MARITIME REPORTER
AND
ENGINEERING NEWS

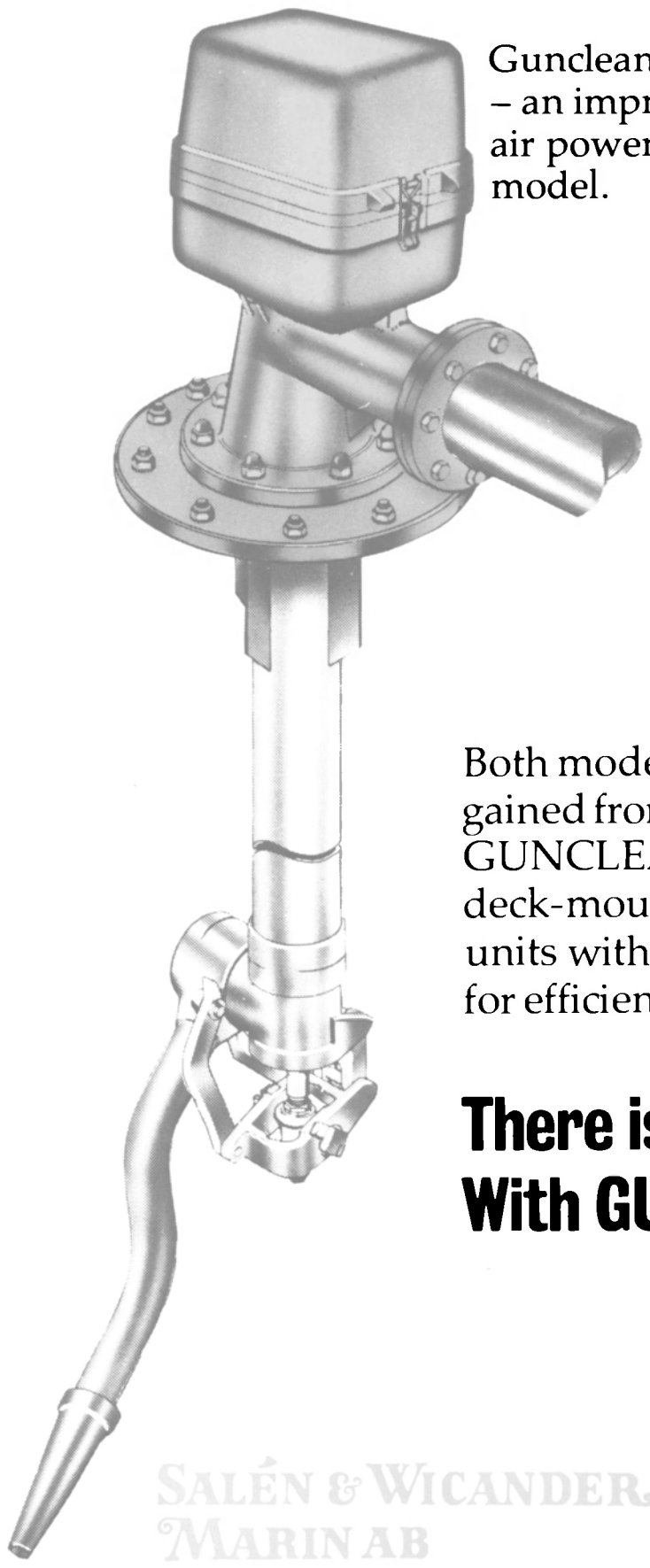
USS Kidd (DDG-993)

First Of A New Class Commissioned At Ingalls

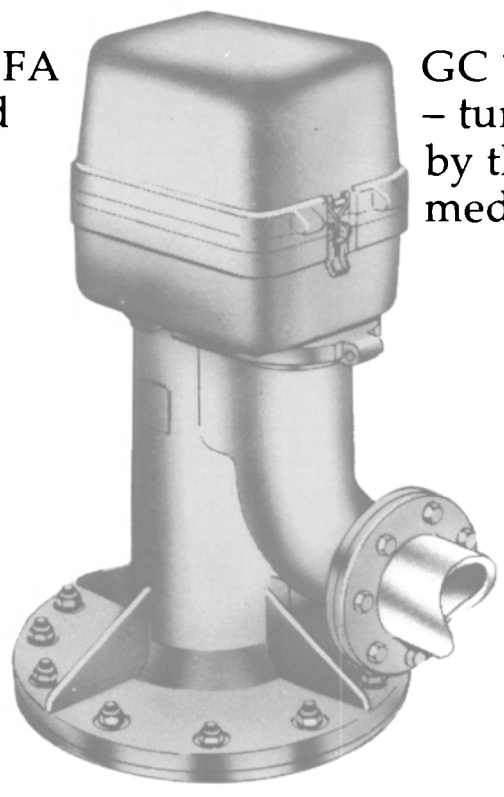
(SEE PAGE 10)

JULY 15, 1981

Our new GUNCLEAN® 135 models incorporate all our experience gained through the years.



Gunclean 135 FA – an improved air powered model.



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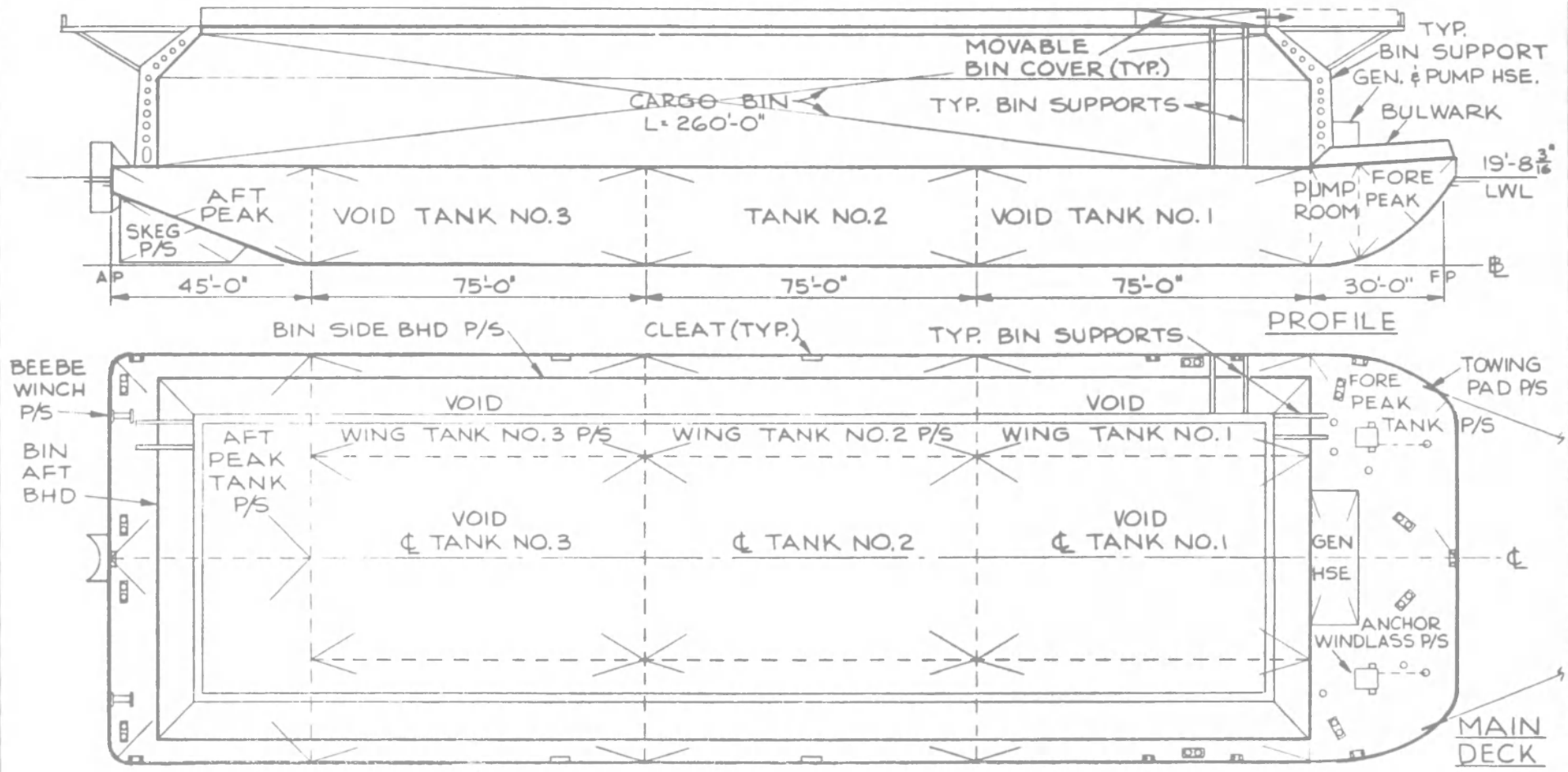

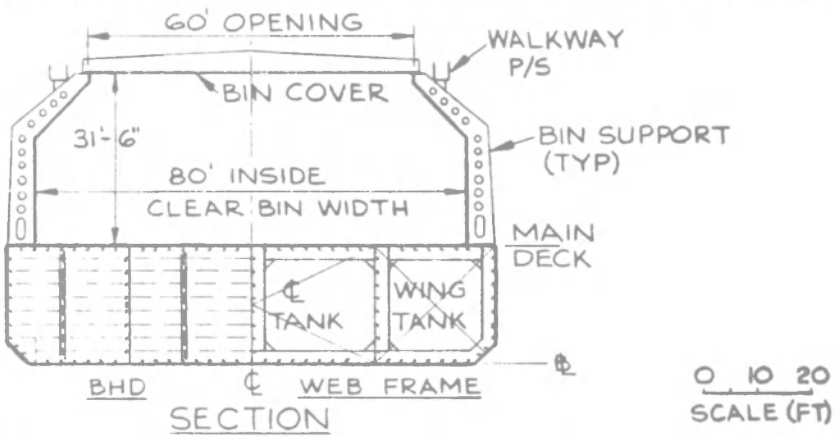

PRINCIPAL CHARACTERISTICS

LENGTH, O.A.	309'-1 5/8"
LENGTH, B.P.	300'-0"
BREADTH	90'-0"
DEPTH	22'-0"
DRAFT, SUMMER	19'-8 3/16"
DRAFT, LIGHT	3'-9 5/8"
DEADWT. @ 19'-8 3/16"	11,545 L.T.
CARGO BIN CAP'Y	600,000 FT³

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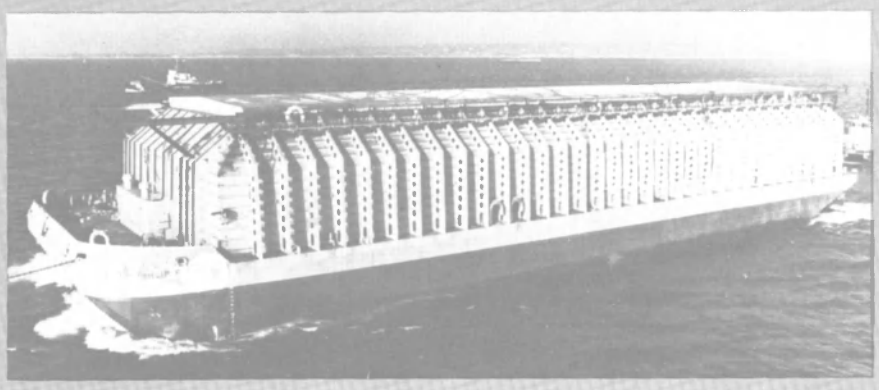

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Corps Of Engineers Lets $10.7-Million Contracts For Dredging Projects

In two separate actions, the U.S. Army Corps of Engineers has awarded dredging contracts totaling almost $10.7 million to three firms, New Orleans District Engineer Col. **Thomas A. Sands** announced. American Dredging Company won a $4,937,550 contract to make a second "lift" or enlargement on a hurricane protection levee in eastern New Orleans, and the joint venture of Bean Dredging Corporation and Williams-McWilliams Company were awarded a second contract to perform maintenance dredging on the Mississippi River-Gulf Outlet. Their bid at $5,767,600 was low bid on the project.

Navy Awards Arcwel $3.9-Million Contract For USS Ranger Repairs

Arcwel Corporation, San Diego, Calif., is being awarded a $3,961,000 firm fixed price contract for repairs to the distilling plant and boilers plus miscellaneous repairs to the USS Ranger (CV-61) at North Island Naval Air Station, Coronado, Calif. The Supervisor of Shipbuilding, Conversion and Repair, San Diego, Calif., is the contracting activity. (N62791-81-B-0158)

Canal Barge Building 75 Coal And Seven Tank Barges For $25.9 Million

The Canal Barge Co., Inc., 835 Union Street, New Orleans, La., has applied for a Title XI guarantee to finance the construction of 75 coal barges and seven tank barges.

Equitable Shipyards, Inc., New Orleans, has been named as the builder of 30 of the 195-foot-long coal barges. Twin City Shipyards, Inc., Sault Ste. Marie, Mich., is scheduled to build the remaining coal barges and St. Louis Ship, St. Louis, Mo., the tank barges.

Canal Barge plans to use all the vessels on the U.S. inland waterways.

If approved, the Title XI guarantee would cover $22,692,000, 87½ percent of the barges combined, estimated actual cost of $25,934,000.

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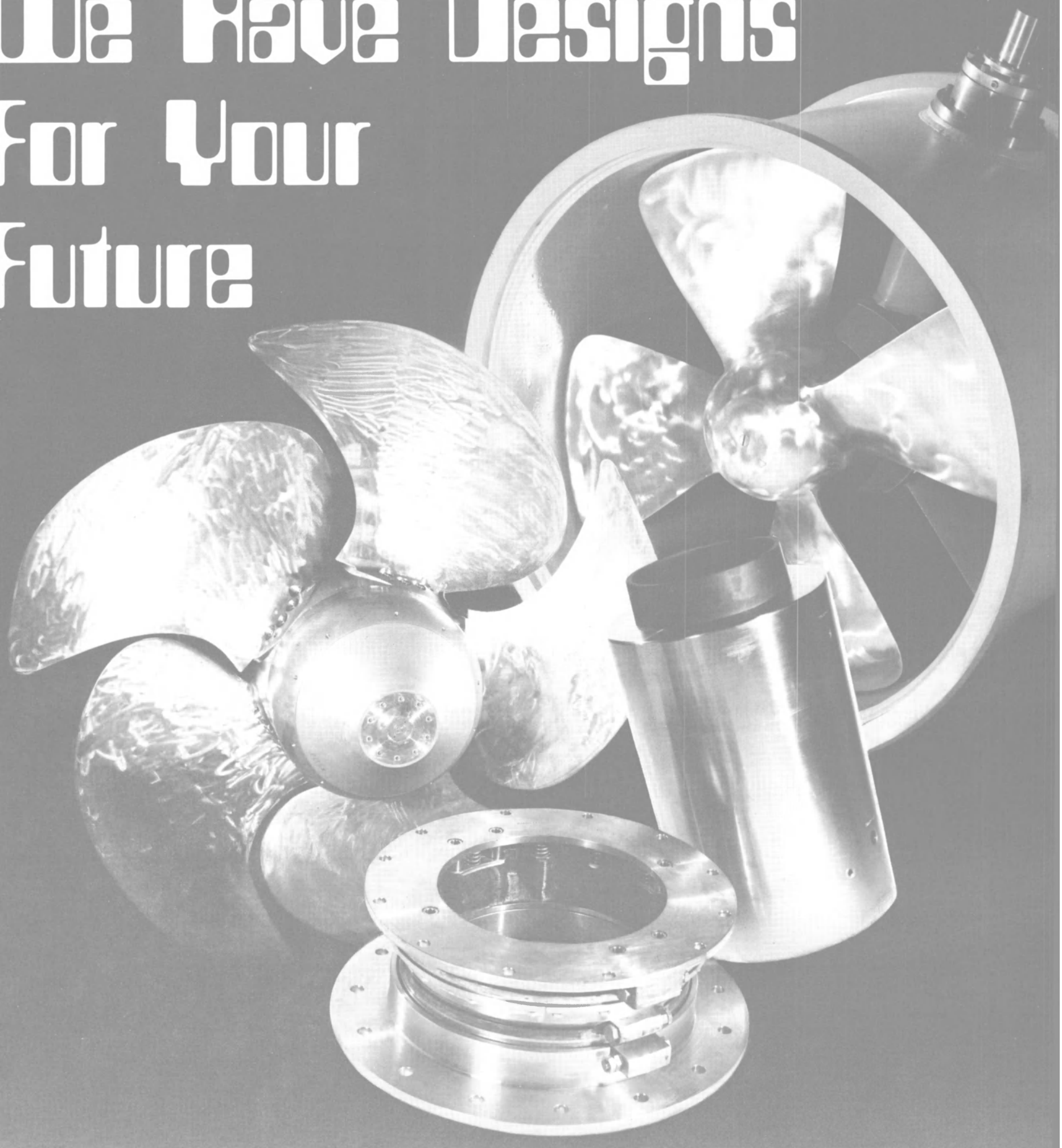

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Power transmission products to satisfy tomorrow's needs. KaMeWa Controllable Pitch Propellers for fuel economy. KaMeWa Controllable and Fixed Pitch Thrusters for maximum safety. Cedervall Stern Tube Seals for reliability. SKF Keyless Couplings for ease of installation. For details on how to put our technical expertise and experience to work for you, write or call Gary W. Dayton, 110 Norfolk Street, Walpole, MA 02081, (617) 668-9610.

Bay Building Barge With First Conveyor To Handle Wet Phosphate Rock

Construction is under way on a seagoing barge that includes in its equipment the first loop-belt type self-unloading conveyor system specifically designed to handle blended wet phosphate rock. The 610- by 78-foot barge is being built by the Bay Shipbuilding Corporation, Sturgeon Bay, Wis., for the Beker Shipping Company of Greenwich, Conn. The loop-belt self-unloading equipment and related machinery is being supplied by Stephens-Adamson, Inc., an Allis-Chalmers Corporation subsidiary.

The barge is of tug notch design, in which the stern is fitted with a deep notch to accommodate a 7,200-bhp tug that propels the barge. The all-welded barge will be used to transport phosphate rock between Tampa, Fla., and a Mississippi River port.

A loop-belt, self-unloading conveyor system is a development of Stephens-Adamson that is used extensively on Great Lakes bulk carrier freighters. The system involves a double set of conveyor belts that are sandwiched together by rollers in order to permit bulk material to be elevated from a lower level, as a ship's hold, to a higher level for discharge. The arrangement is very compact, freeing ship's space for payload.

Wet phosphate rock is a term used in the industry to describe phosphate ore that has been cleaned by washing and screening, but has not yet been converted into usable fertilizer. Physically, it resembles beach sand. The system on the Beker Shipping barge is rated 4,500 short tons an hour and has a 68-foot lift.

The barge also will be outfitted with 35 units of recently developed Stephens-Adamson bulk flow gate used in releasing bulk materials from ship's hoppers. These are used with a conveyor that traverses the 495-foot-long cargo hold, bringing rock to the loop-belt unit. A boom with a conveyor will move the rock from the loop-belt discharge to hoppers ashore.

Armco's Southwestern Steel Division Promotes Leeper And Carter

Robert L. Leeper

Armco's Southwestern Steel Division recently announced two promotions within the sales organization of the Houston-based steelmaker. **Robert L. Leeper** has been appointed product manager-alloy bars and semi-finished products. **Herbert E. Carter** has been appointed product manager-plates.

Herbert E. Carter

These new responsibilities reflect the growing demand for special alloy bar and plate steels developed by the division — like SSS-100 and NI-COP—from customers in marine, structural, construction, off-highway equipment, and general industrial markets.

Both Mr. **Leeper** and Mr. **Carter** will remain at the Houston headquarters of the division.

Robert Ware Establishes His Own Maritime Public Relations Service

Robert Ware

Robert Ware, editor of MARITIME REPORTER / Engineering News, has announced the establishment of his own firm, Robert Ware Associates (RWA). Effective with the completion of this issue, July 15, Mr. **Ware** will leave his position as editor of MR/EN to devote full time to his new career. Prior to joining MR/EN in April 1980, he had been editor of Marine Engineering/Log from 1962 to March 1980; his association with ME/L began in 1956.

RWA will provide public relations services, including news releases, feature articles, product promotions, market research, and consulting to clients in the marine industry worldwide and to companies seeking to enter the field.

Mr. **Ware** can be contacted at (212) 989-1485, or write to 10 Downing Street, New York, N.Y. 10014.

Circular Detailing New Suez Canal Regulations Available From Candia

Following the recent announcement by Suez Canal authorities that new beam and draft regulations have gone into effect for the 120-mile waterway, a circular giving specifics is available from Candia Shipping (USA), Inc. as a service to the U.S. shipping industry. "As a major specialist in attending transits through the Canal for vessels of all flags, we have been awaiting this new step ever since Step One of the first stage of Canal improvements was announced in January 1981," said **Ward Lape**, Candia's manager of U.S. operations.

When Step One went into effect early this year, the maximum beam allowable was increased from 160.5 feet to 180.6 feet and then raised to 200 feet. This allowed vessels to transit the Canal up to depths of 42 feet for the first time. Previously, vessels drawing over 38 feet were unable to use the waterway. Under the new regulations, Candia has learned that certain vessels will now be able to transit at a depth of 46 feet.

For a free copy of the circular,

Write 35 on Reader Service Card

IMODCO Receives Order From Petrobras For $5-Million SPM Terminal

An order for a Single Point Mooring terminal, valued at approximately $5 million, has been awarded to IMODCO, a unit of AMCA International Corporation, by Petrobras, the national oil company of Brazil.

To be sited in the Campos Basin offshore Brazil in 338 feet of water, the terminal will permanently moor a 53,000-dwt storage/processing tanker in the Badejo Field. The SPM will include an MPDU capable of transferring live crude from subsea wells to the dedicated tanker at 1,000-psi pressure. Processed crude will then be offloaded via shuttle tankers which will moor alongside.

Completion and installation is scheduled for autumn 1981.

A pioneer in the field, IMODCO's offshore terminals date back to 1959 and are utilized by leading oil companies, mining companies and the military. This is IMODCO's third SPM for use in Brazilian waters.

Wartsila Turku Shipyards Delivers Superferry 'Silvia Regina'

The Wartsila Turku Shipyards in Finland recently delivered the car/passenger ferry Silvia Regina (shown above) to Stockholms Rederi A/B Svea. Under the management of Silja Line of Abo, Finland, the new vessel will operate on the Helsinki-Stockholm route. At 25,680 grt and with 1,601 beds, the Silvia Regina and sister ship Finlandia are the biggest car/passenger ferries in the world. Total carrying capacity of each vessel is 2,000 passengers and 480 cars or 70 trailers.

Each of the 647 cabins is furnished with two beds side by side; some cabins have an additional Pullman bed. The cabins range in size from 9 to 12 to 20 square meters. Each is equipped with shower, toilet, radio, and automatic alarm. The larger cabins also have internal telephone service. Exceptional noise insulation has been achieved by the use of sandwich type internal bulkheads consisting of rock wool insulation between sheet steel plates that are coated with polyvinyl chloride.

On Decks 7 and 8 are the Maxim restaurants. The Maxim a la Carte, Maxim Grill, and Maxim Special are on Deck 7. On Deck 8 are the Maxim Terrace and the Silja Club for 150 guests. Also located on Deck 7 is the self-service Silja Tavern. The wide Arcade, with seating groups against the ship's sides and a tax-free shop on the inside, connects the Silja Tavern and Maxim a la Carte.

Deck 9 contains conference spaces with audiovisual equipment, conference hostess, and first-class service for 250 passengers.

At recent meeting of Long Beach/Greater Los Angeles Section of ASNE, Capt. **Joseph A. Gildea**, USN (Section chairman), presented Certificate of Appreciation to **J. Robert Malone**, immediate past chairman of the Section.

U.S. Combat Systems In Foreign Built Ships Topic At ASNE Meeting

The regular monthly meeting of the Long Beach/Greater Los Angeles Section of the American Society of Naval Engineers was held recently at the Officer's Club of the Los Alamitos Armed Forces Reserve Center. The meeting was convened by Section chairman Capt. **J.A. Gildea**, USN, who gave a comprehensive report on the proceedings of the Annual ASNE Day in Washington.

Before starting the technical portion of the meeting, Capt. **Gildea**, acting in behalf of ASNE president Vice Adm. **Bryan**, USN (Ret.), presented a Certificate of Appreciation to **Robert Malone**, chairman of the Section for the 1979-80 term.

In the absence of program chairman **Carl Erickson**, Capt. **Gildea** then introduced the speaker of the evening, **Charles V. Hill**, program manager, systems installation and integration, Pomona Division of General Dynamics. His topic was "Combat Systems of the U.S. Navy in Foreign-Built Ships."

Mr. **Hill** commenced by pointing out that in the foreign area there are several shipyards building modern hull designs in the 1,000- to 2,500-ton categories, and the U.S. shipyards are not. The foreign navies have become acquainted with U.S. weapons systems by virtue of transfers of more than 115 destroyers of the Fletcher, Gearing, and Sumner classes, with Brazil, Greece, Spain, Taiwan, and Turkey accounting for more than half of the vessels transferred.

The current U.S. Navy is comprised largely of combatant vessels of over 3,500 tons, whereas the majority of our foreign allies are building vessels of 2,700 tons and less. We have exported weapons for installation by foreign shipbuilders in foreign yards, primarily for ships of that country's navy. Now we are being confronted with third country programs such as ships for Turkey built in Germany, ships for New Zealand and Saudi Arabia constructed in Italy, all wanting U.S. weapons systems, Mr. **Hill** said.

