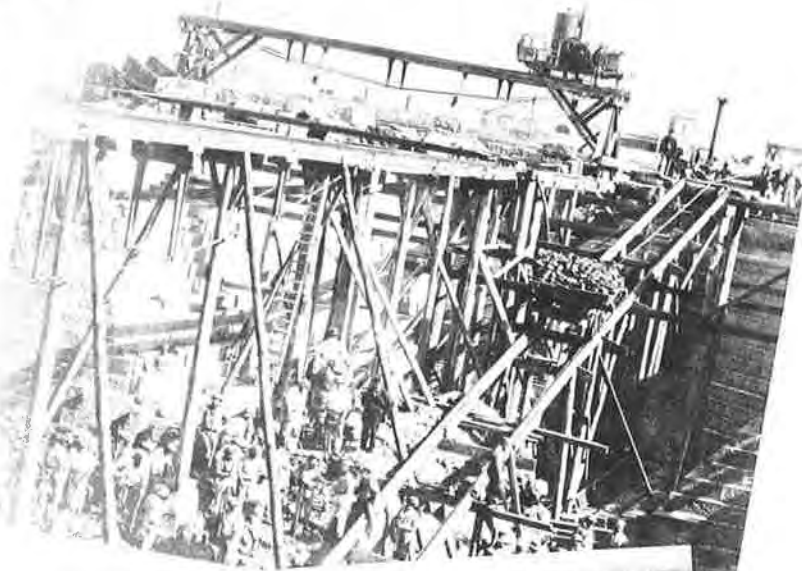
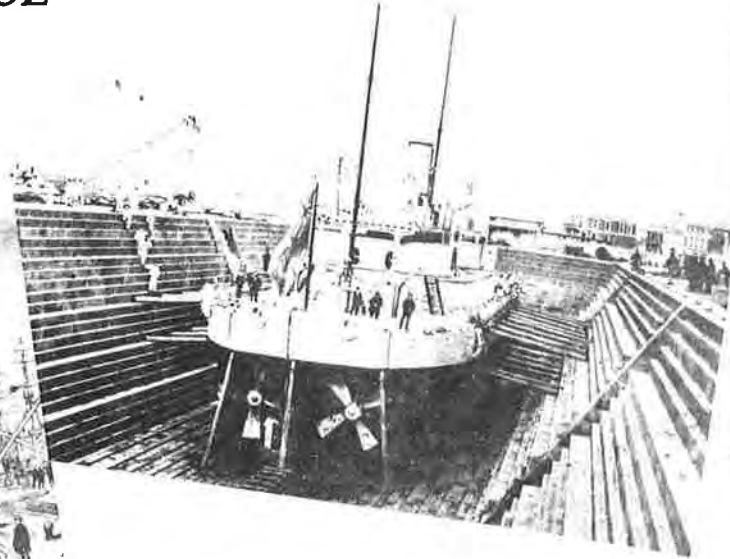


**WELCOME TO
HISTORIC
WILLIAMSTOWN
NAVAL DOCKYARD**
HOME OF THE AUSTRALIAN FRIGATE



ALFRED GRAVING DOCK

113 YEARS OF CONTINUOUS USE



FOOTNOTE: The word "grave" means to clean (ship's bottom) by burning off accretions and tarring while aground or in a graving dock.

PRINCIPAL MEASUREMENTS

1. Max Length (Bilge of Caisson to Coping Head)	479'-9"	146.5 metres
2. Max Length (Bilge of Caisson to Recess at Head of Dock)	476'-9"	145.6 metres
3. Length of Floor	450'-0"	137.4 metres
4. Length of Keel Blocks	435'-0"	132.8 metres
5. Length extra if Caisson moved on Outer Stops	20'-0"	6.1 metres
6. Breadth of Coping Head	97'-0"	29.6 metres
7. Breadth of Entrance at Coping Head	80'-0"	24.4 metres
8. Breadth of Entrance at Ordinary High Water	76'-6"	23.4 metres
9. Breadth in Dock at Keel Block Level (Mid Section of Dock)	61'-6"	18.8 metres
10. Breadth of Floor	55'-6"	16.9 metres
11. Depth of Water at Sill (Ordinary High Water)	26'-0"	7.9 metres
12. Depth of Water on Blocks (Entrance OHW)	23'-6½"	7.2 metres
13. Depth of Water on Blocks (Head OHW)	22'-0½"	6.7 metres
14. Depth from Coping Head to Top of Blocks (Entrance)	30'-0½"	9.2 metres
15. Depth from Coping Head to Top of Blocks (Head)	29'-0½"	8.8 metres

GENERAL INFORMATION

Building commenced	November 1864
Memorial Stone laid by	HRH Prince Alfred KG 4 January 1868
Work Completed	1874
Engineer	W W WARDELL
Contractors	J LEGGATT Messrs J. Irons & Co.
Stone Obtained From	Williamstown
Total Cost of Work	Approximately £350,000
First Vessel Docked	HMVS Nelson 2 March 1874
Largest Vessel Docked	SS "City of Delhi" 7,443 tons gross Length BP 450'-5" - 137.4 metres Breadth 58'-6" - 18 metres Depth 32'-1" - 0.7 metres
Longest Vessel Docked with Caisson at Inner Position	SS "Ormuz" Gross ton 6,031 tons Length BP 465'-5" - 142.1 metres Breadth 52'-1" - 15.9 metres Depth 19'-1" - 5.8 metres

(Note: This Vessel has a high rise in the Forefoot)

APPROXIMATE ESTIMATE OF WATER IN DOCK

Amount of water contained from OHT to Third Broad Altar	= 544,000 Cu Ft = 15,587 tons
Amount of water contained from Third Altar to Floor of Dock	= 327,000 Cu Ft = 9,369 tons
Total from OHT to Floor of Dock	= 871,000 Cu Ft = 24,956 tons
Total amount of water in gallons	= 5,443,750 gallons 24,747,287.5 litres

PUMPING PLANT

Two submerged 4 tonne Centrifugal Electric Pumps	9,000 gallons per min
	4 1/2 - 4 3/4 hours to empty

