MARITIME
REPORTER
AND
ENGINEERING NEWS

New Setenave Yard Is Building Ships On Dry Land And Floating Into Graving Dock For Launching

(SEE PAGE 6)

APRIL 1, 1976

The Rattler strikes... and propeller-driven ships arrive.

The year was 1845. And within the British Admiralty, the controversy raged on between proponents of the paddle wheel vessel, and those favoring the screw propeller.

Suddenly, on an absolutely calm day in the North Sea, in April of that year, the issue was settled.

On that day, the 800-ton *Rattler*, first screw-driven vessel in the British Navy was matched against the 800-ton paddle-driven *Alecto*. The two vessels were attached, stern-to-stern, and on a given signal their 200 horsepower engines engaged in a "tug-of-war."

The result? The propeller-driven *Rattler* towed the *Alecto* stern first with a speed of 2.8 knots, across the calm North Sea into a new naval age.

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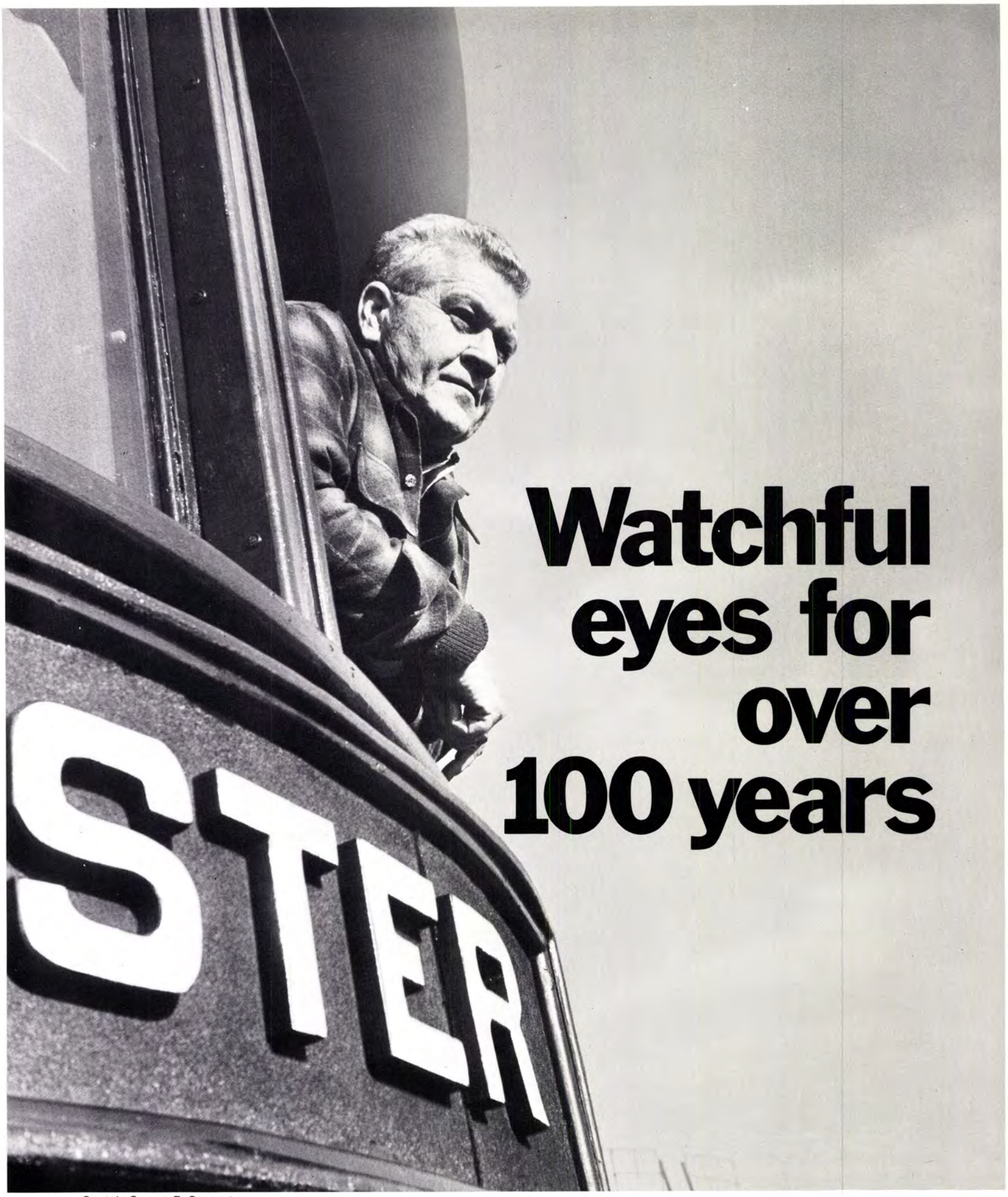

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British And Iranians Form Jointly Operated Ten-Ship Tanker Fleet

The British Petroleum Tanker Company (BPTC) and the National Iranian Tanker Company (NITC) have announced the formation of a jointly operated tanker fleet.

Under the agreement, announced by **David Steel,** chairman of BPTC, and Dr. **Manuchehr Eghbal,** chairman and general managing director of NITC, BPTC has sold three VLCCs (built in 1971 and 1972) and two product carriers (built in 1974) for about $60.5 million to NITC. The vessels will be handed over between June and September, and will be registered under the Iranian flag.

BPTC will place in the joint fleet five matching ships under the British flag.

All 10 vessels will be "demise chartered" into a joint organization, the Irano-British Shipping Co. Ltd., and managed by an Iranian jointly held company.

The entire venture is based on 50-50 participation by BPTC and NITC.

RF Communications Introduces Three FCC Type-Accepted Stations

Harris Corporation's RF Communications Division has introduced three FCC Type Accepted 25 to 50-watt Limited Coast Stations. They are the MT-1555 (50 watts), Ensign 4 (25 watts), and ST-1525 (25 watts).

Available with local extended or remote controls and 12-channel capacity, the Harris Limited Coast Stations feature instant on-frequency operation (no warm-up); solid-state construction for ease of service; a high-performance receiver that meets or exceeds FCC receiver requirements with a full five watts of audio power; several basic options, including tone-coded squelch, extended control, d-c remote control, transmit time protector, universal phone patch, wideband receiver, and 0.0005 percent receiver-frequency stability.

Further information and descriptive literature may be obtained by writing Marketing Department, Harris Corporation, RF Communications Division, 1680 University Avenue, Rochester, N.Y. 14610.

MARITIME REPORTER AND ENGINEERING NEWS

No. 7 Volume 38

107 EAST 31st STREET
NEW YORK, N. Y. 10016

MUrray Hill 9-3266, 3267, 3268, 3269

ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc. Controlled Circulation postage paid at Waterbury, Connecticut 06701.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 107 East 31st Street, New York, N.Y. 10016.

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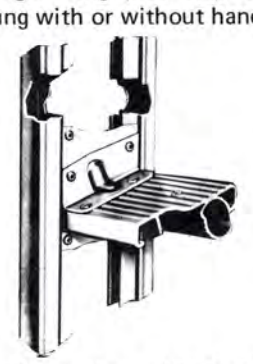
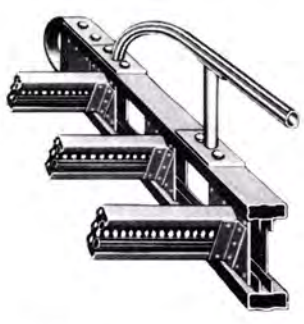
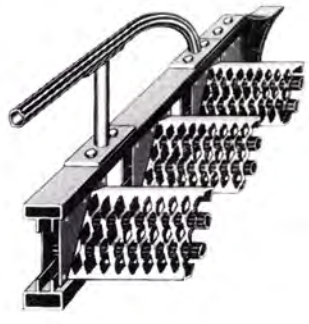


TYPE MHDRGS – Super duty with double rungs and grip strut tread covering rungs. Sure footing in ice and snow.





All models are 6061-T6 aluminum with a minimum yield of 38,000 p.s.i. All rungs are electrically welded to outer truss plates and internally expanded to inner truss plates. All models are on 12" centers (per OSHA) and feature all aluminum or plated steel fittings.

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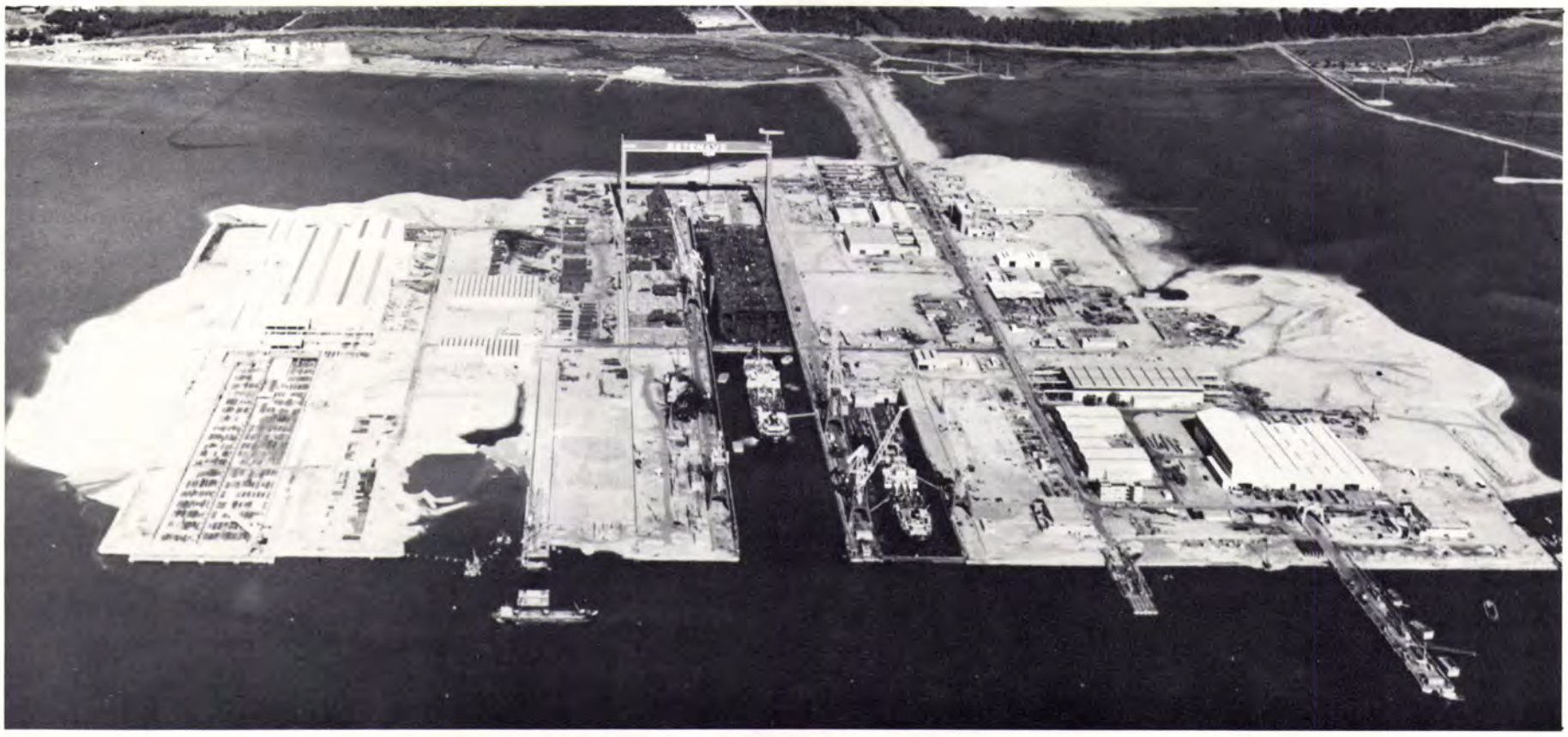


Setenave Shipyards, built on man-made island in the Sado River, can build and repair ships up to 700,000 dwt.

Setenave–A New Portuguese Shipyard

Floats Ships Off Building Platform Into Drydock

Setenave — Estaleiros Navais de Setubal (Setenave Shipyards), was founded in May 1971 for the purpose of operating a new construction shipyard at the mouth of the Sado River, in the vicinity of the town of Setubal, Portugal. The facility is 25 miles south of Lisbon on a man-made island.

At a later stage, the decision was made to build the yard as a combined newbuilding and repair yard for large ships. This decision was based on the fact that the number of large ships sailing and on order was increasing so steadily that a shortage of docking and repairing facilities could be foreseen. Furthermore, Lisnave Shipyard, the successful repair yard in Lisbon, could not add any more docking capacity to their present three large drydocks and it was, therefore, decided to build the necessary additional drydock capacity at Setenave.

The two drydocks at Setenave, one of 700,000-dwt capacity and one of 320,000-dwt capacity, will complement the available drydocks in the Lisbon area and will be operated in conjunction with Lisnave.

The area where the yard is located is ideally suited for a shipyard. Sheltered by the peninsula of Troia from the open sea, it provides safe anchorage and mooring places for ships of any size. The total area of the river owned by Setenave amounts to more than 750 acres, of which about 250 acres is reclaimed as an island on which the yard is located.

As the area is not yet industrialized, the availability of labor is no problem; and from the very start of the yard, extensive training programs have been put into operation with the assistance of Lisnave Shipyard and of Setenave's own school.

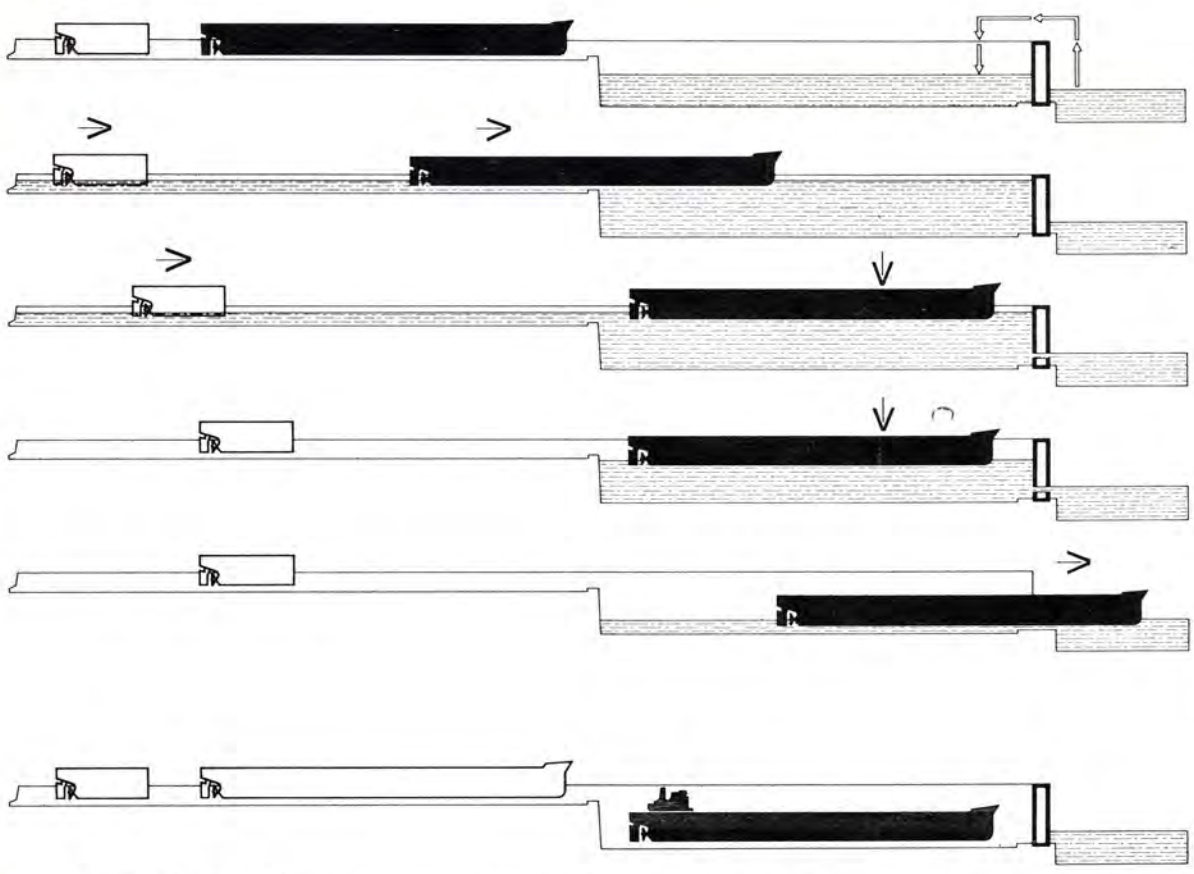
To ensure that the shipyard would have sufficient availability of "know-how," agreements were made with three foreign shipyards — Eriksbergs Mek. Verkstads of Goteborg, Kockums Mek. Verkstads of Malmo, both in Sweden, and the Rijn Schelde Verolme Group in the Netherlands—to assist in the training programs.

The recognition that substantial economies in both newbuilding and repair could be achieved through the combined use of capital

Flooding of the drydock is accomplished by pumps having a total capacity of 400,000 gpm.

As the repair dock floods, the water flows over the sill into the newbuilding section to float the ship.

This view shows the hull section after being floated into the drydock and the dock being pumped.



Schematic plan for launching a new vessel. The top view shows the completed new vessel plus the stern section of another ship under construction. The bottom view shows the facility in use for both new construction and repairs. The new construction platform, at left, is on the shipyard ground level.

facilities, led to a novel layout of the yard. In essence, the areas devoted to repair are wholly separate from the areas devoted to newbuilding, except for the joint use of the graving dock and cranes.

The newbuilding portion of the dock is novel, in that the building dock floor is at the same ground level as the shipyard and the dock is formed by surrounding walls. These walls continue along the repair dock. In order to launch a newly built vessel, special lock gates are fitted at both ends of the newbuilding platform and the repair dock. The entire dock is pumped up to a sufficient height above sea level to allow the newly built vessel to float into the repair dock. Then, the water level in the dock is reduced to sea level, the lock gates removed and the ship undocked.

The newbuilding dock is 1,378 feet long by 246 feet wide. It can be extended an additional 328 feet.

The main ship-repair dock is 1,476 feet long and 246 feet wide. It is capable of handling ships up to 700,000 dwt. It is in line with the newbuilding dock. A smaller repair dock is 1,148 feet long and 180 feet 6 inches wide. It can serve for vessels up to 350,000 dwt. The combination repair and newbuilding dock share the use of a 500-ton portal crane, and all docks are serviced by 100-ton and 15-ton revolving jib cranes.

The very latest design approach has been employed in the layout of the newbuilding yard to achieve highly efficient production. The newbuilding plate shop has an initial annual steel output of 120,000 tons, capable of being doubled if need be.

The newbuilding yard occupies an area of approximately 90 acres. The layout is based on a U-shaped flow line, which starts at the steel unloading dock and ends at the outfitting pier.

After unloading, the steel is stored by magnetic cranes in the steel stockyard. From the stockyard, plates and sections or profiles are transported by a conveyor-belt system through an automatic shot-blasting and shop-priming machine, after which the material arrives in a buffer storage from where the heavy plate shop is fed.

In the center bay of the heavy plate shop the sections and profiles are processed, cut to size, and any other preparation is done. Also, all webframes and similar lighter structures are prefabricated in this shop.

The automated panel line is situated in the left-hand bay over the full length of the shop and comprises a cutting station, plate-assembling station, welding station, section turnover station, turntable, frame feeding and fitting station, webframe fitting station and some finishing stations. Complete blocks of up to 350 tons can be lifted from the end of the panel line by the special Scheurle block transporter. The right-hand bay is used for the prefabrication of all shaped sections for the bow and stern of a ship.

The plate shop is fitted with ample crane capacity to facilitate the work. Modern oxy cutting machines are installed, controlled numerically by an MG-16 computer-based director, or optically by a tracing table for 1/10 scale drawings.

A profile bending machine of 700-ton capacity, a portal press of 700-ton capacity and a roll press of 2,000-ton capacity also are installed in the right-hand bay. The prefabricated blocks are transported by a Scheurle road transporter to the block-storage area beside the building platform. Here the blocks are joined, outfitted and completed as required before being lifted by the gantry crane.

The first new construction was a forebody (872 feet long) for a 316,000-dwt tanker that Eriksberg was building. The construction of a 316,000-dwt tanker for Soponata Sociedade Portuguesa de Navais Tanques, Lda., was started in November 1975.

Drydocking and repair activities started in June 1975.

The repair shops are grouped between the repair piers and the drydock to facilitate access and minimize transport.

During the first phase of the yard development, seven repair berths for large ships are available, all serviced by 50-ton jib cranes. All other facilities, such as plate shops, pipe shops, machine shops, etc., are duplicated in both the newbuilding and repair yards to insure that they can operate independently.

A shore-based tanker-cleaning station is being built adjacent to the yard with two berths and sufficient capacity to handle all sizes of tankers.

Setenave is represented in the United States by Setenave Shipyards, Inc., P.O. Box 9056, North Bergen, N.J. 07047.

Overall view of the 1,378-foot-long building platform, foreground, with structure being erected for a 316,000-dwt VLCC and the 1,476-foot-long drydock with the 878-foot tanker forebody in it after being floated.

MarAd Approves Title XI To Finance $23.2-Million Barge/Towboat Program

The Maritime Administration has approved in principle the application of Flowers Transportation, Inc., 1024 Washington Building, Greenville, Miss., for Title XI guarantee to aid in financing the construction of three towboats and 72 barges, and the refinancing of one towboat and five barges.

Construction financing will cover towboats with the following characteristics: (1) 4,200 hp, 42-foot beam, 140-foot length overall, crew 11; (2) 5,600 hp, 42-foot beam, 140-foot length overall, crew 11; (3) 6,700 hp, 50-foot beam, 168-foot length overall, crew 15. Draft for all three is 8 feet 6 inches. Thirty of the barges are semi-integrated hopper barges with deadweight capacity of 1,960 short tons; the remaining barges are box hopper vessels of two sizes — 1,748 or 1,800 short tons deadweight capacity. The towboats were delivered between August and November 1975, and the barges between March 1975 and February 1976.

The refinanced vessels include a 5,600-hp towboat with 42-foot beam, 140-foot length overall, draft of 8 feet 6 inches, and a crew of 11; and five covered hopper barges with deadweight capacity of 1,800 short tons. The towboat was delivered in September 1973, and the barges were delivered between December 1974 and February 1975.

Total estimated cost of the vessels is $23.2 million. The shipbuilders included St. Louis Ship, St. Louis, Mo., for 12 box hopper barges, and Dravo Corporation for the towboats and 65 barges.

The applicant transports bulk commodities on the Mississippi River System and the Gulf Intracoastal Canal.

