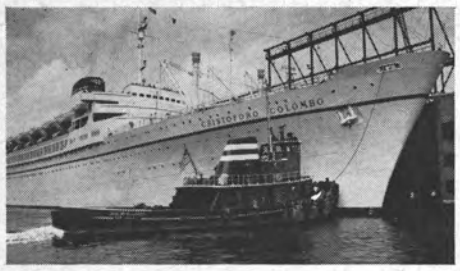
MARITIME REPORTER
AND
ENGINEERING NEWS

Moore-McCormack Lines SS Mormacsea First Combination Roll-On / Roll-Off Container Ship Enters North Atlantic Run

(SEE PAGE 6)

JUNE 1, 1969



Cristoforo Colombo discovers the new McAllister.

Docking and undocking now faster, more efficient than ever.

The newest addition to the McAllister fleet, the 3160-hp Kort-nozzle tug "Jane McAllister," is shown here undocking the pride of the Italian Line, "Cristoforo Colombo." The "Jane's" flanking rudder system gives her a powerful edge in manuverability that pays off in speed, economy and safe conduct of the ship.

The "Jane" is only one of four new powerful tugs that are swelling the McAllister fleet. Supertugs for superships. So, whatever your harbor movement needs, including tug and barge transportation, why not discover for yourself the new McAllister?
McAllister Bros. Inc., 17 Battery Place, N.Y. 10004.

Mac has the knack.

Sun Ship To Build Two Oil Tankers

Sun Shipbuilding & Dry Dock Co., of Chester, Pa., is to build two 80,000-dwt oil tankers for undisclosed interests at an approximate cost of $17-million each. Designated Hulls Nos. 652 and 653, and to be powered with 24,000-shp double-reduction geared turbines, each tanker will have a length between perpendiculars of 765 feet, a beam of 125 feet and a depth of 57 feet.

Rowe Ind. Building Twin-Screw Tugboat

Rowe Industries, Inc., Georgetown, S.C., is to build a twin-screw tugboat for White Stack Towing Corp., subsidiary of Florida Towing Corp., Jacksonville, Fla. To be equipped with 2,250-total-bhp Caterpillar diesels, the tug will have dimensions of 90 feet by 27 feet by 14 feet.

Daly's To Build Fishing Vessel

Daly's Boatyard, of Fort George Island, Fla., is to construct a fishing vessel for undisclosed interests. To be powered with 425-bhp General Motors diesels, the boat will be 66 feet in length, 20 feet in beam and 12 feet in depth.

Fruehauf Corp. Buying Jacksonville Shipyards

The Fruehauf Corporation has announced an agreement to purchase the Jacksonville Shipyards, Inc. of Jacksonville, Fla. The purchase price was given as about $8.5-million.

Fruehauf, best known for the manufacture of truck trailers and containers, already owns the Maryland Shipbuilding and Drydock Company and Pacific Coast Engineering Corporation, which firms are in the shipbuilding and repair business and manufacture other marine equipment.

William E. Grace, in making the announcement at the corporation's annual meeting, said that Jacksonville Shipyards, whose sales for the past five years have averaged approximately $35-million per year will add to the services provided by Fruehauf. He further added that this acquisition will increase Fruehauf's capability to provide service and repair facilities to oceangoing vessels and container-ships at the growing ports along the southeastern seaboard, supplementing such services available through Maryland Shipbuilding.

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First Sea-Bridge Class Ship Enters Service

The SS Mormacsea

The SS Mormacsea, the first of four fast combination roll-on/roll-off and container ships for Moore-McCormack Lines, has entered service on the north Atlantic run from U.S. East Coast ports to northern Europe. The Mormacsea is the first of the 'Sea-Bridge Class.' These ships are the first commercial, combination roll-on/roll-off and container ships ever designed and built in the United States.

The Sea-Bridge Class were designed by the New Construction Department of Moore-McCormack. The contract plans and specifications were developed in conjunction with J. J. Henry Co., Inc., New York naval architects and marine engineers. The working drawings were prepared by Ingalls Shipbuilding Corporation, a division of Litton Industries, who also built the ships. The interiors of the ship were developed and designed by the Line's New Construction Department.

