MARITIME
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ENGINEERING NEWS

Bethlehem Steel's Sparrows Point Yard Launches 70,000-Dwt Tanker For Union Oil And Dedicates New Basin For Building 300,000-Dwt Vessels

(SEE PAGE 7)

JUNE 15, 1971

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In connection with building 12 large YTB-760-class harbor tugs, the commander, Naval Ship Systems Command, Washington, D.C. 20360, is to send IFB N00024-71-B-0572 to the following yards, among others: Atlantic Marine Inc., Fort George Island, Fla. 32037; Campbell Machine Inc., San Diego, Calif. 92112; Defoe Shipbuilding Co., Bay City, Mich. 48706; General Ship and Engine Works, Inc., East Boston, Mass. 02128; Swiftships, Inc., Morgan City, La. 70360; Western Boat Building Corp., Tacoma, Wash. 98421; Peterson Builders, Inc., Sturgeon Bay, Wis. 54235, and Weaver Shipyards, Orange, Texas 77630.

Split awards may be made on the basis of six for the East Coast and six for the West Coast.

Four-Barge Tow Construction Underway At Todd Houston Yard

The keels have recently been laid at Todd Shipyards Corporation (Houston Division) for two barges of a four-barge integrated tow being constructed for the Alamo Chemical Transportation Company of Houston. The lead barge, Alamo 2000, will measure 295 feet by 52 feet by 12 feet, and the box barge, Alamo 2001, will measure 300 feet by 52 feet by 12 feet. The other two barges of this tow are already being erected.

Each of the four barges have single-skin bottoms and double-skin sides. The overall length of the four-barge tow will be 1,040 feet. The barges are being built to U.S. Coast Guard requirements and will be certificated by the USCG for river service. Delivery of the completed four-barge tow is scheduled for the latter part of July 1971.

Levingston Building $10-Million Drillship For Global Marine

Levingston Shipbuilding Co., Orange, Texas, has received an order from Global Marine, Inc. to construct a $10-million drillship of the Global Grand Isle Class.

The vessel will be 11,200 deadweight tons and 400-feet long. It will be capable of drilling a 25,000-foot well in water up to 600 feet. Delivery is scheduled in the spring of 1972. Discussions are under way by Global with a prospective customer regarding operating the drillship.

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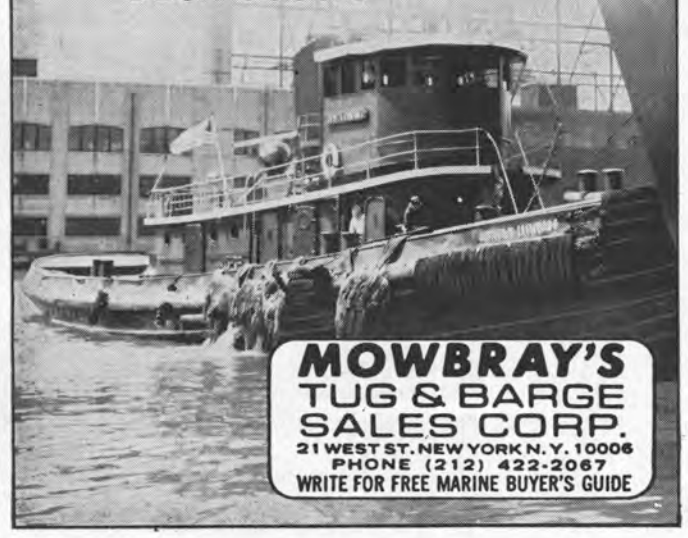

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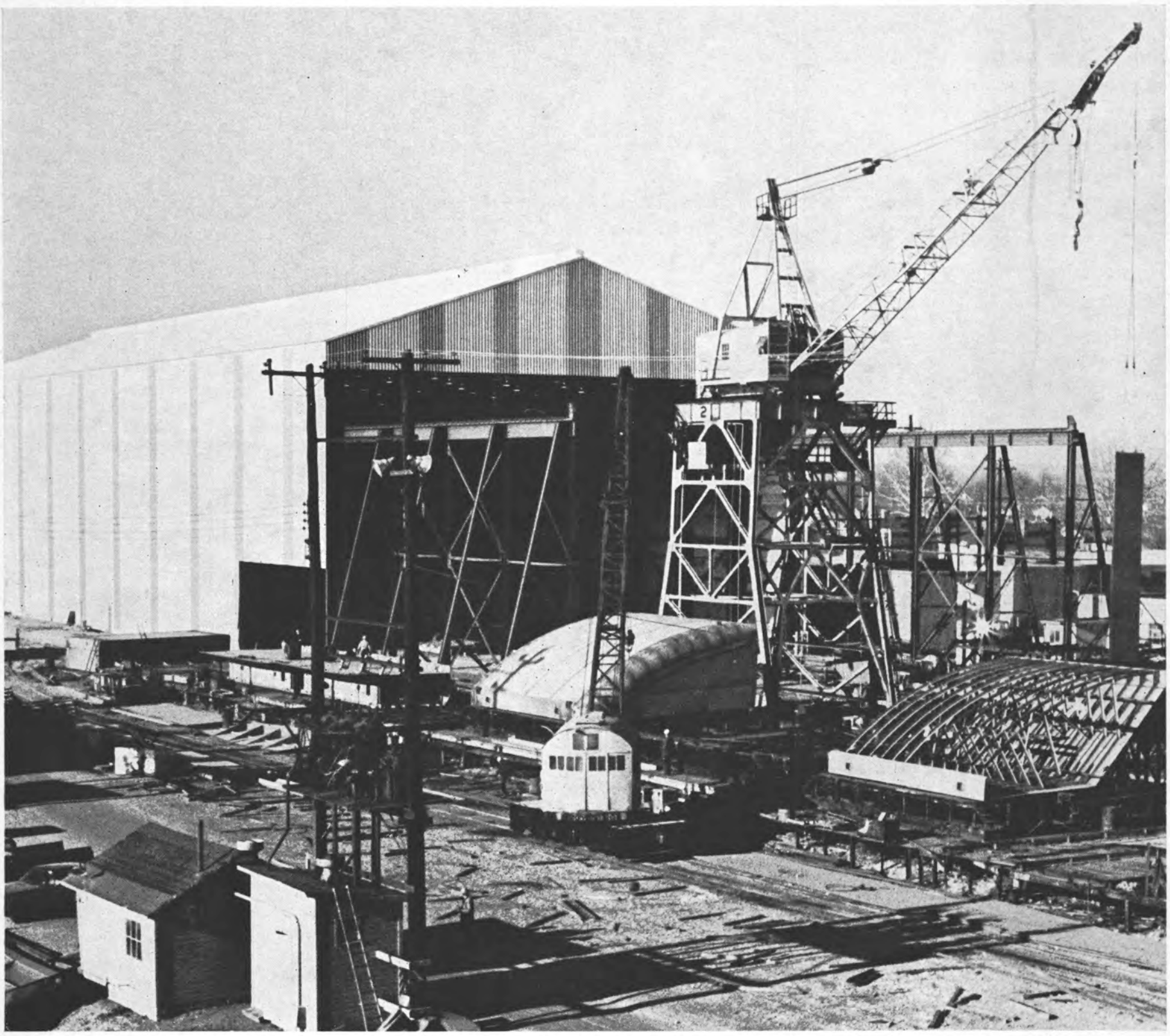

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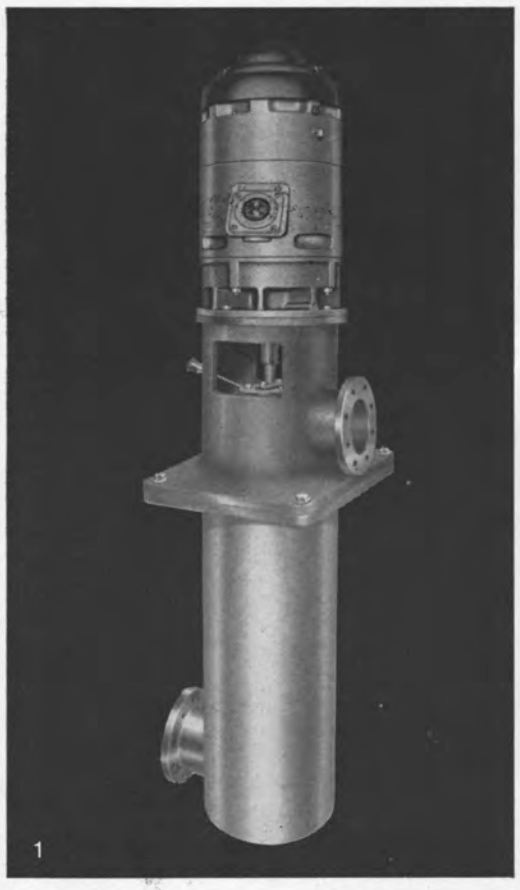
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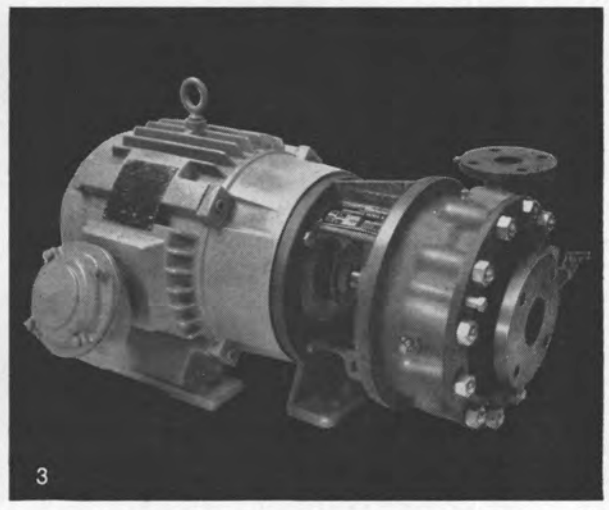
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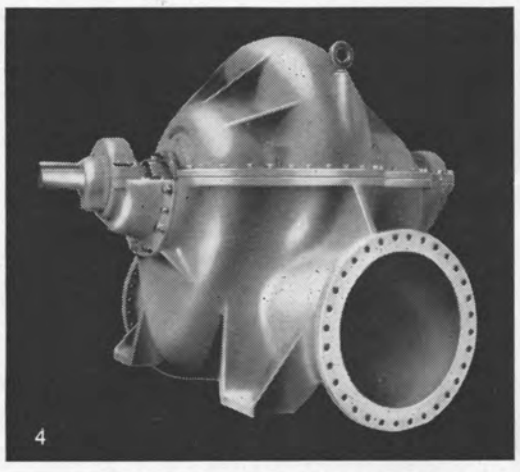
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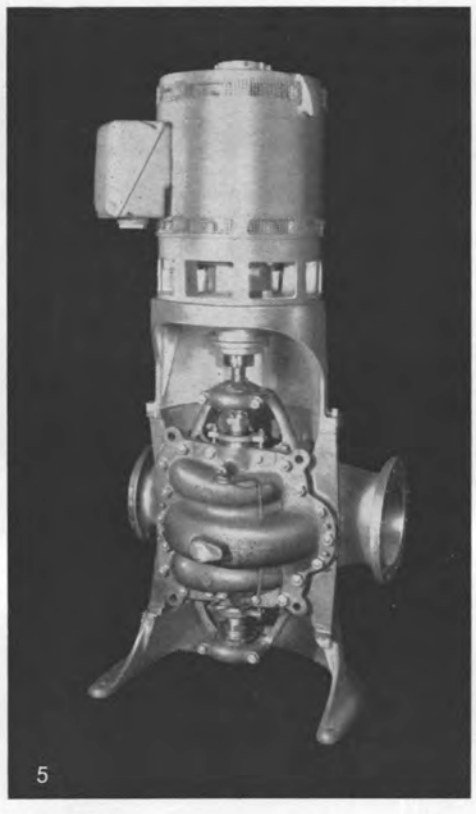
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Bethlehem's Sparrows Point Yard Ceremonies Include

Launching Of Sansinena II

70,000-Dwt Tanker Is Largest Ship Built In Baltimore Area. Shipyard Dedicates Largest Building Basin In Western Hemisphere And New Panel And Paint Facilities.

Dual ceremonies held at Bethlehem Steel Corporation's Sparrows Point, Maryland, shipyard on May 16 inaugurated a new era in shipbuilding for the Baltimore area and for the United States. The largest shipbuilding basin in the western hemisphere was dedicated and the largest ship built in the Baltimore area was launched within the span of a few hours.

The 70,000-dwt tanker Sansinena II, being built for the Union Oil Company of California, was launched in a colorful ceremony that attracted a large group of dignitaries and the shipyard workers and their families. **Mrs. Fred L. Hartley,** wife of the president and chief executive officer of Union Oil, sponsored the ship.

The Sansinena II will be used to carry crude oil from Alaska's Cook Inlet to Union Oil Company's West Coast refineries. Union Oil is the largest producer of crude oil in the Cook Inlet.

With a deadweight tonnage of 70,000 and length overall of 810 feet, the Sansinena II surpasses the 62,000-dwt, 731 foot long tankers built recently at the yard. The latter had been the largest ships constructed in this area. To accommodate the ship, the existing building way had to be lengthened by 72 feet.

The tanker measures 786 feet between perpendiculars. Molded breadth is 105 feet and the molded depth is 57 feet. The breadth of the hull will allow transit through the Panama Canal, if such service is desired.

The Sansinena II will be operated for Union Oil Company by Hendy International Company of Los Angeles.

The vessel has a capacity of about 559,000 barrels in its 18 tanks. It will have an extended cruising range of about 7,350 miles. The storerooms, both dry and refrigerated, are large enough to hold a six months' supply of stores.

With a 20,000-shp steam turbine driving a single propeller, the Sansinena II is expected to operate at a normal sea speed of 15¼ knots. The design includes a curved rake stem, a cruiser stern and a spade rudder. The ship was built under the latest rules of the American Bureau of Shipping and was inspected and classified by the Bureau.

The vessel's cargo tanks were coated with an epoxy system that will extend the ship's life and also enable it to operate with a minimum of maintenance.

The Sansinena II incorporates the latest advances in ship automation. It is equipped with Bethlehem's centralized control which allows control of the propulsion plant from the bridge. The centralized-control system is based upon remote operation of the powerplant for all ahead, astern, and maneuvering conditions, including standby.

The house-aft vessel has been constructed to be as maintenance free as possible. The exterior hull from the keel to the rail is protected by epoxy coatings. The crew will be quartered in single, fully air-conditioned rooms, with permanent prefinished plastic-coated bulkheads.

The latest in navigation and safety-at-sea equipment is provided, all of which are in accordance with the latest regulations of the U.S. Coast Guard.

In addition to the Sansinena II, the Sparrows Point shipyard now has on order four 120,000-dwt tankers, five 70,000-dwt tankers, two containerships, one special-products carrier, and two forebodies.

Following the launching, **William H. Collins,** general manager of the shipyard, was the host at a luncheon in honor of the sponsor.

Shipbuilding Basin

The dedication of the new shipbuilding basin marked the opening of the largest such facility in the western hemisphere.

With inside dimensions of 1,200 feet in length, 200 feet in width and 37 feet 6 inches in depth, the basin will accommodate supertankers and other large vessels ranging in size up to 300,000 dwt.

Walter F. Williams, vice-president in charge of shipbuilding for Bethlehem Steel, welcomed the visitors and introduced the special guests. **Stewart S. Cort,** chairman of Bethlehem Steel, dedicated the huge basin. Then **Robert J. Blackwell,** deputy administrator of the Maritime Administration, Congressman **Edward A. Garmatz,** chairman of the House Merchant Marine and Fisheries Committee, and Mr. **Cort** simultaneously cut a ribbon to officially open it.

When occupied by the largest hull that can be accommodated, the basin can be filled with water by gravity flow in 12 hours. When unoccupied, it can be dewatered in 24 hours by pumping.

The basin is of pressure-relieved design with reinforced concrete, counterforted side walls and a "floating" reinforced concrete bottom slab with a drainage system beneath. The floor level is 28 feet below mean low water. The steel gate on the outboard end of the basin is a floating caisson.

The principle of the basin design is based on relieving the hydrostatic pressure in back of the walls and under the floor by an elaborate drainage and pumping system. To this end, four basin pumping systems were included. They are tied together in case of emergency or increased anticipated flows.

The first system utilizes two 18,700-gpm dewatering pumps. They will pump the structure dry after it has been flooded to launch a ship. These pumps will discharge from a wet well in the bottom of the basin.

The second system will empty rain water and process water from the basin. Two 3,500-gpm trim pumps will discharge the water from the same wet well as the dewatering pumps.

The underdrain system is served by two 1,500-gpm pumps that will discharge the seepage water from the underdrain wet wells. Only one of the two pumps is expected to be used for normal quantities of seepage, with the other on standby.

The final system is a set of saltwater pumps which are intended

(Continued on page 8)

Launching Party—Mrs. Fred L. Hartley, wife of the president and chief executive officer of Union Oil Company of California, holds a bouquet of roses just before the christening of the Sansinena II. With **Mrs. Hartley** are, left to right: **Stewart S. Cort,** chairman of Bethlehem Steel, Congressman **Edward A. Garmatz, Mrs. William H. Collins,** Mr. **Collins,** general manager of the yard, **Mrs. Walter F. Williams,** Mr. **Williams,** vice-president in charge of shipbuilding, Bethlehem Steel, and Mr. **Hartley.**

Building Basin Dedication—Three pairs of scissors are used to snip the ribbon at the dedication of new 1,200-foot building basin. Wielding the scissors are, left to right: **Stewart S. Cort,** chairman of Bethlehem Steel; Congressman **Edward A. Garmatz,** chairman of the House Merchant Marine and Fisheries Committee, and **Robert J. Blackwell,** deputy administrator of the Maritime Administration.

Sansinena II—

(Continued from page 7)

for firefighting. The 16-inch-diameter saltwater line of this system is on the side walls of the structure, 5 feet above the floor.

All the pumps and wet wells are located at the south entrances of the dock, with the pumping station entirely below ground level.

The pressure-relief system is designed to discharge water from around and under the structure at all times—even when it is flooded. This will keep water from exerting any appreciable uplift on the bottom of the floor or behind the walls. The pumps in this system start when the water elevation in the wet well reaches the underside of the floor slab. However, the deadweight of the slab can withstand 7 to 8 feet of hydrostatic head.

The floor of the basin is designed to support line loading of 50 long tons exerted by the keel blocks on strips of slab 20 feet wide. It also is capable of carrying a concentrated load of 20 tons on an 8-foot-square grid system outside of the area loaded by the keel blocks.

Four 100-ton-capacity tower cranes, two on each side, will provide the lifting capability for the facility. Operated electrically, these cranes will reach halfway across the basin at maximum capacity. When operated together, they can lift a subassembly that measures a maximum of 120 feet square and weighs 400 tons. The railways for the cranes are 40 feet wide. They are placed as close to the edge of the basin as possible to permit the maximum reach. The inside rail is at the top of the basin side wall, and the outside rail is supported on a continuously reinforced concrete beam and footing, which is on the fill behind the wall.

Mechanical and electrical utilities to serve the basin are in a service tunnel that runs along each side of the structure behind the side walls. The tunnel also functions as a service gallery with windows provided on 100-foot centers where utility connections are provided. The electrical facilities for the tower cranes are in the ceiling of the tunnels, and a 4 inch wide longitudinal slot in the tunnel roof provides access for the crane collector arms.

The service tunnel also carries a 4-inch-diameter freshwater line and a 6-inch-diameter compressed-air line. Oxygen and acetylene lines are along the basin walls for easy access.

One 4,000-kva electrical substation is provided on each side of the dock. Access to these stations and to the underground pumping station is via the service tunnel.

The basin is illuminated by a series of weatherproof mercury-vapor lights mounted on the inside of the side walls.

Eight 40-ton electrically operated capstans, located on the sides of the basin, will aid in launching a ship. A 65-ton capstan, located on the centerline of the head wall, is intended for pulling a ship into the dock. However, this latter procedure is not anticipated to be a normal operation.

Sixteen 40-ton bollards, eight on each side of the structure, also will aid in maneuvering a ship in and out. Two dolphins on the north side of the dock will provide a mooring facility.

Steel stairways at each corner of the basin at the inboard end will provide personnel access from the ground level to the floor below.

Other New Facilities

Also dedicated at the ceremonies were the new panel shop and the new blasting and coating building,

Shipbuilding Basin—The largest shipbuilding basin in this hemisphere is 1,200 feet long and 200 feet wide, covers 5½ acres and has room enough to build vessels up to 300,000 dwt. The basin was flooded just prior to the dedication ceremonies.

part of the yard's improvement plan costing tens of millions of dollars. Both of these facilities are in operation.

Ship assemblies, weighing up to 200 tons each, can now be produced on a fully mechanized, partially automated basis in the new panel shop.

In this new facility, steel plates are machine welded into units of up to 60 feet by 60 feet. Further processing adds stiffeners and webs that make a subassembly up to 25 feet high.

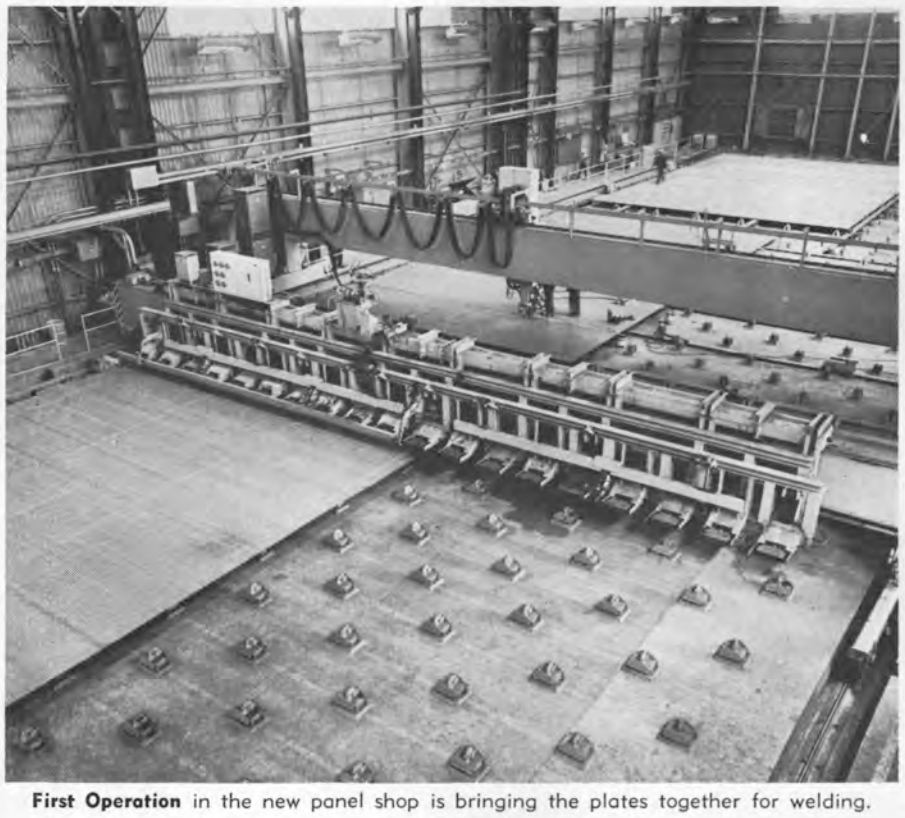
Plates that have been cut accurately to size on the latest flame-cutting equipment are brought into the east end of the building by conveyor. The first plate moves west until its trailing edge is near the centerline of a magnetic bed. Then the leading edge of a second plate is moved to the centerline of the magnetic bed. Hydraulic jacks squeeze the plates together to align the plate seam, and the plates are cambered as needed to offset welding distortion. The magnetic bed is then energized and the plate edges are held in position and welded on one side.

After welding, side conveyors move the panel one plate width. Additional plates are added to the panel in the same manner.

The welding station is equipped with a 100-ton capacity crane to turn the plates over for welding the opposite side.

Next, the flat panel is transferred mechanically to the stiffener positioning welding station. There, pre-

(Continued on page 10)



First Operation in the new panel shop is bringing the plates together for welding.

Second Operation is automatically welding the plates. Back welding is next operation.

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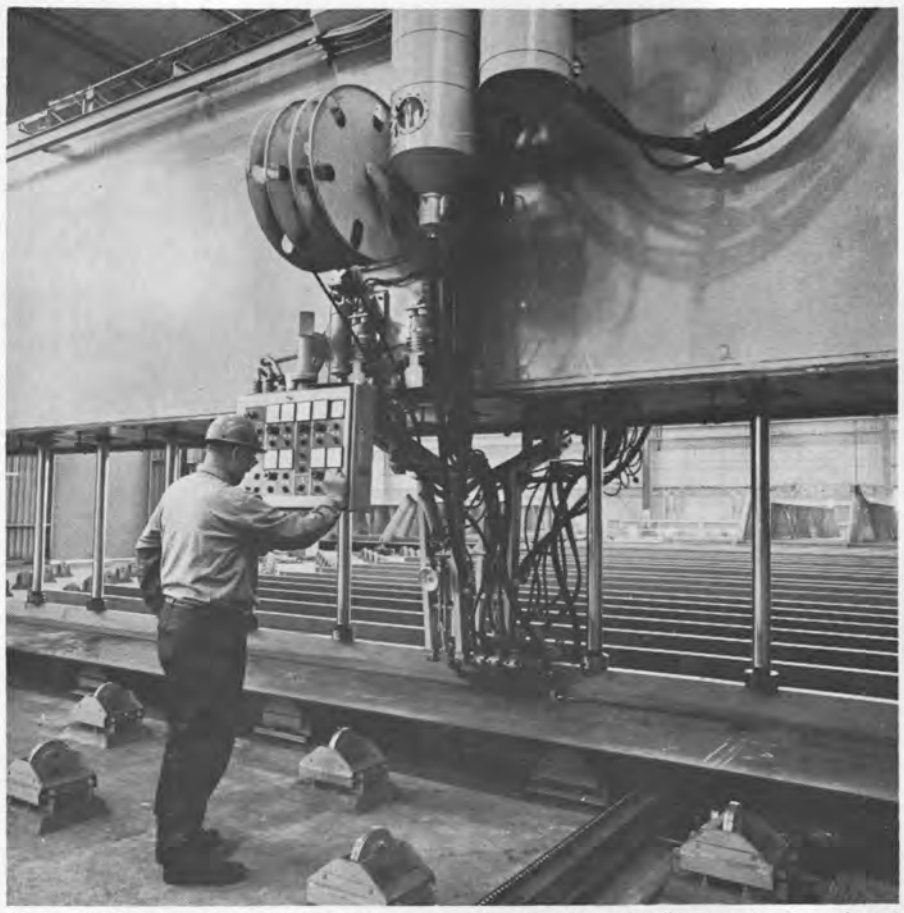
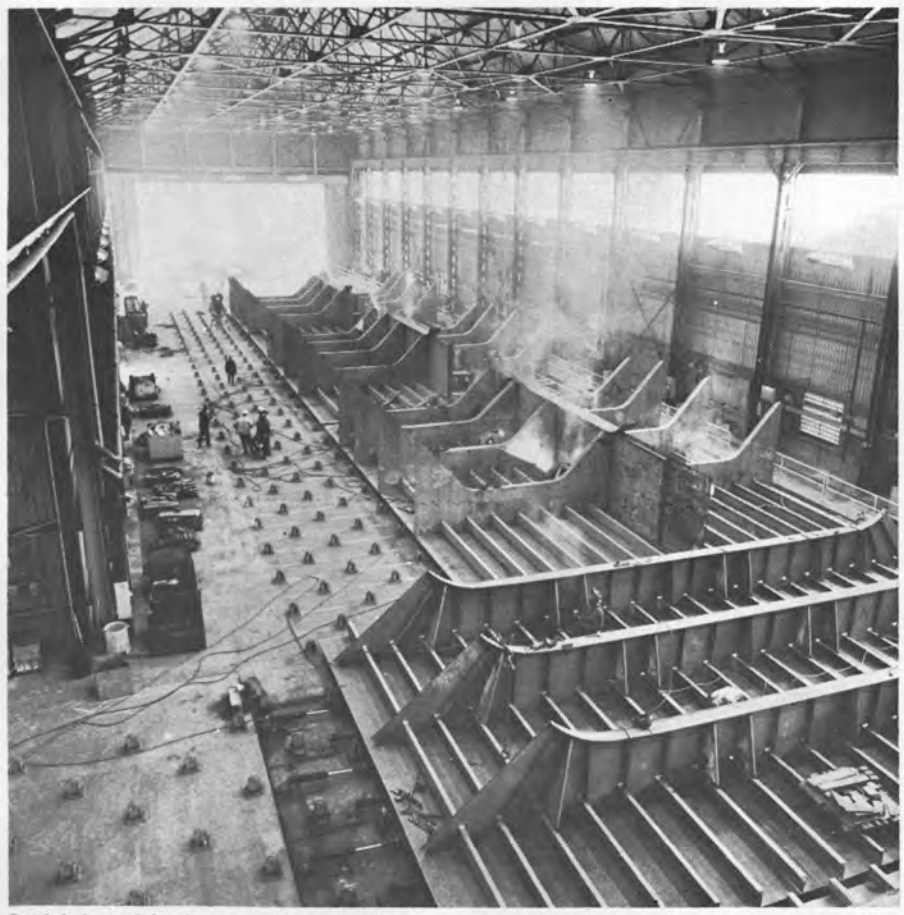


Fitting Stiffeners—After all the plates are welded together, the flat panel is transferred mechanically to the stiffener positioning welding station. There premeasured stiffeners are automatically aligned and hydraulically pressed to the assembly and welded automatically by a twin fillet-welding machine.



Prefabricated Webs are manually fitted and welded to the panel after the application of stiffeners in the new panel shop at Bethlehem Steel Corporation's Sparrows Point shipyard. With the panel, stiffeners and webs, the units may weigh up to 200 tons and measure up to 60 feet by 60 feet by 25 feet high.