Bethlehem Appoints R. Newcomb Treasurer Shipbuilding Operations

Robert S. Newcomb

The promotion, effective March 1, of **Robert S. Newcomb** to treasurer of Bethlehem Steel Corporation's shipbuilding operations was announced by **Robert C. Wilkins,** corporate treasurer.

Mr. **Newcomb** is currently credit manager of shipbuilding operations, with offices in New York City.

Mr. **Newcomb** was graduated from Lehigh University in 1942 with a bachelor's degree in economics. He then joined the Army, and was attending officer's candidate school when he was discharged in 1944.

Mr. **Newcomb** has spent his career with Bethlehem Steel in the finance department's treasury division, beginning in 1948 when he was assigned to shipbuilding as a credit clerk. Six years later he became a credit assistant, and in 1955 was promoted to assistant credit manager. Mr. **Newcomb** was appointed credit manager for shipbuilding operations in 1959, the position he held until his recent promotion.

As a member of the corporation's finance department working with shipbuilding, Mr. **Newcomb's** professional activities cover both fields. He is a member of The Society of Naval Architects and Marine Engineers, the Association of Average Adjusters of the United States, Association of Water Transportation Accounting Officers, and The Propeller Club of the United States.

In his new assignment, Mr. **Newcomb** will be located at corporate headquarters, Bethlehem, Pa.

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Moran's new Heide-class tugs put power where you need it.

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Schedule And Papers— SNAME Spring Meeting In Philadelphia, Pa.

It had to be Philadelphia. No other city in the United States would do for the national Spring Meeting of The Society of Naval Architects and Marine Engineers in this bicentennial year. The city's reputation as a fine convention center and showplace of American history lends itself well to the 1976 Spring Meeting theme, "Maritime America—1776 to 1976 and Beyond." The Philadelphia Section of SNAME will be hosting the meeting, scheduled for June 2-5 at the Marriott Motor Inn.

The 12 carefully-chosen technical papers will provide a background into the history of the marine industry, perspective into its present developments, and insight of future projections.

Papers scheduled for Thursday, June 3, include: "Commercial Shipping and Shipbuilding in the Delaware," by **William A. Baker;** "Cushions and Foils," by **Peter J. Mantle;** "200 Years of Naval Shipbuilding in the Delaware Valley," by **Robert E. Egan;** "Trends in Electric Cable Design for Shipboard Service," by **Gordon F. Todd;** "Future Trends of Materials and Fabrication of Marine Structures," by **K. Masubuchi** and **Kiyoshi Terai;** "Chemical Tankers — Design Concepts and Operation," by **W.G. Neal Jr.;** "Navy Trends," by **J. Baylis, P.G. Rainey** and **R.W. King,** and "Problems of Ship Vibration: Present Solutions and Further Investigations," by **I. Senjanovich** and **K.T. Skaar.**

Scheduled for Friday, June 4, are: "A Study of Machinery Aft Condenser Scoop Installation and Maneuvering," by **Robert J. Latorre;** "Propulsion, Cavitation and Propeller Induced Pressure Fluctuations of a Tanker, Comparative Tests in SSPA Cavitation Tunnel No. 2 and NSMB Depressurized Towing Tank," by **Gilbert Dyne** and **Martin Hokstra;** "Demologos and Waterwitch: Two Innovative Ships of the Early Steam Navy," by **H. Benford,** and "A New Dimension to Ship Propulsion Test Techniques," by **J.D. Van Manen** and **M.W.C. Oosterveld.**

The social events have been arranged to allow all those attending to take maximum advantage of them. On Thursday, the registrants' families can choose between tours to the Winterthur estate or to Longwood Gardens and the Brandywine Museum. The president's reception is being held that evening. The next day's activities include a walking tour of historic Philadelphia; and on Saturday, those attending can enjoy a bus ride to Valley Forge and Mill Grove. The 1976 Spring Meeting will be climaxed that evening by the Philadelphia Section's annual Dinner-Dance.

Reynolds Metals Marine Division Names Armando Luna

Armando Luna Jr. has been named assistant port captain of the Marine Division of Reynolds Metals Company, Corpus Christi, Texas.

A.R. Philbrick, general superintendent of the Marine and Engineering Department, said Mr. **Luna** would assist Capt. **D.W. Birt,** the port captain, and would work with all vessels operated by the Reynolds Marine Division and Caribbean Steamship Company, S.A.

Mr. **Luna** graduated from Uvalde (Texas) High School, attended Southwest Texas Junior College at Uvalde, and received a Bachelor of Science degree in marine transportation from Texas A & M University in 1971.

He received his license as a third mate in 1971 and joined Reynolds as third mate aboard the S/S Walter Rice. He received his second mate's license in 1972 and his chief mate's license in 1975, and was second mate of the Walter Rice at the time of his promotion to assistant port captain.

S3 - PENTA

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Dravo Corp. To Build Drydock For AEP

Dravo Corporation, Pittsburgh, Pa., has been awarded a contract for a 2,000-ton floating drydock by the American Electric Power System (AEP).

The 210-foot by 80-foot by 22-foot drydock will be used to maintain the utility's fleet of new barges and towboats to be delivered during 1976 and 1977. AEP's new fleet will include 10 towboats and 120 barges which are being built by Dravo.

The movable steel fabricated drydock will be operable from a central control station and is being built at Dravo's Neville Island boatyard on the Ohio River near Pittsburgh. Completion of the dock will be in August 1976.

Dravo builds drydocks as a part of its marine product lines which include hopper, tank and deck barges, towboats and special-purpose vessels.

Russians Buy Oil Barriers From U.S.

Eleanor Chance Swett, president of Offshore Devices, Inc., 91 Dale Street, Chestnut Hill, Mass. 02167, announces a $700,000 contract with SUDOIMPORT, the USSR marine trade organization, for six High Seas Oil Pollution Control Barriers.

The barriers will be used on the Black Sea, the Baltic, and on the Sea of Japan. The barriers, identical to those the Coast Guard now uses, are noted for their strength and excellent wave-following ability — a key factor in oil collection at sea. They are designed to be air-dropped at a spill site for deployment by surface craft.

Eleanor Chance Swett

Each 612-foot barrier will be packed in a 20-foot container. The barrier is made up of rigid panels, loosely strung on a tension line, held vertical by self-inflating floats, with a fabric curtain between panels. Thus, each strut is free to respond to the heave, sway, and roll of the waves.

Ms. Swett points out that small companies can do business with the USSR. Offshore Devices could not afford to send a team of key personnel to Moscow for long negotiations. Literature and a film of the development of the barrier were sent instead. Using mail and telegram only, negotiations were successfully concluded within six months. **Ms. Swett** notes with pleasure that the Russians are making a serious effort to collect high seas oil spills.

McAllister Inaugurates New Weekly Northeast Feeder/Barge Service

A new weekly, common carrier, barge/feeder service that will for the first time link the ports of New York, New Haven, and Boston was inaugurated on April 1 by the McAllister Feeder Barge Service division of McAllister Lighterage Line, Inc.

Designed as an economy for shippers of import/export containers, the service will handle both 40-foot and 20-foot containers with a total capacity each way of 144 T.E.U.s.

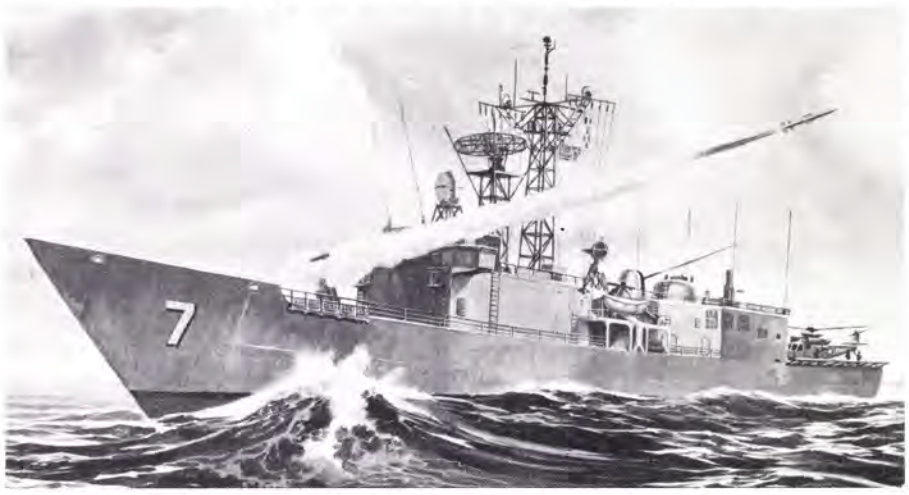
At the onset, it is planned to use existing McAllister Brothers tugs and barges, the company said.

In New York, the service will operate from the ACL Terminal, Port Elizabeth, N.J.; in New Haven, through the New Haven Terminal, Inc., and in Boston, at the Mystic Container Terminal.

Shipments can be arranged through the Booking Agent in New York at (212) 425-3541.

McAllister has been serving shippers with lighterage services since the company was formed by Capt. James McAllister in 1864.

Todd To Build Six Guided Missile Frigates For Navy At Base Price Of $295 Million



Artist's conception of U.S. Navy guided missile frigate (FFG-7 Class).

Todd Shipyards Corporation has been awarded contracts by the U.S. Navy Department to build six guided missile frigates, FFG-7 Class, of which four will be delivered to the U.S. Navy and two will be delivered to the Royal Australian Navy. These vessels are key elements in modern-day Naval forces. The base price for the six vessels is approximately $295 million. The contracts contain provisions for upward price adjustments to compensate for future increases in the costs of labor and material.

According to **John T. Gilbride,** chairman of Todd, three of these ships will be built at the Seattle Division and three at the Los Angeles Division. Todd was a participant in the design contract which preceded the production contracts for these ships. Such effort took four years, and made the company a logical candidate for the ensuing production contracts. Mr. **Gilbride** noted that Todd is ideally suited both in facilities and personnel to carry out this very important project for the Navy; the company has invested millions of dollars in plant improvement and expansion at both Seattle and Los Angeles in recent years, and it has maintained a cadre of personnel with invaluable expertise gained in similar programs for the Navy.

The Navy has programmed the procurement of a total of 49 of these guided missile frigates over a five-year period; eight ships' authorization and appropriation has been requested for FY '77, and eight ships' authorization has been requested for FY '78. Todd has every expectation of participating in future procurements for this class of vessel.

The FFG-7 Class ships will have an overall length of 445 feet, a beam of 45 feet, a draft of 24½ feet, and a full-load displacement of 3,605 tons. The single-screw ships will be powered by two LM-2500 gas turbines, developing a total of 40,000 shp, and driving a controllable/reversible pitch propeller. Sustained sea speed will be 28 knots. The frigates will each be manned by 11 officers and 152 enlisted personnel.

MarAd Approves Cost For Raising Pilothouse On Three LNG Carriers

The Maritime Administration has approved the increased cost of $482,202 per vessel with subsidy participation of $114,282 per vessel for three LNG vessels being constructed by General Dynamics Corporation, Quincy, Mass., for Cryogenic Energy Transport; LNG Transport, Inc., and Liquegas Transport, Inc.

The increased cost covers the raising of the wheelhouse approximately 11 feet above its original design position to provide improved visibility. The change is required by the U.S. Coast Guard.

Lockheed Takes Prize For Largest Vessel Built In Seattle

The largest vessel built in Seattle, Wash., was the M/V Sugar Islander, constructed by Lockheed Shipbuilding and Construction Company. It was incorrectly reported in the February 15, 1976 issue of MARITIME REPORTER/ Engineering News that the 22,500-dwt barges for Agrico Chemical Co., the Faustina and Pierce, were the largest vessels built in Seattle. They are the largest barges built in Seattle, but at a length of 495 feet 5 inches, an 85-foot beam and depth of 48 feet, they are smaller than the Sugar Islander which measures 643 feet long, with an 85-foot beam and a 57-foot depth.

American Maritime Requests CDS To Build Two $6-Million Ships

The American Maritime Industries Inc. (AMI), One World Trade Center, New York, N.Y., has filed an application with the Maritime Administration requesting construction subsidy for two small breakbulk freighters.

The applicant, which through other subsidiaries has 13 foreign-flag vessels, plans to build two 2,000-dwt breakbulk carriers to be manned by four officers and five crewmen.

No builder has been chosen. The company expects the vessels to cost some $6 million each and make about 21 sailings a year between New York and Miami, Fla., in the north, and various Caribbean islands and ports in northern South America.

The two ships were to be operated by a new subsidiary, yet to be organized, the applicant said. The subsidiary to be established will be a Delaware corporation, the application said.

Marketing Expert Joins Oil Mop As Executive VP

Kelvin John Smythe

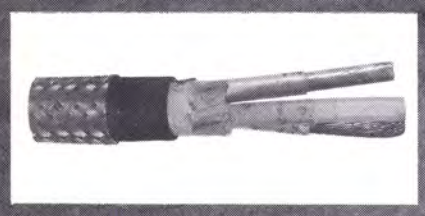
An expert in international marketing for petrochemicals and pollution control equipment has joined the New Orleans, La.-based oil spill cleanup firm Oil Mop, Inc., according to **C. Horton Smith,** president.

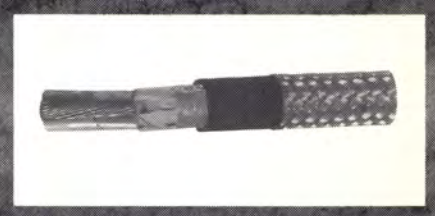
Kelvin John Smythe of Dublin, Ireland, is the new executive vice president who brings with him an extensive background in oil and petrochemicals, shipping, machine tool production, steel, electrical instrumentation, and overland pipelaying.

Before joining Oil Mop, Inc., Mr. **Smythe** was president of Richfield, Ltd., a holding company with investments spread from Australia to England, and Denmark to Nigeria. The company, which he founded in 1967, is now active in oil-based plastics, and is developing an oil refinery site in southwest Ireland.

Recycling of thermoplastic wastes to produce polypropelyne, polyethelene, and polystyrene has been a major component of Mr. **Smythe's** petrochemical operations. Polypropelyne is the primary material for Oil Mop, Inc. products. Oil Mop, Inc.'s oil spill recovery equipment and its series of oil/water separators for bilge cleaning and other industrial applications employs polypropelyne fiber for its oil-attracting, water-repelling qualities.

Oil Mop, Inc. introduced its oil spill cleanup equipment and its line of oil/water separators on the international market in 1974. Deliveries have been made to countries ranging from Korea to Venezuela, and Canada to Iran.





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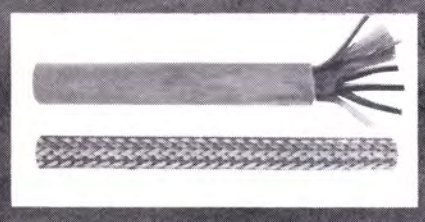

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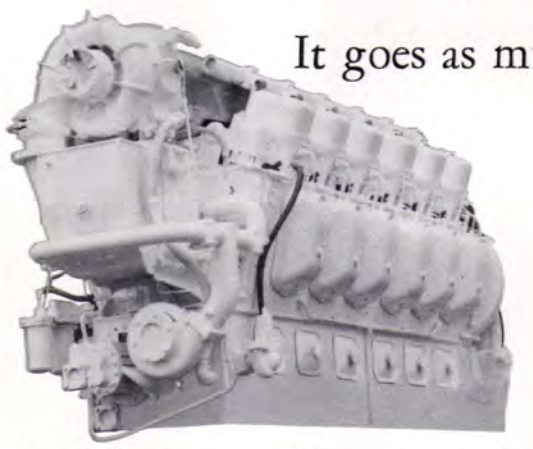

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GAO Wants To Know Why Navy Is Not Using Commercial Tugboats

The General Accounting Office (GAO) has criticized the Navy's continued use of tugs operated and manned by the Navy when suitable commercial tugs are available, according to a report published by the Transportation Institute. The GAO report points out that the Navy could conserve manpower, reduce its support fleet size, and save considerable amounts of money if privately owned and manned tugs supplanted Navy tugs.

Currently, the Navy operates 81 large, 57 medium, and seven small tugs in ports and Naval bases located throughout the U.S. Most of these areas are in close proximity to commercial ports and to the services of private tug operators.

The U.S. private tug industry has for many years attempted to convince the Navy that it would benefit from the use of commercial tugs. The industry's position is supported, according to the GAO, by the Navy's own studies, "all of them concluding commercial operations to be cost effective, displacing at least a portion of the Navy-operated tugboats."

The GAO has specifically requested the Navy to answer why it has not sought to fully test the use of commercial tugs.

Gdynia America Line Names T. Draczkowski Chief Executive Officer

Tadeusz Draczkowski

The shareholders and board of directors of Gdynia America Line, Inc., have announced the appointment of **Tadeusz Draczkowski,** vice president, to the post of chief executive officer in charge of Gdynia America Line's entire operation. Mr. **Draczkowski** will also remain as chairman of the board of directors and senior owners' representative for Polish Ocean Lines in the United States. **C. Thomas Traficante** will remain as president of Gdynia America Line, Inc.

Also announced was the appointment of **Donald D'Agostino,** secretary-treasurer, to the post of vice president in charge of finances and administration, and **Henryk Szulc,** first assistant vice president, to the post of vice president for traffic and container operations.

Crowley Subsidiary TMT Expands Caribbean Tug-Barge Services

Trailer Marine Transport Corp. (TMT) has inaugurated a new tug-barge service from Jacksonville and Miami, Fla., to Rio Haina in the Dominican Republic.

This expansion beyond the Puerto Rico trade is an initial step "that will inevitably lead into additional Caribbean markets," said **R.D. Carter,** president of TMT.

The Jacksonville, Fla. company has been in the Puerto Rico trade continuously for 20 years and is now a subsidiary of Crowley Maritime Corp. The firm states that it was the first to introduce roll-on/roll-off service in the Caribbean.

TMT is an intermodal carrier, interchanging equipment with both railroads and truck lines.

Its new Dominican Republic service will offer sailings from Miami and Jacksonville every three days.

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As the photograph shows, tugboats fitted with Harbormaster right-angle drives can do things that tugs could never do before. Maneuvering, positioning and docking can be accomplished without backing and filling, and at unprecedented speed. Thanks in this case to twin 500 h.p. propulsion and steering units with right-angle drive, one man in the wheelhouse can turn his tug 360° "on a dime" with high bollard thrust and maximum position efficiency. Fill out and mail the coupon today. We'll send you up-to-date answers for a world of marine propulsion problems.

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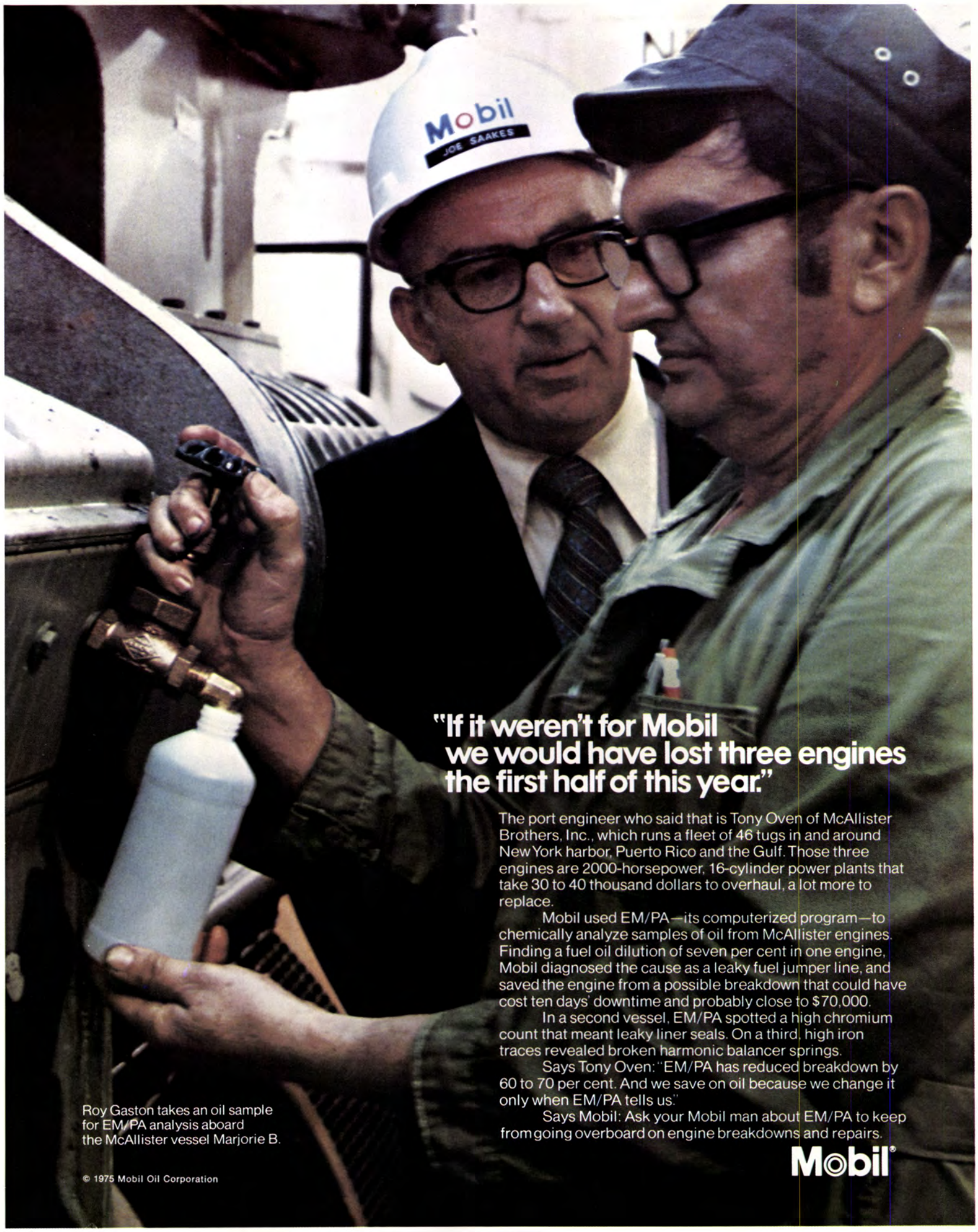

"If it weren't for Mobil we would have lost three engines the first half of this year."

The port engineer who said that is Tony Oven of McAllister Brothers, Inc., which runs a fleet of 46 tugs in and around New York harbor, Puerto Rico and the Gulf. Those three engines are 2000-horsepower, 16-cylinder power plants that take 30 to 40 thousand dollars to overhaul, a lot more to replace.

Mobil used EM/PA—its computerized program—to chemically analyze samples of oil from McAllister engines. Finding a fuel oil dilution of seven per cent in one engine, Mobil diagnosed the cause as a leaky fuel jumper line, and saved the engine from a possible breakdown that could have cost ten days' downtime and probably close to $70,000.

