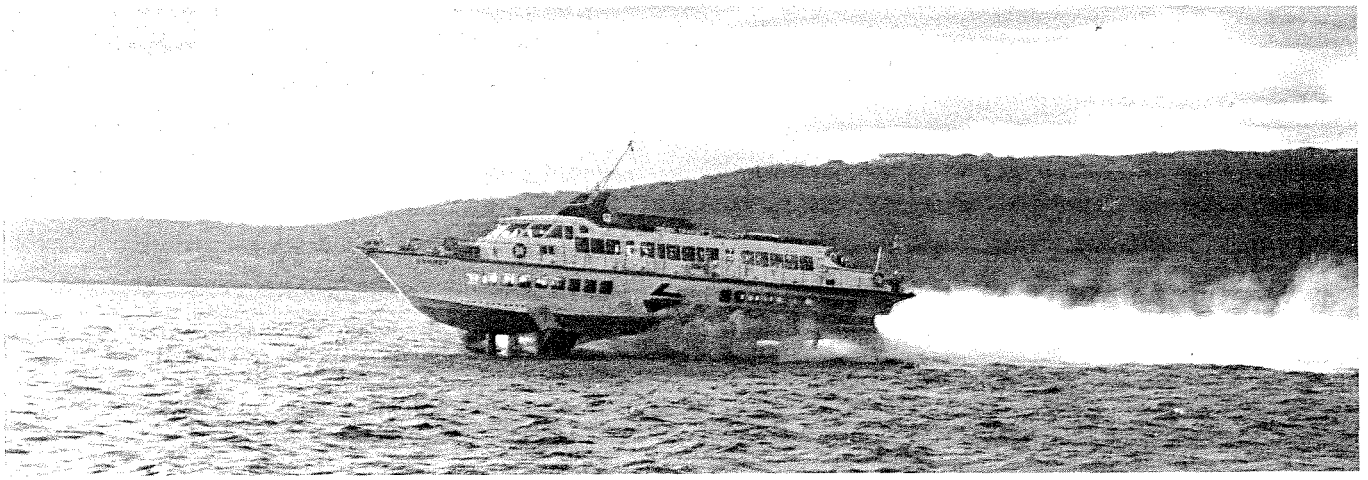
At this stage the Manly ferry service had reached the lowest level since the early days before the big paddle-wheelers. With only *Baragoola* and *North Head* available, everyone had their fingers crossed that neither became involved in an accident which could put it out of action for some time, leaving only one ship to carry on and creating a ludicrous but tragic situation. In May 1977 it nearly happened to the *Baragoola*, approaching Garden Island on her way to Manly with a big load of holidaying school children, parents and other passengers. Out from Garden Island came the destroyer HMAS *Vampire*, manoeuvring into the harbour to turn and head off towards The Heads. The *Baragoola*'s siren blasted and she hove to with the *Vampire* at right angles across her bows. The warship turned slowly and made off towards The Heads and the *Baragoola* proceeded slowly until the *Vampire* was clear. She arrived at Manly 10 minutes late, but, as the old saying goes, better late than never, or, in this case, off the run for extensive repairs.

A couple of months later, in July, *Baragoola* had to go off for one of the delayed annual refits, which were not annual any more because of the two-boat service which the Government had been assured was adequate. The new inner harbour ferry *Lady Northcott* was brought on as relief boat, but four days later overshot the wharf at Circular Quay and crashed into the footpath. She was withdrawn for repairs, leaving the *North Head* to carry on alone. Towards the end of the year, in November, the *Northcott*'s sister ship, *Lady Wakehurst*, returned from Hobart, where she had been used for 18 months as a Derwent harbour ferry after the collapse of the Tasman Bridge. The Minister for Transport, Mr Cox, released the news at the end of November that *Lady Wakehurst* would join the Manly service on a three-month trial from 9 January and passenger response would be monitored to see whether she should continue. The *Wakehurst* was being overhauled after her Tasmanian service, two gang-way gates were being made, the upper deck was being reinforced and crew accommodation modified.