Sansinena II—

(Continued from page 8)

measured stiffeners are automatically aligned and hydraulically pressed to the assembly and welded automatically by a twin fillet-welding machine. Manual gravity-type welding can augment the regular process in times of peak loads.

Side conveyors move the panel one stiffener space, and the next stiffener is aligned, set and welded. The side conveyors are controlled by an automatic indexing system to move the panel the predetermined distance.

At the next station, prefabricated webs are brought onto the assembly line and are manually fitted and welded to the panel. The partially completed subassembly is conveyed through sequential welding, inspection and shipping stations in the north-south leg of the shop.

When the units are completed, they are transferred either to storage or to the nearby blast and paint building by means of a special transfer carrier.

The replacement of the existing plate blasting and coating machine and the installation of a new shape-blasting machine was the first step in the modernization program. This equipment includes the Gyromat coating system in which the incoming steel is prewarmed, the paint is circulated and maintained at a constant viscosity, and the coating is applied with controlled thickness and cured in a drying oven at the end of the cycle. In addition, the conveyors are of a special design to prevent marring the finished coating system.

The 231 foot long blast and paint building has facilities for abrasive cleaning and painting of the completed structural units under cover in a controlled environment. The building has two duplicate production lines, each with three major work stations.

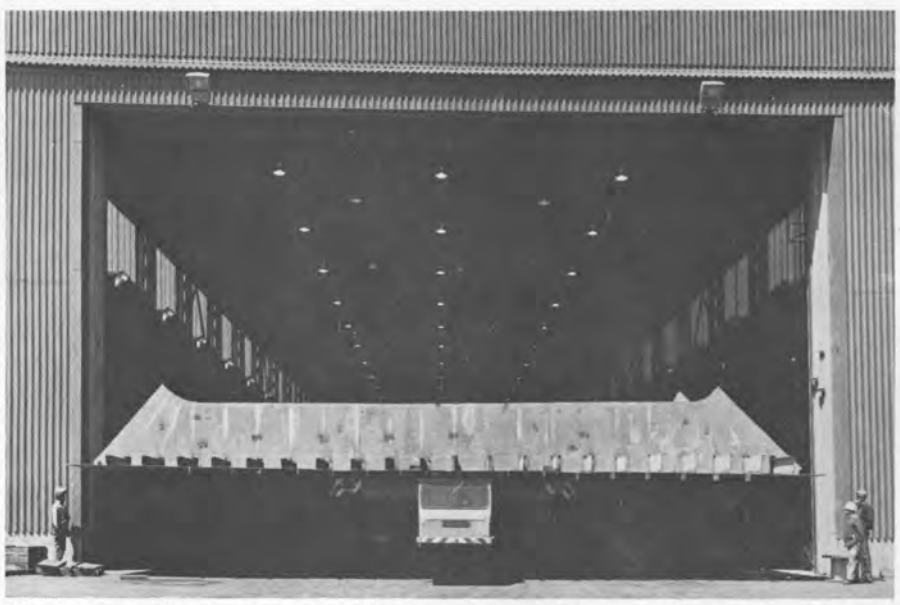
At the first station, the unit is cleaned using four abrasive blasting machines that are continuously fed from a centralized storage system located on the roof. Four shot-recovery pits are located in the floor and are piped to the vacuum system. The facility is designed for using boiler slag grit for the abrasive material but can be converted for use of steel grit.

Air is supplied at the west wall and is exhausted on the opposite side where three dry bag-type dust collectors are located.

At the second work station, four-man and one-man conventional spray-painting units are used. Filtered air for the paint bays is supplied at the west wall and is exhausted through wet filters on the east wall. Temperature in the bays will be kept at about 65 degrees.

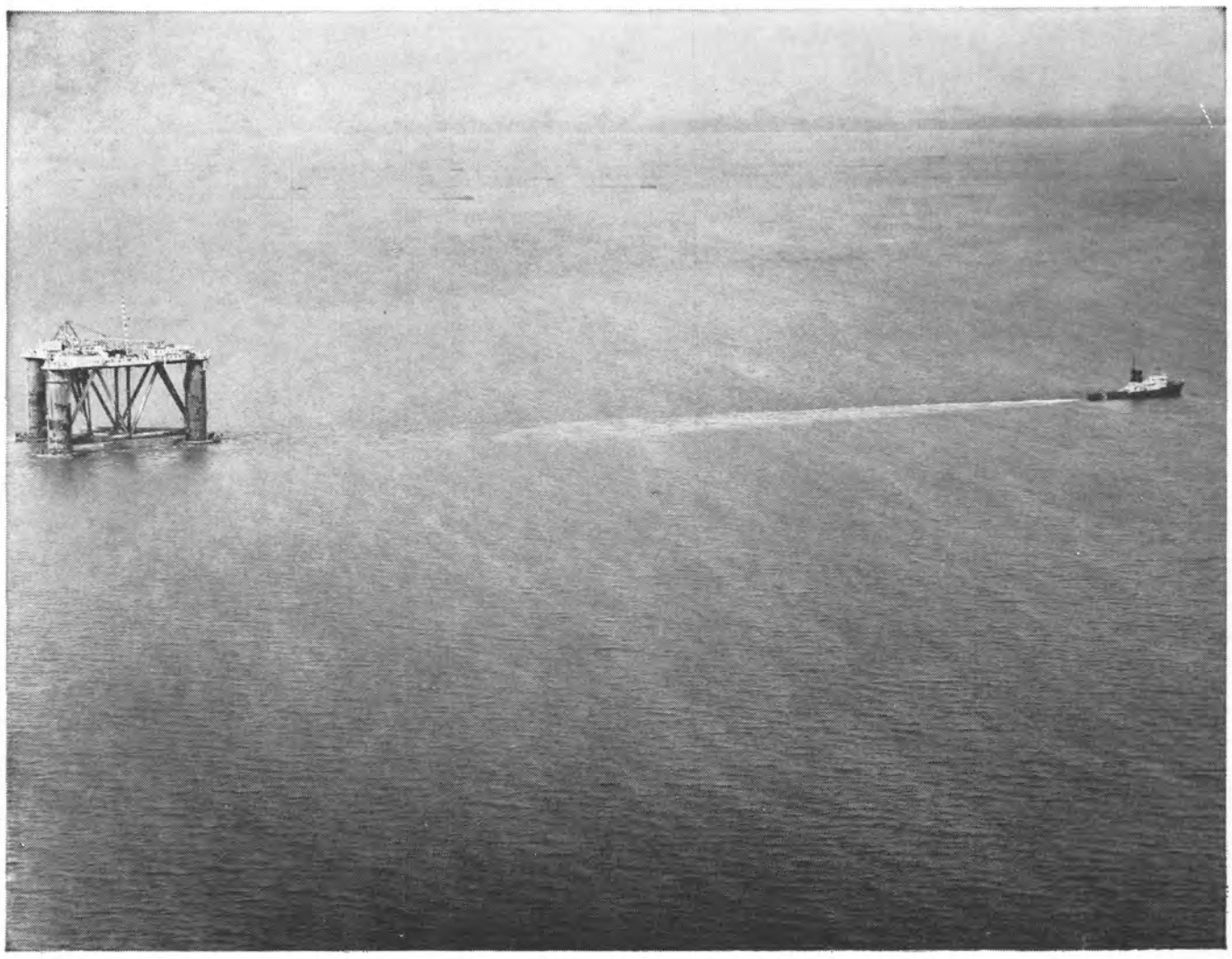
At the last station, the paint is dried and cured at about 95 degrees.

Additional modernization of the yard is now under engineering study.



Ship Subassemblies are transported by a special transfer carrier. Shown here is a unit being taken from the new panel shop, where it was fabricated, to the new blast and paint facility. The panel shop also was dedicated during the ceremonies.

Inspection—After blasting the assembly is inspected. A newly painted assembly in the painting station is visible through the open 64 foot wide sliding doors. From here the assembly is moved to the paint curing station where the paint is cured at about 95°F.



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A Newport News First—'Re-Jumboizing' Tanker

The Amoco Delaware, the first tanker rebuilt by Newport News Shipbuilding in 1956 in what was then an innovative process termed "jumboizing," has returned to become the first tanker to be "re-jumboized" by the Tenneco subsidiary.

Under the present contract which is scheduled for completion in December, a new 486-foot forebody will be joined to the original stern section, lengthening the ship from 571½ feet to 633½ feet. Her deadweight tonnage will be increased from 20,100 to 27,400, and she will have cargo capacity for 237,000 barrels.

Other modernized features of the ship will be an automated burner management system for the two boilers and an oil-lubricated stern bearing. Gyro repeaters and an automatic pilot will be added to the navigation system, and the ship's propulsion equipment will be upgraded from 6,000 to approximately 7,000 shaft horsepower. The living quarters for the officers and crew will be completely refurbished.

The Amoco Delaware represents the fifth jumboizing contract Newport News has received from Amoco. Between 1956 and 1958, the shipyard rebuilt three other T-2 tankers for the oil company—the Amoco Connecticut, Amoco Virginia, and Amoco Louisiana—to the same dimensions as the first vessel.

The Amoco Delaware, originally built as a T-2 tanker, is the 27th ship jumboized at Newport News, and the third being worked on in 1971. The shipyard is currently rebuilding the Colorado for Sabine Towing & Transportation Company, and the Baltimore Trader for American Trading & Production Company. The Baltimore Trader is the largest "jumbo job" yet performed by an American shipyard.

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James E. May Elected Vice President At Savannah Shipyard

James E. May

Ralston E. Mingledorff, president of Savannah Machine and Shipyard Co., Savannah, Ga., has announced the election of **James E. May** as vice president, sales.

Mr. **May** attended the University of Alabama and has been active in the shipyard business since 1940. He has represented Savannah Shipyard in New York since 1963 and was previously with Alabama Dry Dock and Maryland Dry Dock. He is an associate member of The Society of Naval Architects and Marine Engineers.

The Savannah Machine and Shipyard's New York office is located at 74 Trinity Place, New York, N.Y.

INCO Booklet On Equipment Used In Transporting Chemicals

Users, buyers, designers and builders of chemical-transportation equipment are offered a new booklet, "Shipping Today's Chemicals in Modern Metals," published by The International Nickel Company, Inc.

The booklet describes and illustrates practical applications of nickel and nickel alloys in containers that carry corrosive chemicals over highway, rail and water. Examples of tank cars, trucks, barges, ships and bulk-shipment containers are included.

The booklet also has sections on the relevant physical properties of these nickel-containing materials, their suitability for exposure to various chemicals, and accepted cleaning procedures. A list of pertinent literature available from International Nickel is included.

A copy of "Shipping Today's Chemicals in Modern Metals" may be obtained by writing Reader Service, Dept. P5, International Nickel, One New York Plaza, New York, N.Y. 10004.

Curtis Bay Towing Names Capt. Schuyler To Board Of Directors

Capt. Tarleton A. Schuyler

Capt. **Tarleton A. Schuyler,** vice president and general manager of Curtis Bay Towing Co. of Virginia, has been appointed to the board of directors, it was announced by Capt. **F.J. Hughes,** president of the company.

Captain **Schuyler,** who joined Curtis Bay in 1941 as a deckhand at Baltimore, Md., has served in various capacities in the company, afloat and ashore. He was transferred to Norfolk in 1957.

Curtis Bay Towing Co. of Virginia, based at Norfolk, provides towage to ships throughout the Hampton Roads and Chesapeake Bay areas, and additionally performs coastwise and ocean towage.

C.J. Lozano Elected President Of NAMS

Carlos J. Lozano

At the Twenty-First Annual Meeting of the National Association of Marine Services, Inc., **Carlos J. Lozano** of Neptune Supplies, Inc. of New Orleans, La., was elected president of the Association. Mr. **Lozano** succeeds **James C. Taylor** of Baltimore, Md., who has occupied the position for the past seven years. Mr. **Taylor** was elected chairman of the board.

Other officers of the Association elected were: **Roy E. Carter,** Houston, Texas, senior vice president; **C. Willman Brown,** Washington, executive vice president and secretary, and **M.N. Broughton,** Norfolk, Va., treasurer.

Elected to the board of directors were: **James C. Taylor,** Baltimore, Md.; **Charles L. Smith,** Charleston, S.C.; **Stanley Denstad,** Boston, Mass.; **Carlos Lozano** and **Chris Berg,** both of New Orleans, La.; **Donald Crouthamel,** San Pedro, Calif.; **James Alex,** Portland, Ore.; **Jerry Kourkomelis,** Seattle, Wash., and **Roy E. Carter,** Houston, Texas.

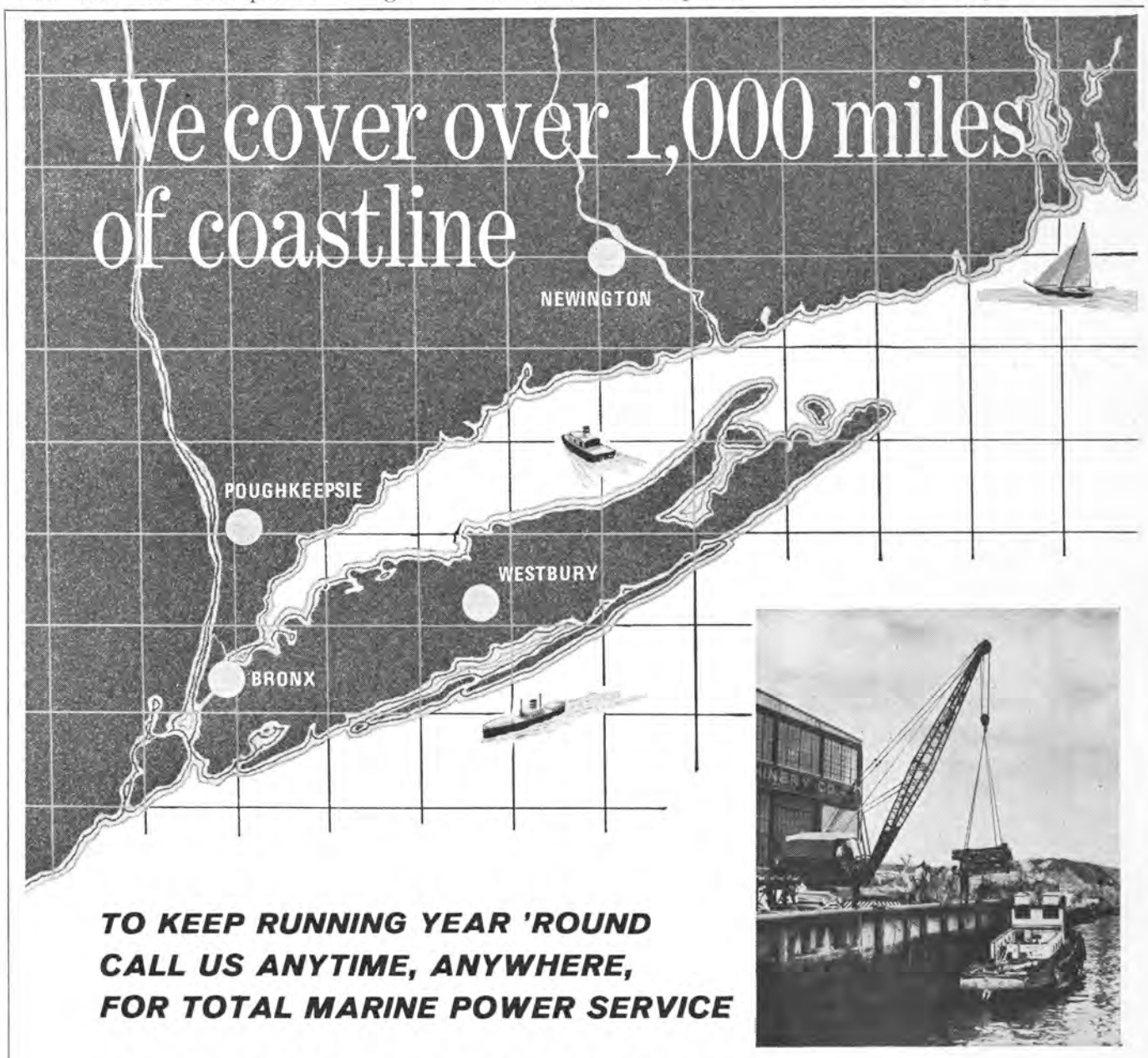
Santa Fe Drilling Names Charles Ball To Singapore Post

Charles R. Ball Jr., for the past two years vice president and manager of contract administration for Santa Fe Drilling Co., Los Angeles, Calif., has been appointed regional manager of Southeast Asia for the parent Santa Fe International Corp.

Mr. **Ball** will headquarter in Singapore. As the senior Santa Fe representative in the area, he will be responsible for Government relations, business development, and administration of all Santa Fe drilling and construction activities.

Mr. **Ball** is a 1946 graduate of the University of Kansas with a B.S. degree in mechanical engineering. He joined Santa Fe Drilling Co. in 1961 as operations manager for the Eastern Hemisphere, with headquarters in London. He was named a vice president in January 1969 and transferred to Santa Fe Springs, Calif., as manager of contract administration.

Before joining Santa Fe, Mr. **Ball** had spent one year with Kuwait Oil Co. in Kuwait and 14 years with Richfield Oil Corp. in the United States and Peru where, as manager of offshore operations, he was involved in the world's first ocean-floor completions.



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U.S. Merchant Marine Academy Honors Admiral Emory S. Land

Vice Adm. **Emory S. Land** speaks at ceremony marking rededication of Land Hall at Kings Point, N.Y. At right is **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs, and Rear Adm. **Arthur B. Engel,** USCG (ret.), Academy Superintendent.

Vice Adm. **Emory S. Land,** the man who directed the building of 5,600 ships in four years in World War II, is a legend in his own time.

The 92-year-old Adm. **Jerry Land,** one of the great figures of the American merchant marine and the U.S. Navy, stood quietly by at the U.S. Merchant Marine Academy, Kings Point, N.Y., as **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs, rededicated the Midshipmen Activities Building, Land Hall, in honor of the admiral.

Rear Adm. **Arthur B. Engel,** USCG (ret.), Superintendent of the U.S. Merchant Marine Academy, which is under the direction of the Maritime Administration, U.S. Department of Commerce, welcomed the Congressional Board of Visitors and the Academy Advisory Board to the dedication ceremony, which was a highlight of the joint meeting of the Congressmen and the advisers.

Earlier in the day, Secretary **Gibson** opened the spring joint meeting of the Congressional Visitors and the Advisory Board.

Admiral **Land,** known as **"Jerry"** to his thousands of friends, was born in landlubber country, Canon City, Colo., January 9, 1879. He graduated from the University of Wyoming with B.S. and M.A. degrees, then went to Annapolis, where he graduated No. 6 in the class of 1902. While there, he engaged in baseball, track, swimming and made the winning touchdown over Army in the 1900 game.

Assigned to construction work in the Navy, he was sent to M.I.T., picked up an M.S. degree, and went back to building for the Navy in the First World War. He received the Navy Cross for his wide study of German submarines. He learned how to fly a plane in the 1920s and was a booster for naval aviation. He also scouted, coached and refereed Navy football teams in his spare time.

"The busiest guy in the Navy" shocked his fellow officers in 1937 by stating he was going to retire. But following the admiral's favorite axiom, "You can't keep a squirrel on the ground," President **Franklin D. Roosevelt** appointed him to the Maritime Commission.

In 1939, Admiral **Land** foresaw the emergency ahead and pulled out all the stops. His great feat of building the "Bridge of Ships" made him one of America's great figures in the history of the merchant marine.

Today, at 92, Admiral **Land** goes to his office every day from 9 to 5 as a consultant for General Dynamics in Washington.

Regimental Comdr. **Frederick Murphy,** Roxbury, Mass., presented Secretary **Gibson** with a scroll signed by all the midshipmen in appreciation of his great efforts in behalf of the Academy.

Admiral **Engel** presented the keys to Land Hall to Midshipman **Robert Draves,** Chairman, Midshipmen Activities Committee.

The invocation at the ceremony was pronounced by Comdr. **Ronald Walsh,** the Academy's Catholic chaplain.

Land Hall was once the home of **Nicholas Schenk,** one of Hollywood's great film magnates. The residence was acquired when the Government purchased the neighboring estate of **Walter P. Chrysler,** the automobile manufacturer, in 1941.

Land Hall was first opened for midshipmen activities in 1959 through the generosity of Admiral **Land.** Prior to that, the building was used as a dining hall for staff members.

Present at the day-long session were Senator **Russell B. Long** of Louisiana; Representative **Lester L. Wolff,** Great Neck, N.Y., in whose district the Academy is located; Representative **John W. Wydler,** Garden City, N.Y.; Representative **Thomas N. Downing** of Virginia; Representative **John M. Murphy,** Staten Island, N.Y., and Representative **Charles A. Mosher** of Ohio.

Other Congressional members who comprise the Board of Visitors are: Senator **Warren G. Magnuson,** Washington, and Representative **Edward A. Garmatz,** Maryland, both ex-officio members; Senator **Mike Gravel** and Senator **Ted Stevens,** both of Alaska.

Chairman of the Academy Advisory Board, whose members are appointed by Secretary of Commerce **Maurice H. Stans,** is **Norman C. Scott,** San Francisco, Calif., vice-president, Natomas Company. Members include **Albin W. Smith,** senior vice president, Shaheen Natural Resources Co., Inc.; **Erik F. Johnson,** president, Central Gulf Steamship Corp., New Orleans, La.; **Joseph Kahn,** chairman of the board, Seatrain Lines, Inc., New York, N.Y.; **Joseph Lane Kirkland,** secretary-treasurer, AFL-CIO; Rear Adm. **Wilfred J. McNeil,** USN (ret.), former president, Grace Line and former Assistant Secretary of Defense, and **Edgar F. Luckenbach Jr.,** president and chairman of the board, Luckenbach Steamship Company.

Board members **Smith, Johnson,** and **Kirkland** are graduates of the Academy.

MAXIMUM MANEUVERABILITY is a major design feature of this twin-screw, ram hull towboat recently built by Dravo Corporation, Pittsburgh, Pa., for United States Steel Corporation. The vessel, 70-feet long, 20-feet wide, and 8-feet deep, handles barges and performs other harbor service at U.S. Steel's Clairton Works on the Monongahela River near Pittsburgh. The boat is powered by two 330-hp diesel engines and all electrical power is supplied by two 50-kw generators. It was built at Dravo's Neville Island shipyard on the Ohio River below Pittsburgh.

Seatrain Lines, Inc. Elects A.C. Novacek And F.D. Troxel

Arthur C. Novacek

Frank D. Troxel

Seatrain Lines, Inc. has announced the election of **Arthur C. Novacek** as president of the company's container division, and **Frank T. Troxel** as president of Seatrain Lines of California, the Pacific Coast container operation. They succeed **William M. Cole,** who held both titles, and who has resigned to form his own managing and shipping consultant firm, Cole International, Inc.

Seatrain chairman **Joseph Kahn** noted that Mr. **Cole** had helped to develop strong management to succeed himself in the container division in anticipation of the move, which has been contemplated for several months. His departure was timed to coincide with the completion of Seatrain's expansion in the North Atlantic container trade and improvement in the business which now appears encouraging for the coming year, Mr. **Kahn** said.

Mr. **Cole,** who was elected president of the container division last year, said that as an independent, his new organization would be able to make equity investments in shipping as well as serve as a consultant to major companies in the industry, including Seatrain. He had been an independent transportation consultant and shipping broker before joining the company in 1965.

Mr. **Novacek** was president and chief operating officer of Grace Line before he joined Seatrain in March 1970 as senior vice president of the container division. A graduate of the U.S. Merchant Marine Academy and of the Graduate School of Business at New York University, Mr. **Novacek** was formerly with Isbrandtsen tankers and Transamerican Trailer Transport.

Mr. **Troxel** was associated with Matson Navigation Co. in its container service between Hawaii and the West Coast for 13 years, before he joined Seatrain Lines as director of marketing in early 1969. He was elected senior vice president for Pacific services in Seatrain's container division a year ago.

Burmeister & Wain Engines To Power Three Ships For Canadian Pacific Bermuda Ltd.

Burmeister & Wain Engineering Company Limited has received a large engine order—the third since the formation of the company in January this year.

The latest order consists of three main engines for installation in products carriers of some 30,000 dwt, which the owners, Canadian Pacific Bermuda Ltd., have ordered from the Dutch yard Van der Giessen-de Noord N.V. for delivery in the course of 1972-73. The engines are six-cylinder units of the K74EF type, having a continuous service rating of 11,400 bhp at 130 rpm and a mean effective pressure of 9.6 kp/cm^2.

The B&W Engineering Company has, during the months of February, March and April, received orders for a total of 10 main engines which, together with spare parts deliveries, represent a value of about $10,005,000.

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J. R. Sensibar Owned and operated by Columbia Transportation Division of Oglebay Norton Co., the 11,300 ton J. R. Sensibar was repowered May, 1960 with a Nordberg Marine Diesel. This engine is rated 3,200 b.h.p. at 515 r.p.m.—drives through an 800kw. generator to a single Western Reduction Gear with Wichita Clutch to a controllable pitch propeller turning at 155 r.p.m.

Sensibar Engine Room with Nordberg Diesel

Wichita 42" double-plate Clutch on Western Gear

J. R. Sensibar Control Panel

Ocean Crown
Owned and operated by Crown Zellerbach Canada, Ltd., the Ocean Crown in 1962 was repowered with a 13½" x 16½" eight-cylinder inline Diesel Engine rated 2,000 h.p. at 515 r.p.m. Clutches are Wichita ATD-236 Marine.

Daniel Webster
Owned and operated by A. L. Mechling Barge Lines, Inc.—the Towboat Daniel Webster is powered by two 2,160 h.p. Nordberg engines through Western Reverse Gears and two Wichita ATD-236 Marine Clutches.

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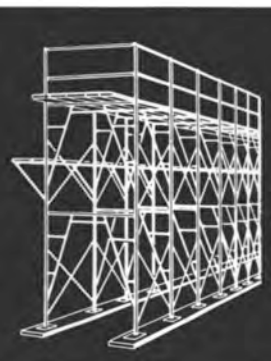

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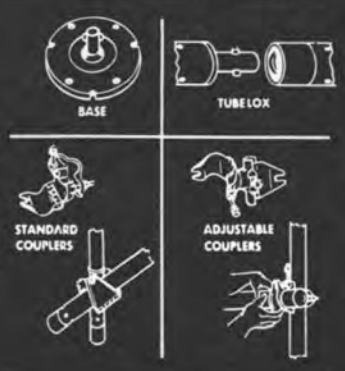

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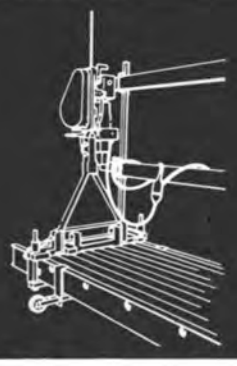

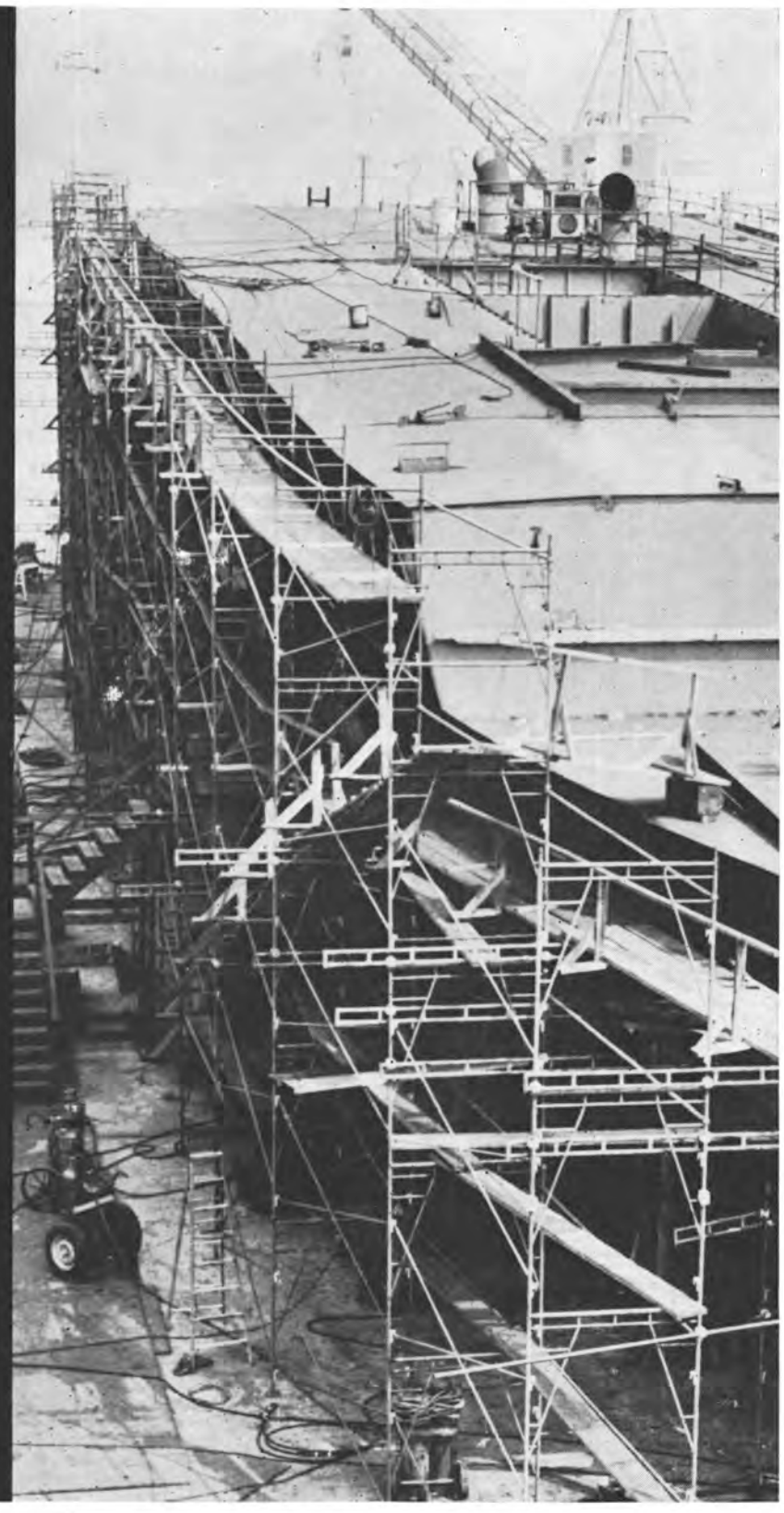

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Stolt-Nielsen Chartering Appoints New President

Carroll N. Bjornson

Carroll N. Bjornson has been appointed president of Stolt-Nielsen Chartering, Inc. of Greenwich, Conn. He succeeds **Per Ditlevsen,** who is returning to Norway to supervise the Stolt Group's worldwide parcel trades and projects. The Stolt-Nielsen organization, which includes Parcel Tankers, Inc., operates 35 chemical and specialty liquid bulk tankers in services covering six continents.

