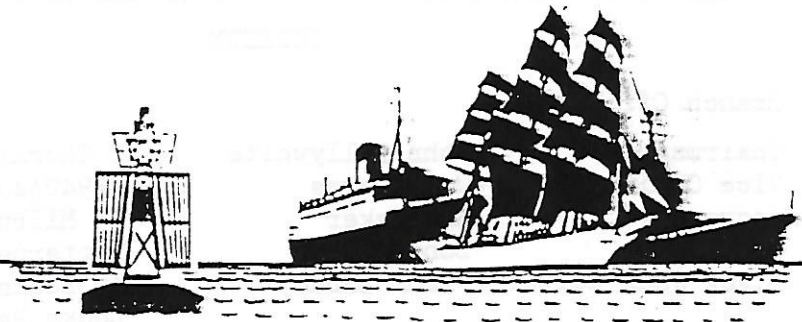


# BLACK JACK

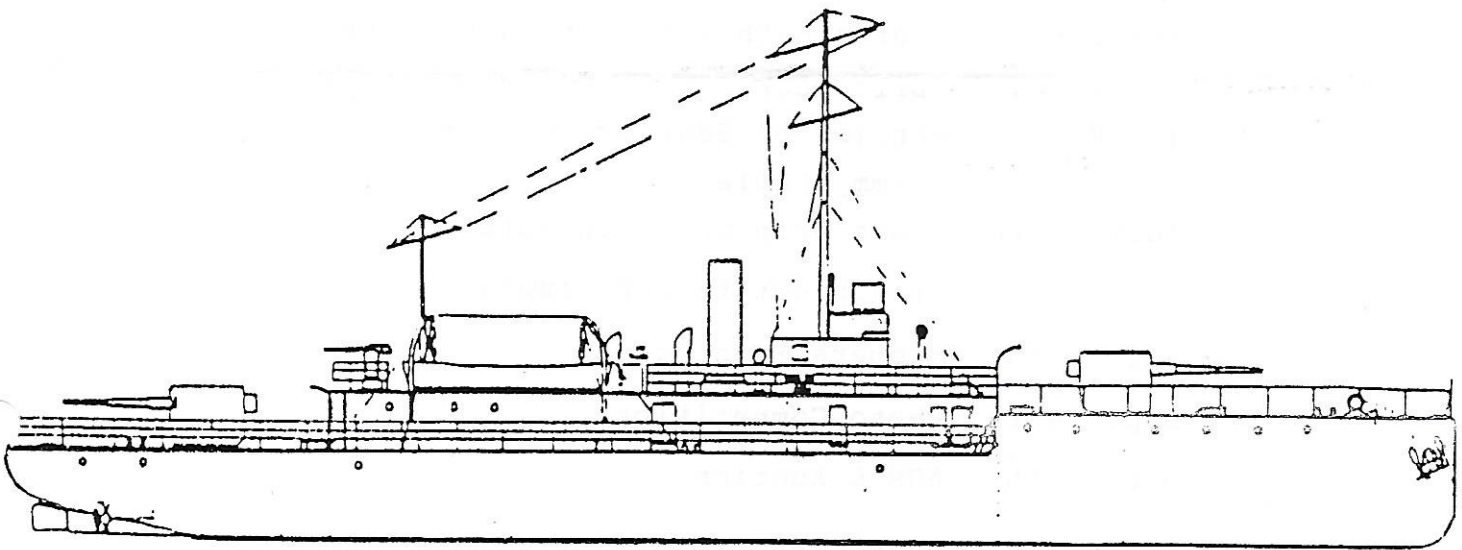
QUARTERLY MAGAZINE  
SOUTHAMPTON BRANCH  
WORLD SHIP SOCIETY



WINTER 1992

NO 84

M 33 ( HMS MINERVA )



Length Overall 177ft.

Beam 31ft.9in.

Draft 5ft. 11in.

Displacement 580 tons

Armament    2    6in  
              1    6pdr.  
              2    Maxim M.Gs.