BOOK TO READ

Port of Many Prows
by Wilson P. Evans

H.M.A. NAVAL DOCKYARD, WILLIAMSTOWN

A Brief History

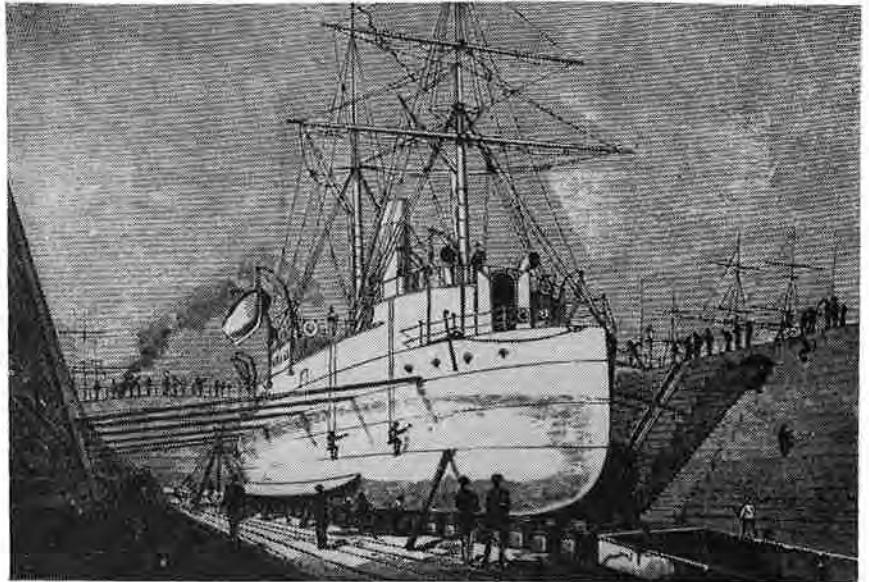
The Naval Dockyard at Williamstown is situated on the peninsula whose headland is known as Port Gellibrand, a locality of considerable importance in the early history of the colony at Port Phillip. The area was named after a lawyer, J. T. Gellibrand of Van Dieman's Land, a member of the Port Phillip Association formed by John Batman to settle the area. The first party landed from the barque NORVAL on the site of the Naval Dockyard, having sailed from Georgetown on 22nd October, 1835.

The Colony increased rapidly. By 1838 a steam ferry FIREFLY was plying between Williamstown and Melbourne, and a year later saw the appointment of a Harbour Master and pilots to cope with the rapid growth of sea trade. In the year 1840 the Port Phillip Steam Navigation Company was formed, and a ship repair yard was established on the foreshore at Williamstown. The discovery of gold in 1851 brought such an increase in population that the existing ship repair facilities could not cope, and the Victorian Government was forced to intervene. A portion of waterfront land within the present Naval Dockyard area was set aside for the erection of a patent slip but the authorities neglected to order the equipment.

However, a certain Captain Gilmore and his associates imported a MORTEN'S Paten Slip for erection at Launceston. The slip was brought out aboard the barque TRAFALGAR, which called first at Hobson's Bay. The Harbour Master, Captain Charles Ferguson, came to an arrangement with the ship master to offload the Patent Slip which was purchased by the Government and set up on the site now occupied by the westernmost building berth in the Dockyard. Construction costs amounted to \$116,000. The slip was laid with a fall of one foot in twenty, and vessels to 2,000 Tons could be hauled out using the 35 h.p. steam engine to operate a hydraulic purchase under pressure of 1½ Tons per square inch.

Trials commenced on Saturday, 9th October, 1858 when the hulk MELBOURNE of 468 Tons and 60 Tons of iron ballast were raised on the 200 foot long cradle in 2½ hrs. The slip, which was finally demolished in 1911, handled all classes of ships from sail to steam and including prison hulks, five of which were moored off Williamstown, but perhaps the most famous was the U.S. Confederate Ship – the SHENANDOAH, slipped on the 8th February, 1865.

Despite strong protests from the Consul for the United States, work continued, the ship's neutrality being guaranteed by a 68lb gun mounted on a gun raft moored off the end of the slip to engage her if she made any hostile moves when



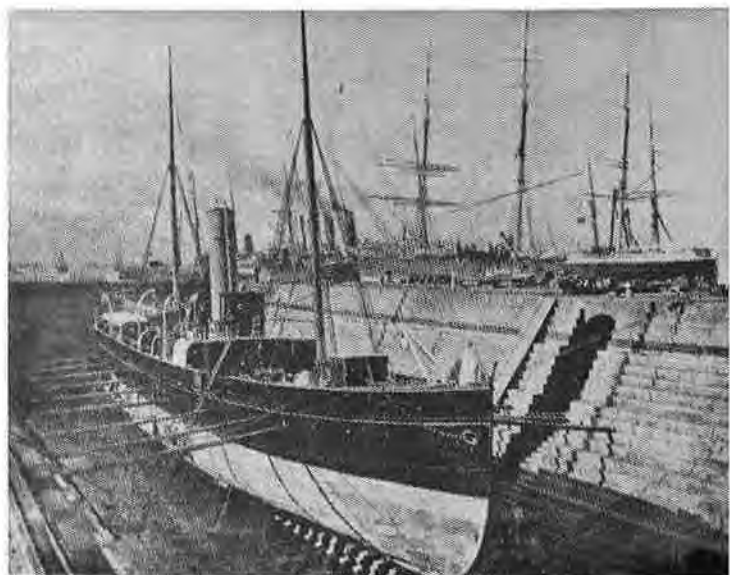
The Victorian gunboat, HMVS Victoria.

ordered to depart. A Board of Administration awarded the United States \$15,000,000 compensation because an armed vessel had been permitted to leave a British port to operate against the commerce of the United States of America. Of this, the sum of \$3,500,000 was assessed as due to the SHENANDOAH's visit to Williamstown.

In 1853 Captain Ferguson recommended the construction of a graving dock at Point Gellibrand capable of taking a vessel of 3,500 Tons. He prepared plans and proposed a site, the exact location of which was finally decided in 1863. Sketch plans were drawn up by William Wardell, Inspector – General of Public Works, and site preparations commenced in the

following year. The first contract was awarded to the firm of Glaister and Company on 14th September, 1864, but news of bigger ships being designed in the United Kingdom caused a review of plans and dock dimensions. The coffer dam was finally constructed and pumped out in July, 1869.

Prince Alfred, Duke of Edinburgh and Captain of H.M.S. GALATEA, laid a memorial stone in the embryo dock structure on 4th January, 1868, and assented to the name Alfred Graving Dock. Work was completed on 14th September, 1873, with the exception of the caisson, and the dock was brought into service when H.M. Victorian Ship NELSON, 126 guns, was docked with



H.M.A. NAVAL DOCKYARD, WILLIAMSTOWN

A Brief History (cont.)

some ceremony on 2nd March, 1874. Contrary to popular belief, no convict labour was ever used in the construction.

The portion of Gellibrand Peninsula occupied by the Dockyard was known as Point Drake, and was the site of a 6lb gun battery set up in 1841. Chief Harbour Master Chas. Ferguson raised an artillery force to man the defences, and this became the Williamstown Division of the Victorian Marine Artillery Corps. He was then commissioned to command the Naval Brigade. The Naval Depot, also located within the present perimeter of the Naval Dockyard, became H.M.A.S. CERBERUS, and for this reason it is held locally, with some justification, that Williamstown Naval Dockyard was the nursery of the Royal Australian Navy in much the same way as Plymouth is regarded in relation to the Royal Navy.