Of course it was a success. After only one month passenger figures were well up, but nobody would say anything officially until the expiration of the trial period. The *Lady Wakehurst* was not withdrawn at the end of the three months. She remained there, helping to provide a three-ferry, half-hourly service and the people were using it. Mr Cox told Manly Council in November that the trial would almost certainly become permanent. Figures had shown that ferry patronage had risen considerably and was increasing at a far greater rate than that for the hydrofoils, contrary to some official predictions. Ferry patronage over 140 days between February and June was 1 366 000—an increase of 250 000 compared with the



The new era of fast water transport. The hydrofoil carries 240 passengers the 7 miles between Sydney and Manly in 12 minutes and is capable of speeds of more than 40 miles an hour. (Robert Needham)



The hydrofoil Sydney *crosses the harbour at sunset. (Robert Needham)*

If the captain hadn't been quick-thinking enough to fool the hijacker into believing he had to radio a change of course, nobody would have known anything was wrong until very much later.

Trevor John Brady, 40, unemployed, of no fixed address, appeared in court subsequently charged with threatening to destroy a vessel.

2. The Hydrofoils

Sydney saw a new mode of water transport in January 1965, when the Port Jackson & Manly Steamship Company introduced Australia's first hydrofoil. The company imported from the Hitachi shipbuilding yard at Kanagawa a small 72-passenger hydrofoil at a cost of £140 000. She was given the name *Manly*. This was a great novelty and many people just went for the ride to see what it was like. For the commuter in a hurry the hydrofoil offered the advantage of quick travel, covering the journey in 15 minutes against the ferry's 35 minutes. The *Manly* was certified to operate between Sydney and Port Stephens to the north and Jervis Bay to the south, but never took on a regular service to these places. In February 1967, she was taken to Melbourne for tours on Port Phillip Bay, but the venture was not a great success. For normal use in Sydney the *Manly* was not really big enough, and because of this and various mechanical troubles she had a fairly short life.

In November 1966, she was given a big sister when the 140-passenger hydrofoil *Fairlight* arrived from Italy. *Fairlight* was the first of a fleet of five similar craft which formed the basis of the hydrofoil service between 1966, when the *Fairlight* arrived, and September 1984, when the 235-passenger *Manly* made her maiden journey. All these were built by the Rodriguez shipyard in Messina, Italy, at costs ranging from $500 000 for the *Fairlight* and the next to join the ranks, the *Dee Why*, to more than $5 million for the *Manly*, which, when it was in service, cut the running time from 15 to 12 minutes.

Little mention has been made of the hydrofoils previously, this being essentially the story of the Manly ferries, but nowadays the hydrofoils do play an important part in the overall service. They are more like an aircraft than a boat or a ship, riding on their foils by using the water like an aircraft uses the air. Initially they were profitable and they were popular largely because of the run-down ferry service, but they have been plagued by mechanical and industrial troubles and their fortunes have declined since the three new ferries have offered more comfort for lower fares.

By the end of June 1984, the number of passengers using Manly ferries had risen to 7.97 million for the year, a big difference to the doldrums of 1976, when only 2.32 million users rode the ferries. But the hydrofoils, which had attracted 2.1 million customers in 1980 suffered a decline in patronage in 1984 to 1.58 million. The Urban Transit Authority attributed the decrease to the higher cost of travel—$2 by hydrofoil against $1.10 by ferry. Manly ferry passenger figures reached a record high in January 1985. The difference in fare levels might have had something to do with it, but most people did not agree it was the sole reason. They liked the new ferries and unless they were in a hurry, the ferries would do them.

The *Dee Why* joined the hydrofoil fleet in 1970 and the *Curl Curl* followed in 1973, enabling the Port Jackson & Manly Steamship Company to relegate the *Manly* to being a spare boat and use mainly a fleet of three similar craft in the *Fairlight*, *Dee Why* and *Curl Curl*. Brambles sold the hydrofoils when they took over the Port Jackson company and leased them back from FNCB-Waltons Finance Ltd. The State Government had to buy out the leases when it took over from Brambles in 1974. Before the Government take-over, a departmental officers' committee in a report to the Cabinet sub-committee on ferries, submitted as one matter requiring a Cabinet decision:

The old and the new. The old ferry North Head *and the hydrofoil* Dee Why *crossing The Heads on their way to Manly.* (Manly Daily)