In a second vessel, EM/PA spotted a high chromium count that meant leaky liner seals. On a third, high iron traces revealed broken harmonic balancer springs.

Says Tony Oven: "EM/PA has reduced breakdown by 60 to 70 per cent. And we save on oil because we change it only when EM/PA tells us."

Says Mobil: Ask your Mobil man about EM/PA to keep from going overboard on engine breakdowns and repairs.

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Roy Gaston takes an oil sample for EM/PA analysis aboard the McAllister vessel Marjorie B.

Vancouver Shipyards Moves 457-Foot Ferry To Launching Position On Film Of Water

In February, shipbuilders and drill-rig manufacturers from several countries gathered at Vancouver Shipyards, North Vancouver, British Columbia, Canada, to watch a 7,000,000-pound ship transferred to launching position on a film of water 5/1000 of an inch thick. It was the heaviest weight ever to be moved by the newly developed fluid-film method. A week later, the ferry was launched.

The vessel is a trailer ferry, 457 feet long and 89 feet in beam, one of three of the same hull size constructed for the British Columbia Government Ferry System. The almost completed ferry weighed 3,500 tons when it slid along its smooth, level concrete pad to launching position. Pulling power was supplied by a converted log skidder exerting approximately 7,000 pounds of force or about one pound of force for every 1,000 pounds of ship's weight. So frictionless is this transfer system that precautions must be taken to hold ships' hulls against forces exerted by sudden gusts of wind.

The transfer operation and the launching mark the culmination of a $4.5-million expansion program for Vancouver Shipyards from its planning stage in 1974.

The yard's fluid-film transfer operation takes place on smooth concrete runways forming a grid in the construction area. The system recently developed by Aero-Go, Inc. of Seattle, Wash., is designed to move large units by use of a series of 40-ton-capacity, 4-foot-diameter waterfilm bearings. The bearings are essentially inflatable "doughnuts" manufactured of flexible nylon-neoprene and hypalon materials. When inflated with water at a pressure of 50 pounds per square inch, each bearing lifts 40 tons. The total thrust exerted by all the bearings raises the load approximately two inches. At this point, water seeps from a contained supply in the center of the "doughnuts" onto the level concrete runway. The ship's hull, mounted in its wooden cradle, is now free-floating on a paper-thin film of water, and is ready to be transferred.

The ferry hull was constructed in seven different sections or modules, each of which was transferred to join the others by means of the fluid film system.

President of Vancouver Shipyards, **Allen Fowlis,** expressed satisfaction with the new shipyard arrangements: "The fluid-film transfer system and our side-launching facility make it possible to compete effectively with shipbuilders anywhere in the Pacific Northwest," he said. "In two years we have doubled our shipbuilding facilities, as well as adding a capacity to build ships up to 500 feet in length and 100 feet in beam."

He commented in particular on the flexibility of the construction system. "We have avoided committing ourselves to a more rigid system such as graving dock and end-launching facilities," Mr. **Fowlis** said. "What we have now is something close to an assembly-line system. We can build ships' modules under cover, move them into desired positions around one another, past one another, or joined to one another."

Aero-Caster waterfilm load module used by Vancouver Shipyards is 4 feet square, 3 inches thick, and weighs 170 pounds.

One of the Aero-Casters in position and under water pressure is shown between concrete runway and ship cradle.

The 3,500-ton ferry, Queen of Alberni, is shown being positioned on launching ways by using the Aero-Caster System, developed by Aero-Go, Inc.

He said that if supply problems delayed the construction of one vessel, it could be moved aside to make way for other construction. The resulting savings in time and money are substantial, and efficiency is substantially improved.

The vessel is among the largest double-ended ferries in the world and is the largest vessel ever constructed by Vancouver Shipyards. Its engines develop 11,000 shp and will provide a service speed of 20 knots. It has a passenger capacity of 350 and can carry either 58 forty-foot trailers or 145 automobiles. Soon to be commissioned by the provincial government, the ferry will go into service between Vancouver and Vancouver Island.

The Aero-Caster® System is the exclusive development of Aero-Go, Inc., 5800 Corson Avenue South, Seattle, Wash. 98108, with international sales of both water- and air-inflatable handling products. Floating heavy loads on fluid-film systems so nearly eliminates the friction under them that only a gentle one-pound push for every 1,000 pounds of load weight is needed to move them in any direction and speed desired.

To move varying section sizes and weights, the proper number of Aero-Casters are used. They are positioned under loads in rectangular arrangements for load balancing. The lift capacity of a fluid-film system is unlimited. Flow control valves at each Aero-Caster automatically gage the water flow needed by the caster to lift the load weight above it.

Once the Aero-Casters are in position, there is no need to manually adjust pressures to move a hull unit as its weight changes during completion.

Todd Shipyards Corporation's Seattle yard was the first shipyard in the world to use an Aero-Caster transfer system to build vessels in the 1,000-ton range. Their Aero-Caster system provides the capability of easily transferring ship subassemblies from rail and wheel bogies onto waterfilm. It also includes a waterfilm turntable for 90-degree rotation of ship assemblies weighing up to 500 tons. Todd has had as many as four 228-foot-long by 44-foot-wide ships side-by-side at one time parallel to their side-launchways moved into position on waterfilm.

Since December 1974, Brown & Root, Inc. in Houston, Texas, has been using an Aero-Go waterfilm pallet system to move offshore oil-drilling platform decks. Weighing up to 2,000 tons, steel decks are floated from inside their fabrication building on air film and throughout their outside yard and onto barges on waterfilm. Move distance is approximately 500 feet. Deck sizes are typically 60 feet high by 72 feet wide by 163 feet long. Two fluid-film pallets are inserted in recessed feet under each of the deck's eight columnar legs.

Several foreign yards are using Aero-Go systems to move heavy equipment within shops and to position engines. At Sasebo Heavy Industries, Japan, Aero-Casters are inverted atop pedestals to float steel deck-plate assemblies above them to join them for welding. Aboard ship, air film is used to install prefabricated cabins and auxiliary equipment.

Aero-Go introduced the Aero-Caster air-film device in 1967 and the waterfilm Aero-Caster in 1971. Systems are now in use in hundreds of diverse industries worldwide, ranging from total in-plant air-film production-conveying lines to the shock-free movement of 1,000-pound sensitive electronics.

Kawasaki To Build Two High-Speed Ro/Ro 23,000-DWT Trailerships

Kawasaki Heavy Industries, Ltd. received orders for two identical high-speed (24.0 knots) 23,000-dwt roll-on/roll-off trailer carriers from Seaspeed Ferries Corporation of Greece and Kuwait Investment Company S.A.K., for their joint ownership.

Measuring 694 feet 5 inches in length, 150 feet 0 inches in breadth, and 65 feet 7 inches in depth, these vessels will be the largest of their kind in the world. Each will have two sets of the 14,000-bhp Kawasaki-M.A.N. 14V52/55-type medium-speed diesel engine. Both vessels will be constructed at Kawasaki's Sakaide Works, with completion scheduled for early 1977.

Northern New England Section Of ASNE Elects Officers For 1976

Officers of the Northern New England Section of ASNE, left to right: **Rudolph Krause,** councilman; **Harold Neville,** vice chairman; **Gary Adams,** chairman; **Kenneth Lanzillo,** councilman, and Lt. **Lynn Waite,** treasurer. (Absent when picture was taken were **Wadsworth Hardy,** secretary, and Comdr. **Leo Gies,** USN, councilman.)

The American Society of Naval Engineers' (ASNE) Northern New England Section elected a new slate of officers for 1976 at a recent dinner meeting held at the Portsmouth Naval Shipyard Officer's Club. **Gary Adams** was elected chairman, **Harold Neville,** vice chairman, **Wadsworth Hardy,** secretary, and Lt. **Lynn Waite,** USN, treasurer. **Kenneth Lanzillo** was elected councilman for three years, **Rudolph Krause,** councilman for two years, and Comdr. **Leo Gies,** USN, councilman for one year.

Following the dinner and the business meeting, an interesting lecture was presented to the members and guests by Capt. **Thomas L. Albee,** USN, head of the Advanced Technology Systems Division of the Naval Sea Systems Command, Research and Development Directorate. Captain **Albee** spoke about the employment of advanced marine vehicles in the U.S. Navy, elaborating on the "whys" and "hows" of the Navy's potential uses of hydrofoils, surface ships, air cushion vehicles, and small waterplane area twin hulls. Movies showing various high-speed craft in action were shown, following the main lecture and slide presentation.

Three-Year Navy Salvage Contract Awarded To Crowley

Warren D. Thomas

Crowley Maritime Salvage, Inc., San Francisco, Calif., has just been awarded a three-year contract by the Naval Sea Systems Command, Washington, D.C., to provide offshore salvage services for the U.S. Navy in a major portion of the North and South Pacific Ocean Area.

The firm is a division of Crowley Maritime Corporation, San Francisco-based operator of one of the world's largest fleets of oceangoing tugs, barges, offshore oil support vessels and other specialized equipment. The Salvage Division was formed last year to provide the fast expanding international Crowley operations with specialized salvage equipment and personnel, while also competing for other salvage work on a worldwide basis.

The Salvage Division is operated under the direction of **Warren D. Thomas,** vice president and general manager, whose long experience in the marine salvage field includes the clearing of the Suez Canal in 1974. **James Walker,** also with a wealth of experience in the industry, serves as assistant to the general manager.

Under terms of the newly awarded contract, Crowley Maritime Salvage is charged with the responsibility of offshore salvage of ships and craft, related ocean engineering and marine services, and harbor clearance and rescue-tow services in the Southwest Zone. This zone includes the entire offshore area extending south from the northern boundary of the State of California, along the western coasts of the United States, Mexico, Central America and South America to the South Pole, and all of the area west from these points to the International Date Line.

The central base of operations for Crowley Maritime Salvage, Inc. in the Southwest Zone will be located in Long Beach, Calif., where the firm has established a waterfront support facility that includes a large warehouse for storage of pumps, beach gear and other salvage related equipment. Tugs, barges and other floating equipment will be constantly available for emergency duty in port and offshore areas throughout the zone.

Samson Ocean Systems Names R.H. Blanchette Regional Manager

Ronald H. Blanchette has been appointed a regional sales manager for the Marine and Industrial Division of Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110. The announcement was made by **Robert Billings,** vice president, Cordage Operations.

Mr. **Blanchette** will be based in San Francisco, Calif., and will be responsible for all sales and customer service in northern California and the states of Nevada (except Las Vegas), Colorado, and Utah.

The Marine and Industrial Division of Samson Ocean Systems engineers and produces rope and rope systems for the heavy marine market, the utilities market, the offshore oil drilling industry, and the commercial fishing industry.

A graduate of San Francisco City College, Mr. **Blanchette** took postgraduate study at California State College. Before joining Samson Ocean Systems, he was sales manager for American Fencers Supply Co. in San Francisco. He also served as house manager for the General Electric Supply Co. facility in Emeryville, Calif.

SNAME President Names Committee Chairmen

Rear Adm. **L.V. Honsinger,** USN (ret.), president of The Society of Naval Architects and Marine Engineers, a professional/technical organization for members of the marine industry, has announced the following committee chairmen for 1976:

Committee on Applications — chairman, **Charles J.L. Schoefer,** executive vice president, American Bureau of Shipping, New York, N.Y.

Committee on Awards — chairman, **Alvin E. Cox,** assistant to the president, J. J. Henry Co., Inc., New York, N.Y.

Annual Banquet Committee — chairman, **Charles A. Narwicz,** president, Arthur Tickle Engineering Works, Inc., Brooklyn, N.Y.

Committee on Budget and Endowments—chairman, Rear Adm. **Albert G. Mumma,** USN (ret.), past president of the Society, Short Hills, N.J.

Annual Dinner-Dance Committee—chairman, **Robert P. Fulton,** assistant to the vice president, Gibbs & Cox, Inc., New York, N.Y.

Committee on Education — chairman, Rear Adm. **Charles N. Payne,** USN (ret.), president, Webb Institute of Naval Architecture, Glen Cove, N.Y.

Committee on Fellows — chairman, Prof. **Richard B. Couch,** Department of Naval Architecture and Marine Engineering, the University of Michigan, Ann Arbor, Mich.

Committee on Finance and Audit — chairman, **John A. Livingston,** trustee, Webb Institute of Naval Architecture, Glen Cove, N.Y.

Committee on Journal of Ship Research — chairman, **Ralph D. Cooper,** head, Fluid Dynamics Program, Office of Naval Research, Department of the Navy, Arlington, Va.

Committee on Marine Technology — chairman, **E. Scott Dillon,** consultant, Silver Spring, Md.

Committee on Member Insurance — chairman, **Robert Axelrod,** vice president-finance, J.J. Henry Co., Inc., New York, N.Y.

Committee on Membership — chairman, **Lester Rosenblatt,** president, M. Rosenblatt & Son, Inc., New York, N.Y.

Committee on Nominations — chairman, **Phillip Eisenberg,** past president of the Society and chairman, Executive Committee, Hydronautics, Incorporated, Laurel, Md.

Committee on Papers — chairman, Capt. **Jack A. Obermeyer,** USN (ret.), manager, Construction & Technical Development Division, Marine Department Texaco Inc., New York, N.Y.

Committee on Pension Plan — chairman, **Douglas C. MacMillan,** assistant to general manager, General Dynamics/Quincy Shipbuilding Division, Quincy, Mass.

Committee on Publications — chairman, **Donald P. Courtsal,** general manager, Engineering Works Division, Dravo Corporation, Neville Island, Pittsburgh, Pa.

Committee on Scholarships — chairman, Capt. **Robert E. Stark,** USN (ret.), Gibbs & Cox, Inc., New York, N.Y.

Committee on Sections—chairman, **Monroe D. Macpherson,** John J. McMullen Associates, Inc., New York, N.Y.

Vice President-Technical and Research — A. Dudley Haff (to whom the Committee on Technical and Research Advance Planning, the Committee on Technical and Research Finance and Administration and the Steering Committee on Technical and Research report), technical manager, Bethlehem Steel Corporation, Central Technical Division-Shipbuilding, Sparrows Point, Md.

Committee on Technical and Research Advance Planning — chairman, **Marvin Pitkin,** assistant administrator for Commercial Development, Maritime Administration, Washington, D.C.

Committee on Technical and Research Finance and Administration — chairman, **John T. Gilbride,** chairman, Todd Shipyards Corporation, New York, N.Y.

Steering Committee on Technical and Research — chaired by **Charles Zeien,** president, J.J. Henry Co., Inc., New York, N.Y., includes the chairmen of the following committees:

Hull Structure Committee — chairman, **Alexander B. Stavovy,** head, Advanced Ship Division, David W. Taylor Naval Ship Research and Development Center, Bethesda, Md.

Marine Systems Committee — chairman, Capt. **Richards T. Miller,** USN (ret.), manager, Ocean Engineering, Oceanic Division, Westinghouse Electric Corp., Annapolis, Md.

Ship Production Committee — chairman, **Ellsworth L. Peterson,** president, Peterson Builders, Inc., Sturgeon Bay, Wis.

Ship Technical Operations Committee — chairman, **Thomas J. Sartor Jr.,** assistant marine superintendent, Farrell Lines, Inc., New York, N.Y.

Ships' Machinery Committee—chairman, **William O. Nichols,** chief engineer, Central Technical Division-Shipbuilding, Bethlehem Steel Corporation, Sparrows Point, Md.

Evergreen Marine Corp. Announces New Ships And Plans New Services

Y.F. Chang

Evergreen Marine Corp. of New York has announced the delivery of a new bulk carrier, the launching of another bulk carrier and a containership, and plans to begin a service from the West Coast to the Far East later this year.

The announcements were made by **Y.F. Chang,** founder and chairman of Evergreen Marine Corp.

The 18,500-dwt bulk carriers, the Ever Hope and the Ever Handsome, built in Japan, have been fixed on long-term time charters.

This month, the Ever Shine will join the Ever Spring, Ever Summit, and Ever Superb in the service begun last summer from the ports of New York, Baltimore, and Charleston, directly to Kaohsiung and Keelung, Taiwan; Pusan, Korea, and Hong Kong. Each ship carries 300 forty-foot containers. Evergreen Handt Corp. in New York serves as general agents.

Four combination container/breakbulk ships are presently under construction for Evergreen to be used in the West Coast trade. The first of that series is expected to be delivered in October. These ships are planned to carry 57 twenty-foot equivalents and have a deadweight capacity of 16,000 tons of cargo each.

"We expect 1976 to be a year of substantial growth for Evergreen," said Mr. **Chang**.

American Club Elects Officers And Admits Central Gulf Lines

A.B. Kurz, chairman of the American Steamship Owners Mutual Protection and Indemnity Association, commonly known as the American Club, announced at the recent annual meeting that Central Gulf Lines had joined the organization. The addition of Central Gulf as a member brings an additional 454,000 gross tons under the protection and indemnity (P&I) coverage provided by the group. The total tonnage in the group is 3.5 million gross tons.

The American Club is the only nonprofit P&I club in the United States. Day-to-day affairs of the club are handled by the staff of the Shipowners Claims Bureau, Inc., the oldest P&I adjusting and underwriting organization in the United States.

Mr. **Kurz,** president of Keystone Shipping Co., was reelected chairman of the organization at the meeting. Others reelected were **Norman Scott,** president of American President Lines, deputy chairman, and **John H. Casedy** of the Shipowners Claims Bureau, secretary. **Louis J. Gusmano** of Kirlin, Campbell & Keating was named counsel.

Other directors elected to serve on the board for the coming year included **George C. Halstead,** Alcoa Steamship Co.; **Herbert A. Crompton,** Trinidad Corp.; **Thomas J. Smith,** Farrell Lines; **John J. Ervin,** Mathiasen's Tanker Industries, Inc.; **Carl Swenson,** Farrell Lines; **John T. DiPalermo,** American President Lines; **J. Donald Kenny,** American President Lines; **Sal P. Tarantino,** Pacific Far East Line; **John I. Alioto,** Pacific Far East Line; **Joseph W. Dickover,** States Steamship Co.; **Edward J. Kettel,** Atlantic Richfield Co.; **Charles Kurz II,** Margate Shipping Co.; **Spyros Skouras,** Presidential Lines; **Anthony R. Maio,** Prudential Lines; **Edward P. Walsh,** Waterman Steamship Corp.; and **Erik F. Johnson,** Central Gulf Lines.

Navy Awards Bath Iron $224-Million Contract For Five Missile Frigates

Congoleum Corporation announced that the U.S. Navy has awarded a $224-million contract to its shipbuilding subsidiary, Bath Iron Works Corporation (BIW), Bath, Maine, for the construction of five Guided Missile Frigates of the new FFG-7 class. The contract has incentive features as well as provisions for escalation of labor, materials, and overhead. BIW designed and is building the lead ship of this new class of destroyer-type vessel under contracts awarded in 1972 and 1973, and is procuring long-lead-time materials for other ships of the class under a 1975 contract amendment.

According to **Eddy G. Nicholson,** Congoleum's executive vice president with primary corporate responsibility for BIW: "The new contract is not only the largest ever awarded to BIW, but it also provides the shipyard with its highest quality backlog in decades. The award increases BIW's current backlog to $359,000,000, of which only $36,000,000 relates to a long-term fixed-price contract. Therefore, shipyard results in coming years should not be materially affected by inflation, a factor which has had a substantial effect on contract performance during the past several years."

The Navy contemplates building a fleet of 50 or more of this new class of ship, named in honor of Commodore Oliver Hazard Perry. Deliveries will extend into 1986 at an estimated final cost of $8.6 billion for 50 ships. The new BIW contract calls for deliveries in 1980 and 1981.

Contracts for additional ships of the FFG class are expected to be awarded as the ships are authorized by Congress. To date, construction of 10 FFGs has been authorized for the U.S. Navy, with additional authorization planned at the rate of eight ships per year. Several foreign countries are also interested in adding FFGs to their fleets.

Commenting on the possibilities of additional awards, Mr. **Nicholson** stated: "We are optimistic as to our long-term participation in the FFG program, which will further increase the amount of BIW's inflation-protected backlog."

The frigates will be 445 feet long and displace just under 3,600 tons. They are to be fitted with gas-turbine propulsion and the very latest weapons and electronics systems. The mission of the FFG is to ensure that the United States merchant and Navy forces can maintain control of the sea lines vital to U.S. commerce.

According to Mr. **Nicholson,** BIW has undertaken extensive facility modernization in recent years, and has just acquired a 9,000-ton-capacity floating drydock to broaden the range of work that can be performed to include virtually all facets of ship construction, overhaul and modernization. "Acquisition of the drydock is well-timed to coordinate with renewed emphasis on overhaul and modernization of existing ships in the U.S. fleet and growing reliance on private shipyards for this work," he said.

In addition to its participation in the Guided Missile Frigate Program, BIW is currently constructing four roll-on/roll-off merchant ships for the States Steamship Company of San Francisco, has undertaken extensive overhaul of the USS Biddle, a guided missile cruiser, and has a contract with Matson Navigation Company for the construction of one containership, with an option clause for a second ship.

Adams & Porter Appoint Marshall Crawford VP

Marshall Crawford has been appointed vice president of Adams & Porter Associates, Inc., 1819 St. James Place, Houston, Texas 77027, an international marine insurance brokerage firm. The announcement was made by **Clyde W. Hanks,** president.

Mr. **Crawford,** a 1956 graduate of Rice University, who has 20 years' experience in the insurance business, will have the responsibility of expanding the property, liability and bonding departments of the firm.

Revolutionary

NEW
low-cost bulk unloader

• Capacities to 1800 TPH
• Constant production
• Lightweight • Portable

PACECO's New Catenary Unloader can handle virtually any free-flowing material—faster and at lower cost per ton—at a fraction of the investment and maintenance cost of conventional equipment.

Unique design consists of endless line of buckets connected by wire rope, suspended from special patented sprockets and easily maneuvered by hinged boom. Reaches into remote areas of ship's hold; cleans with practically no leftovers. Moving bucket line digs and fills at steady rate regardless of depth of material. PACECO's bulk unloader can be operated from stiffleg or crane, transfers easily to free crane for other jobs.

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Bulk Loaders—This bulk loader, operated by one man, handles 750 Long Tons per hour of Alumina; 1000 Long Tons per hour of Bauxite. Designed with slewing upper tower and hinged apron.


Bulk Unloaders—One of the world's largest Alumina unloaders, designed by PACECO with dust enclosure over hopper and sealed clamshell bucket. Handles 1000 Long Tons per hour with minimum loss of material.