The opening of the Suez Canal in 1869 caused the diversion of a number of sailing ships from the China tea trade to the Australian wool trade. The Alfred Graving Dock played an important part in the most colourful era in maritime history. So many of the famous clipper ships were docked and refitted for the long voyage home that the dock has been referred to as the "cradle of the clippers".

Perhaps the most unusual docking was carried out by the Australian Forge and Engineering Co. of Williamstown, when S.S. PEREGRINE entered the dock on 1st June, 1906, to be refloated on 26th July with an additional midship section which added forty feet to her length.

On 14th June, 1910, the Victorian Government announced that a suction dredge would be built in Williamstown as a preliminary to shipbuilding. A site was selected adjacent to the old patent slip, and in 1911 preparation of the area began. At the same time an extensive range of equipment was ordered.

The Victorian Minister of Public Works, Mr. W. H. Edgar, drove the first pile for the new shipbuilding berths on 27th July, 1911, and by 1913 the shipbuilding facilities were completed and work commenced on the new dredge. The Governor of Victoria, Sir John Fuller, opened the new shipbuilding yard on Monday, 7th April, 1913, in the presence of some 600 official guests.

Soon after the declaration of war in 1914, the dockyard commenced the work of converting cargo ships to transports for the Commonwealth. On 5th February, 1918, the Premier of Victoria announced that the Commonwealth Government had agreed to purchase the Dockyard, part of a plan to build cargo ships as a measure to offset war losses.

Six vessels of 6,000 to 6,200 Tons were built during this period. Of these, one the EMITA, launched in a strong northerly on 1st July, 1920, struck a steamship, the

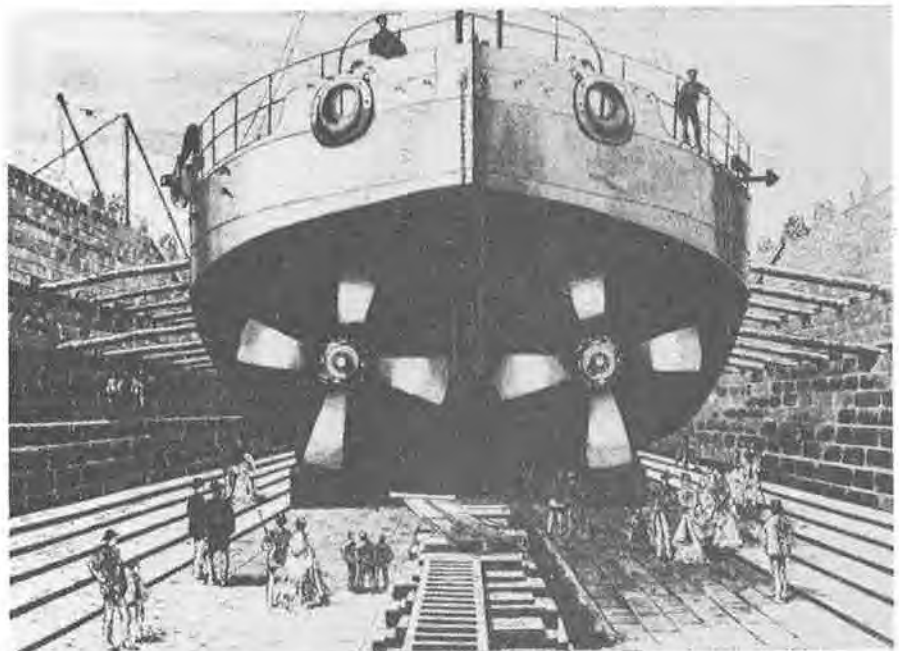
SOUTH AFRICA, and also damaged the dock caisson. Costs of construction were between \$58 and \$60 per ton, or about double the cost of similar ships in the United Kingdom. For this reason the programme was discontinued, and on 26th June, 1924, agreement was reached with the Melbourne Harbour Trust for the purchase of the Dockyard at a cost of \$220,000.

In 1930 the Royal Research Ship DISCOVERY was fitted out for a journey to the Antarctic for Sir Douglas Mawson, having previously been used by Captain Scott on the expedition to the South Pole, on which he died.

On the outbreak of war in September, 1939, the dockyard's resources were placed at the disposal of the Commonwealth Government by the Melbourne Harbour Trust, and the work of arming merchant ships and fitting-out mine-sweepers commenced.

Preparations began in 1940 for the construction of naval ships. The two building berths laid down for 'D' and 'E' Class freighters could take two Australian Mine Sweepers or Corvettes on each berth simultaneously, the first, H.M.A.S. BALLARAT, being launched on 10th December, 1940, by Mrs. Dunstan, wife of the Premier of Victoria.

Eight such ships were completed within three years, during which period the dockyard was again transferred to Commonwealth control. The question of building merchant ships of between 6,000 Tons and 9,000 Tons was also being considered during 1940, two further large shipbuilding berths being laid down in that year, and completed in 1941 for this purpose. The keels of the first two merchant ships of 9,000 Tons were laid on 4th December, 1941 and 22nd September, 1942, respectively.



The Cerberus, a wonder of her day, in the Alfred Graving Dock.

The Department of Navy officially took over the dockyard on 28th October 1942. The RAN Ships built at WND just prior to and after the transfer to the Department of Navy are:

HMA SHIPS	KEEL LAID	LAUNCHED	HANDED OVER/ COMMISSIONED	TYPE
BALLARAT	16/4/40	10/12/40	30/8/41	CORVETTE
GEELONG	16/10/40	22/4/41	16/1/42	CORVETTE
CASTLEMAINE	17/2/41	7/8/41	17/6/42	CORVETTE
ECHUCA	22/2/41	17/1/42	7/9/42	CORVETTE
HORSHAM	26/6/41	16/5/42	18/11/42	CORVETTE
SHEPPARTON	14/11/41	15/8/42	1/2/43	CORVETTE
BENALLA	24/5/42	19/12/42	27/3/43	CORVETTE
STAWELL	18/6/42	3/4/43	23/8/43	CORVETTE
CULGOA	15/7/43	22/9/45	24/12/46	FRIGATE
ANZAC	23/9/46	20/8/48	14/3/51	DESTROYER
VENDETTA	4/7/49	3/5/54	26/11/58	DESTROYER
YARRA	9/4/57	30/9/58	27/7/61	FRIGATE
DERWENT	16/6/58	17/4/61	30/4/64	FRIGATE
SWAN	18/8/65	16/12/67	20/1/70	FRIGATE
FLINDERS	11/9/70	26/7/72	27/4/73	SURVEY SHIP
COOK	30/9/74	27/8/77	26/9/80	OCEANOGRAPHIC SHIP
* FFG 05	12/6/85			
MERCHANT SHIPS				
SS RIVER LODDON (9000 TONS)	4/12/41	22/4/44	20/12/44	
SS RIVER MITTA (9000 TONS)	22/9/42	29/4/45	9/11/45	

Ships converted, modified or refitted in the post-war era include the following:

- HMAS WYATT EARP (Antarctic Supply Ship)
- SS RIP (Formerly Corvette HMAS WYALLA)
- 'O' Class Destroyers QUADRANT and QUICKMATCH
- Corvettes WAGGA, COOTAMUNDRA, JUNEE and FREMANTLE
- LST HMAS LABUAN (Antarctic Supply Ship)

*Presently on the Slipway is the FFG due for launching late 1987.