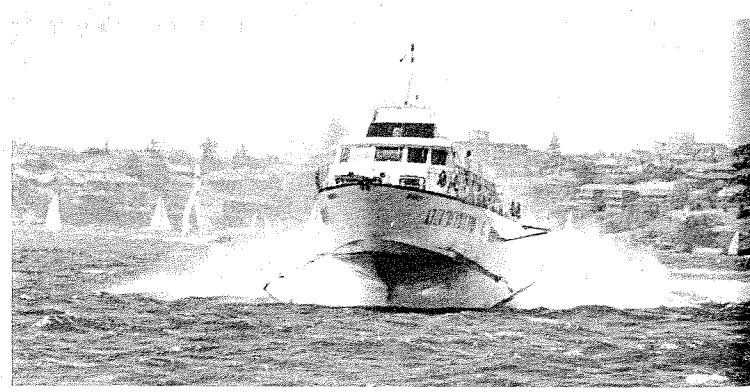
Options on Manly hydrofoils: The agreement presently existing between the Government, the Port Jackson & Manly Steamship Company Ltd and its parent company, Brambles Industries Ltd, requires the Government to decide on options either to accept assignment of the former company's hydrofoil leases or to purchase the hydrofoils outright at a figure nominated by the owner under the company's buy-out arrangements with the owner of the craft, FNCB-Waltons Finance Ltd.

The officers committee is agreed that the hydrofoils are an essential and established part of the Manly service. Following an investigation into the technical aspects of the hydrofoils, the Maritime Services Board has concluded that the hulls, foils and machinery of the craft are in good condition and there are no technical grounds to prevent their acquisition. The expected life span of each craft is 15 years.

The committee is of the view that to exercise the second of the two options leaves no room for the Government to negotiate a more favourable purchase price, whereas in the present financial climate the Government would be in a strong bargaining position in any such negotiations. In all the circumstances, the committee recommends that Cabinet be asked to approve that the option providing for assignment of the company's leases of the four hydrofoils be exercised and that thereafter negotiations be opened with the owner of the craft for their purchase.

If the departmental officers' report was correct, most of the hydrofoils went far beyond their expected life spans. On that basis, the *Fairlight*, built in 1966, should have finished in 1981; the *Long Reef*, built 1969, should have ended its service in 1984; the *Dee Why* and *Palm Beach*, both built in 1970, should have finished in 1985 and the *Curl Curl*, of 1973 vintage, should be around until 1988. Not all of them were acquired as new craft. The *Long Reef*, bought in Italy in 1978 for more than $1 million, arrived in Sydney as a ship's deck cargo in April of that year, but did not begin service until well into September. In the six months it was out of action it was found that the foils were suspect, necessitating considerable work on them, and the motors had to be overhauled. This became difficult when parts could not be obtained and eventually motors were taken from the *Curl Curl* and *Fairlight* to get the *Long Reef* going.

Similar troubles have beset the other hydrofoils and this, combined with industrial turmoil and strikes at the Balmain works depot, has given the hydrofoils some heavy weather to combat. How many breakdowns the hydrofoils suffer is never really known outside the ferry offices in town, and there is also a lack of publicity to explain why hydrofoils and ferries are tied up at Balmain for weeks when union strikes and go-slows dictate what does or does not go in or out of the depot. The painters and dockers control the depot. No matter how far behind the work schedule might be on ferries or hydrofoils, no outside contractors may come in to take some of it over and none of the vessels can be sent elsewhere for the work to be done. In May 1985, the big new hydrofoil, *Manly*, had been tied up at Balmain for just on two months



The hydrofoil Manly III *carries 240 passengers between Sydney and Manly in 12 minutes. (Robert Needham)*

because of a strike by the union and then go-slow tactics after they returned to work. Meanwhile, the other 140-passenger hydrofoils like the *Curl Curl*, known as the PT50s, were being flogged in a desperate effort to maintain a service to the public, carrying reduced loadings because of their inability to get up on the foils with a full load. During that period the *Curl Curl*'s load was reduced to 120, at times to 100 and even to 90, which meant 50 people had to be left behind in peak hours.