PACECO *Telephone or write today. We're ready to schedule your delivery.*

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DIESEL GENERATOR SETS

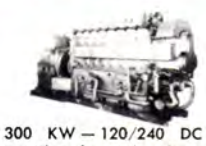
1

350 KW DIESEL GENERATOR SET

350 KW—120/240 volts DC—600 RPM—compound wound G.E. generator with switchgear. ENGINE: Ingersoll-Rand—hedvy-duty type S—505 HP—10½x12—reconditioned to ABS.

DIESEL GENERATOR SET 120/240 VDC

2



Diesel reconditioned-generator unused. Engine mounted on steel base plate. ENGINE: GM 8-268A — 6½ x 7 — 8 cyl. — 1200 RPM — air starting — heat exchanger cooled. GENERATOR: Unused Westinghouse—300 KW — 120/240 DC — 1250 amps — dripproof — self-ventilated — stab. shunt — insulation Class A & B — continuous duty — temp rise 40°C — 6-pole. Cooling self ventilated with fan. General Dimensions: 176" long — 58" wide — 94" high — weight 20,300 lbs.

3

ENTERPRISE DSG-6
410 KW DIESEL GEN. SET

(2)—12" Bore—15" stroke—620 HP 600 RPM—air starting Enterprise DSG-6 diesel. Generator: Westinghouse 410 KW—250 volts DC—1640 amps—shunt wound. ABOVE UNIT, WITH ITEM 4 BELOW AND 1000 HP FARRELL-BIRMINGHAM DOUBLE INPUT GEARS MAKE UP A DIESEL-ELECTRIC DRIVE PACKAGE

4

ELECTRIC PROPULSION MOTOR

1 Available. 515 HP—230 volts DC—shunt wound—1040/1400 RPM—1660 amps—120 volts DC exciter.

5

ALSO SUITABLE FOR COMPANIES OPERATING AN NET TENDERS

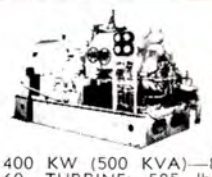
TURBO GENERATOR SETS

6

UNUSED 500 KW DELAVAL-WESTINGHOUSE GEARED TURBO GENERATOR

GENERATOR: Westinghouse 500 KW—120/240 volts DC—2080 amps—1200 RPM—stab shunt. TURBINE: DeLaval—730 HP—440 PSI working pressure condensing. Temperature 740°—9977 RPM. HELICAL GEAR: 9977/1200 RPM. Serial number of turbine #245204—weight 22,000 lbs.

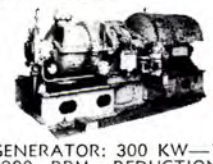
7



400 KW WESTINGHOUSE TURBO GEN SETS FOR BETH. SPARROWS PT. HULLS 400 TO 4500; QUINCY HULLS 1600

400 KW (500 KVA)—80% PF—1200 RPM—450/3/60. TURBINE: 585 lbs—840°TT—28½" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA—400 KW—450 volts—641 amps—80%PF—3 phase 60 cycle—1200 RPM—CR 40°—excitation amps 41—excitation voltage 120. Instruction book 5442. Switchgear available.

8



LOW-PRESSURE UNUSED 300 KW G.E. 120/240 VOLT DC TURBO-GENERATOR SET

GENERATOR: 300 KW—120/240 VDC—1250 amps—1200 RPM. REDUCTION GEAR: 8.344:1 — 10012/1200 RPM—type S-182. TURBINE: DOR418N—449 H.P.—10012 RPM—working pressure 180/220 PSIG.

9

AP2 VICTORY WORTHINGTON-MOORE CROCKER-WHEELER 300 KW UNIT

TURBINE: 440 PSI—740°TT—28½" vacuum—type S4 — 5-stage — 6097 RPM — serial 7547 & 7548. GEAR: 6097/1200. GENERATOR: 300 KW—120/240 volts DC—1250 amps—compound wound—973643—999759. Armature flange 8½"; B.C. 7"—12 holes. ALSO NEW ARMATURES IN STOCK & 300 KW SHUNT ARMATURES.

10

TWO 538 KW WESTINGHOUSE T-2 AUX. GENERATORS (COMPLETE)

TURBINE: 538 KW @ 5010 RPM—438 PSIG—750°TT—28½" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW 450/3/60/1200—0.8 PF. DC EXCITER: 32.5 KW—120 volts (variable voltage)—shunt—4-pole—DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

TURBINES & ROTORS

MAIN PROPULSION

11

FOR BETH SPARROWS POINT HULLS 4400-4500
FOR BETH QUINCY HULLS 1600 CLASS

1 H.P. Turbine

1 H.P. Turbine casing only

1 Westinghouse Stator only

Auxiliary 400 KW — 440 volts — 641 amps — 80% P.F./3/60 — in book 5442

12

T-2 TURBINES & ROTORS

UNUSED GENERAL ELECTRIC 750 KW TURBINE ROTORS

2 Available

General Electric Instruction Book 16846 for type FN3-FN24—seven stage 10033 RPM. TURBINE: 525 lbs. per sq. inch—825°TT. Originally built for CL68-122-CUL 48 class cruisers and now used on many merchant, tankers and cargo ships. G.E. drawing No. 6665729AA-1—FSN2825-373-0489.

13

1250 KW WESTINGHOUSE 8050 RPM

2 Available

One Curtis Stage and 8 Rateau Stages—mfg drawing 25T-556—BuShip Plan No. BB61-561-061. Rebuilt and rebladed by Westinghouse. Factory boxed. LIKE NEW.

14

T2-SE-A1 MAIN PROPULSION ROTOR—G.E.

Large Schenectady — serial 77418 — reconditioned Bethlehem Steel 1970—all stages magnafluxed.

T-2 TANKER

AUX. G.E. TURBO GEN. ROTORS

15

DORV — 325M — 5645 RPM — for 525 KW G.E.

PUMPS

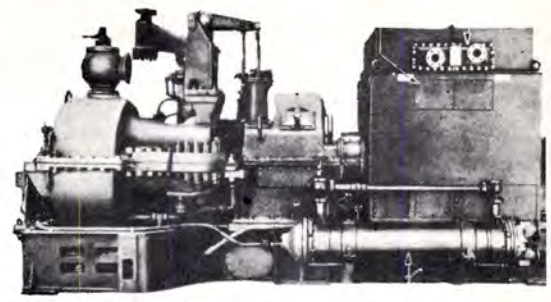
16

UNUSED DELAVAL IMO ROTARY PUMP

175 GPM—35 PSIG—10 HP—120 volts DC—1750 RPM—serial E-8619—frame 324 VY—76 amps—mfg. by Electro Dynamics. With magnetic control. Excellent condition.

A

TURBO GEN



TURBINE: 11 Stage type FN4— 8145 RPM—3½" st absolute back pressure—complete steam with seal regulc

GEAR: Type S-195A—reduction 8145 RPM to 1200 R

GENERATOR: 1500 KW —450 volts—2405 amps—1 enclosed. Insulation: Class B stator and rotor. Tempera thermometer. Mfg type AT1—form HL. Oil lubricated sump in turbo generator set base. Generator cooling —120 volts —110 amps—40°C rise—frame 654—n

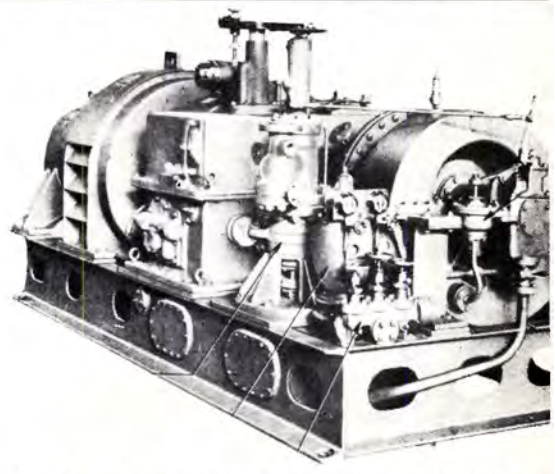
GENERAL INFORMATION: Overload rating 2 hours—weight 36,000 lbs. Guaranteed steam flows & conditi flange. The set will carry 1500 KW with steam condit flange. The set will withstand 644 PSI and 850°F. (at exhaust flange:

50% Load	—	750 KW	—
75% Load	—	1125 KW	—
100% Load	—	1500 KW	—

Exhaust flange size: 18" x 38" rectangular.

UNIT DIMENSIONS OAL 16' 3⅜"—OAW 6'6"—C

B



GENERATOR: 400 KW 450 volts 3-phase 1200 RPM sulation—natural self-ventilated cooling. Exciter: 50

GEAR: Single helix—single reduction—10059/1200 F

TURBINE: Six stage—10059 RPM—525 PSI—825°F tors. **OVERLOAD CONDITIONS AT NORMAL STEAM** overload for 2 hours at normal conditions; overload turbine generator will deliver full load output 400 KV capable of withstanding 634 lbs PSIG 850°TT.

STEAM FLOWS

100% Load	—	400 KW AC
75% Load	—	300 KW AC
50% Load	—	200 KW AC

When operating at 575 PSIG & 0° Superheat and 1

125% Load	—	500 KW AC
100% Load	—	400 KW AC
75% Load	—	300 KW AC

UNIT DESIGNED FOR NAVY FOR DD692 CLASS D HOUSE 8316.

Since Westinghouse and G.E. built them for the sam able.

DIMENSIONS: OAL 10' 10⅛"—OAW 4'10½"—OA

TOTAL WEIGHT: 14,855 lbs.

2" steam inlet—17" Round exhaust—20½" bolt c

ON METALS CO.

RE ST. • BALTIMORE, MD. 21202

39-1900 Marine Dept.: (301) 355-5050

ERATOR SETS

3 G.E. 1500 KW AC SHIPS SERVICE SETS

G.E.I. BOOK 19320

inlet. Normal steam conditions 525 PSI 825°TT—1 lb

RPM—P.F. 0.8—60 cycles—3-phase—6-pole—totally rise normal—stator 60°C by thermometer—rotor 70°C by positive displacement pump for gears and bearings from stream and circulating water. Amplidyne Exciter: 13.2 KW type 5AM654A1.

% load; Overload rating 5 minutes—150% load. Total normal 525 PSIG—825°TT and 1 PSI absolute at exhaust 420 PSIG and 825°TT and 1 PSI absolute at exhaust anteed steam flows—525°F & 825°TT at 1 PSI absolute

Exciter 5.9	—	Steam Flow 8190 lbs/hr
Exciter 8.0	—	Steam Flow 11385 lbs/hr
Exciter 10	—	Steam Flow 14790 lbs/hr

7'5¼" over steam strainer.

400 KW WESTINGHOUSE/GE DESIGN

MFG. BY WESTINGHOUSE

PF 641 amps alternating current generator—class B in—120 VDC—1200 RPM.

nal. Type G.E 618N—equipped with synchronizing mo- **LBS/825°TT:** Sets 500 KW AC and 62.5 KW DC—city 50%—600 KW & 75 KW DC for five minutes. The C & 50 KW DC at 420 lbs and 825°TT. The turbine is

	STEAM RATE
50 KW DC	5100 lbs/hour
37½ KW DC	3999 lbs/hour
25 KW DC	2885 lbs/hour

quare inch absolute back pressure at flange:

62½ KW DC	—	8720 lbs/hour
50 KW DC	—	6980 lbs/hour
37½ KW DC	—	5450 lbs/hour

ROYER—G.E. INSTRUCTION BOOK 17716—WESTING-

ss destroyer, G.E. and Westinghouse parts are interchange-

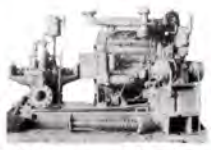
5¼".

17

LUBE OIL SERVICE PUMP

Quimby-Rotex — size 6D — — 500 GPM @ 70 lbs — 6" x 6" flange — 720 RPM. MOTOR: Allis-Chalmers — 40 HP — 230 VDC — type EBV-147S — stab. shunt — 148 amps. Complete with starter and rheostat — designed originally for C-1MAV-1 vessels.

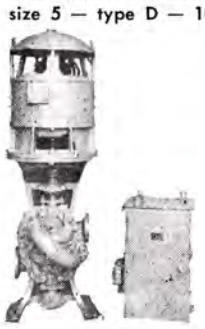
18



1000 GPM GARDNER-DENVER BRONZE DIESEL DRIVEN FIRE PUMP

1000 GPM — with priming pump assembly. ENGINE: Buda 6LD-468 — 4¼ x 5½ — 6 cylinder — 1850 RPM. PUMP: Gardner-Denver — bronze — 6 x 5 — size 5 — type D — 1000 GPM @ 281' head.

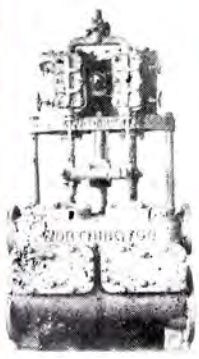
19



DAYTON-DAWD 2-STAGE FIRE AND BILGE PUMP

Vertical 2-stage type TDV-10—20 HP—200 GPM @ 184'—3" discharge—4" suction—1775 RPM—Maumee Sun. Motor: 120 volts DC—20 HP—1775 RPM.

20

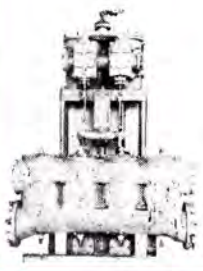


CARGO STRIPPING PUMPS

BRONZE T2 TANKER STRIPPING PUMPS

14x14x12—700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.

21



WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

1400 GPM @ 110 PSI—suction lift 11.5 ft.—steam back pressure 15 lbs. Suction 14" — discharge 10"—steam 2½" — exhaust 4". Overall width 6'8"—overall height 9'11½" — depth 3'9½"—wt. approx. 10,000 lbs.

22

C-25 CARGO PUMP TURBINE SPARE GEARS

One set of gears available for Westinghouse C-25 Cargo Pump Turbine.

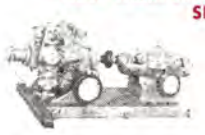
23

T-2 TANKER BILGE, BALLAST AND FIRE PUMP

Bronze — 10 x 7 x 10 — vertical duplex. Steam pressure 150 lbs gauge — exhaust pressure 10# gauge — discharge pressure 100# gauge — 300 GPM.

24

NEW TURBINE DRIVEN FIRE AND GENERAL SERVICE PUMP



Allis-Chalmers 6 x 5 pump, type SKH -1200 GPM—125 PSI—3500 RPM. Coppos turbine type TF-22-21½ — 3500 RPM. 273° — 50° superheat.

25

COFFIN FEED PUMP MODEL D.E.B.

H.P. 241 — capacity 214 G.P.M. at net head 2070 feet. R.P.M. 7040. Steam pressure 597 P.S.I. — superheat 100°-300°F. Typical serial number DEB 1-25-37

MISCELLANEOUS

26

YOUR CHOICE!

NEW UNUSED NAVY Port and Starboard DOUBLE REDUCTION GEARS for Diesel Drive

3200 HP DOUBLE INPUT SINGLE OUTPUT DIESEL REDUCTION GEARS 20 DEGREE OFFSET

Farrell-Birmingham — 3200 SHP. REDUCTION GEAR: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard. Gear output 400 RPM. Suitable for dredge pumps. Non-reversing. OK for 38D8-⅛ engine.

27

ANCHOR WINDLASS FOR BETHLEHEM-SPARROWS POINT 1954 CLASS TANKER

Hyde 2-11/16" — 12x14 — 100 PSI — steam — 54,100 lbs.

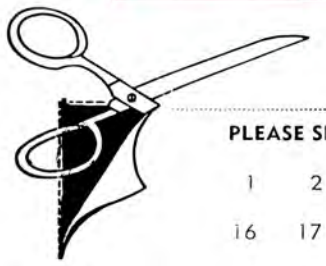
28

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

Chain and two 10640 lb anchor & 30 fathoms chain @ 30 FPM. 70 HP—230 volts—shunt DC motors—233 amps—550 RPM—55°C rise. Wildcat centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

INQUIRE FOR ALL OTHER ITEMS

Forced draft blowers, reduction gear parts, bilge and ballast pumps, main circulators, general service pumps, F.O. transfer pumps, lube oil service, standby feed pumps, condensate pumps, aux. circulating pumps, feed water heaters, wash water pumps, etc.



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ADDRESS..... POSITION..... PHONE.....

CITY..... ZONE..... STATE.....

N.Y. SNAME To Hold Tanker Symposium At Kings Pt. April 23

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers (SNAME) will hold an all-day Tanker Symposium at the U.S. Merchant Marine Academy at Kings Point, Long Island, N.Y., April 23, 1976.

The highlights of the symposium will be a dinner address by **Robert J. Blackwell,** Assistant Secretary for Maritime Affairs, U.S. Department of Commerce, and preview tours of the Computer Aided Operation Research Facility (CAORF) at Kings Point, which is to be dedicated in May of this year.

The theme of the symposium is "Future Considerations for Tankers." This was prompted after considering the number of years that large tanker construction programs have been underway. It is now appropriate to consider what problems have arisen due to these ships. In addition, the current depression in the tanker market has raised the question of using tankers for other than their originally intended mission.

The agenda will include four papers: "Naval Use of Commercial Tankers" by **T.G. Connors,** Office of Ship Construction, Maritime Administration (9:30 a.m.); "Tanker Safety" by Rear Adm. **L.S. McCready,** USMS (ret.), L.S. McCready Engineering Enterprises, and Capt. **H.M. Stephens,** Certified Safety Professional, president, Ships' Operational Safety, Inc. (10:30 a.m.); "An Introduction to the Cutaway Hull" by **S.J. Dwyer** and **M.D. Comens,** Gulf Oil Corp., Marine Department (11:30 a.m.), and "Port Issues" by Comdr. **C.F. Viveiros Jr.,** Deep Water Project, United States Coast Guard (2:30 p.m.). Following the papers, there will be a panel discussion (3:30 p.m.) with various representatives from the maritime community participating. The moderator of the panel will be **Arthur McKenzie,** director, Tanker Advisory Center.

Luncheon and dinner will be served in the Officers Club. Dinner will include a sponsored cocktail hour.

The cost of the symposium is $12 per person, which includes luncheon and dinner. Nonmembers of the Society are welcome. For more information, contact **Eric E. Lithen** (212) 466-2393.

The Computer Aided Operation Research Facility (CAORF) at Kings Point is a large maritime research simulator consisting of a full ship's bridge outfitted with appropriate control and display equipment connected to a computer. With this system, responses to bridge commands can be generated and converted to instrument display and an out-of-the-window visual picture that extends over 240 degrees.

The four papers span several different subjects. The paper "Naval Use of Commercial Tankers" by **T.G. Connors** looks at characteristics of commercial tankers and the corresponding characteristics of Navy fleet oilers for their similarities and differences and how and to what extent commercial ships can perform as fleet oilers for fueling at sea operations and underway replenishment. The subject of National Defense Features (NDF), speeds and vessel conversion times in the event that subsidized vessels must be utilized by the Navy are addressed for both conventional tankers and LNG carriers. Successful fueling at sea exercises involving merchant tankers with civilian crews will also be described.

"Tanker Safety" by Rear Adm. **L.S. McCready** and Capt. **H.M. Stephens** describes the formal structure and operation of a Professional Safety Program as related to the operation of tankers. The elaborate and growing structure of legal and administrative safety rules and regulations is described, along with the workings of the laws and courts. Emerging from a sometimes perfunctory or hidden status, marine safety is shown as a factor of truly compelling importance from the standpoints of: The public interest in safer tanker operations, and increasing monetary impact of accidents via benefit/cost relationship.

An "Introduction to The Cutaway Hull" by **S.J. Dwyer** and **M.D. Comens** describes the Cutaway Hull Form which could be used for tankers that are required to operate about half of the time in a ballast condition. The principle is defined in terms of decrease in hull volume below the ballast draft that is replaced between the ballast draft and load draft, by an increase in either draft, beam or length, or by a combination increase of any of these dimensions. The results of this shift of buoyancy is looked at from the standpoint of change in speed and in both ballast and loaded condition. An economic analysis addresses operational costs and building costs.

"Port Issues" by Comdr. **C.F. Viveiros Jr.** reviews the events that occurred necessitating Congress to enact legislation authorizing the construction and operation of facilities which could handle supertankers. The various design alternatives and their advantages for deepwater ports is reviewed, along with the major problems and unknowns associated with the design and operation of deepwater ports. The two applications for a license to construct and operate deepwater ports that have been submitted to the Coast Guard will be briefly summarized. The primary features of the Deepwater Port Act of 1974, the regulations and the role of the Coast Guard in connection with deepwater ports will be presented.

Mitsui (USA) President To Address Conference At Sacramento, Calif.

Tatsuro Goto

Tatsuro Goto, president of Mitsui & Co., (U.S.A.), Inc., New York City, will be the featured dinner speaker at the First International Dry Bulk Cargo Handling Conference to be held at the Sacramento Convention Center, April 20 and 21. Mr. **Goto,** the distinguished chief executive for the United States of a major international firm, will relate opportunities for bulk cargoes handling, and he will tell of his firm's innovative activities in the field.

The conference will bring together transportation officials, government representatives and shippers from around the world to focus attention on the needs and opportunities in the rapidly expanding bulk commodities handling industry.

Conference general chairman is **Melvin Shore,** and the sponsoring organization is the Port of Sacramento, World Trade Center, West Sacramento, Calif. 95691.

Thomas Named President Arthur Levy Boat Service

Ogden U. Thomas Jr.

Ogden U. Thomas Jr. has been named president of Arthur Levy Boat Service, the petroleum workboat subsidiary of Petrolane Incorporated.

He succeeds **Arthur Levy Jr.,** who resigned last month to enter a private business venture. Mr. **Levy** has been president and general manager since October 1974.

Mr. **Thomas** will be the third president since the workboat company was founded in 1935. He has been with the Levy firm since 1969, serving as company controller, and then general manager of Brazil operations before becoming a vice president and assistant general manager in 1974.

Levy, which is headquartered in Morgan City, La., operates one of the largest worldwide fleets of workboats for the petroleum service industry. It became a Petrolane subsidiary in 1968, and projects sales in 1976 will exceed $40 million.

Bird-Johnson Opens West Coast Office

Herbert I. Chatterton

The Marine Division of Bird-Johnson Company of Walpole, Mass., has recently opened an office in Newport Beach, Calif., which will be under the direction of **Herbert I. Chatterton.**

Mr. **Chatterton** has been associated with the marine industry for many years, serving it in such capacities as sales engineer, assistant manager of engineering, and assistant general manager for engineering and new construction. His experience covers a broad variety of military and commercial vessels, and most recently the design and conversion of drilling ships for the offshore industry.

Mr. **Chatterton's** office address is: 660 Newport Center Drive, Suite 1245, Newport Beach, Calif.