**Partners in
the defence
of Australia**

Congratulates

**WILLIAMSTOWN
NAVAL
DOCKYARD**

***on its
Open Day***

3rd May, 1986.

Government Aircraft Factories is in the forefront of aerospace technology and has the capacity, facilities and capabilities to produce the latest, up-to-date aircraft and missiles in the world.

From our factories roll out the F/A18 'Hornet' fighter aircraft, designed by McDonnell Douglas; the 'Ikara' anti-submarine guided weapon and the 'Jindivik' drone that tests the latest computerised fire power from ground to air.

Using the latest technologies such as carbon bonding and numerically controlled machining, GAF has the capacity to manufacture commercial and defence products of the highest quality at competitive prices.

Please direct all enquiries to GAF Marketing Department.

GOVERNMENT AIRCRAFT FACTORIES

**226 Lorimer Street, Port Melbourne,
Vic. Australia.**

Apprentice Training Section

The Apprentice Training Section is responsible for the Training of all Dockyard Apprentices and for the operation of the Apprentice Training School.

The Apprentice Training School is equipped with modern tools, machinery and equipment in which metal fabrication and steel construction, electrical mechanic, plumber, sheetmetal worker, coppersmith and fitter and turner apprentices are trained by Technical Instructors for the first twelve months of their apprenticeship.

The remaining three years are spent on a rotational basis in the various workshops and Drawing Offices applicable to the Trade. All Williamstown Dockyard apprentices receive formal training at a Technical College, either on a one day per week or a one week block release system depending on the Trade.

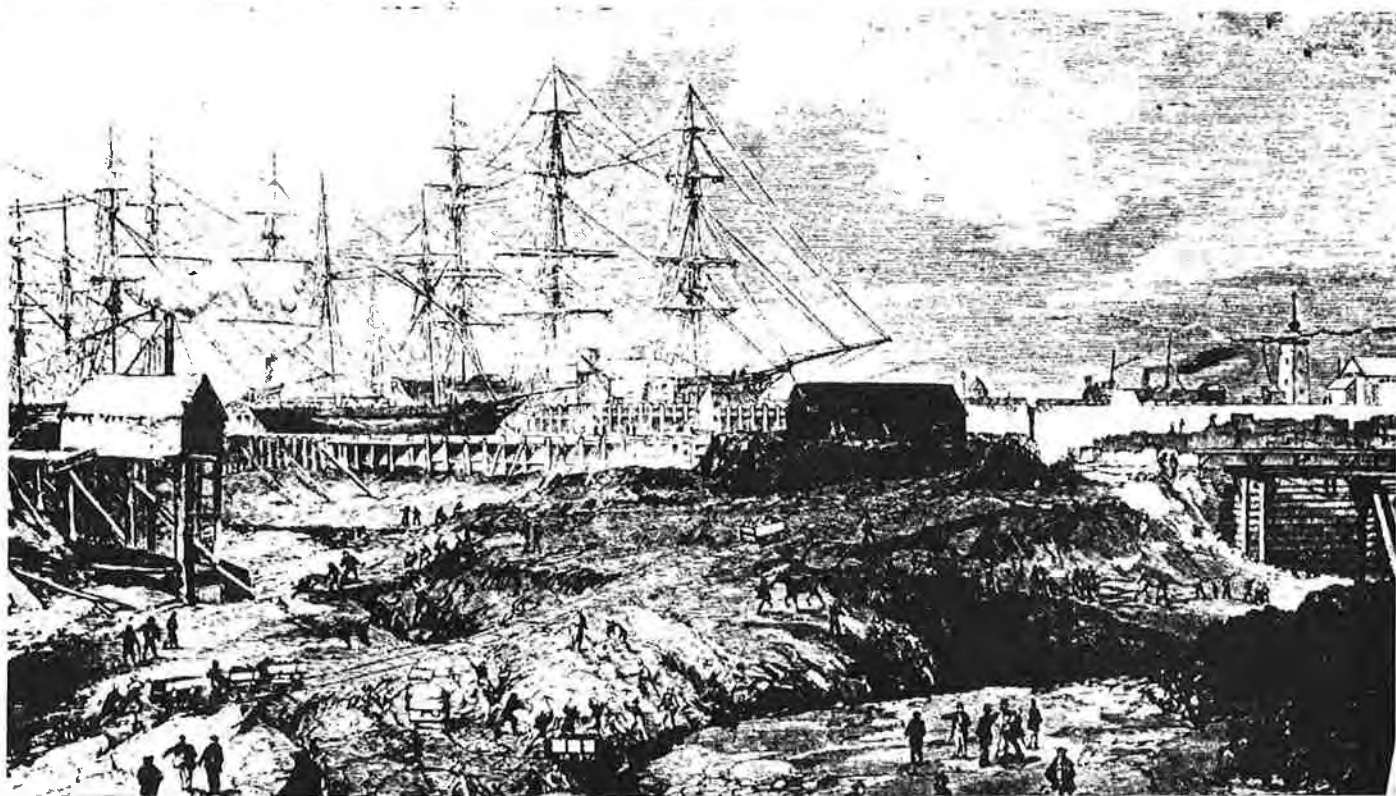
As part of Williamstown Dockyard's 'Open Day' activities the apprentice Fitting and Turning School is open for inspection.

The School is located in Conway Road, West of the Dry Dock.

We look forward to your visit and welcome any inquiries you may have about apprenticeship.



It Began with Pick and Shovel!



IT WAS THE GOLD RUSH of the mid 19th Century that brought to Victoria a surge of development that included the building of the dockyard, now enormously enlarged, to which large crowds flock on open days and other big occasions. The fine old engraving above shows work gangs-- many toiling with pick and shovel-- excavating the Williamstown waterfront for what was to become the Alfred Engraving Dock. It was a major job of the day and the men

who did it were paid laborers, not convicts from the old hulks that still disgraced the colony of Victoria. The dockyard thus begun was to become the cradle of many famous warships. And in it today has begun the most ambitious program yet undertaken, the construction of missile- armed frigates, deadly greyhounds of the sea. You can read about this work on the next pages.