One morning in May 1979, the hydrofoil fleet was reduced to one boat. Two had broken down and the two standby boats were imprisoned at the Balmain depot by a union overtime ban. A couple of weeks earlier another hydrofoil broke down and was out of action for more than an hour. It could not be replaced because—believe it or not—the union would not allow another hydrofoil to be taken out of the depot, where union action had impounded it. In February 1985 the *Manly Daily* reported that two separate disputes between the Urban Transit Authority and the Painters and Dockers Union had put ferry and hydrofoil services on the brink of chaos. The paper said the hydrofoil *Fairlight* had been lying idle at Balmain for 10 months because of another dispute. Demarcation disputes have caused absurd situations. The day the new hydrofoil, *Manly*, was to go into service in September 1984, the maiden voyage was delayed for hours after members of the Painters and Dockers Union walked out of the Balmain depot. Apparently the water supply had been turned off while certain construction work was done at the dockyard. The unionists were angry because they claimed this rendered the dockyard unsafe in case of fire and had left them with inadequate washing and toilet facilities.

The absurdity of some of these disputes is demonstrated in this case. When the dockers walked off the job that morning because they could not wash their hands, the hydrofoil *Manly* could have been taken out of the depot and put into service, but while vessels are in the dock only members of the Painters and Dockers Union must tie them up or cast off the ropes—jobs done normally by deckhands outside the dock. That day—and no doubt many other days—nobody dared touch the ropes to lift them off the wharf bollards until after 4 pm, when the painters and dockers would have knocked off for the day if they hadn't been out on strike. In October 1982, rain and strikes held up work on the Manly wharf bus-ferry interchange for months. At one stage the union ordered men employed on the project to stop work for two days until portable toilets were installed on the site, despite the fact that the gent's toilet on the wharf was only a few metres away.

Industrial stoppages disrupt the ferry and hydrofoil services frequently when the Merchant Service Guild, which includes the ferry and hydrofoil skippers, holds stop-work meetings to discuss union affairs. Despite the fact that they are manning an essential public utility, the men stop the service, usually for four and a half hours between 10 am and 2.30 pm, causing untold inconvenience to thousands of people. These tactics were taken further on 14 May 1985, when a stop-work to discuss one captain's pay grievances was pushed into the morning peak hours, leaving many commuters stranded after 8.05 am. Previously, the service was not closed down until after most people had been taken to their work in the city. This time the last ferry left Manly at 8 am, leaving quite a few behind, and the last hydrofoil departed at 8.05 am, leaving even more behind. The ghosts of the old Port Jackson & Manly Steamship skippers must have stirred that morning. Gone were their traditions of service to the public.

The hydrofoil Sydney *makes heavy going crossing the harbour in choppy seas. (Robert Needham)*

There are some differences between the hydrofoils and the ferries. Despite their speed, the hydrofoils do not figure in as many accidents as the ferries. Even at high speed they are very manoeuvrable and can usually avert trouble more easily than the slower moving but less nimble ferries.

The hydrofoil *Curl Curl* killed a man in an unusual accident on 2 October 1981. Timothy Charles Grahame Wearne, 23, of Cremorne, was with his two brothers and other men aboard a hired pleasure cruiser in the harbour for a 'bucks' party on the eve of his wedding to Sally Howes, 23, described as a Sydney heiress. One wonders why anyone would want to dive into the harbour near Fort Denison for a swim at about 5 pm. In the early days the fear of sharks deterred unfortunate convicts from trying to escape from Fort Denison by swimming ashore. But Timothy Wearne was killed by a hydrofoil instead of sharks and died in the whirling propellers of the *Curl Curl*. Wearne's brothers and friends aboard the cruiser shouted a warning to him as they saw the hydrofoil approaching. He saw it himself then and dived, but apparently came up too soon, right in front of the speeding hydrofoil.

Wearne's distressed friends and relatives tried in vain to recover his body before going for help. The skipper of the *Curl Curl* was Captain Bernadus Geveling, who, less than one year later, had the misfortune to be in charge of the *Lady Wakehurst* when its propellers cut a man to pieces, as mentioned in the previous chapter. He was unaware that his hydrofoil had struck a man and knew nothing about it until police questioned him. No blame was attached to him for the tragic accident. Police said Wearne's death was one of the most horrible ever to take place in the harbour.