In the interest of increasing speed, lessening resistance in the water and enhancing fuel economy, a series of bulbous bows were designed and model tested. The final bulbous bow consists of a cylinder 83 feet long and 17 feet in diameter. The ship is also fitted with two 'U'-tube passive-tank stabilization systems, designed by Hydronautics, Incorporated, for the protection of the cargo. An Engelhard cathodic protection system is installed on the hull.

The ship has seven cargo holds extending from the tank top to the underside of the roll-on/roll-off deck. These holds are fitted with cellular container guides. The roll-on/roll-off deck extends the full length of the ship and provides sufficient height for trailer trucks. Two side ports and a stern door, supplied by Walz and Krenzer, provide access to this deck for wheeled vehicles. The side ports are fitted with ramps while the stern door forms the ramp when opened. The boiler uptakes pass through the roll-on deck, on the port and starboard side, leaving a clear passage from the stern ramp. Containers, stacked two high, can be stowed on the roll-on deck when it is not being used for vehicles. The container guides in way of the roll-on deck are portable.

Mormacsea loads containers and fuel in New York Harbor in preparation for first trans-Atlantic crossing.

The Mormacsea has ten 30-ton booms serving hatches Nos. 2, 3, 4, 5 and 6 and two five-ton Lakeshore cranes serving hatches Nos. 1 and 7. A 70-ton Stulcken boom, supplied by McGregor-Comarain, is located between hatches Nos. 4 and 5. All holds are fitted with Wiley triple, quick-acting hydraulic hatch covers on the weather deck except hold No. 7, which is a single hatchway located aft of the superstructure. The cargo winches, vang winches, constant-tension mooring winches and the combination anchor windlass and winch were supplied by Lakeshore and fitted with Reliance electric motors.

Characteristics

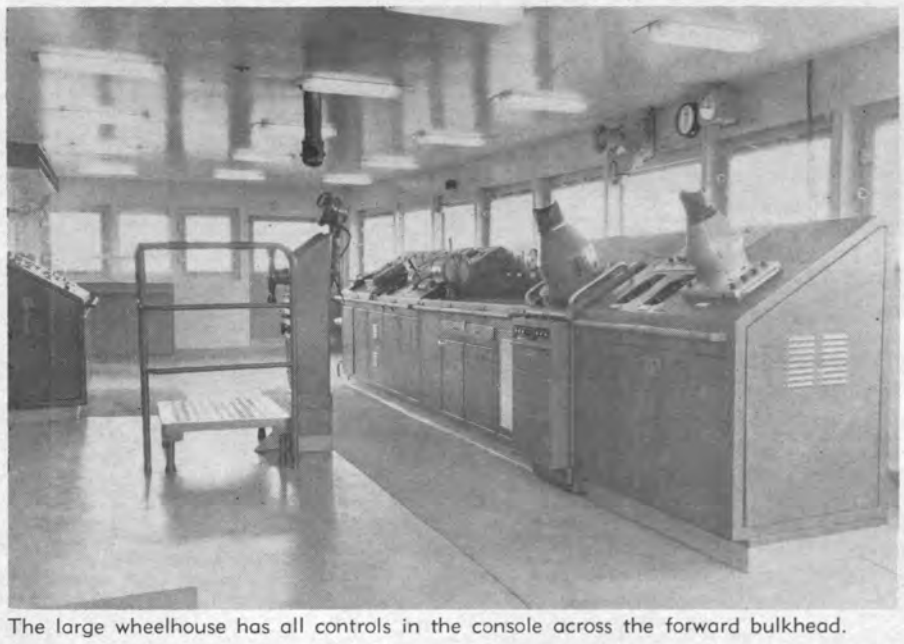
Length overall	602 ft. 0 in.
Beam, molded	90 ft. 0 in.
Draft, maximum	34 ft. 0 in.
Deadweight tonnage	16,830 tons
Light ship weight	10,900 tons
Displacement	27,730 tons
Cargo Cubic, grain	1,193,000 cu. ft.
Containers, 40-ft. long, total	412
Shaft horsepower	30,000
Speed, service	25 knots
Crew	36
Passengers	12

A total of 412 forty-foot containers can be carried, including 50 forty-foot refrigerated containers (about 100,000 cubic feet of reefer capacity). Of this quantity, 157 containers will be carried on deck.