SHIP AFTER SHIP went down the slip at the dockyard as it grew into one of the most sophisticated industrial establishments in Australia. This is a typical scene at a launching. Bands play, flags flutter, speeches are made, a bottle of champagne is broken on the stem and thousands cheer as the stern hits the waters of the great port, gliding to the waiting tugs. Then comes the mighty task of fitting with the latest equipment science has devised.



THE AUSTRALIAN

FFG05 AND

The FFG is an all-rounder

In the latter 1960s the RAN began plans for the introduction of a new class of destroyer. Experience indicated a need for a small ship which could be produced in a number of specialist versions (anti-submarine and anti-aircraft, for example) from a common hull. However, in the years which followed it became apparent that Australia's changing strategic situation demanded a more capable ship. Clearly, the need was for a ship which could cope with a variety of threats—an all-rounder.

At the same time, overseas experience showed that a ship's capabilities could be enhanced greatly by the use of ship-borne helicopters to provide over-the-horizon surveillance and targeting as well as countering submarines.

The FFG was selected and, in August 1974, the then Australian Minister for Defence, Mr Lance Barnard, signed a Memorandum of Arrangements relating to the purchase of two FFGs from the United States. Acquisition of another two US-built FFGs was approved subsequently.

The first of the FFGs, HMAS Adelaide, was launched in June 1978 and the fourth, HMAS Darwin, in March 1982.

Obviously, over the years the original FFG-7 design was improved as experience in building and operating the class was gained. HMAS Darwin is the most advanced of the RAN FFGs, being fitted with a helicopter recovery system as well as the Phalanx close-in weapons system for defence against sea-skimming missiles.

These improvements will be made to the earlier US-built RAN FFGs during their refit programmes.

However, the advanced HMAS Darwin is the ship that the Australian-built frigates will resemble.

The FFG-7 design was selected for a number of reasons. Among them:

- Its operational characteristics satisfy the RAN's requirements
- It provides commonality/interoperability with existing RAN guided missile frigates and guided missile destroyers
- Support for the Australian project is available from the large US Navy FFG programme, and

- It represents the minimum risk option for Australia.

The Australian frigate Project will benefit the nation in many ways and for many years. Advantages will include:

- The re-establishment of an Australian frigate destroyer building capability
- Development of highly specialised technical and trade skills needed for the construction, support and maintenance of modern warships.
- Employment at Williamstown Naval Dockyard of approximately 2000 people over a 10 year period.
- The generation of jobs and business for Australian suppliers of equipment, material and services
- The transfer of technology from the United States to Australian industry, and
- An increase in Australia's self reliance in defence.

Dockyard modernisation

Williamstown Naval Dockyard (WND) is well into a major programme of modernisation costing approximately \$40 million.

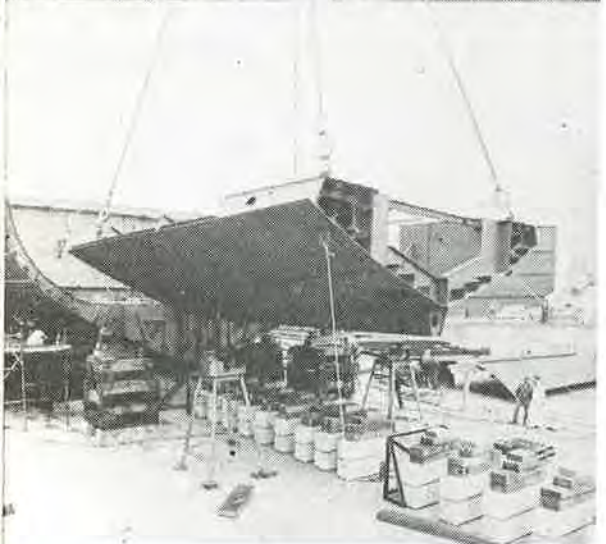
Phase A of the programme included construction of unit blast facilities, ship-building platens, upgrading of cranes, Kevlar and painters' workshops, covering of the parts marshalling area, modifications to the dockyard store and miscellaneous engineering services.

Works planned in Phase B of the programme which are directly related to the Australian Frigate Project include modification to the Alfred Graving Dock, construction of a guided missile frigate launcher assembly building, and Stage 2 of shipbuilding platens construction.

Efficiency Plus Safety

Costing around \$3.4 million, the new Unit Blast Facility is a welcome addition to the Dockyard's capabilities. It serves a dual purpose in helping to reduce atmospheric pollution as well as providing the steel ships units with a sound coat of priming paint.

The shot blasting process generates a considerable amount of dust and in performing this process within an



AUSTRALIAN FRIGATE

AND FFG 06

enclosed building the outside atmosphere can be protected.

Painting under cover also provided better control of the paint application which will result in improved protection of the hulls both during erection and in the later life of the frigate hulls.

The facility and the blasting equipment were designed in Australia. The requirements were defined as the result of a worldwide tour by Dockyard and Department of Housing and Construction officers.

When commissioned in August of this year the facility will be operated by ships painters and dockers employed by the Dockyard.

Up to six blasting nozzles can be used simultaneously and there is provision for ten.

Every effort is made by using a shot recycling system and good internal ventilation to keep the working environment as clean and well illuminated as possible. Workers will wear full protective clothing.

Controllable pitch propeller and shafting

The Ordnance Factory Bendigo has reached an advanced stage in the manufacture of propeller shafting and associated hydraulic systems for the Australian frigates.

Output from the frigate's two general electric LM 2,500 gas turbine engines is coupled through a main reduction gearbox providing 40,000 shaft horsepower to the single shaft and propeller. This in turn produces a maximum thrust of approximately 280,000 lbs.

The pitch of the propeller blades controls the direction of the ship and the pitch combined with the shaft revolutions controls the ship's speed. Establishment of an Australian blade manufacturing capability is well advanced.

The propellers and shafting systems are planned for installation in the first Australian frigate in March 1986 and in the second ship in May 1988.

Vital statistics of the Australian Frigate

HULL:
Length overall 138.1 m
Beam (moulded maximum) 14.3 m
Depth, moulded, at centre to main deck amidships 9.1 m
Navigational draft to bottom of propeller (full load) 7.5 m
Displacement (full load) 4013 tonnes

ACCOMMODATION:
Accommodation is provided for 19 officers and 192 sailors, without aircrew.

MACHINERY:
Propulsion: Two General Electric LM 2500 gas turbine engines developing a total of 40,000 shaft horsepower, driving a single controllable-pitch propeller of 5.03 m diameter.

One main propulsion shaft
Two auxiliary propulsion units
Speed: A sustained speed greater than 29 knots

Fitted with active fin stabilisers.

ELECTRICAL:
Four 1000 kw a.c. type diesel generators, 450 volts, 60 Hz, 3 phase.

ARMAMENT:
One Mk 13 Mod 4 guided missile launching system capable of firing both Harpoon and Standard missiles
One Mk 75/76 mm gun
One Mk 15 Mod 0 close in weapon system

Two Mk 32 Mod 5 triple torpedo tubes
Two medium weight helicopters.