Machinery    Twin Screw Triple Expansion Steam Engines    400 HP

Speed (designed ) 10 kts

Complement 72

**SEE PAGE 7.**

PUBLISHED QUARTERLY BY THE SOUTHAMPTON BRANCH OF THE WORLD SHIP  
SOCIETY

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*Season's Greetings*

PROGRAMME FOR 1993

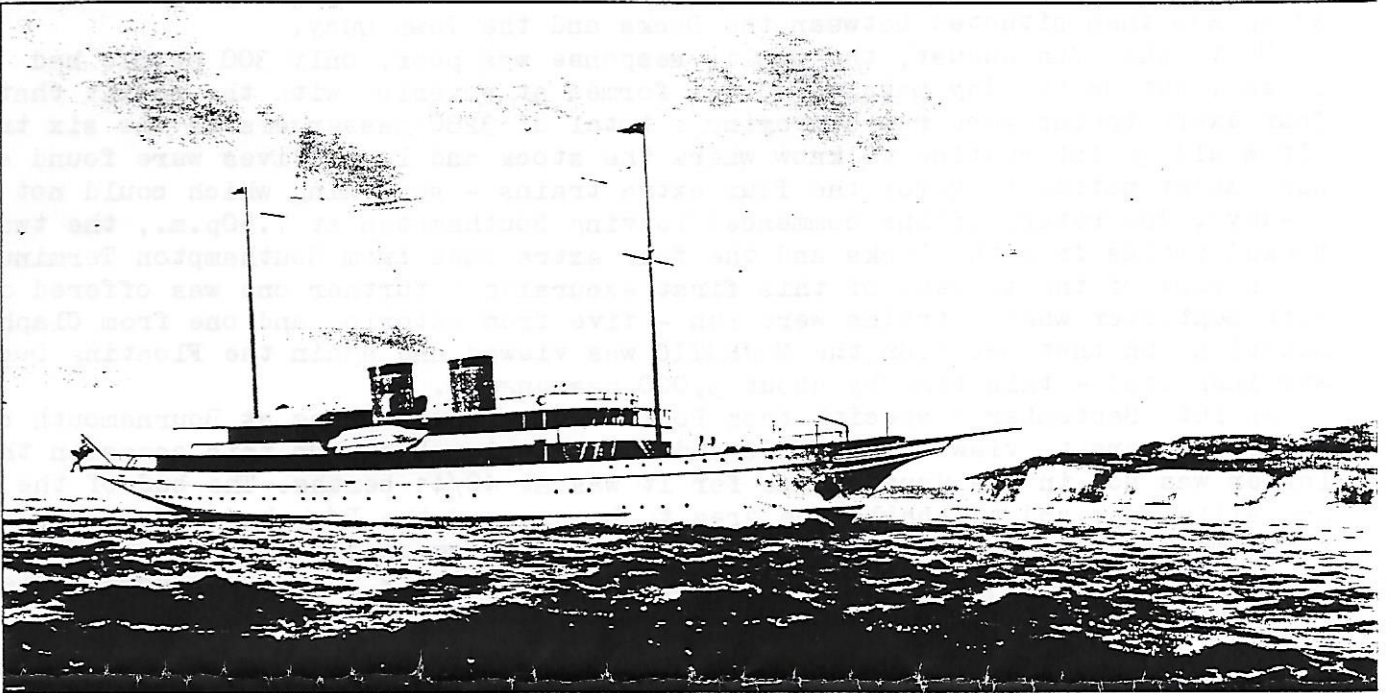
Jan 12 th	Video Film Evening
Feb 9 th	Mini- talks Evening
Mar 9 th	Port of Wellington ( WSS Show)
Apr 13 th	Icebreakers - Ian Stockbridge
May 11th	Portsmouth - the changing scene Bill Docker
Jun 8 th	Ferries of Southern Europe Jimmy Poole
July 13 th	Boat trip on Soton Water ( subject to confirmation)
Aug 10 th	Members Evening
Sept 14 th	Photo Competition
Oct 12 th	AGM & Auction
Nov 9 th	Peacetime Troopships - Bert Moody
Dec 14 th	Transatlantic Ladies-Oceanic to Qel Robin Davies

POST OFFICE TITANIC MEMORIAL

With the closure of the Head Post Office in High Street, Southampton and the opening of a new office in part of what was Maples Store in the High Street, it is interesting to note that the plaque in memory of the Post Office staff who lost their lives on the Titanic has been moved from the Head Post Office to the new office.

This plaque was made from part of one of the spare propellers of the Titanic and was donated by Harland & Wolff Ltd.

# Beguiling Jezebel with a long history



TWO P&O companies are involved in the reconstruction of a vintage 248ft luxury yacht, *Jezebel*, built in 1930.

Three Quays Marine Services Limited are providing a technical consultancy service to the owners including the initial hull, machinery and electrical design aspects of the project which involves stripping down the yacht so that its original rivetted steel hull can be brought up to a virtually 'as new' condition. A new machinery installation and new service systems have been designed and the recon-

## TWO P&O COMPANIES HELP RESTORE VINTAGE YACHT

structed vessel will meet present day safety requirements. Three Quays are also undertaking the supervision of the design development work and the actual reconstruction work at Devonport.

Ashby & Horner Joinery Limited have a contract with the shipyard which was won against strong competition

from yacht fitting companies in Holland, Germany and the UK. They are working to the designs of internationally renowned yacht designer, Jon Bannenberg.