The crew of 36 persons is all quartered in individual air-conditioned staterooms. Officers have private baths while the crew baths are semi-private. Accommodations have been provided for 12 passengers, including a large lounge with a bar. The Chrysler air-conditioning system is of the high-pressure, high-velocity type utilizing W. B. Arnold flexible ducting.

Propulsion is provided by a General Electric

(Continued on page 7)


The large wheelhouse has all controls in the console across the forward bulkhead.

Stern view, with vehicle ramp lowered, shows the passage between the uptakes.

SS Mormacsea—

(Continued from page 6)

30,000-shp at 110 propeller rpm geared steam turbine, turning a single six-bladed Baldwin Lima Hamilton propeller. The turbines exhaust to a Foster Wheeler main condenser. The line shaft, supplied by Jorgenson, is supported by American Metal line-shaft bearings. The tail shaft is supported by a Waukesha stern-tube bearing.

Two Combustion Engineering V2M-8 welded-wall boilers provide steam at an operating pressure of 870 psig and a temperature of 955°F. at the superheater outlet. Normal capacity is 102,110 pounds of steam per hour, with an overload capacity of 117,390 pounds of steam per hour. Each boiler is fitted with two C-E Wallsend oil burners and registers and one C-E Ljungstrom regenerative air heater, Model No. 15VMX-44, with 10,000 square feet of heating surface.

The other major machinery items are: 20,000 gallons per day Aqua-Chem distilling units, Worthington main condensate and circulating pumps, Pacific main feed pumps and Buffalo Forge force draft blowers.

Two Worthington turbo-generators supply the ship's service electric power load of 1,500 kw. An emergency diesel-generator, supplied by Stewart & Stevenson, is installed outside the engine room.

The ship is highly automated and has one of the most advanced bridge consoles in any commercial ship. The central operating system console was supplied by the Aetron Division of Aerojet General Corporation. The engine room console is fitted with all the necessary controls for remote operation of the machinery plant and also has a Marine Electric bell logger. Control is easily transferred between the engine and bridge, with the engine room having take-over powers if required.

A unique feature of this class of ships is the method of loading and storing the refrigerated stores for the crew and passengers. Three dual-compartmented refrigerated containers built by Dorsey Trailers with plug-in Thermo-King refrigerating units are used in place of built-in reefer compartments. These 20-foot units are pre-stored ashore and loaded on the vessel while cargo is being handled. In this manner, the crew is not required to handle stores from the deck to reefer compartments.

The pilothouse is completely outfitted with the latest equipment for efficient and safe navigation. ITT Mackay supplied the radio telegraph, echo depthsounder, loran receivers, radio direction finder and the facsimile recorder. Two RCA radars are installed, one is a 10 cm set and the other a 3.2 cm unit. Besides this electronic gear, there are a Sperry Piedmont gyro compass and a Baker Lyman magnetic compass.

The Western Gear steering gear is controlled by a Sperry Marine steering control transmission system fitted with a course recorder and a Henschel rudder angle indicator system.

The design of the Mormacsea and her three sisterships proceeded concurrently with the design of terminals and other facilities, thus providing for optimum results.

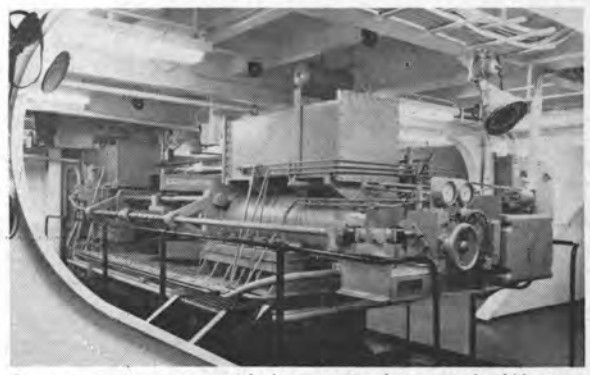
In order to meet the needs of the shippers, the railroads and the truckers, in this country and abroad, the combination ships were tailored to meet the vertical cargo movement of the lift-on/lift-off type of vessel and not conflict with the horizontal movement of the roll-on/roll-off cargo through the stern ramp.