The author pointed out that there appears to be a world market for naval ships in the 1,000-2,500 ton sizes, and there are none of these currently being produced in the U.S. From this he deduced that, providing U.S. shipbuilders are or can be competitive, perhaps our shipyards should become interested in production of these smaller ships for our foreign allies.

Bath Awarded $9-Million Navy Contract For Post Shakedown Work On FFGs

Bath Iron Works, Bath, Maine, is being awarded a $9,070,000 cost type order for post shakedown availability work on FFG-7 class guided missile frigates FFG-21, 24, 26, 29, 32, 33, and 34. The Naval Sea Systems Command is the contracting activity. (N00024-80-G-2146)

Puget Sound Tug & Barge Will Build 12 Barges Costing $39.5 Million

Puget Sound Tug & Barge Co., a subsidiary of Crowley Maritime Corporation, One Market Plaza, San Francisco, has applied for Title XI guarantees to aid in financing t he construction of 12 barges.

The vessels will be of three types: four 240-foot-long lighterage barges, four 282-foot oil/grain barges, and four 400-foot oil/deck cargo barges. Zidell Inc., Portland, Ore., has been selected to build two of the lighterage barges. F.M.C. Corporation, also of Portland, is scheduled to build the remaining lighterage barges. No builders have been named for the other barges, and no delivery dates have been set for any of the vessels.

When completed the barges are expected to be operated on the U.S. West Coast.

If approved, the Title XI guarantee would cover $34.5 million, roughly 87½ percent of the vessels' $39.5-million combined estimated actual cost.

Seaco Energy/Coastal Carriers Joint Venture Plans Floating Terminals

Sea Containers, Inc. announced recently that its wholly owned subsidiary, Seaco Energy Corporation, and Coastal Carriers Corporation have formed a partnership to build and operate American-flag floating terminals. These terminals, located in New Orleans at the mouth of the Mississippi, will be used to load coal for export to Europe and the Far East.

The terminals will take aboard coal from river barges or shoreside coal-handling stations, then move to deep water and load the coal on oceangoing vessels for transport. Two trips, a total of 12 hours loading time, will complete the loading of the oceangoing vessel to some 150,000 tons capacity. The terminals will have a capacity of 12,000,000 tons per year. At the present time the draft limitation in the river is 40 feet, allowing vessels of only 70,000 dwt to load and safely sail across a shallow sand bar. The concept is to load the coal on the oceangoing vessel at two points: the first in the Mississippi River and the second in the Gulf of Mexico, where there is a 65-foot draft.

The first terminal, at a cost of approximately $45 million, is to be constructed in an American shipyard and should be operational in 1983. This terminal will have an overall length of 608 feet, beam of 122 feet, and draft of 28 feet.

It is planned to contract with coal shippers or importers on a consecutive voyage basis and load 100,000-150,000-dwt vessels for discharge in Europe and the Far East. This project will enable the buyers to obtain freight rates at a discount from the current market. Lower delivery costs of American coal will eliminate some of the disadvantages of American coal sales, resulting in lower delivered costs, and reduce demurrage charges being paid at Eastern U.S. ports.

The partners, experienced transportation companies, specialize in container, tanker, and bulk carrier trades. The sales agent for the terminal will be Coal Export Logistics Corporation.

ON THE COVER

First Of New Destroyer Class Commissioned At Ingalls Yard

The first of a new class of U.S. Navy guided-missile destroyers, the most formidable surface ships of their size now joining the Navy, was commissioned recently at Ingalls Shipbuilding Division of Litton Industries, Pascagoula, Miss. The USS Kidd (DDG-993) (shown above) officially joined the Navy fleet at the ceremony. Three additional ships of the class, the Callaghan (DDG-994), Scott (DDG-995), and Chandler (DDG-996), are also scheduled for delivery to the Navy by Ingalls Shipbuilding this year.

Based on the proven design of the Ingalls-built Spruance-class destroyers, which began joining the fleet in 1975, the Kidd-class destroyers are multimission, able to operate offensively or to defend against simultaneous air, surface and subsurface attacks. The ship is 563 feet long, with a 55-foot beam and displaces 9,200 tons. Four gas turbine jet engines propel the ship at speeds in excess of 30 knots. The crew consists of 28 officers and 320 enlisted men.

Weapons include two Mark 26, dual-rail guided-missile launchers, two 5-inch/54-caliber lightweight guns, two Harpoon missile 4-cannister launchers, two triple-barrel torpedo tubes, as well as close-in weapons system, decoy system, and two antisubmarine helicopters. Designed and built to be exceptionally quiet, and with the most powerful sonar available, the Kidd can operate offensively against submarines. The ship also carries the most sophisticated medium-range air defense system now active in the fleet.

Ingalls, long a builder of destroyers, cruisers, and amphibious ships, is also building the U.S. Navy's new class of Ticonderoga guided-missile cruisers. When deployed in early 1983, the first of these ships will carry the Aegis weapons system, the most sophisticated air defense system in the world. The first ship, the Ticonderoga (CG-47), was christened by **Mrs. Ronald Reagan** in May.

The Kidd is the second U.S. Navy ship named for Rear Adm. **Isaac C. Kidd Sr.**, who was the senior Naval officer present afloat during the Japanese attack on Pearl Harbor. Admiral **Kidd** died on the bridge of his flagship USS Arizona during the attack, and was posthumously awarded the Congressional Medal of Honor for his bravery in action.

American Dredging Wins New Orleans Contract

American Dredging Company, Camden, N.J., is being awarded a $4,937,550 firm fixed price contract for construction of a hydraulic fill levee enlargement on on Lake Pontchartrain, New Orleans, La., following competition in which 51 bids were solicited and five were received. The New Orleans Engineer District, New Orleans, is the contracting activity. (DACW29-81-C-0227)

Santa Fe Diving Services Awarded Contract To Provide RCV And Crew

Santa Fe Diving Services, Inc. of Houma, La., has been awarded a contract by Montreal Micoperi J.V. to provide a remote-controlled underwater vehicle and a crew of operators to assist in the installation of two oil-production platforms off Brazil for the government oil agency, Petrobras.

Thomas M. Angel, vice president and manager of the diving company, said a new remote-controlled unit known as the RCV-150 will be used on the project. The vehicle is equipped with a manipulator that will operate 4-inch emergency valves and cross flood valves to maintain proper buoyancy of the platforms as they are lowered to the seabed. The unit will survey the ocean bottom before and after the installation.

The platforms Enchova and Cherne are in 115 and 143 meters (377 and 469 feet) of water, respectively. Both platforms are in the Campos Basin area on the Continental Shelf off the State of Rio de Janerio.

Mr. **Angel** also announced that a Brazilian company, Petroserv Servicos e Equipamentos Ltda, has been contracted to represent Santa Fe Diving Services for future activities in that country.

Santa Fe Diving Services, headquartered in Houma, is a subsidiary of Santa Fe International Corporation.

Shown at recent keel-laying ceremony for U.S. Navy cable repair ship T-ARC-7 are (L to R): Al **Giorgis**, vice president-technical, NASSCO; **George Uberti**, program manager, NASSCO; welding foreman **Carlos Gonzalez**; Capt. **Martin G. Hill**, USN, supervisor of shipbuilding, conversion and repair; NASSCO president **C. Larry French**; and **John M. Murphy**, vice president-corporate relations, NASSCO.

National Steel Lays Keel For U.S. Navy Cable Repair Vessel

A recent keel-laying ceremony at the National Steel and Shipbuilding Company (NASSCO) yard in San Diego initiated construction of the cable repair ship T-ARC-7 (to be named USNS Zeus) for the U.S. Navy. Capt. **Martin G. Hill**, USN, supervisor of shipbuilding, conversion and repair, struck the initial arc signalling beginning of construction. **C. Larry French**, president and chief operating officer, represented NASSCO at the ceremony.

The 512-foot ship will transport, deploy, retrieve, and repair submarine cables. She will tow acoustic projectors and a cable plow. Also part of the vessel's primary missions will be acoustic, hydrographic, and bathymetric (deepsea) surveys.

The Navy awarded NASSCO the contract for the design, construction, and testing of the technologically unique T-ARC-7 in August 1979. Engineering has been under way since that time, and fabrication of ship assemblies began last October. Launching is scheduled for July 1982, with delivery in September 1983.

The cable repair ship will be powered by diesel-electric drive of 10,000 shp, giving her a cruising speed of 15 knots. She will have accommodations for a complement of 126, and will be manned and operated by a Military Sealift Command civilian crew. Up to 1,000 miles of trunk cable for repair operations on communications lines now laid in ocean depths of up to 10 miles will be carried in the ship.

NASSCO, a wholly owned subsidiary of Morrison-Knudsen Company, has a current backlog of approximately $665 million. In addition to the T-ARC-7, ships under contract include two U.S. Navy destroyer tenders, AD-43 and AD-44, and eight products carriers for private ownership.

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Tugs CAPE HENLOPEN 3300 hp and FELLS POINT 2400 hp docking STONEWALL JACKSON.

NEW OFFICERS FOR ASNE SECTION—At a recent dinner meeting, the Northern New England Section of the American Society of Naval Engineers elected the following slate of officers for the 1981-82 term (L to R): **Terry K. Hardy**, secretary; **Philip V. Johnson**, chairman; **Norman K. Berge**, vice chairman; and **Gerald J. Gouveia**, treasurer.

Second Crandall Dock At National Sea Products Yard Rebuilt And Enlarged

The small Crandall marine railway drydock at the National Sea Products, Inc. shipyard in Rockland, Maine, (shown above), has just been enlarged and rebuilt for 700-ton capacity. This improved facility, along with the larger one recently rebuilt for 1,200 tons, assures the yard and ship operators on the Northeast Maine coast of adequate and reliable drydocking capacity, with a good backup plant for speedy vessel repair. A similar restoration was completed in 1980 at the Frank L. Sample & Son, Inc. yard in Boothbay Harbor.

The restoration at National Sea Products, with new machinery, chains, cradle, and roller system and an extended track, has almost doubled the capacity, increasing it from 400 to 700 tons, and resulted in twice as much water draft over the cradle blocks.

Not only was the total capacity increased, but by using steel cradle beams with a decked cradle and winch-operated bilge blocks, along with larger track rails and rollers, the concentrated load capacity was boosted from 5 to 8 tons per foot. This increase with the draft increase from 7 to 14 feet makes the dock far more valuable and useful, with less dependence on peak tides to get enough water over the blocks. Eventually, it should result in a substantial growth of shipyard business, especially as it seems that more and more vessels are in need of refit.

The project was carried out gradually over a two-year period by the shipyard itself under the direction of **Perry Holmes** and his staff. The design, plans, underwater work, machine elements, and chains were provided by Crandall Dry Dock Engineers, Inc. of Dedham, Mass.

Ed Miske, Barry Hall, Standing: Fred West, Dick Steiner, Duane Cozard, Bernie Logan, Fred Ramsden

"We're the guys who build 'em your way"

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"Knowing how to meet these different customer demands and their cargo handling needs, requires versatile experience, plus up-to-date construction knowledge and capabilities. You don't learn all that overnight.

"We know our trade, the latest developments in it, and take pride in our work. We know what makes a quality barge, and are always looking for better ways of giving the customers what they want.

"Our design experience and construction flexibility lets us build barges the customers' way that are competitively priced with barges built someone else's only way."

Experience, quality, value. HBC Barge builds barges in any size and configuration you need, for chemicals and other liquids, coal, grain and other commodities.

Go beyond options and get what you want.

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Phone: (412) 785-6100

Robert W. Sanders, vice president, Turecamo Coastal & Harbor Towing Corporation, outgoing chairman; **Daniel B. Curll III,** Association president; and **Anthony J. McAllister Jr.,** president, McAllister Towing and Transportation Company, the new chairman.

Anthony McAllister Jr. Elected Chairman Of New York Towboat Association

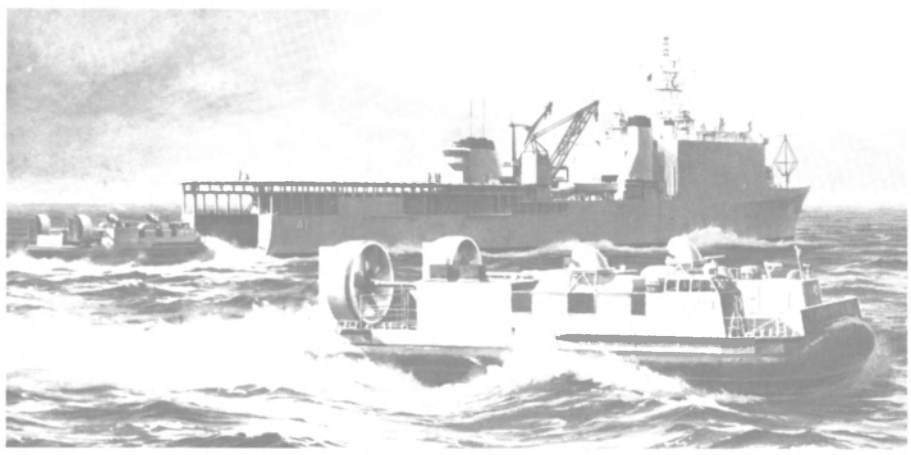
Anthony J. McAllister Jr. was elected chairman of the New York Towboat and Harbor Carriers Association at its recent annual meeting. Mr. **McAllister** succeeds **Robert W. Sanders,** vice president, Turecamo Coastal & Harbor Towing Corporation.

The Association represents the interests of the tug and barge industry operating in the Port of New York/New Jersey. Its members are responsible for the transportation of petroleum, petroleum products, other bulk commodities, and containers by water.

Mr. **McAllister** is the president of McAllister Towing and Transportation Company, Inc. and the great grandson of the company's founder. He is a graduate of the New York State Maritime College, served in the Navy, and has held the jobs of deckhand and mate aboard McAllister tugs.

In 1958, Mr. **McAllister** was appointed assistant manager of the Philadelphia division of McAllister Bros., Inc., and in 1970 was made a vice president of the corporation. In 1974, he became a part owner of McAllister Towing and Transportation Company, the parent company, and in 1980 was elected as its president.

At the Association's meeting, **Daniel B. Curll III** was reelected president, **Virginia M. Thomas** was reelected treasurer, and **Thomas F. Horan** was reelected secretary.



Artist's rendering of one of six new "LCAC" (Landing Craft, Air Cushion) Bell Aerospace Textron will design and build for Navy. In background, another LCAC maneuvers its 47-ft.-wide beam into 48-ft. well deck of a Landing Ship Dock (LSD).

$172-Million Navy Order To Bell For New Type Landing Craft

Bell Aerospace Textron, headquartered near Niagara Falls, N.Y., has won a $40-million U.S. Navy contract for the detailed design and long lead materials for a new type of amphibious landing craft. Announcement was made by **Norton C. Willcox,** Bell president.

The contract contains two options for later production of six "LCAC" (Landing Craft, Air Cushion), one option for $81 million, the other for $51 million, for a total contract value of $172 million.

Mr. **Willcox** expects additional production contracts will follow. He predicts, "The craft will vastly improve the ship-to-shore capability the Navy must have to meet today's needs for amphibious assault missions."

What makes the LCAC unique, according to Mr. **Willcox,** is that it is supported on a pressurized cushion of air and travels at much higher speeds than is presently possible with current conventional landing craft.

Being amphibious, the craft can operate independently of tides, water depth, underwater obstacles, and beach gradients. It can transport equipment, personnel, and weapon systems (including the main battle tank) from well decks of support ships located over the horizon to the beach at speeds up to 50 knots (56 mph). Its payload will be 60 short tons with an overload capacity of 75 short tons.

The Naval Sea Systems Command awarded Bell a contract to design, build and test a prototype in 1971. This craft, known as the JEFF(B), was built by Bell's New Orleans Operations and has been in intensive test since July 28, 1978, at Bell's Test and Training Facility at the Naval Coastal Systems Laboratory, Panama City, Fla. The current contract is an outgrowth of Bell's 10-year development program for the Navy which is aimed at revolutionizing American amphibious warfare.

Like the JEFF(B), the new craft will be 87 feet long and 47 feet wide, and it will be powered by jet engines.

The major work on the new craft will be performed at Bell's New Orleans Operations. **John J. Kelly** is vice president and general manager of the facility.

This is the second major contract for amphibious landing craft awarded to Bell Aerospace by the military in recent years. Bell began producing 12 "LACV-30" (Lighter, Amphibian Air Cushion Vehicle—30-ton payload) for the U.S. Army Military Equipment Research and Development Command (MERADCOM) in 1980.

Theriot-Modec To Build Ammonia Barge For Energy Transportation Subsidiary

Theriot-Modec Enterprises, Inc. (TMEI), a marine construction company located in Larose, La., recently signed a contract with Energy Ammonia Corporation, a subsidiary of Energy Transportation Corporation of New York City, for construction of an 8,000-ton, oceangoing anhydrous ammonia barge. The barge will have an overall length of 420 feet, beam of 78 feet, and depth of 28 feet.

Chicago Bridge and Iron Company will assist TMEI in the vessel's construction by furnishing the cargo tanks and installing the associated machinery. Delivery of the barge by TMEI is scheduled for mid-January 1982, at which time it will be towed to CBI's facility in Memphis, Tenn., for completion. Upon delivery by CBI, the barge will be chartered to International Mineral & Chemical, Inc. to transport anhydrous ammonia from Louisiana to Florida.

Edward Campbell Named To Board Of Trustees At Webb Institute

Edward Campbell

Webb Institute of Naval Architecture, the oldest four-year naval architecture undergraduate institution in the U.S., announced recently that **Edward Campbell** has been elected a trustee. **Frank J. Graziano,** chairman of the board of trustees, stated that he is "pleased that such a distinguished leader of the corporate world will be joining us at Webb. I know with **Ed Campbell's** participation in the educational mission of Webb, our task for the future will be made easier."

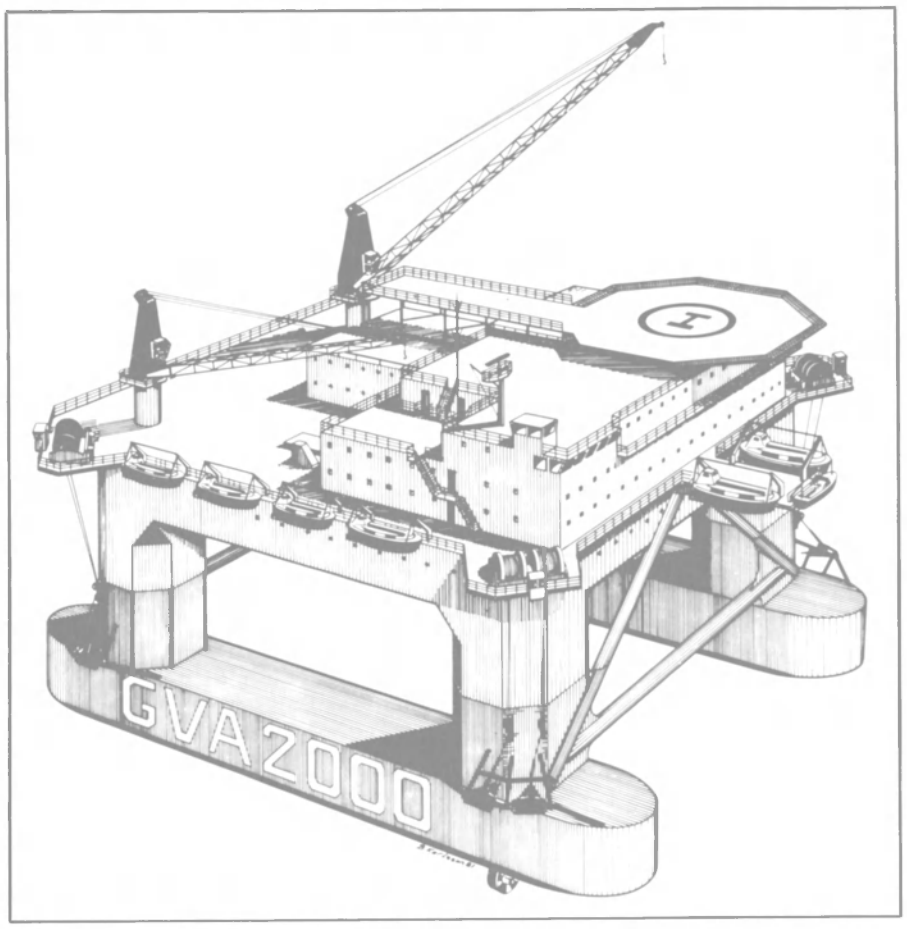
Mr. **Campbell** is president and chief executive officer of Newport News Shipbuilding, the world's largest private shipyard, employing 25,000 people. It is the nation's only company capable of building and servicing a full range of either nuclear or conventionally powered ships for both the Navy and commercial customers. Its subsidiary, Newport News Industrial, provides a wide range of engineering, service, and construction skills to commercial electric utility companies. Newport News had total sales of $900 million in 1980.

Mr. **Campbell** joined the company in January 1979. He previously had been executive vice president of the J.I. Case Company of Racine, Wis., also a Tenneco subsidiary, where he was employed for 11 years. Prior to that, he held management positions at Whirlpool Corporation, Joy Manufacturing Company, and Abex Corporation.

Foss Requests Title XI On Six Tractor Tugs To Cost $26.9 Million Total

Foss Launch & Tug Company, a subsidiary of Dillingham Corporation, Seattle, has applied for a Title XI guarantee to aid in financing the construction of six tractor tugs. All of the vessels will be diesel-powered, with four rated at 3,000 bhp and two at 4,000 bhp.

The tugs are expected to operate in the Puget Sound and Los Angeles/Long Beach harbor areas. A builder has not yet been selected. If approved, the Title XI guarantee would cover $23,530,000, or 87½ percent of the estimated cost of $26,892,000.



Drawing shows Gotaverken Arendal's semisubmersible and multiservice rig design.

$140-Million Contract For Two Offshore Rigs Awarded To Gotaverken Arendal Shipyard

An agreement has been signed between Consafe Offshore AB and Gotaverken Arendal AB, both of Sweden, for the construction of two semisubmersible accommodation and multiservice rigs, design GVA 2000. The total value of the order is approximately $140 million. Delivery is scheduled for early fall 1982 and spring 1983.

The GVA 2000 platform represents a completely new design. It is a four-column semisubmersible of twin hull configuration developed by Gotaverken Arendal, with accommodations for 600 offshore workers.

Construction work offshore raises highly specialized demands of flexibility, efficiency, and safety. This new design has been developed with special consideration given to the demands and requirements raised by the oil companies.

GVA 2000 is said to be equally suitable as a drilling rig. Special consideration has also been taken in order to be able to use the platform for advanced diving operations under rough sea conditions.

The platform of the GVA 2000 has an overall length of 252.6 feet, width of 246 feet, height to main deck of 89.2 feet, and height to lower deck of 72.8 feet. Operating draft is 51.2 feet, survival draft 39.4 feet, and transit draft 22.6 feet.

Management Promotions At Offshore Company— R.J. Browning Named VP

Ronald L. Kuehn Jr., chairman of the board and chief executive officer of The Offshore Company, Houston, a major international drilling contractor, has announced that several promotions had been made within the management of the company. **Robert J. Browning** has been elected a vice president and given responsibility for managing the company's Contracts and Sales Department. He was previously an area manager with responsibility for operations in Saudi Arabia and Abu Dhabi.

Jon C. Cole, formerly manager of the Corporate Planning Department, had transferred to the Contracts and Sales Department. And **James C. Yardley**, a member of the corporate planning group, has been selected to replace Mr. **Cole** as manager of the Corporate Planning Department.

The Offshore Company is a wholly owned subsidiary of Southern Natural Resources, Inc., which owns various other natural resources and energy-related businesses.

Bludworth Bond Yard Gets $2-Million Contract For Seismic Vessel Conversion

Bludworth Bond Shipyard, Inc. of Houston has been awarded a $2-million contract to convert a 180-foot by 40-foot supply vessel into a seismic survey vessel for Western Geophysical Company of America. This is the fourth major conversion for Western Geophysical. Previous conversions are working in Alaska and on the U.S. Gulf Coast.

Bludworth Bond has expanded its repair facilities from one floating drydock in 1977 to three at present. The fourth drydock, a 2,800-ton unit, will be operational in the spring of 1982.

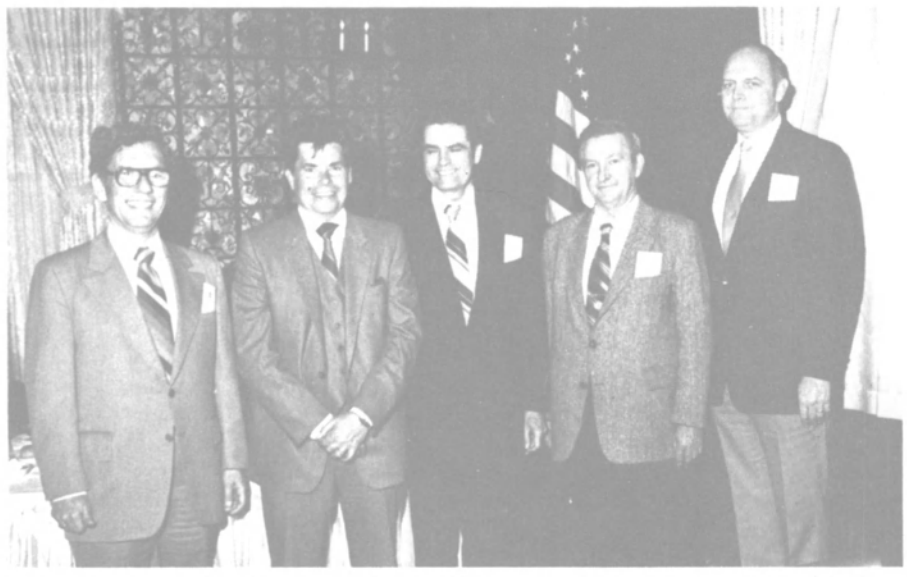
Benson, Basse And David Join Tampa Barge In Management & Production

Inslee M. Rigdon, vice president of Tampa Barge and Ship Repair Services of Tampa, Fla., has announced the appointments of **Arthur Benson** as executive assistant to the president, **Bill Basse** as supervisor of steel erection planning and layout, and **Bill David** as field superintendent in charge of steel erection.