### Fascinating

All the main items will be made at the Ashby & Horner Joinery works in Thurrock and then installed in the yacht at Devonport Royal Dockyard in Plymouth over the next 14 months. Work includes the saloon, dining room, library and staterooms with bathrooms as well as lift interiors. All the joinery will be finished with fine veneers such as burr myrtle, curl mahogany and masur birch. Fabric panels will adorn the walls while high quality carpets,

timber parquet and marble will be used as flooring.

As well as the bathroom fittings, Ashby & Horner Joinery will also supply the special light fittings and fixtures and some specially made loose furniture and furnishings.

A yacht with a fascinating history, *Jezebel* was built as the *Reveler* at Krupp's Shipyard, Kiel in 1930 to an American design for the owner of the Packard Motor Company. He died shortly after the launch and she was sold to the Woolworth family and renamed *Chalena*.

Sold later in the decade and renamed *Carola*, she was requisitioned in 1942 by the US Navy and converted to the gunboat *USS Beaumont*. She was assigned to the Pacific Fleet, at Pearl Harbour.

After the war, refitted and renamed *Elpetal*, she was reputedly one of Sir Winston Churchill's favourite means of travelling to the Greek Islands where he loved to paint. In 1983 she became *Jezebel*.



"How come you know so much about sin?"

## RAILWAY EXCURSIONS TO SOUTHAMPTON DOCKS TO VIEW THE LINERS

Bert Moody

During the late 1920s and throughout the 1930s many excursions were run by the Southern Railway to Southampton Docks to view the liners. Visits to the ships were then possible as it was a regular practice for most vessels to spend at least three or four days in port, whilst in later years the port turn round time was considerably reduced.

Some interesting information on these rail excursions appeared in the Southern Railway Magazine for September 1927, when it was stated that the Southern Railway advertised the first of these excursions on the 18th August 1927, the fare from Waterloo was 5s/9d (28 pence to-day). Two trains were shown to run, each having a dining car. Inspection of two liners were included, the MAJESTIC, then the largest ship in the world and the BERENGARIA, and also a tour of the huge Floating Dock which was then situated between the Docks and the Town Quay.

Up to the 17th August, the public response was poor, only 300 people had booked, but on the day massive queues formed at Waterloo with the result that four extra trains were run conveying a total of 3280 passengers in the six trains. (It would be interesting to know where the stock and locomotives were found at such short notice to cover the four extra trains - something which could not happen to-day). The return trains commenced leaving Southampton at 7.50p.m., the two booked trains from the Docks and the four extra ones from Southampton Terminus.

In view of the success of this first excursion a further one was offered on 12th September when 6 trains were run - five from Waterloo and one from Clapham Junction. On that occasion the MAJESTIC was viewed and again the Floating Dock was inspected - this time by about 3,000 passengers.

On 26th September a special from Poole at 11.15am calling at Bournemouth conveyed 675 passengers to view the OLYMPIC and the Floating Dock. On this occasion the latter was not in its usual place for it was at 40/41 berths. The bed of the dock had silted up, and to enable the area to be dredged the Dock had been moved for a few weeks. The last excursions of 1927 took place on 17th October when five trains from Waterloo and one from Bournemouth brought 2,283 passengers to view the OLYMPIC and the Floating Dock.

Thus one of the most successful excursion programmes of the Southern Railway had commenced and these excursions continued regularly until the outbreak of war in 1939. During the 1930s the railway paddlers were also involved - during the summer regular trips from Portsmouth and the Isle of Wight with the then new paddlers WHIPPINGHAM and SOUTHSEA were advertised - in August 1935 the fare from Portsmouth Harbour or Southsea South Parade pier was 3s/6d (17½p) which included admission to the liner (this was usually 1s/- which went to Seamen's Charities). The liners available then were AQUITANIA on 12th August, MAJESTIC on 19th and BERENGARIA on 26th August. The paddlers left Portsmouth Harbour at 11.30a.m. and returned from the Docks at 4.15p.m. You could stay longer in Southampton if so wished and return by any train the same day from Southampton Terminus or Central stations upon production of your ticket at the booking office and payment of 1s/1d.

The peak for the excursions no doubt was with the arrival of the QUEEN MARY the liner entered No.7 drydock on 27th March 1936 on her arrival from the Clyde and two days later 19 rail excursions from as far a field as Crewe, Birmingham, Coventry, Bristol South Wales, Hereford and London arrived. On that occasion passengers were allowed to walk round No.7 drydock, but were not allowed on the liner. During the ten days the QUEEN MARY was in the drydock it was estimated

that about 50,000 people had walked round the drydock, many of these, of course, were local people and had not travelled by train.

In 1938 the QUEEN MARY was opened for inspection on July 12th and 28th, August 16th and September 13th - there was a higher admission charge for the QUEEN MARY - the fare from Portsmouth by paddler including the visit to the liner was 7s/8d. Canadian Pacific's EMPRESS OF BRITAIN was also regularly inspected - she was open on the 20th July 1938 when a special excursion from Sandown Pier and Shanklin Pier was advertised at 5s/3d which included the admission to the liner. On that day another paddler left Portsmouth Harbour also for the EMPRESS OF BRITAIN, the fare being 3s/8d.