ELECTRONIC SYSTEMS:
One Mk 92 Mod 2 gun/missile fire control system

One Mk 309 torpedo control panel
One AN/SPS-49 V4 long-range air search radar

One AN/SPS-55 surface searcher radar
One Muloaka sonar with rubber dome
One AN/SLQ-25 (Nixie) towed torpedo decoy

One AN/SLQ-32 (V) 2ESM system, including two Super RBOC launchers (Mk 36 Mod 1)

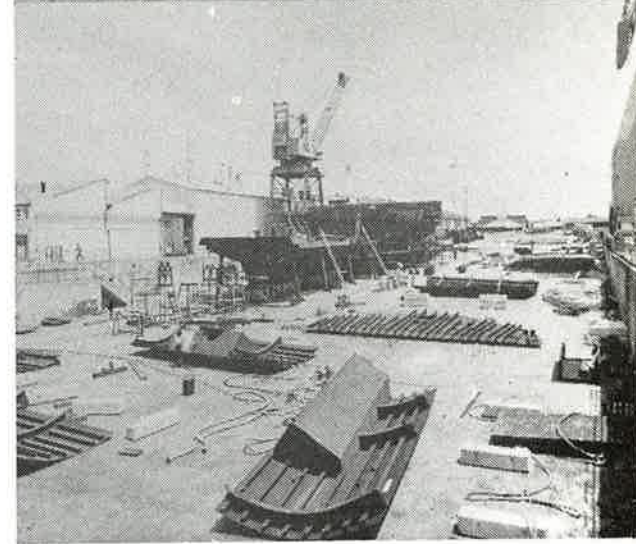
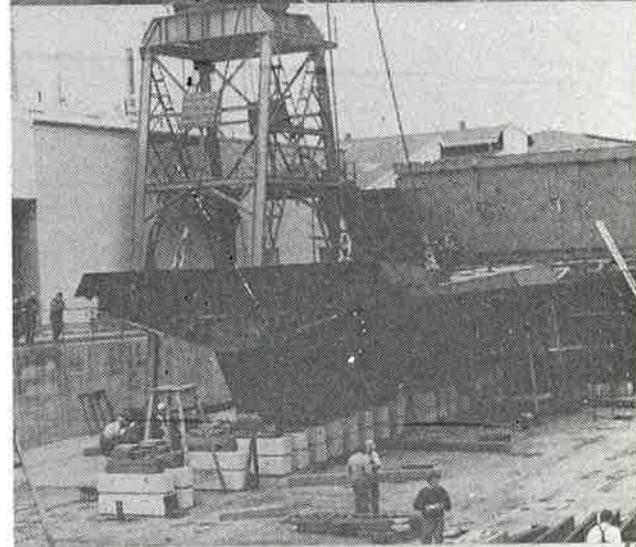
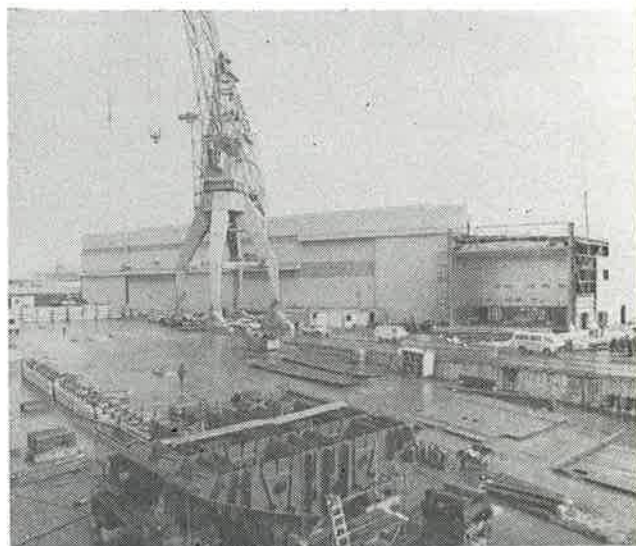
One Harpoon missile control system
One LAMPS III shipborne equipment (S and W)

One towed Sonar (TACTAS) system (S and W)

One Link II HF data communications system

HF and UHF communications system
One AN/URN-25 TACAN

Note: S and W — space and weight included in design; equipment not installed.



From Top to Bottom!

*THE SHAPE of ships UNDER the waterline has not changed in the last century beyond the grasp of imagination. But what a fascinating evolution has occurred ABOVE the waterline. It's clear in these dockyard pictures of the clipper *Salamis*, a wonder of her day, which took migrants from London to Melbourne in a mere 90 days. In Williams-town they cleaned weed and barnacles from her hull to speed her home.*

CONSIDER now the tophammer of a modern warship with its aids to navigation, to communication and the firing of missiles and guns. And there's an even more comprehensive glimpse in the BHP ad on the next page. All a bit like a shot from "Dr Who" or the work of an ultra-modern sculptor!



STEELWORKS



BHP congratulates the Royal Australian Navy on its 75 years of achievement.

Two further FFG Guided Missile Frigates are currently under construction at the Williamstown Naval Dockyard. These frigates are being constructed of high quality structural plate supplied by BHP and high strength quenched and tempered HY-80 plate manufactured for the first time in Australia to meet U.S. military specifications by Bunge Industrial Steel Pty. Ltd.

These frigates are capable of sailing 7,000km at 20 knots

and then manoeuvring at much higher speeds in combat. The Navy's new FFG Guided Missile Frigates weigh in at



Esso offshore platforms - Bass Strait

a slim 3,600 tonnes. Through this and hundreds of other alliances, BHP is helping forge a secure future for Australia.

BHP Steel Plate continues as the strength behind Australia's continued growth - in industry and in commerce.



Westgate Bridge



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International Group

Slab and Plate Products Division

Communicate better.



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The Brilliant "GOLDPHONE"
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Your Telecom Business is the best place to start improving your business efficiency — or your style of living.

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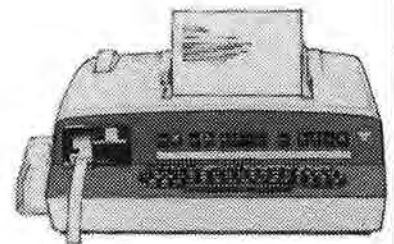
Everything to help you communicate more efficiently is waiting for you at your Telecom Business Office. Remember, no one knows more about phones than we do!

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Radio Pagers

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Moonee Ponds**

or

**Shops 14 & 16 Hub Arcade,
144 Nicholson Street,
Footscray. 3011**

or

Telephone 688 9222



Telecom Australia

The Vital Connection

Summary of Major Refits

Summary of major refits and modernisations carried out at Williamstown.