Arthur Benson

Mr. **Benson** served for a number of years as chief engineer of oceangoing vessels, and in various capacities ashore as port engineer and in shipyard management positions. For three years during the Vietnamese struggle, he served as director of ship repair and maintenance for the Gulf Coast District of the U.S. Maritime Administration.

Mr. **Basse** is widely known throughout the industry as a steel man. Mr. **David** is well-known for his many years in the ship repair industry as a steel erector. Tampa Barge is in the process of expanding its ship repair facility; the acquisition of Messrs. **Benson, Basse,** and **David** is a major step in that direction.



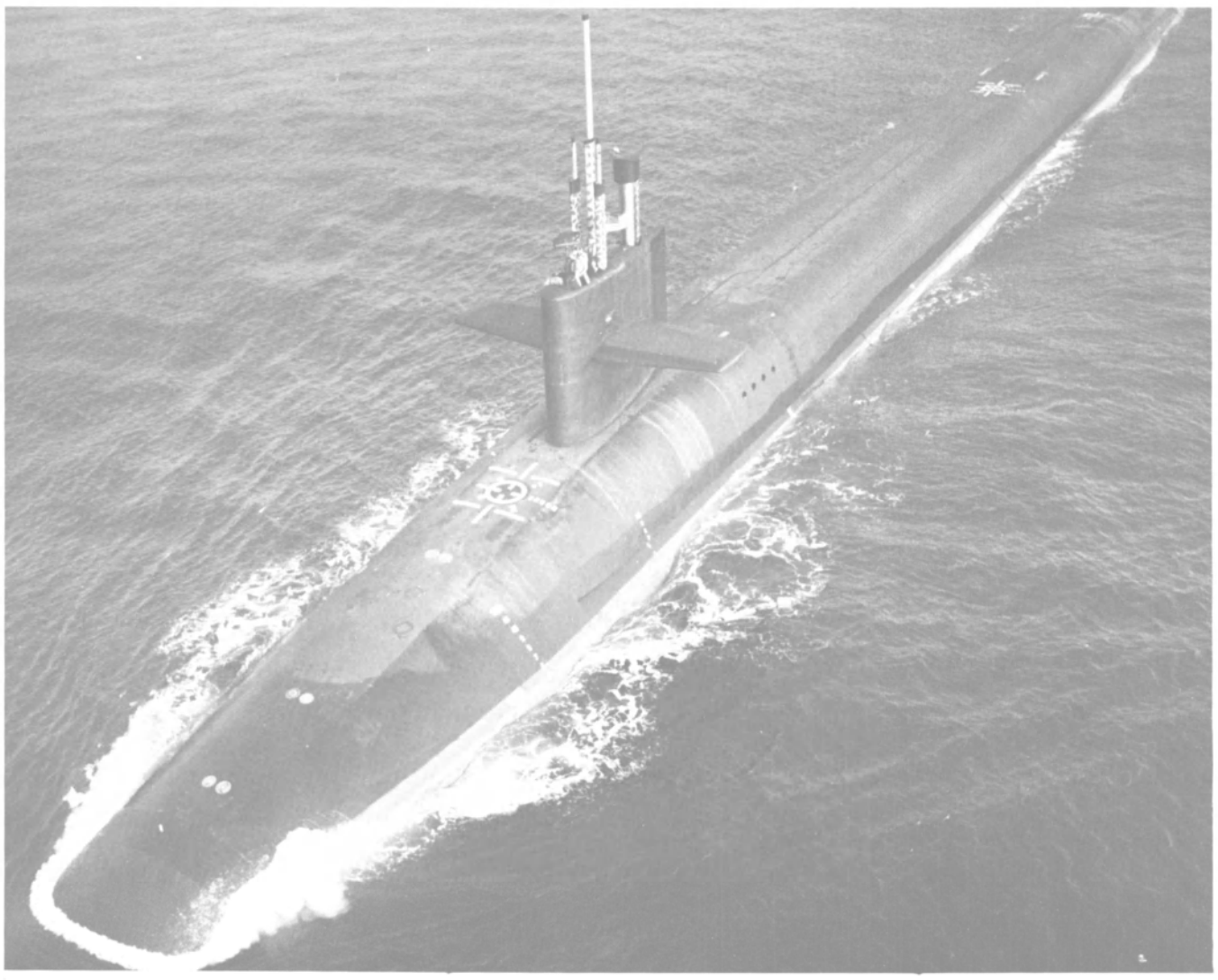
Attending recent ASNE Delaware Valley Chapter meeting were (L to R): **L. Cohen,** vice chairman, CDI Marine Co., Voorhees, N.J.; **Richard Watson,** presenter, J.J. Henry Co., Inc., Moorestown, N.J.; **E.P. Weinert,** chairman, Naval Ship Systems Engineering Station, Philadelphia; **H. Gladfelter,** meeting coordinator, J.J. Henry Co., Inc., Moorestown; and **J.W. Deal,** secretary-treasurer, Sanders & Thomas Inc., Pottstown, Pa.

Delaware Valley ASNE Chapter Discusses Government Contracting

Approximately 30 members and guests attended a recent meeting of the Delaware Valley Chapter of the American Society of Naval Engineers at the Officer's Club, Philadelphia Naval Base.

Richard Watson of the J.J. Henry Co., Inc. made an excellent presentation of "The Pros and Cons of Government Contracting in the Naval Architecture and Marine Engineering Business." The salient points discussed were contracting methods and procedures and their impact on prospective and established contractors. Mr. **Watson's** presentation was followed by a lively question and answer session.

Delaware Valley Chapter chairman **Eugene P. Weinert** thanked Mr. **Watson** for a most interesting presentation, and presented him with a Certificate of Appreciation.



TRIDENT GOES TO SEA

THE U.S. NAVY'S FIRST TRIDENT SUBMARINE, THE OHIO, RETURNED FROM SUCCESSFUL SEA TRIALS ON JUNE 20, 1981.

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GENERAL DYNAMICS
Electric Boat Division

Hudson Delivers The 'Gulf Dolphin' To Gulf Fleet Marine

Gulf Fleet Marine Corporation, headquartered in New Orleans, has taken delivery of the Gulf Dolphin (shown above), a 112-foot by 26-foot by 11-foot, 1,200-horsepower-class utility vessel built by Hudson Shipbuilders, Inc. (HUDSHIP) in Pascagoula, Miss.

The Gulf Dolphin represents the first of two utility vessels to be delivered to Gulf Fleet this year and the fourth of five such vessels HUDSHIP has delivered to Gulf Fleet in the past two years.

The vessel is powered by twin GM 16V-92 diesel engines through Twin Disc MG 520 5:1 gears and is capable of a maximum speed of 13 knots. Constructed with a clear deck area of 60 feet by 20 feet, she has a deck cargo capacity of 82 long tons. Her fuel tanks have a capacity of 20,735 U.S. gallons while she can carry 57,255 U.S. gallons of drill water and 4,470 U.S. gallons of potable water.

The Gulf Dolphin's air-conditioned pilothouse and crew quarters, as well as a full package of electronic and navigational equipment, make the vessel ideal for service in most locations.

Gulf Fleet Marine Corporation is one of the Houston Natural Gas Corporation group of companies, and provides a wide range of services to the offshore marine and construction industries.

MacGregor hoistable decks in the Skaugran, first RO/RO vessel built by Fredriksstad m.V for Seaboard Company of Canada.

Third Seaboard RO/RO Ordered At Fredriksstad Yard Will Have MacGregor Hoistable Decks

Fredriksstad mek Verksted, Norway, is to build another 42,000-dwt RO/RO ship for the carriage of forest products and cars on Seaboard's cross-Pacific trade. Like the first two vessels in the series, Skaugran and Skaubord delivered from the same yard two years ago, more than two-thirds of its 4,000-car payload will be stowed on hoistable MacGregor decks of the lightweight Omega construction.

The hoistable decks are a principal feature of the bold Seaboard concept, because in effect, they enable a vessel primarily designed for the carriage of packaged lumber and other wood products on the outward Vancouver-Japan voyage, to transport cars on the backhaul—and in quantities comparable with those carried by a PCC (Pure Car Carrier).

Some changes, based upon two years' operational experience with the first vessels, will be incorporated in the newbuilding. They include alterations to the internal cargo handling and stowage layout involving a 25-percent increase in the installed area of hoistable MacGregor decking. This will raise it from 19,350 cubic meters to 24,475 cubic meters —with a commensurate increase in total car capability—i.e., from the former 3,504 to 4,000.

The economic success of the Seaboard vessels — which, at 42,000 dwt makes them the world's biggest RO/ROs — is due in large measure to their very high utilization carrying cars on the backhaul, and the hoistable decking contributes directly to that success. Thus its contribution to this third in the series will be even larger than it is with the earlier ships.

Key to the weight-saving properties of the Omega design lies in the configuration of its load-bearing members which, in cross-section is akin to the Greek letter "Omega." It has now been specified for installation on some 15 vessels, and this repeat Seaboard order provides continuing proof of its success under operational conditions.

The Seaboard Company is a prominent Canadian producer of forest products; its London company will operate the new vessel under British registration.

The Seaboard RO/ROs have an overall length of about 598.7 feet, beam of 105.8 feet, depth of 84.6 feet, and draft of 39.4 feet. A 15,000-bhp diesel engine provides a service speed of 14.8 knots.

A.E. Fiore Appointed Chief Maritime Technical Advisor For Republic Of Panama

Capt. Alfred E. Fiore

Capt. **Alfred E. Fiore** was recently appointed chief technical advisor for the Directorate of Consular and Maritime Affairs, Republic of Panama. His principal involvements include the safety inspections programs of Panamanian-flag vessels worldwide, the investigation of ship casualties, liaison with IMCO, training programs in the maritime sphere, and other technical matters pertaining to Panama's maritime interests.

He was previously senior staff consultant with Ship Analytics, a maritime consultant and engineering firm based in Centerport, N.Y., and in North Stonington, Conn. Before that, as captain, U.S. Maritime Service, he was head, Department of Nautical Science, at the United States Merchant Marine Academy, Kings Point, N.Y.

GE Receives $10-Million Order For Guided Missile Frigate Control Systems

The General Electric Company's Simulation and Control Systems Department in Daytona Beach, Fla., has been awarded three contracts, totaling over $10 million, to furnish automated control systems for six U.S. Navy Guided Missile Frigates.

John Breyer, program general manager for digital control systems at the GE facility, said that three of the systems will be delivered to the Bath Iron Works in Bath, Maine, and the other three systems will be delivered to Todd Shipyards in Seattle, Wash., and San Pedro, Calif.

Bonacci Named Systems Department Manager At Engelhard Industries

Engelhard Industries, Union, N.J., has named **John C. Bonacci** to the position of general manager, Systems Department. In this position, Dr. **Bonacci** will assume overall management responsibility for production, marketing and sales, engineering and application technology for air and gas systems, sodium hypochlorite generators and cathodic protection systems. In addition, he will be responsible for Exhaust Controls, Inc., a subsidiary of Engelhard Industries.

Affiliated with Engelhard since 1975, Dr. **Bonacci** was manager of chemical engineering research prior to his present appointment.

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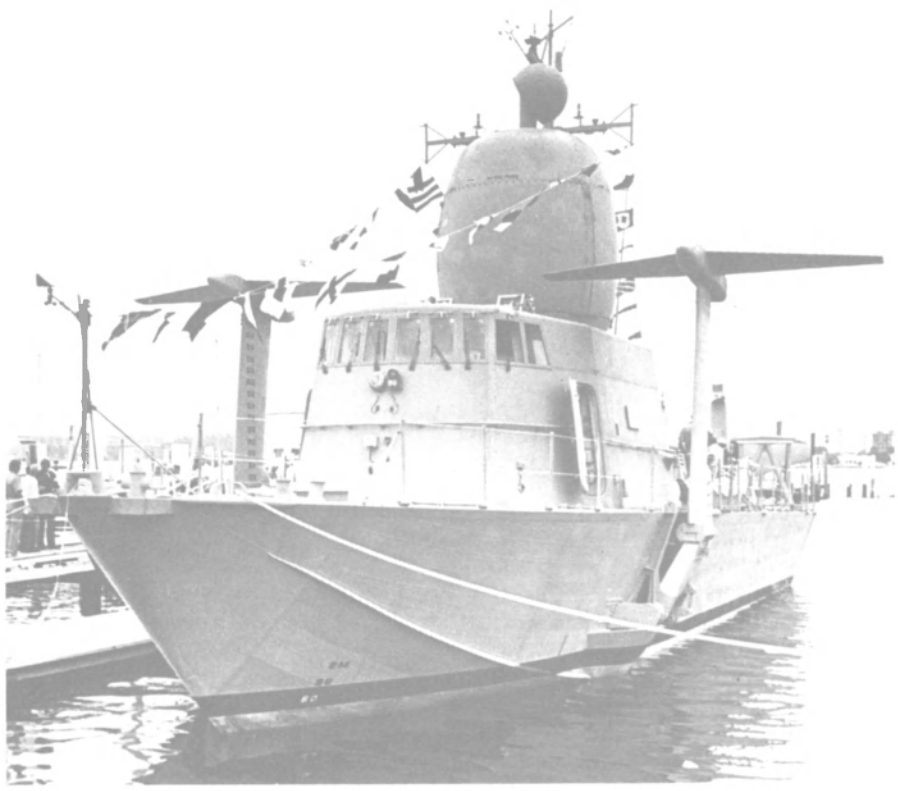


Grumman hydrofoil patrol craft built at Lantana Boatyard, Inc. in Florida was launched recently. An improved version of Grumman-designed Flagstaff (PGH-1), vessel is powered by 5,400-hp Allison gas turbine engine, can attain 50-knot speed.

Grumman Hydrofoil For Israel Launched At Lantana Boatyard

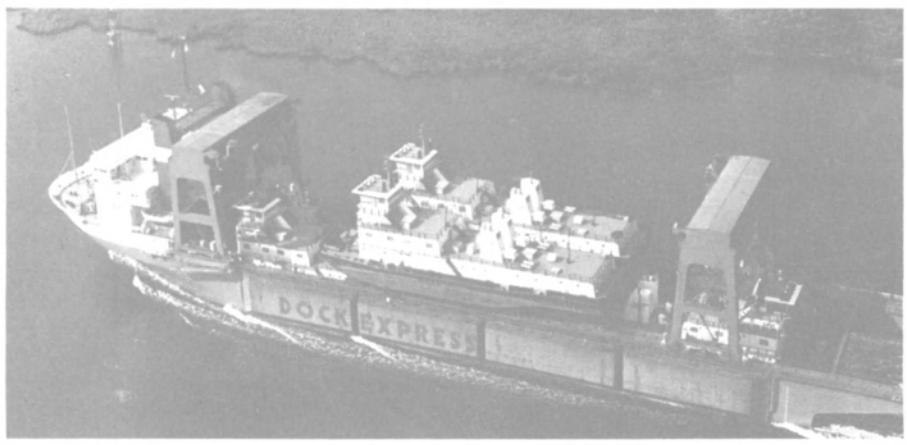
Grumman Aerospace Corporation recently launched a 100-ton hydrofoil patrol boat under construction for Israel. The launching took place at Lantana Boatyard, Inc. in Lantana, Fla. where the vessel was built. After testing in the Atlantic Ocean near Lantana, the hydrofoil will be delivered to the Israeli government and transported to Haifa, where it will go into operational service.

The Israeli craft, designated Design M161, is a variant of Grumman's Mark II, an improved version of the company's earlier hydrofoil patrol craft, the Flagstaff (PGH-1). That vessel was delivered to the U.S. Navy in 1968, and later operated with the U.S. Coast Guard on the East and West Coasts.

The 84-foot, all-aluminum Israeli boat will be capable of speeds of 50 knots when foilborne and eight knots when operating on its hull. A 5,400-hp Allison 501-KF gas turbine powers the boat when it is riding on its foils. An over-the-stern, precision geared transmission system with a 14:1 reduction ratio is housed in the retractable, steerable tail strut. The controllable-pitch, 4-bladed stainless steel propeller has a diameter of 52 inches.

Hullborne propulsion is provided by twin 100-hp, retractable steerable drive units at the stern. Hydraulic power from six 64-gpm hydraulic pumps, three on each gearbox of the ship's service generator sets, drive integrally mounted Rexroth hydraulic motors. Propellers are fixed-pitch, 3-bladed pusher type of 315L stainless steel, with diameter of 26 inches.

The electric plant consists of twin Pratt & Whitney ST-6 gas turbine engines driving 200-kw generators, providing 100-percent redundancy. The engine monitoring and control system provides real-time monitoring of 22 ship subsystems having 469 parameters and direct control of 16 subsystems. The attitude control system provides automatic roll, pitch, and heading control; radio frequency height sensor, and digital attitude control.



Dravo-Built Towboats For China Get A Lift From Dock Express

Four 6,000-bhp Mississippi River type towboats were loaded aboard the heavy-lift vessel Dock Express 11 (shown above) at the Port of New Orleans recently for transport to the People's Republic of China, it was announced by **Warren R. Wheelock,** vice president of Dock Express Shipping, Houston.

Each of the towboats measures approximately 150 feet long, with a beam of 42 feet and height of 58 feet, and weighs about 800 short tons. Two of the boats were floated into the submerged vessel and stowed, stern to stern, inside the dock hold. The remaining two boats were lifted aboard by two floating cranes provided by Avondale Shipyards and Bisso Marine of New Orleans, and stowed side by side amidships. The 10,082-mile voyage, via the Panama Canal, was expected to take about 34 days to complete.

This is the first sale of towboats of this type to the People's Republic of China. Dravo Corporation of Pittsburgh designed and built the boats, and Transoceanic Shipping Company of New Orleans was the agent and freight forwarder for Dravo.

Dock Express Shipping bv is a specialized heavy-lift shipowner based in Rotterdam, with North American headquarters in Houston at 3050 South Post Oak Road, Suite 1770, 77056; (713) 626-0405.

Petronio Elected VP-Engineering At Pool Company Of Houston

B.D. Miller, vice president of Pool Company's Operations Support Services Division, has announced that **Nicholas Petronio** has been elected vice president-engineering. He is responsible for all engineering support for the company's three expanding operating units—Pool Well Servicing Company, Pool Offshore, and Pool-Intairdril.

Nicholas Petronio

Mr. **Petronio** joined Pool Company in May 1978 as manager of construction in the Operations Support Services Division, and was promoted to director of engineering in November 1978. He has supervised engineering for the construction of more than 30 onshore and offshore rigs.

Prior to joining Pool, he was shipyard technical manager for a major construction yard, and had accumulated more than 10 years' experience in engineering and steel fabrication including computerized stress analysis and design, production and quality control, training, and shipyard management.

Two MARCO Oil Skimmers Delivered To Mexican Navy

To upgrade its oil spill response capability, the Mexican Navy has purchased two MARCO Class I-D oil-spill recovery vessels (one shown above). Capt. **Jose H. Orazco Peralta** took delivery of the skimmers in San Diego from **D. William Lerch,** vice president of MARCO Pollution Control. Shortly following this delivery, the Mexican Navy ordered five more Class I-D skimmers, thereby increasing its skimmer fleet to seven.

The MARCO skimmers are built around the exclusive MARCO Filterbelt system, which uniquely removes oil and debris from the water without taking the water aboard. The Filterbelt picks up all types of oil from the surface, including light distillates, heavy weathered crude,, and Bunker C. It also has the ability to work effectively over a wide range of sea conditions.

These 37-foot skimmers are the first self-propelled Filterbelt skimmers for Mexico. MARCO engineers conducted a thorough training course for the Mexican crew, which included both the theory of the MARCO Filterbelt system and extensive hands-on practice in the operation and maintenance of the skimmers. After the training was completed, a Mexican Navy vessel transported the skimmers from San Diego to their home ports of Vera Cruz and Manzanillo.

The Class I-D is said to be ideal for rapid first response to oil spills on waterways, bays, and harbors. It has a cruising speed of 15 knots and a skimming speed up to 2 knots.

The Class I-D's principal dimensions include a length of 37 feet, a beam of 10 feet, and a depth of 3 feet. Standard equipment includes a hydraulic power system for the Filterbelt, a 1,430-gallon oil sump, an automatic decanting system, a debris collection basket, and twin 120-bhp GM 4-53 diesel engines with Stern Power outdrives.

In addition to oil-spill recovery vessels from 28 to 120 feet, MARCO is a leading designer and builder of other commercial vessels, including 19-foot skiffs, 32-foot gillnetters, and 108- to 160-foot trawlers, seiners, crabbers, and combination boats. Since 1972, MARCO has delivered more than 70 skimmers worldwide to government agencies, oil-spill clean-up cooperatives, and major oil companies.

David Taylor Naval R&D Center Hosts Hydromechanics Meeting

The David Taylor Naval Ship R&D Center (DTNSRDC), Carderock, Md., hosted the 1981 Naval Sea Systems Command Hydromechanics Committee (SEAHAC) recently. The two-day meeting was attended by nearly 200 persons representing the private sector, academic institutions, and Navy activities. The meeting is held annually and provides a forum for the transfer of technology.

SEAHAC, established in 1950, acts as an advisory body for research and development in the field of naval hydromechanics. This committee is comprised of representatives from the Naval Sea Systems Command together with representatives from Navy laboratories, National Bureau of Standards, the Office of Naval Research, and the Naval Academy. SEAHAC is responsible for making specific recommendations regarding the technical objectives, forecast of research needs, development of priorities, order of procedures, methods and means of investigations, and related items of importance.

Technical subcommittees of SEAHAC are organized to represent the following principal technology areas in the field of naval hydromechanics: resistance and propulsion, seakeeping, maneuvering and control, propulsors, hydro-acoustics, fluid/structure interaction, and weapon launch. In addition to these areas, topics of the meeting included overviews of current Navy research programs and current exploratory development programs.

Rear Adm. **James W. Lisanby**, USN, Deputy Commander for Ship Design and Integration, Naval Sea Systems Command, was guest speaker at the luncheon held on May 19. He reviewed briefly recent progress on ship R&D by reflecting on remarks he had made at the 18th Towing Tank Conference in August 1977. To this end he recalled the following suggestions he had made then and identified recent accomplishments for each:

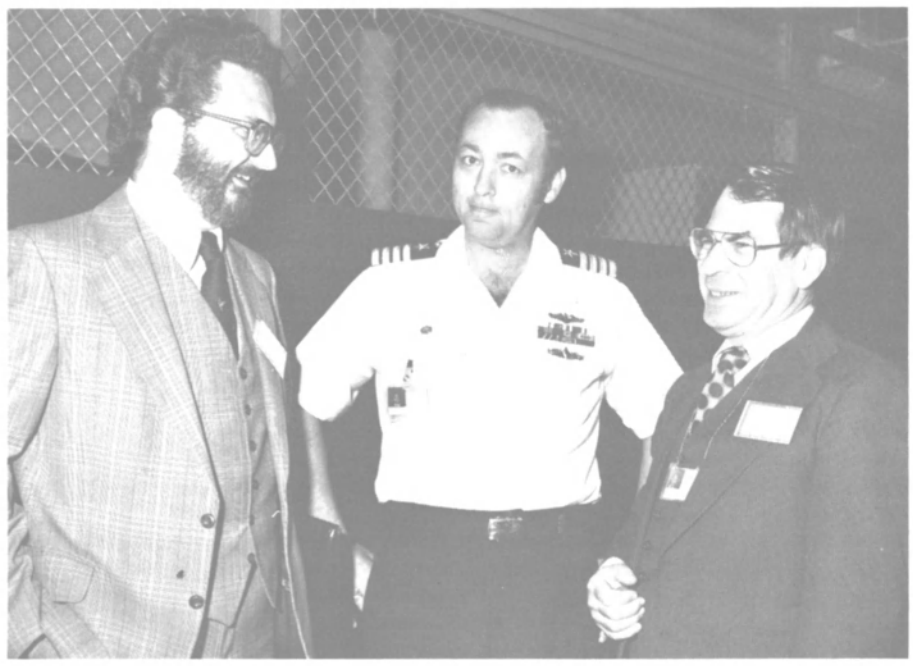
(1) "Better coordination, cooperation, and communication among Navy policymakers, researchers, designers, and ship forces in establishing R&D priorities.

(2) "More pooling of resources within the engineering community.

(3) "A closer working relationship among the ship acquisition and R&D managers, and especially, ship designers and researchers.

(4) "Sharpen the long-range vision of the ship designer so that he or she could look ahead and predict 15 years hence what our ships will require.

(5) "We need a continuing educational program available to ensure that our engineers have a sharper ship design vision by maintaining state-of-the-art knowledge and skills, both theoretical and experimental."



Capt. **Barry F. Tibbitts**, USN (center), commander, David W. Taylor Naval Ship Research and Development Center (DTNSRDC) talks with **Robert G. Keane Jr.** (left), head, Hull Form Design/Performance/Stability Branch, Naval Sea Systems Command (NAVSEA), and Dr. **William B. Morgan**, acting head, NAVSEA Hydromechanics Committee, DTNSRDC, at the NAVSEA Hydromechanics Committee Meeting held recently at DTNSRDC.