There is no doubt that these excursions provided much needed revenue for the Southern Railway.

## old southampton callers



by  
John S. Lindsay  
Drawings by  
Nigel V. Robinson

### Paddle Steamer "PRINCE RUPERT" 1894

At the time of placing the order for the Paddle Cross Channel type steamer "Prince Rupert" in 1894 by the Canadian Pacific Railway Co. there was great rivalry between them and the Bay of Fundy Steamship Company and it was rumoured at the time she was being built as a threat to that Company. It was also rumoured that she was to run on the British Columbia service but it would seem from the start she was intended to run on the Bay of Fundy service.

She was laid down in 1894 in the Yard of William Denny and Bros. of Dumbarton and launched on May 22nd as Yard No. 496. Her dimensions were 260' x 32' x 10' 2 $\frac{1}{4}$ " with a tonnage of 1,158 gross. She was designed to carry some 103 first class passengers in 59 staterooms aft. and 16 staterooms situated on the main and lower decks forward. Also aft. was the first class dining saloon and deck saloon. There were also some 24 steerage cabins forward, altogether some 900 unberthed passengers were catered for.

She was driven by a diagonal triple expansion engine of the surface condenser type with three cylinders of diameters H.P. 31 $\frac{1}{2}$ " x L.P. 47" x L.P. 68" and a stroke of 72" developing 260 NHP. This was later increased to 392 NHP. Steam was supplied by two single ended boilers giving a working steam pressure of 160 lbs. P.S.I. The bunker capacity was for 99 tons of coal.

On her trials with a tonnage of 1075 she attained a speed of 18.69 knots with an indicated horsepower of 3572 and the engine running at 54.1 RPM.

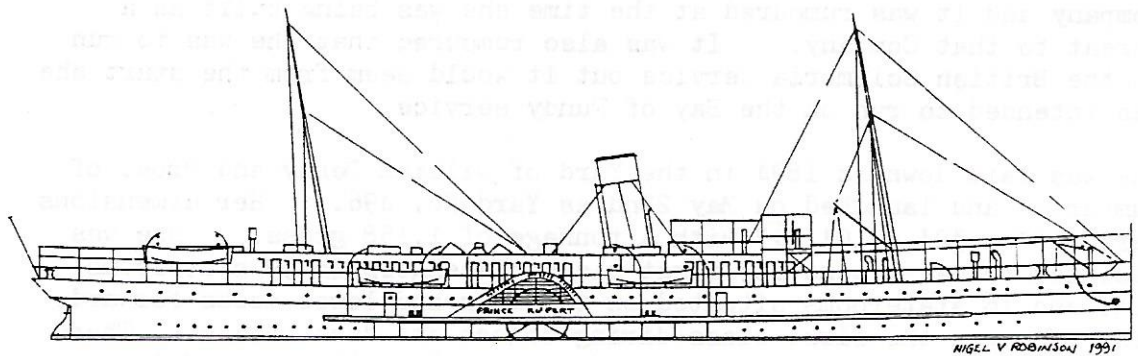
The hull was built of steel with three decks and nine watertight bulkheads. She had one funnel and two steel pole masts and carried four 24' lifeboats, one 23' cutter and one 22' cutter. Two of the lifeboats were made of steel and the rest of yellow pine and timber construction.

Her livery was the same as the Pacific Steamers with buff masts and funnel, white hull and upperworks, white lifeboats, with varnished top strake and seats. Deckhouses and ventilators grained Teak with insides of cowls bright carmine.

The final price was £38,868.00 giving Denny's a profit of £3,679.00 which is a very small percentage on today's standards.

Although she sailed from the Clyde in September 1894, owing to her small bunker capacity she only made her way to Southampton where she remained until June 1895 when she was then towed to Halifax.

It has been suggested the delay was probably due to the negotiations which led to the incorporation of the Dominion Atlantic Railway in July of that year. During the voyage the "Prince Rupert" was transferred to this new company. It may be no coincidence that Col. John Denny and Archibald Denny were two of the Directors of the Dominion Atlantic Railway. In 1911 the D.A.R. was leased to the Canadian Pacific Railway who continued to run "Prince Rupert" until 1919. The Chairman of the Canadian Pacific Railway was Sir W. Van Hume and she was registered as owned by him. In 1919 she was sold to American owners until 1924 when she was broken up in the United States of America.