Connecticut Company To Represent Swedish C-P Propeller Firm

J.W. Berg AB of Goteborg, Sweden, manufacturers of controllable-pitch propellers for ships up to 20,000 bhp, has announced the appointment of Snyder Associates, Inc. of Essex, Conn., as their exclusive sales representatives in the USA. Snyder Associates, Inc. is a marine consultancy and sales representative for marine equipment under the direction of **Asa E. Snyder,** president. Sales of Berg propellers outside the New England area will be handled by distributors to be appointed by Snyder Associates, Inc. Discussions are also underway to complete arrangements with suitable U.S. service representatives.

The Berg propeller is constructed at a new factory outside Goteborg, which only manufactures variable-pitch propellers. Swedish craftsmanship and engineering go into every Berg propeller, which now number about 3,000 in ships all over the world. Typical applications include: trawlers, cargo vessels, tugboats, supply vessels, and fishing vessels.

Information and literature on the propeller are available from Snyder Associates, Inc., West Avenue, Essex, Conn. 06426.

AWO Elects Geary Chairman Of Board —Directors Named

John D. Geary, president, Midland Enterprises, Inc., Cincinnati, Ohio, was elected chairman of the board of The American Waterways Operators, Inc. (AWO), at the recent annual meeting of directors of the Association in Washington, D.C.

James R. Smith, former Assistant Secretary of the Interior for Water and Power Resources, was reelected to his fourth annual term as president of the Association.

William E. Cleary was elected to his 21st annual term as secretary-treasurer.

AWO is the national association of the barge and towing industry, inland and coastwise, and the shipyards engaged in constructing and repairing this growing fleet. Headquarters of the Association are located in Arlington, Va., and field offices in New York City and New Orleans, La. Mr. **Cleary** operates the Association's North Atlantic regional office in New York City.

Mr. **Geary** succeeds **Louis P. Struble Jr.,** Group vice president, Dravo Corporation, Pittsburgh, Pa., who served as AWO board chairman for the past year and will continue to serve as a director-at-large for the next year.

John D. Geary

The new chairman of the board, Mr. **Geary,** joined Eastern Gas and Fuel Associates, Boston, Mass., parent company of Midland Enterprises, Inc., in 1952, after having served as a licensed deck officer and harbor pilot onboard various ships of the American Export and Wilson Lines.

He is now senior vice president, marine, of Eastern Gas and Fuel Associates, and a member of their board of trustees, as well as president of The Ohio River Company.

Mr. **Geary** graduated from the Massachusetts Maritime Academy in 1947. He holds a B.S. degree in business administration from Boston University, 1952, and an M.B.A. degree from Harvard Graduate School of Business Administration in 1953.

He is a member of the board of directors of AWO, a member of the executive committee of the Water Transport Association, a director of the National Waterways Conference, and a member of the Towing Industry Advisory Committee to the United States Coast Guard. He also holds membership in the National Propeller Club, and is a trustee of The Ohio Valley Improvement Association.

The following new directors of AWO took office at the annual board meeting: **William A. Creelman,** president, Transport Division, National Marine Service, Incorporated, St. Louis, Mo.; **John W. Lambert,** president, Twin City Barge & Towing Company, St. Paul, Minn.; **Jerry L. Page,** president, Crounse Corporation, Paducah, Ky.; **Robert E. Scatterday,** president, Campbell Barge Line, Inc., Pittsburgh, Pa.; **David T. Sheehy,** president, M/G Transport Services, Inc., Cincinnati, Ohio; **R.S. Byers,** vice president, The Ingalls Iron Works Company, Decatur, Ala.; **John M. Donnelly,** president, Ingram Barge Company, New Orleans, La.; **Jesse B. Gunstream Jr.,** Slade, Inc., Orange, Texas; **William C. McNeal,** Mid-South Towing Company, Tampa, Fla.; **W.M. Molloy Jr.,** manager, Marine Operations Department, Shell Oil Company, Panama City, Fla.; **R.W. Sanderson,** Pascagoula Refinery, Standard Oil Company, Pascagoula, Miss.; **Harold G. Williams,** president, Gulf Atlantic Transport Corporation, Jacksonville, Fla.;

Donald G. Foss, vice president, Puget Sound Freight Lines, Seattle, Wash.

The AWO board of directors is made up of 53 water carrier executives from throughout the United States.

Reelected to the board were: **Peter Fanchi Jr.,** president, Federal Barge Lines, Inc., St. Louis, Mo.; **Neville Stone,** president, American River Transportation Company, St. Louis, Mo.; **Ralph T. Goodwin,** Maxon Marine Industries, Inc., Tell City, Ind.; **J.A. Hogan,** C.G. Willis, Inc., Paulsboro, N.J.; **William E. Law,** president, Allied Towing Corporation, Norfolk, Va.; **F.L. Martin,** president, Puerto Rico Lighterage Company, San Juan, Puerto Rico; Capt. **I.G. Ashby,** manager, Mobil Oil Corporation, Marine Transportation Department, New York, N.Y.; **Francis B. Bushey,** president, Spentonbush Transport Service, Inc., New York, N.Y.; **Ralph W. Hooper,** president, Interstate Oil Transport Company, Philadelphia, Pa.; **Harold A. Reinauer,** president, Reinauer Transportation Companies, Inc., Newark, N.J.; **Lester C. Bedient,** vice president-general manager, Crowley Maritime Corporation, San Francisco, Calif.; **Peter J. Brix,** president, Knappton Towboat Company, Portland, Ore.; Capt. **C.C. Rasmussen,** president and general manager, Bay and River Navigation Company, Richmond, Calif.

Other AWO directors, in addition to Mr. **Geary** and Mr. **Struble,** who continue in office are: **H.M. Baskerville Jr.,** president, Upper Mississippi Towing Corporation, Minneapolis, Minn.; **Jack W. Campbell,** vice president and general manager, Southern Marine Service, Inc., Mobile, Ala.; **Sidney D. Campbell,** chairman of the board, Foss Launch & Tug Company, Seattle, Wash.; **Leo L. Collar,** president, Crowley Maritime Corporation, Offshore Division, San Francisco, Calif.; **E.G. Dietz,** manager, Barge Transportation, Union Carbide Corporation, Charleston, W.Va.; **W.B. Fouts,** president, Mid-America Transportation Company, St. Louis, Mo.; **A. Giallorenzi,** manager, Marine Department, New York Branch, Exxon Company, Linden, N.J.; **William L. Hammond,** manager, Marine Transportation, PPG Industries, Inc., Pittsburgh, Pa.; **Edward M. Hensley,** vice president, Security Barge Line, Inc., Greenville, Miss.; **George H. Jackson,** president, Western Transportation Company, Portland, Ore.; **Robert M. Loftus,** assistant vice president, Moran Towing & Transportation Company, Inc., New York, N.Y.; **James P. McAllister,** chairman of the board, McAllister Lighterage Line, Inc., New York, N.Y.; **Neill A. McAllister,** vice president, McAllister Brothers, Inc., Norfolk Division, New York, N.Y.; **Harry E. McCoy,** Colonna's Shipyard, Inc., Norfolk Va.; **Thomas Marshall,** president, Ohio Barge Line, Inc., Pittsburgh, Pa.; **O.R. Menton,** general manager, Marine Department, Exxon Company, Houston, Texas; **N.A. Nicholson,** manager, Marine Operations, Ideal Cement Company, Mobile, Ala.; **Edward Renshaw,** president, St. Louis Ship, St. Louis, Mo.; **William R. Saul,** president, Steuart Transportation Company, Piney Point, Md.; **George H. Shaver,** president, Shaver Transportation Company, Portland, Ore.; **Frank T. Stegbauer,** executive vice president, Southern Towing Company, Memphis, Tenn.; **R.E. Van Der Naillen Jr.,** president, B & M Towing Company, Houston, Texas; **J.W. Von Herbulis,** president, Pittston Marine Corporation, New York, N.Y.; **Jim Walden,** president, Helena Marine Service, Inc., Helena, Ark., and **John J. Willis,** vice president-operations manager, Steuart Tankers Company, Piney Point, Md.

Navy Adds $29.2 Million To Newport News Award

The Naval Sea Systems Command has announced the award of a $29.2 million increase in a Navy contract to Newport News Shipbuilding and Dry Dock Company, Newport News, Va. The contract involved covers the overhaul of the nuclear-powered attack submarine Lapon, SSN-661.

Dual Keel-Layings Mark Submarine Tender Construction At Lockheed Shipbuilding And Construction Company

Officiating at the dual keel-laying ceremonies at Lockheed Shipbuilding were, left to right: Comdr. **J.C. Ballantine,** Deputy Supervisor of Shipbuilding, USN, Seattle; **J.N. Watt,** submarine tender program manager, Lockheed Shipbuilding and Construction Company; Rear Adm. **Lando W. Zech Jr.,** Commandant, Thirteenth Naval District; **M.L. Ingwersen,** president and general manager, Lockheed Shipbuilding and Construction Company; Rear Adm. **Raymond W. Burke,** NAVSEA, deputy commander for Industrial and Facility Management; Capt. **V.J. Manara Jr.,** Supervisor of Shipbuilding, USN, Seattle; Capt. **Norman O. Larson,** NAVSEA project manager Auxiliary Ship Acquisition, and Lt. Comdr. **E.A. Jones,** AS resident project officer.

Dual keel-layings were accomplished on March 2 for the largest contract in Lockheed Shipbuilding and Construction Company's history — the $253-million construction of two submarine tenders for the U.S. Navy. The contract was signed late in 1974, and program start-up efforts gradually built up momentum through 1975. Submarine tenders are now utilizing more than half of the Lockheed Shipbuilding work force and, along with other company programs, promise shipyard employment of 2,000 to 3,000 employees into 1978.

Construction progress on these two large ships was marked by keel-laying for AS-39 on Lockheed's Shipway #1, and keel-laying for AS-40 on Shipway #3.

Previously, the Hon. **J Wm. Middendorf II,** Secretary of the Navy, approved names for the new submarine tenders which honor submarine pioneers in the United States. The names announced during keel-laying were Emory S. Land, AS-39, and Frank Cable, AS-40. Vice Admiral **Land's** submarine contributions to the Navy from 1916 through World War II earned him the Navy Cross and Distinguished Service Medal. Mr. **Cable** was associated with the first submarine, Holland, accepted by the Navy in 1900, and founded the Electric Boat Company which has built more than half of the submarines used by the U.S. He was active at Electric Boat until his death in 1945 at the age of 82.

Delivery of the 643-foot-long, 13,840-ton displacement AS-39 is scheduled in 1978, with AS-40 following in 1979. These large vessels contain 875 compartment/spaces and, with a crew of 1,351 officers and men, will support and service SSN 688-Class submarines. Propulsion will be provided by DeLaval steam turbines and reduction gears, developing 20,000 shp. Sustained sea speed will be 18 knots. Four DeLaval ship-service turbogenerators will provide 2,500 kw of electric power.

To embrace improved shipbuilding technology and meet requirements for construction of the submarine tenders, LSCC is adding facilities and improvements which will cost approximately $2 million.

R. Ferrante Organizes Atlantic Coast Enterprises

Richard Ferrante, formerly vice president and founder of BFG Marine Supply Company, has started his own marine manufacture and supply company.

Mr. **Ferrante's** new company, Atlantic Coast Enterprises, Inc., will manufacture and supply a complete line of marine industrial hardware products. According to Mr. **Ferrante,** "Atlantic Coast Enterprises has been formed to satisfy the industry's need for innovative manufacturing capabilities and to be responsive to the many new and special requirements of today's customers in the shipbuilding and ship-repair business."

Mr. **Ferrante,** in 1969, designed and patented the "Handlock" deck cover which was approved by the American Bureau of Shipping and Lloyd's Register of Shipping.

Atlantic Coast Enterprises, Inc. is set up to provide customers with a full line of valve remote control units and deck and engine equipment. Atlantic Coast Enterprises is located at 100 St. John's Lane, New York, N.Y. 10013.

BETHLEHEM STEEL'S NEW DRYDOCK—Bethlehem Steel Corporation is prepared to accommodate the large ships that call at the New York Harbor. The huge drydock at the Bayonne (N.J.) Military Ocean Terminal has been leased by the corporation. The drydock is about 1,100 feet long from head to outer sill, 140 feet wide with width at top of abutments of 152 feet, and depth at mean low water of 38½ feet. Bethlehem's Hoboken, N.J., yard will have charge of the operations at the Bayonne facility.

Canadian Yards Building For Export

From offshore rigs to bulk carriers and special vessels such as oceangoing self-unloaders, Canada's yards are currently busy filling worldwide orders.

Halifax Shipyard is building a $30-million self-righting drill rig for a consortium of oil companies for use in the North Sea, to be delivered this summer. Construction is to follow of a $40-million dynamically positioning drillship for a similar group scheduled for delivery by mid-1977.

Vancouver Shipyards Co. Ltd. is at present outfitting a $4-million 140-foot seagoing tug for Seaspan Overseas Ltd. of Hamilton, Bermuda, for delivery the end of May. In addition, the yard is filling an order from Guatemala for two general purpose barges and a further $1.5-million contract from Seaspan International for two 4,000-ton-capacity barges for delivery this summer.

One East Coast yard with a solid workload ahead of it is Saint John Shipbuilding and Dry Dock Co. Ltd. of Saint John, New Brunswick. Its third of four 37,500-ton product carriers it is building for Esso Tankers Inc. of New York was christened in February, and work is well along on the fourth. The yard will build another similar carrier for Swann Oil Co. of Philadelphia, Pa., before starting construction of six 31,000-ton tankers for Shell (Bermuda) Ltd. for delivery completion by the end of 1978.

Marine Industries Ltd., at its Sorel, Quebec, plant, is completing the last four of six 17,000 Marindus cargo vessels for Societe Navale Chargeurs Delmas-Vieljeux of France. The yard has started construction on the first of two 17,000-ton cargo carriers it is building for the Algerian National Shipping Corp. for November delivery. It also has on the books orders for 10 of the 17,000-ton cargo liners for Greek owner Karageorgis SA of Piraeus, and three 10,000-ton tankers for Cuba. "Canadian yards have always got orders on a combination of price, delivery and credit," says **William White,** vice president-shipbuilding of Marine Industries. He added that MIL will be taking a good look at the company's 17,000-ton general cargo ship design with the idea of going to market with updated or revised versions in 1977.

Bel-Air Shipyard Ltd. of North Vancouver has just delivered the last of four offshore service vessels of a $15-million contract from Zapata Marine Services Inc. of Houston, Texas.

The second of two $13.5-million, 17,000-ton oceangoing self-unloaders for United States Gypsum Co. is nearing completion at the Collingwood Shipyard Division of Canadian Shipbuilding and Engineering Co.

Altogether, aside from these and other export orders, Canada's yards are currently building a substantial number of vessels of various types, from an Arctic type 28,000-ton bulk carrier for the Federal Government, to coastal ferries, self-unloaders for the West Coast lumber industry as well as for Great Lakes use and others, both on account of Canadian/owners and Federal or Provincial Government agencies.

Furthering promotion of its capabilities to fill foreign orders, Canada's shipbuilding, repairing and marine components industry, sponsored by the Canadian Department of Industry, Trade and Commerce, will be represented with exhibits at "Posidonia '76," the international marine trade exhibition being held June 7-12 in Piraeus, Greece.

2nd International Symposium On Ship Operation Automation Set For Washington In August

Washington, D.C. has been selected as the world site for the 2nd International Symposium on Ship Operation Automation. It is expected that representatives of over 30 nations will attend the meeting to discuss advanced marine technology. Scheduled for August 30 through September 2, 1976, the conference will take place during the United States capital city's Bicentennial celebration. It follows the first Symposium held in Oslo in 1973, to keep pace with this rapidly changing field of ship automation and computerized operations. Headquarters for the Symposium will be the Shoreham Americana Hotel, one of Washington's most gracious accommodations.

The past 10 years have been a technical revolution in the field of sea transport. The traditional freighters and tankers of the type that dominated world trade for the past century are disappearing. Their place is being taken by giant, highly-powered, highly-automated ships operating as elements of major international transportation systems. The typical 16,000-ton tanker of 15 years ago has given away to supertankers of 500,000 dwt and beyond. Similarly, the road-rail-ships transportation container has led to fast efficient, container-laden cargo ships with propulsion extending over 120,000 horsepower.

It is the intent of the Symposium to promote an exchange of information and experience among the world's shipping people to keep abreast of the many technological changes taking place worldwide in the field of ship automation. Among the 82 presentations to be made by outstanding speakers from 15 nations are a broad range of shipboard control including bridge and engine-room systems, cargo handling, and ship operations management. Speakers will be attending from Australia, Canada, Canal Zone, Finland, France, Germany, Great Britain, Israel, Italy, Japan, Norway, Sweden, Switzerland, U.S.A., and U.S.S.R.

Advance registration for the Symposium can be accomplished by addressing your request in English to Ship Operation Automation Symposium, P.O. Box 1771, Prince Georges Plaza, Hyattsville, Md. 20788, U.S.A.

An early registration fee of $80 entitles the registrant to a full set of preprints, entrance to all sessions, as well as admission to the Symposium reception.

Sponsors for the three-day meeting are the United States Maritime Administration, The Society of Naval Architects and Marine Engineers, the International Federation of Automatic Control, and the International Federation for Information Processing. For additional details, contact **Richard L. Buchanan,** General Electric Company, 777 14th Street Northwest, Washington, D.C. 20005, U.S.A.

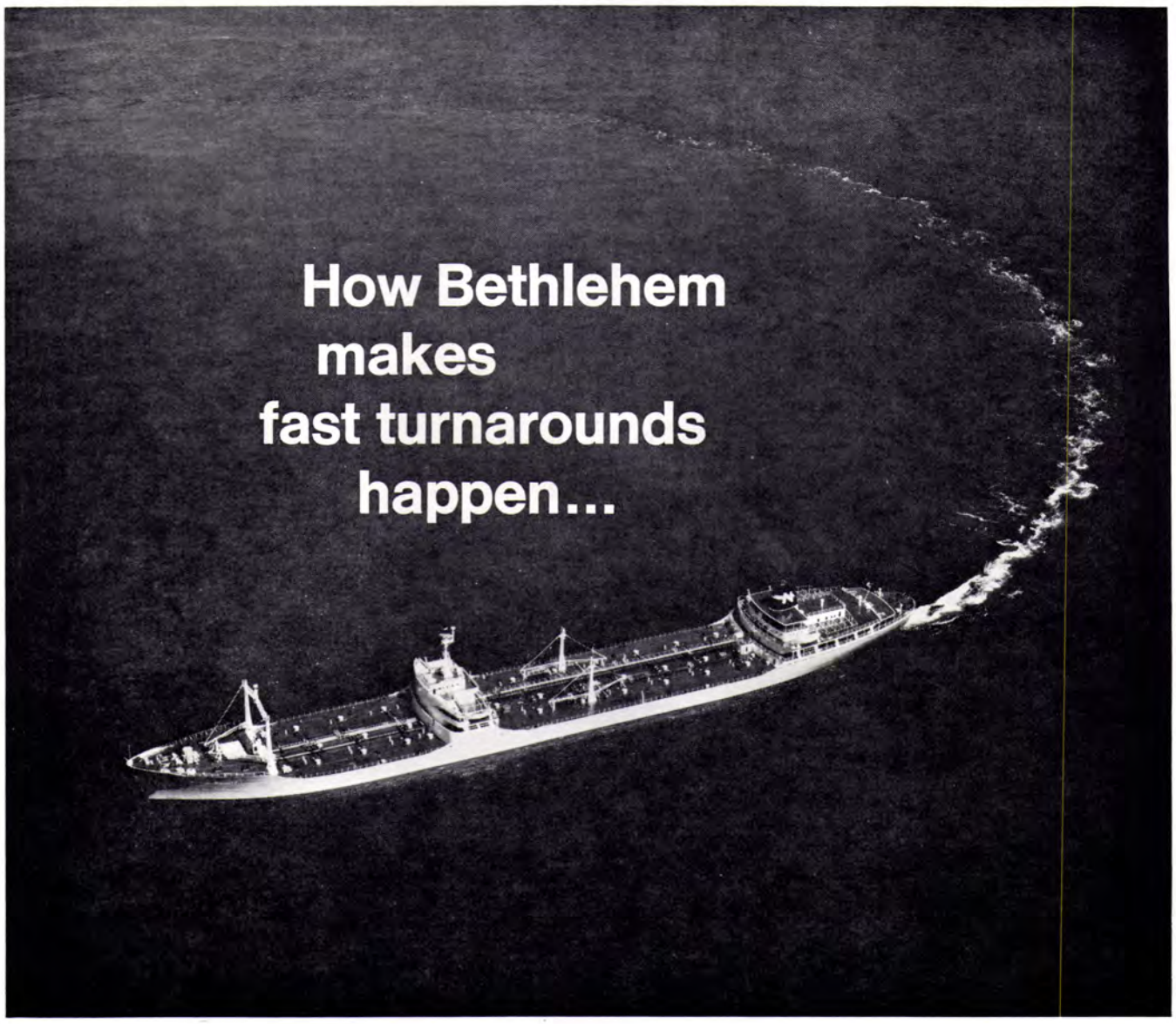
ASNE Flagship Section Reviews 200 Years Of Navy Technology

Taking part in ASNE Flagship Section meeting were, (left to right): Rear Adm. **Randolf W. King,** USN (ret.); Vice Adm. **Edwin B. Hooper,** USN (ret.); Capt. **Payson D. Sierer Jr.,** USN, and Capt. **Roger Pineau,** USN.

Approximately 90 American Society of Naval Engineers Flagship Section members and guests met recently at the Washington Navy Yard for a museum tour, followed by dinner and technical session at the Officer's Mess. The chairman, Capt. **Payson D. Sierer Jr.,** USN, introduced Capt. **Roger Pineau,** USN, the museum director and host for the event, who started off the tour with an orientation talk.

The speaker for the technical session was Vice Adm. **Edwin B. Hooper,** USN (ret.), who presented his paper "Over a Span of Two Hundred Years — Technology in the U.S. Navy." In this paper, Vice Admiral **Hooper** hit some of the high spots in technological innovations within the U.S. Navy, which have helped to maintain it as our first line of defense since our nation's founding.

Captain **Sierer** presented the Flagship Certificate of Appreciation to Vice Admiral **Hooper** for his fine presentation.



1) We *want* to get your ship out of our yards as quickly as possible—not only to make the pier or dock available to other ships who need our services, but also to keep you happy with our working speed so you'll come back again.

2) Each of our yards stocks the material and maintains the equipment and shop facilities needed to completely service nearly every ship we dock. What we don't have in stock we can normally secure in short order from nearby suppliers.

3) Planning begins the moment we learn a job is coming in. Often, the needed repair parts and materials are waiting on the dock when your ship arrives. Required manpower is scheduled to be on hand. Our shops are alerted so they'll have the proper materials and open machine time as soon as the work is detailed.