In addition to the feature of being able to roll cargo on the ship while other cargo is being lifted on board, facilities have been made available to pump up to 2,800 tons of liquid cargo simultaneously, all of which helps to reduce port time.

The constantly increasing costs of ships and labor, the intense competition in foreign markets and the over-riding need for a means to hold the cost line in international trade motivated the company to provide this entirely new concept in ship design, which increases the efficiency by decreasing unproductive port time, thus lowering the unit costs.

Officers lounge was designed by the Line's staff and provides a cheerful relaxation area for off-duty officers.

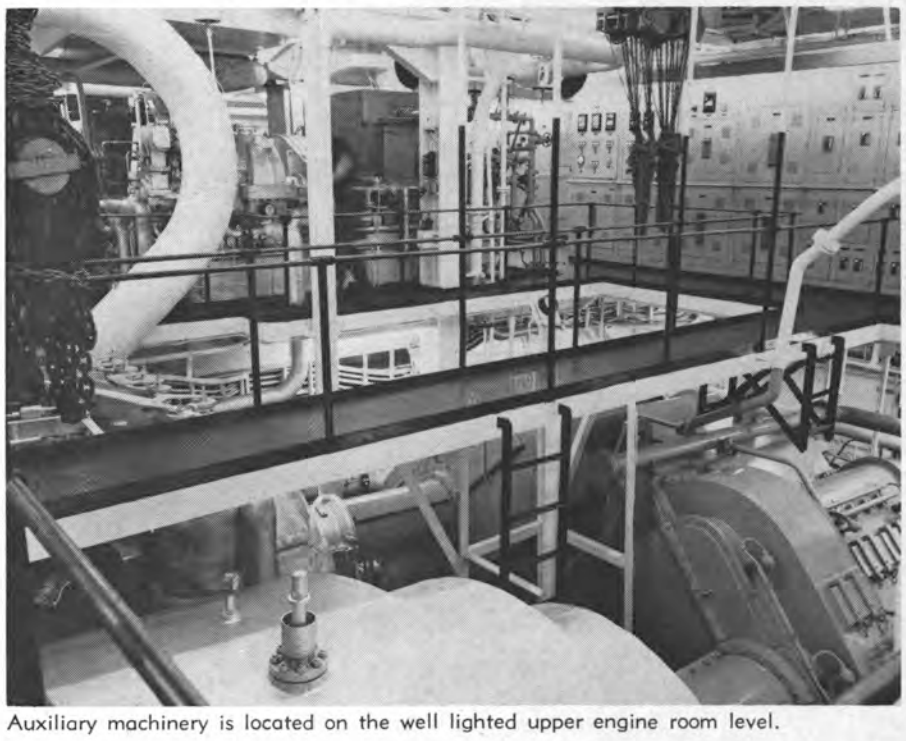
Officers' and passengers' dining room indicates the care shown by Moore-McCormack in accommodation design.



Steering gear was provided as a complete unit by Western Gear Corporation. It is operated by a Sperry system.

Loading of Dorsey refrigerated stores container equipped with Thermo-King units is tested at the shipyard. Stores containers are pre-loaded on the pier, thus reducing turn-around time of ship.

Engine room console provides centralized operating station for all machinery.



Auxiliary machinery is located on the well lighted upper engine room level.

Offshore Oil Development Held Imperative For Future

As much as 35 percent of the free world's oil requirements may be supplied from fields discovered beneath the ocean floor in the next 20 years, according to **John D. Moody,** senior vice-president for exploration and producing, Mobil Oil Corp.