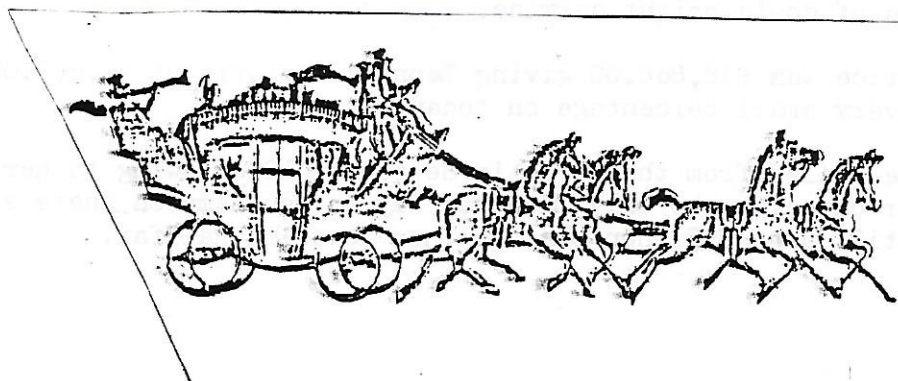


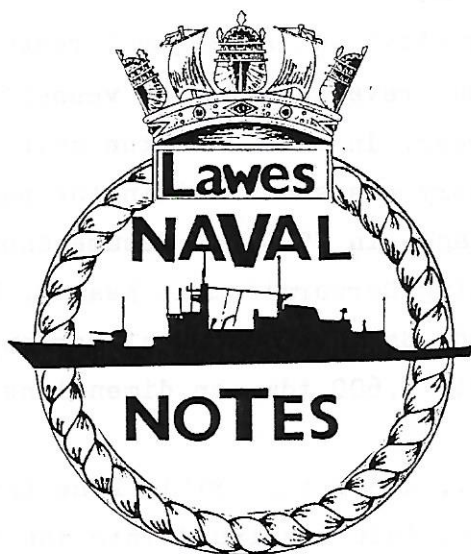
PRINCE RUPERT 1894

### ONE HUNDRED YEARS AGO

The Empress Dock in Southampton was opened by Queen Victoria on 26th July 1890. The completion of this dock had been made possible by the London & South Western Railway Company providing a loan of £250,000 to the Southampton Dock Company in 1886. However shipping traffic was increasing and there was a demand for additional accommodation, but the financial resources of the Southampton Dock Company were very limited, so one hundred years ago on 1st November 1892 the London & South Western Railway Company acquired Southampton Docks for £1,360,000. Additional quays were constructed extending from 34 berth to 41 berth round dockhead, the work at 41 berth being completed in 1902.

On 8th April 1893 three special train were run from Waterloo to Southampton Docks for the Shareholders to inspect the Docks and see how their money was being spent.





In the previous Black Jack our Secretary remarked on the preserved monitor MINERVA being on display during the Portsmouth Navy Days and requested some details about her.

Here is an attempt to condense nearly eighty years of service into a short article.

The idea of monitors, or shallow draft vessels carrying large guns for coastal bombardment was conceived by Fisher and Churchill early in World War I. The initial vessels mounted 12, 14 or 15 inch guns.

These were removed from pre-Dreadnoughts or Battleships. Early in 1915 ten modern 6" guns removed from the secondary armament of "Queen Elizabeth" Class battleships became available, so it was decided to use these guns for 5 small monitors to be "named" M29 to M33.

Orders were placed with Harland and Wolff in March 1915. Many of this Builder's berths were full of warships or suspended merchant ships, so two vessels M 32 and M 33 were sub-contracted to the neighbouring shipyard of Workman Clark Ltd.

The simple construction of the vessels meant that M 33 was launched on the 22nd May 1915 and commissioned at Belfast on the 17th June 1915. She sailed to Pembroke to store ship and collect the rest of her crew, then left on the 4th July for Gibraltar. Her speed at sea was only 7 knots so she was towed most of the way by the collier "Blackheath". A process repeated on the next leg of the voyage to Malta.

A variety of British monitors were operating in the area of the Dardanelles. M 33 joined them on the 24 July 1915 and fired her first shots in anger on the 2nd August. Later that month she supported the landings at Suvla. M. 33 continued to serve in that area until the British and Anzac troops were evacuated in December 1915.

In 1916 M 33 moved to the Salonika area to begin operations against the Bulgarian Coast. She remained there until the Armistice in 1918. It is estimated that she fired more than 1,200 rounds during her bombardment duties.

(To be continued in next issue)

## THE 'EMPIRE PEACOCK' STORY

It sometimes occurs that the finding of more information and subsequent research regarding the history of a ship unfolds a story that reveals that the vessel's demise was, perhaps, more interesting than its career. In this case the ship involved is the EMPIRE PEACOCK, whose (brief) history was shown within the pages of 'The Empire Ships', published some three years ago, in 1990. A resume shows that the vessel was built by the Federal Shipbuilding Corporation at Kearny, N.J. in 1919 as the BELLHAVEN for the U.S. Shipping Board. She conformed to Emergency Fleet Corporation Design No. 1037 type, of 6,098 grt, 9,600 tdw, on dimensions of 412 ft x 55 ft.