Mr. **Bjornson** comes to his new position following two years in Tokyo as president of Stolt-Nielsen Japan. He is a graduate of the U.S. Merchant Marine Academy and the Harvard Business School.

Waterman Asks MarAd For Title XI Insurance To Build 3 LASH Ships

Application for Title XI mortgage insurance to assist in the building of three LASH vessels has been made to the Maritime Administration by Waterman Steamship Corp. It is estimated the cost of each ship will be $28.1 million.

Waterman already has applications for operating and construction subsidies pending with MarAd, and the firm is negotiating with Avondale Shipyards regarding the building of these ships.

Harland Morley Joins Enjay Chemical Co.

Harland A. Morley has joined Enjay Chemical Company as the Hawaiian and Trust Territory sales agent for Rust-Ban coatings in the company's specialties department. Mr. **Morley** is located in Kailua on the island of Oahu.

Prior to joining Enjay, Mr. **Morley,** a former group superintendent at Pearl Harbor Naval Shipyard, retired from the Navy, where he spent 30 years as a civil service employee. In his last 15 years with the Navy, he served as an advisor with various West Pacific management teams. This work in the Military Assistance Programs took him to Taiwan, the Philippines, Saigon, Bangkok and Japan.

Mr. **Morley** received many citations during his years with the Navy, including the gold medal award as the engineer of the year from The Society of Naval Engineers in 1965; two Presidential citations from former President **Lyndon B. Johnson** for cost reduction programs, and two Secretary of Navy certificates of merit. A citation as the outstanding Federal employee of the year 1959 was awarded him by the Honolulu Business Association.

Enjay, the United States affiliate of Esso Chemical Company Inc., manufactures and markets plastics, synthetic rubbers, additives, industrial and specialty chemicals, fibers and decorative laminates.

Camden Shipyard Offered For Sale

The New York Shipbuilding Corporation yard in Camden, N.J., construction site of the world's first nuclear freight ship, has been placed on the market by the South Jersey Port Corp.

The corporation has offered the shipyard to any qualified shipbuilding company for $13 million. The N/S Savannah was built there during the early 1960s.

Vincent Sulla, president of Delaware Valley Shipyard, Inc., said his firm has offered $9 million for the facility.

Several times in the six years since the last ship was built in the yard, it had appeared that there might be a revival of the facility, but negotiations failed each time.

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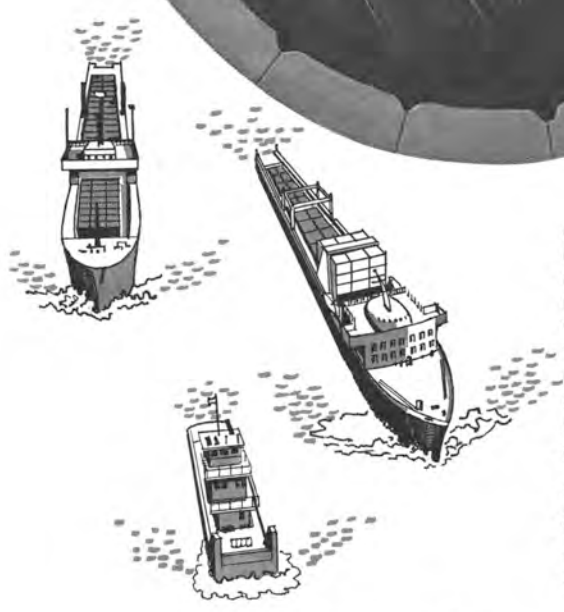

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Maritime Industry Executives Address 16th Annual API Tanker Conference

Edwin M. Hood, president of the Shipbuilders Council of America, reported that "well over" 100 supertankers, each of 200,000 deadweight tons or larger, are to be delivered this year by various shipyards around the world. He urged international acceptance of standards designed to reduce oil spills.

Mr. **Hood** was speaking at the 16th annual Tanker Conference of the Division of Transportation of the American Petroleum Institute, held May 10-12 at the Ponte Vedra Club, Ponte Vedra Beach, Fla.

"There can be little question," Mr. **Hood** said, "about the necessity and the value of the continuing effort toward improving ship design so as to minimize both the risk of accidental oil spillage and the outflow of oil in the event of an accident." He added that "neither potential antipollution benefits nor potential costs should be neglected in the decision-making process.

"Moreover," Mr. **Hood** emphasized, "it is essential that the conclusion be accepted by all countries. Efforts by one country to reduce oil spills in the oceans could easily be aborted if others set lower standards for their citizens. Neither shipbuilders nor tanker operators should be placed at a competitive disadvantage because of the nationality of their operation. The oceans are common to all of us. The pollution caused by an accidental discharge has little regard for the nationality of the yard in which the ship was built or the flag it flies. Its principal effect is on the country whose shores are nearest the spill."

Mr. **Hood** declared that the American shipbuilding industry is mobilizing its talents and facilities in the fight against the pollution.

Two leaders in the petroleum marine industry said that tanker owners need not be "nervous" about operating ships carrying LNG (liquid natural gas).

"Despite the relatively high degree of sophistication of the LNG tanker," they said in a paper presented before the conference, "the physical operation of such ships does not present serious problems over and above those experienced with conventional tankers."

The authors of the paper are **R.J. Wheeler,** director, marine operations, Phillips Petroleum Co., Bartlesville, Okla., and **W.B. Emery II,** manager, Natural Gas Division Production, Marathon Oil Co., Findlay, Ohio.

Mr. **Wheeler** and Mr. **Emery** analyzed the voyages of two LNG ships, the S/S Polar Alaska, and the S/S Arctic Tokyo, each of 71,500 cubic meters capacity, over more than 20 round trips each between Cook Inlet, Alaska, and Negishi, Japan.

The analysis indicated, they said, that crew training and indoctrination are essential to good operation of such ships, and every effort must be made to retain trained personnel.

"Operating costs do not appear to be significantly different from those of conventional tankers," they noted, "with the notable exception of the premiums for hull and machinery insurance coverage." In loading and discharging, susceptibility to weather, and other operations, "LNG ships follow essentially the same pattern as conventional tankers." they said.

"In other words," the paper concluded, "there is no need for any successful tanker operator to be nervous about operating LNG ships, as long as he starts soon enough with crew training and develops a knowledgeable shore staff, completely familiar with the ships and all their systems."

A petroleum industry marine expert commended the industry's recently published International Oil Tanker and Terminal Safety Guide as being already an outstanding success.

Wessel C. Brodhead, vice president, marine department, Gulf Oil Corp., New York City, lauded the guide as "an outstanding example of what can be accomplished by the determined cooperation of the people in our industry."

The Tanker and Terminal Safety Guide contains recommended practices for loading, discharging, and related operations at bulk oil tanker terminals for both shore and tanker personnel. Copies of the guide are now being used by every petroleum company-owned oil vessel, domestic and foreign flag, plus loading and discharge terminals, Mr. **Brodhead** said. The safety guide has also been "extremely valuable," he stated, in aiding local and state governments set up loading and discharge regulations at various ports.

"Some of our regulatory bodies and port authority groups, faced with the task of drafting new regulations to satisfy rising public demands in connection with minimizing water pollution, are very pleased to have the guide available as a sort of background 'bible' for reference and guidance," Mr. **Brodhead** declared.

A British marine expert said studies indicate that large oil tankers could help reduce the risk of pollution. Capt. **A.F. Dickson,** a director of Shell International Marine, Ltd., London, reported that various studies have led the petroleum industry "to believe that the risk of pollution does not in fact increase with the use of large tankers, because if a certain amount of oil has to be transported from one point to another, a reduction in the number of ships used reduces the risk of collision and also the risk of grounding."

Mr. **Dickson** also praised the use of single buoy moorings for oil tankers while they load and unload their cargoes through offshore hoses. The buoys are generally a considerable distance from the shore, and the tanker swings from a single buoy, with the winds and the currents, much as it would from an anchor. "Generally speaking," he said, "single buoy moorings are installed to enable larger tankers to be handled than would otherwise be possible." He pointed out that since single buoy moorings are often quite some distance from a shoreline or harbor, "it does seem sensible to argue that when operational pollution occurs at an SBM (single buoy mooring) it is probably less liable to damage the environment than similar pollution which does occur in sheltered harbor waters."

Mr. **Dickson** said that harbor authorities, when they first think about whether to permit single buoy moorings, tend to approach the question with "very considerable caution." But, he continued, this fear "is not borne out by experience, and in operations in the Royal Dutch Shell Group involving the handling of 65 million tons of oil annually through single buoy moorings, no serious pollution of the surrounding environment has occurred."

Another speaker at the session was Capt. **E.B. Mitchell,** director of Diving, Salvage and Ocean Engineering Projects, Naval Ship Systems Command, U.S. Navy. He reviewed what the Navy has been doing to help contain marine oil spills, and said his organization will continue research on oil-spill equipment which could function on the open seas. In this connection, he mentioned booms and heavy-duty skimmers.

"Another interesting area requiring further investigation," Mr. **Mitchell** said, "is elimination of oil slicks by burning. Where permissible and feasible, combustion is considered a very good method for disposing of slicks.

R.S. Little, vice president, and **S.G. Stiansen,** principal surveyor, American Bureau of Shipping, New York City, reported on tanker structural stress and stated that new methods of measuring stress in petroleum-carrying vessels are "almost a necessity" in these days of giant tankers.

Mr. **Little** and Mr. **Stiansen** said in their paper that until recently "the design criteria for ship structures were largely empirical in nature," and the "vast accumulation of ship years of satisfactory service had clearly demonstrated the reliability of those standards."

In recent years, however, the report said, the drastic increases in the size of ships has made the backlog of experience in stress technology no longer applicable. New methods of techniques for structural analysis, largely computerized, have "become not only highly desirable, but almost a necessity," the two men stated.

They predicted that in the future, tanker stress analysis will concentrate on the following avenues of research: (1) Improving and updating computer programming, modifying and developing pre-process as well as post-process routines. (2) Investigation of dynamic loading induced by wave action and corresponding structural response. (3) Investigation of ultimate strength of structural components as related to failure mechanics. (4) Refinement of permissible stresses as related to structural failure.

Capt. **Svend A. Madsen,** New York City, nautical adviser to the logistics department, Standard Oil Co. (New Jersey), said the industry has improved immensely of late in its tanker salvage methods, and he commended the industry for coming "a long way in developing equipment, techniques and organization in the short time since the enactment of the Water Quality Act of 1970."

He cited examples of disorganized salvage operations that require a month or more of planning and equipment gathering before cargo removal could begin. Even then, he said, "the equipment was at best makeshift, difficult to handle due to weight, and generally inefficient."

Fortunately however, Captain **Madsen** said, the U.S. now has the required structure under the Federal Water Quality Act to handle tanker shipwreck contingencies much faster and more efficiently.

"While there is still work to be done in the area of preparedness, and immediate response capability," he concluded, "there can be no question that it would take substantially less than two weeks to begin removing cargo . . . if similar accidents should occur anywhere along our coast today."

Another speaker on salvage matters was Capt. **Hugh J. Spicer,** fleet operations coordinator, Mobil Tankers Co. (Liberia) Ltd., and chairman of the American Institute of Merchant Shipping Tanker Salvage Committee.

"We must continue to search out new ways to improve the speed of our response to call for salvage assistance and new ways of improving the discharge of cargoes of oil in a more rapid manner," he said. He urged that better information be provided salvage operators so that they would know "what coastal areas can be used as a harbor of refuge for a vessel requiring salvage."

Also, Captain **Spicer** said, "there should be some means of getting salvage cargoes of non-U.S. origin oil into the U.S. in a rapid manner without delaying salvage operations because of import restrictions."

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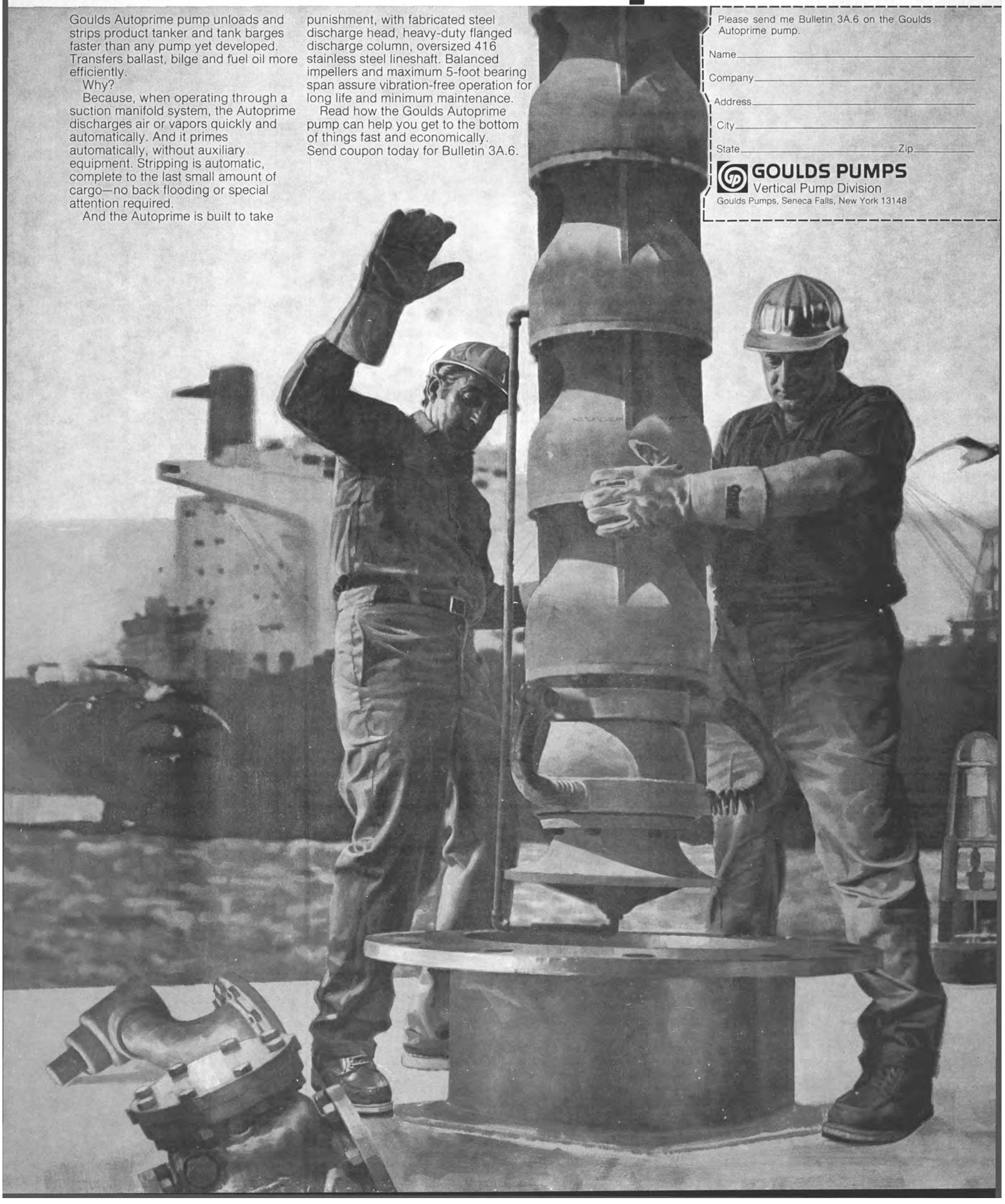

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CONOCO Appoints Constantine Nicandros To Transportation Post

Constantine S. Nicandros

Constantine S. Nicandros has been named general manager of transportation and supplies of Continental Oil Company's Eastern Hemisphere Petroleum Division, according to **John E. Kircher,** division president.

Mr. **Nicandros,** who joined Conoco in 1957, was director of economic planning for the division, a position he had held since 1966.

Born in Port Said, Egypt, he is a graduate of the Law School of the University of Paris (France) and Ecole des Hautes Etudes Commerciales, also in Paris. He holds an M.B.A. degree from the Harvard Business School.

His first assignment with Conoco was in Houston, Texas, with the company's coordinating and planning department, where he was a research associate. After advancing through several positions in the department, he was transferred to coordinating and planning in New York in 1961.

In 1965, Mr. **Nicandros** was named acquisitions representative in exploration and production for Conoco's operations.

'K' Line Forms New Firm To Operate Long Beach Terminal

With its new 51-acre container complex in the Port of Long Beach scheduled for completion within a matter of months, "K" Line (Kawasaki Kisen Kaisha, Ltd.) has formed a wholly-owned subsidiary to operate the $10-million Pier J facility.

Named International Transportation Service, Inc., the firm is a California corporation with temporary offices in the Harbor Administration Building at 925 Harbor Plaza in the Port of Long Beach. **K. Abe,** formerly general manager of "K" Line's Container Division, is president.

Directors of I.T.S., Inc. include board chairman **M. Hattori,** who is also "K" Line chairman of the board; "K" Line president **M. Adachi;** Los Angeles district "K" Line manager **M. Kamijo,** and **G.S. Jones Jr.,** managing director of Kerr Steamship Company.

General manager is **Frank D. Kalakowski,** formerly interline manager of "K" Line New York, Inc.

University Of Michigan To Present Course On Small Craft Engineering

The University of Michigan department of naval architecture and marine engineering will present a one-week course in small craft engineering, October 11-15, 1971. Resistance, propulsion, structures, seakeeping, and machinery will be discussed.

The course is being managed by Prof. **Finn C. Michelsen** and Prof. **John B. Woodward.** Lecturers from outside the university are **Daniel Savitsky** of Stevens Institute; **Joseph Koelbel,** naval architect and Rudder Magazine columnist; **Peter Silvia** of the Coast Guard Boat Technical Section; **Robert Scott** of Gibbs and Cox; **Constantine Michalopolous** of Reynolds Metals Company, and **Howard Apollonio** of Jacuzzi Brothers.

The course is available to all interested persons, although a background in engineering or boat design will be necessary for appreciation of the material presented. The fee for the course is $250.

Applications for enrollment are to be distributed in August. Anyone who would like to be on the mailing list should notify Prof. **J.B. Woodward,** Department of Naval Architecture and Marine Engineering, University of Michigan, Ann Arbor, Mich. 48104.

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GENERAL ELECTRIC

John D. Reilly

John D. Reilly, chairman of the board of Todd Shipyards Corporation, died on May 30 at the Valley Nursing Home, Westwood, N.J., after a long illness. He was 82 years old.

Mr. **Reilly** was prominent in world shipping circles as head of an internationally known complex of shipyards located in principal port cities on all coasts of the United States. His career in the shipbuilding and ship repair industry spanned more than 60 years, starting in 1907 when, at the age of 19, he went to work in the collection department of Robins Drydock Company of Brooklyn, N.Y. He became an executive of the Todd organization when it was founded by **William H. Todd** in 1916 by consolidation of the Robins yard with other yards in Hoboken, N.J. and Seattle, Wash.

When **William H. Todd** died in 1932, Mr. **Reilly,** then a vice president and director, was unanimously elected by the board of directors to succeed him as president.

Described by his aides as a daring and imaginative administrator, Mr. **Reilly** pursued an aggressive course of action in the early years of his presidency, expanding and diversifying operations further to offset sluggish periods of marine activity, and Todd emerged from the depression as a giant in the industry.

During World War II, Mr. **Reilly** undertook the task for which he is perhaps best known—a vast restructuring of the company to gear it to wartime service. Operating in close association with the military and civilian Government officials, he supervised a network of shipyards on all U.S. coasts, traveling almost constantly from yard to yard to oversee a monumental program of construction, repair and conversion of the nation's oceangoing fleets.

John D. Reilly

Under his direction, the Todd yards constructed 999 seagoing ships of all descriptions, and repaired or converted nearly 23,000 more, a total of more than 117 million tons of shipping. During this time, Mr. **Reilly** supervised a work force of as many as 157,000 men and women in shipyards across the country. These accomplishments brought him many awards and honors.

After the war, he charted the course for Todd's return to peacetime activities, with the company moving into industrial projects and the nuclear field.

Mr. **Reilly** was president of Todd for 21 years until 1953, when he was elected chairman of the board. He remained moderately active in company affairs until shortly before his illness.

He held the rank of commander in the U.S. Naval Reserve and was awarded an Honorary Doctor of Laws degree by Georgetown University in 1951.

At the time of his death, Mr. **Reilly** was a member of the board of managers of the American Bureau of Shipping, American Committee of Lloyd's Register of Shipping, and a member of many associations and clubs, both social and related to the maritime industry.

A native of Yonkers, N.Y., Mr. **Reilly** is survived by his widow, the former **Mary Murray;** a son, **John;** a daughter, **Mary Delaney** of Bronxville, N.Y., and six grandchildren.

Hubeva Marine Plastics Names New Distributor

W. George Huntington, president of Hubeva Marine Plastics Inc., 382 Hamilton Avenue, Brooklyn, N.Y. 11231, which is the sole distributor of Cordobond Strong-Back Products, recently announced the appointment of Philadelphia Ship Maintenance Co. Inc., 18 North Front Street, Philadelphia, Pa. 19106, as a distributor of the Cordobond line.

Choose from the most comprehensive line of solid state 3cm and 10cm high power marine radars available anywhere today.

Raytheon marine radars are versatile. Ten different models cover 10cm all-weather, as well as 3cm high-definition, shipping requirements, and both relative motion and computerized true motion displays are available. With Raytheon's interswitch unit, any two radars can be interconnected for the greater reliability of redundant operation, the significant advantages of having both 3 and 10cm radars aboard, plus general navigational versatility.

3cm Radar—Eight models feature exceptionally high definition. Choice of 45 or 20kW transmitters, 6, 9, or 12 foot slotted waveguide antennas, 10 or 16 inch indicator units. Constant antenna rotation of 27 rpm plus pulse repetition rates to 4000 pulses/sec insure unmatched display resolution and brightness at any range.

10cm Radar—Two models for high seas, all-weather service. High power 60 kW transmitter, 12 foot slotted waveguide antenna, and choice of 10 or 16 inch indicators. Combination of 27 rpm antenna rotation, 4000 pulse/sec rate, plus exceptionally high clutter and interference rejection provide performance second to none.

Options—A wide range of optional accessories can be provided, including reflection plotter, true bearing and north stabilizing kits, a lens kit for the 10 inch indicator, and the computerized TM.CPA indicator for direct calculation of CPA (closest point of approach) and time to CPA.

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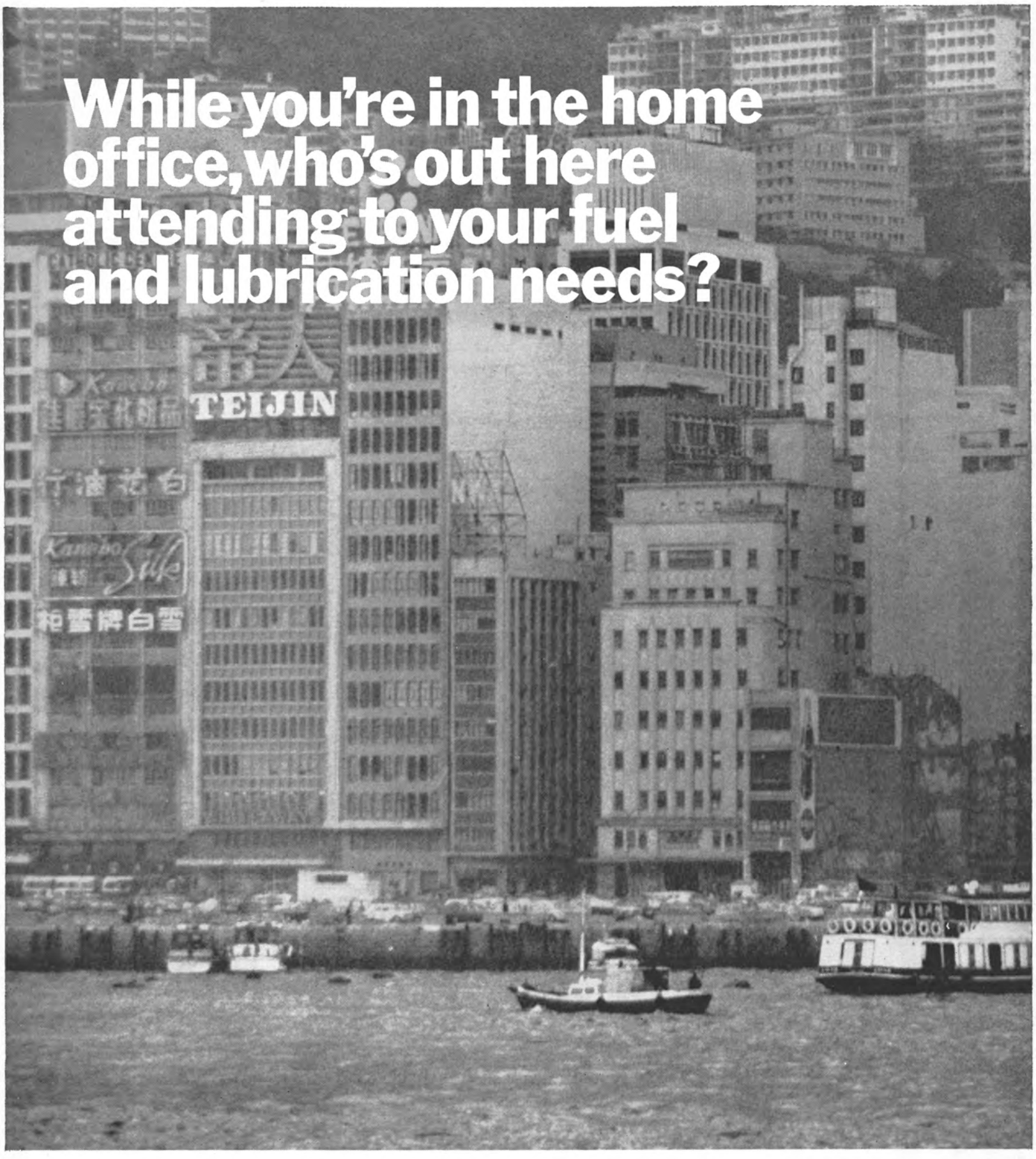

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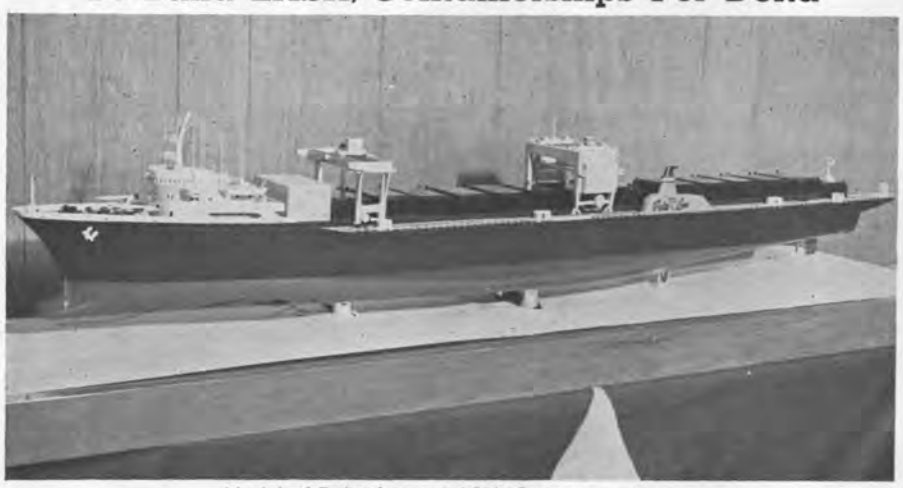
Avondale Receives $85 Million Contract To Build LASH/Containerships For Delta



Model of Delta Line's LASH/Container vessel.

Contracts totaling approximately $85 million were signed in Washington, D.C., on May 19 for the construction of three combination LASH/Container vessels for Delta Steamship Lines, pioneer New Orleans, La., based owner and operator of a fleet of American-flag vessels.

The construction of these three ships represents the largest single shipbuilding contract—by far—in Delta Line's 52-year history and is the first new shipbuilding contract executed since the enactment of the 1970 Merchant Marine Act.

The three container/barge-carrying vessels are to be built by Avondale Shipyards at New Orleans, with delivery scheduled for April 15, 1973; July 15, 1973 and September 30, 1973.

Signing of the contracts took place at ceremonies in the office of Assistant Secretary of Commerce and Maritime Administrator **Andrew E. Gibson.** Principals who signed the contracts were Mr. **Gibson,** for the Maritime Administration, Delta president Capt. **J.W. Clark,** for the owners, and Avondale president **H. Zac Carter,** for the builders. Other dignitaries attending the contract-signing ceremonies included U.S. Senator **Russell B. Long** (D-La.), and **Jerome L. Goldman,** president of Friede and Goldman, Inc., naval architects who developed the LASH design.