He said further: "The importance of timely technology transfer is evident by the many advances in our Navy's Fleet which have evolved over the years from NAVSEA's hydrodynamics R&D programs. Many of you here today personally contributed to these advances. We are all aware of the high-speed submarine hull forms, higher speed torpedoes and improved underwater launch systems. To this we could add skewed propellers for reduced ship vibrations, improved submarine maneuvering and control, reliable submarine emergency recovery procedures, and many others. More recently, the application of seakeeping technology to surface ship designs has significantly contributed to improving the performance of future naval ships as well as those in the Fleet today."

In summary, Admiral **Lisanby** said: "SEAHAC plays a most valuable role in the acquisition of technically innovative ships and weapons by pointing the way in the hydromechanics research. A concerted effort by SEAHAC is essential to predicting the future Fleet requirements, identifying the present technical obstacles, and developing the research programs to overcome them."

R.O. Walters Appointed Vice President For Ryan-Walsh Stevedoring

Ryan-Walsh Stevedoring Company, Inc. of New Orleans has appointed **Royston O. Walters** a vice president. He joined Ryan-Walsh in May 1980 as general manager of port programs and planning at New Orleans. His duties will continue essentially unchanged.

Mr. **Walters** has compiled a 26-year background in bulk handling facilities, including planning, construction, and management, and has served past employers as general manager, vice president, and president. Prior to joining Ryan-Walsh, he was general manager in New Orleans for TTT Stevedores of Louisiana, Inc. His career in bulk terminal management began in 1954 with a New Jersey firm, for whom he achieved a 400-percent growth factor.

W.B. Buhrmann Elected President Of Newly Formed U.S. Steel Companies

Thomas Marshall, group vice president-resource development of U.S. Steel, has announced the formation of subsidiary companies to pursue commercial shipping and vessel management business on the Great Lakes. In making the announcement, Mr. **Marshall** said: "This move will enable us to fully develop profitable Great Lakes shipping opportunities with outside parties as has been done so successfully in our ocean shipping business with the Navios group of companies."

USS Great Lakes Fleet, Inc. will contract with commercial shippers for hauling bulk material cargoes in both the Great Lakes and St. Lawrence Seaway shipping trades. USS Great Lakes Fleet Services, Inc. will contract with vessel owners to provide management services.

At the same time, **J.P. Elverdin**, vice president-shipping for U.S. Steel, announced that **William B. Buhrmann** has been elected president of the new companies, which will have their headquarters in Duluth, Minn. A veteran of 30 years of service connected with mill and vessel operations, Mr. **Buhrmann** has been general manager-lake shipping since 1976.

William B. Buhrmann

He began his U.S. Steel career at the Homestead (Pa.) Works. In 1955, he became a foreman in the structural mill, and two years later was named its general foreman-operations. In 1964 Mr. **Buhrmann** became superintendent of the Homestead Works' Wheel and Axle Division. Four years later, he returned to the main Homestead plant as assistant division superintendent, slab and plate, and in 1970 became divisional superintendent in charge of that unit. In July 1972, he was promoted to assistant to the general superintendent of Homestead Works, leaving that post in 1973 to become manager of operations for the Great Lakes Fleet.

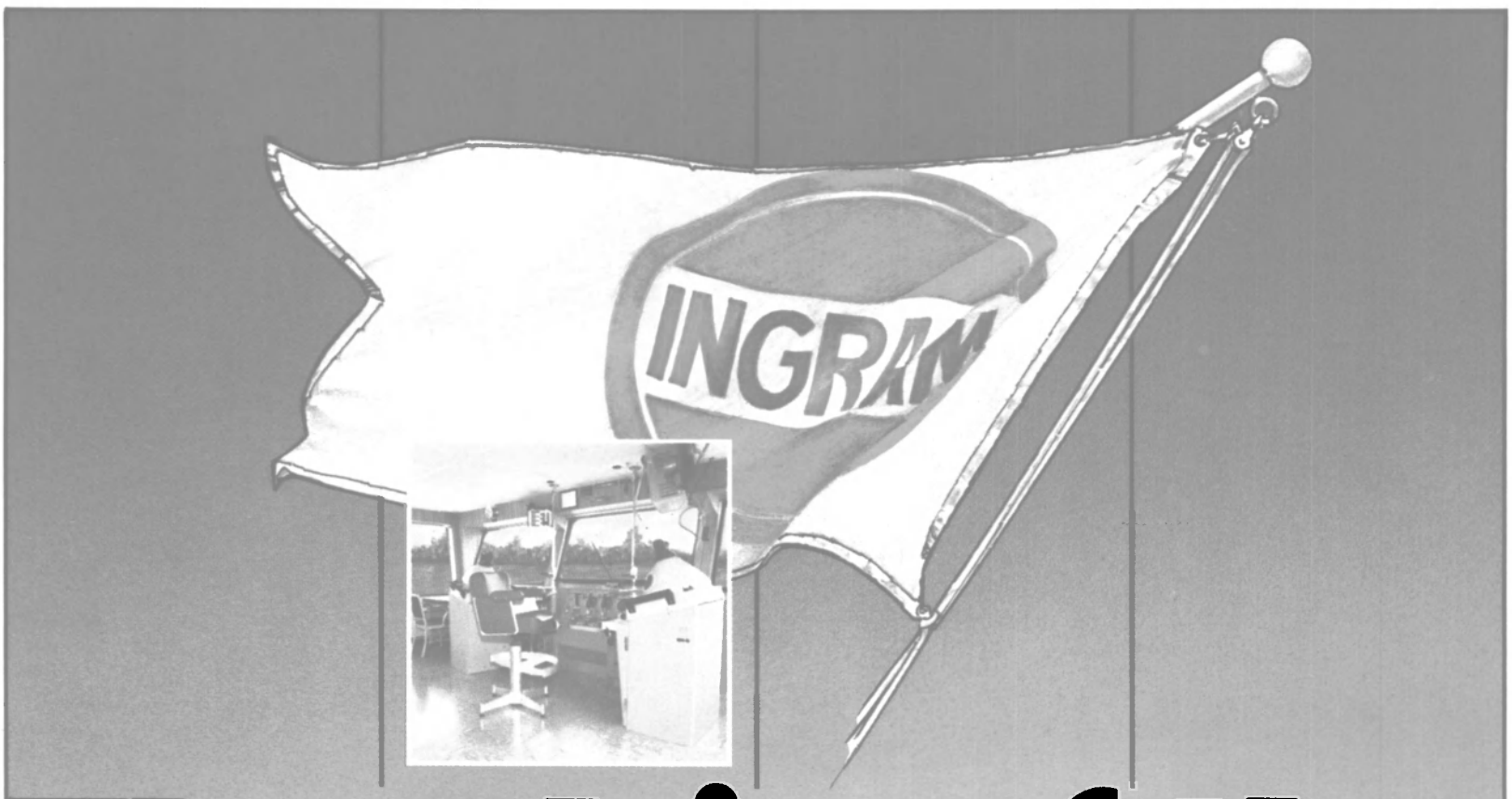
Valley Line Asks Title XI For $90.1-Million Barge And Towboat Project

The Valley Line Co., a subsidiary of Chromalloy American Corporation, 120 South Central Avenue, St. Louis, Mo., has applied for Title XI guarantees to aid in financing 240 new covered hopper barges and refinancing three existing towboats and 53 used hopper barges. The proceeds of the refinancing will be used to provide equity for the new barges.

The new barges will be of two different sizes. Thirty-five will be 200 feet long, the remainder 195 feet. Jeffboat, Inc., Jeffersonville, Ind., has been named to build the 200-foot barges. St. Louis Ship, a division of Pott Industries, St. Louis, will build 130 of the 195-foot barges. Cargo Carriers Inc., Pine Bluff, Ark., will build 60, and Twin City Shipyards, St. Paul, Minn., will build the remaining 15.

The vessels are expected to be delivered by October 1981. They will be operated on the U.S. inland rivers, the East and West Coasts, in the U.S. Gulf of Mexico, and in the Great Lakes.

If approved, the Title XI guarantees for the new vessels would cover $69,810,707, 87½ percent of the barges' $79,783,665 estimated actual cost. The guarantees on the used vessels would cover $8,281,944, 75 percent of the towboats' and 87½ percent of the barges' combined estimated actual cost of $10,329,253.



Flagship of the Ingram Fleet

The 9000 HP M/V John M. Donnelly is the largest of Ingram Barge Company's fleet of 18 towboats. Named after the company's President, this triple screw, Hydrodyne, is now the Flagship of Ingram's Fleet. It was tailored to perform specific operations required by Ingram with great power and reliability. St. Louis Ship's HYDRODYNE design designation identifies its exclusive and thoroughly tested combination of hull

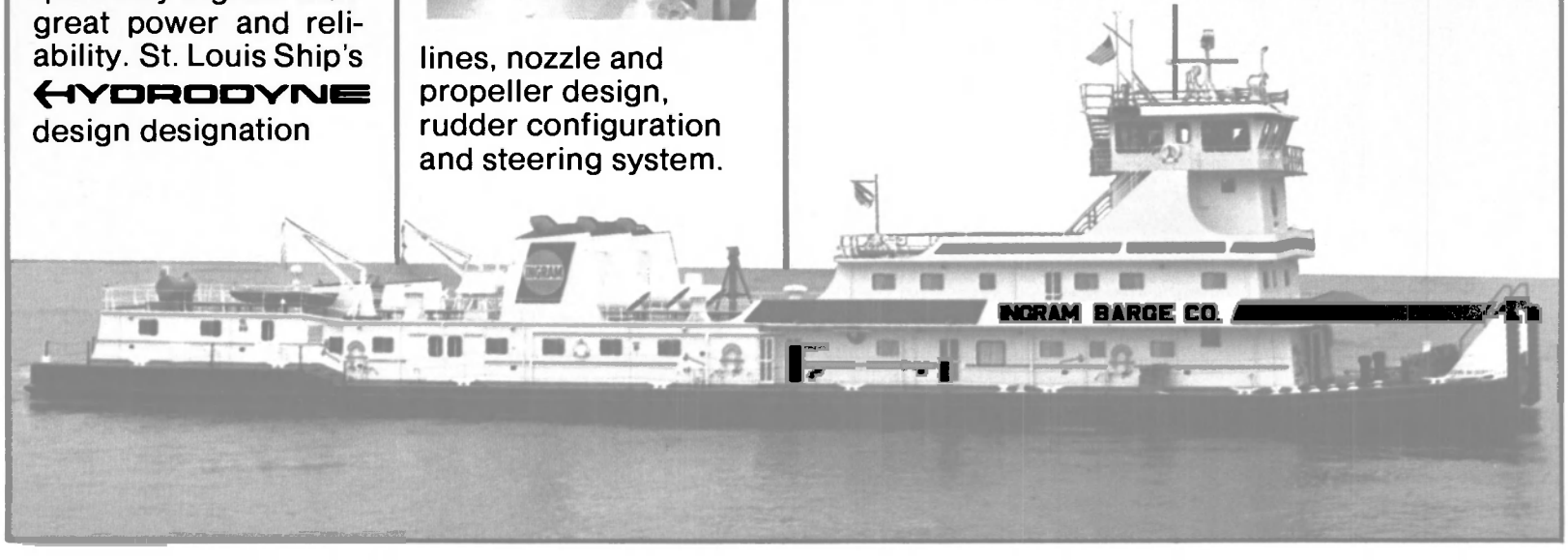
lines, nozzle and propeller design, rudder configuration and steering system.

Hydrodyne Hull towboats perform better in pushing and backing, with special emphasis on improved maneuvering and steering. Let us help increase *your* profits by designing a Hydrodyne towboat to satisfy *your* operating needs. Call St. Louis Ship, today, at (314) 638-4000.

ST. LOUIS SHIP

611 E. MARCEAU STREET, ST. LOUIS, MO. 63111, U.S.A.
(314) 638-4000/TELEX 44-7224/ST L SHIP ST L

Division of Pott Industries Inc.—An HNG Company



Petro Marine Services To Build $25-Million Shipyard In Alaska

After 3½ years of site selection and planning, Petro Marine Services, Inc. is starting construction of a $25-million shipyard and petroleum service industry support facility in Valdez, Alaska. The firm recently concluded arrangements with the City of Valdez for a 99-year lease of some 88.7 acres of land at the former townsite of Valdez, fronting Valdez arm. Confirmation of nominal lease was the last step before final approval of Petro Marine's construction financing, which is being arranged through William L. Lange and Associates of Anchorage.

The facility, to serve the state's commercial fishing industry, oil industry, and yachtsmen, is to be constructed in phases. It is to total some $25 million in value when all phases are completed in about five years, said Petro Marine officials. The $8-million Phase I of the facility is planned to be operational before summer's end of this year. It is to include 12 interrelated shops.

Phase I of the project also includes a pier and wharf, with a marine lift to haul vessels of up to 100 dwt. To be built in Phase II is a takeout way and rail system for vessels of up to 2,500 dwt.

Principal participants in Petro Marine include president and chairman of the board **Robert Wade Robinson II**; senior vice president **Robert W. Robinson Sr.**, formerly of Pan American Petroleum Corporation as an engineering group supervisor, and the former Alaska general superintendent of Cook Inlet for Amoco. Secretary treasurer of the company and financial consultant is **Doug Hall**. **David Rackley** is general manager; he formerly worked at the Puget Sound Naval Shipyard's instrumentation facility.

Leon Ryder Joins Tracor Marine As Head Salvage Master

Leon Ryder

Leon Ryder has joined Tracor Marine, Inc., Fort Lauderdale, Fla., as head salvage master. Tracor Marine has performed several marine salvage operations in its 21-year history; however, Mr. **Ryder's** addition signifies a commitment to maintaining a small nucleus of full-time salvage people that will be able to draw on the resources of the shipyard and Ocean Technology Divisions for major salvage operations.

Mr. **Ryder,** who will be based in Tracor Marine's Norfolk office, served in the U.S. Navy as a master diver and salvage officer for more than 30 years and came to Tracor Marine from NBC Lines, where he was the company's port captain.

New Data Bulletin Describes Armco NI-COP Alloy Steel

A new, 12-page product data bulletin outlines complete information on Armco NI-COP alloy steel, a precipitation-hardening steel with a very low carbon content. Copper is the primary precipitation-strengthening element in NI-COP. Currently produced as plates, wide flange shapes, and semi-finished billets, NI-COP is said to have high strength, ductility, toughness, formability, weldability, and resistance to atmospheric corrosion.

The booklet covers specifications, forms, chemical composition, mechanical properties, heat treatment, the precipitation-hardening process, data on submerged and gas metal arc welding of NI-COP, and fabrication.

For a free copy of the bulletin,

Write 21 on Reader Service Card

Riverway Completes Second Drydock For Its Own Repair Division

Riverway Shipyard Company of Grafton, Ill., recently completed its second in-house drydock (shown above) for the repair division of the shipyard. This drydock is the fourth built by the shipyard in the past two and one-half years and was built in a record 86 calendar days. It went into immediate service drydocking two harbor boats.

The drydock is 80 feet long by 72 feet wide, with 62 feet between wing walls. The hull is 7 feet deep and has four watertight compartments. The wing walls are 18 feet high. Lifting capacity is 1,000 tons.

Mechanical equipment includes four Byron Jackson 12-inch deep-well pumps with 10-hp electric motors, and four Beebe 5-ton hand winches. The dock is lowered by four 8-inch gate valves and raised by four 12-inch gate valves.

The drydock is outfitted with two watertight pump rooms, 1-inch pipe handrail, six fir timbers 24-inch by 24-inch by 20 feet, four 1,000-watt floodlights, piping for air, oxygen, and acetylene, 372 feet of protective fender reinforced with 3-inch I beam, and one landing tower.

An additional outfitting includes two deckhouses for inclement weather, one 208-volt transformer for towboat shore power, and one Miller 750 203-volt power source with six 250/250-ampere twin operator welders.

The hull is painted with coal tar epoxy and the wing walls are coated with vinyl paint.

With the addition of its second drydock, Riverway Shipyard has added a third shift to its repair division for improved service to its customers. With the new improvements and additions, Riverway is a viable asset to the entire barge industry and is actively seeking business from all barge lines.

New Brochure Describes National Crane's Line Of Marine Lifting Systems

National Crane of Waverly, Nebr., a subsidiary of Kidde, Inc., offers a 12-page, full-color brochure describing its complete line of pedestal-mounted hydraulic marine cranes and equipment. National manufactures hydraulic cranes for shipboard, offshore, dockside, and other marine uses.

The National Marine Lifting System provides a wide selection of boom lengths and capacities to job-match customer needs. They are specifically engineered for maximum performance in harsh marine environments.

Stronger, lighter booms mean greater lifting capacity. National's telescopic booms are fabricated from four high-strength, low-alloy steel members welded with perpendicular corners. This box-section construction permits the use of thicker top and bottom plates for extra strength.

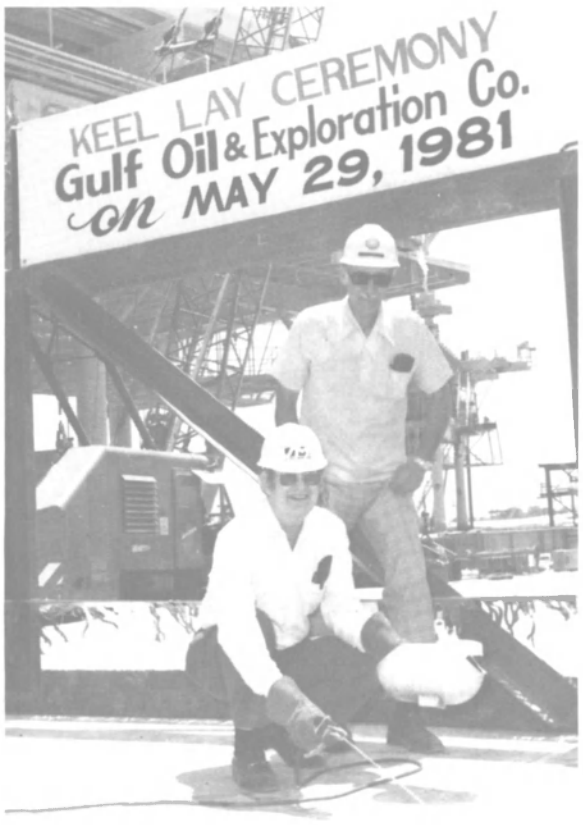
Full marine conditioning is standard on all National cranes, providing longer crane life with less maintenance. All external surfaces are sand blasted, coated with inorganic zinc primer, and painted with a durable chlorinated rubber topcoat. All interior surfaces and cylinders are carefully primed and painted to help prevent corrosion.

National telescoping marine cranes have capacities ranging from 6,000 to 30,000 pounds.

For a free copy of the new National Crane brochure,

Write 34 on Reader Service Card

Work Begins On Gulf Oil Inland Drilling Barge



L.M. Wilson, general manager-drilling operations for Gulf Oil Exploration & Production Company, strikes a symbolic arc as Service Machine Group (SMG) of Morgan City, La., lays the keel for a 200-foot by 50-foot by 12-foot inland drilling barge. Looking on is **Leon Vice Jr.**, Gulf's area drilling superintendent.

The vessel was designed by Petro-Marine Engineering, Inc. of Houston, and is the first rig built for Gulf Oil by SMG. The barge will be completely outfitted with drill floor, pipe rack, helideck, 36-man quarters, drawworks, drilling mast, mud pumps, motor control center, and other facilities. Delivery is scheduled for the end of this year.

Shipyard Conference Honors Past Chairmen McKay And Pirozzolo

American Waterways Shipyard Conference chairman **John Buursema** (center) presenting past chairmen **Jack Pirozzollo** (left) and **John F. McKay** gifts honoring their service to the shipyard industry.

Two past chairmen of the American Waterways Shipyard Conference (AWSC) have been honored for their service to the shipyard industry. At a recent AWSC meeting in Houston, **John F. McKay** and **Jack O. Pirozzolo** were each presented a mounted brass ship's clock commemorating their service.

Mr. **McKay**, formerly of Maxon Marine and Jeffboat, Inc. and now a vice president with McAllister Bros. Inc., New York, was one of the original Shipyard Steering Committee members who founded the AWSC in 1976. During his tenure as chairman in 1978, he led the AWSC in a successful battle to prevent foreign competitors from building vessels for domestic shipping in the United States. Such an incursion, which has long been banned by law, would have been economically damaging to the U.S. shipbuilding economy.

Mr. **Pirozzolo**, an executive with Goldston Shipbuilding Corporation, Corpus Christi, Texas, served as AWSC chairman in 1980, when the AWSC received a grant from the Occupational Safety and Health Administration to develop safety training programs. The first of these programs, New Employee Safety Training, will be ready for distribution by August.

The awards were presented by AWSC chairman **John Buursema**, president of Twin City Shipyard, St. Paul, Minn. He praised both men "for their tireless efforts and outstanding contributions to the industry." He also noted that the groundwork laid by the past chairmen might make it possible for the shipyard industry to institute self-regulation in safety and health matters. Under Mr. **Buursema's** leadership, the industry has taken additional steps in this direction.

The AWSC consists of more than 70 shipyards engaged in building and repairing vessels for the barge and towing industry, the offshore service industry, and the fishing industry. The AWSC keeps its members apprised of developments in the industry, thus providing the tools for more efficient operations, and aims to improve conditions for the small- and medium-sized shipyards to assure the long-term growth of the industry.

Army Hopper Dredge 'Yaquina' Repaired At Zidell Marine Yard

Zidell Marine Division, Ship Repair, Portland, Ore., was awarded a contract recently by the U.S. Army Corps of Engineers to carry out emergency repairs to the hopper dredge Yaquina (shown above), because of a burned-out bearing.

The vessel's chief officer, Capt. **Ray Lam-**

bert, said the 1,960-gt dredge had been tested for 22 working days in Chesapeake Bay, and had worked nine days on the Columbia River. It was while in the latter location that the bearing problem developed.

The Yaquina is the newest dredge assigned to the Portland Corps District, and is destined to replace the old Pacific, built around 1937. Yaquina has a hopper capacity of 825 cubic yards, compared with the Pacific's 500, and is 200 feet long with a beam of 58 feet. She is powered by two 1,125-bhp diesel engines driving twin screws, and is fitted with a bow thruster with a 500-bhp diesel turning a 48-inch propeller.

HUDSHIP To Build Four Big Towing/Supply Vessels For Zapata

Wendle W. Huddleston, president and chief executive officer of Hudson Shipbuilders, Inc. (HUDSHIP), recently announced that he and **K.W. Waldorf,** president of Zapata Marine Service, Inc. of Houston have signed a contract for the construction of four large offshore supply/towing vessels. The Pascagoula, Miss., shipyard will deliver the first vessel during the second quarter of 1982.

The 203-foot vessels will be powered by twin GM Electro-Motive Division 16-645-E2 engines, each with a maximum continuous rating of 975 bhp at 900 rpm, driving through 3:1 reduction gears. They will be fitted with Schottel bow thrusters powered by Detroit Diesel 12V-71 engines, Akron fire monitors, and towing winches.

With a beam of 40 feet and depth of 14 feet, each vessel will carry both liquid and bulk mud, as well as fuel and drill water for servicing offshore rigs. They will join Zapata Marine's 75-vessel offshore fleet.

The four vessels will be built at HUDSHIP's new West Bank facility, which is located on a 16½-acre site just north of the Ingalls yard in Pascagoula. HUDSHIP recently acquired that property from H.B. Marine, Inc., and has begun a major expansion and upgrading of the facility, which will become the new headquarters for the HUDSHIP operation.

The expansion includes the construction of fabrication buildings, craft shops, warehouse, and utility buildings, the installation of bulkheads, rail transfer system, and side launching facilities. New heavy-lift cranes, and rough terrain and overhead cranes are being installed.

According to Mr. **Huddleston,** the facility will utilize the most modern equipment found in the industry today, including numerically controlled, plasma arc cutting equipment, a plate shear, and press brake for cutting and forming steel plate. The new machine shop has been fitted with a large capacity lathe for manufacturing shafting.

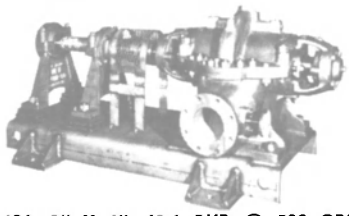
HUDSHIP will continue to operate its facility on the Pascagoula River East Bank for construction of vessels under 165 feet long, including tugs, pushboats, and utility vessels.

The recent contract with Zapata Marine Service is HUDSHIP's second order from a major operator since purchasing the new facility. Construction of four 185-foot offshore supply vessels, which are being built for Gulf Fleet Marine Corporation of New Orleans, is already under way, with the first vessel scheduled for delivery in November 1981.

Kenneth W. Waldorf (left), president of Zapata Marine Service of Houston and **Wendle W. Huddleston,** president and chief executive officer of Hudson Shipbuilders, sign contract for four big supply/towing vessels.

WEIL ALL BRONZE CENTRIFUGAL FIRE PUMP
500 GPM @ 100 PSI HEAD
600 GPM @ 3600 RPM
144 PSI — 100 HP

NEW UNUSED



EX U.S.N.

Model 10496—3" X 4"—42.6 BHP @ 500 GPM. 3000 RPM—test pressure 175 PSI. Suction flooded. Requires 50 HP 3000 RPM motor. Offer includes Pump, stainless steel base, coupling & extra pedestal for belt drive if desired.