4) Our yards are well lighted because our crews often work full force on a repair job 'round the clock, with scarcely a pause for dinner.

5) We take every precaution to make certain that *every feature* of our repair work is as good or better than the contract specifies.

Six full-service repair yards

Bethlehem repair yards on the East, West, and Gulf coasts of the United States offer complete repair service to ships of every type and class. Drydocking, periodic surveys, damage repairs, engine and boiler work . . . you name it, Bethlehem can do it. And fast!

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Telephone: (212) 344-3300 Telex: 222-847
or 421-604 Cables: BETHSHIP New York

McAllister Names Mann Philadelphia Manager

Alcide S. Mann Jr.

Alcide S. Mann Jr. has been named general manager of the Philadelphia, Pa., operation of McAllister Brothers, Inc. by the board of directors of the marine towing and transportation company.

Mr. **Mann** will be responsible for all Philadelphia-based operations of the company, including harbor and coastal towing and integrated tug-barge units operating from the Great Lakes to the Gulf of Mexico.

Prior to joining McAllister in 1972, Mr. **Mann** spent eight years as an officer aboard U.S. Navy submarines.

A graduate of Tulane University, he has done graduate work in business administration at California State University and Drexel University.

McAllister Brothers is a 112-year-old New York-based marine transport company which also serves the ports of Norfolk, Va. and San Juan, Puerto Rico.

M/G Transport Applies For Title XI Guarantee

M/G Transport Services, Inc., 111 East Fourth Street, Cincinnati, Ohio, has applied to the Maritime Administration for a Title XI guarantee to aid in financing the M/V David T. Sheehy, built in 1975 by Jeffboat, Inc., Jeffersonville, Ind. Estimated actual cost of the vessel is $2.6 million.

The David Sheehy is part of a fleet with which the applicant transports bulk materials on the Ohio and Mississippi River Systems. Applicant is a wholly owned subsidiary of the Midland Company.

Tubbs And FitzGerald Named Vice Presidents At Donhaiser Marine

Francis A. Tubbs and **Ray H. FitzGerald** have been named vice presidents of Donhaiser Marine, Inc., a Houston, Texas-based engineering firm, according to **John N. Donhaiser,** president. Mr. **Tubbs** assumed the duties of vice president of engineering, and Mr. **FitzGerald** became vice president of construction supervision.

Mr. **Tubbs's** duties as vice president will be to supervise the firm's engineering design and analysis programs. Mr. **Tubbs** received his B.S. degree in industrial engineering from the University of Houston. The new vice president of engineering has had extensive experience in design and construction of marine equipment for the offshore oil industry. Mr. **Tubbs** was formerly responsible for engineering and construction supervision at Corpus Christi Marine, and IHC Holland Marine Shipyards.

As vice president, Mr. **FitzGerald** will supervise various DMI services, including shipyard construction supervision, field inspection and marine survey.

Mr. **FitzGerald's** background includes 30 years' experience in marine design and construction supervision of various types of vessels, including drillships and semisubmersibles. Prior to coming to DMI, he worked as supervisor of construction in Europe and the Far East, as well as chief assistant engineer for Marathon LeTourneau at their Brownsville, Texas, shipyard.

Donhaiser Marine, Inc. is an engineering firm offering analysis design development and construction supervision for the marine and offshore oil industries. Offices are located at 10555 Katy Freeway, Houston, Texas 77024.

RAMP FOR RUSSIAN SHIP — The massive central section of a 150-ton quarter ramp, ordered by the Russian Sudoimport organization from MacGregor-Comarain, France, is shown above being shipped at Marseille-Fos on passage for the Nikolayev shipyard on the Black Sea. It will be installed in a 25,000-dwt ro/ro ship under construction at that yard. MacGregor France has already supplied 72-foot-long quarter ramps, each weighing 68 tons, for the Akademik Class ro/ro ships built for Sudoimport. The complete Nikolayev ramp has a length of 115 feet, a breadth of 23 feet, and capacity for 65-ton rolling loads.

Lee Turner Joins General Steamship Ltd.

General Steamship (Chartering) Ltd., a subsidiary of General Steamship Corporation, Ltd., has announced that **Lee B. Turner** recently joined the chartering firm. Mr. **Turner** has an extensive background as a shipbroker, having worked most recently for Evans International Trading Company in Portland, Ore., as chartering manager. Previously, he was with A.A. Whitehead (Shipbrokers) Ltd. of London for five years as a chartering broker and later as a director. Mr. **Turner's** chartering career began with Glover Brothers (London) Ltd. of London, where he worked the Baltic Exchange for a period of eight years. He is a Gomme scholar of Keble College, Oxford. There, he received an honors degree in modern history in 1960 and a master's degree in 1969.

Halter Marine Delivers Crewboat For Service In Arabian Gulf

Halter-built crewboat Grayflier is shown above on trials prior to being accepted by the owner.

A new offshore crewboat, eighth in a series built for the same owner, has been delivered by Halter Marine Services, Inc., Chalmette (La.) Division, to Gray Mackenzie and Company, Ltd., Bahrain.

The new vessel is the Grayflier, a 78-foot crewboat whose home port will be Dubai. It was built to Lloyd's 100-A Arabian Gulf Service classification.

Grayflier can carry 40 passengers and its six-man crew is accommodated in a two-man officer's cabin and a four-man crew's quarters. There is a full galley with mess for six. The vessel, for shipping to the Arabian Gulf, was fitted with a custom-built shipping cradle and loaded on deck of a freighter bound for Dubai.

The crewboat is powered by two General Motors 12V71 TI diesel engines that develop 510 bhp each. Controls are Morse manual at two stations, one in the wheelhouse and one aft. The vessel has a fuel oil capacity of 1,000 U.S. gallons. Reverse/reduction gearing is Twin Disc 2.0:1 and steering gear is Halter Hydraulic.

The crewboat is equipped with an emergency diesel-driven 1½-inch pump connected to two fire stations for fire protection, two Westinghouse air compressors, a Fairbanks Morse sanitary water system, four tons of Carrier heating and air-conditioning, and two 20-kw generators. Deck machinery includes a Skipper Hydraulic orbitrol-driven anchor windlass; communications equipment includes a Decca 48-mile range radar, an Intech VHF radio and a Ross fathometer.

Halter Marine Services' main shipyard is in New Orleans, La. The company owns and operates five other fully equipped shipyards in Louisiana and Mississippi, and is the world's largest builder of support vessels for the offshore oil and gas industry. These include crewboats, anchor-handling, rig-towing and supply ships, ocean tugs and vessels for the inland waterway industry.

Ogden Names Farrell President Of Marine Terminal Subsidiary

Lee Rice, president of Ogden Transportation Company, a division of the Ogden Corp., a New York-based conglomerate, has announced the appointment of **John J. Farrell Jr.** as president of International Terminal Operating Co., Inc. (ITO), a subsidiary company.

ITO is one of the largest marine terminal operators in the world. It operates in all major East Coast ports from Maine to Louisiana.

Mr. **Farrell,** in joining ITO, is resigning as president of Howland Hook Marine Terminal Corp., a jointly owned subsidiary of United States Lines and American Export Lines.

Most of Mr. **Farrell's** career in the waterfront industry was spent with ITO. He had resigned from ITO in 1972 as executive vice president after having spent 17 years in all operational roles. He had joined the company in 1955 upon his discharge from the Army. He is a graduate of Seton Hall Prep School and Holy Cross College, Worcester, Mass. He is a member of the board of governors of Essex County Country Club and the Downtown Athletic Club of New York, and is on the board of directors of New York Shipping Association.

S.U.N.Y. Maritime College Appoints Richard Burke

Richard Burke has been appointed adjunct instructor of naval architecture at the State University of New York Maritime College, Fort Schuyler, Bronx, N.Y.

As an instructor of naval architecture, he will be a member of the engineering department and will be responsible for teaching basic and advanced naval architecture courses, as well as general engineering science courses.

A 1972 graduate of Maritime, with honors, Mr. **Burke** continued his studies at the Massachusetts Institute of Technology, studying for a master's degree in naval architecture, for which he had received a scholarship from The Society of Naval Architects and Marine Engineers.

Since graduating from SUNY Maritime, Mr. **Burke** has been employed for the United States Salvage Association, and Mobil Shipping and Transportation Co.

Mr. **Burke** holds a U.S. Coast Guard License as a Third Assistant Engineer for steam and motor vessels, and is an associate member of The Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, and Sigma Xi.

First Swedish-Owned Oil Rig Commissioned At Bethlehem-Beaumont

The Salenergy I, an offshore mat-supported jackup drilling platform built for Salen Offshore Drilling Company of Stockholm, Sweden, with offices in Houston, Texas, was commissioned recently in Beaumont, Texas. It is the first Swedish oil rig ever to be owned by Swedish companies.

The Salenergy I was designed and built by Bethlehem Steel Corporation's Beaumont shipyard.

Sponsor of the platform was **Mrs. Goran Axell,** wife of the chairman of the board of Salen Offshore Drilling A.B. and president of Salen Energy A.B. of Sweden. Among the guests was **Sven H. Salen,** who originated the energy division in the Salen group.

Upon its delivery, the rig will be managed and operated by Salen Offshore Drilling Company with operational offices in Houston. Designed for drilling in up to 250 feet of water and with a drilling capacity of 20,000 feet, the Salenergy I is outfitted for service worldwide. It will drill initially in the Gulf of Mexico for various operators on short-term basis.

Principal dimensions of the rig include: mat—length of 210 feet, beam of 170 feet, depth of 10 feet; platform — length of 166 feet, beam of 109 feet, depth of 16½ feet with slot 50 feet wide and 60 feet long. The three cylindrical columns are each 12 feet in diameter and 312 feet long.

The unit has air-conditioned quarters for dual crews totaling 80 men. The Salenergy I was built in compliance with the highest classification of the American Bureau of Shipping.

Woodfin Named Senior VP Of Avondale: Will Open Houston Office

R. Lamar Woodfin

R. Lamar Woodfin, vice president of Avondale Shipyards, Inc., an Ogden Corporation subsidiary, in New Orleans, La., was named senior vice president of Avondale, and assigned responsibilities for marketing services to the petroleum production industry, it was announced by **M. Lee Rice,** president of Ogden Transportation, Inc. To perform this new function, Mr. **Woodfin** will relocate in Houston, with offices at 4615 Post Oak Place Drive, Suite 285, Houston, Texas 77027.

Further, Mr. **Woodfin** was made regional vice president of Ogden Transportation, Inc., the parent of Avondale. Ogden Transportation, in addition to the activities of Avondale, operates a bulk shipping fleet through Ogden Marine, Inc., and has extensive East Coast stevedoring operations through International Terminal Operating Co., Inc. As regional vice president of Ogden Transportation, Mr. **Woodfin** will work with these various units as may be required in the Houston Region.

Brochure Describes Wire Rope Clamps

An illustrated brochure on the safe use and application of all types of marine clamps and wire rope is available from Herman Machine, Inc.

Assembly instructions, questions and answers, and adherence to all military standards are outlined.

For further information, contact Herman Machine, Inc., 252 Northeast Avenue, Tallmadge, Ohio 44278.

Far East Levingston Names Lovie & Co. U.S. Representative

Peter M. Lovie

Far East-Levingston Shipbuilding Ltd. (FELS) of Singapore has expanded its operations in the United States with the appointment of a U.S. representative. Lovie and Company, Inc. of Houston, spearheaded by **Peter M. Lovie,** has been selected by FELS as their technical and sales representative for the U.S. The Houston office can be contacted through P.O. Box 19733, Houston, Texas 77024.

Through the new appointment, Lovie and Company will provide on-site technical services and will promote the shipyard's wide range of design, construction, repair, fabrication, and contracting services. Since 1967, FELS has constructed and serviced offshore oil rigs and associated drilling and specialized auxiliary steel vessels for clients on an international basis. FELS has achieved an expertise in the construction of production platforms, oil cargo barges, drilling rigs, tenders, service and supply vessels, survey boats, landing craft, tugs, and other steel structures. The shipbuilding facilities have also successfully converted oil barges to pipelay barges and have overhauled and refurbished heavily damaged vessels.

Dennis Williams Joins Raytheon Company

Dennis S. Williams has joined Raytheon Company as marketing communications manager for Raytheon Marine Company and Sorensen Company, both at Raytheon's facility in Manchester, N.H.

In his new position, he will direct all advertising, sales promotion, and public relations efforts for the Raytheon and Apelco lines of marine radars, radiotelephones, depth sounders, navigation aids, and other marine electronic products, as well as for the Sorensen line of power supplies and for electronic products.

Mr. **Williams** comes to Raytheon from Bowmar Electronics, where he served as advertising manager. Prior to that, he was with John Hancock Mutual Life and IBM. He holds a B.S. degree in public relations and a master's degree in liberal studies from Boston University.

Shipbuilders Council Elects Officers

At the 55th Annual Meeting of the Shipbuilders Council of America, four Regional vice presidents were elected, as follows: for the Atlantic Coast—**P. Takis Veliotis,** president and general manager, Quincy Shipbuilding Division, General Dynamics Corporation; for the Great Lakes—**Thomas J. Defoe,** president, Defoe Shipbuilding Company; for the Gulf Coast—**Edwin Hartzman,** president, Avondale Shipyards, Inc., and for the Pacific Coast—**John V. Banks,** president, National Steel and Shipbuilding Company.

Mr. **Banks** also was elected Executive Committee chairman. **James F. Goodrich,** chairman, Bath Iron Works Corporation, and **Charles W. Wilson,** marine sales, The Babcock & Wilcox Company, were elected chairmen of the Finance Committee and Allied Industries Committee, respectively.

Edwin M. Hood, Beverly C. Kendall and **Edward P. Ruddy** were elected Board chairman, treasurer, and secretary, respectively.

Halter Marine Names A.J. Rizzo Director Of Public Relations

Halter Marine Services, Inc., New Orleans, La., has established an Office of Advertising & Publishing Relations, and named **A.J. Rizzo** director.

In making the announcement, **Harold P. Halter,** president, Halter Marine Services, Inc., said the new office was created to consolidate and coordinate the promotional and public relations activities of the company's six shipyards in Louisiana and Mississippi, and to continue the development of Halter Marine's advertising and public relations for the company's increasing role in worldwide marine transportation markets.

Mr. **Rizzo** holds a B.A. degree in journalism from Tulane University. He was formerly director of advertising and public relations for Alexander Industries in New Orleans, and was associated with Harper & Row Publishers, Inc., and the Lawyers Co-operative Publishing Company.

Halter Marine Services, Inc., is one of the world's largest builders of small ships. The company produces offshore support vessels, ocean and harbor tugs, inland waterway tugs and towboats, and military patrol boats. Vessels built by the company are in operation in the major offshore oil and gas areas of the world, handling supply transportation and distribution, personnel movement, rig towing and anchor handling, and ocean towing assignments.

A.J. Rizzo

McDevitt Named President Of Three Maritime Firms

Ronald F. McDevitt

Dr. **John J. McMullen,** chairman, has announced the appointment of **Ronald F. McDevitt** as president of Jefferson Electric Corporation, Merrin Electric Co., and Heat Exchanger Engineering, Inc.

Mr. **McDevitt** was formerly general manager of all turbine operations in New York City and Westchester County (N.Y.) for Consolidated Edison Co. Previously, he was group manager for merger operations with Poloron Products, Inc., and director of manufacturing operations for the African Near East Division of The Singer Company. Mr. **McDevitt** was graduated from the U.S. Naval Academy in 1954 and held various engineering and administrative positions in the Submarine Force, including command of the USS Sea Lion. After leaving the Navy, he attended New York University for a master's degree in business administration.

All three companies have recently relocated to Hoboken, N.J., to provide more efficient services to the center of the maritime industry. At present, they are actively embarked on a major expansion program to extend their electrical repair, engineering services and electro-mechanical supply lines to the process and industrial fields.

SNAME Los Angeles Section Hears Of Conversion Of Existing Schooner Hull To Brig Pilgrim

Shown above during the February meeting of the Los Angeles Metropolitan Section of SNAME are, left to right: **Robert E. Apple,** vice chairman; **Harry Levy,** chairman of the Section, **John C. Hollett,** papers chairman; **Raymond E. Wallace,** speaker, and **Frank Kuntz,** secretary-treasurer.

The February Meeting of the Los Angeles Metropolitan Section of The Society of Naval Architects and Marine Engineers was held aboard the S.S. Princess Louise I. Thirty-five members and guests turned out for the occasion.

The evening's speaker was **Raymond E. Wallace,** of Raymond E. Wallace Special Productions, well-known for his master planning efforts which produced all of the ship's and marine effects at Disneyland. He was also master planner for the Ports O'Call Village in San Pedro, Calif.; the Six Flags Over Texas complex, and the conversion of the S.S. Princess Louise I and II Restaurants.

The topic of his presentation was the conversion of an existing schooner hull to a replica of the brig Pilgrim. The Pilgrim is well-known in maritime lore as the ship featured in Richard Henry Dana Jr.'s book "Two Years Before the Mast." Mr. **Wallace** began by describing his own experiences "before the mast," wherein he spent 15 years sailing aboard square rigged ships. This background, and his devotion to the sea and nautical lore, provided the basis for his goal of the re-creation of the Pilgrim.

He began the task with a suitable hull he found in Denmark. The Joal, a Baltic schooner constructed in the late 1800s, was similar to Dana's description of the Pilgrim, except that she was a double ender and has finer lines (the Pilgrim had an "Apple Bow" and a full stern gallery). The Joal had been converted to a motorship and dismasted except for the foremast which had been retained for use as a cargo boom. He surveyed her hull, found it sound, and designed the modifications that would be required to convert her to closely match the description Dana gave of the Pilgrim.

Mr. **Wallace** sailed the Joal to Portugal for the start of her conversion. He had been impressed with the capabilities of the Danish craftsmen, particularly their proficiency with the adze, but economics compelled him to seek a location with a cheaper, but no less capable, labor force. It took a full year to step new masts and otherwise prepare the Joal for her trans-Atlantic voyage. The next port-of-call was Miami, where her woodwork was completed, and she was rigged to fit Dana's description as "having royals and skysails fore and aft, and ten studding sails." She was re-commissioned the Pilgrim and is now berthed in San Pedro awaiting her final journey to Monterey, Calif. There, she will be berthed at the end of Fisherman's Pier and opened to the public as a maritime museum.

Mr. **Wallace** is currently converting the 3,000-ton four-masted bark, Moshulu, a principal in the "Great Grain Races" of the 1930s, into a restaurant and museum to be berthed at Penn's Landing in Philadelphia, Pa.

SNAME San Diego Section Hears Discussion Of Engineers' Tasks

Among the attendees at the San Diego Section, SNAME, meeting were, left to right: **Ralph J. Bradford,** papers chairman; **R.P. Nolan,** chairman; **Roger H. Compton,** author; **C. William Bascom,** secretary-treasurer, and **Philip L. Weintraub,** vice chairman.

Ralph P. Nolan Jr., chairman, San Diego Section, The Society of Naval Architects and Marine Engineers, opened the February meeting in the traditional manner by asking all members and guests to introduce themselves. After an enjoyable social hour and dinner, **Roger H. Compton** of the U.S. Naval Academy presented a thought-provoking paper, "The Engineer and the Initial Conceptual Design of Marine Systems." Dr. **Compton** described the engineer's multifaceted involvement in the transformation of an abstract idea for a marine system into a physically and fiscally feasible conceptual design. The inherent duality of the engineer's role as concept developer and problem solver throughout the design evolution was emphasized. General principles were discussed, then a methodology for applying those principles was developed.

George Uberti of National Steel and Shipbuilding Company pointed out in his written discussion that in addition to the role of concept developer and problem solver, the design engineer has a responsibility to standardize to the maximum practical extent.

GIANT BARGES — Two of a fleet of eight oceangoing barges under tow from Seatrain Shipyard at the former Brooklyn Navy Yard, en route to Spain. The 8,500-dwt barges, each almost as long as a football field, are being built for Bulk Food Carriers of San Francisco, Calif., to be used in servicing the North Sea oil trade. The unmanned vessels will be loaded in Spain with drilling equipment and other supplies for oil rigs currently under construction in the North Sea. Seatrain Shipbuilding Corp., a subsidiary of Seatrain Lines, Inc., also is building a special-purpose icebreaking barge for Crowley Maritime Corp., to be delivered in May for service in the A[illegible]an oil trade.

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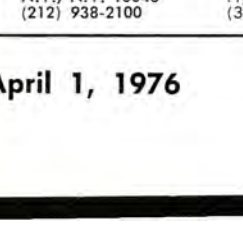

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DeLaval IMO Pump Division Publishes Illustrated Bulletin On Pumps For Gas Turbines

The IMO Pump Division of DeLaval Turbine Inc. has just published a six-page illustrated bulletin on IMO fuel and lube pumps for use with gas turbines. The bulletin gives specification and performance parameters for fuel injection, fuel transfer and lube applications. IMO pumps can operate on both petroleum base and synthetic lubes, and for fuel transfer and injection can handle distillates, crude, residual and low sulfur blends. A notable feature of IMO pumps is that one pump can be chosen to handle more than one fuel.

Included in the bulletin are photographs showing configurations and a cutaway diagram showing construction and principle of operation. All IMO pumps use the three-screw axial-flow design. Screws roll without rubbing and float in their bores, oil flow is axial, radial bending loads do not exist and hydraulic balancing eliminates thrust loads. The single bearing is isolated from the oil. These pumps are engineered to deliver non-pulsating flow reliably and efficiently.

IMO pumps have been manufactured by DeLaval Turbine Inc. since 1932, and are in extensive use in merchant and Navy vessels, refineries, industrial powerplants, nuclear and fossil-fuel powerplants.

The bulletin is available free of charge from IMO Pump Division, DeLaval Turbine Inc., P.O. Box 321, Trenton, N.J. 08602.

Midland Insurance Names Nine Executives

Following a board of directors meeting, **James P. Craig,** president of Midland Insurance Company, One State Street Plaza, New York, N.Y. 10004, announced the election of **Carmelo A. Orabona** as vice president. Mr. **Orabona** joined Midland in 1971 as manager of the company's "Custom Cover" operations for the Northeast. He was advanced to assistant vice president in July 1974, when he assumed national responsibility for that department. Prior to joining Midland, he was senior casualty underwriter with the Insurance Company of North America.

At the same time, eight new executive appointments were made. **Patricia Fleischman** and **Salvatore R. DiRaffaele** were named assistant vice presidents. **Alexander Biel** was appointed to the post of assistant controller.

Five new assistant secretaries were announced: **George E. Burles, Michael J. Corken, Malcolm G. Franklin, Abe Snyder,** and **John R. Spiegel** were named.