Principal characteristics of this new Delta LASH-type vessel are: length overall, 845 feet; beam molded, 100 feet, and total displacement of 38,000 tons at 28 feet 0 inches design draft. The vessel's steam turbine propulsion system will provide a service speed of 22 knots. Each vessel will be capable of carrying a maximum of 74 barges or, alternatively, a maximum of 1,740 containers, or a combination of the barges and containers in varying numbers as required. Initially, Delta plans to carry approximately 288 containers, including refrigerated units. The design provides for a highly flexible arrangement for bulk liquids, dry bulk cargoes, refrigerated cargoes, heavy lifts. etc.

'Container Way,' Read At Pacific NW Section, Points Up Changes In Cargo Handling Systems

Speakers and officers pictured at the Sands Motor Hotel in Vancouver, left to right standing are: **George Salisbury,** secretary-treasurer; **Robert McHaffy,** naval architect and surveyor; **Lou D. Chirillo,** vice chairman; **Gene Frampton,** assistant secretary-treasurer; **Fred Skinner,** Island Tug and Barge. Seated left to right are: **George Payne,** who authored and presented a paper entitled "Container Way"; **George Fryatt,** chairman, British Columbia Area, and **Pete Sias,** chairman, Pacific Northwest Section.

Traditional warm regards were exchanged between members and guests from Seattle and Bremerton, Wash., and Victoria and Vancouver, British Columbia, at the regular meeting of the Pacific Northwest Section of The Society of Naval Architects and Marine Engineers, held in Vancouver on April 23, 1971.

George Payne, general manager of Empire Stevedoring Company, Vancouver, B.C., authored and presented a paper entitled "Container Way" which expounded on how terminal handling systems are becoming more and more highly mechanized with new systems like intermodal service via barge carriers, roll-on/roll-off traffic and container service.

Most widely accepted of the cargo handling systems are container transportation and goods shipped in containers. Even those which are packed and unpacked at the terminals arrive at their destination with less damage, theft and pilferage.

Mr. **Payne** concluded his paper by mentioning the huge variety of goods being shipped in containers. It was interesting to note that grain, once entirely packaged in bags when shipped in containers, is now being shipped in bulk.

Pollution Control Coating Described In Carboline Guide

The Carboline Company of St. Louis, Mo., announces the release of a new 114-page Protective Coating Guide for Pollution Control Facilities and Equipment.

Complete in all details, this guide gives protective coating system recommendations for shop and field priming, immersion and non-immersion service, steel and concrete surfaces, floors, etc. Also included are recommendations for lining potable water tanks.

A section of the guide deals with typical protective coating specifications for pollution control facilities. It also contains a chart showing color coding for piping identification. Test report extracts, estimated field service life of coating systems, important points to consider when selecting protective coatings and physical and chemical properties of each coating are included.

This is an outstanding reference guide for maintenance and plant engineers, engineering design companies and all personnel involved with corrosion prevention of pollution control facilities and equipment.

This guide is available from Carboline Company, 328 Hanley Industrial Court, St. Louis, Mo. 63144. Carboline develops and markets a complete line of corrosion resistant protective coatings, tank linings, floor coatings, waterproofing materials, adhesives, industrial finishes and paints.

States Steamship Names Capt. Mead And J.S. Butler

The appointment of Capt. **Paul S. Mead** as vice president has been announced by **J.R. Dant,** president of States Steamship Company. Captain **Mead** joined States Line in June 1968 as general traffic manager and most recently was assistant vice president, special projects.

Mr. **Dant** also announced that **J.S. Butler** has been elected assistant vice president and general sales manager of States Steamship Company.

Hempel's Marine Paints Appoints J.A. Thompsen

J.A. Thompsen

Finn Olander, general manager and executive vice president of Hempel's, has announced the recent appointment of **J.A. Thompsen** as national sales manager. Mr. **Thompsen** will be located at the company's executive offices at 25 Broadway, New York, N.Y. 10004.

Mr. **Thompsen** joined the Hempel organization in 1970 as manager of marine services. He has previously held various sales executive positions with marine and industrial concerns. Mr. **Thompsen** is a graduate of the U.S. Maritime Academy and is the author of various technical papers and articles pertaining to the corrosion field.

The company has its corporate headquarters in Copenhagen, Denmark, with more than 25 affiliated companies located throughout the world. In the United States, the company maintains manufacturing facilities in Brooklyn, N.Y., and research, development, and manufacturing operations at Buffalo, N.Y. District sales offices and warehouses are located in San Francisco, Calif., New Orleans, La., and Houston, Texas. In addition, the company's extensive line of coatings are marketed through qualified marine distribution agencies located in all principal U.S. ports.

New Maritime Firm Debuts At OTC Show

Marquip, a new firm in Seattle, Wash., specializing in the manufacture of quality marine equipment, made its debut at the Offshore Technology Conference in Houston, Texas, April 19, 1971.

Marquip featured its quick release hooks to kickoff its product line. On display was a working model of its electro-hydraulic design, which provides instant, remote push-button control for tripping one or multiple lines by one operator. Capacities range from 10 tons up, with 100-ton and over models most commonly used. Marquip's line also includes manual quick release hooks in 10-ton to 150-ton models. Patents have been applied for on all the quick release hook designs.

Marquip is the only American manufacturer of quick release hooks, and prices are competitive with foreign makes, according to **R. Patrick Obert,** manager of Marquip.

Marquip products also pictured in the Houston display were towing plates, chain and anchor pattern towing shackles, and carpenter stoppers. **Roger H. Pearson,** marketing manager, states that numerous other items will be available as production patterns are completed, and will include anchors, anchor chain fittings, and cargo handling equipment.

Marquip also offers custom designing of heavy rigging items to all heavy industries, including oil and construction. Emphasis will be on marine rigging, towing and mooring accessories. With its 2,000,000 pound pull test machine, Marquip products can be certified to meet requirements of U.S. Salvage Bureau, A.B.S., Lloyd's Shipping, I.L.O., or other cargo bureaus.

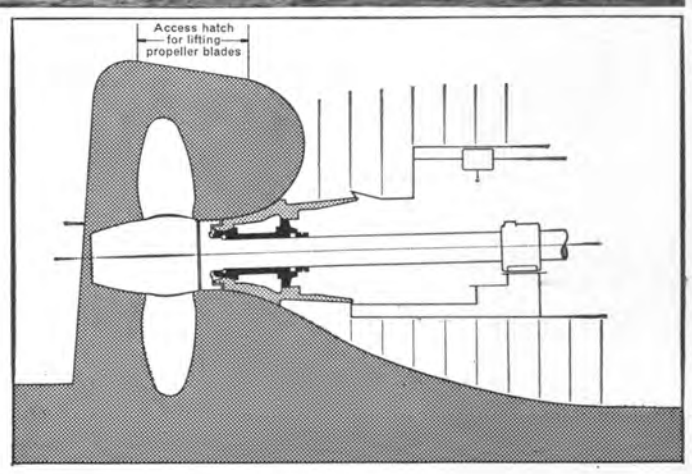
Marquip is a manufacturing affiliate of Washington Chain & Supply Company, 2935 Utah Avenue South, Seattle, Wash. 98124, which will be the initial distributor for the Marquip line on the Pacific Coast and Alaska, as well as foreign. Blue Water Marine Supply, Inc., 1000 Broadway at Channelside, Houston, Texas 77012, serves the Gulf Coast for Marquip.

Laurita now in service with Glacier-Herbert sterngear system

Laurita, the first of three car carriers building at Blohm & Voss, has now successfully completed sea trials and has entered scheduled service.

Glacier-Herbert Sterngear permits the removal and inspection or replacement of outboard seals and the stern bearing without dismantling the shaft or removing the propeller. By eliminating the need to dry-dock the system allows substantial cost savings to shipowners and operators.

The system offers greater scope for avoidance of shaft whirl and allows for the bearing alignment to be adjusted after assembly—important factors especially when the heavier C.P. propellers are used.



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WESTINGHOUSE 60 KW 120 VDC M-20-EH

120 VDC—1800 RPM. TURBINE: M-20-EH—20 lbs—dry & saturated—25" vacuum. 7283 RPM. GEAR: 7283/1800. GENERATOR: 60 KW—120 VDC—500 amps—SK—stab. shunt wound.

3

300 KW WORTHINGTON-MOORE CROCKER-WHEELER UNITS

AP2 Ex-Medina Victory units. Worthington-Moore turbine—440 lbs—740°TT—28½" vac.—type S4—5-stage—6097 RPM—serial 7547 & 7548. GEAR: 14x7—6097/1200. GENERATOR: Crocker-Wheeler 300 KW 120/240 DC—1250 amps—type 102-H—compound—973643—999759—armature flange 8¼"—bolt circle 7"—12 holes. Also new armature in stock (weighs 1840 lbs). Also have 2 units—generator 102 HP—300 KW—120/240—stab. shunt—1200 RPM.

4

VICTORY 300 KW WESTINGHOUSE TURBO GENERATOR SET

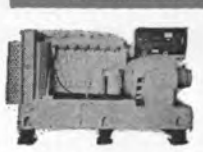
440# — 740°F — 5930 RPM — 2A-9794-15-16-17—coupling non-recessed on steam end of pinion—5¾". GENERATOR: Westinghouse 300 KW—120/240 DC—1250 amps—1200 RPM—C.B. 208.4.

5

1000 KW G.E. TURBO GENERATOR—READY TO GO—WITH A.B.S.

TURBINE: Type FSN—eight stage—9268 RPM—525 lbs—825°TT or 590 PSI & 0° superheat. Turbine serial No. 53729. GEAR: Serial 54804—9268/3600. GENERATOR: Serial 5596572—1000 KW—450 volt 3-phase 60 cycle—3600 RPM—0.8 PF—type ATB—2-pole—complete with air cooler. EXCITER: EDF—10.2 KW—120 volts—4-pole—3600 RPM—direct connected. UNIT JUST COMPLETELY OVERHAULED & IN EXCELLENT CONDITION—READY TO INSTALL.

DIESEL GENERATOR SETS

6 

G.M. 6-71 DIESEL GENERATOR SET

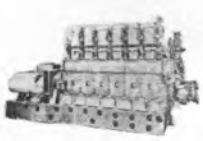
60 KW — 440/3/60 — 1200 RPM—with switchgear.

7

350 KW 120/240 VDC DIESEL GENERATOR SET

Ingersoll-Rand—heavy duty type S engine—8 cyl.—505 HP—10½ x 12. GENERATOR: G.E. 350 KW—120/240—600 RPM—switchgear. Good condition—as removed from Grace Line ships.

250 KW DIESEL GENERATOR SET

8 

ENGINE: Enterprise 12 x 15 DSG-6—6-cyl.—450 RPM—crank No. 50J. GENERATOR: Westinghouse 250 KW—120/240 DC—1040 amps—450 RPM. Typical serial No. 3S-10P-913. Complete with switch gear.

$1250.

9

UNUSED 500 KW 120/240 VDC BALDWIN/ALLIS CHALMERS DIESEL GENERATOR SET

ENGINE: Baldwin-DeLaverne 725 HP—12¾"x15½"—8 cyl.—500 RPM—air starting. Dry weight 54050 lbs. GENERATOR: Allis-Chalmers 500 KW—120/240 VDC—500 RPM—550 RPM overspeed. 60°C rise—class B insulation — 3-wire — 25% unbalance—2083 amps—stab. shunt—open—drip-proof—self-ventilated—8-poles.

10

UNUSED 100KW SUPERIOR DIESEL GENERATOR SET

GENERATOR: 120/240 VDC—417 amps—stab. shunt—1200 RPM. DIESEL: Superior GBD-8—8 cyl.—5½x7.

11

UNUSED 10 KW SUPERIOR DIESEL GENERATOR SET

GENERATOR: Delco 10 KW — 120 VDC — 83.3 amps — 1200 RPM. ENGINE: Superior diesel—2 cyl.—4½x5¾ — 15 HP — heat exchanger cooled.

TURBINE ROTORS

MAIN PROPULSION

12

19 STAGE WESTINGHOUSE H.P. ROTOR FOR AP2 VICTORY

Reconditioned — balanced—with ABS. Serial 4A-2079—type B—19 stage reaction blades. Excellent — just out of shop. 13" Flange diameter with 14 bolts.

13 ***SPECIAL!***

COMPLETE TURBINE OR ROTORS

8500 HP G.E. C-3 Victory—Sun C-4's.

L.P.—Serial 77943 H.P. Serial 77942
G.E.I. 16263

14 **NEW L.P. BLADE RINGS**

for large 8500 H.P. Victory

Joshua Hendy Westinghouse

15 **NEW 8500 H.P. G.E. TURBINES**

Large Victory or C-3

H.P. #72271 L.P. 72272

10 BOXES SPARE PARTS, TOOLS & FITTINGS. WITH MANEUVERING VALVES.

ALSO AVAILABLE

16 **U.S.M.C. RECONDITIONED SET H.P. & L.P.**

With 13 boxes spare parts. H.P. 77994—L.P. 77987—with maneuvering valves.

17 **8500 H.P. G.E. — C-3 OR VICTORY**

H.P.—8-stage—6159 RPM—serial 62043
L.P.—8-stage—3509 RPM—serial 62042
G.E.I. 16263

18 **6000 H.P. G.E. — NORTH CAROLINA C-2**

H.P.—8-stage—serial 78040
L.P.—7-stage—serial 78043
G.E.I. 16262

19 **VICTORY SHIP AP2 H.P. & L.P. TURBINES NEW — UNUSED — 6000 HP SETS**

G.E.—H.P. & L.P.—with throttle valve
Westinghouse—L.P.—with throttle valve
Allis-Chalmers—H.P. & L.P.—with throttle valve

AUX. GEN. ROTORS

20 **250 KW & 300 KW ALLIS-CHALMERS ROTORS**

Typical serial No. 3067—will interchange with most 250 KW & 300 KW Allis-Chalmers as installed on Victory's and Moore C2-C3 vessels.

21 **300 KW 5965 RPM JOSHUA HENDY**

Turbine—3H-69 Gear—52269
Turbine—3H-52 Gear—52252
Turbine—3H-62 Gear—52262

T-2 ROTORS, STATORS COOLERS, ETC.

22 **ELLIOTT 10-STAGE MAIN PROPULSION TURBINE ROTOR**

#28702—Ex-Texas Trader—will interchange with large G.E. 1st Row—1 1/8" to shroud—1 3/16" O.A.H. 2nd Row—1 7/16" to shroud—1 9/16" O.A.H.

23

LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR

Turbine serial 77418—reconditioned with certificate. Just out of Beth shop 1970.

AUXILIARY GENERATOR ROTORS

24

DORV—325M—T-2 Tanker Aux. Generator.

25

WESTINGHOUSE MAIN PROPULSION REVOLVING FIELD

Ex-Ohio Sun—A.B.S.—ready to go. Serial 25R10

26

WESTINGHOUSE MAIN GENERATOR STATOR

A.B.S.—ready to go—certificate 70BA5297 — May 19, 1970—Rewound.

27

G.E. MAIN GENERATOR STATOR

A.B.S.—ready to go—mfg. by Elliott for G.E.—over G.E. design.

28

WESTINGHOUSE MAIN GENERATOR AIR COOLER

Reconditioned with A.B.S.

29 **UNUSED G.E. MAIN GENERATOR AIR COOLER**

PUMPS

30

VICTORY AP2 MAIN CIRCULATOR

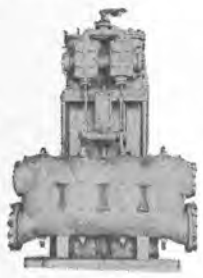
Ingersoll-Rand — 18 VCM—20" x 18"—10,500—10 lbs. MOTOR: 75 HP—Allis-Chalmers—230 VDC—670 RPM. Spare unused armature. Motor frame F.B.V.—162.

31

UNUSED 10x9x12 VERTICAL SIMPLEX FUEL OIL TRANSFER PUMPS

Furnished on some T-2 Tankers. 160 GPM Bunker C —viscosity 70 to 700 SSF 122°F @ 100 lbs. discharge pressure. WP steam 150 lbs.—exhaust 10 lbs. 1¼" steam inlet—1½" exhaust. 4" Pump suction—3½" discharge.

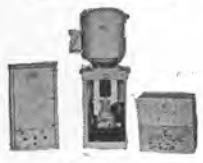
32



WORTHINGTON 16"x14"x18" 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.

33



NEW BLACKMER FUEL OIL TRANSFER PUMP

Rotary—50 GPM—50 lbs.—2"—5 HP—440/3/60—with starter & spares.

34

UNUSED BLACKMER VERTICAL ROTARY PUMP

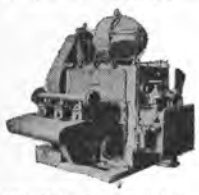
4"—100 GPM—100 PSI—15 HP — 440/3/60 — gear head.

35

R-2418 WATEROUS CARGO PUMP

Bronze—14"—top discharge—capacity 2500 GPM—20 PSI. Bilge service—oil service—2400 GPM—75 PSI. Reduction gear. ENGINE: Cummins JN-130M—6 cylinder—4⅛ x 5—130 HP—air starting.

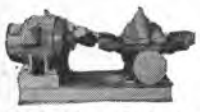
36



UNUSED BOILER FEED PUMP

Worthington Triplex—36.5 GPM—590 PSI—variable stroke—2¾ x 5—P_2—S_2—R_2 vessels. 40 HP—230 VDC—1800/2400 RPM.

37



UNUSED WARREN BRONZE PUMP

1175 GPM—11.1 lbs.—8" x 8". MOTOR: Reliance 10 HP—115 VDC—850—RPM—76 amps.

38

NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

For emergency use on passenger ships, etc. PUMP: JAS—264 GPM—171' head—two 6" inlets—one 5" outlet. Motor: 40 HP—230 VDC—149 amps.

39

NEW—UNUSED BRONZE VERTICAL LST BALLAST PUMP

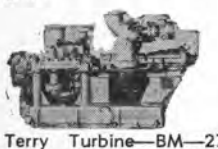
1500 GPM—56' head or 25 lbs. — 8" suction — 6" discharge. MOTOR: Century 30 HP—230 VDC—110 amps—1750 RPM — 40°T rise — stab. shunt—BB drip proof —controls available.

40

EXCELSIOR MOLASSES PUMP—SIZE 5½"

6" Suction and discharge—210 GPM—45 PSI—125 RPM. MOTOR: 10 HP—230 VDC—Frame 67—with gear.

41



UNUSED SIZE 4 BUFFALO FEED PUMPS

Terry Turbine—BM—273 HP—550 RPM—exhaust 15 lbs—590 PSI—superheat 0°—425 GPM Buffalo Pump—discharge pressure 750 lbs.—5" x 4"—built for USN DD destroyers.

42

COFFIN MODEL F BOILER FEED PUMP—VICTORY OR T2

Control valve 1¼"—Form V1—constant pressure regulator — type C — 150 HP—200 GPM at 575 lbs discharge pressure. 7200 RPM —440 PSI—500°TT.

43

BRONZE 14x14x12 CARGO STRIPPING PUMPS

700 GPM @ 100 lbs. Ex-T2 Tanker pump. Also available in steel.

WINCHES AND WINDLASSES

44

VICTORY UNIT WINCHES

50 HP—230 VDC—U-1, U-2, U-4, U-5—reconditioned.

45

MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES

50 HP—230 VDC—reconditioned.

46

HYDE NO. 7 WINDLASS

1¾" Chain—Wildcat centers 3'3"—Handles 3000 lb. anchors. MOTOR: 8.7/35 HP—440/3/60—1800/450 RPM.

47

NEW—UNUSED LINK BELT WINDLASS

1⅝" and 7000 lb. anchors. 56" Centers—50 HP—230 VDC—spares.

48

IDEAL WINDLASS—UNUSED

1-5/16" Chain—36" Centers—15 HP—115 VDC—1750 RPM—6000 lb. line pull.

49

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

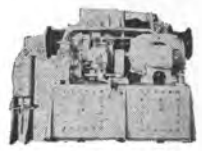
2¾" Chain and two 10640 lb. anchor & 30 fathoms chain @ 30 FPM. 70 HP—230 volts—shunt DC motors—233 amps—550 RPM—55°C rise. Wildcat centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

50

LCT-6 JAEGER GASOLINE DRIVEN WINCH

With torque converter & free declutchable drum, 31,000 lbs. @ 6 FPM or 3000 lbs. & 350 FPM. DRUM: 20"x23¾"x37½". GYPSY: 15"x13". Twin Disc torque converter—6 cyl. Hercules gas engine model WXLC-3. Total weight approx. 4500 lbs.—serial 81843.

51



4 SINGLE DRUM ELECTRIC HYDRAULIC WINCHES

From Navy Research Ship Liberty AGTR-5. Like new. Mfg. by Lakeshore Engineering Co. Gypsy heads can be operated separately from drum. 7400 lbs. @ 220 FPM; 624 ft. of ¾" rope in 5 layers. Total weight of winch, motor & pump 7221 lbs. OAW 84¼"; OAL 88"; OAH 58". With remote control stands.

MISCELLANEOUS

52

VICTORY AP2—WESTINGHOUSE MAIN PROPULSION GEAR

6000 SHP—Serial 4A-1620—Medina Victory.

53

UNUSED 1135 SQ. FT. C.H. WHEELER CONDENSER

20" Ex. inlet—⅝" Cu-Ni tubes—with or without air ejector.

54

1 PAIR OF 300 HP UNION DIESEL ENGINES

Port and starboard—model 06—300 HP at 350 RPM —4 cycle—direct reversible—11 x 15—overhauled 1966—in good condition. Just in from Navy.

55

MODEL O-2-D M&T RECONDITIONED UNITS

Hydraulic starting, steering, raising & lowering tailfin. Navy reconditioned 1968—fully checked out by us. Will demonstrate running. Wt. about 9500 lbs. PROPELLOR: 48"x24"—3-blade.

56

HYDE 30" DOCK CAPSTAN

10" x 10"—reversible—W.P. 125 lbs—2½" steam—3" exhaust.

57

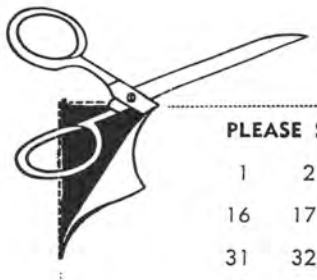
DOUBLE INPUT—SINGLE OUTPUT DIESEL REDUCTION GEARS

Farrell-Birmingham—3200 SHP. Reduction gear: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard.

58

INGERSOLL-RAND MODEL 40 AIR COMPRESSOR

Two stage—135 CFM—7" x 6¼" x 5"—110 lbs.—870 RPM—inner cooler. MOTOR: Allis-Chalmers 40 HP — 230 VDC — 145 amps — 1750 RPM — Model EB121.



PLEASE SEND INFORMATION ON THE FOLLOWING: (Please circle items) 6/15/71

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46	47	48	49	50	51	52	53	54	55	56	57	58		

NAME..... COMPANY.....

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

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

Caterpillar Expands Engine Service Dept. —Alan Wilcox Named

Alan R. Wilcox

Realignment and expansion of the Industrial Division Service Department has been announced by Caterpillar Tractor Co. This change extends the responsibility of the service department to provide support to all Industrial Division products. The new department includes two divisions, the Field Service Division and OEM Service Division.

Alan R. Wilcox, formerly of Caterpillar's U.S. Commercial Division, will manage the department. Mr. **Wilcox** joined Caterpillar in 1956 and has worked in a variety of sales and service assignments. **R.W. Hettiger** and **R.L. Musgrove** have been named assistant managers, field service, and will report to Mr. **Wilcox. W.E. Irwin,** manager OEM Service Division, will continue his responsibility to Original Equipment Manufacturers. **J.L. McLaren,** formerly supervisor, Industrial Division Service, has been named assistant manager, OEM Service Division.

To further meet demands in its expanding engine market, the Industrial Division will also increase the number of service representatives assigned to territories throughout the United States.

Foreign Building Costs Study Finished By MSB For 80,500-Dwt OBOs

The computation of the foreign costs of building 80,500-dwt San Clemente class ore/bulk/oil carriers, for which specifications were submitted by National Steel & Shipbuilding Co., has been completed by the Maritime Subsidy Board. Using Japanese costs as the basis for the study, the Maritime Subsidy Board came up with the following results: $15.9 million for each of four such ships; $15.85 million for each of five, and $15.8 million for each of six.

Applications are currently pending for eight San Clemente class OBOs. T.J. Stevenson & Co., Inc., has applied for four, and Marine Carriers Corp. and Avon Shipping have applied for two each.

A. Moe & Co., Inc. Elects Frank Merryfield

Frank E. Merryfield has been elected vice president of A. Moe & Co., Inc., 808 North Front Street, Philadelphia, Pa. Founded in 1919, the company is engaged in ship and engine repairs.

Mr. **Merryfield** has been employed by A. Moe & Co. since 1956, and has served as general superintendent for the past five years. In his new post, Mr. **Merryfield** will be in charge of production, according to **John W. Gravdahl,** company president, who made the announcement.

SNAME SAN DIEGO SECTION: The monthly meeting of the San Diego Section of The Society of Naval Architects and Marine Engineers was held as a field trip at the Offshore Technology Corporation in Escondido, Calif., on April 17, 1971. The members and ~~their~~ wives were invited to a guided tour of the model basin, which included the wave maker in operation and a mock-up of the surf maker. The Offshore Technology Corporation provides capabilities for testing, research and development in many areas of marine design. A model of a stable ocean drilling platform just being tested in the model basin was shown in operation at different sea conditions. **F.N. Biewer,** president of the Offshore Technology Company, explained the basic principles of model testing analysis in conjunction with a film showing practical examples. Following this interesting tour, a cocktail hour and lunch was held at the Escondido Country Club, making this an enjoyable and informative occasion. Shown above at the club, left to right, are: **D. Rodger,** papers chairman; **C. Sinclair,** chairman; **T. Hand Jr.,** vice chairman; **G. Uberti,** secretary-treasurer, and **J.B. Letherbury.**

Kaar Electronics Appoints C.C. French

C.C. (Carl) French, formerly with RCA, has been named Western regional manager of Kaar Electronics Corporation for the 11 Western states, including Alaska.

Kaar, a member of the Canadian Marconi Company group, markets land and marine communications and navigational equipment throughout the United States.

U.S. Lines Promotes Timothy C. O'Shea

The promotion of **Timothy C. O'Shea** as general manager of the Intercoastal Services of the United States Lines has been announced by **W.J. Keely,** vice president, marketing and sales.

Mr. **O'Shea** was formerly Northwest regional sales manager for the company with headquarters in Boston, but he has recently divided his time between the New York and West Coast offices of the line.

In his new position, Mr. **O'Shea** will have overall responsibility for the coordination and direction of intercoastal sales efforts, both eastbound and westbound. This will include appropriate documentation procedures for the expedient handling of container shipments as well as supervision of all intermodal arrangements.

According to Mr. **Keely,** the establishment of this special section within the "Tri-Continent" Service Division greatly increases the efficiency of services available to shippers utilizing this important segment of the line's 15,000-mile "Sea-Bridge" container operation.

The company is operating its mammoth high-speed Lancer Class containerliners, each capable of carrying over 1,200 containers, as well as its 20-knot Leader Class containerships, with capacities of over 900 containers, in its "Tri-Continent" services. This provides weekly sailings of fully containerized vessels in the intercoastal service, and assures shippers of a 12-day delivery time of container shipments in either direction.

Mr. **O'Shea** will make his headquarters in New York and will be assisted by **G. Gillon,** district manager of intercoastal sales.

JACKSONVILLE - Container PORT of the Southeast!

Jacksonville's publicly owned docks and terminals... presently using a great portion of nearly a mile of new marginal wharf construction...built a containerization facility in 1965 as its first step toward modernization. Container handling has increased from 300 weekly to 1,000 in five years.

THE PORT OF JACKSONVILLE IS HUB OF SOUTHEASTERN/WORLD MARKETS

Jacksonville, the nation's largest city in area, is within overnight distribution into areas in which 25 million people live.

After putting a 240,000 square foot warehouse in use in December, 1968, to start a new marine terminal on 1600-acre Blount Island, the Jacksonville Port Authority, is currently building an additional $7 million dollar container port and general cargo facility as depicted in the rendering at left.

JACKSONVILLE PORT AUTHORITY

2701 Talleyrand Avenue
P. O. Box 3005
Phone (904) 356-1971

Direct Inquiries to: Managing Director, Jacksonville, Florida

National Academy Names URI Professor To Marine Board

Dr. Herman E. Sheets

Dr. **Herman E. Sheets,** a professor of ocean engineering at the University of Rhode Island, has been appointed for a two-year term on the Marine Board, formerly the committee on ocean engineering, of the National Academy of Engineering.

A specialist in ocean systems, Dr. **Sheets** worked 16 years for the Electric Boat Division of General Dynamics before joining URI ocean engineering department two years ago. He was educated in Germany and Czechoslovakia, and received his doctorate from the Technical University at Prague in 1936.

The Marine Board of the National Academy of Engineering provides advice on national policies, programs and organizations pertinent to utilization of the marine environment and its resources for the public welfare and defense.

Enjay Chemical Names Reynolds Shipyard As Staten Island Agent

Enjay Chemical Company has announced the recent appointment of Reynolds Shipyard as agent for marine coatings and cleaners in the Staten Island area.

James E. Reynolds, president of the firm, stated that the complete line of Rust-Ban paint and marine cleaners will be stocked in their warehouse at 200 Edgewater Avenue, Staten Island, N.Y.

Underwriters Form Marine Pollution Liability Insurance Pool

American underwriters have announced the formation of a pool embracing most of the nation's ocean marine insurance companies to provide insurance to shipowners and operators who find themselves liable to the United States for oil pollution cleanup costs under the Water Quality Improvement Act of 1970. **Francis A. Lewis,** executive committee chairman of the newly-formed Water Quality Insurance Syndicate (WQIS), reported the insurance industry's voluntary response to the growing problem of pollution of the U.S. navigable waters by oil.