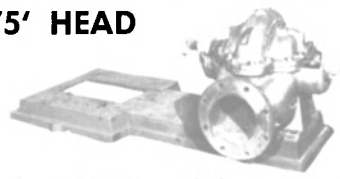
WORTHINGTON 300 GPM 150 LB HEAD CENTRIFUGAL FIRE PUMP

NEW UNUSED

EX U.S.N.

#1223620—3550 RPM—5½" suction—4½" discharge—Imp. diam. 10¾"—test pressure 225 lbs. MOTOR: G.E. model 5K1405Y—60 HP—400/60/3—Frame 405—type K—72 amps—3550 RPM.

BRONZE 2000 GPM PUMP 75' HEAD



75' Head — 1750 RPM — mfg by American Well Works. Horizontally split case size 8X8. (50 HP motor required for pump capacity.) Frame 445. Supplied with 5'8"X 2'5" base.

$1775 EACH

250 GPM — 150 LBS WARREN CENTRIFUGAL FIRE & BILGE EDUCTOR PUMP

NEW UNUSED

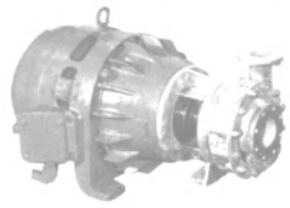
EX-U.S.N.

All Naval bronze. 36.5 BHP—3500 RPM—3" discharge—4" suction. Test pressure 300 lbs. Discharge pressure 150 lbs. Electro Dynamics—Frame FRAC-405—type XNX —#90398—45 HP—3500 RPM 57/5 amps—45° rise—440/3/60.

PUMPS

FAIRBANKS-MORSE BRONZE FIRE & FLUSHING PUMPS 250 GPM @ 100 LBS.

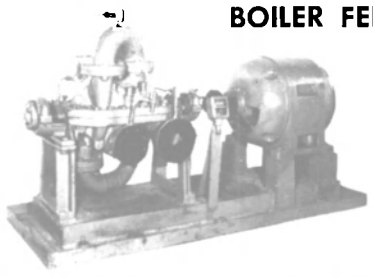
3½" SUCTION



2½" DISCHARGE

3500RPM — test pressure 250 lbs. MOTOR: 25 HP—440/3/60—3500 RPM—34.9 amps—frame 404NC—temp rise 50°C. Ex-DD 445 Class & From 695 Class.

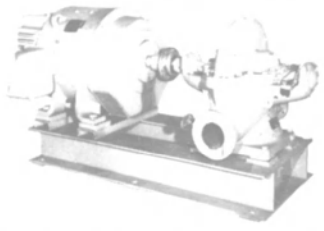
BUFFALO 100 GPM — 980' HEAD BOILER FEED PUMP



Size 2-RR—2-stage. 3" Suction—2" discharge. MOTOR: 50 HP—220/440/3/60—3500 RPM.

FAIRBANKS-MORSE 750 GPM — 125 PSI STAINLESS STEEL CENTRIFUGAL SEA WATER FIRE & FLUSHING PUMP

NEW UNUSED

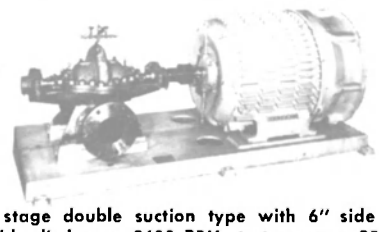


EX U.S.N.

125 PSI (281 Ft.) total head. Suction lift none (flooded) 1750 RPM. With Falk #8F coupling—flexible, all metal, enclosed. MOTOR: Reliance type T—100 HP—1750 RPM —343 amps—230 volts DC—Frame 503AS. Pump has 5" suction—4" discharge. Pump & Motor mounted on base 37¾" wide X 6' 2¾" long X 3' 0½" high. Total weight 3348 lbs.

NEW 5" ALL BRONZE BALDWIN-LIMA 1000 GPM 150 PSI TOTAL HEAD CENTRIFUGAL FIRE PUMP

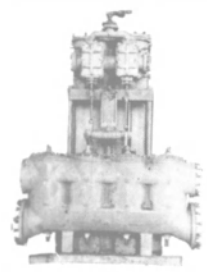
NEW UNUSED



EX U.S.N.

Single stage double suction type with 6" side suction & 5" side discharge. 3600 RPM—test pressure 250 PSIG. MOTOR: Reliance 125 HP 440/3/60—totally enclosed—fan cooled—Frame D-5003-S—50°C.

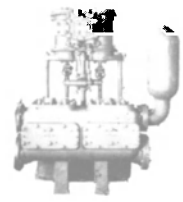
WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

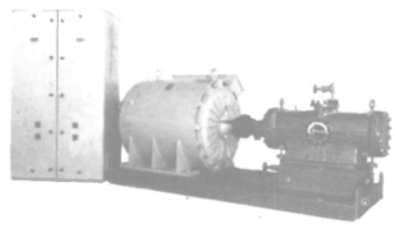
RECONDITIONED 1980 ABS — READY TO GO

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

700 G.P.M. @ 150 P.S.I.
NEW — UNUSED — EX-U.S.N.
MOTOR DRIVEN ROTARY HORIZONTAL PUMPS
WITH 4-SPEED 440/3/60 MOTOR

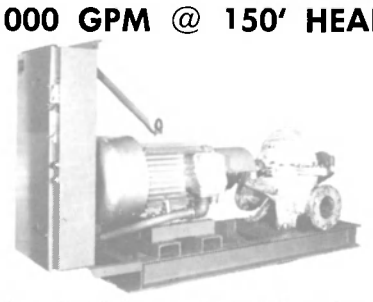


Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

FIRE PROTECTION FOR SHIPYARDS !

(Several installed in yards doing Navy work)

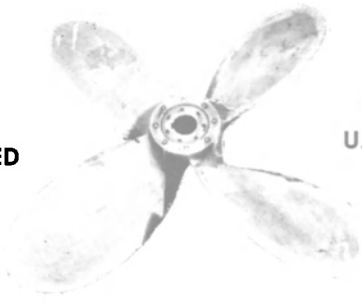
BRONZE FIRE PUMPS
1000 GPM @ 150' HEAD



6" Suction—5" Discharge. 1750 RPM—motor driven—100 HP—440/3/60/1750. Motor control & pump on prefab base for portability. New motor, base and coupling. Gardner-Denver reconditioned pump.

4-BLADE LST BRONZE PROPELLERS

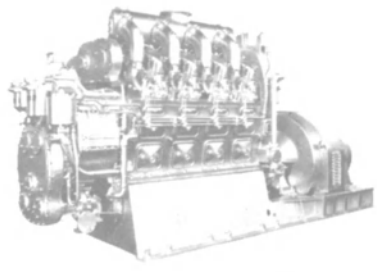
NEW UNUSED



EX U.S.N.

Starboard — 7' diameter — pitch constant 4.699: Bore tapers from 6⅛" to 4⁵³⁄₆₄". 14½" taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

GM 8-278A 350KW 440/3/60 DIESEL GENERATOR SET



GM 8-cyl. engine — 8½ X 10 — 2-cycle — Vee type driving 350 KW G.E. generator—440/3/60—600 RPM—430 KW 2 hours. 3 Units available. Your inspection invited.

PLEASE NOTE:

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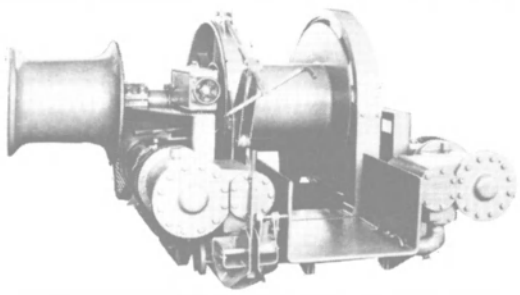
STEAM MOORING WINCHES

12" x 14" — STEAM OR AIR DRIVEN
with foot brake & declutchable gypsy head
20,000 LBS @ 100 FPM—FIRST LAYER



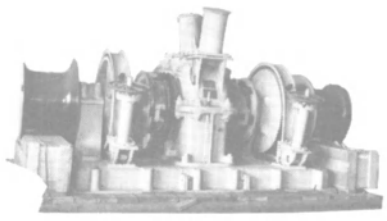
ALSO HANDLES 16,000 LBS @ 150 FPM
OR 50,000 LBS @ 8 FPM

Drum will show 1500 ft of 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger".

ALSO IN STOCK
12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

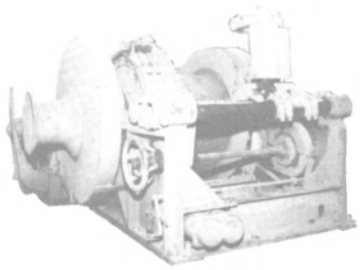
NEW — UNUSED
LINK BELT WINDLASS



Handles 7000 lb anchors—1⅝" windlass—56" centers — 50 HP — 230 VDC — with controls and spares.

NEW — UNUSED — EX-U.S.N.

100,000 LB. ALMON JOHNSON
Constant Tension Mooring Winches



In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

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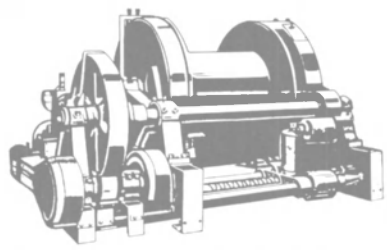
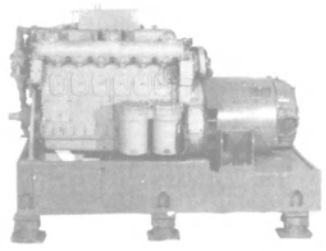
9 X 10 TWIN ENGINE DRIVE
Air or Steam — 125/250 PSI



Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12'6" wide—6'6" high. Write for details.

ALSO AVAILABLE
Large towing ring — 36" I.D.

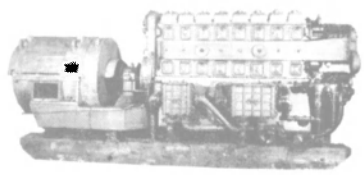
60KW DIESEL GEN. SET
DELCO GEN. — GM 6-71 DIESEL



Delco 120 volt DC 500 amp stab. shunt 1200 RPM generator. Engine is GM 6-71 — heat exchanger cooled. Radiator shown is not included.

Reconditioned — Ready To Go.

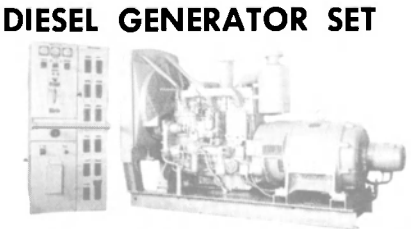
300KW GM 8-268A 120/240 DC
DIESEL GEN. SET



ENGINE: GM 8-268A — 6½ X 7 — 1200 RPM. Heat exchanger cooled. GENERATOR: Westinghouse 300 KW — 120/240 DC — shunt wound.

PRICED RIGHT

STANDBY GENERATOR
CUMMINS 75KW 93.8 KVA
DIESEL GENERATOR SET



440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

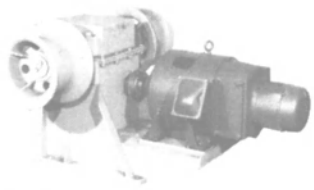
$9750

40KW EMERGENCY GEN. PANEL

Provides necessary device for automatic startup, control & protection of emergency generator. Provides power for essential circuits in case of failure of primary source. Also automatic shutdown of generator on restoration of primary source of power.

NEW — UNUSED — IN ORIGINAL CRATE
BOAT HANDLING AND
GENERAL PURPOSE WINCH

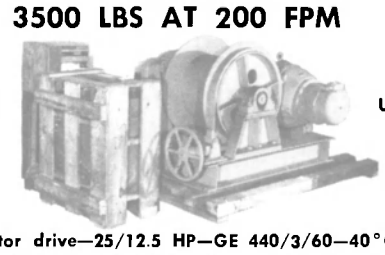
EX
U.S.N.



2500 LBs @ 125 FPM on one gypsy head or 1250 lbs @ 125 FPM simultaneously on each gypsy. MOTOR: 15 HP—230 volts DC—55 amps—GE. AVAILABLE: 1 Set mfg by Lakeshore with Reliance motor—1 set mfg by Ideal with GE motor. Complete with controls and disc brake.

GENERAL PURPOSE WINCH
3500 LBS AT 200 FPM

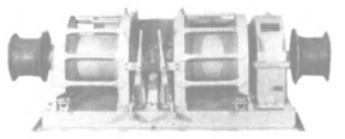
NEW
UNUSED



EX
U.S.N.

A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB —1750 RPM—type KR—full load amps 32. Motor drives winch through Falk reduction gear. Has compressor hand brake.

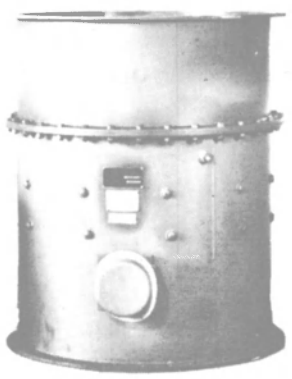
CARGO WINCH — NEW — UNUSED
2-DRUM 2-GYPSY DECLUTCHABLE



EX
U.S.N.

DUTY: 7400 LBS @ 220 FPM. Mfg by Western Gear Works. With repair parts. Model CWE50. Capacity of each drum 600 ft. of ¾" wire rope. MOTOR: 50 HP—230 VDC with control. 14" Cutler-Hammer brake control — 1 master switch — enclosed contactor panel & resistors.

NAVY AXIAL FLOW FANS

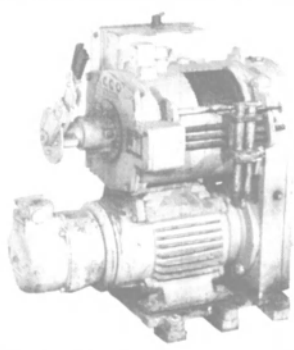


10,000 CFM—A10A4-W5. 20" ID. MOTOR: 7.5/3.3 HP—440/3/60 — 10.5/5.2 amps — 1750/1150 RPM. Reconditioned — 9 available.

ALSO 1 20,000 CFM FAN AVAILABLE

BATHYTHERMOGRAPH WINCH

TYPE
C.T.B.
10318



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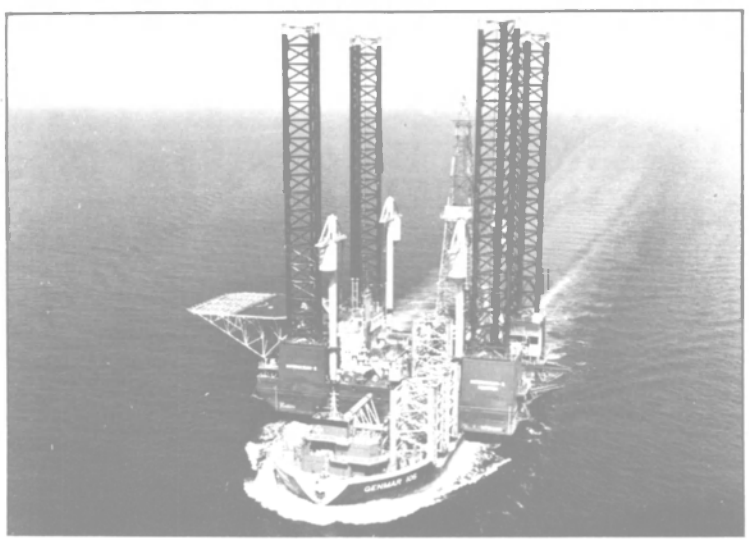
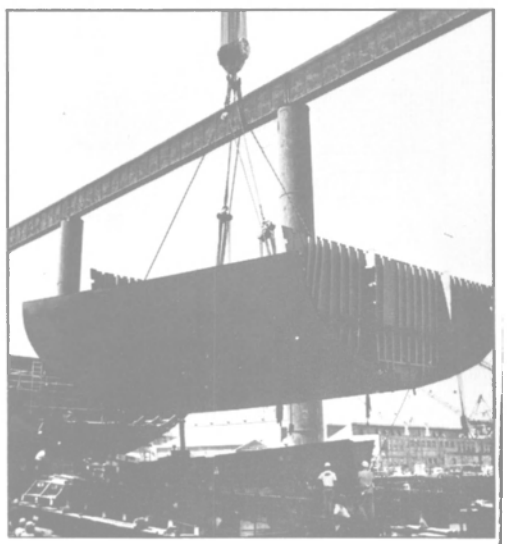


GREAT LAKES

SHIPYARDS



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PROFESSIONAL MEN
Naval architects, engineers and consultants shoreside.

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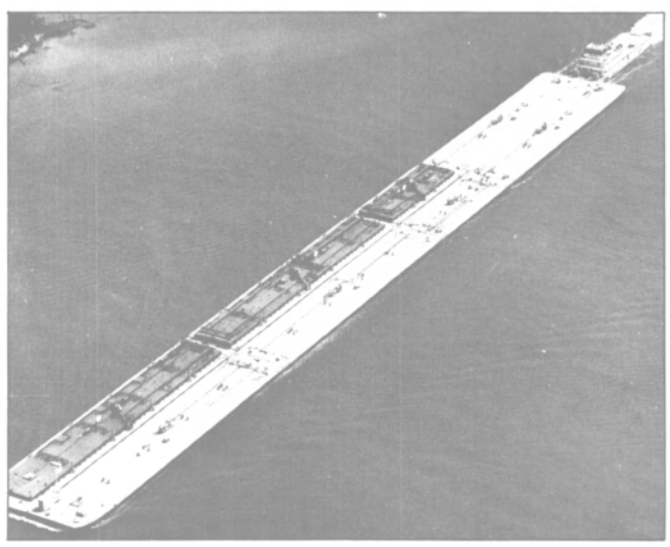

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Send for more details or write 100 on Reader Service Card

MARITIME REPORTER AND ENGINEERING NEWS

U.S. And Canada Agree To Cooperate In Marine Transportation R & D

Representatives of government maritime agencies of the United States and Canada have signed a formal agreement to cooperate in marine transportation research and development, it was announced recently in Washington and Ottawa.

Under the agreement, there will be information and personnel exchanges, project work sharing and joint assessment of marine transportation systems and technology.

It was signed in Ottawa by **Bruce A. McAllister,** U.S. deputy assistant secretary of commerce for maritime affairs, and **Gordon Sinclair,** administrator, Canadian Marine Transport Administration (CMTA).

The agreement was immediately effective. Either side may terminate it by giving a year's notice.

Cooperative research and development is expected to emphasize marine transportation in Arctic, inland and coastal waters. Agreement was announced on two research projects.

Under one, the United States will share with Canada information from 1969 and 1970 Arctic voyages of the ice-strengthened tanker S/S Manhattan. The Maritime Administration (MarAd), and the CMTA will analyze the data as they relate to Arctic ship design and operation, and publish a joint report.

Similarly, CMTA will share with MarAd information from the operation of the M/C Arctic, an icebreaking bulk carrier built under a joint Canadian government-industry program.

D.A. Briggs Appointed Director Of Engineering For Tracor Marine

Douglas A. Briggs

Douglas A. Briggs has been promoted to director of engineering at Tracor Marine, Inc., Fort Lauderdale, Fla. In his new position, Mr. **Briggs** will be in charge of all engineering and quality assurance programs supporting the Shipyard and Ocean Technology Divisions, and will report to **Joseph D. Deal Jr.,** president.

The Engineering Division at Tracor Marine includes 15 engineers, naval architects, and draftsmen, and hydraulic, electronic, and mechanical technicians involved in vessel repair and modernization, and designing and manufacturing winches and special-purpose ocean engineering equipment.

Philadelphia Resins' New Brochure Describes The Company And Its Products

A new brochure containing general information about Philadelphia Resins Corporation and its unique products for marine and industrial applications has just been published. The eight-page, full-color pamphlet illustrates and describes some of the company's installations throughout the world.

More than 10,000 marine main propulsion systems have been installed on Chockfast Orange®, a pourable chocking compound that is one of many highly engineered products produced by the Montgomeryville, Pa., company. Other products for the marine field include damping materials for sonar-equipped naval vessels, structural adhesives, non-skid deck coatings, and specialty marine coatings.

For a free copy of the new brochure,

Write 25 on Reader Service Card

Griffin & Alexander Jackup Rig Commissioned At Bethlehem-Beaumont

Griffin & Alexander Drilling Company and Bethlehem Steel Corporation's Beaumont, Texas, shipyard recently commissioned a 200-foot water depth, mobile offshore drilling rig. The rig was christened the Griffin-Alexander II by its sponsor, **Mrs. Lea Alexander,** wife of **J.W. Alexander,** president of Griffin & Alexander Drilling Company. The multimillion-dollar rig has been under construction for nearly 10 months and, upon delivery, will begin drilling operations in the Gulf of Mexico for Mobil Oil Corporation.

Sherman C. Perry, general manager of the Beaumont shipyard, said the Griffin-Alexander II is the second of eight rigs that Bethlehem will deliver to Griffin & Alexander over the next two years. The first was delivered earlier this year. This commissioning also marks the fourth rig to be delivered this year by the Beaumont yard, as well as the 86th offshore rig delivered by Bethlehem yards.

The Griffin-Alexander II is a mat-supported jackup designed for deep-well drilling operations. It features a cantilevered substructure and offers the capability of being able to position its drill floor over existing offshore production platforms in order to drill developmental wells or to rework existing wells.

On location, the rig will have a total variable load capacity of 4.5 million pounds and handle hook or rotary plus setback loads of 1 million pounds on wells as far as 35 feet aft of the platform deck. The rig will have a maximum cantilever reach of 45 feet with a hook/setback load capacity of 750,000 pounds at the rig centerline.

The rig consists of a platform measuring 157 feet by 132 feet supported by three 11-foot-diameter columns fixed to a mat that is 220 feet by 185 feet. Outfitted with deep-well drilling equipment, the rig can operate in waters of up to 200 feet while experiencing forces resulting from 70-knot winds and 33-foot seas. The Griffin-Alexander II contains onboard, air-conditioned living accommodations for 50 persons, including sleeping quarters, galley, laundry and recreation facilities.

The rig was designed and built to comply with the current safety standards of the United States Coast Guard, plus the American Bureau of Shipping standards for construction of mobile offshore drilling units.

Lima Electric Announces New Model Alternator— Literature Available

The Lima Electric Company, Inc., a Condec Company, has added another model, the MAC II™, to its product line of 1,200-rpm alternators. According to the manufacturer, the new unit combines the simplicity and reliability of the proven MAC® (Motor Application Characteristic) self-regulating, synchronous brushless alternator with a space-saving mechanical configuration.

Lima alternators are in wide use aboard workboats, fishing vessels, jackup rigs, and other offshore craft. The MAC II, from its aluminum alloy and stainless-steel shell to its fully protected internal parts, is derived from a long line of maritime experience.

The MAC II mounts to any make engine. Its size is reflected in the small engine needed to drive it—a mere 13 bhp for the 7.5-kw unit. And its excellent efficiency—77 percent at full load—means greater fuel economy for onboard electricity, Lima states.

For free literature on the MAC II and other alternators in the Lima product line,

Write 43 on Reader Service Card

Raytheon Opens New Marine Sales And Service Facility In Mississippi

Raytheon Service Company has opened a new marine sales and service facility in Greenville, Miss., to serve the river transportation industry on the Mississippi. The facility will provide sales and 24-hour service of marine electronic, communications, and navigation equipment used on towboats, tugs, barges, workboats, and recreation vessels. A full inventory of replacement parts will be available to all riverboat operators.

As an authorized dealer for Raytheon Marine Company, the facility will market a complete line of marine electronic equipment including radars, VHF and SSB radiotelephones, loudhailers, Loran C, gyros, Fathometer® depth sounders, and satellite navigation and communications systems.

Raytheon Service Company has more than 30 years' experience in marine services with other facilities in California, Maryland, New Jersey, Pennsylvania, and Virginia. The new Greenville facility is headed by **Joseph Mandino**, manager, Mississippi region, and is located at 1836 Highway 82 E; telephone (601) 335-5150.

Partnership Between AMCA International & McDermott Formally In Business

AMCA International Limited (previously Dominion Bridge) and McDermott Incorporated have announced the formal beginning of business of their new joint partnership, DB/McDermott Company, whose first office location has been established in Calgary, Alberta. DB/McDermott Company has been formed to provide the Canadian offshore energy industry with a full range of services, including the engineering, fabrication, and installation of offshore drilling and production facilities, the laying of subsea pipelines, and a variety of ancillary services.

AMCA International in Canada is engaged in manufacturing, engineering, and construction activities on a worldwide basis and produces, fabricates, distributes, and erects steel throughout Canada. McDermott Incorporated, a leading international energy services company, provides engineering and construction services to the offshore oil and gas industry, including drilling and production platforms and marine pipelines.

McDermott provides the new partnership with research, engineering, and offshore construction capabilities, equipment, and facilities. AMCA International provides onshore support and fabrication capabilities and facilities. Formal commencement of DB/McDermott Company's business follows recent approval of the enterprise by the Canadian Government under the Foreign Investment Review Act.

Robert White Appointed General Sales Manager Of The Cordage Group

Robert White

Robert J. White has been appointed general sales manager of The Cordage Group, division of Columbian Rope Company, Auburn, N.Y. He succeeds **Charles W. Loomis**, who has retired after 44 years of service.

Mr. **White** has served in a succession of sales and marketing positions since joining the company in 1955, including territory representative, advertising manager, merchandising manager, and most recently as assistant to the general sales manager.

Write **501** on Reader Service Card

Golden Gulf Group Asks Title XI For 8 Tug/Supply Boats—Cost $27.6 Million

Four affiliates of Golden Gulf Marine, 831 Orleans Avenue, New Orleans, have applied for Title XI guarantees to aid in financing the construction of eight tug/supply vessels. The companies — Alpha Limited Partnership, Beta Operating Partnership, Gamma Operating Partnership, and Delta Operating Partnership — seek guarantees for two vessels apiece.