Mr. **Moody's** prediction was made in an address he prepared for delivery to the American Association of Petroleum Geologists annual convention, held recently in Dallas, Texas. He was unable to personally deliver the address because of illness, but the paper was read by **Creighton Burk** of the Mobil office in New York City.

Mr. **Moody** wrote that a worldwide search for offshore oil is required to maintain a reasonable balance between reserves and demand.

He said today's proved liquid reserves in the United States would satisfy the free world's 1990 energy demand level for less than eight months. The demand will more than double, cutting the worldwide ratio of reserves-to-production from today's 35-to-1, to perhaps as low as 11 to 1. Even so, more than 400-billion barrels of new oil must be found and developed in two decades, Mr. **Moody** said.

"As much as 200-billion barrels would come from offshore," Mr. **Moody** added. "It is not outside the realm of reason to think that offshore production could reach 30-million barrels a day in 20 years."

Estimated 1968 offshore production was six-million barrels a day.

"Over the next five years," he added, "the investment in offshore areas could exceed the total offshore investment made so far."

Stockholders Approve Purchase Of Sea-Land By Reynolds Industries

The stockholders of McLean Industries, Inc. and of the R. J. Reynolds Tobacco Company have approved the sale and purchase, respectively, of McLean to Reynolds. McLean Industries is the parent firm of Sea-Land Service, Inc., this country's largest operator of containerships.

The $430-million transaction is expected to give Sea-Land the financial strength required to proceed with a program of building eight to 12 containerships. To date, Sea-Land has not constructed any new ships—all its containerships have been conversions.

Malcom P. McLean, president of McLean Industries, told the stockholders that the company might have been able to go ahead with its expansion program on its own. But, it could only be done at a "tremendous risk" to the stockholders, he said.

The Reynolds' shareholders elected Mr. **McLean** to the board of directors of the firm. They also approved the change of the firm's name to R. J. Reynolds Industries, Inc.

Fiat Will Supply 38,600-BHP Diesels For Large Tankers

Fiat Grandi Motori of Torino, Italy has received an order to supply the propulsion diesel engines for two 253,000-dwt tankers. The mammoth tankers are to be built by Cantieri Riuniti del Adriatico at its Monfalcone yard for SNAM of Milan.

Each ship will be powered by one 38,600-bhp, 106-rpm, type 10610S diesel engine. Fiat is also supplying the engines, type 210SS, 2,-840-bhp, to drive two of the cargo pumps. These two engines will also drive two 1,200-kw generators. The emergency generator will be driven by a four-cylinder Fiat engine.

An Ocean Science Laboratory Discussed By Hawaii Section

The detailed conceptual design of the OSCILAB, an ocean science laboratory, was described in a paper presented at the April meeting of the Hawaiian Section of The Society of Naval Architects and Marine Engineers. The author of the paper was **E. Eugene Allmendinger,** visiting associate professor of ocean engineering, University of Hawaii, and associate professor of mechanical engineering, University of New Hampshire.