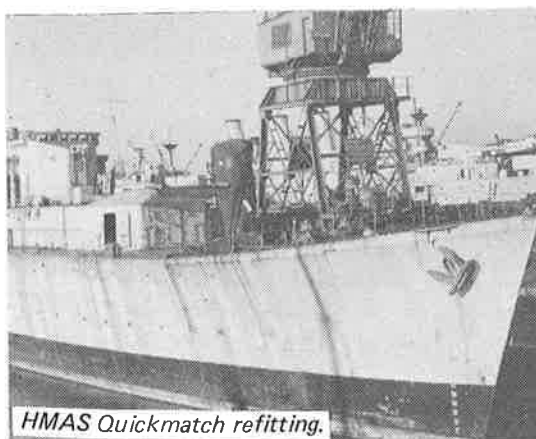
ACTIVITY	HMA SHIP	COMMENCED	PERIOD	COMPLETED
REFIT	DERWENT	MAY 1965		NOVEMBER 1965
REFIT	STUART	AUGUST 1965		JANUARY 1966
REFIT	YARRA	JULY 1966		MAY 1967
REFIT	PARRAMATTA	FEBRUARY 1967		JULY 1967
REFIT	STUART	9/4/68	25 WEEKS	1/10/68
REFIT	YARRA	28/1/69	26 WEEKS	29/7/69
REFIT	PARRAMATTA	22/7/69	32 WEEKS	3/3/70
MODERNISATION	VAMPIRE	22/6/70	1 YEAR 9 MONTHS	7/3/72
REFIT	DERWENT	28/7/70	32 WEEKS	2/3/71
REFIT	STUART	6/7/71	32 WEEKS	8/2/72
MODERNISATION	VENDETTA	31/8/71	1 YEAR 11 MONTHS	24/1/73
REFIT/CONVERSION	DUCHESS	5/1/73	1 YEAR 10 MONTHS	14/11/74
REFIT	SWAN	9/3/73	35 WEEKS	6/11/73
REFIT	DIAMANTINA	14/9/73	31 WEEKS	16/4/74
REFIT	DERWENT	11/2/74	40 WEEKS	21/11/74
REFIT	YARRA	12/7/74	30 WEEKS	2/2/75
REFIT	TORRENS	7/9/74	37 WEEKS	16/5/75
REFIT	STUART	21/3/75	36 WEEKS	24/11/75
REFIT	PARRAMATTA	28/7/75	30 WEEKS	13/2/76
REFIT	VENDETTA	1/12/75	45 WEEKS	12/10/76
REFIT	SWAN	1/6/76	44 WEEKS	5/4/77
REFIT	DERWENT	30/11/76	42 WEEKS	27/9/77
REFIT	TORRENS	8/3/77	38 WEEKS	6/12/77
MODERNISATION	PARRAMATTA	17/5/77	4 YEARS 2 MONTHS	26/8/81
MODERNISATION	STUART	30/1/79	4 YEARS 6 MONTHS	29/7/83
MODERNISATION	DERWENT	6/7/81	4 YEARS 6 MONTHS	16/12/85
REFIT	YARRA	17/7/83	22 WEEKS	15/12/83
EXTENDED REFIT	SWAN	20/1/84		18/9/85
EXTENDED REFIT	TORRENS	11/4/85		



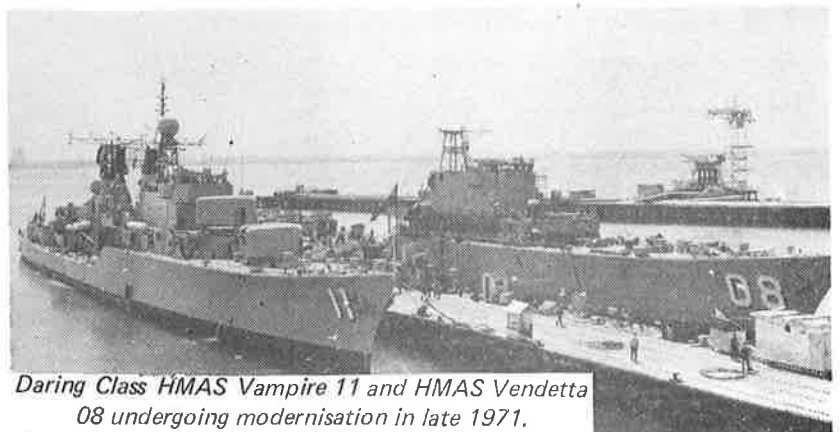
Daring Class HMAS Vendetta in dry dock at Williamstown on October 6, 1958, for fitting out before being commissioned.



Five warships keep the dockyard busy. From left: HMAS Gladstone (foreground), Quickmatch, Anzac, Stuart and Yarra.



HMAS Quickmatch refitting.



Daring Class HMAS Vampire 11 and HMAS Vendetta 08 undergoing modernisation in late 1971.

Modernisation of Buildings and Facilities

In 1970 it was recommended that the Dockyard should specialise in the construction of combatant ships of a destroyer type and that the Dockyard be modernised to undertake this role.

A Master Plan was developed in 1973 based upon four stages of development. Stage 1, which consisted of:

Steel Stockyard
Parts Making Shop
Parts Marshalling Area
Panel Fabrication Shop
Unit Assembly Shop
Building Berth

was completed in 1980 at a cost of \$15.4 million.

Stage 2 of the WND Modernisation Programme which was started in 1977 was completed in 1983 at a cost of \$24 million. Facilities provided in this stage included —

- a. major extensions to the Pipe Fabrication Shop to provide a pipe cleaning and preservation facility.
- b. a new outfitting workshop, Nelson Pier Workshop.
- c. boiler house rebuild and conversion of boilers to natural gas.
- d. a new Outfitting Pier, Nelson Pier, equipped with two 30 tonne travelling cranes and incorporating a lower services deck.
- e. the new administration building (Nelson House).
- f. new dockyard stores building.

Works carried out in Stages 1 and 2 provided most of the facilities necessary to construct and outfit destroyer type vessels.

Stage 3 modernisation was split into two sections, Phase A and Phase B. Phase A, with facilities directly related to support the construction of the Australian Frigate, has recently been completed at a cost of \$6.1 million. Phase A, consisted of:

Unit Blast Facility —
a large environmentally controlled building in which ships units are grit blasted and painted.

Shipbuilding Platens 1 —
hardstanding areas with engineering services to allow outfitting of ships units.

Upgrading of Cranage —
increasing the lifting capacity of overhead cranes in order to lift heavy units.

Kevlar and Painters Workshop —
Building in which kevlar, an armour type man made material, can be cut and to accommodate Professional Painters.

Covering of Parts Marshalling Area —
Roofing of an open area to allow protection of cut steel parts.

Modifications to Dockyard store —
Provision of an environmentally controlled secure room and overhead cranage.

Engineering Services —
electrical, gas, water and other supplies.