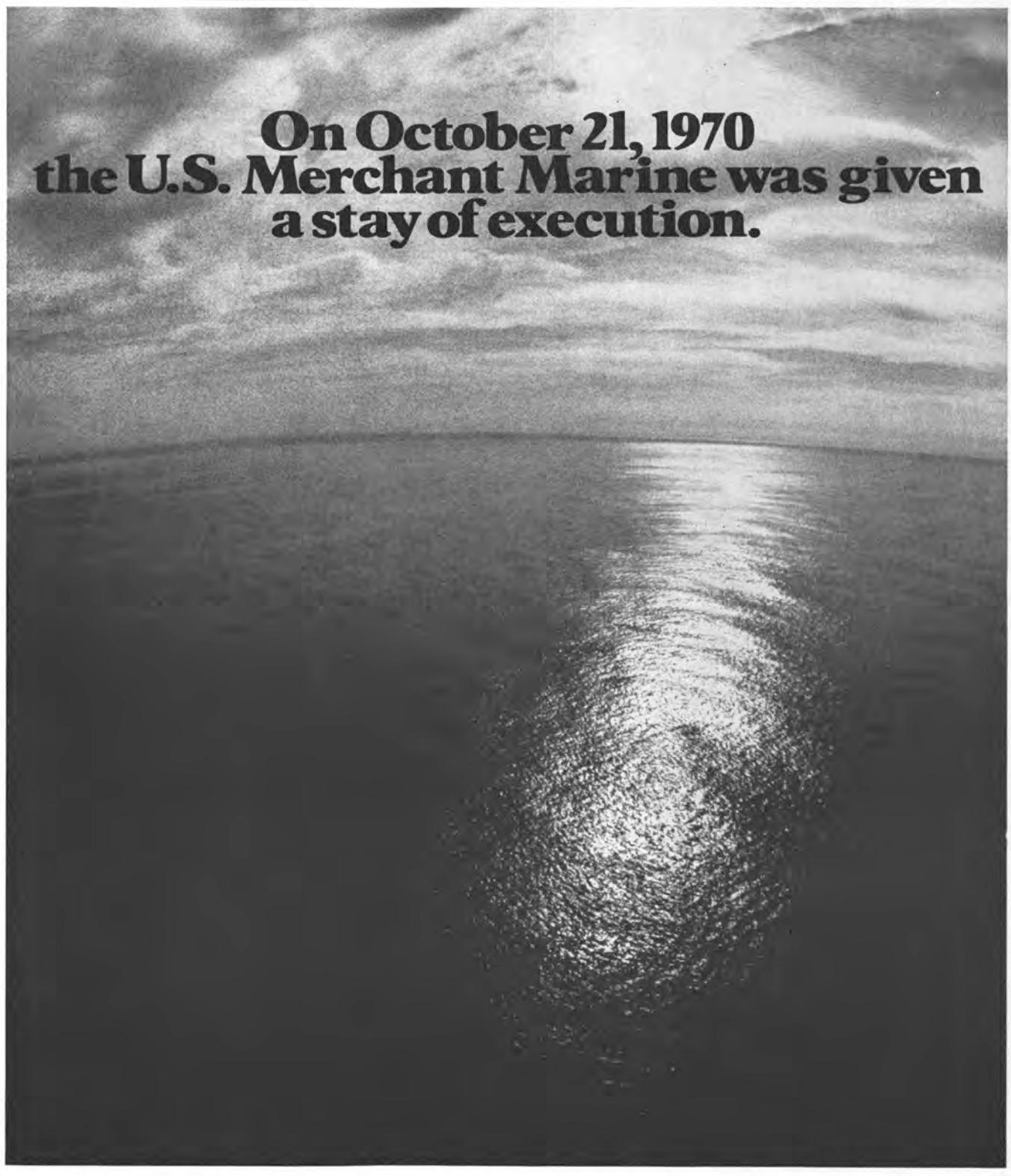
Under the Federal antipollution law the owner or operator of any ship or boat, American or foreign, which spills oil in any American waters may be held liable to the Government for its costs in cleaning up such spills. Maximum potential liability for accidental spills is $100 per gross ton of the vessel or $14,000,000, whichever is less.

The owner of every vessel over 300 gross tons (except certain barges) must furnish, as a condition of operating in any navigable waters of the United States (including the Panama Canal and approaches), proof of financial responsibility in the foregoing amounts. The syndicate has been established to afford a ready means of showing such responsibility, as well as insuring against the potentially devastating costs of cleaning oil-polluted waters.

"This effort," Mr. **Lewis** said, "is the marine insurance market's contribution to meeting a critical national requirement. It demonstrates the ability and readiness of American insurers to face the challenges and provide some solutions to the needs of an ever-changing society."

Mr. **Lewis** continued, "it is our intention to provide a service to vessel owners and operators through the creation of a simplified, centralized system for issuance of policies and certificates, and for handling lost matters."

WQIS will have its offices at 99 John Street, New York, N.Y. 10038. Inquiries should be directed to the manager.



That's the day President Nixon signed the Merchant Marine Act of 1970.

The Act doesn't guarantee the resurgence of American Flag shipping. But it does provide the basic plan. And the incentive.

So now it's up to us.

All of us. Commercial shipowners and operators. Labor. And shipbuilders.

As America's largest private shipyard, we feel we have a particularly heavy responsibility. And a challenging opportunity. That's why we're so deeply committed to a vigorous, new Merchant Marine shipbuilding program.

Our commitment began in 1969, with our successful bid on a MarAd CMX study contract to develop foreign trade forecasts and standard ship designs for the next decade.

It has continued with the establishment of a Market Development Division geared to capture a major share of the commercial shipbuilding market.

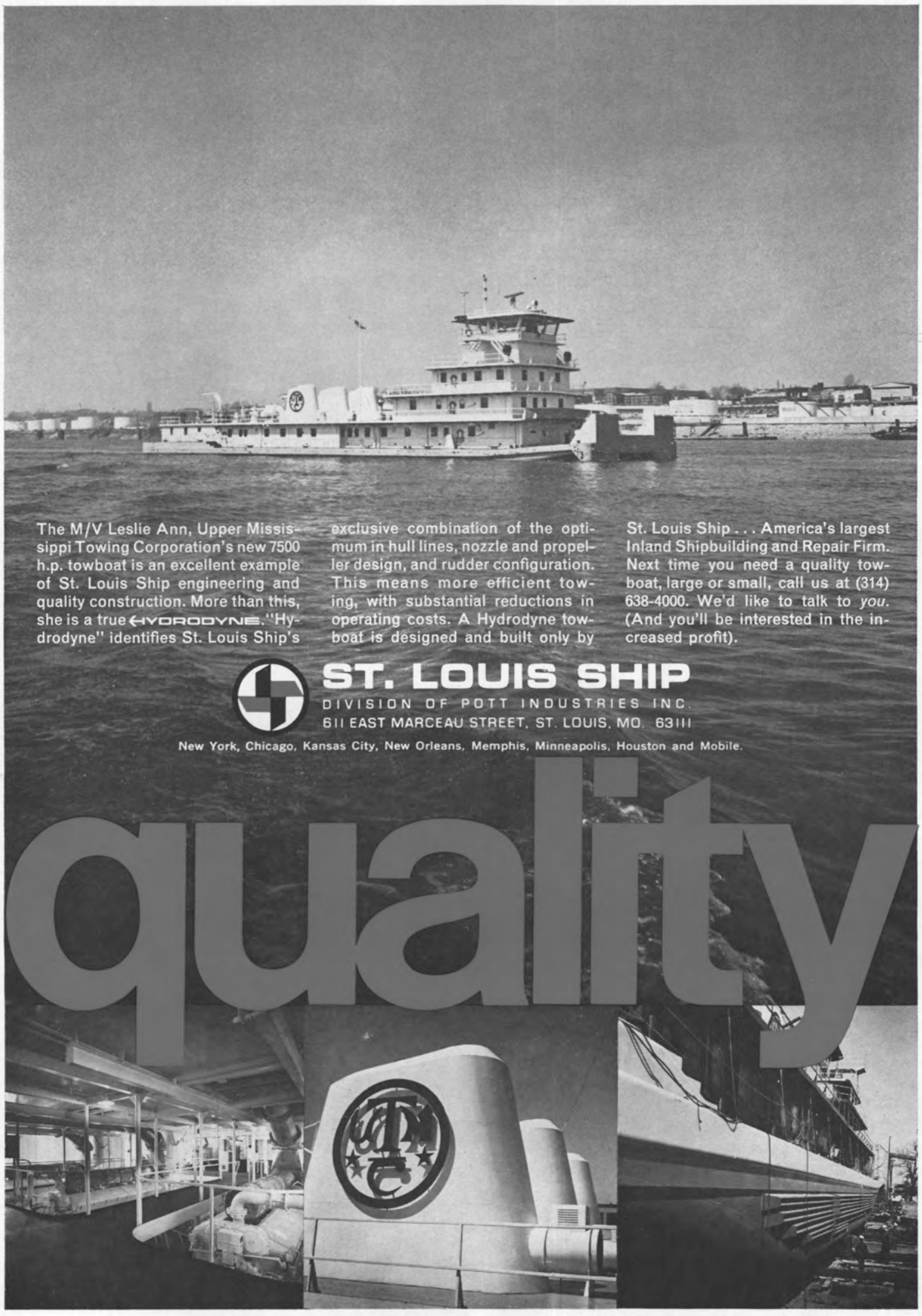
And it will continue with active and competitive bidding on merchant ship construction.

That's why we can say Newport News Shipbuilding is ready when you are. Ready with the talent, experience and facilities it takes to help revitalize and keep the U.S. Merchant Marine alive.

If you'd like to see how we can put this commitment to work, please write to Mr. Joseph D. Deal, Jr., Director of Market Development.

Or call collect. (703) 247-1211.

NEWPORT NEWS SHIPBUILDING · TENNECO COMPANY
NEWPORT NEWS, VIRGINIA 23607


The M/V Leslie Ann, Upper Mississippi Towing Corporation's new 7500 h.p. towboat is an excellent example of St. Louis Ship engineering and quality construction. More than this, she is a true HYDRODYNE. "Hydrodyne" identifies St. Louis Ship's exclusive combination of the optimum in hull lines, nozzle and propeller design, and rudder configuration. This means more efficient towing, with substantial reductions in operating costs. A Hydrodyne towboat is designed and built only by St. Louis Ship . . . America's largest Inland Shipbuilding and Repair Firm. Next time you need a quality towboat, large or small, call us at (314) 638-4000. We'd like to talk to *you*. (And you'll be interested in the increased profit).
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Friede & Goldman Design Unusual Drillship Now Under Construction By Italcantieri In Naples

This model of the Saipem II shows the Voith-Schneider cycloidal propellers at both the bow and stern for positioning and propulsion.

The new self-positioning drillship Saipem II is now under construction by Italcantieri in Naples, Italy, for Saipem of the ENI group, with delivery scheduled for 1972. It is expected that the drillship will be as outstanding in its field as Saipem's Scarabeo II has shown itself to be in semi-submersible operations.

Designed by the naval architectural firm of Friede & Goldman, Inc. of New Orleans, La., as was the Scarabeo II before it, the Saipem II will incorporate a number of new and unusual features into a sound basic drilling ship to provide a most technically advanced tool for floating drilling in deep waters. Friede & Goldman, Inc. are pioneer designers of offshore drilling units, with some 100 floating rigs having come from their drawing boards over the last 20 years. The most distinctive feature of the vessel will be the Voith-Schneider propulsion and positioning units. This will be the first application to a drilling ship of this form of propeller. With the well-known ability of these cycloidal units to have excellent and rapid response, and maneuvering ability without rudders, the self-positioning ability should be superior. With two main units at the stern and two positioning units at the bow, a total combined horsepower of 7,000 can be called on at any time for propulsion, maneuvering, or position drilling.

Under normal 5,000-hp propulsion, the vessel is expected to exceed 13 knots under way in standard displacement condition. A bulbous bow incorporated into the hull aids in better speed and in better efficiency of the forward thrusters.

Positioning is accomplished by several means, depending on water depth. The vessel is equipped with an eight point chain mooring system, each with a 20,000-pound anchor, for effective mooring to 600-foot water depth. Provision is made for increasing the chain length for mooring up to 1,000-foot water depth, with or without the dynamic positioning system acting in assistance. For unlimited water depths, the dynamic positioning system includes a Honeywell automatic station keeping setup in association with the Voith-Schneider propulsion units.

Among the features provided to insure effective drilling at sea are: (1) the anti-roll tank provided in the hull to minimize roll motions, and (2) the semi-automatic pipe racker, developed by Lee C. Moore expressly for this vessel, to provide fast and safe drill pipe and drill collar handling.

The Saipem II retains the highly successful diesel electric power plant that featured the Scarabeo II and which has proved to be one of the most versatile maintenance-free and useful systems in offshore drilling today. This is the one-voltage system, utilizing AC/DC thyristor converters.

The maximum flexibility of the three-phase, 60-Htz, 6-kv electric power available on board is achieved through six diesel engines (Breda Paxman, Italy) driving six AC generators (Siemens A.G., West Germany) with a total output of 12,000 kva. On this vessel, the usual direct current motors of the drilling equipment are fed from a three-phase network through AC/DC thyristor converters with these advantages: it is a one-voltage system; it takes up a minimum of space; it is lightweight; it is virtually maintenance free; it has good dynamic characteristics; it permits identical types of diesel motor, which means simplified maintenance and spare parts storage; the required number of diesel sets is switched automatically into the system according to the demand, and the load of any machine can be taken over by the spare at any time without disturbing the system.

Gages and automatic/manual governors are centralized in the engine control room.

In addition to these merits, the modular electronic components of the system permit rig automation to be incorporated at a later date by the simple addition of appropriate measuring devices and controllers.

The vessel is a seagoing ship in all respects. Having the dimensions of 431 feet long by 72-foot beam, it displaces 13,000 tons at a draft of 22 feet 6 inches.

Radars (two), radio direction finder, echo sounding, gyrocompass, gyropilot, engine remote-control and high performance radios will make this drilling vessel one of the most sophisticated in the world. A network of three telephone systems (one with dialing mechanism and automatic branch exchange) will ensure close and regular contact between all vessels' key men.

Special fenders and mooring facilities will allow supply vessels to make fast alongside, even under severe sea conditions.

The helicopter landing platform is designed for a Sikorsky S.61 model.

Air-conditioned quarters and work areas are provided, with modern accommodations for up to 88 persons.

The vessel will be classed and approved for worldwide drilling operations as a self-propelled ship by both the American Bureau of Shipping and the Registro Italiano Navale.

ABS Issues Revised Book On Welding Filler Metals

The 1971 edition of the American Bureau of Shipping's definitive "Approved Welding Electrodes, Wire-Flux and Wire-Gas Combinations" is now available. This book provides shipbuilders, fabricators, ship operators, and those in associated industries, with reference information on filler metals. Included are operating characteristics, applications, and comparison charts. Various welding filler metals of 195 manufacturers in 35 countries are listed.

The book, which costs $6, will be revised annually. It is available from any office of the Bureau, or from Manager, Publications, American Bureau of Shipping, 45 Broad Street, New York, N.Y. 10004.

Anixter Names Myers Marketing Manager For Shipboard Cable

John E. Myers

John E. Myers has been named marketing manager for shipboard cable by Anixter Bros., Inc., Skokie, Ill. In making the announcement, **Robert Wilson,** Anixter vice president, wire and cable group, stated that Mr. **Myers** will join the corporate staff in this new position and will direct shipboard cable marketing here and abroad. Until recently, Mr. **Myers** was president of Anixter-New York.

Mr. **Myers** joined Anixter two years ago as vice president of Anixter-Normandy, a pioneer supplier of marine cable for ships and shipyards, and a major supplier of industrial electrical cable. He later became president of Anixter-Normandy and its successor company, Anixter-New York.

Mr. **Myers** will office at Anixter's facility in Elmsford, N.Y. He is a member of IEEE, American Marketing Association, and the Electronic Sales Managers Association.

SNAME Philadelphia Annual Dinner Dance

Pictured at the head table, starting from extreme left and seated clockwise: **B.B. Cook Jr., Mrs. D.D. Strohmeier, G.A. Johnson, Mrs. B.B. Cook Jr., R.G. Mende, Mrs. G.A. Johnson, M.A. Morris, Mrs. R.G. Mende, D.D. Strohmeier,** and **Mrs. M.A. Morris.**

The 21st Annual Dinner Dance of the Philadelphia Section of The Society of Naval Architects and Marine Engineers was held on May 15, 1971, at the Marriott Motor Hotel. Four hundred and seventy persons enjoyed the banquet and dancing to **Joe Farina's** orchestra.

Guests of the Philadelphia Section were **D.D. Strohmeier,** national president of SNAME, and **Mrs. Strohmeier; R.G. Mende,** national secretary, and **Mrs. Mende,** and Capt. **J.B. Berude,** Commander of the Philadelphia Naval Shipyard, and **Mrs. Berude.**

Mr. **Strohmeier** presented a Certificate of Appreciation for Loyalty and Accomplishments to **G.A. Johnson,** outgoing Section chairman, and offered his best wishes to **B.B. Cook Jr.,** incoming Section chairman. He thanked **M.A. Morris,** chairman of the dinner dance committee, for the evening's wonderful arrangements. Mr. **Strohmeier** also commented that the Philadelphia Section is the oldest in the Society and the only one that has a purely social evening.

Traditionally, the dinner dance is the climax to the formal 1970-71 season and the social event of the year for the Philadelphia marine community.

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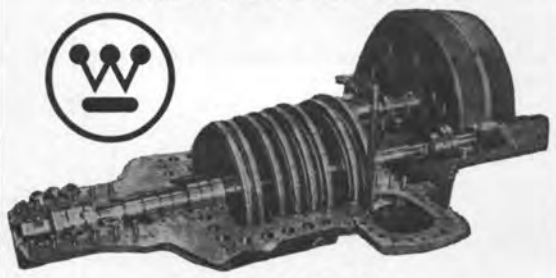

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BLOUNT DELIVERY: The newest and biggest addition to the Sheepshead Bay party fishing fleet is Capt. "**Rocky" Becker's** 117-foot Tampa IV. Designed and built by Blount Marine Corporation, Warren, R.I., this party fishing vessel was recently delivered to Captain **Becker's** Rockceil Fishing Corporation, Sheepshead Bay, N.Y. The streamlined 117-foot by 24-foot vessel is powered by two General Motors 16V-71s, producing a total of 1,000-hp and a cruising speed of 15 knots. Built to U.S. Coast Guard requirements for carrying 149 anglers 100 miles off shore, the Tampa IV is equipped with the latest electronic gear. The deckhouse is completely paneled, has a modern snack bar and cushioned seating in the booths. The latest-type holding tank is built into the vessel.

Vickers Realigns Two Groups To Form New Division—Aerospace-Ordnance-Marine

Vickers Aerospace and Marine & Ordnance Divisions have been merged to form Vickers Aerospace-Ordnance-Marine Division of Sperry Rand Corporation.

A.L. (Larry) Stone, Vickers vice president, has been named general manager of the new division. Before his appointment, Mr. **Stone** was vice president and general manager of the Aerospace Division.

"Resources of the two divisions have been combined to broaden our capability," Mr. **Stone** said in announcing details of the merger.

Vickers, a world leader in hydraulics and other force and motion control equipment, is headquartered in Troy, Mich.

ABS Survey Shows APL Ships Free Of Engine Room Problems

The S/S President Cleveland, of the American President Lines, recently completed another of its required American Bureau of Shipping surveys after a five-year period completely free of any engine room problems.

On hand to witness the opening of the President Cleveland's two marine steam turbines during the survey was **Hughes W. Ogilvie,** manager of marketing for the turbines' builder, General Electric's Marine Turbine and Gear Department. Also present was the ship's chief engineer, **Fred Jennings,** who has served in that capacity since the ship went into service. Both men also attended the christening of the ship.

Viewing opened turbine, from left, are **Hughes W. Ogilvie,** for GE's Marine Turbine and Gear Department, Lynn, Mass., **Fred Jennings,** the Cleveland's chief engineer, and **Ben Hicks,** electrical port engineer, American President Lines.

Commenting on the trouble-free operation of the two 10,000-shp twin main steam turbines, Mr. **Ogilvie** said the President Cleveland's engines "have never broken down and forced the company to alter schedules since the Cleveland was delivered from the old Bethlehem shipyard in Alameda, Calif., in the late 1940s." He pointed out that the same was true of the S/S President Wilson, sister ship of the Cleveland.

Mr. **Ogilvie** said that GE's Marine Turbine and Gear Department has built over 61-million horsepower of marine propulsion equipment—from 1,200 displacement ton destroyers to 320,000-dwt tankers. In its $75-million facilities in Lynn, Mass., it has some 2,000 employees in operations covering more than 70 acres and has a capacity of 75 marine steam propulsion units a year.

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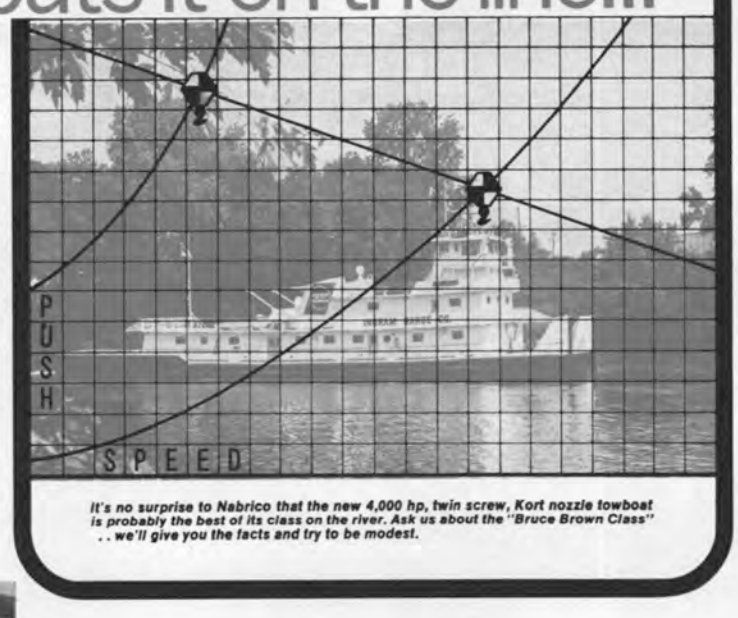
At Nabrico, we anticipate tow boat performance with precision. There's no room for guesswork when your profit depends on moving tonnage efficiently and economically. Our marine designers translate your requirements into sound, innovative designs and then we test them extensively in our model testing program. Once tested, Nabrico can chart where the tonnage line intersects the thrust line and that is where we place our reputation for tow boat performance. New owners prove it on the water . . . every time!



It's no surprise to Nabrico that the new 4,000 hp, twin screw, Kort nozzle towboat is probably the best of its class on the river. Ask us about the "Bruce Brown Class" . . we'll give you the facts and try to be modest.

You'd expect no less from the inventors of the 5 cent vibration meter.

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Equitable Equipment Company To Construct Floating Drydock

Equitable Equipment Company, Inc., was recently awarded a contract by Allied Shipyard, Inc., of Larose, La., for the construction of a floating drydock of 1,000 long ton capacity. The 125-foot by 60-foot by 22-foot drydock will be constructed in Equitable's Madisonville, La., facility and is scheduled for completion in August 1971. It will be towed to Allied's shipyard located on the Intra-Coastal Waterway at Larose. The drydock, which will be used for both repair work and launching newly constructed vessels, is an integral part of an overall expansion plan being undertaken by Allied. Shown in the Houma offices of Draft-Tech, Incorporated, project managers, at the signing of the contract, are left to right: **Calvin J. Plaisance,** manager, Allied Shipyard, Inc.; **Emmett Eymard,** president Allied Shipyard, Inc.; **A.W. Kersteter,** executive vice president, Equitable Equipment Company, Inc., and Comdr. **J.F. Williams,** vice president sales, Equitable Equipment Company, Inc.

Offshore Logistics Places New Fleet Of Vessels Into International Service

Clipper ships of a new breed are slipping from their berths in Morgan City, La., bound for the rich offshore oil fields of Southeast Asia and the Gulf of Mexico.

These vessels differ from the clippers that once boomed across the seas under a full suit of sails. The new ones are 175 to 200 feet of steel and aluminum, propelled through the oceans by diesel engines reaching for up to 6,000 horsepower and speeds to 17 knots.

The ships do have something in common, however. The clipper ships of early America were the largest and fastest in the world. The vessels now sailing from Morgan City carry the names of those early ships—Great Republic, Monarch, Young America, Champion—and are the largest and fastest offshore supply vessels in the world.

The new offshore clippers are owned by Offshore Logistics, Inc., an operator of support vessels for the offshore petroleum industry worldwide. They are the first in a series of six huge International Class towing-supply vessels being constructed by Gulf Coast shipyards for Offshore Logistics under a $7,000,000 program.

The Young America is the latest of the Offshore Logistics worldwide clipper fleet to be delivered to the company for operations in Southeast Asia, and its specifications and capabilities are typical of these vessels that range in size from 175 to 200 feet.

Young America has a length overall of 200 feet, a beam of 39 feet, and a depth of 16 feet. It displaces 1,600 tons and has a gross tonnage of 299.

The new International Class towing-supply vessel is powered by two GM16-645(EMD) diesel engines with Falk reverse/reduction gears. This primary propulsion system produces 5,600 horsepower and speeds in excess of 20 miles per hour. Maneuvering assist is furnished by hydraulically-powered bow thrusters.

Cargo deck area measures 128 feet by 30 feet. Four independent pneumatic tanks below deck have the capacity for 5,000 sacks of cement or 6,000 sacks of barite and can be unloaded, along with the fuel oil, water, and other below-deck cargo, in three hours through the use of high capacity pumps and compressors. A hydraulically-powered winch permits large anchor handling over a five-foot-diameter stern roller and when necessary, the winch and the 5,600-horsepower primary propulsion system provides highly efficient ocean towing capability.

The Young America is built to USCG and Lloyd's 100+A–1 standards and carries an American Bureau of Shipping certificate for international service. Complete backup systems are provided for all major power components to insure continuous operation under extreme sea and weather conditions.

Accommodations are provided for 28 passengers in staterooms with built-in berths, and separate staterooms are provided for the ship's crew of 11. The galley is stainless steel, and the vessel is centrally heated and air-conditioned for maximum comfort and efficiency.

The Young America has a capacity for 2,800 barrels of fuel oil, 1,000 barrels of potable water, 6,000 barrels of rig water, and 5,000 cubic feet of bulk materials. It is equipped with gyrocompass, automatic pilot, direction finder, Fathometer, radar, and marine radio systems.

Offshore Logistics now has 50 ocean support vessels operating in domestic and foreign waters, and has become the largest offshore operating company in Southeast Asia. The company's foreign operational base is in Sinapore. The domestic operational base for Offshore Logistics is in Morgan City, La., where the ships of the company are outfitted, serviced, and provisioned by Offshore General, Inc., the operational arm for domestic activities of the parent company. Executive and administrative headquarters are located in Lafayette, La.

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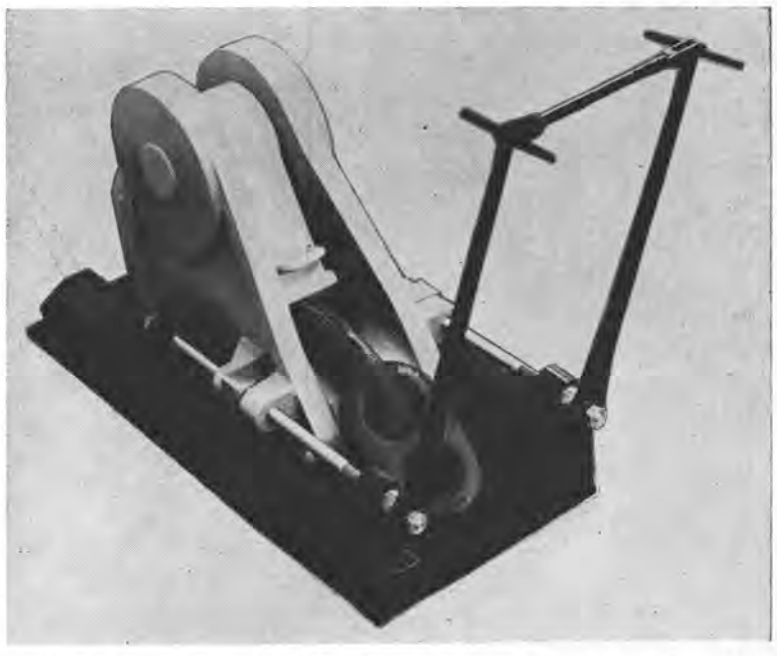
No Devil's Claws

No Turnbuckles



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The LOCKSTAD STOPPER is also used to MEASURE CHAIN STRESS or LOAD when POSITIONING or SETTING ANCHORS and CHAIN on OIL DRILL RIGS.

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MANZ Line Assumes New Shipping Role As ACT (Canada)

Montreal Australia New Zealand Line, for 35 years a major operator in the maritime trade between Canada and Australia and New Zealand, phases out of the shipping scene to assume a new identity as Associated Container Transportation (Canada).

MANZ ships have provided a regular sailing schedule to Australia and New Zealand since the line was organized in 1936. As ACT (Canada), the line will inaugurate an integrated system of through transportation utilizing the new containerships of PACE Line, a short title for Pacific America Container Express. ACT's intermodal distribution service employs facilities of CP Rail, the over-the-road capabilities of a number of major truck lines and depots at major inland locations. PACE Line freighters will call at Montreal, and the containerships will berth at Saint John, New Brunswick.

"ACT seeks to improve the productivity of transport to approach the problem from a total distribution point of view rather than the piecemeal, segmented carriage customary today," said **Robert H. Macgregor,** general manager of ACT (Canada), and a 23-year veteran with MANZ.

C. Michael Morse, operations manager, said that the first of the PACE Line containerships, the 25,000-ton ACT 3, will enter service this summer. By next year she will be joined by four sister ships, each capable of carrying nearly 1,200 containers. One of the vessels will be owned by the Australian Government through The Australian National Line, and the balance by ACT.