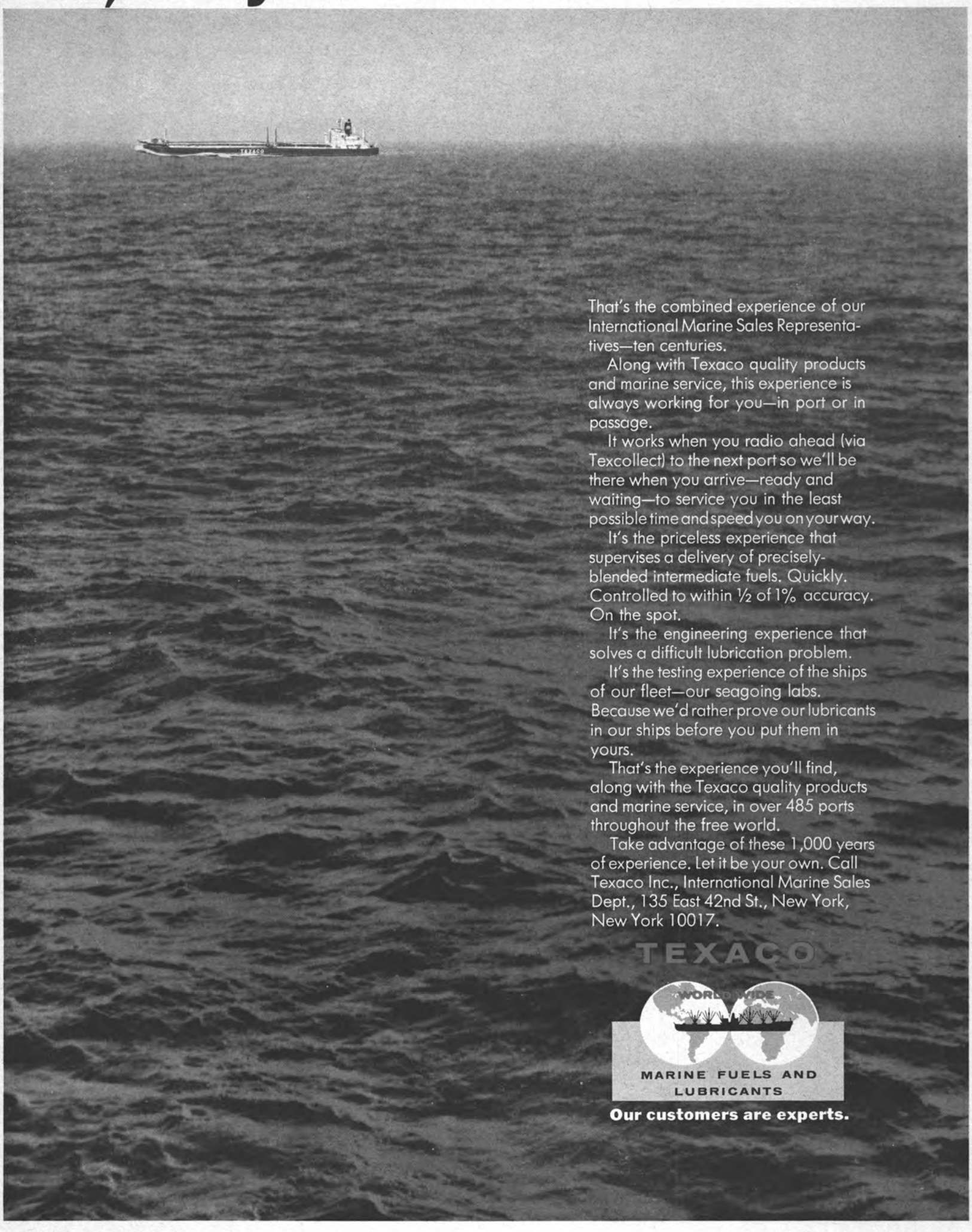
The author described in detail one of the systems developed for the Navy for a scientific sealab to support continental shelf research activity. The conceptual design discussed was developed at the University of New Hampshire.

The OSCILAB is a non-propelled vessel designed to permit six men to live and work continuously at a maximum depth of 300 feet for a two-week period under saturation-diving conditions. The vessel has a length of 71 feet, a breadth of 10 feet and a depth of 18 feet. The pressure hull is 9 feet in diameter and 40 feet long.

The surface support ship is called a "Sea Truck" and is 139 feet long, with a beam of 29 feet. The Sea Truck design concept, besides being a versatile support vessel, also reduces port time and non-productive port expenses. It is connected to the OSCILAB by an umbilical cord which supplies power, communication, and monitoring.

Professor **Allmendinger** described the hull design, anchoring system, communications, life-support systems, and capital and operating costs.

1,000 years at sea



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The Offshore Company To Spend $13-Million For New Drilling Rigs

The offshore Co., Houston-based international drilling firm, has allocated $13-million this year for expansion of its operations, **W. Henson Moore,** president, informed stockholders at their annual meeting.