One other accident of note involving a hydrofoil was on 2 February 1984, when the hydrofoil *Fairlight* and an eight metre fibreglass sloop collided near Fort Denison during a heat of the world 18-footer sailing championships. Three people who had been watching the sailing race from the sloop were flung into the harbour when the yacht sank after striking the underside of the hydrofoil's port bow. They were the skipper, John Stewart-Duff, of Vaucluse, Joseph Ferguson, of Bronte, and Georgina Martin, of North Bondi. They were pulled aboard a rescue boat which was following the races and were taken to the Royal Prince Edward Yacht Club at Point Piper. Police said the hydrofoil skipper, William Grasby, had to alter course when yachts were in his way. Just before the collision he told his engineer to shut down the engine, but the collision could not be avoided. An official of the Urban Transit Authority said the increasing number of pleasure boats on the harbour was causing great problems for ferries and hydrofoils. Sailboard riders were causing the biggest problem because riders were taking risks crossing in front of ferries and hydrofoils.

Urgent talks between representatives of the Merchant Service Guild, the Urban Transit Authority, Maritime Services Board and the boating industry were held after this accident to see what could be done to lessen the risk of more serious incidents involving weekend sailors, particularly in sailing boats and on sailboards. The result was that sailboards were banned from the shipping and ferry lanes, to the great relief of ferry and hydrofoil skippers and pilots getting big ships in and out of the port. The real fear of skippers was that one of the sailboarders' frequent collapses into the water would be done right under the propellers of their vessel.

The arrival of the big new *Manly* in September 1984 was an event of considerable interest. If riding in her predecessors had been like flying in a DC3 aircraft, travel in the *Manly* was like being in a Jumbo 747. Looking out of the lower front windows of this hydrofoil gives an impression similar to rushing down an airport runway for take-off. The *Manly* knocked three minutes off the journey, covering the seven miles in 12 minutes, carrying up to 240 passengers. But in the first 12 months the *Manly* was in service she spent more time at the Balmain depot than travelling the harbour. Two days after her maiden voyage in September 1984, a fire in the turbochargers broke out when she berthed at Circular Quay after the 9.25 am trip from Manly. She was out of service for more than a week awaiting a replacement part to be flown in from abroad. Between March and May of 1985 the *Manly* spent more than two months tied up at Balmain, allegedly because of various reasons—the strike by the painters and dockers, warranty work waiting to be done and lack of spare parts. In May of that year the *Manly* was awaiting a new propeller. One had been damaged and there were no spares in Australia.

Maintenance of the hydrofoils was quite a big and frequently expensive affair. George Marshall tells about some of the problems they had to face, particularly in the early stages:

> They were constructed with the propeller for'ard of the aft foil. This meant that if the after foil was going to hit something the propeller hit it first. We kept on doing in propellers for three years before the situation was changed. It was a major operation to put the foils in front of the propeller, but the percentage of propeller damage was cut down. I think we did 60 propellers, costing $700 each, before things were put right.

The cost of building hydrofoils has gone up considerably. The *Palm Beach*, a PT50, was bought second-hand in Hong Kong, where she had been used on the service between Hong Kong and Macau. Her purchase price was $700 000, $200 000 more than the new price of the *Fairlight, Dee Why* and *Curl Curl*. Eleven years later, the much bigger and faster 235-passenger hydrofoil *Manly II*, imported from Italy, cost $8 million. A year later again, her sister ship, *Sydney*, cost about $8.75 million. The hydrofoils are costly to operate. Apart from day-to-day breakdowns and repairs, major mechanical overhauls should be done on hydrofoils after 4000 hours of engine operation. This involves taking the engines out and stripping them down. The vessels should be docked every 12 weeks to maintain hull and foil cleanliness, which is most important to their performance and economy of operation and it presents a big worry when strikes at the Balmain depot impede docking and hull cleaning.

Maintenance on the hydrofoils is almost prohibitive, according to George Marshall—admittedly an old ferry man rather than a hydrofoil enthusiast—who says:

> The cost of operating hydrofoils far exceeds the cost of operating a conventional ferry carrying about 1200 passengers. It requires an entirely separate operation—a separate berth, separate ticket selling and separate

wharf staff. The wharf hands who take in a ferry cannot berth a hydrofoil. More than once a crankshaft has been broken and to replace it means a lot of work and a lot of money. You have to take off the deckhouse, pull up the floor, take out the engine, rebuild it and then replace it. The V12-cylinder Mercedes 1500-hp engines weigh about four tonnes, so it is no small job and it is very costly.