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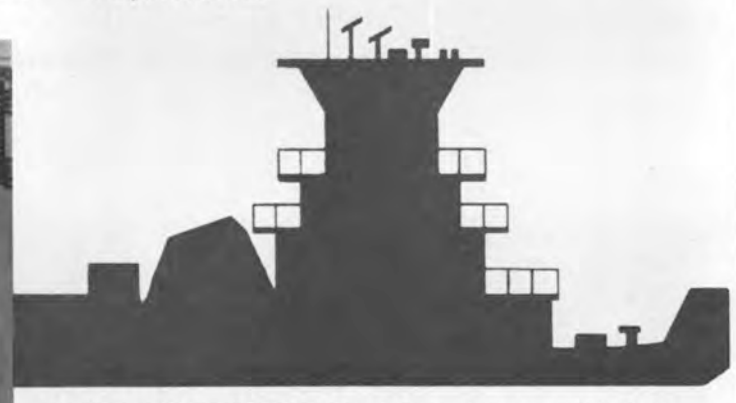
Shouldn't you consider adding TUGALERT Safety Watch to your crew? Call or write for a TUGALERT proposal to meet your special requirements.



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Todd-Seattle Launches Petroleum Barge Of L.R. Glosten Design

The O.B.6, a 175-foot by 44-foot by 7-foot 4-inch barge for the transportation of petroleum products and general deck cargo on the waters of the Yukon River and its tributaries, was recently launched into West Waterway by two floating cranes from the yard of Todd Shipyards Corp., Seattle Division, on Harbor Island. The vessel, which has a petroleum capacity of 7,600 barrels of Grade B petroleum, is owned by the Alaska Railroad Company and operated by Yutana Barge Lines, Inc., of Nenana, Alaska.

The barge was designed by L.R. Glosten & Associates, Inc., Seattle, Wash., who also supervised the construction. This design is a follow-on of the O.B.5, which was built in 1964 for the same clients.

Inasmuch as the Alaska Railroad is an agency of the United States Government, the barge was built under a General Services Administration contract.

Stewart & Stevenson Awarded Contract For Two Offshore Vessels

A major contract to furnish two offshore supply vessels for SEDCO, Inc., of Dallas, Texas, has been awarded to Houston-based Stewart & Stevenson Services.

The M/V Georganna will be a 3,000-hp 165-foot-long anchor handling, oceangoing supply vessel. It will have a 38-foot beam and 16-foot draft. The M/V Marie will be a 1,600-hp 120-foot-long crew/supply vessel with a 26-foot beam and 12-foot draft. Each vessel will be powered by GM diesel engines.

Upon completion, the vessels will work with the SEDCO 445 drillship on long-term charter to Shell International. The vessels will be constructed at Mangone Shipbuilding Company in Houston, and Corpus Christi Marine Service Company in Corpus Christi.

Terminal In Norfolk Names Arthur W. Mann

Arthur W. Mann Jr. has been named vice president of Elizabeth River Terminals in Norfolk. In his new capacity, Mr. **Mann** succeeds **Robert V. Peabody,** who has been transferred to New York. Mr. **Mann** joined the terminal concern in 1965 as assistant manager.

Elizabeth River Terminals is a wholly-owned subsidiary of Borden Inc. **Robert G. Fitzgerald** is president of the firm.

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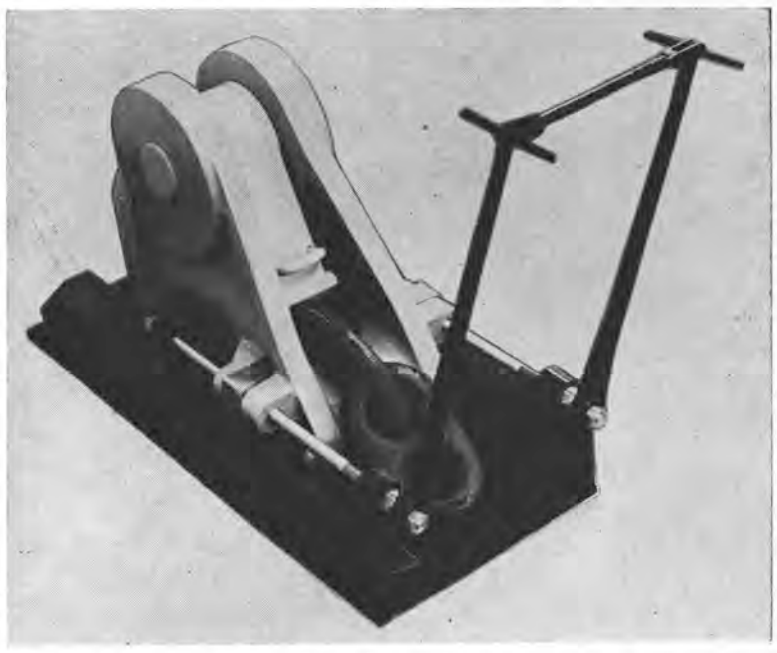

One unit can eliminate devil's claws, turnbuckles, bow stoppers and, it utilizes less space. The one stopper that serves the dual purpose of transferring chain load to the vessel's structure and houses the chain in a snugly stowed position.

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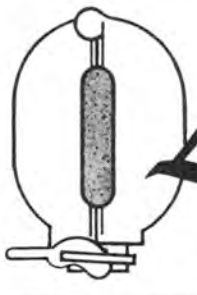

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MANZ Line Assumes New Shipping Role As ACT (Canada)

Montreal Australia New Zealand Line, for 35 years a major operator in the maritime trade between Canada and Australia and New Zealand, phases out of the shipping scene to assume a new identity as Associated Container Transportation (Canada).

MANZ ships have provided a regular sailing schedule to Australia and New Zealand since the line was organized in 1936. As ACT (Canada), the line will inaugurate an integrated system of through transportation utilizing the new containerships of PACE Line, a short title for Pacific America Container Express. ACT's intermodal distribution service employs facilities of CP Rail, the over-the-road capabilities of a number of major truck lines and depots at major inland locations. PACE Line freighters will call at Montreal, and the containerships will berth at Saint John, New Brunswick.

"ACT seeks to improve the productivity of transport to approach the problem from a total distribution point of view rather than the piecemeal, segmented carriage customary today," said **Robert H. Macgregor,** general manager of ACT (Canada), and a 23-year veteran with MANZ.

C. Michael Morse, operations manager, said that the first of the PACE Line containerships, the 25,000-ton ACT 3, will enter service this summer. By next year she will be joined by four sister ships, each capable of carrying nearly 1,200 containers. One of the vessels will be owned by the Australian Government through The Australian National Line, and the balance by ACT.

Todd-Seattle Launches Petroleum Barge Of L.R. Glosten Design

The O.B.6, a 175-foot by 44-foot by 7-foot 4-inch barge for the transportation of petroleum products and general deck cargo on the waters of the Yukon River and its tributaries, was recently launched into West Waterway by two floating cranes from the yard of Todd Shipyards Corp., Seattle Division, on Harbor Island. The vessel, which has a petroleum capacity of 7,600 barrels of Grade B petroleum, is owned by the Alaska Railroad Company and operated by Yutana Barge Lines, Inc., of Nenana, Alaska.

The barge was designed by L.R. Glosten & Associates, Inc., Seattle, Wash., who also supervised the construction. This design is a follow-on of the O.B.5, which was built in 1964 for the same clients.

Inasmuch as the Alaska Railroad is an agency of the United States Government, the barge was built under a General Services Administration contract.

Stewart & Stevenson Awarded Contract For Two Offshore Vessels

A major contract to furnish two offshore supply vessels for SEDCO, Inc., of Dallas, Texas, has been awarded to Houston-based Stewart & Stevenson Services.

The M/V Georganna will be a 3,000-hp 165-foot-long anchor handling, oceangoing supply vessel. It will have a 38-foot beam and 16-foot draft. The M/V Marie will be a 1,600-hp 120-foot-long crew/supply vessel with a 26-foot beam and 12-foot draft. Each vessel will be powered by GM diesel engines.

Upon completion, the vessels will work with the SEDCO 445 drillship on long-term charter to Shell International. The vessels will be constructed at Mangone Shipbuilding Company in Houston, and Corpus Christi Marine Service Company in Corpus Christi.

Terminal In Norfolk Names Arthur W. Mann

Arthur W. Mann Jr. has been named vice president of Elizabeth River Terminals in Norfolk. In his new capacity, Mr. **Mann** succeeds **Robert V. Peabody,** who has been transferred to New York. Mr. **Mann** joined the terminal concern in 1965 as assistant manager.

Elizabeth River Terminals is a wholly-owned subsidiary of Borden Inc. **Robert G. Fitzgerald** is president of the firm.

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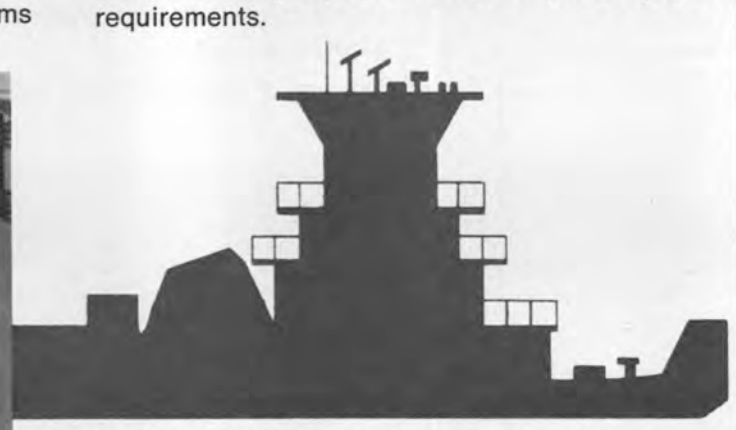

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Aries Marine Seeks Subsidy To Build And Operate Two OBOs

Application has been made to the Maritime Administration by Aries Marine Shipping Co., Lake Success, N.Y., a subsidiary of Avon Shipping Co., for construction and operating subsidies to build and operate two San Clemente class ore/bulk/oil carriers. The approximate cost for these two vessels is $56.8 million and estimated rate of building subsidy is 44.3 percent.

Radiomarine Introduces Versatile Anti-Collision Ship Warning System

Radiomarine Corporation, Red Bank, N.J., has announced it has teamed up its advanced radar with a computer-data plotter to produce a highly effective anti-collision warning system for commercial vessels.

C. Webber Parrish, Radiomarine vice president and general manager, said the new system, known as the Radiomarine Digiplot, is the first of its kind offered as a complete unit to the U.S. subsidized fleet by a single supplier.

The single most important feature of the Digiplot system is its ability—without human command—to automatically acquire and plot the 40 most threatening targets. In most other systems, the operator himself must first decide which are the most threatening targets, and then manually "punch" those targets into the computer before the computer will automatically begin plotting them.

Mr. **Parrish** said the Radiomarine Digiplot system was devised by interfacing Radiomarine's own radar with Iotron Corporation's patented Digiplot, a marine radar data plotter. He disclosed that Radiomarine has entered into an agreement with Iotron which gives Radiomarine exclusive rights to supply the Digiplot to American subsidized vessels.

Physical installation of the complete anti-collision system aboard a ship is relatively simple, Mr. **Parrish** stated. The only extra space requirement is for the Digiplot unit which stands alongside the radar indicator console and is approximately the same size. Electrically connected with the radar and gyrocompass, the Digiplot analyzes all radar echoes and automatically acquires, tracks and plots the 40 most threatening targets. An audio and/or visual alarm is automatically triggered on the basis of closest point of approach (CPA) distance and Time-to-CPA, according to criteria set up by the operator.

Once the operator has set the controls, the system maintains a continuous evaluation of all targets. Those targets within the range selected are displayed on a 16-inch cathode ray tube. Land is shown as a series of dots two degrees apart, outlining the nearest shore line. Fixed targets are represented with a circle and moving targets are shown as a circle with a line or vector indicating their course and position at a selected future time. The length of the vector indicates the target's position after a time pre-set by the operator.

The operator can make quick and accurate trial maneuver predictions by inserting proposed course and/or speed changes and observing the speeded up results on the display. Own ship's dynamic characteristics are included, and the operator is thereby aided in selecting the optimum safe maneuver prior to giving commands.

Mr. **Parrish** meanwhile forecast that anti-collision warning systems will become increasingly more essential as the world's waters become more congested with supersize vessels in excess of 100,000 tons, and as more ships are built to operate at higher speeds, leaving less margin for human error.

The anti-collision system is of solid state construction, assuring long trouble-free life. Present Radiomarine service facilities will install the systems, provide operating instructions and handle maintenance requirements.

Radiomarine has long been the nation's leading supplier of navigation and communications equipment to the American merchant marine and other commercial ships.

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Completely new marine coating manual from CARBOLINE

This fact-packed marine coating manual is aimed squarely at solving the many corrosion problems of the marine world. This indispensable handbook for owners, shipyards, naval architects and other marine personnel is based on Carboline's many years of experience in the marine field. You'll find detailed data on the special knowledge, skills and coating systems available for upgrading protection against marine corrosion. Many systems include Carboline's popular Carbo Zinc 11, inorganic zinc. Send for your free copy today. It's worth a look.

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Nickum & Spaulding Work On Ship Construction/Modification Program Totaling $40.5 Million

Nickum & Spaulding Associates, Seattle, Wash., has been given the design assignments of a $40.5 million ship construction and ship modification program by the State of Alaska, Department of Public Works, Division of Marine Transportation, for the following projects:

The construction of one 408-foot, 21-knot oceangoing vehicle/passenger ferry which is estimated to cost $17.5 million; the construction of two 235-foot, 15-knot feeder ferries, each estimated to cost $4 million, and the jumboizing and upgrading of three existing ferries, the Malaspina, the Matanuska, and the Taku under a 3-year program at the rate of one vessel per year. It is estimated that work on each of these three vessels will cost $5 million.

It is anticipated that contract plans and specifications for the jumboizing program will be available to shipyards for bidding by June 15. The 235-foot feeder vessel contract plans will be completed by July 1. The contract plans and specifications for the 408-foot oceangoing ferry will be completed, ready for the shipyards by August 1, 1971.

First Of Four 'Syncrolift' Drydocks Installed In Vietnam

Battle-scarred communications boat drydocked on new "Syncrolift" at Dong Tam, Vietnam.

The first of four "Syncrolift" drydocks designed by Pearlson Engineering Company, Miami, Fla., has been placed in service at Dong Tam, Vietnam. Dedication ceremonies were attended by United States and Vietnam Navy officials, and included the drydocking of a 120-ton command communications boat. The entire drydocking operation was accomplished in 26 minutes with the electrically-operated elevator-type lift.

The "Syncrolift" drydock, along with others nearing completion at Binh Thuy and Nha Be, has a rated capacity of 150 tons. The fourth, at Da Nang, will be capable of handling 350-ton vessels.

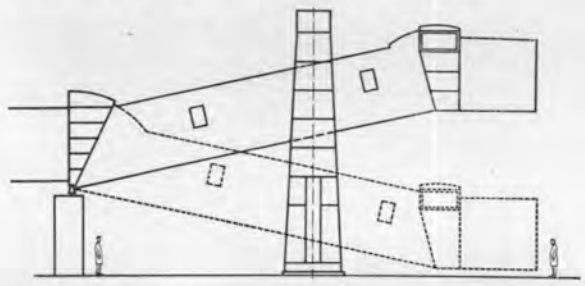
Dong Tam's "Syncrolift" was completed nearly two weeks ahead of schedule, in spite of the dredging project enlivened by continual snagging of live ammunition that had been scattered in the area due to an ammunition dump explosion in March 1969. Fortunately, none of the live ammunition exploded.

Those attending the dedication ceremonies included Rear Adm. **P.S. McManus,** USN, Senior Advisor to the Vietnam Navy; **Ngo Khac Luan,** Deputy Chief of Staff, Vietnam Navy, and Lt. Col. **Pham Van Dong,** Commander of the Dong Tam Support Logistical Base.

Playing important roles in completing the "Syncrolift" ahead of schedule were **E.L. Jolley,** project manager, and **Bob Neely,** general superintendent. All machinery, electrical controls and components were supplied by Pearlson Engineering Company. The platform, timber decking and other materials were supplied locally to keep installation costs at a minimum.

The "Syncrolift" drydocks at Binh Thuy, Nha Be and Da Nang are expected to be operational within two months. This will afford the Vietnam Navy quick and efficient means of maintaining their expanded fleet of river and patrol craft.

Robert Mitchell Builds Unusual Loading Ramp For Bay Of Fundy Vessels



The new loading ramp will pivot at the shore end and be supported by a tower structure in the middle.

The Robert Mitchell Co., Limited, Montreal, has just fabricated, and will soon erect, a weather-tight passenger loading ramp at the new ferry terminal in St. John, New Brunswick. The contract, awarded by the Canadian Department of Public Works, is for the design, construction and installation of an enclosed loading ramp 60-feet long, 7½-feet wide, and over 8-feet high, which will be able to service the St. John-Digby, Nova Scotia, ferry vessel for a maximum 1½ hours every eight-hour period on a year-round basis.

Tides in the Bay of Fundy are among the highest in the world and as a result, the ship will be much higher at dockside during high tide than it will be at tide's ebb. To minimize the effects of this on passenger embarking-disembarking operations, the loading ramp will pivot at the shore end and be supported by a tower structure in the middle. The ramp, which will be raised and lowered by a hydraulic cable lifting mechanism housed in the tower, is designed to operate at a maximum true slope of 22 percent above or below the horizontal. At tide's flood, the highest nominal elevation of the boarding deck will be some 22 feet above dock level; at tide's ebb, the lowest nominal elevation of the boarding deck will be 1½ feet below dock level.

At the ramp's free end there is an automatic leveling platform and an adjusting hinged bridge section which forms the final link between ramp and ship. The bridge section, when in use, will be at an approximate angle of 60° to the ramp.

Once the ship is moored, the operator, from his station at the ramp's free end, will elevate the ramp to the required height and pivot the bridge section into position and then lower the bridge to the ship's deck. When the bridge is in position it will move freely with the vertical movement of the ship without restraint from the lifting mechanism. Before the ship sails, the bridge section will be pivoted so that it closes the end of the ramp. The ramp will then be lowered to its parked position.

Safety standards, basically, will be as required for passenger elevators. Both motorized and manual operation of the pivoting bridge section will be possible, and a full complement of video and audio alarms will warn should design limits be approached or exceeded.

One factor which enabled Robert Mitchell to submit the winning bid for the loading ramp is that the company has gained invaluable experience in designing and building basically similar aircraft loading bridges. These bridges will serve every aircraft type in Air Canada's current and upcoming fleet at Montreal, Toronto, Vancouver, and other airports which have weather conditions varying from tropically hot and humid to extremely cold and dry.

Hawaii SNAME Paper Examines Marine Transport To Islands And Its Relation To Consumer

Shown above at the Hawaii Section's April 13 meeting, left to right: Comdr. **Clinton Kreitner,** USN, Design Superintendent, Pearl Harbor Naval Shipyard, papers chairman; Dr. **Henry S. Marcus,** author, and Capt. **Kenneth Wilson,** USN, Commander, Pearl Harbor Naval Shipyard, Section chairman.

Members and guests of the Hawaii Section of The Society of Naval Architects and Marine Engineers enjoyed a social hour at the Ala Moana Banquet Hall prior to the technical session during which they heard a paper presented by Dr. **Henry S. Marcus,** assistant professor, School of Travel Industry Management, University of Hawaii, titled "Marine Transportation and the Consumer."

Dr. **Marcus's** presentation dealt with several aspects of marine transportation to the Hawaiian Island chain and how the movement of materials and goods relates to the Hawaiian consumer and to a number of industries.

Initially, the effect of cargo-carrying passenger planes on the containership traffic between the Mainland and Hawaii was analyzed, followed by a presentation of how many benefits of marine transportation do not reach the consumer. The factors covered which affect the process are: lack of competition, the "pocket market" effect, the Merchant Marine Act of 1920, the Oil Import Control Program, and the consumer's own feelings.

Dr. **Marcus** described how there would be over capacity in freight-carrying ability, which would create a highly competitive situation in the foreseeable future. This would possibly lead to merger considerations, or even talk of shipping lines entering the air freight field in an effort to meet shippers' demands. All of this would benefit the consumer, but at present, the shipping costs add only about 2¢/lb. to the value of many typical consumer goods. Dr. **Marcus's** paper suggested that the shipping industry was not really to blame for the high cost of living in Hawaii, but that local businessmen often allude to Hawaii's isolation as the cause.

In conclusion, the author felt that the Hawaiian consumer public must make its views known to the business world if the public is to derive the benefits of efficient marine transportation.

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HUNTINGTON ALLOYS

Hal Ramsden Appointed San Diego Consultant

Hal Ramsden, of San Diego, Calif., has contracted to provide transportation consultant services to the San Diego Unified Port District.

Port director **Don Nay** said the position was authorized at the last meeting of the District's commissioners in Coronado, "because of today's intense competition for shipping up and down the West Coast, and the general state of the economy. We were delighted when Mr. **Ramsden** expressed immediate interest. He has a broad and comprehensive knowledge of the transportation industry." Mr. **Ramsden** will join the community of shippers and freight forwarders in an office at the 10th Avenue Marine Terminal.

A basic mission of the new organization is to assist the Port of San Diego in maintaining its share of cargo tonnages and attract new business. His services will be available to businesses in the entire area, Mr. **Nay** said, "since coordination of all shipping through one office can result in savings to all involved. This enhances not only the future of the port, but that of the entire San Diego business community."

Mr. **Ramsden's** background includes management experience with the Flying Tiger Line, Inc., Los Angeles; reorganization of the terminals and operations for Wings and Wheels, an air freight forwarder; and Marrow Trucking Company, as general manager and a director of the firm. He has terminated his employment with San Diego Distribution Services to provide the consulting service to the port. Mr. **Ramsden** is a teacher of traffic and transportation management at San Diego Evening College and an advisor to San Diego's Community Colleges on courses of study in this field.

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Red Star Towing Appoints F.J. O'Brien

Robert W. Sanders, president, Red Star Towing and Transportation Company, New York, N.Y., has announced the appointment of **Francis J. O'Brien** as vice president. Mr. **O'Brien** has been in the employ of Red Star since January 1954, and his duties will continue to be in the area of sales for the corporation.

Red Star has been in the maritime industry since 1897 and is involved in all phases of marine operations, including ship docking, coastal and harbor towing and marine freighting.

Mississippi Marine Reports Busy Schedule

John H. **Cox,** president of Mississippi Marine Corporation, Greenville, Miss., has announced the recent completion and delivery of three 200-foot by 35-foot by 12-foot covered grain barges. Also announced was the completion of one of Mississippi Marine's D-343 powered 670-hp stock boats, which was sold to Decatur Transfer & Storage Company of Decatur, Ala., and shortly thereafter, the completion of the 850-hp towboat Miss Carolyn. Mississippi Marine also recently sold and delivered an 80-foot by 28-foot by 5-foot spud barge to River Sand & Gravel Company, Evansville, Ind.

Currently under construction at the yard is a 3,200-hp towboat, which will be sold under contract to Cox Towing Corporation, also of Greenville, Miss. The vessel will be powered by two 16-567C GM engines. Cox Towing Corporation will operate the vessel, under a long term lease, on the Tennessee River.

A second 3,200-hp towboat identical to the aforementioned vessel, also under construction, is being built as a stock boat. Both vessels, each 136 feet by 38 feet by 10½ feet, will be equipped with Western 4.12 to 1 reduction gears and 102-inch diameter Avondale stainless steel propellers, as well as all sewage disposal equipment necessary to comply with the Water Pollution Act.

The first vessel is scheduled for completion the beginning of January, and the second will be available in late spring.

Litton Awards $101 Million Multi-Year Subcontract To GE For Navy Destroyer Sonars

Litton Industries has awarded to General Electric Company a multi-year subcontract with a potential value of $101 million to produce sonars for U.S. Navy Spruance-class destroyers. **Ellis B. Gardner,** Litton senior vice president, made the announcement. The initial award is for $30 million and covers sonars on the first nine ships funded to date.

"This is one of the largest of several major subcontracts to be awarded on this important national defense effort," Mr. **Gardner** stated. "In the months ahead, contracts worth more than 56 percent of the dollar value of each ship will be granted for the purchase of components, systems and materials to hundreds of companies throughout the United States."

Last December, Litton awarded to General Electric a potential $130 million multi-year subcontract to produce marine gas turbine engines for these Navy destroyers.

In June 1970, Litton received a multi-year contract from the U.S. Navy, with a potential total ceiling price of $2.14 billion, for the production of 30 Spruance-class (DD-963) destroyers. Three ships were initially funded by 1970 appropriations, providing for a ceiling price of $214 million. In January 1971, Litton received a $357.8 million modification to the multi-year basic contract, which provided for the production of six additional ships. This increment was the second in a planned five consecutive fiscal year procurement program, each subject to Congressional approval.

The General Electric AN/SQS-26 sonar for the Navy's Spruance-class destroyers is part of the ship's overall antisubmarine warfare (ASW) system. This ASW system consists of three principal segments: the sensor (sonar and supporting equipment) for target detection, identification and localization; the fire control for target tracking weapon control and guidance; and weapons, such as ASROC, conventional torpedoes and depth charges, for destroying the target.

Nat'l Academy Of Sciences Names Four To Maritime Transportation Research Board

Edgar Luckenbach Jr., Chairman of the National Academy of Sciences' Maritime Transportation Research Board, recently announced the appointment of four new members to the Board. The new members are **James J. Henry,** president, J.J. Henry Company, Inc.; **Richard F. Pollard,** vice president, The Chase Manhattan Bank, **Robert T. Young,** president, American Bureau of Shipping, and **John T. Gilbride,** president, Todd Shipyards Corporation.

The National Academy of Sciences has been conducting maritime transportation research through its research arm, the National Research Council, since 1953. The 27-member Maritime Transportation Research Board was established within the National Research Council in 1965. The purpose of the Board is to serve the national interest by initiating, stimulating and guiding research directed toward improving the capability of the maritime industry to meet its responsibilities and opportunities.

The Board most recently met in San Diego, Calif. on May 4, 5, and 6.

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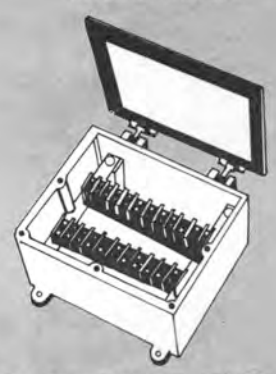

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Ashland Petroleum Names John Shiffler

John E. Shiffler has been named manager of lubricants and specialties sales in the transportation fuels department of Ashland Petroleum Company, Ashland, Ky. **Charles J. Luellen,** Ashland Petroleum vice president of branded marketing and transportation sales, said Mr. **Shiffler** will coordinate and supervise all sales of lubricants and specialties for the department. Mr. **Shiffler** will report to **Sam S. Watson,** manager of the transportation fuels department.

It was also announced that **Robert B. Keifer** will become a special representative in the transportation fuels department.

A graduate of the U.S. Merchant Marine Academy, Mr. **Shiffler** joined Ashland in 1955 as a sales representative. He became assistant manager in 1962. Mr. **Keifer,** a graduate of Duke University, joined Ashland in 1965 in a sales capacity at Chicago.

The transportation fuels department is responsible for marketing Ashland fuels to commercial truck fleets, railroads, aviation and marine concerns, contractors, and other users on a wholesale basis. Ashland Petroleum is a major operating division of Ashland Oil, Inc., which had sales in excess of $1.4 billion last year.

Canadian Marconi Appoints McDonald

Canadian Marconi Company has announced the appointment of **V. (Mac) McDonald** as national sales manager, Marine and Land Communications Division.

Mr. **McDonald,** formerly with E.F. Johnson Company, has many years of sales and marketing experience in the communications industry in the United States. Based at the Marconi head office in Montreal, Mr. **McDonald** will also be responsible for sales of Kaar Electronics Corporation, CMC's subsidiary in the United States.

SNAME New York Metropolitan Section Discusses 12 Meter Yacht Technology

Shown above at the meeting, left to right: (front row) **Britton Chance,** naval architect in charge of re-design of Intrepid; **Philip L. Rhodes,** naval architect, Philip L. Rhodes, Inc.; **Olin J. Stephens II,** naval architect, Sparkman & Stephens; **Charles Morgan,** designer and owner of Heritage; (back row) **Agnew Fisher,** yachtsman and well-known America's Cup photographer who provided films of the America's Cup races for the meeting; **Warren I. Signell,** Section chairman; **Henry M. Tiedemann,** member of the executive committee, and **Norman R. Farmer,** vice chairman.

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers held its last meeting of the season on Tuesday, May 4, 1971, at the U.S. Merchant Marine Academy, Kings Point, Long Island, N.Y.

After a social hour and buffet, which were preceded by a tour of the Academy, a panel discussion was held on "12 Meter Yacht Technology." The panelists discussed recent developments in 12 meter technology, and the reliability of towing tank results. Factors influencing 12 meter designs were evaluated and commented on by the panelists, and questions submitted from the membership were put before them.

Officers for the 1971-72 program year were elected at the meeting, as follows: chairman, **Norman R. Farmer,** George G. Sharp. Inc.; vice chairman, **Charles W. Wilson,** Babcock & Wilcox Co., and secretary-treasurer, **Donald B. Carpenter,** Turbo Power & Marine Systems Inc. Elected to be members of the executive committee (two-year term) were **Robert P. Fulton,** Gibbs & Cox, Inc., and **Thomas J. Sartor Jr.,** Farrell Lines.