In her early days she was operated for the U.S.S.B., under the Oriole Line banner, by the Consolidated Navigation Co. of Baltimore, and this continued into the 1930s her class of voyage generally shown as UK/USA service.

Later, the ship was laid up in the James River, Virginia, Reserve Fleet, with her owners name-changed, in 1936, to the U.S. Maritime Commission. Then came the Second World War and the British Government, in a great build-up of the British Merchant Navy, acquired a great number of American laid-up ships, including the BELLHAVEN, which was renamed to EMPIRE PEACOCK in 1941 and placed under the management of the Royal Mail Lines.

However, soon after this the ship had a long spell of inactivity: she sailed from New York on 9 March 1942, bound for Aden and Alexandria, sailing from Durban on 12 May. Six days later she put back to that port with machinery trouble and remained there with disabled turbines for some fourteen months, until July 1943. Upon finally sailing she called at Freetown on 3 September and arrived in London on the 30th of the same month.

The EMPIRE PEACOCK plodded her weary way for most of the remaining war years, with a usual crop of machinery problems which became of less importance as the war near its end. But at the end of hostilities she was deemed as unfit for further service and in 1946 was chosen for disposal, to be scuttled in the Atlantic, south-west of Lands End, with chemical ammunition.

Here, it might be thought, her story ends - but not so, for the vessel remained defiant almost to the last.

The EMPIRE PEACOCK spent four weeks at Barry, South Wales, loading 8,900 tons of mustard gas in bombs, shells, drums, canisters and cartridges. When it was time to sail HMS WIZARD was appointed as escort. Sailing at high water EMPIRE PEACOCK's engines and the ebb tide gave her a speed of 4.3 knots, but by the turn of the tide her firemen and trimmers had worked off much of their energy and steerage way disappeared. Then the centre boiler was shut down, the main feed pump was near collapse and a burst bilge pipe was slowly filling the ship with water. She lay stopped all night, near the Scarweather Light, and at dawn the WIZARD took her in tow - some 13,000 tons of scrap iron and poison gas - and 'tug' and tow romped along at 8 knots. Somehow, PEACOCK's main engines were restarted but further frequent breakdowns ensured that the rest of the voyage was made under tow.



Then, on the last night, her main condenser collapsed. At dawn on the third day they reached the scuttling position, 320 miles from Barry and due west of Brest where the sea is a 1,000 fathoms deep. The double bottom tanks were flooded, vents were unplugged and the scuttling charges fired from a lifeboat off at a safe distance. The EMPIRE PEACOCK settled slowly, upright and on an even keel, but after 25 minutes put her bows in the air and slid under by the stern.

L.A. Sawyer

## Italian MCMV programme to be cut? - Antony Preston reports

BUDGET cuts are likely to affect the Italian Navy's plans to build two more *Gaeta* class FRP minehunters, ordered late last year. The total cuts, likely to total Lira 1000 billion (approximately US\$830m), are to be made to the Financial Law when it is debated.

Intermarine SpA admits that work on the minehunters *Chioggia* (M5560) and *Rimini* (M5561) will be delayed for the foreseeable future, but clearly hopes that the ships will be reinstated in next year's budget. The name-ship of the class has been delivered and another five are under construction. They will all be in service by the end of next year if the programme keeps on schedule.

In a separate series of moves, the Parliamentary Defence Committee of the outgoing government cancelled the decree authorising the purchase of four frigates from the shipbuilders Fincantieri. These *Puao* type frigates were built for Iraq but cannot be delivered because of the United Nations embargo. The delay is seen as nothing more than political manoeuvring, and Fincantieri is confident that the ships will shortly be taken off its hands.

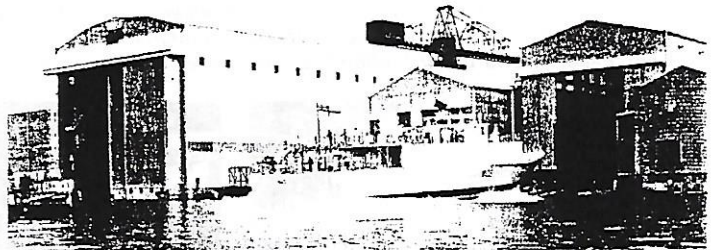
### VSEL gets Trident submarine order at last

The UK Secretary of State for Defence announced on 7th July that Vickers Shipbuilding and Engineering Ltd (VSEL) had been awarded the contract to build the fourth and final *Vanguard* class Trident missile submarine (SSBN). The £550 million contract had been under negotiation for some time but the order was delayed by the April General Election. In fact additional 1991-92 funding had been provided earlier, allowing work to proceed on all major steelwork, and work on the fore end had started.