Mr. **Moore** said about $5-million of the outlay is being spent on the Offshore Mercury, a self-propelled drilling ship under construction in Scotland. The vessel will go to work next July in the Dutch sector of the North Sea for a consortium headed by Tenneco Oil Co. of Houston.

An additional $2.9-million is being spent on construction of the Discoverer III, a ship-shaped drilling unit being built in Japan. The vessel is costing about $8.8-million and the remainder will be spent during 1970.

"Several companies are interested in using the Discoverer III," Mr. **Moore** told shareholders.

Mr. **Moore** also said the company's recently renovated Rig 52 resumed drilling in Nigeria for Shell/BP about the middle of May. He also disclosed that the Offshore Pegasus, which had been drilling in the Gulf of Mexico, has arrived on station in the Arabian (Persian) Gulf where it is under contract to drill for Abu Dhabi Oil Co., a Japanese concern.

Mid-June Date Set By Sea-Land Services For Containership Bids

International bids on construction of six or more large, fast containerships are expected to be received by Sea-Land Service, Inc., Elizabeth, N.J., on or about June 20. Award of contracts is expected within 30 days after opening.

Two or three of the ships will be for U. S. intercoastal trade and will be built by U.S. yards. The other ships most likely will be built abroad. All will be U.S. registered and equipped with U.S. machinery. J. J. Henry Co., Inc., New York, naval architects, designed the 944-foot, 120,000-hp ships.

Fraser Shipyards Elects T.J. Brush President

Theodore J. Brush

Theodore J. Brush has been elected president of Fraser Shipyards, Inc., it was announced in Superior, Wis., after a meeting of the firm's eight directors.

A Cleveland lawyer, **Robert Branand** of the firm of Johnson, Branand & Jaeger, was named a director.

Mr. **Brush** was formerly vice-president and general superintendent of production at Fraser, where he has been since 1963. A 30-year veteran in the shipbuilding industry, he has served in supervisory and executive capacities with Great Lakes Engineering Works, Detroit and Ashtabula, and with American Ship Building Co.

Robert W. Fraser was promoted to vice-president and general superintendent.

Other directors include **Barney B. Barstow,** who is also secretary; **Robert Anderson,** treasurer; **Carlton E. Tripp,** and **John G. Souris.**

Federal Motorships Relocates N.Y. Office

Federal Motorships Inc. has moved into new quarters at 70 Pine Street, New York, N.Y. All communication numbers of the company, previously located at 21 West Street, will remain the same, it was announced by **Robert Geib,** vice-president.

M.I.T. Schedules Maritime Industry Summer Program

Massachusetts Institute of Technology has announced three summer programs which will be of interest to naval architects and shipbuilders. The three courses, to run consecutively, are:

1. Computer Applications in Naval Architecture and Ocean Engineering, Monday, July 28, through Friday, August 8, 1969. The program is under the direction of Prof. **J. E. Kerwin** and **D. E. Cummings** of the Department of Naval Architecture and Marine Engineering.

2. Planning and Control of Ship Production Processes, Monday, August 11, through August 15, 1969. Prof. **E. G. Frankel** of the M.I.T. Department of Naval Architecture and Marine Engineering will be in charge.

3. Welding Fabrication in Shipbuilding and Ocean Engineering, Monday, August 18, through Friday, August 22, 1969. Lectures will be given by the members of the M.I.T. Department of Naval Architecture and Marine Engineering and selected guest speakers from the government and industry under the general direction of Prof. **Koichi Masubuchi.**

Further information on these programs can be obtained from Director of the Summer Session, Room E19-356, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

W.E. Nehring Joins Marine Sales Dept. Mobil Oil Corp.