Panel members were **Olin J. Stephens II, Britton Chance, Charles Morgan** and **Philip L. Rhodes.**

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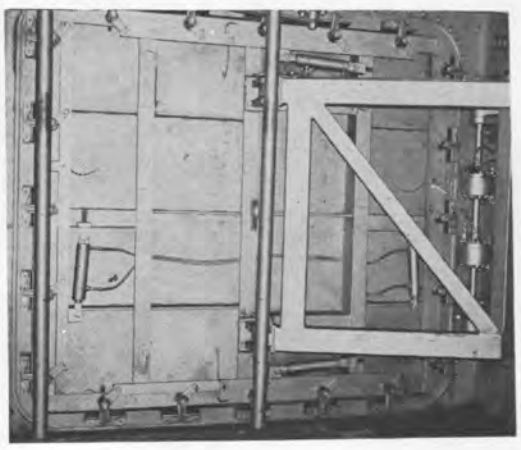

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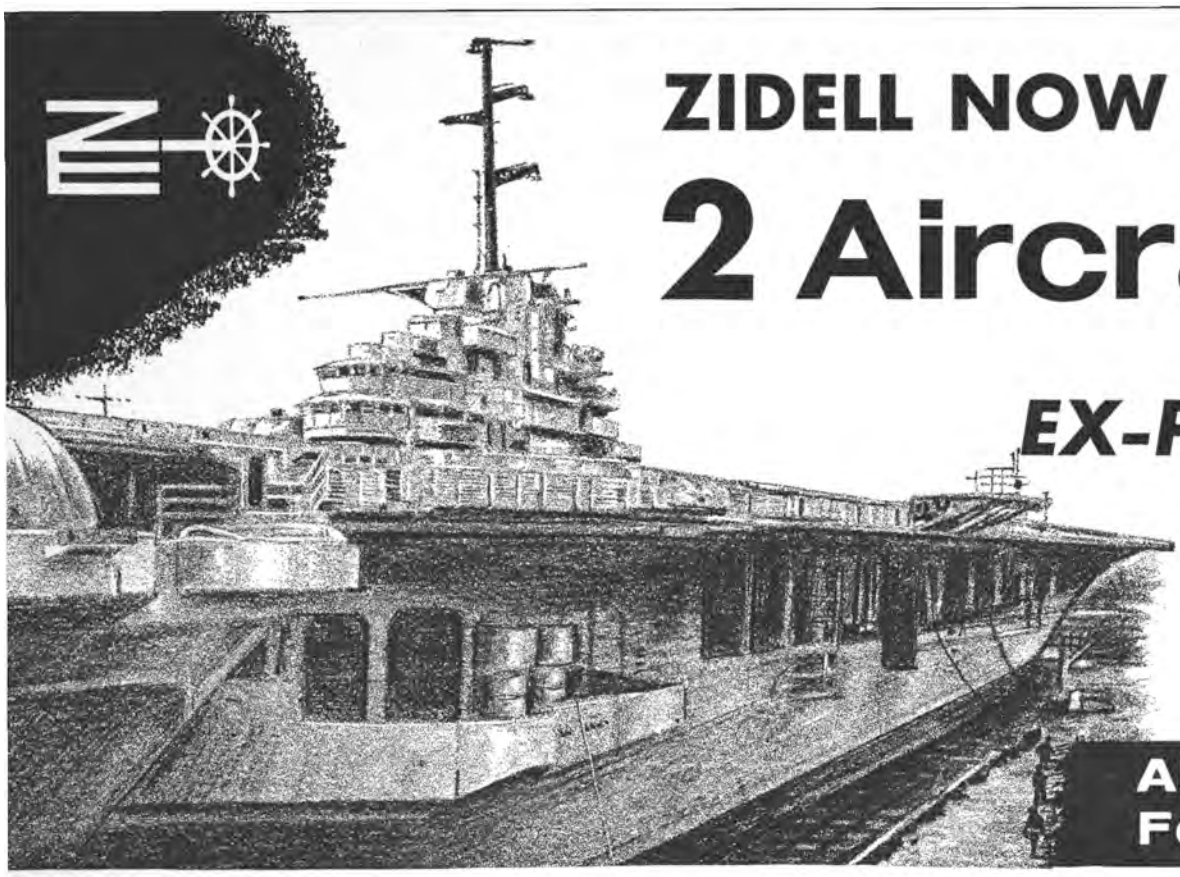

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8-Turbines, Main Propulsion, High Pressure, Westinghouse, Horizontal Impulse, single flow, 17,700 SHP, 525 PSI, 5524 RPM.

8-Turbines, Main Propulsion, Low Pressure, Astern, Westinghouse, Double Flow, Power Rating Ahead—17,800 SHP, Astern —12,000 SHP, Speed Ahead—4,300 RPM, Astern—3019.

TURBO GENERATOR

TURBO-GENERATORS

6-Turbo-Generators, Ship's Service, G.E., Type: ATB-2, 1563 KVA, 1250 KW, 450 volts, 3600 RPM, G.E. Turbine.

REDUCTION GEARS

8-Reduction Gears, Main Reduction, Westinghouse, Double Reduction, Locked Train, Rated 37,500 HP.

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-4-

30,000 Lb. Stockless

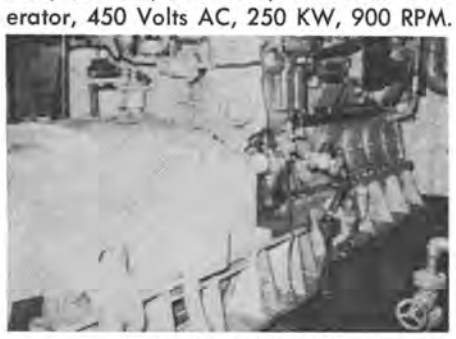
ANCHOR CHAIN

-Approx. 30 Shots-
3⅜" Anchor Chain

Doors, Fans, Chocks and Cleats

DIESEL GENERATOR SETS

8-Diesel Generator Sets, Emergency Ship's Service, Cooper-Bessemer, Model FSN, 375 HP, 900 RPM, with G.E. Generator, 450 Volts AC, 250 KW, 900 RPM.



DIESEL GENERATOR SET

BOILERS

16-Babcock & Wilcox, Double Cased, Express Type, Single Uptake, 634 PSI, 5720 sq. ft. of Heating Surface, 770 cu. ft., 1547 tubes.

CONDENSERS

8-Condensers, Main Steam, Westinghouse, Single Pass, Straight Tube, Cooling Surface—1475 sq. ft., 7213 Tubes.

8-Condensers, Auxiliary Steam, Westinghouse, Cooling Surface—2000 sq. ft., 1578 Tubes.

DISTILLING PLANT

DISTILLING PLANTS

4-Distilling Plants, Main, Griscom Russell, 40,000 GPD, 1905 sq. ft., 1665 Tubes, 3 Stage.

2-Distilling Plants, Auxiliary, Griscom Russell, 12,000 GPD, 246 sq. ft., 302 Tubes, 2 Stage.

PUMPS

8-Centrifugal, Auxiliary Condenser, Salt Water Circulating, Warren, Steam, 2500 GPM, 12 PSI, 875 RPM, Westinghouse Motor, 2-Speed, 440 Volts, 23.4/6 HP.

8-Rotary, Aircraft Handling Elevator, Vickers, 315 GPM, 985 PSI, 900 RPM, G.E. Motor, 150 HP, 440 Volts.

4-Rotary, Fuel Oil Transfer, Quimby Pump Co., 250 GPM, 150 PSI, 690 RPM, Electro Dynamic Motor, 4-Speed, 440 Volts, 48/32/24/16 HP.

4-Steam Reciprocating, Emergency Feed, Warren Steam Pump, Size VSDA 11" x 8" x 18", 180 GPM, 750 PSI.

2-Pump Units, Elevator, Vickers, With G.E. Motors, 440 Volts, 37.5 HP, 865 RPM.

4-Feed Booster, Worthington, 5775 RPM, Type: VA-296.

2-Fuel Oil Transfer, DeLaval, 700 GPM, 1150 RPM, Continental Motors, 100 HP, 440 Volts, 60 Cycles, 3 Phase.

8-Main Feed, Worthington, 642 GPM, 580 PSI, 5000 RPM, Sturtevant Turbine, 348 BPH, 5000 RPM.

4-Main Condenser, Condensate, Ingersoll-Rand, 385 GPM, 1180 RPM, Westinghouse Motors, 440 Volts AC.

4-Auxiliary Circulating, Warren Steam Pump, 2500 GPM, 875 RPM, Westinghouse Motors, 440 Volts.

4-Auxiliary Feed Booster, Worthington, 200 GPM, 750 RPM, Westinghouse Motors, 440 Volts AC.

4-Auxiliary Condensate, Ingersoll-Rand, 65 GPM, 75 PSI, 1765 RPM, Westinghouse Motors, 440 Volts AC, 9.1 HP, 1745 RPM.

8-Lube Oil Pumps, Quimby, 650 GPM, 690 RPM.

2-Lube Oil Pumps, Northern Ord., 50/25 GPM, 485/243 RPM, 4.5/2.1 BHP, Westinghouse Motors, 440 Volts AC, 3 Phase, 60 Cycles, 1760/885 RPM.

MOTOR-GENERATOR SETS

3-M.G. Sets, Westinghouse, 75 KW, 120 Volts DC, 625 Amps, 1765 RPM, Motors, 115 HP, 3 Phase, 60 Cycles, 440 Volts A.C., 134 Amps., 1765 RPM.

3-M.G. Sets, Degausing, Hanson-Van Winkle-Munning Co., 36 KW, Motors, 60 HP, 440 Volts AC, 60 Cycle 1150 RPM.

GENERATOR SET

WINCHES & WINDLASSES

1-Winch, Electric, 1-Drum, 1-Gypsy, 7400 Lbs. @ 220 FPM.

4-Anchor Windlass, Hyde Windlass Co., Electro Hydraulic, 3⅜" Die Lock Chain, 70,400 Lbs. @ 36 FPM, General Electric Motors, 440 Volts AC, 337 Amps., 1175 RPM, 60 Cycles, 3 Phase, 68.8 HP.

COMPRESSOR

1-Compressor, Medium Air, Ingersoll-Rand, 200 CFH, Westinghouse Motors, 55 HP, 440 Volts.

MACHINE TOOLS

3-Reed and Prentice Engine Lathes.
1-Lodge and Shipley Engine Lathe.
1-Morris High Speed Radial Drill.
1-Racine Tool and Machine Motor Driven Hack Saw.

EJECTOR ASSEMBLY

1-Ejector Assembly, Westinghouse, Size C-1, 75 sq. ft.

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NEW PORT ARTHUR CRANE: Coastal Marine Service of Port Arthur, Texas, has added a heavy duty 100-ton floating crane to its ship repair facilities. The crane (shown above) has a reach of 125 feet, is now in service at Port Arthur, and was built by Coastal Marine.

Todd Houston Division Launches Second 300 Ft. Tank Barge For Steuart

Todd Shipyards Corporation (Houston Division) on May 15 launched the second of two 300-foot by 60-foot by 17-foot tank barges, being constructed for Steuart Transportation Company of Piney Point, Md.

Miss Susan Saul, daughter of the president of Steuart Transportation, **William Saul,** christened the barge the STC 110 with the traditional bottle of champagne. Other members of the Steuart party included **Allan H. Pembroke, Mrs. Pembroke, William Molloy,** manager, marine operations for Shell Oil Company; **Mrs. Molloy, John J. Willis,** vice president of Steuart Tankers, Houston, Texas; **Mrs. Willis,** and **John Saul.**

Steuart Transportation Company provides energy needs by barge shipments to Washington, D.C., via the Potomac and to Baltimore and Norfolk, via Chesapeake Bay.

A christening party, which was attended by the Steuart representatives and Todd-Houston management, was hosted at the Lakeside Country Club by **Arthur W. Stout Jr.,** general manager of Todd-Houston.

WORLD'S LARGEST: The largest wire rope slings in the world are made on the world's biggest commercial rope press, shown above, at Armco Steel Corporation's Union Wire Rope plant in Kansas City, Mo. Armco makes the huge slings, rated to lift up to 570,000 pounds, for offshore drilling, construction, shipbuilding, pipeline, and inplant equipment. The slings are made on Armco's new 4,000-ton press which can apply fittings to rope ranging in diameter from two inches to four inches and larger. The huge press mechanically splices slings with steel ferrules and swages large sockets, buttons and other fittings. All sizes and combinations of slings are made for use in straight-pull, choker-hitch and basket-hitch rigups. The giant Union Wire Rope slings are sold through a nationwide network of dealers and distributors. Installation of the new 4,000-ton press at the Union Wire Rope plant took more than six months.

REQUIRED
by Naval Architectural,
Marine and Ocean Engineering firm:

1. GRADUATE NAVAL ARCHITECT
2. GRADUATE MARINE ENGINEER

Candidates for both positions should have five years minimum shipyard experience and be licensed professional engineers or possess the necessary qualifications for immediate registration on assumption of duties.

Both positions are available for immediate appointment. Send resume of qualifications and experience and details of salary requirement to the attention of:

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Marine Systems Engineer, recent experience in all phases of design, negotiations and manufacturing of ships steering gear and controls. Prior work in electro-hydraulic system design and installation. Presently employed, seeks better position.

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ADMINISTRATIVE ENGINEER

Currently employed by large company in New York area. Excellent employment background. Current duties: Responsible for the engineering administration required from conception through various stages of design, drafting, manufacturing, assembly and test. Review progress of manufacturing plans recommending remedial action where necessary to avoid delays in overall delivery schedule. Generate manufacturing plans; chart and master schedules and maintain surveillance of progress as planned. Military service: U.S. Marine Corps 1944-1946. Security clearance. Replies held in strict confidence.

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HULL REPAIR SUPERINTENDENT

Rapidly expanding modern shipyard in the Caribbeans has opening for experienced outside steel superintendent with proven ability to plan and supervise hull repairs and conversions. Send resume to

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MARINE SALES REPRESENTATIVE WANTED:

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SEWAGE TREATMENT ENGINEER

Must be knowledgeable in the function of sewage treatment units, including mechanisms, hydraulics and small pumps, combustion, and the flotation process of clarification.

Responsibilities will include analysing systems and component problems, resolving these problems within the military, marine or commercial specifications. Some travel into the field including work with customer and production shop representatives.

Excellent starting salary, incentives, and benefits. Write to Personnel Dept.

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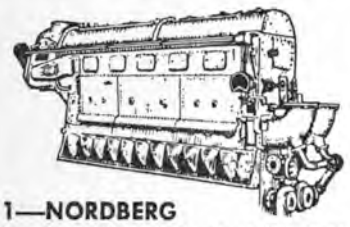
MARINE DIESEL ENGINES



1—NORDBERG
Used, 1700 BHP at 180 RPM, 2 cycle, Type TSM, Model 32112, 6 cylinders, 21-½" bore, 29" stroke, (Removed from C1-M-AV1 ship).

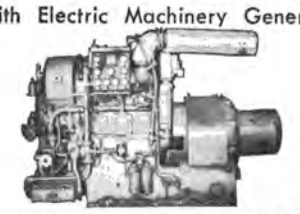
FAIRBANKS-MORSE, Md. 38D8-1/8
Matched Pair, Port & Starboard
Used condition, 1800 HP, 800 RPM, 2 cycle, 8-⅛" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio—with hydraulic coupling.

3—COOPER-BESSEMER, Model LS-8-DR
1300 HP, 277 RPM, direct reversing, turbo charged.

MARINE DIESEL GENERATORS

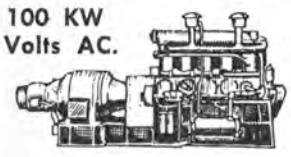
Used, Good — Will Overhaul

1—DeLavergne, 448 BHP, 400 RPM, 6 cylinders, with Westinghouse Generators, 300 KW, 120/240 DC.
1—DeLavergne, 560 BHP, 514 RPM, 6 cylinder, with Electric Machinery Generators, 375 KW, 450/3/60.



HILL, Type C, 10 KW, 120/240 DC.
HILL, Type B, 12 KW, 120/240 DC.
HILL, 4 Cylinder, 15 KW, 120/240 DC.
SUPERIOR, GA2, 10 KW, 120 DC.
HERCULES, DOOC, 10 KW, 120 DC.
CATERPILLAR, D3400, 15 KW, 120/240 DC.
BUDA, 4 cylinder, 15 KW, 120/240 DC.
HERCULES, DJXC, 25 KW, 120 DC.
CUMMINS, WA255, 30 KW, 120 DC.
P & H, 387C-18, 45/56KVA, 120/208/3/60.
BUDA, 6DH909, 40 KW, 115 volts DC.
GM, 4-71, 50/60 KW, 120/208/3/60.
CUMMINS, HDG, 60 KW, 120 DC.
BUDA, 6DHG691, 60 KW, 120 DC.
CUMMINS, 6 cylinder, 60 KW, 120/240 DC.

LORIMER 100 KW
450/3/60 Volts AC.

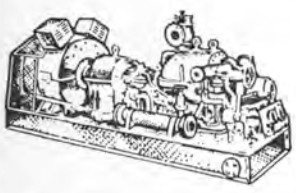


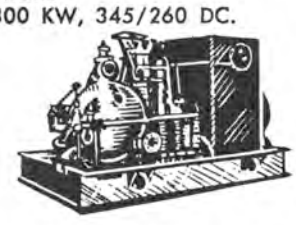
GM, 6067, 60 KW, 450/3/60.
BUDA, 6DC844, 75 KW, 125/250 DC.
CATERPILLAR, D17,000, 75 KW, 230 DC.
MURPHY, ME66, 75 KW, 240 DC.
LORIMER, F5SS, 75 KW, 240 DC.
CATERPILLAR, D17000, 85 KW, 220/3/60.
GM, 3-268A, 100 KW, 120/240 DC.
SUPERIOR, GBD8, 100 KW, 120/240 DC.
GM, 3-268A, 100 KW, 440/3/60.
SUPERIOR, 100 KW, 440/3/60.
LORIMER, F5SS, 100 KW, 440/3/60.

COOPER-BESSEMER
FS6, 250 KW, 440/3/60.
GM, 8-268, 300 KW, 345/260 DC.
GM, 6-278A, 300 KW, 120/240 DC.

FAIRBANKS-MORSE
38E5-1/4, 300 KW, 345/260 DC.

TURBINE GENERATORS



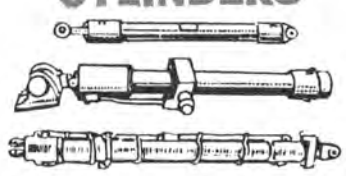


ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 120/240 DC.
ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 240/240 DC.
TERRY, Type TM5, 440 PSI, 740°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.
DE LAVAL, 450 PSI, 750°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.
WORTHINGTON, Form S4, 440 PSI, 740°F, with Crocker-Wheeler Gen., 300 KW, 120/240 DC.
JOSHUA HENDY, 300 PSI, 550°F, with Westinghouse Generator, 300 KW, 120/240 DC.
WORTHINGTON, Form S4, 440 PSI, 740°F, coupled to two Westinghouse Gen., 250 KW, 440/3/60 and a 90 KW, 120 DC.
GENERAL ELECTRIC, Type FN3-FN24, Steam 265#G, with G.E. Generator, 750 KW, 440/3/60.
WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 300 KW, 120/240 DC.
WESTINGHOUSE, 410 PSI, with Westinghouse Generators 200 KW, 450/3/60.
WESTINGHOUSE, 440 PSI, 740°F, with Westinghouse Generators, 300 KW, 240 DC.
GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 200 KW, 450/3/60.
WESTINGHOUSE, 590 PSI, 487°F, with Westinghouse Generator, 540 KW, 120/240 DC.
GENERAL ELECTRIC, 410 PSI, with G.E. Generator, 200 KW, 450/3/60.
GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 450/3/60.
GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 438 KVA, 450/3/60.
WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 150 KW, 120 DC.
WESTINGHOUSE, 200 PSI, with Westinghouse Generators, 60 KW, 120 DC.

AIR COMPRESSORS

INGERSOLL-RAND, 50 CFM, 150 PSI, 20 HP, 440/3/60.
SULLIVAN, 60 CFM, 110 PSI, 15 HP, 440/3/60.
WORTHINGTON, 60 CFM, 110 PSI, 15 HP, 230 DC.
INGERSOLL-RAND, 50 CFM, 600 PSI, 15 HP, 230 DC.
CHICAGO-PNEUMATIC, 161 CFM, 100 PSI, 40 HP, 230 DC.
WORTHINGTON, 175 CFM, 125 PSI, 50 HP, 440/3/60.
JOY, 100 CFM, 300 PSI, 30 HP, 220/440/3/60.
INGERSOLL-RAND, 150 CFM, 600 PSI, 75 HP, 230 DC.
INGERSOLL-RAND, 60 CFM, 125 PSI, 15 HP, 230 DC.
WORTHINGTON, 142 CFM, 100 PSI, 20 HP, 230 DC.
HARDIE-TYNES, 30 CFH, 3000 PSI, 75 HP, 230 DC.
HARDIE-TYNES, 30 CFH, 3000 PSI, Steam Turbine Drive.
INGERSOLL-RAND, 30 CFH, 3000 PSI, Steam Turbine Drive.
WORTHINGTON, 30 CFH, 3000 PSI, Steam Turbine Drive.
WESTINGHOUSE AIR BRAKE, 246 CFM, 140 PSI, 50 HP, 440/3/60.
GARDNER-DENVER, 850 CFM, 100 PSI, 200 HP, 440/3/60.

HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	retracted length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	single
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	15½"	double
6"	8"	4"	144"	double
13"	9'7"	5½"	14'	double

SPERRY GYRO COMPASSES

SPERRY MARK 14, Model 1 Gyro Compasses, used, good, complete with Master Compass, with Binnacle, Amplifier panel, control panel, carbon pile voltage regulator, motor generator set, alarm panel, and repeaters with mounts.

AXIAL FLOW FANS

Rebuilt Guaranteed LaDel, STURTEVANT etc.

In 440 AC, in 115 DC, and in 230 DC, and i nsizes 1 HP through 20 HP. Completely reconditioned.

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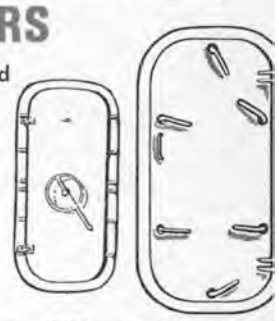
Size A¼	Size A3	Size A8
Size A½	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

Steel Watertight DOORS

Used, Good Condition, Trimmed Frames.



Many sizes available, priced reasonable. Some Typical Prices shown below. Please Inquire for other sizes.
26"x48"-4 Dogs-**$60.00 ea.**
26"x57"-6 Dogs-**$80.00 ea.**
26"x60"-4 Dogs, 6 Dogs-**$86.00 ea.**
26"x66"-6 Dogs, 8 Dogs-**$100.00 ea.**
26"x66"-Q.A. Type-**$175.00 ea.**

REDUCTION GEARS

DE LAVAL Reduction Gear from S/S Texas a C3M ship, Type Double Reduction, 8500 HP size, HP Pinion 5015 RPM, LP Pinion 3461 RPM, low speed gear, 85 RPM.

WESTINGHOUSE Reduction Gear from S/S Montrose, an AP3 ship, size 8500 HP, Gear RPM 85, HP Pinion 5238 RPM, LP Pinion 4422 RPM.

FARREL-BIRMINGHAM, as orig. used on two 1375 HP electric motors in submarine, 2 pinions, single output gear, pinion RPM 1302, Gear RPM 280; ratio 4.65:1.

WESTINGHOUSE, as orig. used on two 1362 HP electric motors in submarine, 2 pinions, single gear.

FALK Reduction Gears—Port & Starboard, Interchangeable with T-3 Tanker Gears, Falk No. 148-300. Also interchangeable with Falk Gears on AO51 Class Tankers (14 ships). Also on AO97 to AO100 Tankers.

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CAPSTAN WINDLASSES

Model CWP-3, Vertical 24" Planetary Capstan Windlasses, Single Wildcat — using 1¼" Anchor Chain, Single Gypsy with 20 HP motor, 230 volts DC, complete with Contactor Panel, Master Switch, and Resistors.

3—HESSE-ERSTED VERTICAL, Single Wildcat—for 1⅜" Anchor Chain, single gypsy, with 35 HP General Electric Motor, 230 Volts DC, complete with Controller equipment.

HYDE, VERTICAL, Single Wildcat, for 1⅛" Anchor Chain, single gypsy, with 20/5 HP Motor, 440/3/60.

ANCHOR WINDLASSES

1—LIDGERWOOD horizontal Anchor Windlass, double wildcat—for 2 1/16" Chain, double gypsy, with 50 motors, 230 volts, DC, complete with controls.

1—HORIZONTAL, of German Mfg., double wildcat—for use with 3" anchor chain, double gypsy with 230 VDC motor, complete with electrical control equipment.

AMERICAN ENGINEERING, horizontal, double 2⅛" Chain, 65 HP, 230 DC, complete.

4—AMERICAN HOIST AND DERRICK COMPANY, horizontal, double wildcat—for 2¼" chain double gypsy, 70 HP, 230 Volts DC, with electric controls.

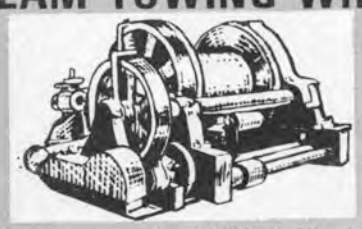
3—HESSE-ERSTED, horizontal, double wildcat, 2⅛" chain, 60 HP, 230 DC.

1—HYDE HORIZONTAL ANCHOR WINDLASS double wildcat—for use with 2⅛" Anchor Chain, and with General Motors Electric Motor, 60 HP, 230 volts DC, 560/1700 RPM, Type CDM 18831 AE. Complete with Contractor Panel, Resistors, and Master Switch.

ANCHOR WINCHES

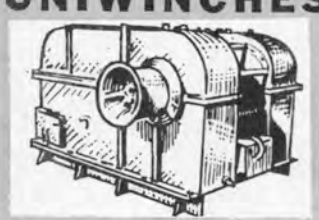
2—JAEGER, single drum—capacity approximately 900' of 1½" wire rope, double gypsy, with 35 HP Motors, 230 Volts DC, complete with electricals.

STEAM TOWING WINCH



Single drum, capacity 2000' of 2" wire rope, cylinder size 9" bore by 10" stroke.

UNIWINCHES



LAKESHORE UNIWINCHES, with Allis-Chalmers Motors, 50 HP, 230 Volts DC, complete with Control Equipment.

Single speed, double drum, 7450 # at 220 FPM.

Single speed, single drum, 7450 # at 220 FPM.

Two speed, single drum, 7450 # at 220 FPM, 14400 # at 105 FPM.

CARGO HOISTER BLOCKS

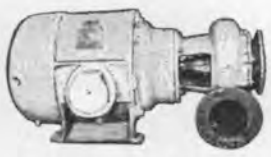
ton rated, Steel, as removed from surplus ships. Manufactured by: Young, Draper, etc., 12" & 14" sizes.

$34.50 ea.

39.50 each with pull test certificates

AC PUMPS

Horizontal Centrifugal



1-GOULDS, 2000 GPM, 470' head, size 8 x 10, Westinghouse Motor, 350 HP, 2300/3/60.

1—WORTHINGTON, 400 GPM, 150 PSI, 5-½" suction, 3-½" discharge, G.E. Motor, 75 HP, 440/3/60.

1—GOULDS, 300 GPM, 336' head, 3" suction, 2" discharge, G.E. Motor, 50 HP, 440/3/60.

5—J. C. CARTER, 365 GPM, 250' head, Aluminum Alloy, 3" suction, 3" discharge, with 25 HP motors, 220/440/3/60.

5—BUFFALO, Class CCS, 250 GPM, 100 PSI, 4" suction, 3-½" discharge, Westinghouse motor, 25 HP, 440/3/60.

6—WORTHINGTON, 200 GPM, 100 PSI, 3-½" suction, 3" discharge, Wagner motor, 25 HP, 440/3/60.

2—WORTHINGTON, 80 GPM, 60 PSI, 2-½" suction, 2" discharge, G.E. motor, 8 HP, 440/3/60.

6—BUFFALO, 875 GPM, 7-½" suction, 6-½" discharge, motor, 7.7/4.3 HP, 440/3/60.

7—WORTHINGTON, 650 GPM, 9 PSI, 6" suction, 6" discharge, with Star motor, 6 HP, 440/3/60.

1—WORTHINGTON, 175 GPM, 20 PSI, 3-½" suction, 3" discharge, with G.E. motor, 3.74 HP, 440/3/60.

4—WORTHINGTON, 60 GPM, 22 PSI, 3-½" suction, 2" discharge, with G.E. motor, 3 HP, 440/3/60.

3—ALLIS-CHALMERS, 35 GPM, 100' head, 2" suction, 1-½" discharge, with Allis-Chalmers motor, 3 HP, 440/3/60.

1—ALLIS-CHALMERS, 65 GPM, 80' head, 1-½" suction, 1-½" discharge, with Allis-Chalmers motor, 3 HP, 440/3/60.

2—WORTHINGTON, 13 GPM, 51 PSI, 1-½" suction, 1-½" discharge, with G.E. motor, 2.64 HP, 440/3/60.

4—WORTHINGTON, 30 GPM, 30 PSI, 1-½" suction, 1-½" discharge, with G.E. motor, 1.75 HP, 440/3/60.

11—WARREN, 6 GPM, 36 PSI, 1-¼" suction, 1" discharge, with G.E. motors, 1.25 HP, 440/3/60.

AC PUMPS

Vertical Centrifugal

6—WORTHINGTON, 275 GPM, 56.6 PSI, 8-½" suction, 3-½" discharge, with G.E. motor, 440/3/60.

4-WORTHINGTON, 490 GPM, 35 PSI, 7" suction, 4-½" discharge, with G.E. motor, 440/3/60.

6—CHICAGO PUMP CO., submersible, 400 GPM, 6# suction, 30# discharge pressure, with Wagner Motor, 15 HP, 440/3/60.

7—DAYTON-DOWD, 1160 RPM, 15 PSI, 10" suction, 8" discharge, with Wagner motor, 10 HP, 440/3/60.