SNAME Philadelphia Section Discusses The Why And How Of Offshore Oil/Gas Drilling

Taking part in the Philadelphia Section, SNAME, February meeting were, left to right: (standing) **F.W. Beltz Jr.,** Section secretary-treasurer; **C.W. Lofft,** Sun Shipbuilding and Dry Dock Co., coordinator; **M.A. Morris,** Section chairman, and **H.T. McVey,** member, Section executive committee. (Seated) Dr. **R.R. Jordan,** discussor; **S.T. Hudson,** author, and Dr. **Terry Petty,** discussor.

The Philadelphia Section of The Society of Naval Architects and Marine Engineers held its February meeting at the Engineers' Club located in downtown Philadelphia. The meeting was attended by 65 members and guests.

Following a social hour and dinner, **S.T. Hudson,** president, J.E. Brenneman Co., presented a paper entitled "Offshore Drilling." The paper discusses the why and how of offshore drilling for oil and gas. Further, it describes drilling operations and production.

The paper points out the need to continue exploration and development of potential oil fields on the outer continental shelf. With a few statistics, the author showed how the United States was the largest energy user in the world, and in recent years has been using up the country's petroleum reserves faster than new ones have been found.

Dr. **Robert Jordan,** Delaware State geologist, and Dr. **Terry Petty,** president, ODECO Engineers, Inc., presented informal discussions.

Following the presentation of the technical paper, **M.A. Morris,** Section chairman, presented the author with a certificate of appreciation.

Smit International Forms Houston Office

Smit International of Rotterdam has announced the organization of a branch office of its United States subsidiary, Smit International (Americas) Inc. The new office is located at 600 World Trade Center, Suite 304, 1520 Texas Avenue, Houston, Texas, and is under the direction of **Arthur Daussat** as vice president. **J.L. Sullivan,** with offices in New York, is president.

In addition to overseeing many of the Smit interests in this hemisphere, Smit International (Americas) Inc. also represents in the United States most of the Smit Group of companies such as Smit International Ocean Towage and Salvage Company, Smit Tak International Salvage Company and Smit International Marine Services.

Smit is well-known throughout the world for their feats in ocean towing and salvage, with their tugs ranging in power up to 22,000 ihp.

Smit Tak International Salvage Company is renowned for its capability in marine salvage, wreck removal and heavy-lift operations.

In addition to their harbor fleets in Rotterdam and Europoort, Smit also enjoys a substantial interest in one of the world's largest supply vessel fleets, Smit Lloyd.

Formerly, Smit International had been represented in Houston by Biehl & Company.

Kawasaki Assigns Kitamura To New York

Kawasaki Heavy Industries, Ltd. of Japan, has announced the appointment of **S. Kitamura** as manager of the firm's New York office, 375 Park Avenue, New York, N.Y. 10022. Mr. **Kitamura** replaces **E. Ito,** who is returning to Japan for reassignment.

CRUISE PRIZE — The Bicentennial flag that will be presented to the master of the S/S Britanis just before she sails from San Juan, Puerto Rico, on April 26, forms a backdrop as **James C. Murphy,** president, Chandris New York, presents a guest ticket for a cruise aboard the vessel on that date to **Miss Carrie Roman** of ITT Mackay Marine. **Miss Roman** won prize as Maritime Princess in the annual contest sponsored by the Maritime Association of the Port of New York and will present the flag to the ship's master, Capt. **D. Kaliviotis,** on behalf of the Association.

ARCO Installs Unit To Evaluate MARISAT

COMSAT General Corporation recently announced an agreement with Atlantic Richfield Company (ARCO) for the installation of a terminal to operate with the MARISAT satellite system on the S/S Arco Prudhoe Bay, a 70,000-ton, 525,000-barrel tanker commissioned at Bethlehem Shipyard in Baltimore, Md., in 1971.

Atlantic Richfield plans to conduct a nine-month evaluation test of satellite communications on this vessel. Additional ships of the Atlantic Richfield communications fleet could be similarly equipped in the future if the outcome of the evaluation proves this new communications medium to be as reliable as expected.

Currently transporting crude oil from Cook Inlet, Alaska, to U.S. West Coast ports, the vessel will also load North Slope crude oil at Valdez, Alaska, when the Trans-Alaska Pipeline becomes operational.

Atlantic Richfield said it looks upon the use of this advanced communications system as a continuation of its investigation of possible ways of enhancing the safety of its vessels, their crews and cargoes.

Communications via the shipboard terminal and the MARISAT satellite system could be valuable during those periods when Aurora Borealis (Northern Lights) makes it difficult to communicate on high frequencies.

To date, 15 commercial vessels have been equipped with COMSAT General terminal facilities. The Arco Prudhoe Bay will be the 16th ship.

Kawasaki-Built Ore Carrier Develops 18 Knots On Trials

The 136,000-dwt Amagisan Maru is shown above while on trials. The Kawasaki-built ore carrier recorded 17.97 knots on trials. It is fitted with a nozzle propeller.

Kawasaki Heavy Industries, Ltd., Japan, recently delivered the 135,830-dwt ore carrier Amagisan Maru to its owners. The vessel was constructed at the company's Kobe Works on an order from Mitsui O.S.K. Lines, Ltd., and Baba-Daiko Steamship Co., Ltd.

The vessel is the second carrier of a new type developed by Kawasaki. The hold is divided into three parts by special watertight bulkheads. It is designed to allow for the separate loading of different ores according to type.

Propulsion is provided by a two-cycle Kawasaki-M.A.N. turbocharged diesel engine. The machinery is automated in order to comply with the Equipment Certificate Intending an Unattended Machinery Space as issued by NK. A nozzle propeller is installed to increase propulsive efficiency.

The ship has an overall length of 895 feet 4 inches, a length between perpendiculars of 851 feet 7 inches, a breadth of 144 feet 4 inches, a depth of 71 feet 6 inches, and a draft of 52 feet 9 inches. It will enter service either between Japan and Australia, or Japan and South America.

R.T. Greene Forms New Marine Company

Raymond T. Greene has announced the formation of a new company to be known as Anchorage Marine Brokerage and Documentation, Incorporated, which will specialize in sale, purchase, and chartering of commercial vessels, and in the documentation and registry of vessels in foreign jurisdictions, and especially the islands and countries of the Greater Caribbean area.

Mr. **Greene** has most recently served as president of Anchorage Ship Sales and Documentation, Incorporated which, because of the personal choice of some of its principals, is now being liquidated. Prior to that, he has served variously as organizer and executive officer of a stevedoring company, a terminal operation, and a shipyard in the area, all of which are still most active and successful. All of this followed a most successful career in New York City as one of the outstanding international admiralty lawyers in the United States.

In this new venture, Mr. **Greene** will be joined by his son, **Kevin,** who holds a Florida State Yacht and Ship Brokers license. During the past 10 years, **Kevin** has had a most thorough training in the marine field, having served an apprenticeship in a local shipyard, as a warehouse supervisor, as a stevedoring coordinator, and most recently as a marine surveyor under the tutelage of the late Alfred M. Nelson.

Assuming the duties of secretary and office manager will be **Sarah Rushing,** who also boasts of a varied marine training in both shipyard administration and surveying office work.

Within the month, several other well-known local marine figures will be joining the Anchorage staff.

Anchorage Marine Brokerage and Documentation, Inc., will occupy offices at 844 Biscayne Boulevard, Miami, Fla. 33132.

On-Deck Container Securing Subject Of Paper Presented To SNAME Northern California Section

Taking part in the Northern California Section, SNAME, meeting were (left to right): **Miklos Kossa,** naval architect, Section chairman; **C.S. Conklin,** Poseidon Engineering, Papers Committee chairman; **R. Keith Michel,** Herbert Engineering, author, and **King-Tao Liu,** Herbert Engineering, author.

King-Tao Liu and **R. Keith Michel** of Herbert Engineering Corporation, 149 California Street, San Francisco, Calif. 94111, presented a paper entitled "On-Deck Container Securing Systems," at a recent dinner meeting at the Engineers Club of the Northern California Section of The Society of Naval Architects and Marine Engineers.

The paper covers the design of container securing systems. Detailed data was presented covering the testing of containers, including pictures depicting typical modes of failure. Design force criteria and allowable stresses were discussed, and sample calculations utilizing the proposed criteria are contained in the paper.

Comments and discussions were given by **J.R. Paulling, H. Kozlowski, A.J. Haskell** and **M. Kossa.**

PRMSA Executive Addresses Charleston Propeller Club

Discussing the Port of Charleston are, left to right: **Gordon Schreck,** president, Charleston Propeller Club, **Miguel A. Rossy,** PRMSA, and **W. Don Welch,** executive director of the South Carolina Port Authority.

In an address before the Charleston, S.C., Propeller Club, **Miguel A. Rossy,** deputy executive director of operations and financial audit, Puerto Rico Maritime Shipping Authority, said that PRMSA's service, beefed up by 2,000 new containers and trailers, will strengthen the economic ties between the island and Southern states this year.

The Puerto Rico Government-owned merchant fleet represents the third largest container fleet in the U.S. merchant marine, Mr. **Rossy** said.

Charleston is one of six U.S. mainland ports served by PRMSA. Other ports of call include Port Elizabeth, N.J., Baltimore, Md., Jacksonville and Miami, Fla., and New Orleans, La.

Washington Cranes Described In Brochure

A new, illustrated portfolio, with supplementary insert sheets in full color, describes Washington cranes and shows different types and sizes recently placed in service at eight domestic and overseas applications.

The portfolio covers design, manufacture and field erection of custom-engineered cranes. Types include revolving shipyard cranes of up to 250-ton capacity in use on the Atlantic Coast, barge-mounted cranes for dredging or log barging on the Pacific Coast, dockside revolving gantry and container cranes, concrete placing cranes for dam construction, and Ederer overhead cranes.

The literature is available on request from Washington Iron Works, 1500 6th Avenue South, Seattle, Wash. 98134.

Conoco And Gulf Oil Enter Agreement With British On North Sea Oil Production

A Continental Oil Company spokesman has announced the signing of a participation agreement with the British Government concerning oil production licenses in the North Sea and called the arrangement a "mutually beneficial one." **Jack Reynolds,** chairman of Continental Oil Company, Ltd., said the agreement will be a continuation of Conoco's "long and excellent relationship with the British Government."

Conoco, Gulf Oil and the British National Oil Corporation each has had a one-third interest in the licenses, with Conoco the operator. Under the new agreement, Conoco and Gulf each has transferred to BNOC a percentage of their title to the licenses, increasing BNOC's share of the license title from one-third to 51 percent. Existing arrangements covering capital investments, ownership of produced oil and decision-making, under which the three parties have equal voting rights and obligations, have not been modified. Thus, Mr. **Reynolds** emphasized, Conoco's economic interest remains unchanged.

Also, BNOC has the option to buy from Conoco and Gulf, at market prices, a share of their oil production from the license areas sufficient to increase BNOC's total share of oil at each location from one-third to 51 percent (excluding royalty oil).

All past and future oil discoveries under existing licenses will be subject to the agreement, and no further participation in these licenses with respect to oil is to be sought by the Government, Mr. **Reynolds** said.

Natural gas production from the Viking Field in the southern sector of the North Sea is not affected by the agreement.

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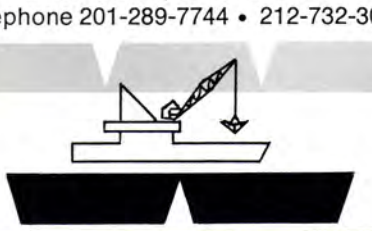

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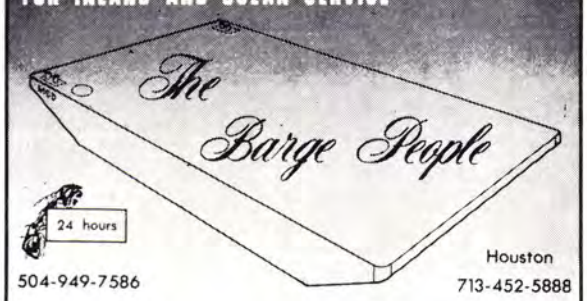

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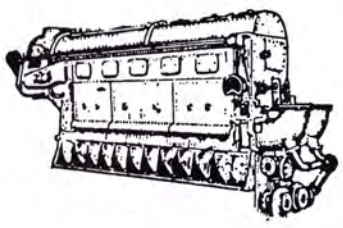

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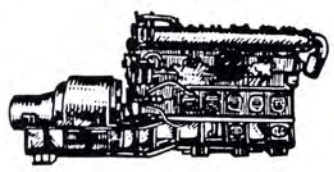

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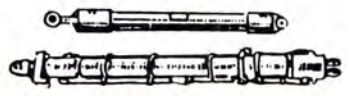

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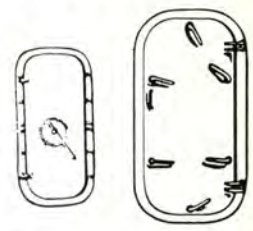

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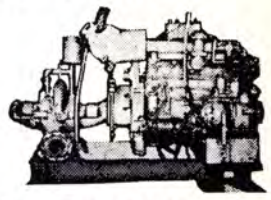

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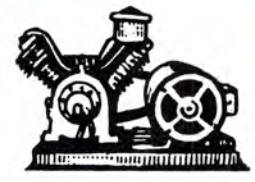

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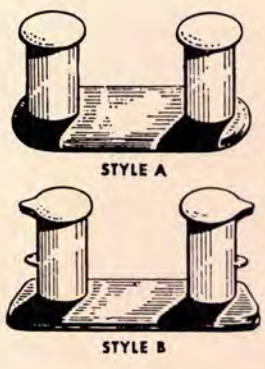

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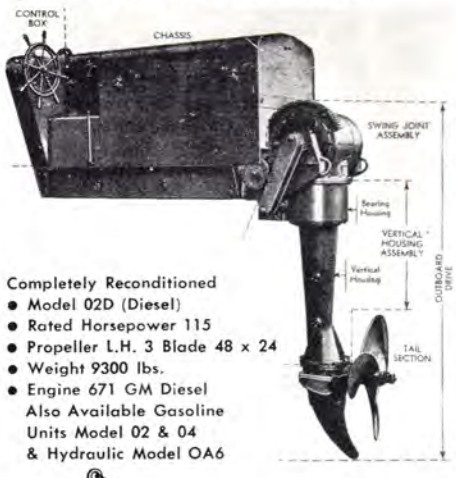

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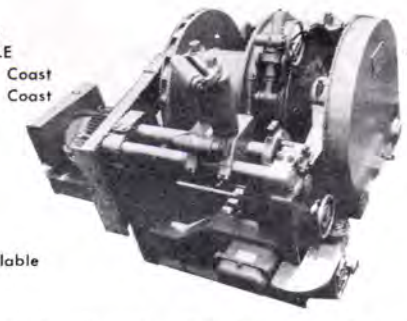

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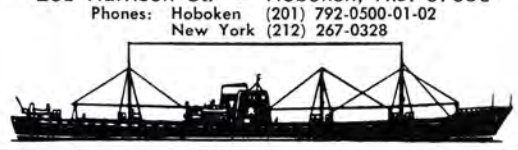

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Very little use. In like-new condition. Balanced, and with A.B.S. Certificate.

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Beautiful hardwood finish, brass hubs. 36" and 48" over spokes. In stock, immediate delivery. Prices on request.

36" TEAKWOOD SHIPS WHEELS
Brass bound on rim with brass hub marked "John Hastie & Co. Ltd. — Greenock".

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NEW — UNUSED
10 H.P. REVERSING CAPSTANS
Shipboard Use—Duty 10,000 lbs @ 60 FPM

MOTOR: 10 HP—totally enclosed—fan cooled—continuous duty—horiz. flange mounted — special shaft & oil seal fitted—440/3/60—1760 RPM. CONTROL: Marine type watertight pushbutton — forward/reverse/stop—watertight starter box. DIMENSIONS: Barrel 10" diam.—top flange 14½" diam.—bottom flange 16½" diam.—ht. of spool 16"—approx. 26" wide & 36" long.

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(6) 9 x 12 2-SPEED ALL-STEEL
STEAM WINCHES
for use as
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OR GENERAL USE
20,000 LBS @ 110 FPM — 7,450 LBS @ 250 FPM

Drum capacity: 1250' of 1" wire in 9 layers or 2200' of 3/4" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. Drum brake—contracting band type—asbestos lining—foot operated. WINCH DIMENSIONS: 12' long—8' wide—5'10" high. Reconditioned by U.S. Navy, equal to new.

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2 HIGH HEAD FIRE PUMPS WITH MONITOR NOZZLES

2000 G.P.M. AT 337′ HEAD

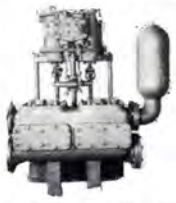
250 H.P. 230 volts D.C. 2000 G.P.M. fire pump at 337′ head — 1800 R.P.M. Pump is all bronze construction — made by Frederick Iron & Steel Co. Complete with starter — and in like-new condition.

UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS

7½x4x10—3″ suction—2″ discharge—1¼″ steam—1½″ exhaust. OAH 5′2″; OA depth 23″; OAW over air dome 2′2″. Weight about 800#. Suitable for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

$795

VICTORY, LIBERTY & GENERAL SHIP USE UNUSED VERTICAL DUPLEX STEAM DRIVEN 10 x 11 x 12 PUMPS



For Victory or Liberty Ships. Mfg. by Worthington. General service 560 GPM @ 125#G; Fire & Ballast 560 GPM @ 125#G; Fuel Oil Transfer 320 GPM @ 50#G. STEAM END: WP 220# — exhaust pressure 10#G — steam 1½″ — exhaust 2″. LIQUID END: 8″ Suction — 6″ discharge. DIMENSIONS: 6′4″ high; 4′ wide without air dome; 5′4″ wide over air dome; 3′5″ deep; weight 4800 lbs. U.S. Navy surplus.

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200 GPM — 160 PSI discharge. Suction 3½″ — 3″ discharge — 3500 RPM — bronze construction — flanged. MOTOR: 20 HP 440/3/60/3600 RPM G.E. type KF — frame 326 — full load amps 28.

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SUITABLE FOR A 4-POINT MOOR

CAPACITY: Each drum stows 1800′ of 1¼″ wire. Each drum independently 30,000 lbs. on 2nd layer at from 10 to 50 feet per minute. Both drums simultaneously 15,000 lbs. each. Drums equipped with clutch shift levers. 24″ Winch heads for 8″ circumference manila rope. Static load 52,000 lbs. applied at mid-length. Base 10′ 6″ wide with 2 outboard winch heads 20¼″ each. Drum diameter 22½″—flange 50″—28″ between flanges. Equipped with level wind spooling devices and compressor hand brake. MOTOR: 75 HP—under deck with horizontal drive through worm gear. Drip-proof—fully protected. Mfg by Allis-Chalmers—type EB-127-DC—compound wound—125/250 volts—254 amps—reversible—575/1150 RPM. CONTROLLER: Allis-Chalmers drum type—with 1 off position and 5 heave-in positions and five payout conditions in opposite directions. Control cabinet also located below deck. Worm gear reduction 62T at 1½ CP worm wheel 31:1 reduction. Drum shaft beveled bull gear 61T. Drive shaft beveled pinion gear 14T—ratio 4.857:1.

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- 1 H.P. Westinghouse turbine — S.H.P. 4500 — 5358 RPM — 440# — 740°TT — instruction book 6535.
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- 1 Set reduction gears—type 14x10—single reduction double helical—6097/1200—for aux turbo generator sets
- 1 Armature—for Crocker-Wheeler 400 KW generator—type CCD size 152H-DP — 400 KW — 240 volt 2-wire 6-pole compound wound
- Also quantity of boiler safety valves 1½″ & 2″ Consolidated
- 1 Set HP & LP couplings for Westinghouse HP & LP turbines — 9000 SHP normal — 9900 SHP maximum
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SIZE

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26″x60″ 30″x60″

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BUDA 50 KW 120 VOLT DIESEL GEN. SET

G.E. generator—50 KW—120 V—400 amps—1200 RPM. Stab. shunt — model 249863 — COM-1139Y. DIESEL: 6-DHG-691 — 4-3/4x6½ — 1200 RPM—electric starting.

$3950

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COFFIN FEED PUMPS — ALL SIZES —

TYPE DE

3 TYPE DE-2
540 GPM 1870′ NET HEAD

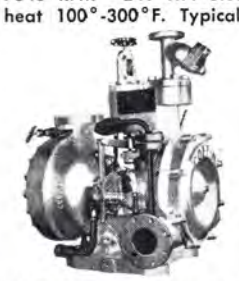
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

2 TYPE DEB 2-STAGE
320 GPM 2600′ NET HEAD

Inlet pressure 820/860 PSIG — superheat 0°-100° — exhaust pressure 42 PSIG — NSPH 35′ — typical serial #5487-DEB-1-25-37

2 TYPE DE-B 214 GPM 2070′ NET HEAD

7040 RPM — 241 HP. Steam pressure 597 PSI — superheat 100°-300°F. Typical serial No. DEB 1-25-37



TYPE CG

2 TYPE CG 350 GPM 1880′ NET HEAD

7220 RPM—311 HP. Steam pressure 580 PSIG—0°-100° superheat. Exhaust 15 lbs—typical serial #5437-CG-8-8-33

2 TYPE CG-2A 160 GPM

128 HP — 490 PSI steam — 7200 RPM.

TYPE F

TYPE F 200 GPM 575 PSIG HEAD

150 HP — suction pressure 20-30 PSIG — pump water temperature 240°F — 440 PSI turbine inlet pressure — desuperheated 500°TT—turbine exhaust 10 lbs—steam consumption 4280 lbs/hr. Control valve 1¼″ — type C constant pressure regulator.

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G.E. 600 KW GEARED TURBO GENS.

450/3/60/1200 RPM—961 amps—type AT1—0.8 PF. TURBINE: FSN-FN-20 6-stage — 525 lbs/825°F—superheat 355°/371°F. GEAR: 10033/1200—RPM 1033 — total — 6390 lbs. steam/hr. steam flow.

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DUTY:

30,000 LBS @ 50 FPM
15,000 LBS EACH DRUM
USING BOTH DRUMS SIMULTANEOUSLY

DRUM: 22″ diameter — 36″ face — 2500 feet of 1¼″ wire. Equipped with spooling device. MOTOR: 75 HP — 230 VDC — under-deck mounted — 262 amps — 1140 RPM. Complete with all controls — mfg by Commercial Iron Works. Winch heads declutchable. OAW 16′9″ — OAH 57″ OA Depth 7′7″.