All eight of the 173-foot-long, diesel-powered vessels will be built by Moss Point Marine, Escatawpa, Miss. The first vessel is scheduled to be delivered in October 1981; the last in December 1982. All the tug/supply vessels are intended for use in the Gulf of Mexico.

If approved, the Title XI guarantees would cover a total of $20,740,000, 75 percent of the vessels' combined estimated actual cost of $27,654,000.

New Brochure On Coal Conveying Technology Offered By Macawber

A full-color, eight-page brochure describing its Denseveyor® systems for conveying coal from storage bunkers to boiler feed (ready use) hoppers is now available from Macawber Engineering, Inc., Maryville, Tenn. Macawber coal conveying systems have been ordered for the two coal-fired bulk carriers being built by Italcantieri in Italy for Bulkships of Australia.

The Denseveyor system is said to provide the same clean, automatic handling characteristics associated with oil and gas fuels. At the touch of a button, coal can be routed from intermediate storage to boiler hoppers. Fuel can be maintained in a topped-up condition automatically, without spillage and without dust. Ash is removed automatically through a totally closed pipeline to external waste storage.

For further information and a free copy of the brochure,

Write 44 on Reader Service Card

Seminars On Rig Moves Organized By Marine Design International

Marine Design International has just put together a two-day seminar for offshore drilling contractor rig move personnel. These seminars will include the following:

- Review all aspects of the rig move in accordance with the proper interpretation of the builders operating manual.
- The importance of weather forecast to the drilling rig in transit and on location.
- Location surveys and their influence on the jackup rig.
- Towing equipment and towboat inspections.
- Vessel loading in accordance with the rules and regulations set down by the regulatory bodies.
- The importance of the insurance man onboard while making a move.
- Going on and coming of location with various types of drilling vessels, i.e., jackups, submersibles, semisubmersibles, drillships and tenders.
- Mooring and its importance to the drilling program.
- Responsibilities of the vessel owners and their personnel in case of vessel damage or disaster.

An example of an offshore rig move of each type of vessel will be available to the attendees to retain as a guide for reference as to the different calculations and information necessary to maintain the proper vessel hydrodynamics during moves and drilling programs.

Details on seminar schedules can be obtained from **Franklin K. Steinhauser,** Marine Design International, 21422 Park Green Drive, Katy, Texas 77450; (713) 492-2324.

Dome Acquires Davie Shipbuilding At Total Cost Of $38.6 Million

Dome Petroleum Limited and Davie Shipbuilding Ltd. recently announced that Dome has acquired all the shares of Davie for a total consideration of $38.6 million, consisting largely of shares of Dome and the balance in cash. Davie net income after tax for 1980 was $7 million.

The assets acquired include the Davie shipyard at Lauzon, Quebec, and Davie's Branch Line shipping division, comprising six vessels involved in petroleum product shipments along the St. Lawrence and on the Atlantic Seaboard. These vessels will be operated by another company. The present management and staff will continue to manage and operate Davie's shipyard, now Canada's largest.

Dome indicated that it plans an immediate and substantial expansion of the Davie shipyard to enable it to construct some of the large vessels required by Dome for use in its Beaufort Sea operations. In addition, this expansion will equip the yard to fabricate equipment required for petroleum exploration and production off Canada's East Coast, including semisubmersible drilling equipment, and also components for icebreaking supertankers and LNG vessels to be built elsewhere in Canada.

The manpower complement at Lauzon, presently at 2,300, is expected to double within three or four years. The Davie management has recently negotiated successfully with the shipyard union a new contract whose implementation will not be affected by the acquisition. The Davie yard will continue its existing business, including the manufacture of jackup drilling rigs, small- and medium-size vessels, and repairs. Purchase of this shipyard does not conflict with Dome's plans for the construction of a new shipyard for building large vessels.

Riverway Shipyard Delivers GM-Powered Towboat 'Waterways Explorer'

Riverway Shipyard Company of Grafton, Ill., recently completed construction of the 910-bhp towboat Waterways Explorer (shown above) for River Operators, Inc. The new vessel will be used as a fleet boat and a shuttle boat in the Winona, Minn., area.

The Waterways Explorer is 65 feet long, 23 feet wide and 8 feet deep. It has an operating draft of 6 feet.

The bow rake headlog and corners were built of ¾-inch and 1-inch plate, respectively, with ¾-inch rub bars welded over the corners for added protection. The towknees and headlog were outfitted with rubber bumpers from B-J Marine Products.

The boat was built with a galley, bathroom complete with shower, quarters for six crew members, an electronics room, and a 9-foot by 9-foot pilothouse with a 26-foot eye level. The main stack is removable for easy access to the engine room.

The two General Motors main engines were furnished by Western Diesel Services. They are Detroit Diesel Allison model 16V71, each rated 455 bhp at 1,800 rpm. They are air-operated from the pilothouse by WABCO air components.

The Twin Disc reverse/reduction gears turn the shafts at 5.17:1 ratio and were also supplied by Western Diesel. The stainless-steel, four-blade propellers are 62 inches in diameter by 47 inches in pitch. They were fitted to two 5-inch tailshafts with three Sturm sleeves each.

The two steering rudders and four flanking rudders have 6-inch stocks with upper and lower mild steel sleeves. The sleeves turn in brass bearings lubricated by grease. The steering and flanking rudders are individually controlled by double-acting hydraulic cylinders. Power and control to the cylinders is supplied by a two pump/motor combination of variable volume designed by Riverway Shipyard. Complete control of the motor operation is handled from the pilothouse.

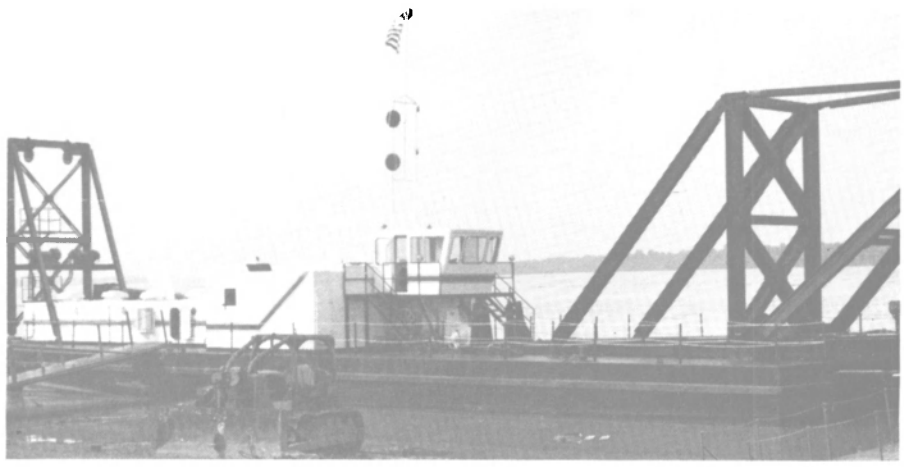
Electric power is derived from two Detroit 3-71 diesels operating at 1,200 rpm driving three-phase, 30-kw International Electric generators. One generator is air start; the other battery start.

Compressed air for engine starting, engine controls, and whistle is supplied by two air compressors with 5-hp 1,800-rpm motors. A Riverway-designed monitoring and alarm system maintains a constant check on main and auxiliary engines. A pilothouse information panel provides auxiliary monitoring signals.

Deck machinery includes two Beebe 30-ton winches. Fire protection on the boat is provided by the standard remotely operated fire pump hooked directly to two hose stations on the exterior of the vessel. The interior is fully protected by manually operated, portable carbon dioxide fire extinguishers.

The pilothouse, crews quarters, galley, and bathroom are fully insulated for heat, air-conditioning, and sound. The boat is air-conditioned for comfort. A St. Louis Ship FAST System LS-1 was installed for treatment of sewage.

A Carlisle & Finch 500-watt Xenon searchlight and one Carlisle & Finch 14-inch, 1,000-watt incandescent searchlight are located on the pilothouse roof. Directional spotlights are located on all four corners of the vessel at the second deck level, two under pilothouse. The pilothouse is fitted with a Kahlenberg air horn.



Largest DMI Dredge Delivered To Mexican Owner

DredgeMasters International, Inc. (DMI), the Hendersonville, Tenn., subsidiary of Valley Industries, recently christened the newest and largest dredge in its line of heavy duty dredges. The model HPC-27DR DuraMaster dredge was christened in a ceremony at La Place, La., staged by DredgeMasters, the manufacturer; Kenner Marine, Inc., the erector; and Construcciones Fluviales Y Maritimas (COFYMA), the owner, which is a division of Protexa.

The dredge (shown left) was christened Irma by **Humberto Lobo** president of the Protexa Group, and his wife **Irma De La Garza De Lobo**, for whom the dredge is named. The ceremony featured remarks by **Don C. Killom**, president of DredgeMasters International; **Arnoldo Gallont**, director of COFYMA's dredging division; Dr. **Salvador Garcia Vargas**, Mexican vice consul in New Orleans; and Mr. **Lobo**. The American flag was lowered and the Mexican flag was raised on the vessel prior to a blessing by Father **Boudreaux** of New Orleans.

The Irma has an overall length of 163 feet, beam of 34.75 feet, and maximum draft of about 6 feet. The 75-foot ladder can dredge to a depth of 53 feet at an angle of 45 degrees and to 65 feet at an angle of 60 degrees. The vessel's main power is supplied by a GM Electro-Motive Division 20-645 E4B diesel; auxiliary power comes from two Caterpillar D-399 diesels and one Cat 3408 engine.

The main pump is a DMI HydraMaster HDM80-32x27; it has a suction diameter of 31 inches, discharge diameter of 27 inches, and impeller diameter of 80 inches. The 2-drum swing winch is rated 65,000 pounds and the ladder winch has a rating of 49,450 pounds.

Others who attended the christening ceremony and reception that followed included **Carl Hakenjos**, president, and **George Watts**, executive secretary of the Western Dredging Association. Protexa was also represented by **Hernan Gonzalez**, director of the construction division; **George Littlefield**, maintenance manager; and **Guillermo Trevino**, purchasing manager.

Rubber Fendering Reduces Damage To Vessels And Piers

According to **Michael W. Brakey**, chief engineer of the Duramax Marine Division, The Johnson Rubber Company, in times of climbing ship repair costs and expensive general maintenance, rubber fendering is proving itself to be a highly flexible, energy-absorbing friend to the marine industry. Vessels are built today with the maximum economy of materials to minimize capital investments and can ill-afford drydocking due to berthing accidents. The same can also be said for the harbors. Berthing damage and repairs are unneeded expenditures and far too costly to be repeated time and time again. For this reason it may prove worthwhile to understand, at least to some degree, the forces involved with a berthing vessel and how a properly selected fender comes into play.

A berthing vessel can only come to rest by transferring all the "motion energy" within it to the surrounding environment. This motion or kinetic energy must be absorbed and dissipated by (1) the sea, (2) the elasticity of the fendering, (3) the elastic deformation of the vessel's hull, and (4) the elastic deformation of the pier. As evidenced by ships and harbors throughout the world, if the sea and fendering do not use their maximum energy-absorbing capabilities, damage can result to the vessel, to the berthing structure or both.

Begin with the speed and angle of the approaching vessel. The motion energy of the ship varies as the square of its velocity. A ship that berths at a speed of 3 feet per second has nine times greater energy than the same vessel berthing at 1 foot per second. Also of major significance is the angle of approach by the ship in berthing. Only the vessel's velocity perpendicular to the pier is used for determining the amount of motion energy to be absorbed. A vessel moving at 1 foot per second at an angle of six degrees to the pier would have a berthing velocity of 0.10 per second.

Remembering to square the velocity term, we find that the total motion energy to be absorbed by the vessel berthing at six degrees is 100 times smaller than the same vessel berthing at 90 degrees (striking the pier head on).

When a ship makes contact with the pier at an angle other than 90 degrees, it will be acting as a lever and will rotate around its axis. This will reduce the force of impact considerably. The percentage of motion energy absorbed by the sea under such action can be as high as 75 percent where the berthing point of contact between the ship

A double row of several heavy duty tubular rubber fenders are fastened in place with chains letting each section independently perform protection to both vessel and dock.

and pier is far forward or astern of the vessel's center of gravity. It is usually assumed that quarter point berthing shall occur, which results in half of the total motion energy being absorbed by the sea. The remainder must be absorbed by the fendering, the vessel's hull, and the pier.

When a marine fender is struck, it deflects. This deflection is proportional to the amount of motion energy it must absorb. As the fender deflects it offers increasing resistance, which is measured as a reaction load. This growing resistance by the deflecting fender is experienced by both the pier and vessel's hull. (Imagine trying to compress a coil spring between your hands. The further you compress it, the more resistance it offers. Which hand feels the greater resistance?) A properly selected marine fender should be capable of absorbing this motion energy without offering a resistance so high that it might lead to structural damage of either the pier or vessel hull.

A high resistance often results when a selected fender is too small for a required energy absorption. Energy absorption is equal to the fender's deflection times its resistance to deflection. When a fender can only offer a small amount of deflection compared to the energy absorption demands made upon it, higher resistances result. Once the fender can no longer deflect any farther, the remaining motion energy must be absorbed by the harbor pier and the vessel's shell. Here lies the danger of berthing damage.

Two factors to be weighed carefully in selecting a marine fender are energy absorption capabilities and corresponding reaction loads (the fender's resistance to a given deflection). It is generally seen that larger fenders offer greater energy absorptions and relatively lower reaction loads when compared to smaller fenders of the same geometry. To aid in the selection of the most economical fender for a specific task, a simple, ratio R/E, has been found useful.

$$\frac{R}{E} = \frac{\text{Maximum Reaction Load Acceptable to the Ship or Pier}}{\text{Motion Energy to be Absorbed by the Fender}}$$

The appropriate fender for any installation should have an R/E equal to or less than the value calculated above.

Yesterday's economics could afford to believe an old tire suspended from a chain was good fendering. In today's economy, unfortunately, such thinking is proving itself costly. The need for efficient, energy-absorbing fendering and an education of its potential is of growing importance. Fortunately, research and product improvement is being actively pursued, not only by Johnson Rubber Company but by many fender manufacturers. By such action, rubber fendering will today, and tomorrow, continue to be the flexible friend of the marine industry.

Sembawang Yard Completes Multimillion-Dollar Overhaul Job On McDermott Barge

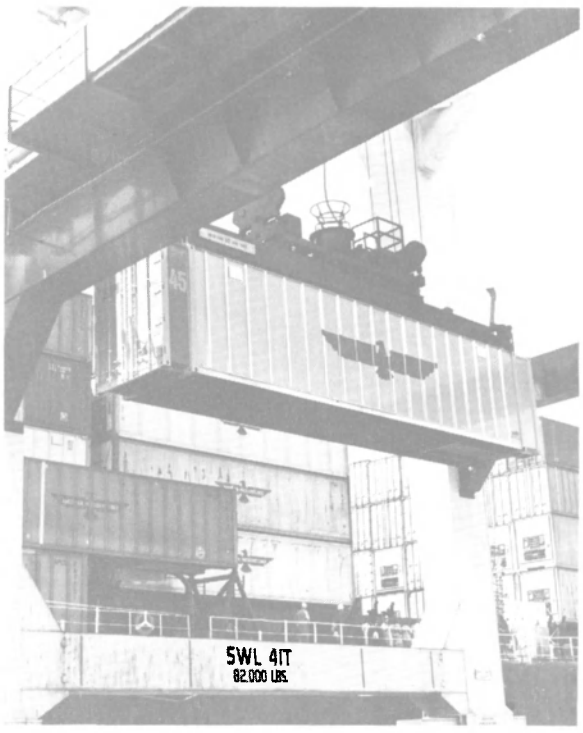
Sembawang Shipyard, Singapore, recently completed a multimillion-dollar contract awarded by McDermott Incorporated of New Orleans for repairs and modifications on the Derrick Barge No. 19. A new feature added to the main deck of the barge, which has been renamed DLB 19, is a pipelaying ramp 164 feet long and 19.7 feet wide.

To facilitate the new installations, the main deck and internals in way of the new work were completely removed and replaced with a watertight rampdeck extending from midship to stern, where a 25-ton "stinger" hitch fabricated of 50-mm-thick, high tensile steel was installed. The inboard side of the ramp was attached to a new watertight longitudinal bulkhead; the outboard side forms a new bulwark. Sixteen pipe tension machine foundations were fabricated and fitted; underdeck these foundations were strengthened with deep girders.

Prior to her modifications, DLB 19 had a complement of 60. With her new role in pipelaying operations, she had to house a crew up to 102, so new living quarters comprising cabins, toilets, a laundry, a lounge, and a movie room were constructed.

Four existing water ballast tanks were converted to living quarters according to working plans prepared by McDermott. With the additional demand for cool air, a new 37,000-cfm Carrier, modular central air-conditioning unit was installed.

APL Ready To Build 45-Foot Production Unit Containers



American President Lines (APL) of Oakland, Calif., has called for bids for construction of an initial order of 733 forty-five-foot containers (prototype shown above), the world's first, according to **Richard L. Hill,** vice president for land operations and project manager. The new containers will have a cargo capacity of 3,035 cubic feet, some 27 percent more than the standard 40-foot container. Because handling and transportation costs are largely determined on a unit basis rather than by the size of the container, the larger vans are expected to provide significant savings, and to help hold the line on rapidly rising costs. Each container will be 9 feet 6 inches high.

The 45-foot container is not expected to replace the standard 20- and 40-foot lengths, and will initially be designated for on-deck stowage only. It is anticipated that APL's 45-footers will be deployed on selected intermodal routes in order to increase operating efficiency. Initially, they will go into service to haul less-than-containerload (LCL) cargo between major Asian ports and Northeastern U.S. destinations.

In March this year, the company announced that it was building two prototype 45-foot containers. Those are being rigorously tested. One has commenced a series of trans-Pacific crossings so that the crew and land operations personnel can become familiar with it; the other is undergoing final structural tests by its manufacturer, Fruehauf Corporation, in Detroit. The company has also called for bids to construct several hundred 45-foot chassis, also the first of their kind.

The new containers have been designed to be accommodated on existing 89-foot 4-inch standard intermodal railcars, in both the container-on-flatcar (COFC) and trailer-on-flatcar (TOFC) modes, and can be lifted by standard 40-foot container-handling devices. Dual post fittings on the underside of the container make it compatible with the intermodal transportation concept.

The containers will be constructed of aluminum, with steel end frames. They are designed for a payload of 64,300 pounds, and are expected to operate on the interstate highway system at 50,000 pounds.

The company has previously reported that its three C-9 class diesel-powered containerships, presently under construction, have been designed with a structure that can be modified to accept the 45-foot containers under deck as well as the standard 20- and 40-foot lengths. Those vessels, with a cargo capacity of 2,500 twenty-foot equivalent units (TEUs), will be the largest of their kind ever built in the U.S.

Tracor Marine Awarded $2.5-Million Navy Contract To Manage OCEI Facilities

William C. Moyer, group vice president of Tracor, Inc., recently announced that the company's subsidiary, Tracor Marine, has been awarded a $2.5-million contract to operate and maintain the U.S. Navy Ocean Construction Equipment Inventory (OCEI), under the direction of the Chesapeake Division of the Naval Facilities Engineering Command.

Under the contract, Tracor Marine will operate and maintain the ocean construction platform SEACON and all OCEI ancillary ocean engineering equipment, as well as provide engineering and technical services. A 260-foot seagoing vessel, the SEACON is the largest OCEI asset.

Dr. **Moyer** said annual revenues up to approximately $2.5 million are for one year and are anticipated for each of two succeeding option years, for a total contract value of $7.5 million.

The SEACON and specialized equipment are maintained by the Navy for upgrading, implanting, and repairing underwater fleet weapons and tracking ranges, fleet moorings, and communications cables. Although operations are conducted worldwide, the equipment inventory is based in Norfolk, where Tracor Marine's Ocean Technology Division maintains a branch office.

Tracor, Inc. is an international technological products and services company headquartered in Austin, Texas.

Ned Smith Named Vice President-Finance For American Steamship

Ned A. Smith

Ned A. Smith has been elected vice president-financial planning and administration for American Steamship Company, Buffalo, N.Y. The announcement was made by **Thomas W. Burke**, president of American Steamship. Mr. **Smith** joined American Steamship in 1975 as controller. Prior to that time, he had worked for Price Waterhouse & Company in Buffalo from 1970 to 1975.

American Steamship, a subsidiary of GATX, Chicago, operates the largest fleet of self-unloading vessels on the Great Lakes, serving the steel, utility, chemical, cement, and construction industries. Commodities typically shipped include coal, limestone, iron ore, salt, gypsum, and sand.

Dravo To Provide People's Republic With Technical Assistance And Equipment

Dravo Corporation recently received a contract from the Chang Jiang Shipping Administration of the People's Republic of China to provide technical assistance and equipment for towboat communications.

Dravo will provide engineering, installation guidance, training coordination and equipment for ship-to-shore radio communications for riverboats operating on the Chang Jiang (Yangtze River). Financial terms were not disclosed.

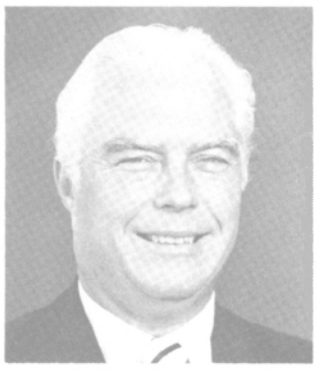
In other related business with the Chinese, Dravo has built four 6,000-bhp river towboats, which are enroute to China, and has provided the Chinese with operations training and on-site technical assistance.

Dravo, based in Pittsburgh, is a diversified engineering and construction, manufacturing, natural resources, transportation, and equipment company.

Delta Shipyard Delivers ABS-Classed Oil Barge To Cenac Towing

Delta Shipyard of Houma, La., recently delivered the oil barge CTCO 2601 to Cenac Towing Company, also of Houma. Delta designed and fabricated the single-skin barge, which is 235 feet long with a beam of 52 feet and depth of 16 feet. Classed for unlimited offshore service by the American Bureau of Shipping, the vessel has a cargo capacity of 26,000 barrels.

MacLeod Named President Of Ameron's Corrosion Resistant Piping Division



David E. MacLeod

David E. MacLeod has been named president of the Ameron Corrosion Resistant Piping Division, Brea, Calif., according to **L.R. Tollenaere,** Ameron president. Mr. **MacLeod** will be responsible for the worldwide operations of this division, which produces high-performance, reinforced thermosetting resin pipe and fittings for marine, chemical, utility, and other industries.

Since joining Ameron in 1965, Mr. **MacLeod** has served in several management capacities, the most recent being vice president, manufacturing, corporate staff.

McDermott Incorporated Promotes Four To Vice President Posts

J.E. Cunningham, chairman of the board and chief executive officer of McDermott Incorporated, has announced the election of four additional vice presidents.

Anton Salem has been elected vice president and administrative assistant to the chief executive officer. He joined Bailey Controls Company, a division of Babcock & Wilcox, a McDermott company, in 1974 as vice president of international operations, a position he has held until being named to his present office.

Alexander H. Cortese has been elected vice president and general manager, Fabrication Divisions, McDermott Marine Construction. He is in charge of the Bayou Boeuf and Bayou Black fabrication yards. He joined McDermott in 1969 as a structural engineer. In 1974, he became chief engineer of the Offshore Division and in 1978, manager of the Western Division. From mid-1978 until the beginning of 1980, he managed the Offshore Division. He served as manager of the Fabricators Division from that time until June 1, 1981, when he was named senior manager of the Fabrication Divisions.

Francisco J. San Miguel has been elected vice president and general manager with responsibility for the Morgan City, La., and Gulfport, Miss., shipyards, McDermott Marine Construction. He joined McDermott in 1964 as a naval architect. In 1974, he became division manager of the Morgan City Shipyard and in 1980, senior division manager of the Morgan City and Gulfport Shipyards.

Edward S. Gaffney has been named vice president and general manager, Nuclear Equipment Division, Babcock & Wilcox. He joined B&W in 1967. In 1976, he was named manager of quality assurance for the Nuclear Equipment Division and in 1978, manufacturing manager for the Industrial & Marine Division. He became general manager and division head of the Nuclear Equipment Division in 1980.

Calendar Of Coming Events

6th Annual Meeting — **Aug. 18-20**
Sponsored by the International Omega Association.
Montreal, Canada. Contact IOA at P.O. Box 2324, Arlington, Va. 22202.

Offshore Goteborg — **Aug. 19-21**
International offshore exhibition and conference organized by the National Swedish Board for Technical Development, the Swedish Maritime Research Centre, Lloyd's Register of Shipping, and others.
Swedish Trade Fair Foundation exhibition halls, Gothenburg. Contact STFF, Box 5222, S-402 24 Gothenburg, Sweden; 031 20 00 00, telex 20600.

International Marine Fuel Utilization Conference — **Sept. 1-4**
Sponsored by Marine Energy Institute, Inc.
Baltimore Convention Center, Baltimore, Md. Contact **James Cunningham**, Marine Energy Institute, 1410 Locust Street, Baltimore, Md. 21204; (301) 825-4238.

8th Annual Research and Engineering for Automation and Productivity in Shipbuilding (REAPS) Symposium — **Sept. 15-17**
Sponsored by various U.S. shipyards and the Maritime Administration, and conducted by IIT Research Institute.