Keith Rosser, after years with the ferries, spent many more years with the hydrofoils from their early days on the harbour and enjoyed the life. Max Barton was with the inner harbour ferries before going on to hydrofoils. He is happy in the service and regards hydrofoils as an essential part of metropolitan transport. Says Max:

> Apart from their speed, the hydrofoils attract many people because they give a comfortable ride across The Heads in rough weather, which suits those who might be prone to seasickness. They don't roll as much as a conventional vessel and they don't pitch as much because the foils slice through the waves and the hull is above the waves. Hydrofoils offer the comfort of individual seats with armrests. Also, hydrofoils have a far better safety record, despite their speed.

Another hydrofoil enthusiast is Captain Bill Thomas, who has spent 16 of his 19 years with the Manly service in hydrofoils. A native of Liverpool, England, he spent some years at sea before coming to Australia and has a foreign-going master's certificate. Between 1962 and 1964 he was with the *South Steyne* and took her several times on ocean cruises to Broken Bay. Bill Thomas went back to England in 1964 but missed Sydney harbour, returned to it in 1970 and has been a hydrofoil captain ever since.

Not a great deal happens around the hydros, as some call them, but Bill Thomas tells of an incident one day when he was off Middle Head in the *Curl Curl* going to Sydney between 7 and 8 am and the *Long Reef* was coming in the opposite direction towards Manly. As the two vessels approached at full speed near Middle Head a passenger in the *Long Reef* opened the back gate and stepped off into the water. Bill Thomas said:

> You can imagine our horror. He must have dropped down between the foils and the back one passed over his head without hitting him. We stopped, turned around and raced back to where he was floundering in the water and, to our amazement, was singing. A policeman was on board with us. We got down and hauled the fellow out of the water, which was not easy because he was at least 200 centimetres tall and rather big. The man was obviously high on drugs. Asked where he was going, he replied 'to Nirvana', which indicated to us that he was going to Manly to get 'a fix'. Three times during the rest of the trip to Sydney we had to restrain him from going out the door again.

Bill Thomas took the hydrofoil *Fairlight* to Newcastle in 1970, covering the 60 sea miles in two hours. In 1984 he brought the *Manly II* to Sydney from Newcastle in 1 hour 45 minutes, averaging 35 knots. He says her sister ship, the *Sydney*, built to do 38 knots, can reach 41 knots. Thomas, Max Barton and another skipper, Dick Kirkwood, describe the big new hydrofoils as 'fine boats'. Gyroscopes and computers control flaps on the after foils which keep the craft in level flight, even in heavy seas. 'This is the only hydrofoil service in Australia and we should be very proud of it,' says Bill Thomas.

Working the hydrofoils is a team effort. The captain steers and gives directions to the engineer, who controls from the wheelhouse the two powerful engines down below. The engineer is a key man berthing at wharves and leaving them, controlling the vessel through its two propellers. Tony Grasso has been with the hydrofoils as an engineer since 1974 after spending four years at sea in BHP ships as a marine engineer. He likes the life on the hydrofoils. He said:

> It is an interesting life. Things on the harbour are changing all the time. In summer every trip is different. It is never monotonous. The scene can change so quickly, too, with the weather. On the hydrofoils the engineer has more of the action than he would get in the ferries. You are up on the bridge instead of being down in the bowels of the ship shut off from everything.

But it is not always so. The engineers get quite a bit of dirty work when things go wrong. The very first trip Tony did in the *Palm Beach* was not all smooth sailing. He said:

> We wondered why we couldn't get her up on the foils. When we berthed at Manly I went down below and found that the engine room was flooded. A hose bringing sea water in for cooling the engines had come off and was pouring the water into the engine room instead of through the engines. I've been down there in underpants cleaning out the water intakes when they have become clogged with rubbish.