The first of the class, HMS *Vanguard* is expected to sail on her first operational patrol in 1995. The unnamed SSBN-08 should enter service in 1999. Work on decommissioning the first of the old *Resolution* class Polaris missile-armed SSBNs will begin next month. HMS *Revenge* paid off formally on 25th June at Rosyth Naval Base after 22 years service, and the Royal Dockyard will produce a 'post mortem package' to provide technical data for the support for the remaining three SSBNs. HMS *Renown* has completed a five-year refit at Rosyth and has begun reactor-proving trials before starting her last series of patrols.

### Ex-DDR warships find buyers

The Indonesian Navy appears to have dropped or deferred plans to build warships locally. No fewer than 16 'Parchim I' type corvettes have been acquired from the German VEBEG agency, responsible for disposing of warships of the former Volksmarine or German Democratic



The fifth Sandown class minehunter HMS Bridport was launched at Vosper Thornycroft's Southampton shipyard in July.

Republic Navy. The deal also includes two 'Frosch II' and 12 'Frosch I' tank landing ships and nine 'Kondor II' minesweepers.

Four 'Kondor II' type minesweepers, bought by Uruguay in October last year, have now arrived in Uruguayan waters. They are named *Temerario* (31), *Valiente* (32), *Fortuna* (33) and *Audaz* (34), and will retain their minesweeping capability. A former DDR naval tug has also been acquired and renamed *Blanco Ortiz*.

The three *Sassnitz* class missile corvettes acquired from the DDR in 1990 by the Federal German Navy were transferred to the Maritime Section of the *Bundesgrenzschutz* (BRS) last year. The *Sassnitz* is to be re-engined by her builders, Peenewerft of Wolgast.

### Type 23 frigate delivered

The Royal Navy's newest warship, the 'Duke' class frigate HMS *Iron Duke* was delivered by Yarrow Shipbuilders at Portsmouth on 23rd July. On the same day her sister *Lancaster* sailed to the United States for trials. The seventh of the class, HMS *Montrose* was launched at Scotstoun on 31st July, and her sister *Monmouth* is to start sea trials this month.

The fifth Sandown class GRP minehunter, HMS *Bridport* was launched on 30th July at Vosper Thornycroft's Woolston yard.

The troubled new RFA *Fort Victoria* suffered machinery problems during contractor's sea trials and had to call at Troon while clutching problems were dealt with. She subsequently arrived at Cammell Laird's Birkenhead shipyard on 7th July, where she is to complete fitting out.

### Australians win another Kuwait order

The Kuwaiti Coast Guard has ordered two more OPV 315 type patrol boats from Australian Shipbuilding Industries (ASI) in Fremantle, Western Australia. Shortly before the Iraqi invasion in 1990 two craft were ordered, but inevitably

work was suspended, and was not resumed until early this year. These two will be delivered later this year, and the Kuwaiti Ministry of the Interior has exercised its option for two more. Orders for another pair may be placed next year.

This ASI patrol boat, with a complement of 11, has an overall length of 31.5m, beam of 6.5m, and maximum draught of 2.0m on a full load displacement of 150 tonnes. A pair of MTU 16V 396 TB94 diesels drive fixed-pitch propellers on two shafts; there is also an auxiliary centreline Hamilton 422 waterjet driven by an MTU 8V 183 TE 62 engine. Range is 300nm at full speed of 28 knots. Drawings show no armament. The two newly ordered craft are to be delivered within 13 months.

### Names selected for Anzac frigates

The Royal Australian Navy's new MEKO 200 type frigates will be built in two batches. The first batch will be named *Anzac*, *Arrentic*, *Waramungu* and *Stuart*, commemorating previous RAN destroyers.

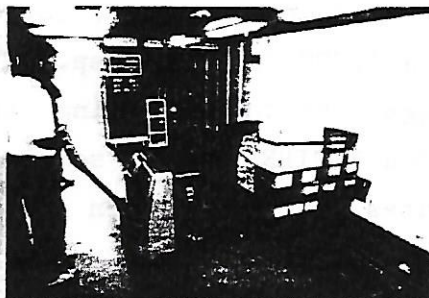
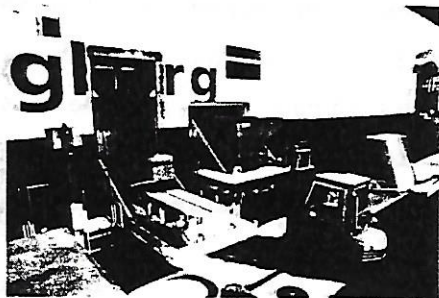
The second batch will differ slightly, and will be named *Toowomba*, *Ballarart*, *Parramatta* and *Perth*.