6—ALLIS-CHALMERS, 68 GPM, 114' head, 3" suction, 1-½" discharge, with Wagner motor, 7-½ HP, 440/3/60.

3—WORTHINGTON, 100 GPM, 40 PSI, 5" suction, 3" discharge, with G.E. Motor, 7.37 HP, 440/3/60.

4—WARREN, 135 GPM, 35 PSI, 6" suction, 3" discharge, with G.E. Motor, 6 HP, 440/3/60.

1—WORTHINGTON, 35 GPM, 62.4 PSI, 3" suction, 2" discharge, with G.E. motor, 5.83 HP, 440/3/60.

3—WORTHINGTON, 350 GPM, 11.1 PSI, 10" suction, 3-½" discharge, with G.E. motor, 5 HP, 440/3/60.

9—ALLIS-CHALMERS, 10 GPM, 2" suction, 2-½" discharge, with 3 HP motor, 440/3/60.

AC PUMPS

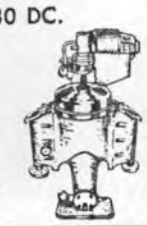
Horizontal Rotary

4—WARREN, 197 GPM, 175 PSI, with Electro-Dynamic motor, 30 HP, 440/3/60.

CENTRIFUGES

SHARPLES PURIFIERS

150 GPH—400 AC,—230 DC.
350 GPH—230 DC.
600 GPH—230 DC.



ALSO: De Laval, size 55-N13, 1-½ HP, 440 AC.

AC PUMPS

Vertical Rotary

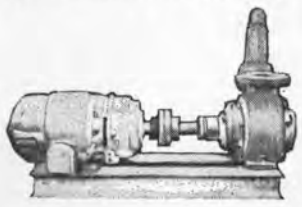
1—DE LAVAL, 550 GPM, 50 PSI, with G.E. motor, 27.4 HP, 440/3/60.

5—QUIMBY, size 2-½, 10/6 GPM, 350 PSI, 2-½" suction, 1-½" discharge, with Wagner Motor, 6/3 HP, 440/3/60.

4—BLACKMER, 50 GPM, 35 PSI, 420 RPM, with G.E. geared motor, 2 HP, 440/3/60.

DC PUMPS

Horizontal Centrifugal



6—WORTHINGTON, Size 8L1, 2100 GPM, 138.5 TDM, with Westinghouse motor, 100 HP, 230 DC.

6—WORTHINGTON, Size 12LA1, 4000 GPM, 67.3 TDM, with Westinghouse motor, 100 HP, 230 DC.

6—WORTHINGTON, Size 3UB1, 400 GPM, 280' head, with Westinghouse motor, 50 HP, 230 DC.

6—WORTHINGTON, Size 4L1, 400 GPM, 83' head, with Westinghouse motor, 15 HP, 230 DC.

1—ALDRICH, 8" suction, 6" discharge, with G.E. motor, 12/25 HP, 115 DC.

3—WARREN, 1175 GPM, 11.2 PSI, with Reliance motor, 10 HP, 230 DC.

1—WESTCO, 100 GPM, 100 PSI, with Imperial motor, 10 HP, 115 DC.

2—YEOMANS, 135 GPM, 115' head, 3" suction, 3" discharge, with Kimble motor, 10 HP, 230 DC.

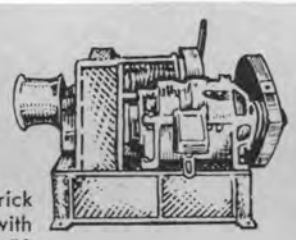
2—WARREN, Size 5, 600 GPM, with Electro-Dynamics motor, 8/4.5 HP, 230 DC.

1—WARREN, 5" suction, 4" discharge, with Reliance motor, 7-½ HP, 115 DC.

1—DAYTON-DOWD, 3" suction, 2-½" discharge, with Crocker-Wheeler motor, 5 HP.

3—INGERSOLL-RAND, Size IMVR, 50 GPM, with Electro Dynamics motor, 3.9 HP, 230 DC.

CARGO WINCHES



American Hoist and Derrick Company Winches with Westinghouse Motors, 50 HP, 230 Volts DC, complete with Contractor Panels, Master Switches, and Resistors.

Single Speed, Single Drum
Two Speed, Single Drum

UNIT WINCHES

American Hoist and Derrick Company

U3H—SINGLE DRUM, Single speed (4)
Line Pull: 7450# - 223 FPM, 6360# - 237 FPM, 3720# - 287 FPM.

U6H—DOUBLE DRUM, Single speed (2)
Line Pull: 7450# - 223 FPM, 6360# - 237 FPM, 3720# - 287 FPM.

U5 -SINGLE DRUM, Two speed (2)
High Speed line Pull: 7450# - 224 FPM, 6360# - 238 FPM, 3720# - 288 FPM,
Low Speed Line Pull: 1100# - 114 FPM, 19000# - 96 FPM (third layer of rope).

Motor: Westinghouse, 50 HP, 230 Volts DC, 1900 RPM, Model 288212, 183 Amperes, compound wound, Frame 9 UW, horizontal.

Unit Winches complete with Contactor Panels, Resistors, Master Switches.

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TERRIFIC INVENTORY... AC & DC

Marine Pumps

1 – FAIRBANKS-MORSE, 250 GPM, 13' head, with Fairbanks-Morse motor, 3.72 HP, 230 DC.

2–WESTCO, 20 GPM, 50 PSI, with Century motors, 1-½ HP, 115 DC.

2–WORTHINGTON, 60 GPM, 23.7 PSI, 2-½" suction, 2" discharge, with Diehl motors, 1.43 HP, 230 DC.

5–WARREN, 4 GPM, 38 PSI, 1-½" suction, 1" discharge, Century motors, 1.25 HP, (3) 230 DC, (2) 115 DC.

3–ALLIS-CHALMERS, 180 GPM, 81' head, 2-½" suction, 2" discharge, with Allis-Chalmers motor, 7-½ HP, 230 DC.

4–ALLIS-CHALMERS, 650 GPM, 29' head, 5" suction, 5" discharge, with Allis-Chalmers motor, 7-½ HP, 230 DC.

2–ALLIS-CHALMERS, 55 GPM, 51' head, 2-½" suction, 2" discharge, with Allis-Chalmers motor, 2 HP, 230 DC.

2–ALDRICH, brine overboard, 30 GPM, 34.5 PSI, 1-¼x1, with 2 HP motor, 230 DC.

1–WORTHINGTON, 30 GPM, 22 PSI, 1-¼x1, with 1 HP motor, 230 DC.

DC PUMPS Vertical Centrifugal

1 – GOULDS, Fig. 3090, 13000 GPM, 24.5' head, size 20, with Reliance motor, 100 HP, 230 DC.

1 – WORTHINGTON, Type 20LAS-1, 13000 GPM, 11.5 PSI, size 20, with Westinghouse motor, 100 HP, 230 DC.

2–ALLIS-CHALMERS, Type LS-V, 12, 550 GPM, 20' head, 20" suction, 20" discharge, with Allis-Chalmers motor, 100 HP, 230 DC.

1–WORTHINGTON FIRE & BUTTERWORTH, size 3UBS, 400 GPM, 300 PSI, with Westinghouse motor, 75 HP, 230 DC.

2–ALLIS-CHALMERS, Type BU-V, 400 GPM, 280' head, 4x3, with Allis-Chalmers motor, 50 HP, 230 DC.

3–WORTHINGTON, size 3UBS, 400 GPM, 280' head, with Westinghouse Motor, 50 HP, 230 DC.

2–BUFFALO, size 3SAV, 400 GPM, 125 TDH, with Electro-Dynamics motor, 50 HP, 230 DC.

1–ALLIS-CHALMERS, Type SE-V, 2820 GPM, 29.2' head, 12" suction, 12" discharge, with Allis-Chalmers motor, 40 HP, 230 DC.

1–DE LAVAL, size 14", 5900 GPM, 25'8" head, with Electro-Dynamics motor, 25/50, 230 DC.

1–DE LAVAL, 400 GPM, 127 PSI, with Electro-Dynamics motor, 25/50 HP, 230 DC.

1–GARDNER-DENVER, 1500 GPM, 56' head, 8" suction, 6" discharge, with Century motor, 30 HP, 230 DC.

1 – INGERSOLL-RAND, size 18VCM, 8500 GPM, with Electro-Dynamics motor, 20/40 HP, 230 DC.

2 – WORTHINGTON, Type 16LAS-2, 5600 GPM, 10 PSI, with G.E. Motor, 20/40 HP, 230 DC.

1 – WORTHINGTON, size 10SLHV, 1500 GPM, with Reliance motor, 25 HP, 230 DC.

1–WORTHINGTON, size 12-LAS-1, 3000 GPM, 25 PSI, with Reliance motor, 25 HP, 230 DC.

1–WORTHINGTON, 8-LS-1, 1800 GPM, 13 PSI, with Westinghouse motor, 20 HP, 230 DC.

4–ALLIS-CHALMERS, Type SGV, 600 GPM, 30 PSI, 5" suction, 5" discharge, with Allis-Chalmers motors, 20 HP, 230 DC.

1–INGERSOLL - RAND, 1050/2000 GPM, 10" suction, 10" discharge, with G.E. motor, 20 HP, 230 DC.

2–WORTHINGTON, submersible, size 5", 600 GPM, 30 PSI, with 20 HP motor, 230 DC.

2–ALLIS-CHALMERS, Type CF-2V, size 6" x 3-½", 170 GPM, 208' head, with Allis-Chalmers motor, 20 HP, 230 DC.

4–WORTHINGTON, size 5LS-1, 415 GPM, 78.5' head, with 20 HP motor, 230 DC.

1–WORTHINGTON, Type 2-½UZS-1, 170 GPM, 75 PSI, with Westinghouse motor, 16.8 HP, 230 DC.

2–WORTHINGTON, 340 GPM, 33.6' head, 6" suction, 3" discharge, with G.E. motor, 15 HP, 230 DC.

1–INGERSOLL-RAND, size 2VHM, 150 GPM, 85 PSI, with Reliance motor, 15 HP, 230 DC.

6–WORTHINGTON, size 2-½UZ1, 120 GPM, 208 head, 15 HP, 230 DC.

1—WORTHINGTON, 5LS, 600 GPM, 18 PSI, with Westinghouse motor, 15 HP, 230 DC.

2–INGERSOLL-RAND, 450 GPM, 15' head, 4" suction, 3" discharge, with G.E. Motor, 10/15 HP, 230 D.C.

2–BUFFALO, size 3SLV, 425 GPM, 35' head, with Electro-Dynamic motor, 7-½/15 HP, 230 DC.

2–ALLIS-CHALMERS, Type CF-2V, 30 GPM, 208' head, with Allis-Chalmers motor, 7-½ HP, 230 DC.

1–DE LAVAL, 1600 GPM, 27' head, with Electro Dynamic motor, 7-½/15 HP, 230 DC.

2–DE LAVAL, 425 GPM, 28' head, with Electro Dynamic motor, 7-½/15 HP, 230 DC.

2–INGERSOLL-RAND, size 8VCM, 1400 GPM, with Electro-Dynamic motor, 5/10 HP, 230 DC.

2–WORTHINGTON, size 8LS-1, 1400 GPM, 10 PSI, with G.E. motor, 5/10 HP, 230 DC.

2–DE LAVAL, 80 GPM, 75 PSI, with Electro-Dynamics motors, 5/10 HP, 230 DC.

2–INGERSOLL-RAND, size 1-½ VBM, 70 GPM, with Electro-Dynamics motor, 5/10 HP, 230 DC.

1–DAYTON DOWD, 30 GPM, 85 PSI, Mod. VHM, with Continental motor, 5 HP, 230 D.C.

2–WORTHINGTON, Type 1-½UZS-3, 20 GPM, 75 PSI, with G. E. Motor, 5 HP, 230 DC.

1–WARREN, size 1-½-2CV-6, 30 GPM, 196' head, with Continental motor, 5 HP, 230 DC.

2–WORTHINGTON, 400 GPM, 13.5' head, 5x4, with Westinghouse motor, 5 HP, 230 DC.

1–DE LAVAL, 25 GPM, 75 PSI, with Electro-Dynamics motor, 2.5/5 HP, 230 DC.

2–WEIL, 20 GPM, 40 PSI, 1-½x1-¼, with G.E. motor, 3 HP, 230 DC.

2–INGERSOLL-RAND, size 1MVR, 20 GPM, with Electro-Dynamic motor, 3/1.5 HP, 230 DC.

DC PUMPS Horizontal Rotary

2–WORTHINGTON, size 5GES, 400 GPM, 50 PSI, with Westinghouse Motor, 20 HP, 230 DC.

1–DE LAVAL, 15 GPM, 350 PSI, 2-½ x2-½, with Diehl motor, 10 HP, 230 DC.

2–VIKING, Type EKK, 60 GPM, 70 PSI, 2x2, with Diehl motor, 5 HP, 230 DC.

2–NATIONAL TRANSIT, 50 GPM, 50 PSI, 34 HP, 230 DC.

DC PUMPS Vertical Rotary

4 – QUIMBY, size 5, 400 GPM, 60 PSI, 6x5, with Westinghouse motor, 30 HP, 230 DC.

2 – QUIMBY, size 5, 400 GPM, 48 PSI, 6x5, 25 HP, 230 DC.

3 – WORTHINGTON, Mod. 4GRVS, 225 GPM, 35 PSI, with G.E. motors, 15/20 HP, 230 DC.

2–DE LAVAL–IMO, 250 GPM, 40 PSI, 15 HP, 230 DC.

2–QUIMBY, size 4D, 225 GPM, 50 PSI, 15 HP, 230 DC.

2–DE LAVAL, 325 GPM, 40 PSI, 15 HP, 230 D.C.

1–QUIMBY, size 2-½, 20 GPM, 400 PSI, 10 HP, 230 DC.

1–DE LAVAL, 175 GPM, 42 PSI, 10 HP, 230 DC.

1–DE LAVAL, 225 GPM, 35 PSI, 7.5/15 HP, 230 DC.

1–QUIMBY, size 4, 175 GPM, with Electro-Dynamics Motor, 7-½/10 HP, 230 DC.

1–DELAVAL, 13 GPM, 400 PSI, with Westinghouse motor, 7.5 HP, 230 DC.

2–WORTHINGTON, Type 3GRVS, 90 GPM, 75 PSI, with Diehl motor, 7-½ HP, 230 DC.

1–DE LAVAL, 8 GPM, 400 PSI, with Electro-Dynamics motor, 5 HP, 230 DC.

1–WORTHINGTON, Type 2GRVS, 7 GPM, 400 PSI, with G.E. Motor, 2.5/5 HP, 230 DC.

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USED, GOOD QUALITY . . . SAVE!

2,000 pound size
3,000 pound size
8,000 pound size
12,000 pound size

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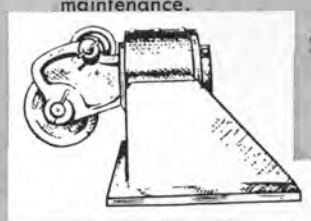
Self Aligning, Swivel Type Head.

Dependable and Ruggedly built to perform consistently year after year with minimum maintenance.



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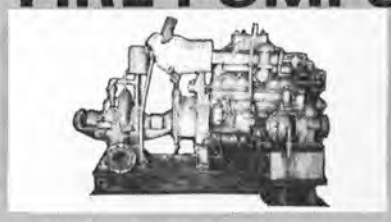
FIRE PUMPS



2–BUDA, Model 6-LD-468, Diesel Engines, 6 cylinders, 100 BHP, Marine, Gardner-Denver centrifugal Pumps, Bronze, horizontally split case, 100 GPM, 280' head, 6" suction and 5" discharge.

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LIFTING RATE: 25 tons at 50 Ft. Radius at 50 to 60 FPM.

BOOM: 80' to headblock (with 10' whip)

WHIP: 10 tons at 125 FPM—2 part line

TRACK CENTERS: 20'—Engine: Cummins HBIS 601, 180 HP supercharged, elec. start

MOTORS: Each leg (4 tot.) 7½ HP, 230 DC.

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SIZE 36-17 **SIZE 20-5**
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2 No. 79 3 Blade Hubs
Designed for 1500 H.P. Each at 240 R.P.M.
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Complete With 12 Spare Blades
Lloyds and ABS Class
2 Tailshafts, 2 Intermediate Shafts

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G.E. DORV 325	300 KW
G.E. DS 60	300 KW
Worthington	300 KW
De Laval	300 KW
Hendy (Terry Design)	300 KW
Westinghouse (Victory type)	300 KW
Westinghouse	250 KW
Worthington	150 KW
Westinghouse CA 20	100 HP
G.E. Main Turbine Rotor T2	6000 HP
G.E. HP & LP Turbine C2	6000 HP
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Two Lakeshore Topping Winch, 10,000 pounds at 45 FPM, 15 HP, 440 Volt A/C.

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250 GPM—160 PSI discharge. Suction 3½"—discharge 2½"—3500 RPM. MOTOR: Reliance—25 HP—440/3/60—35.6 amps. 3 Weil pumps and 3 Aldrich pumps available. Reconditioned pumps and motors.

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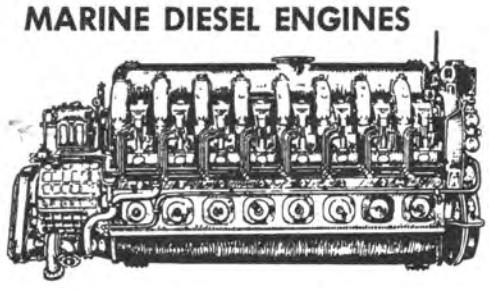

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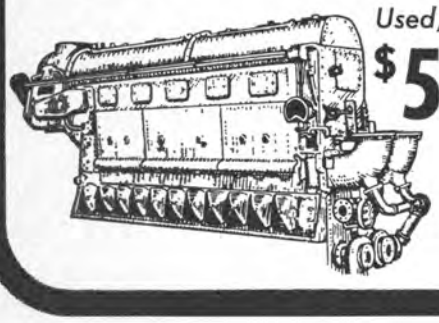

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49 Amps, 3 Phase 60 Cyl.

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1100 RPM

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Single Drum, Single Speed,
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230 Volt DC Motor

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Rebuilt Starter Boxes, 440 Volts,
From 2 HP to 50 HP

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Generators: 300 KW DC, 120/240 Volts, 1200 RPM, 1250 Amps, Type MPC, Model 24G869, 3 Wire, Compound Wound
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Manufactured by Webster Brinkley Co. Model WNE-5 Vertical Type 2 3/16" Die Lock Chain. Two Wildcats. Two Capstans
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SUITABLE FOR NAVY AND COMMERCIAL CONVERSION USE

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250 GPM — 160 PSI discharge. Suction 3½" — discharge 2½"—3500 RPM. Reliance motor—25 HP—440/3/60—35.6 amps. 3 Weil pumps and 3 Aldrich pumps available. Reconditioned pumps & motors priced at **$887** EA.

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Anixter-New York, 300 Executive Blvd., Elmsford, N.Y. 10523
Anixter-New Orleans, 315 Notre Dame, New Orleans, La. 70130
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150

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Enjay Chemical Company, 60 West 49th St., New York, N.Y. 10020
Farboil Company, 90 West St., N.Y., N.Y. 10006
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Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
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ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
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National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo.
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
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Merrin Electric, 162 Chambers St., New York, N.Y. 10007
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MARINE PROPULSION
Buehler Corp., 9000 Precision Drive, Indianapolis, Ind. 46236
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Marine Turbine & Gear Dept., Lynn, Mass. 01910
General Electric Co., Gas Turbine Dept., Schenectady, N.Y. 12305
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Western Gear Corp., Precision Products Div., P.O. Box 190, Lynwood, Calif. 90262

MARINE RADIO COMMUNICATIONS EQUIPMENT
Collins Radio Co., M/S 416-118, Dallas, Texas 75207
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
Paul J. Plishner, 45 West 45 St., New York, N.Y. 10036
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
Raytheon Co. Marine Products, 676 Island Pond Rd., Manchester, N.H. 03103
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
RF Communications, Inc., 1676 University Ave., Rochester, N.Y. 14610

NAVAL ARCHITECTS AND MARINE ENGINEERS
BG Marine Services, Div. of Genge Industries, Inc., 4419 Van Nuys Blvd., Sherman Oaks, Calif. 91403
Best & Associates, 9870 S. W. 81 St., Miami, Florida 33143
Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Crandall Dry Dock Engrs., Inc., 238 Main St., Cambridge, Mass. 02142
Cushing & Nordstrom, 50 Trinity Place, New York, N.Y. 10006
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Christopher J. Foster, 17 Battery Place, New York, N.Y. 10004
14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 21 West St., New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
Morris Guralnick, Associates, Inc., 583 Market St., San Francisco, Calif. 94105
J. J. Henry Co., Inc., 90 West St., New York, N.Y. 10006
L. K. Homyer, Box 408, Corona Del Mar, California 92625
C. T. Ilariucci & Associates, Tourism Pier #3, San Juan, Porto Rico 00902
James S. Krogen, 1460 Brickell Ave., Miami, Fla. 33131
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Applications Co., Inc., P.O. Box 167, Mineola, N.Y. 11502
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 1180 Ave. of Americas, N.Y., N.Y. 10036
Marine Design Associates, P.O. Box 2674, Palm Beach, Florida
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
Philip L. Rhodes, Inc., 369 Lexington Ave., New York, N.Y. 10017
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver 10, Canada
Philip F. Spaulding & Associates, 65 Marion St., Seattle, Wash. 98104
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235

Richard R. Taubler, 44 Court St., Brooklyn, N.Y. 11201
H. M. Tiedemann & Co., Inc., 74 Trinity Pl., New York, N.Y. 10006
H. Newton Whittelsey, 17 Battery Pl., New York, N.Y. 10004
Alan Winkley, 6420 Colby St., Oakland, Calif. 94618

OIL PURIFIERS—Repair
Peck Equipment Co., 3500 Elm Avenue, Portsmouth, Virginia 23704

OILS—Marine—Additives
Esso International Inc., 15 West 51 St., New York, N.Y. 10019
Ethyl Corp. Marine Div. Perolin Co., New York, N.Y. 10001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Humble Oil & Refining Co., Humble Building, Houston, Texas 77002
Mobil Oil Corp., 26 Broadway, New York, N.Y. 10004
Refineria Panama, S. A., 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., 50 W. 50 St., New York 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017

PAINT—Marine—Protective Coatings
Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144
Devoe & Raynolds Co., Inc., Subsidiary Celanese Coatings Co., 414 Wilson Ave., Newark, N.J. 07105
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Forboil Company, 90 West St., New York, N.Y. 10006
International Paint Co., 21 West St., New York, N.Y. 10006
Mobil Chemical Company, Metuchen, N.J. 08840
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Woolsey Marine Industries Inc., 201 E. 42nd St., New York, N.Y. 10017

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Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., 50 W. 50 St., New York, N.Y. 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.

PLASTICS—Marine Applications
Ameron Corrosion Control Div., Brea, Calif. 92621
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936
Rotocast Plastic Products, Inc., 6700 N.W. 36th Ave., Miami, Florida 33147

POLLUTION CONTROL
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Uniroyal, Inc., 10 Eagle St., Providence, R.I. 02901

PORTS
Port of Galveston, P.O. Box 328, Galveston, Texas
Jacksonville Port Authority, 2701 Tallyrand Ave., Jacksonville, Fla.

PROPELLERS: NEW AND RECONDITIONED
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bird-Johnson Co., 883 Main Street, Walpole, Mass. 02081
Coolidge Propeller Co., 1608 Fairview Ave. E., Seattle, Wash. 98102
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
Ferguson Propeller, 1132 Clinton St., Hoboken, N.J. 07030

PUMPS
Coffin Turbo Pump/FMC Corp. 326 So. Dean St., Englewood, N.J. 97631
Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City. Kansas 66110
M. T. Davidson Co., 1010 3rd Ave., New York, N.Y. 10021
Goulds Pumps, Seneca Falls, N.Y. 13148
Houttin-Pompen N. V. Sophialaan 4, Utrecht, Holland
Worthington Corporation, Harrison, New Jersey 07029

RATCHETS
American Engineered Products Co., Box 74, McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Brocket St., Pittsburgh, Pa. 15233

REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
York Corp., Grantley Road, York, Pa. 17405

ROPE—Manila—Nylon—Hawsers—Wire
American Mfg. Co., Inc., Noble & West Sts., Brooklyn, N.Y. 11222
Cating Rope Co., 309 Genesee St., Auburn, N.Y. 13022
Columbian Rope Co., 309 Genesee St., Auburn, N.Y. 13022
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Samson Cordage Works, 470 Atlantic Ave., Boston, Mass. 02210
Tubbs Cordage Company, P.O. Box 709, Orange, Calif. 92669
Wall Rope Works, Inc., Beverly, N. J. 08010

RUBBER PRODUCTS—Dock Fenders, Hose, Life Preservers
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Schuyler's Engineered Products Co., Box 87, Staten Island, N.Y.
Yokohama Rubber Co. Ltd., P.O. Box 46, Shiba, Tokyo 105, Japan

RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland Street, Phila., Pa. 19142
Galbraith-Pilot Marine Corp., 600 Fourth Ave., Brooklyn, N.Y. 11215
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

SCAFFOLDING
Patent Scaffolding Co., 11-11 - 34th Ave., Long Island City, N.Y. 11106

SEALS
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Syntron, Div. FMC Corp., 398 Lexington Ave., Homer City, Pa. 15748

SEARCHLIGHTS
Snelson Oilfield Lighting Co., 1201 E. Doggett St., Fort Worth, Texas 76104

SEWAGE DISPOSAL
Seapax, Inc., 3645 Warrensville Center Rd., Cleveland, Ohio 44122

SHAFT REVOLUTION INDICATOR EQUIP.
Electric Tachometer Corp., 68th & Upland Sts., Phila., Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
National Metal & Steel Corp., 1251 New Dock St., Terminal Island, Cal. 90731
Northern Metal Co., Minor & Bleigh Sts., Philadelphia, Pa. 19136
Peck Equipment Co., 3500 Elm Ave., Portsmouth, Va. 23704
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

SHIP BROKERS
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
Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119

SHIPBUILDING STEEL
Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh, Pa. 15219
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
Huntington Alloy Products, Div. International Nickel Co., Inc., Huntington, W. Va. 25720
International Nickel Co., 1 New York Plaza, New York, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Brodogradiliste "SPLIT", P.O. Box 107, Split, Yugoslavia
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Dillingham Corp., P.O. Box 3288, Honolulu, Hawaii 96801
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gotaverken American Corp., 39 Broadway, New York, N.Y. 10006
Grafton Boat Co., Inc., Grafton, Ill. 62037
Greignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
Gunderson Bros. Engrg. Corp., 4700 N.W. Front St., Portland, Oregon 97208
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hitachi Shipbuilding Co.,25 Nakanoshima2-chomeKitaku,Osaka-Japan
Industrial Steel & Mach. Works, Inc., P.O. Box 2217, Gulfport, Miss. 39501
Ishikawajima-Harima Heavy Industries Co., Ltd., 15 William St., New York, N.Y. 10005
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla. 32203
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Kockums Malmo, Fack, Malmo, Sweden
Levingston Shipbuilding Co., P.O. Box 968, Orange, Texas 77630
LISNAVE, P.O. Box 2138, Lisboa, Portugual
Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Maryland Shipbuilding & Drydock, P.O. Box 537, Baltimore, Md. 21203
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsubishi Heavy Industries, Ltd., 5-1 Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan
Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
Nuclear Service & Construction Co., Inc., 9296 Warwick Blvd., Newport News, Va. 23607
O.A.R.N. (officine Allestimento e Riparazioni Navi) Genoa, Italy
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Fla. 33156
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
Rodermond Industries, Foot of Henderson St., Jersey City, N.J. 07302
St. Louis Shipbuilding—Federal Barge, Inc.
611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Teledyne Sewart Seacraft, P.O. Box 108, Berwick, La. 70342
Todd Shipyards Corp., 1 Broadway, New York, N.Y. 10004

SHIP MODELS
Boucher-Lewis Precision Models, Inc., 36 E. 12 St., N.Y., N.Y. 10003

SHIP MODEL BASIN
Hydronautics, Incorporated, Laurel, Maryland 20810

SHIP ROUTING
Bendix Commercial Services Corporation, Owings Mills, Md. 21117
Weather Routing, Inc., 90 Broad Street, New York, N.Y. 10004

SHIP STABILIZERS
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

STEAM GENERATING EQUIPMENT
Combustion Engineering, Inc., Windsor, Connecticut 06095

STEVEDORING
Luckenbach Steamship Co., 120 Wall Street, New York, N.Y. 10004
M. J. Rudolph Corp., 8 Sackett St., Brooklyn, N.Y. 11231

SWITCHBOARDS
Hose McCann Telephone Co., Inc., 524 West 23 St., N.Y., N.Y. 10011

TOWING—Lighterage, Transportations, Barge Chartering
American Waterways, 1250 Connecticut Ave., Washington, D.C. 20036
M. J. Batty & Co., P.O. Box 2316, Singapore, 1
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 140 Cedar St., New York, N.Y. 10006
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
Jackson Marine Corp., P.O. Box 1087, Aransas Pass, Texas 78336
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
P. F. Martin, Inc., Mall Bldg., 325 Chestnut St., Philadelphia, Pa.
Moran Towing & Transportation Co., Inc., 17 Battery Place, New York, N.Y. 10004
L. Smit & Co., 11 Broadway, New York, N.Y. 10004
Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
M. & J. Tracy, Inc., 1 Broadway, New York, N.Y. 10004
Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y. 11214

VALVES AND FITTINGS—Hydraulic—Safety Flanges
Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn, N.Y. 11231
Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., Inc., 900 Fairmount Ave., Elizabeth, N.J. 07207

WIRE ROPE
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18018
United States Steel Corp., P.O. Box 86, Pittsburgh, Pa. 15230

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