Phase B commenced in 1985 and consists of projects essential to the Australian Frigate Project and consistent with the need to improve efficiency and productivity for the shipbuilding programme. Phase B is expected to cost \$14 million and consists of:

Support Services Centre —
3 storey building accommodation, the main entrance, Naval Police and project groups.

Occupational Health & Safety Centre —
Building to house safety and medical personnel.

GMLS Assembly Building —
Building required to allow assembly of the guided missile launcher.

Upgrading Workshops and canteen —
Project to improve services and the environment in workshops.

Shipbuilding Platens 2 —
hardstanding area for outfitting ships units.

Mobile Plant Facility —
Building to accommodate garage and transport groups.

Administration Building Annexe —
3 storey building to accommodate staff Groups.

Car Parking —
Hard standing areas to provide off street parking.

Shallow Pits in the Alfred Graving Docks —
Pits in the bottom of the Dock to allow for the Sonar Dome, Propellor & Rudder of the Frigate.

Security Measures —
Project to improve security.

Site Works and Engineering Services —
Provision of reticulated services.

Phase B is due for completion in late 1987.



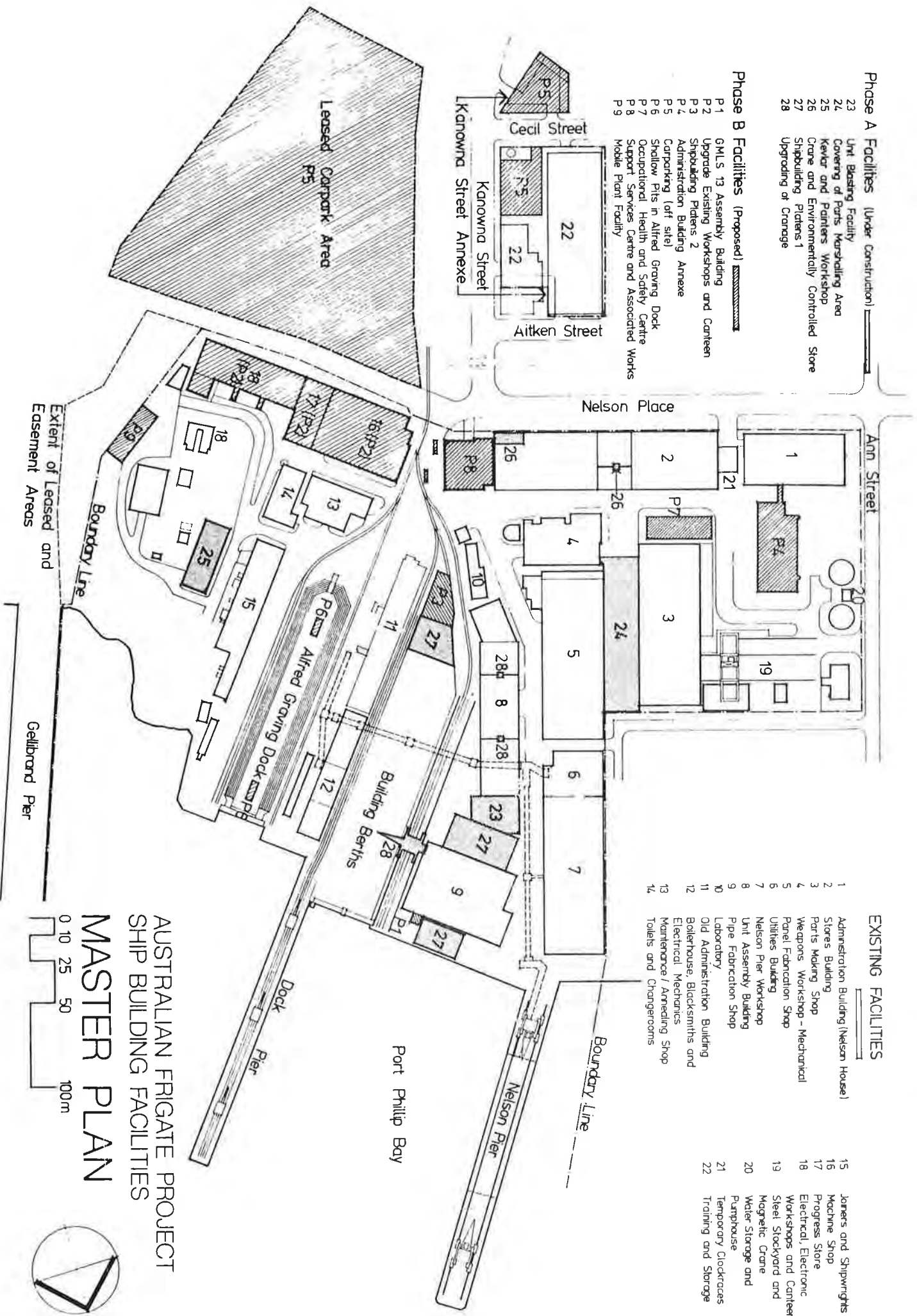
Nelson House, Williamstown Naval Dockyard administration offices.

Phase A Facilities (Under Construction)

- 23 Unit Basting Facility
- 24 Covering of Parts Marshalling Area
- 25 Kevlar and Painters Workshop
- 26 Crane and Environmentally Controlled Store
- 27 Shipbuilding Platens 1
- 28 Upgrading of Cranes

Phase B Facilities (Proposed)

- P 1 GML 5 13 Assembly Building
- P 2 Upgrade Existing Workshops and Canteen
- P 3 Shipbuilding Platens 2
- P 4 Administration Building Annex
- P 5 Carparking (off site)
- P 6 Shallow Pits in Alfred Groving Dock
- P 7 Occupational Health and Safety Centre
- P 8 Support Services Centre and Associated Works
- P 9 Mobile Plant Facility



EXISTING FACILITIES

- 1 Administration Building (Nelson House)
- 2 Stores Building
- 3 Parts Making Shop
- 4 Weapons Workshop - Mechanical
- 5 Panel Fabrication Shop
- 6 Utilities Building
- 7 Nelson Pier Workshop
- 8 Unit Assembly Building
- 9 Pipe Fabrication Shop
- 10 Laboratory
- 11 Old Administration Building
- 12 Boilerhouse, Blacksmiths and Electrical Mechanics
- 13 Maintenance / Annealing Shop
- 14 Toilets and Changerooms
- 15 Joiners and Shipwrights
- 16 Machine Shop
- 17 Progress Store
- 18 Electrical/Electronic Workshops and Canteen
- 19 Steel Stockyard and Magnetic Crane
- 20 Water Storage and Pumphouse
- 21 Temporary Clocktowers
- 22 Training and Storage

**AUSTRALIAN FRIGATE PROJECT
SHIP BUILDING FACILITIES
MASTER PLAN**