Names have not yet been announced for the Royal New Zealand Navy ships of the class, which will be the second and fourth hulls in the series.

Shortage of funds may result in the cancellation of the planned refit of the submarine HMAS *Otama*. Following a six-month delay in the refit of her sister *Onslow*, caused by an unexpectedly high level of work to be done, there is a risk that funds cannot be found for the projected refit, needed because the *Otama*'s diving time has expired.

If the *Otama* is not refitted, it is likely that the RAN's operational submarine strength will drop to two boats in 1994-96. Her sister *Oxley* paid off in February, and the *Otway*, *Ovens* and *Orion* are to pay off in 1993-96. The first of the new class, HMAS *Collins* will not be commissioned until 1996.

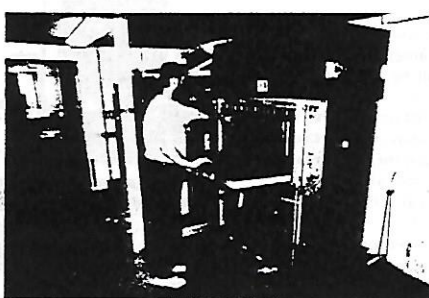
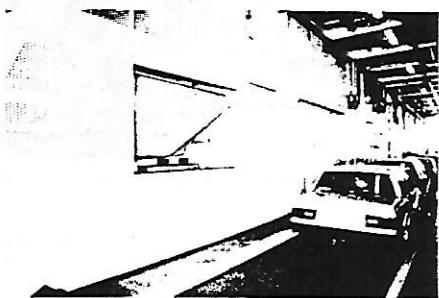
## 'The most environment-friendly vessel in the world'



Above left: Aurora of Helsingborg's externally mounted provisions hoist, designed and fitted by NORENT, can load 10 tonnes in 15 minutes. Right: Stores are moved around the ship by internal elevators and electric forklifts. SweFerry has a policy that no one should lift more than 6lb.

Below left: Rubbish skips are stored at car-deck level, but have infra-red sensors fitted so that if they become full the chute is closed at the galley end. If the external doors cannot be opened the skips can be removed, by forklift, through the car-deck.

Right: Paper and cardboard rubbish is compressed, baled and sent for recycling.



THIS claim (along with the qualifier 'with the exception of sailing ships') was recently made\* of *Aurora of Helsingborg* by Christer Schoug, head of vessel operations at SweFerry AB of Sweden. In describing SweFerry's newest 111m ferry, brought into service on April 5 this year to operate across the Öresund sound between Sweden and Denmark, Mr Schoug claimed that all available technology and expertise had been utilised in the areas of propulsion, maintenance, refuse handling and safety. SweFerry says that of the DKr 100 million cost of the vessel approximately 10% is due to environmental investments which will also increase the operating costs of the vessel, but which are believed necessary in the face of proposed Scandinavian legislation.

As well as catering for through traffic between Sweden and Denmark *Aurora of Helsingborg* also functions as a restaurant for lunch-time and evening diners, with passengers staying onboard for several of the 25 minute crossings. This of course leads to a logistics problem in loading the needed quantity of provisions during such a short turn-around time (on average only 17 minutes) without interfering with vehicle loading/unloading. On the new ferry SweFerry has overcome this problem by bringing supplies for the shop, restaurant and cafeteria (which would normally be hoisted up from the vehicle deck) onboard via a special externally mounted provisions hoist, designed and fitted by NORENT of

Gothenburg for SweFerry's particular needs.

On *Aurora of Helsingborg* all waste water is pumped ashore to the municipal treatment plant; it is anticipated that in the future this will be recycled as fertilizer. Solid waste such as paper, metal, plastics and glass are also dealt with. Paper is compressed and sent for recycling. Plastics are considered environmentally hazardous and placed together with oily rags in sealed containers to be sent ashore for destruction. Deposit bottles are used onboard as far as possible and other glass is crushed, stored in containers and sent for recycling. All waste is sorted at source and sent to the relevant collection points via garbage chutes. Collection skips are at car-deck level but have infra-red sensors fitted so that if they become full the chute is closed at the galley end to prevent over-spill. The skips are kept in a refrigerated room and fans assist with carrying any noxious odours up to the funnel; this, claims SweFerry, leads to an improved working environment.

\**Aurora* - State-of-the-art environmental ferry design, presented at the RoRo 92 Conference, May 20-22 1992, Gothenburg, and organised by BML Business Meetings Ltd, 2 Station Road, Rickmansworth, Hertfordshire WD3 1QP, England

Note: *Aurora of Helsingborg* is a sister to *Tycho Brahe*, featured in *The Naval Architect* January 1992, page E230

Due to constraints of space this month the waste and galley systems feature will be continued in the October issue.