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Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19523
Way-Wolff Associates Inc., 45-10 Vernon Blvd., Long Island City, N.Y. 11101

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Rothenbuhler Engineering Company, Rhodes Road, Sedro Wooley, Washington 98284

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Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Odessa Babbitt Bearing Co., P.O. Box 4202, Odessa, Texas 79760
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

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Way-Wolff Associates Inc., 45-10 Vernon Blvd., Long Island City, N.Y. 11101

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Multitrans Consultants Inc., 45 Rockefeller Plaza, New York, N.Y. 10020
Natomas Trading Company, Inc., 75 Rockefeller Plaza, New York, N.Y. 10020

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Ameron Corrosion Control Div., Brea, Calif. 92621
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

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Washington Chain & Supply Co., P.O. Box 3645, Seattle, Wash. 98124

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Bull & Roberts, Inc., 785 Central Ave., Murray Hill, N.J. 07974
Delaval Turbine Inc., (Gems Sensors Div.) Spring Lane, Farmington, Conn. 06032
Foxboro/Trans-Sonics, Inc., P.O. Box 435, Burlington, Mass. 01803
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., 166 National Road, Edison, New Jersey 08817
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Litton Guidance & Control Systems, 5500 Canoga Avenue, Woodland Hills, California 91364
Propulsion Systems Inc., 21213 76th Ave. South, Kent, Wash. 98031
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

CORROSION CONTROL
Ameron Corrosion Control Div., Brea, Calif. 92621
Woolsey Marine Industries, Inc., 100 Saw Mill Rd., Danbury, Conn. 06810

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AB Hagglund & Soner, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Provincial Crane Co., 4674 Ferguson St., Niagara Falls, Ontario, LZE-6W8, Canada

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Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

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Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
J.D. Neuhaus, Witten-Hevan, Hebezeuge, D 5810 Witten-Hevan, West Germany
Pacific Pipe Co., 49 Fremont Street, San Francisco, Calif. 94105

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Piston Products Inc., 1140 Bloomfield Ave., West Caldwell, N.J. 07006

DIESEL ENGINES
Alco Engines Division, White Industrial Power, Inc., 100 Orchard St., Auburn, N.Y. 13021
Colt Industries Inc., Power Systems Div., Beloit, Wisc. 53511
De Laval Turbine Inc., Engine & Compressor Div., 550 85th Ave., Oakland, Calif. 94621
Electro-Motive Division General Motors, La Grange, Illinois 60525
Granges Metalock AB, Fack 401 10, Gothenburg, Sweden
M.A.N (Maschinenfabrik Augsburg-Nurnberg AG), Dept. Vw, 89 Augsburg 1, Postfach, Germany
H.O. Penn Machinery Co., Inc., 1561 Stewart Ave., Westbury, N.Y. 11590
Power & Propulsion Systems, Inc., 9821 Katy Freeway, Houston, Texas 77024
Sulzer Bros., Ltd., Dept. 21W/W&I, CH-8401 Winterthur, Switzerland

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Overbeke-Kain Co., 20905 Aurora Rd., Cleveland, Ohio 44146
Walz & Krenzer, Inc., 20 Vesey Street, New York, N.Y. 10007

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Delco Wire & Cable Co., 257 Rettenhouse Circle, Bristol, Pa. 19007
Elkan Electric Cable Co., 248 Third Street, Elizabeth, N.J. 07206
General Regulator Div., Forney Engineering Co., P.O. Box 189, Addison, Texas 75001
Merrin Electric, 1120 Clinton Street, Hoboken, N. J. 07030
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Rapid Electric Co., Inc., P.O. Box 2915, Brookfield, CT 06804
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

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Johnson Rubber Co. (Marine Div), 16025 Johnson St., Middlefield, Ohio 44062
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850

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General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Manufacturers Hanover Leasing Corp., 350 Park Av., N. Y., N.Y. 10022
Offshore Petroleum & Management Systems, Inc., 2929 Buffalo Speedway, Houston, Texas 77006
Rhode Island Hospital Trust Natl. Bank, 15 Westminster Street, Providence, R. I. 02903
Warburg Paribas Becker Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE
Oregon Brass Works, 1127 S.E. 10th Ave., Portland, Oregon 97214
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FLOAT DRUMS
Dayton Marine Products, 7565 E. McNichols Rd., Detroit, Mich. 48234

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Frigitemp Marine Corp., 585 Washington St., New York, N.Y. 10014
Tri-Way Industries Inc., 600 Andover Park East, Seattle, WA 98188

GANGWAYS
Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

GASKETS
Flexitallic Gasket Co., 5 Linden Street, Camden, N.J. 08102

HULL CLEANING
Butterworth Systems Inc., P.O. Box 9, Bayonne, N.J. 07002

HYDRAULICS
Sperry Vickers, P.O. Box 302, Troy, Michigan 48084

INERT-GAS GENERATORS
Smit Nymegen Corp., (Smit Ovens Nymegen), 275 Kisco St., Mount Kisco, N.Y. 10549

INSULATION—Marine
Armco (Hitco-Materials Division), 1600 W. 135 St., Gardena, CA 90249
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

KEEL COOLERS
Johnson Rubber Co. (Marine Div), 16025 Johnson St., Middlefield, Ohio 44062

LADDERS
Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

LEAK DETECTION
Winton Products Co., Inc., Box 3332, Charlotte, North Carolina 28203

LININGS
Ameron Corrosion Control Div., Brea, Calif. 92621

MACHINE TOOLS
Granges Metalock AB, Fack 401 10, Gothenburg, Sweden
Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MARINE BLOCKS & RIGGING
Crosby Group, Box 3128, Tulsa, Okla. 74101

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Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N. Y. 10013
Beaver Tool & Machine Co., 525 S.E. 29th St., Oklahoma City, Okla. 73109
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Alfred Conhagen Inc., 172 Lynhurst Avenue, Staten Island, N.Y. 10305
Daman Industries Div., Heppenstall Co., P.O. Box 336, East Brady, Pa. 16028
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Stow Manufacturing Co., 225 Shear Street, Binghamton, N.Y. 13902
Thompsen Marine Supply, Inc., 11 Broadway, New York, N.Y. 10004
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

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Adams & Porter, 1819 St. James Place, Houston, Texas 77027
R.B. Jones Corp., 301 West 11th St., Kansas City, Mo. 64105

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Avco Lycoming Division, 550 S. Main St., Stratford, Conn. 06497
Combustion Engineering, Inc., Windsor, Connecticut 06095
Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
Jacuzzi Bros., Inc., 11511 New Benton Highway, Little Rock, Ark. 72204
Murray & Tregurtha, Inc., 24 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

MARINE SURVEYORS
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Fla. 33316

MOORING SYSTEMS
Samson Cordage Works, 93 Purchase St., Boston, Mass. 02110

NAVAL ARCHITECTS AND MARINE ENGINEERS
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Anchorage Marine Services Incorporated, 844 Biscayne Boulevard, Miami, Florida 33132
Richard Baehr, 305 Northern Blvd., Great Neck, N.Y. 11021
J. L. Bludworth, 608 No. Clear Creek Drive, Friendswood, Texas 77546
Boquer & Associates, P.O. Box 30184, New Orleans, La. 70190
Breit & Garcia, Naval Architects, 441 Gravier St., New Orleans, La. 70130
Catalina National, Inc., 1725 Monrovia Ave. (Suite A4), Costa Mesa, CA 92627
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Arthur D. Darden, Inc., 1040 International Trade Mart, New Orleans, La. 70130
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
Morris Guralnick Associates, Inc., 550 Kearny Street, San Francisco, Calif. 94108
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, Calif. 93017
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen and Co., Inc., 3333 Rice Street, Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Rudolph E. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Nelson & Associates, Inc., 2001 N.W. 7th Street, Miami, Florida 33125
Nickum & Spaulding Associates, Inc., 811 First Ave., Seattle, Wash. 98104
Ocean-Oil International Engrg. Corp., P.O. Box 6173, New Orleans, La. 70114
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Potter & McArthur, Inc., 50 Hunt Street, Watertown, Mass. 02172
Proto-Power Management Corporation, P.O. Box 494, Mystic, Conn. 06355
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Seaworthy Engine Systems, P.O. Box 327, Canton, Conn. 06019
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spoetgens, 156 West 8th Ave., Vancouver 10, Canada
SRS Shipping Research Services Inc., 205 S. Whiting St., Alexandria, VA 22304
Stanwick Corporation, 3661 E. Virginia Beach Blvd., Norfolk, Va. 23502
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler, 50 Court St., Brooklyn, N.Y. 11201
H. M. Tiedemann & Co., Inc., One State Street Plaza, New York, N.Y. 10004
Timsco, 951 Government St., Suite 2161, Mobile, Alabama 36604
Uhlig & Associates, Inc., 8295 S.W. 188th St., Miami, Florida 33157
Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706
Wesley D. Wheeler Associates, Ltd., 104 East 40 St., Suite 207, New York, N. Y. 10016
Xplo Corporation, 229 Fifth St., P.O. Box 492, Gretna, La. 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Edo Corporation, 13-10 111th Street, College Point, N.Y. 11356
Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
ITT Decca Marine Inc., 40 W. 57th St., New York, N.Y. 10019
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Konel Corporation, 271 Harbor Way, So. San Francisco, Calif. 94080
Krupp Atlas—Elektronik, A Div. of Krupp Intl. Inc., P.O. Box 58218, Houston, Texas 77058
Lorain Electronics Corp., 2307 Leavitt Road, Lorain, Ohio 44052
Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503
Motorola Communications & Electronics, 1313 E. Algonquin Road, Schaumburg, Illinois 60172
RF Communications, 1680 University Ave., Rochester, N.Y. 14610
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

OILS—Marine—Additives
Exxon International Company, 1251 Avenue of the Americas, New York, N.Y. 10020
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine) 135 East 42nd St., N.Y., N.Y. 10017

PAINT—Coatings, Protective
Ameron Corrosion Control Div., Brea, Calif. 92621
Hempel's Marine Paint, Inc., 25 Broadway, New York, N.Y. 10004
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Jotun-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21230
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Patterson-Sargent, P.O. Box 494, New Brunswick, N.J.
Products Research & Chemical Corp., (PRC Coating & Sealants Div.), 2919 Empire Ave., Burbank, CA 91504

PETROLEUM SUPPLIES
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PILOT LADDERS—Wood Products
A.L. Don Co., 58 Grant Avenue, Carteret, N.J. 07008

PIPE—HOSE—Cargo Transfer, Clamps, Couplings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

PLASTICS—Marine Applications
Ameron Corrosion Control Div., Brea, Calif. 92621
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

POLLUTION CONTROL
Anschuetz of America (Div. of Carl Zeiss), 444 Fifth Avenue, New York, N.Y. 10018
Colt Industries, Water & Waste Management Operation, Beloit, Wisc. 53511
Keene Corporation, Fluid Handling Div., P.O. Box 1231, LaGrange, Georgia 30240
Koehler-Dayton, Inc., (Div. of Litton Ind.), P.O. Box 309, South Street "V" Bldg., New Britain, Conn. 06050
Mapco, 1437 So. Boulder Ave., Tulsa, Okla. 74119
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., 57 West Avenue, Wayne, Pa. 19087
Red Fox Industries, P.O. Drawer 640, New Iberia, La. 70560
Separation & Recovery Systems, Inc., 1733 Kaiser Ave., Irvine, Cal. 92705
Velcon Filters Inc., 1750 Rogers Ave., San Jose, Calif. 95112

PROPELLERS: NEW AND RECONDITIONED—SYSTEMS
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
Escher Wyss Gmbh, P.O. Box 798, Ravensburg, Germany
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
Marine Products & Engineering Co., 20 Vesey St. New York, N.Y. 10007

PUMPS—Repairs
Coffin Turbo Pump (FMC Fluid Control), FMC Corp/Pump Division, 326 So. Dean Street, Englewood, N.J. 07631
Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City, Kansas 66110
Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602

(Continued Next Page)

BUYERS DIRECTORY (continued)

Jacuzzi Bros., Inc., 11511 New Benton Highway, Little Rock, Arkansas 72204
Jim's Pump Repair Co., 165-20 Chapin Ct., Jamaica, N.Y. 11432
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Worthington Pump Inc., P.O. Box 1250, Mountainside, N.J. 07092

REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19523

ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
E.I. Dupont De Nemours & Co., Inc., Rm. C31H6, Nemours Bldg., Wilmington, Delaware 19898
Jackson Rope Corporation, Ninth & Oley Streets, Reading, Pa. 19604
Lowery Brothers, Inc., P.O. Box 650, Marrero, La. 70072
Samson Cordage Works, 93 Purchase St., Boston, Mass. 02110
Wall Rope Works, Inc., Beverly, N. J. 08010

RUDDER ANGLE INDICATORS
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

SCALERS
The Dalen Co., Wooster, Ohio 44691

SHAFTS, SHAFT REVOLUTION INDICATOR EQUIP.
Armco Steel/Advanced Materials Div., Box 1697, Baltimore, Md. 21203
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage
American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Dongkuk Steel Mill Company, Ltd., 50 Suha-dong, Chung-ku, C.P.O. Box 987, Seoul, Korea
General Metals of Tacoma, Inc., 1902 Marine View Dr., Tacoma, Washington 98422
National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

SHIP BROKERS
Agemar, P.O. Box 1465, Maracaibo, Venezuela
Capt. Astad Company, Inc., 225 Baronne St., Suite 1117, New Orleans, La. 70112
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

SHIP MODELS
Jas Foley & Son, 506 Seventh Street, Santa Monica, Calif. 90402

SHIPBUILDING STEEL
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
Astilleros Espanoles, S.A., 17, Padilla, Madrid 6, Spain
Avondale Shinyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bergeron Industries, Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bludworth Shipyard, Inc., (Subsidiary of Elpac, Inc.), 8502 Cypress St., Houston, Texas 77012
Carrington Slipways Pty. Ltd., Tomago, N.S.W. 2322, Australia
Coastal Dry Dock & Repair Corp., Building #131 Brooklyn Navy Yard, Brooklyn, N. Y. 11205
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Delta Shipyard, P.O. Box 7036, Houma, Louisiana 70360
Dravo Corporation, One Oliver Plaza, Pittsburgh, Pa. 15222
Empresa Nacional Bazon, 65 Castellana, Madrid 1, Spain
Equipment Systems Division, AMCA International Corporation, Suite 200/Stockton Building/University Office Plaza, Newark, Delaware 19702
Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., P.O. Box 510, Brownsville, Pa. 15417
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong
Hyundai Shipbuilding & Heavy Industries Co., Ltd., 5 World Trade Center, Suite 679, New York, N.Y. 10048
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Heavy Industries, Ltd., Kawasaki Kisen Kaisha, Ltd., 8 Kaigan-dori, Kuta-ku, Kobe, Japan
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Keppel Shipyard Ltd., P.O. Box 2169, Singapore
Kockums Mekaniska Verkstads AB, Malmo 1, Sweden
Lisnave, Apartado 2138, Lisboa 3, Portugal
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Malaysia Shipyard and Engineering Sdn. Bhd., First floor, Bangunan Aziza, Jalan Wong Ah Fook, Johore Baru, Malaysia
Marathon Manufacturing Company
Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002
Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520
Marathon LeTourneau Marine Division, LeTourneau Rural Station, Vicksburg, Mississippi 39180
Marathon LeTourneau Offshore Pte., Ltd., P.O. Box 83, Taman Jurong Post Office, Singapore 22, Singapore
Marathon Shipbuilding Company, P.O. Box 870, Vicksburg, Miss. 39180
Marathon Shipbuilding Company (U.K.) Ltd., Clydebank Bunbartonshire, G81-1YB, Scotland
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mercantile Marine Engineering & Graving Docks Co., N.V., Antwerp, Belgium
Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Moss Rosenberg Verft A/S, P.O. Box 53, Moss Verft, Moss, Norway
Murray & Stewart (Marine) (PTY) Ltd., Ocean Road-Table Bay Harbour, P.O. Box 1909, Cape Town 8000, South Africa
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Neorion Shipyards Syros, Ltd., Syros, Greece
Northwest Marine Iron Works, P.O. Box 3109, Swan Island, Portland, Oregon 97208
O.A.R.N. (Officine Allestimento-Riparazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga 31402
Schottel Werft, 2000 Hamburg 4, Buderpester Strasse 31, Hamburg, Germany
Seatrain Shipbuilding, (Seatrain Lines, Inc.), Port Seatrain, Weehawken, N.J. 07087
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Service Machine & Shipbuilding Corp., Box 2664, Morgan City, La. 70380
Setenave-Estaleiros Navais De Setubal Sarl, Almada, Portugal
Sumitomo Heavy Industries Ltd., 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Terrin Shipyards, Societe Provencale des Ateliers Terrin, 287, Chemin DeLa Madrague, 13345 Marseille—Cedex 3, France
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Vancouver Shipyards Co., Ltd., 50 Pemberton Ave., North Vancouver, B. C., Canada
Western Eagle (PTE) Ltd., Bukit Chermin Road, Off Telok Blangah Road, Singapore, (4).
Wiley Manufacturing, a unit of Equipment Systems Division, AMCA International Corporation, Suite 200/Stockton Building/University Office Plaza, Newark, Delaware 19702

SHIP STABILIZERS
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STEAM TURBINES
Nicolai Joffe Corporation, P.O. Box 2445, South San Francisco, Calif. 94080

STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

TANK CLEANING
Butterworth Systems Inc., P.O. Box 9, Bayonne, N.J. 07002
Gamlen Chemical, 333 Victory Ave., So. San Francisco, CA 94080
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS
Delaval Turbine Inc., (Gems Sensors Div.) Spring Lane, Farmington, Conn. 06032

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Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Gulf Mississippi Marine Corp., 225 Baronne St., Suite 600, New Orleans, La. 70112
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
Intracoastal Towing & Transportation Corp., 1520 Texas Avenue, Houston, Texas 77002
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Puerto Rico Lighterage Co., P.O. Box 1072, San Juan, P.R. 00902
Suderman & Young Towing Co., Inc., 918 World Trade Center, Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305
N.V. Bureau Wijsmuller, Postbus 510, Ijmuiden, Holland

VACUUM LIFT SYSTEMS
Myers-Sherman Company, Grainvayor Division, So. Illinois Street, Streator, Illinois 61364

VALVES AND FITTINGS—Hydraulic—Safety Flanges
American-Darling Valve, Div. of American Cast Iron Pipe Co., P.O. Box 2727, Birmingham, Ala. 35202
Dover Corp. / Norris Division, P.O. Box 1739, Tulsa, Okla. 74101.
Flexitallic Gasket Co., 5 Linden Street, Camden, N.J. 08102
GPE Controls, Inc., 6511 Oakton Street, Morton Grove Illinois 60053
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

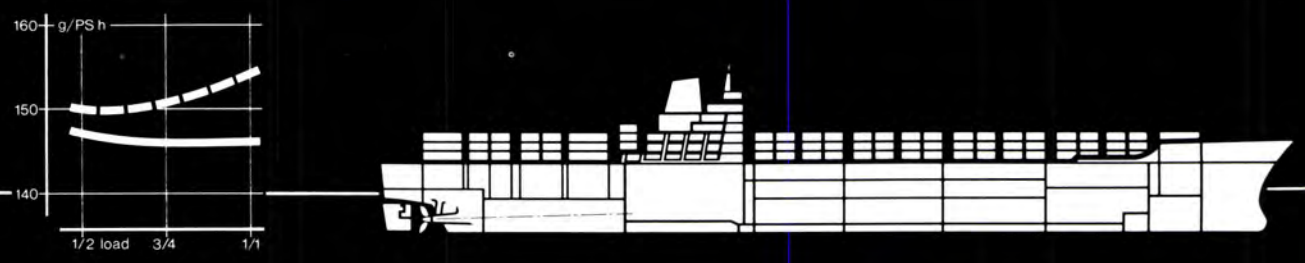
WEATHER FORECASTS
Fleetweather, Orbit Lane, Hopewell Junction, N.Y. 12533

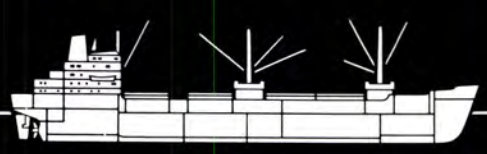
WINCHES
Coast Marine & Industrial Supply, 398 Jefferson St., San Francisco, Calif. 94133

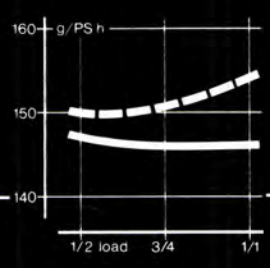
WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18016
Lowery Brothers, Inc., P.O. Box 650, Marrero, La. 70072

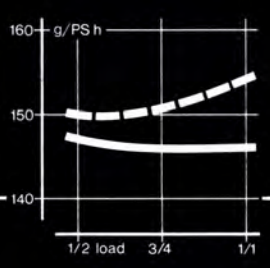
ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

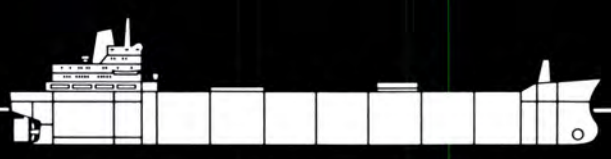
Four-Stroke Marine Propulsion: M.A.N. Cut Fuel Consumption

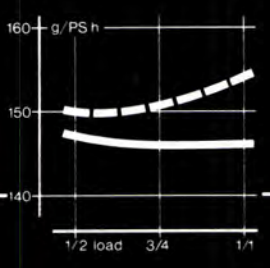






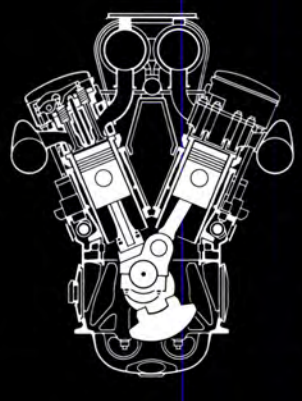






By further developing the injection and turbocharging systems of the 52/55A medium-speed four-stroke engine, M.A.N. have cut its fuel consumption rate by 8g/HPh. Sample calculation: Standard freighter with 16V 52/55A propulsion engine, rating 16880 HP, eff. fuel consumption rate previously 154, now 146g/HPh, heavy fuel oil price US $ 65/t, annual service (90% MCR) 8000 h.

Cost savings: approx. US $ 65000/year.



Representative in USA:
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M·A·N
Diesel Engines

414e

CORROSION STOPPERS

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Ameron

CORROSION CONTROL DIVISION

(Formerly Amercoat Corporation)

Home Office: 201 N. Berry St., Brea, California 92621

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International sales offices and plants: Amercoat Europa B.V., Geldermalsen, The Netherlands; Amercoat of Canada Limited, Burlington, Ontario, Canada; Amercoat Mexicana, S.A., Mexico City, Mexico; Amercoat Japan Ltd., Yokohama, Japan; Amercoat do Brasil, Sao Paulo, Brazil.