OCEANS 81 — **Sept. 16-18**
Sponsored by the Marine Technology Society and the Council on Ocean Engineering.
Sheraton Hotel, Boston. Contact **Jack McCarthy**, OCEANS 81, P.O. Box 436, Cohasset, Mass. 02025; (617) 383-0720.

Coal Ports West — **Sept. 16-18**
A seminar sponsored by The American Association of Port Authorities.
Holiday Inn Holidome, Sacremento, Calif. Contact **Rexford B. Sherman**, director of research and publications, AAPA, 1612 K Street, N.W., Washington, D.C. 20006; (202) 331-1263.

Baltimore Hilton Hotel, Baltimore, Md. Contact **Marge Hernandez**, REAPS Program Librarian, IITRI, 10 West 35th Street, Chicago, Ill. 60616; (312) 567-4623.

16th Annual Marine Insurance Seminar — **Sept. 20-22**
Sponsored by Houston Mariners Club.
Houston Oaks Hotel. Contact Capt. **Jack Roberts**, 2918 Green Tee Drive, Pearland, Texas 77581; (713) 485-2464.

Maritime Liabilities Conference — **Oct. 5-7**
Sponsored by Fisher Maritime Transportation Counselors, Inc.
Seamen's Church Institute, New York City. Contact **Kenneth W. Fisher**, FMTC, 50 South Orange Avenue, South Orange, N.J.; (201) 763-4266.

SHIPASIA Exhibition and Conference — **Oct. 13-17**
Sponsored by The Hong Kong Shipowners Association, the Hong Kong Joint Branch of the Royal Institution of Naval Architects and the Institute of Marine Engineers, and the Shipping Committee of the Hong Kong General Chamber of Commerce, in cooperation with the ShipAsia management. The conference will be organized by Lloyd's of London Press Ltd.
Ocean Terminal, Hong Kong. Contact **Peter K. Johnson**, director, ShipAsia '81, 6006 Bellaire Boulevard, Suite 101, Houston, Texas 77081; (713) 666-5188, telex 910 881 5777.

Extreme Loads Response Symposium — **Oct. 19-20**
Presented by the Ship Structure Committee and The Society of Naval Architects and Marine Engineers.
Sheraton National Hotel, Arlington, Va. Contact Cdr. **James A. Sanial**, registration chairman, ELRS, U.S. Coast Guard Headquarters (G-DMT-1/54), Washington, D.C. 20593.

Vth International Congress — **Oct. 20-23**
Sponsored by the Society of Maritime Arbitrators, Inc., The Maritime Association of the Port of New York (MAPNY), and the Association of the Bar of the City of New York.
Hotel Vista International, New York City. Contact **C.S. Truog**, MAPNY, 80 Broad Street, New York, N.Y. 10004; (212) 425-5704.

Gastech 81: 8th International LNG/LPG Conference & Exhibition — **Oct. 20-23**
Organized by Business Meetings Limited.
Congress Centrum, Hamburg, Federal Republic of Germany. Contact Gastech Secretariat, 2 Station Road, Rickmansworth, Herts WD3 1QP, England; (09237) 76363, telex 924312. (Preview in October 1 issue of MR/EN)

Multipurpose Cargo Vessel Launched At GHH Sterkrade Yard

The launching ceremony for a new ship, Yard No. 1143, was performed recently at the M.A.N. Division GHH Sterkrade dock construction yard, Nordenham/Blexen, by **Mrs. Franziska Ewen**, the wife of the West German Member of Parliament **Carl Ewen** (Aurich/Emden). Another ship of the same design, the Yard No. 1144, is also to be launched this year from the GHH Walsum shipyard on the Rhine.

These 3,020-dwt multipurpose cargo ships are of a special design, combining certain features of a seagoing ship with those characteristic of an inland waterway vessel. These features essentially are a minimum draft, low fixed point heights, wheelhouses that can be hydraulically lowered to provide extra clearance for passing under bridges, and a great stability in high seas. All the necessary navigational equipment is also installed.

This new concept in transport is economical in terms of both time and money, eliminating the costs of reloading goods from inland waterway vessels onto seagoing ships, and vice versa. Thus, possibilities for new markets arise. Much experience has been gained in the past few years by building prototypes of this kind of ship, which are used to serve ports on the Rhine as well as on the Danube and Rhone Rivers.

The ship is driven by a four-stroke main diesel engine having a power rating of 970 kw (1,320 bhp) via a reversing speed reducer with fixed-pitch propeller. The propelling machinery is designed to insure 16 hours unattended operation. Two three-phase ac generator sets, each for 100 kva, in addition to a port-duty set for 46 kva, supply the ship with electrical power.

The living quarters, comprising 11 single cabins are situated aft and are complete with air-conditioning and modern furnishings. The navigational equipment consists of the electrohydraulically driven steering gear, the electrically driven bow thruster having a power rating of 100 kw, as well as the automatic steering system coupled with the gyrocompass.

Various units are available for navigation both at sea and on rivers. These include a river radar unit, sea radar unit, echo-sounding gear, satellite-based navigation system, radio direction finder, intermediate/shortwave and radiotelephone system, and two ultra-shortwave radio systems, one designed for the sea, the other for use on the Rhine.

Built under survey of German Lloyd according to class GL +100A 4 E, fitted for container transport, and +MCE Aut. 16/24, the ship has an overall length of about 327.4 feet, molded beam of 37.2 feet, molded depth of 25.5 feet, and draft of 14.3 feet.

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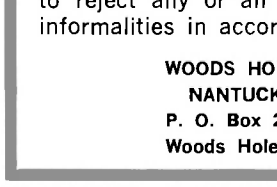

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The WOODS HOLE, MARTHA'S VINEYARD & NANTUCKET STEAMSHIP AUTHORITY invites sealed bids for CONTRACT #18-81 to furnish Auxiliary Diesel Engines for the Authority's vessel S/S NAUSHON as follows:

Two (2) GM 12V71 Diesel Generator Sets; One (1) GM 12V71 Bow Thruster Engine; and One (1) GM 4-71 Ballast Pump Drive Engine.

Proposals must be made on the Form of Proposal provided by the Authority and must be enclosed in a sealed bid return envelope provided by the Authority for that purpose.

Necessary bidding documents may be obtained from Contracts Office, Steamship Authority, P. O. Box 284, Woods Hole, MA 02543. (617) 548-5011 Ext. 217.

Sealed Proposals will be received by the Authority (only) at its General Offices, Woods Hole, MA 02543 until 1:00 P.M. Eastern Daylight Savings Time on Monday, 3 August 1981, at which time they will be publicly opened and read aloud.

The Authority specifically reserves the right to reject any or all bids and to waive any informalities in accordance therewith.

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Provide all labor, equipment, materials, supervision and do all incidental work necessary to perform structural modifications and re-engine the Authority's Vessel S/S NAUSHON, including delivery, in strict accordance with plans and specifications provided by the Authority.

Proposals must be made on the Form of Proposal provided by the Authority and must be enclosed in a sealed bid return envelope provided by the Authority for that purpose.

Plans, specifications and necessary bidding documents may be obtained from Contracts Office, Steamship Authority, P. O. Box 284, Woods Hole, MA 02543 after Monday, 6 July 1981. (617) 548-5011 Ext. 217.

A deposit of $500.00 (refundable) is required for a complete set of contract plans, specifications and bidding documents.

Sealed Bids will be received by the Authority (only) at its General Offices, Woods Hole, MA 02543 until 1:00 P.M. Eastern Daylight Savings Time on Monday, 17 August 1981, at which time they will be publicly opened and read aloud.

The Authority specifically reserves the right to reject any or all bids and to waive any informalities in accordance therewith.

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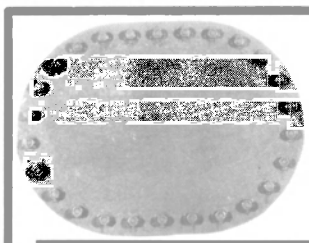

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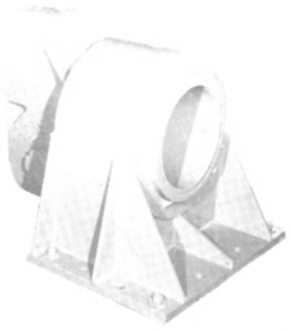

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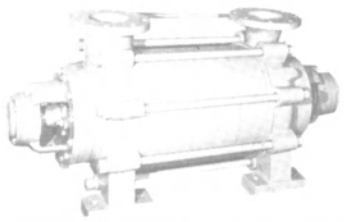

550 GPM @ 323' head @ 1800 RPM

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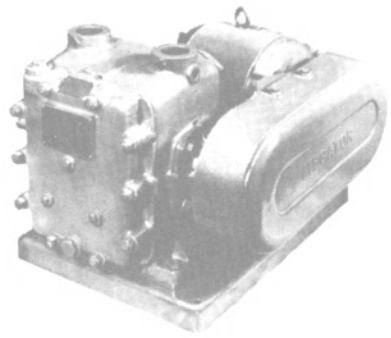

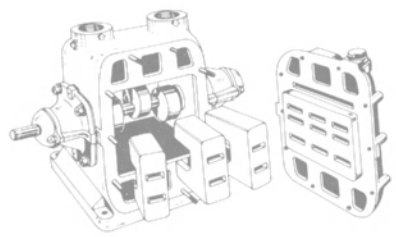

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Empty boat weight	2380 Kg (5247 lbs)
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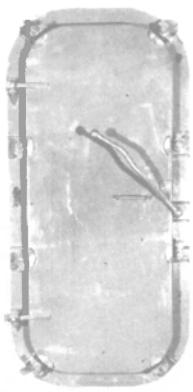

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Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4–150 HP–240 Volt DC Hoist Motors
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Possible other uses:
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LENGTH OVERALL ..... 140 FT.
BEAM ..... 84 FT.
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LIGHT DISPLACEMENT . . . 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING
TYPE – FULL 360°
WEB BOOM . . . 146 FT.

MAIN HOIST
200-Ton – By 2 only, 8 part blocks. Each block carries 2,050 ft. of 1½", 6 x 37 I.P.S. wire rope (New).

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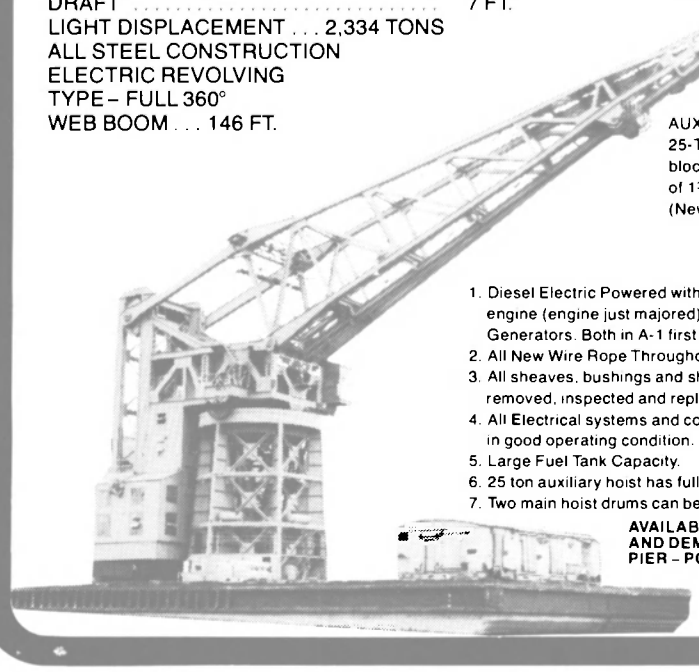
25-Ton – By 1 only 4 part block. Block carries 1,110 ft. of 1⅜", 6 x 37 I.P.S. wire rope (New)



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NEW 1970-72

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AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:
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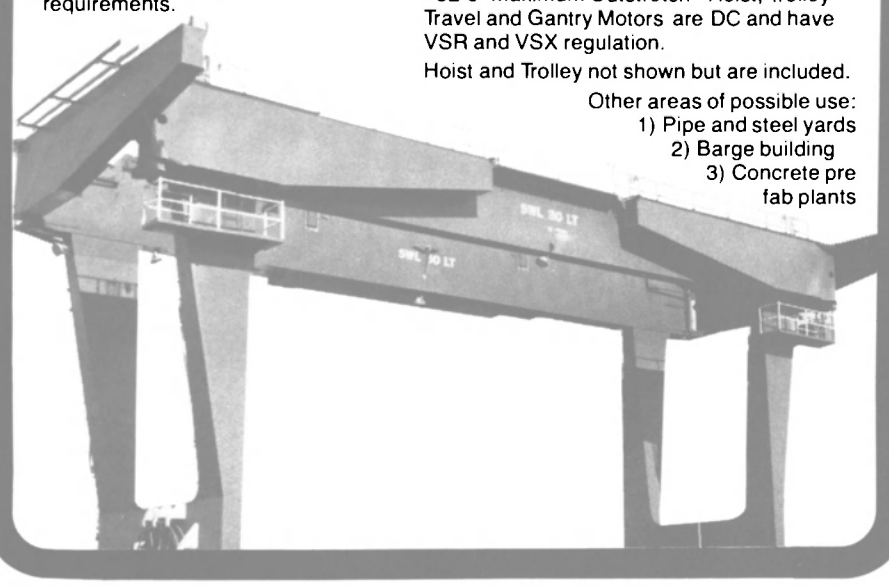

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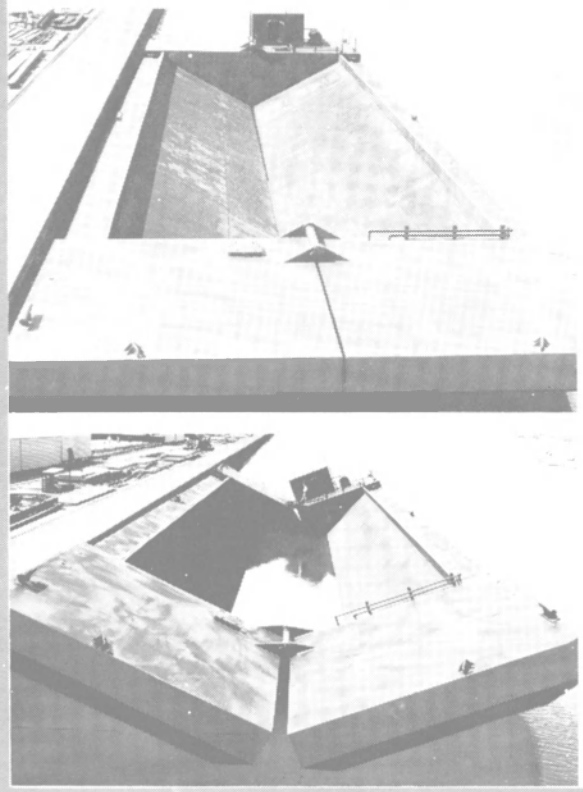

Built 1979. For sale, long or short term charters

SPECIFICATIONS

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Beam (ML'D)	50'- 0"
Depth of Mid-Body (ML'D)	14'- 0"
Hopper Length (ML'D)	128'- 0"
Level Hopper Volume	1421 cu. yd
DWT @ d = 10.22 ft	1615 L.T.
Rake Lengths F. & A.	26'- 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped Up	2'- 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78°
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120" Stroke
Plating	
Side	9/16"
Bottom	5/8"
Hopper	5/8"

American Crane Barge

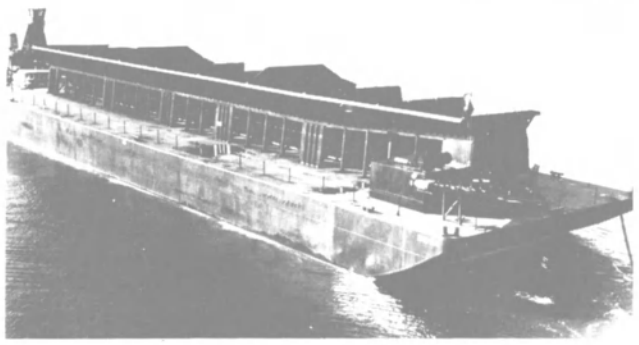
BARGE DATA

Displacement Light	1,200T.
Gross Tonnage	911
Net Tonnage	911
Length	151 - 6"
Beam	60'- 0"
Hull Depth	12'- 0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., 7/8"ç – 6 x 36 I.P.S.
4 part standing standing bail	2-186 ft., 1¾"ç – 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigg.)	
20 part rigging	3,250 ft., 1"ç – 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., 7/8"ç – 6 x 66 I.P.S.

Self Unloading Aggregate Barge



ZAG-501

Length (O.A.)	248'- 0"
Beam	63'- 0"
Depth	16'- 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'- 7½"
Draft Loaded (F.W.)	11'- 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd.

Hopper Unloading Gates: 27-36"x 36" Horiz. sliding gates w/individual hydr. controls.

Main Unloading Conveyer: 48" wide belt, 30 H.P. elect. motor, 250 ft./min. Max. disch. rate – 667 cu. yd./hr.

Transfer Conveyer: 42" wide belt, 10 H.P. elect. motor, 350 ft./min. off loading location – Stbd. side fwd. at 9 ft. above deck

Hull Plating: Deck, side shell & bott. 9/16"

Bulk Petroleum Barge

ZTB-601

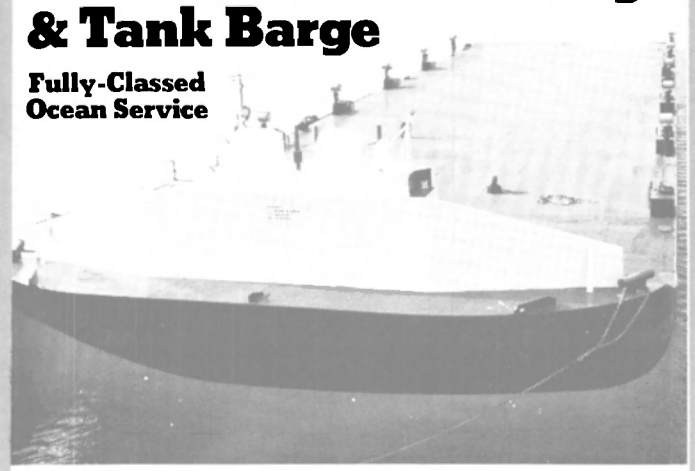
Type: • Ocean unmanned service • Grade "B" bulk cargo

USCG: • Documented with "Consolidated Certificate of Enrollment and License" • Operating – oceans" • Official No.: 280356 • Net: 2286 • Gross: 2286 • Length: 257.5' • Breadth: 55.1' • Depth: 20.3

ABS: International Load Line (valid until 6 December 1984) Cert. No. 61-24, 479-2. **Aux. Machinery & Pumps:** (4) Bingham pumps – 8 x 14 VTX – 5 stage – cap. 600-1500 GPM – Type #F – 150 – driven by 4 GMC 6-71 diesels. (1) Diesel generator set – 5 K.W. – Lister – 2 cyl. – air cooled. **Deck Derrick:** (2) Booms & masts – one port and one starboard – rated 2240 lb. lift with two 2-ton winches. **Fill & Discharge Lines:** 6" fill and 6" discharge tying into 8" lateral lines. **Aft Mast:** (1) Stern loading and light mast. **Capacity:** 14 tanks – 38,900 bbls. (on USCG Certificate)

Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



ZPC-402 230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A.	230'- 0"
Beam	60'- 0"
Depth	15'- 6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8" ANSI 150# FLG P/S
Heating Coils	2" Sch. 80 Pipe For Shore Steam
Hull Plating	Deck ½", Side Shell ⅜", Bott. ⅜", Shear Strake ½"
Deck Cargo Dwt. at Loadline	3900 S.T.

For additional information or to make an appointment to inspect, call or write:

Thomas A. Sherwood or
Andy Canulette, Jr.

ZIDELL

ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

EXTRA LARGE PANAMA CHOCKS

Clear opening 16" X 20" — 10" Radius. 36½" High — 40½" long.

THE BOSTON METALS COMPANY

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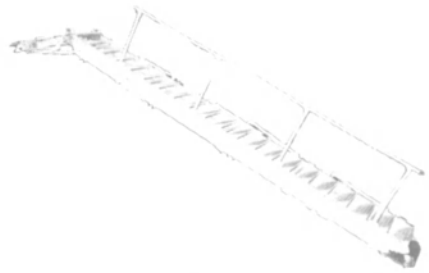
20' ACCOMMODATION LADDER



Aluminum — with feathering treads. 180° Swiveling upper platform. From ex-Alcoa SEAPROBE.

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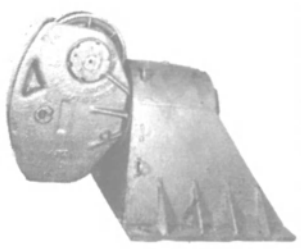
SURPLUS BERGER FAIRLEADS



2 Model 620 — for 1⅝" wire — 20" sheave.

$3950 EACH

Also 1 for 1¼" wire

$2450 EACH

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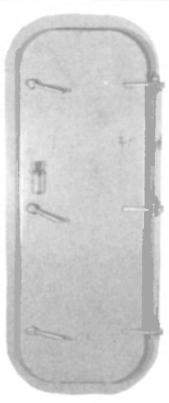

UNUSED EX-U.S.N. FUME-TIGHT DOORS

3-Dog — 3 hinge — with 26" X 78" clear opening. OA height of frame 87½" — OA width of frame 35½". Two doors have 10" portlights installed. RH & LH available. Inquire for details.

THE BOSTON METALS COMPANY

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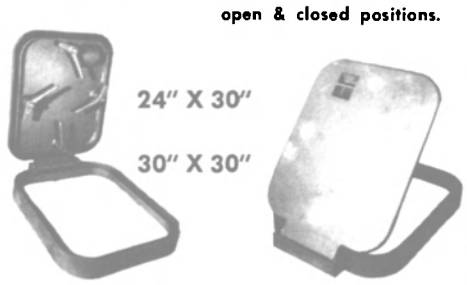
HATCHES

NEW UNUSED FLUSH HATCHES

54' X 77"

14-Dog — operated from top side by T-key, with dogs marked to show open & closed positions.



24" X 30"

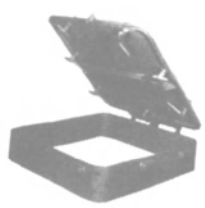
30" X 30"

4 Dogs on underside—topside flush, with T-Key openers.

60" X 42" X 12"
10-DOG

72" X 72" X 12"
16-DOG

36" X 26" 7-DOG
TANKER EXPANSION
TRUNK



42" X 42" X 9"
7-DOG
SPRING
LOADED

THE BOSTON METALS COMPANY

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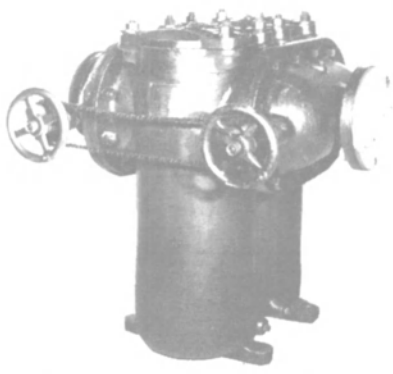
Bronze Elliott TWIN LUBE OIL STRAINER



Size 4"—chain driven—type V. Serial #27709—U.S.N. contract Nobs. 381. Mfg. 1943. W.P. 50 lbs.—T.P. 150 lbs. Weight 950 lbs.

THE BOSTON METALS COMPANY

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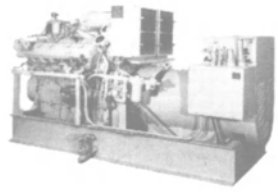
TWX: 710-234-1637

250KW GM 12-V-71 DIESEL GENERATOR SETS AIR START



440/3/60/1800 — with free-standing switchgear. Generators manufactured by Electric Machinery Co. — E.M. Bemac — brushless — synchronized — keel cooled.

THE BOSTON METALS COMPANY

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Marine Warehouse (301) 752-1077
TWX: 710-234-1637

FACTORY NEW NIJUIS 10" X 8" SPLIT CASE HORIZONTAL PUMPS

$2950 EACH

Best efficiency 3400 GPM @ 160 PSI — 1500 RPM or 5220 GPM @ 30 PSI — 1500 RPM maximum capacity. 4500 GPM @ 125 PSI — 1800 RPM. Requires 500 HP. 2000 GPM @ 110 PSI — 1450 RPM (using 6-V-71 engine reducing 8" to 6" suction).

THE BOSTON METALS COMPANY

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NEW — UNUSED SPHERICAL MOORING BUOYS

About 58" diam. With tieplates top & bottom. Est. wt 680 lbs each. 120 lbs submergence

CYLINDRICAL BUOYS

3 Available — 5 ft X 9 ft — with wood bumpers

THE BOSTON METALS COMPANY

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Marine Warehouse (301) 752-1077
TWX: 710-234-1637

ELECTRO-PNEUMATIC PROPULSION CONTROL

for speed control and reversing

PORT & STARBOARD

For 12-567A engine and Falk reduction gear. As used for USN LST vessels. Bridge and engine room control.

THE BOSTON METALS COMPANY

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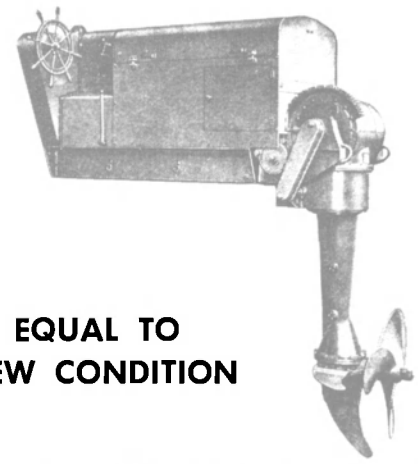
M&T Model O-2D Marine Outboard Diesel Driven Propulsion Units



EQUAL TO NEW CONDITION

Equal-to-new-condition. Driven by GM 6-71 diesel—165 HP @ 1800 RPM—2-cycle—6 cylinders. Weight 9300 lbs—48" X 24" propeller. Unit shown with outboard shaft in running position. Distance from deck to bottom of skeg 89". 4 Units immediately available.