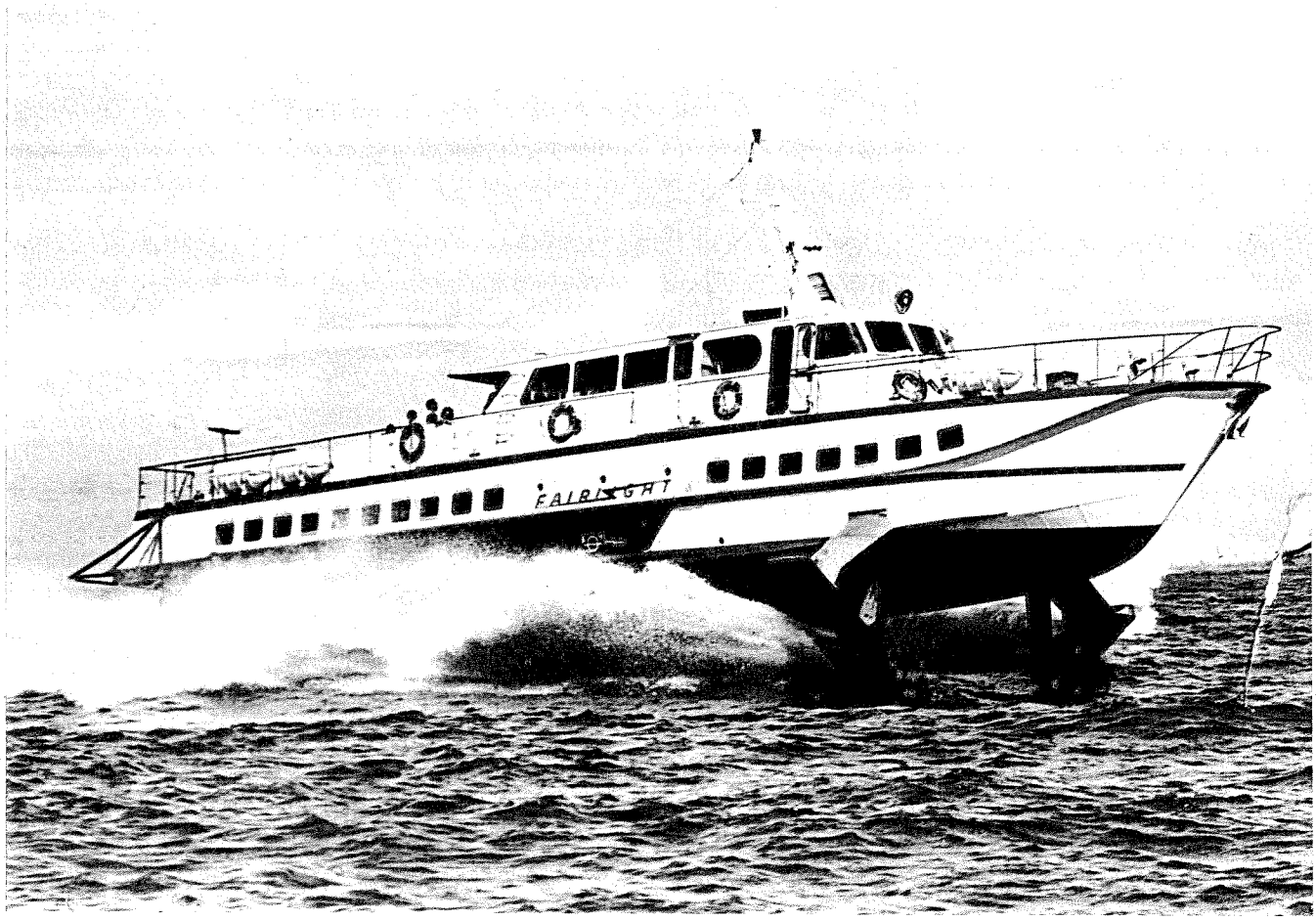
Tony Grasso thinks big hydrofoils like the *Manly* and *Sydney* would be very suitable for long trips, like Sydney to Newcastle. He said:

> We brought the *Sydney* down from Newcastle in 1 hour 35 minutes. This is faster than the XPT train, which

takes two and a quarter hours. These boats are good at sea, too. We brought the *Manly* down into strong southerly weather and she rode it beautifully.

They are not cheap to run, however. Two V16 engines burn up 60 litres of lubricating oil a day. They are designed to use this much oil in their lubricating systems.

These craft are so fast that few speedboats can outpace them. The *Manly* and the *Sydney* can cover the seven-mile trip in 10 minutes if necessary. It has been suggested, facetiously, that they would be good for towing water skiers. That was tried with one of the PT50 hydrofoils some years back when they were being serviced at Berrys Bay. One of the workmen thought he would like to see how it went. Waterside residents, to their amazement, saw a skier being towed along behind a hydrofoil and some rang the Port Jackson & Manly Steamship Company to query what was going on. The experiment was never repeated.



The Manly hydrofoil Fairlight *riding at speed on its foils.* (Manly Daily)

gangways similar to those of the Freshwater class vessels, ut delivery of the *Narrabeen*, giving Manly three Freshvater class ships, plus the *North Head* as a spare boat, eleased the *Lady Wakehurst* for inner harbour work.

***LADY NORTHCOTT* (1975-)**: Same statistics s *Lady Wakehurst*. Same builder, but cost $780 000. Jsed as spare boat on Manly service between 1975 and 984. Principal use since as Mosman ferry.

***FRESHWATER* (1982-)**: Builder, State Dockvard, Newcastle, New South Wales. Launched 27 March 982. Entered service 18 December 1982.

***QUEENSCLIFF* (1982-):** Builder, State Dockvard, Newcastle, New South Wales. Launched 4 December 1982. Entered service 9 July 1983.

***NARRABEEN III* (1984-)**: Builder, Carrington Slipways, Tomago, Hunter River, New South Wales. Launched 26 May 1984. Entered service 19 August 1984.

These are all identical ships, built for the Urban Transit Authority of New South Wales as part of the Sydney metropolitan ferry fleet used in the Manly service. The common statistics are:

Length 70.40 m (230.98 ft); breadth, moulded 12.5 m (40.01 ft)—extreme 12.8 m (41.43 ft); depth, moulded to main deck 5.5 m (18.1 ft); draught, loaded 3.31 m (10.83 ft). Displacement (loaded) 1159 tonnes. Engines: two Daihatsu 8 DSM-32 marine diesels, each of 3200 bhp at 600 rpm continuous rating. Propellers: single screw at each end, controllable pitch by LIPS BV, Holland. Computerised equipment: micro-processor system by Hawker-Siddeley Dynamics and LIPS BV. Speed: one engine 14 knots, two engines 18 knots. Passenger capacity: harbour operation 1100; offshore 550. The propulsion system is so arranged that the power from one or, alternatively, two engines, may be transmitted through two marine gearboxes of Lohman & Stolterfoht manufacture, type GVQ 1000 E special with quillshaft design to one propeller (sailing mode) or, simultaneously, to two propellers (manoeuvring mode). The hulls are welded steel and superstructure is aluminium.

Hydrofoils

The hydrofoils are of three types—PT-20 (*Manly I*), PT-50 (*Fairlight, Palm Beach, Long Reef, Dee Why*), RHS 140 (*Curl Curl*), RHS 160 F (*Manly II, Sydney*). With the exception of *Manly I*, which came from Hitachi Shipbuilding & Engineering in Japan, all the others were built by Rodriquez Cantiere Navale, Sicily.

***MANLY I* (1965-80)**: Length 18.59 m (61 ft), displacement 32 tonnes, passengers 75, single propeller. Engines: one MTU 12V 493DB, 1350 bhp rated at 1500 rpm. Speed 30 knots.

***FAIRLIGHT* (1966-84):** Length 28.96 m (95 ft), displacement 64 tonnes, passengers 140; twin propellers. Engines: two MTU 12V 493DB, each 1350 bhp rated at 1500 rpm. Speed 33 knots.

***PALM BEACH* (1969-85)**: Length 28.96 m (95 ft), displacement 64 tonnes, passengers 140; twin propellers. Engines: two MTU 12V 493DB, each 1350 bhp rated at 1500 rpm. Speed 35 knots.

***DEE WHY* (1970-84)**: Length 28.96 m (95 ft), displacement 64 tonnes, passengers 140; twin propellers. Engines: two MTU 12V 493DB, each 1350 bhp rated at 1500 rpm. Speed 35 knots.

***CURL CURL* (1973-):** Same statistics as for *Dee Why* and *Palm Beach*.

***LONG REEF* (1978-)**: Same data as *Dee Why* and other PT-50s. Arrived April 1978, but because of work before commissioning, did not enter service until September that year.

***MANLY II* (1984-)**: Length 31.2 m (102 ft 4 in), displacement 90 tonnes, passengers 235; twin propellers. Engines: two MTU MB 16V 396TB83, each 1400 kw at 1940 rpm. Speed 38 knots.

***SYDNEY* (1985-)**: Same statistics as for *Manly II*. Entered service 22 July 1985.