THE BOSTON METALS COMPANY

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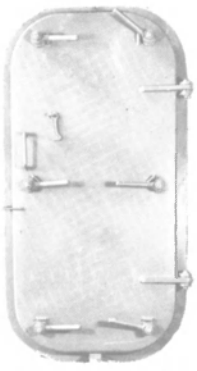
FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12"X6½" PANAMA CHOCKS FOR SMALL VESSELS

Closed chocks — 12" X 6½" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

GOOD - USED DOUBLE STEEL BOLLARDS in stock

10", 12", 14", 20"

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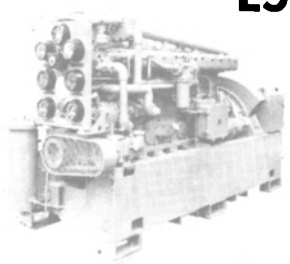
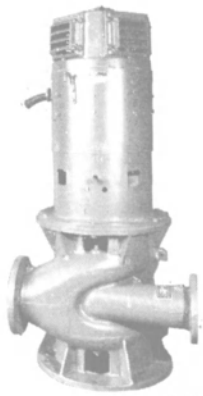
LST MACHINERY



100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl —5½X7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high —42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

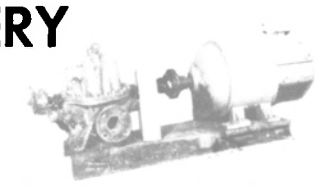


GARDNER-DENVER BALLAST PUMP

Bronze — 1500 GPM — 56' head or 25 bs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40°T rise — stab. shunt — ballbearing — dripproof. Controls available.

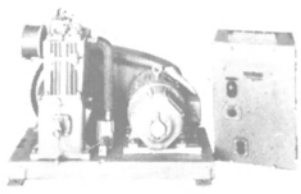
TAILSHAFTS

Diameter: 6 1/8" Length: 21' 2 5/8"



GOULD FIRE & BILGE PUMP

250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2½ X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.

COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1½"X1½")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1½") G.E. Motor model 5B254A1988—type B —Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40°C temp rise. Ball bearing.

THE BOSTON METALS COMPANY

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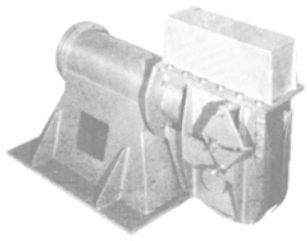
NEW BALANCED HEAD FAIRLEADS

1¼" $2775



1½" $3350

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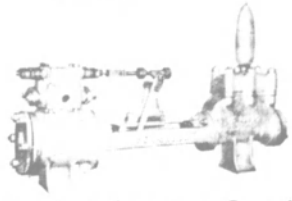
WILSON-SNYDER 10 GPM 100 LB Horizontal Auxiliary PORT BOILER FEED PUMP



Steam driven reciprocating pump. Operating pressure 100 lbs. 10 GPM @ 100 LBS. Suitable for boilers to 150 HP. 1½" Suction — 1" discharge.

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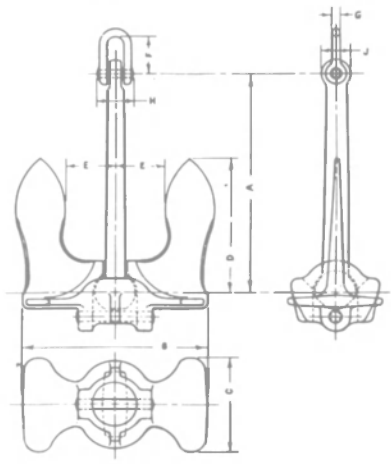
ANCHORS -- CHAIN

DETACHABLE LINKS

PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

NEW — UNUSED LLOYD'S OR ABS CERTIF.

12000 LBS & 8000 LBS

IN STOCK—FOR MOORING—NO CERTIF.

- 3000 LB DANFORTH
- 5300 LB BALDT
- 4300 LB BALDT
- 14750 LB BALDT
- 10750 LB BALDT

ANCHOR CHAIN

- 2⅝" — New — Grade 3 — Certif.
- 3" — New — Grade 3 — Certif.
- 3¼" — New — Grade 3 — Certif.
- 3⅜" — Grade 3 — Certif.
- 1⅛" — Dilok

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BUYERS DIRECTORY

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION
Adrick Cooling Corporation, 30 B. Remington Blvd., Ronkonkoma, NY 11779
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
James D. Nail Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection
Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment
Aurand, 1270 Ellis Street, Cincinnati, OH 45223
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
Goff Corporation, One Pleasent Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning
Clayton Manufacturing Company, 486 No. Temple City Blvd., El Monte, CA 91731
Combustion Engineering, Inc., Windsor, Connecticut 06095
A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BROKERS
Aldenships, 2182 S.E. 17th Street, Fort Lauderdale, FL 33316
B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
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

BUNKERING SERVICE
Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHAINS
Neptunia, Via Giovanni da Verrazzano, 12 16 165 Genova, Italy

CHOCKING SYSTEMS
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CONTROL SYSTEMS—Monitoring
Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431
Pan American Systems Corporation, P.O. Drawer 400, Belle Chasse, LA 70037
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

COUPLINGS
Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07037
National Supply Company, 1455 West Loop South, Houston, TX 77027
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

DECK MACHINERY—Cargo Handling Equipment
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
Navire Cargo Gear (SEA) Pte. Ltd., 9th Floor Orchard Towers, Orchard Road, Singapore 0923

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Twin Disc, Incorporated, Racine, Wis. 53403

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Federal Pacific Electric Company, P.O. Box 1800, Somerville, NJ 08876
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS
Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine
ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
Consafe Inc., P.O. Box 40339, Houston, TX 77040
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
John P. Nissen, Jr. Company, Glenside, PA 19038
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Stal Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Unitor Ships Service A/S, Mastemyr, 1410 Kolbotn, Norway
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186
Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150

EVAPORATORS
Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS — METALS
Fibergrate Corporation, P.O. Box 344610, Dallas, TX 75234
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS
Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing
Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FUEL OIL ADDITIVES—Analysis & Combustion Testing
Rolfite Products Inc., 300 Broad Street, Stamford, CT 06901

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT
Kiefer Corporation, 2202 W. Clybourn, Milwaukee, WI 53233

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

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
Seaward International, Inc., 6269 Leesburg Pike, Falls Church, VA 22044
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS
Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredriksstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022
Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER—Watertight Doors—Paneling
Masonite Commercial Division, Dover, OH 44622
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LIFEBOATS & DAVITS
Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY
Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
Browning Marine, Inc., (Aqua Signal), P.O. Box 806G, St. Charles, IL 60174
The Guest Corporation, 17 Culbro Drive, West Hartford, CT 06110
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
General Electric Company — Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Agemar, Ave. 17 No. 108-129, P.O. Box 1465, Maracaibo, Venezuela
All Points Associates, Inc., RD #1, Box 3309, Monroeville, OH 44847
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
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Jacksonville, Florida 32211
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd.,
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 2341 Jefferson Davis Hwy., Suite 1100, Century Bldg., Arlington, VA 22202
Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Francis C. Ducote, P.E., P.O. Box 644, Kenner, LA 70063
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Lucander Designs, P.O. Box 711, San Perlita, TX 78590
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
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
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Captain Conrad P. Nilsen, 66 Beverly Road, Bloomfield, NJ 07003
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
Oromar International Enterprises, Inc., P.O. Box 13069, Port Everglades, FL 33316
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Corning Townsend III, 18 Church St., Georgetown, CT 06829
Wadam Wartsila Helsinki Shipyard, P.O. Box 132, SF-00151 Helsinki 15, Finland
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02090
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117

Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
North American Philips Communication Corp., 55 Knights Bridge Road, Piscataway, NJ 08854
RCA Service Co., Building 204-2, Camden, N.J. 08101
Racal-Decca Marine, Inc., P.O. Box G, #1 Commerce Blvd., Palm Coast, FL 32037
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Southern Marine Research, Inc., 1401 N.W. 89th Court, Miami, FL 33172
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
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

OIL/WATER SEPARATORS
Alfa-Laval, Inc., 2115 Linwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
Henkel Corporation, 4620 West 77th Street, Minneapolis, MN 55435
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
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

PETROLEUM SUPPLIES
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
Tioga Pipe & Supply Company, 2450 Wheatsheaf Lane, Philadelphia, PA 19137

PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., ICO Orchard St., Auburn, N.Y. 13021
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004
Caterpillar Tractor Company, Engine Division, Peoria, IL 61629
Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
P.J. Plishner Marine, 2 Lake Avenue Ext., Danbury, CT 06810
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073
Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

PUMPS—Repairs—Drives
Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110

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

ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Modular Systems, 164 Franklin Avenue, Rockaway, NJ 07866
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SAFETY EQUIPMENT
ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, FL 33020
Datrex, 3770 N.W. So. River Drive, Miami, FL 33142

SANITATION DEVICES—Pollution Control
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355
Somat Corporation, Pomeroy, PA 19367

SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

SHACKLES
West Footscray Engineering Works P/L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12. Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzs de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Jeffboat, Inc., Jeffersonville, Ind. 47130
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shioyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Sun Ship Inc., Chester, PA 19013
Swiftships Inc., P.O. Box 1909, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904

SHIPPING
Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048

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

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

SURVEYORS AND CONSULTANTS
Francis B. Crocco. Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 5 Marine View Plaza, Hoboken, NJ 07030

TANK LEVELING INDICATORS
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06052
Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

TERMINALS—Oil-Transfer
Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614
Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottsville, VA 22903

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
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
Ocean Salvors Company, One World Trade Center, New York, NY 10048
Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

TRAINING SERVICES—Simulator
Ship Analytics, Park Circle, Centerport, NY 11721

VALVES AND FITTINGS
American United Marine, 575 Madison Avenue, New York, NY 10022
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
Winel, Inc., 34655 Mills Road, North Ridgeville, OH 44039

WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Halogenic Products Corporation, P.O. Box 27488, Salt Lake City, UT 84127

WINCHES AND FAIRLEADERS
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

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

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266

Among the participants at the Maritime Day ceremonies in New York this year were (L to R): Capt. **Robert E. Hart**, president, Marine Index Bureau and Maritime Day chairman; **Quarles van Ufford**, consul general of the Netherlands; first officer **Harry Rogers** of the tanker Williamsburgh; Capt. **Arthur H. Fertig**, master of the Williamsburgh; and **Samuel B. Nemirow**, assistant secretary of commerce for maritime affairs.

New York Maritime Day Ceremonies Featured Presentation Of Two Awards

National Maritime Day was observed in New York Harbor with a cruise down the Hudson River aboard a Circle Line vessel, on which presentations of maritime awards and an ecumenical service were held. As some 400 members of New York and New Jersey's maritime community looked on, sponsors from government, labor, and management placed ceremonial wreaths on the waters of the harbor. A bugler from the United States Merchant Marine Academy at Kings Point sounded taps in memory of the men and women of the merchant marine who died in the past year.

Ceremonies aboard the vessel featured the presentation of the Gallant Ship Award to the tanker Williamsburgh by the Honorable **Samuel B. Nemirow**, Assistant Secretary of Commerce for Maritime Affairs. Capt. **Arthur H. Fertig**, skipper of the tanker, was honored for his role in the dramatic rescue by sea and air of the 560 passengers and crew of the Dutch liner Prinsendam, which caught fire in the Pacific last October. In a last-minute program addition, Secretary **Nemirow** also presented the American Merchant Marine Seamanship Trophy, a perpetual cup dedicated as a permanent tribute to deeds of extraordinary American seamanship and maritime skill, to Captain **Fertig**, as well as individual awards and citations to all members of the Williamsburgh.

Also in attendance and honored were first officer **Harry Rogers** and union officials representing the shipping line, including **Jerome E. Joseph**, vice president District 2, MEBA, AMO, and **Leon Hall**, vice president Seafarer's International Union of North America. Joining the group for additional speeches and memento presentations were shipping executives associated with the tanker, including **Albert Guetta**, president of Bay Tankers, Inc., operator of the Williamsburgh during the rescue; **Al Jurist**, vice president of the present operator of the vessel, Apex Marine Corporation; **Peter Marshall**, general manager product trading for American Petrofina, charterer of the vessel; and Consul General **Quarles van Ufford** of the Netherlands.

The announcement of the recipient of the annual Merchant Marine Achievement Trophy Award also was made on the cruise by Capt. **John V. Caffrey**, commander of the Robert L. Hague Merchant Marine Industries Post of the American Legion. Each year since 1956, the post has honored the person, company, or association that has made a significant contribution to the American merchant marine in that year. EXXON USA was this year's recipient, and the award will be made at the White House later this year.

Earlier, Vice Adm. **Robert I. Price**, United States Coast Guard, made awards to a number of shipping companies from the New York area. These awards, for support of the Coast Guard's Automated Mutual-Assistance Vessel Rescue (AMVER) system, were made aboard the Maritime Day vessel before its departure from pier 81.

James P. McAllister Sr. of J.P. McAllister Associates, honorary chairman of the 1981 World Trade Week Committee, gave the traditional welcome aboard the vessel. Capt. **Robert E. Hart**, president of the Marine Index Bureau and chairman of the Maritime Day Committee, served as master of ceremonies for the day's events.

Joining the marine and world trade executives aboard were the 1981 Maritime Queen **Miss Karen Powderly** and her princess, sponsored by the Maritime Association of the Port of New York. **Miss Powderly**, an employee of South African Marine Corporation, New York, is 23 years old and resides in Ozone Park, Queens.

The ecumenical and wreath ceremonial service in honor of those seafarers who have given their lives serving the merchant marine was conducted onboard the vessel beyond the Verranzano Bridge by the Seamen's Church Institute of New York and New Jersey. The Reverend **Francis C. Huntington** officiated.

Officials casting the Labor Wreath over the stern included Mr. **Hall** and Mr. **Joseph; Henri L. Neraux**, International Organization of Masters, Mates & Pilots; and **Andrew Rich** of the National Maritime Union of North America.

Representatives handling the Government Wreath were Capt. **Richard O. Gooden**, U.S. Navy, Commander, Military Sealift Command, Atlantic; Rear Adm. **Thomas A. King**, superintendent, U.S. Merchant Marine Academy, Kings Point; Rear Adm. **Sheldon Kinney**, president, New York State Maritime College, Fort Schuyler; the Honorable **Samuel B. Nemirow**, Assistant Secretary of Commerce for Maritime Affairs; and Vice Adm. **Robert I. Price**, USCG, Commander, Atlantic and Third Coast Guard District.

The Management Wreath was cast into the waters by **Daniel B. Curll III**, president of New York Towboat & Harbor Carriers Association; **James J. Dickman**, president of New York Shipping Association; **Donald J. Schmidt**, president of The Propeller Club, Port of New York; and **Robert L. Massa**, president of the Dry Dock Association of New York & New Jersey.

Joseph F. Brady, chief officer of international trade, Department of Labor & Industry in Newark, N.J., announced the appointment of **George H. Becker Jr.** of Eatontown, N.J., as the chairman of New York and New Jersey World Trade Week for 1981, and also gave special recognition to Mr. **McAllister** and Captain **Hart** for their part in the presentation of an outstanding 1981 Maritime Day program in the Port of New York and New Jersey.

The observance of Maritime Day, in recognition of the importance of the American merchant marine and the men and women serving aboard U.S. merchant ships, has been held on May 22 for the past 49 years. It commemorates the same date in 1819 when the S/S Savannah began the first trans-Atlantic voyage using steam power, from the Port of Savannah, Ga. It was held in New York and New Jersey on Thursday, May 21, in order not to conflict with the start of the Memorial Day weekend.

Todd Shipyards Awarded Navy Study Contract On DDGX Producibility

The Naval Sea Systems Command recently awarded the Los Angeles Division of Todd Pacific Shipyards Corporation a $384,382 producibility study contract for DDGX, the Navy's next generation guided missile destroyer. Todd will investigate techniques to modify contract design data packages to implement computerized design construction, determine cost effectiveness of installation of a Ship's Data Multiplexing System (SDMS), as well as other cost/benefit trade-off studies. Todd immediately announced that the Anaheim-based Autonetics Marine Systems Division of Rockwell International would assist in preparation of the SDMS study.

The DDGX destroyer design is currently in the preliminary design phase, with construction of the first ship scheduled to commence in 1986. Todd Los Angeles currently holds contracts for 15 FFG guided missile frigates, of which three have been delivered, and the yard is developing necessary facilities and personnel to be in a formidable position to win the competition as prime contractor to design and build the lead ship of the DDGX class.

MarAd Approves Title XI On Oceangoing Barge To Cost $18.6 Million

The Maritime Administration has approved in principle an application by Ocean Barge Corporation, New Orleans, to aid in financing the construction of an oceangoing, 33,000-dwt dry cargo barge.

Bay Shipbuilding Corporation, Sturgeon Bay, Wis., is the builder. The 550-foot vessel is scheduled to be delivered in November and is expected to be employed in the domestic U.S. coastwise coal trade. The Title XI guarantee covers $16,257,000, or 87½ percent of the estimated cost of $18,580,000.

Bulk Carrier 'Star Of Texas' Launched At Levingston Yard

The second of three U.S.-flag dry bulk vessels being constructed at Levingston Shipbuilding Company was christened and launched recently at the Orange, Texas, shipyard. The 612-foot ship (shown above) hit the water after being christened Star of Texas by **Mrs. Thelma Paden** and **Mrs. Marilyn Voss**, co-sponsors, each of whom broke a traditional bottle of champagne on the vessel's bow. **Mrs. Paden** is the wife of **Edward E. Paden**, chairman and chief executive officer of Levingston Shipbuilding; **Mrs. Voss** is the wife of **William C. Voss**, senior vice president of Ashland Oil, Inc.

Speaking at the ceremony, which was attended by more than 3,000 invited guests, shipyard employees, and their families, were **John B. Spring**, senior vice president and chief financial officer of Household International, Inc.; U.S. Representative **Charles Wilson** (D-Texas); State Representative **Wayne Peveto**; and **Joe Barrios**, president of Levingston Shipbuilding. The Reverend **James Thompson**, minister of the First Methodist Church of Orange, gave the invocation.

The Star of Texas, which can carry up to 36,000 tons of grain or other dry bulk cargoes, will join her sister ship, the Pride of Texas, in the U.S. foreign trade. The Pride is currently at sea with a cargo of grain for the People's Republic of China. The third sister ship in the series is under construction at the Levingston yard.

Owner of the new ship is the Asco-Falcon Shipping Company of Houston, a partnership between Ashland Shipping Company and Falcon Group of Houston. The Star of Texas will be bareboat-chartered to Equity Carriers, Inc., and managed by Titan Navigation, Inc., both of Houston. She is expected to be completed and delivered by the end of this year; the third vessel of this class will follow about six months later.

The Star of Texas has an over all length of 611 feet 10 inches, beam of 93 feet 2 inches, depth of 50 feet 2½ inches, and design draft of 32 feet. Bale capacity (grain) is 1,589,570 cubic feet. Built to American Bureau of Shipping classification, the vessel will operate with a crew of 34.

Main propulsion is provided by a pair of Transamerica Delaval DMRV-12-4 diesel engines, each with an output of 7,412 bhp at 450 rpm. These 12-cylinder engines are capable of operating on heavy fuel oil as well as No. 2 diesel. Service speed fully loaded is 15.7 knots.

Levingston Shipbuilding Company is a wholly owned subsidiary of Levingston Industries, Inc., a privately held corporation. Its 100-acre shipyard in Orange, with about 2,000 employees, builds both conventional ships and offshore drilling rigs. The yard's current orderbook includes the two dry bulk carriers for Asco-Falcon Shipping and four Levingston Class 111-C jackup drilling platforms. The shipyard also operates three floating drydocks and a marine railway, providing maintenance and repair services for the coastal shipping and offshore industry.

Another member of the Levingston Industries group is Texas Gulfport Shipbuilding Company, which operates a shipyard in Port Arthur, Texas, and which also builds jackup rigs and provides ship repair services.

$4.9-Million Navy Order To Dillingham Ship Repair

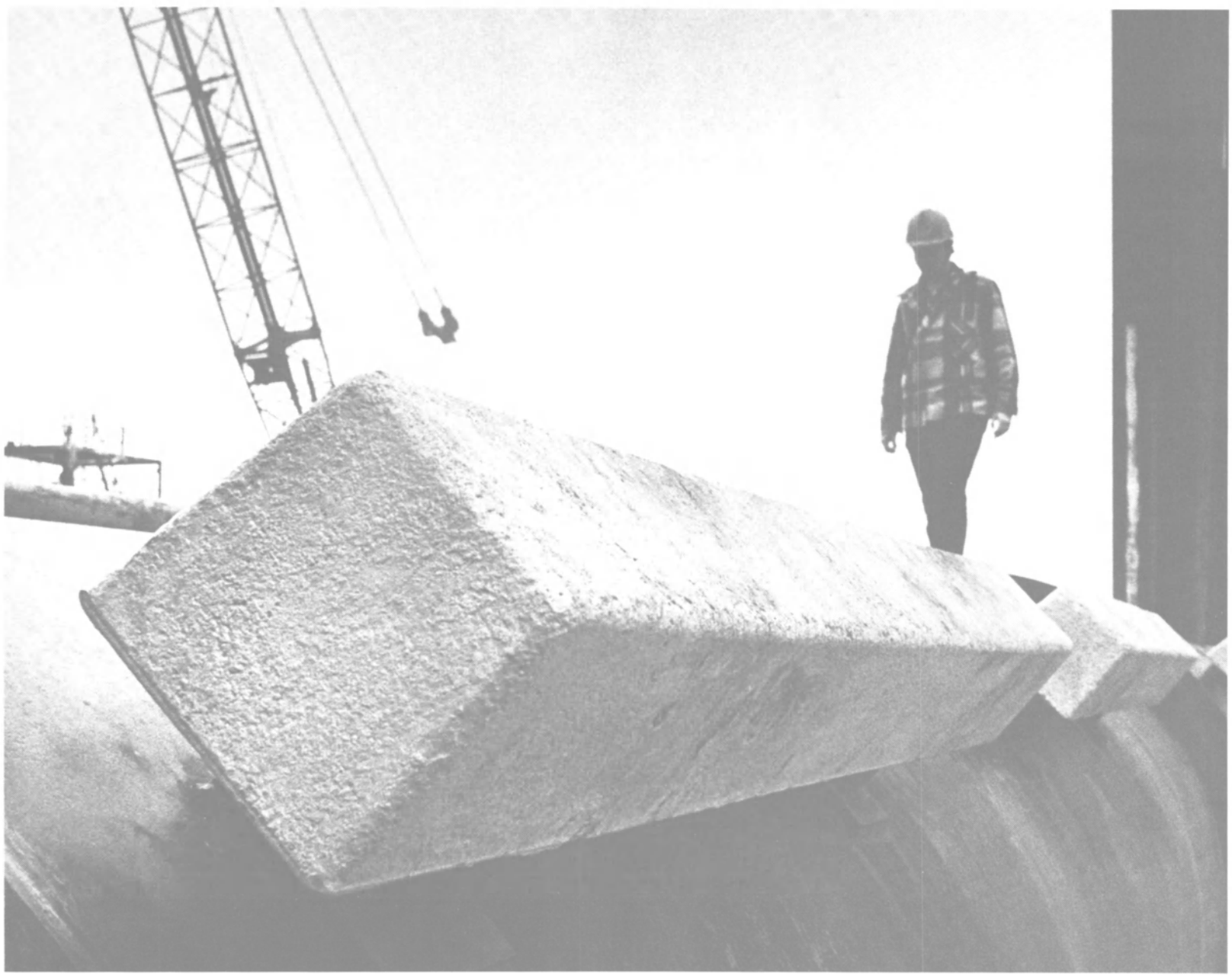
Dillingham Ship Repair, Portland, Ore., is being awarded a $4,904,706 fixed price contract for a biennial overhaul and reduction gear replacement on the USNS Potomac, a privately owned tanker under long-term bareboat charter by Military Sealift Command. The Trinidad Corporation, which is responsible for operation and maintenance of four Navy controlled tankers under a contract with the U.S. Navy's Military Sealift Command, is the contracting activity. (N00033-70-C-0084)

Butterworth Tank Washing Machines Ordered For Eight New Product Carriers

Butterworth Systems Inc. has announced that eight product carriers now under construction at Hellenic Shipyards, Athens, Greece, will be outfitted with a total of 506 Butterworth® tank cleaning machines. Included are 300 Butterworth P-60 machines that will be deck-mounted, plus 206 fixed-in-place Butterworth SK units to be installed at various locations within the cargo tanks. The product carriers, each approximately 29,990 dwt, are owned by Greek interests and are scheduled for completion over the next two years.

Selected by the owners on the basis of cost-efficiency and performance, the Butterworth P-60 tank washing machines were judged ideal for use on these new product carriers. Consideration was given the discharge rate of the single-nozzle P-60, which is determined by the size of the nozzle tip fitted, so that the rate may be preselected to meet the specific requirements of various cargo tank structures, total pumping capacity, etc. Other considerations included the P-60's integral drive system, which is powered by the force of the washing fluid, and the fact that the P-60 can be left virtually unattended during the wash operation.

Dual-nozzle Butterworth SK tank washing machines have long been used by product carriers of all types, both portably in small and medium-sized tanks, and in hard-to-reach areas in larger tanks.



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