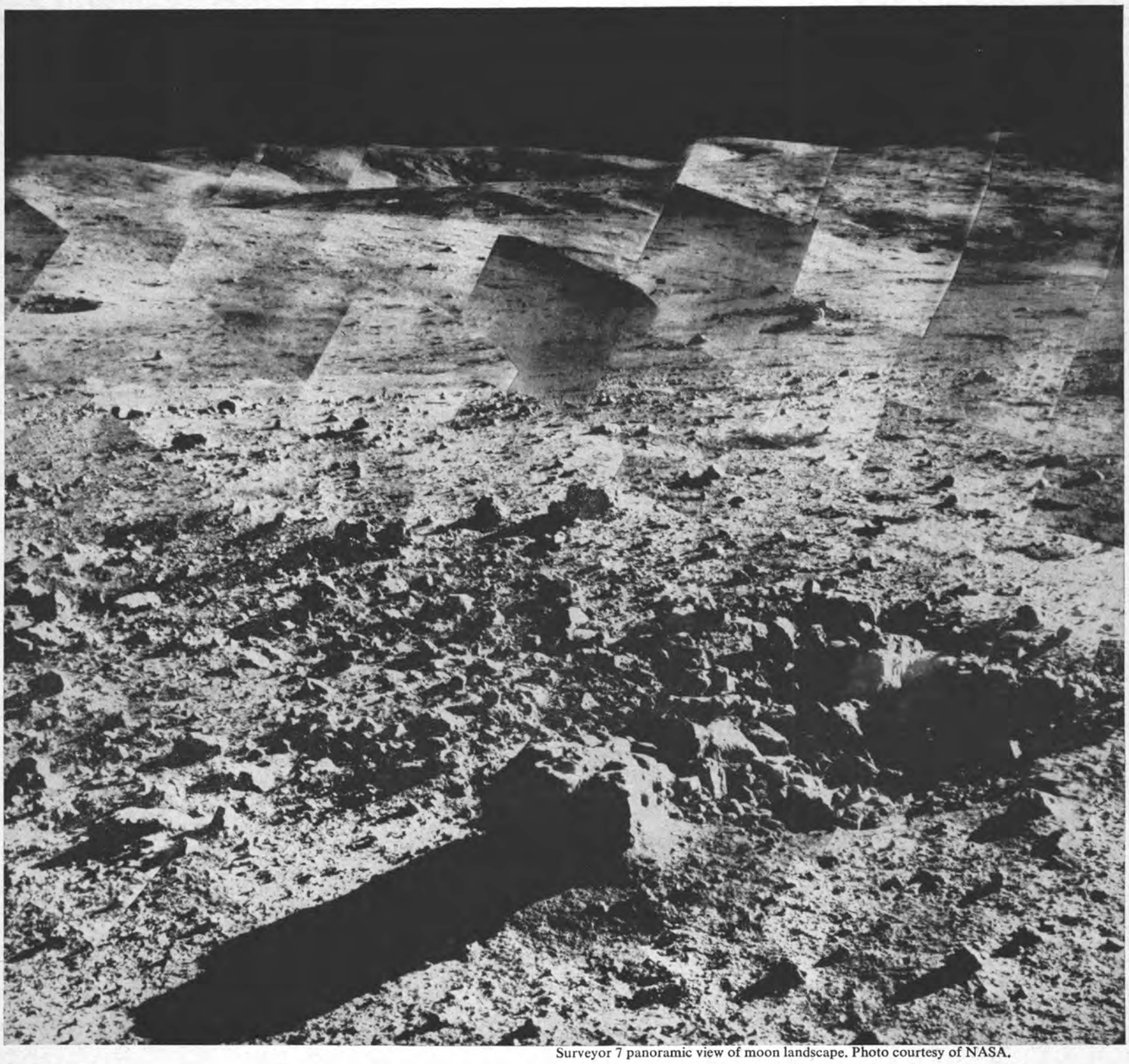
William E. Nehring

William E. Nehring has joined the marine sales department of Mobil Oil Corporation, it was announced by **R. C. Schnepf,** general manager of the domestic marine sales department.

Mr. **Nehring** graduated from Maine Maritime Academy in 1965 and served in the United States Merchant Marine until 1968, at which time he had reached the position of chief mate. Except for a short tour on a missile tracking ship, Mr. **Nehring's** experience has been on coastwise and foreign tankers.

He is now serving in the capacity of marine representative for Mobil Oil Corporation in the Port Newark area.

CELEBRATES 50 YEARS—William J. Murphy (left), vice-president, general sales manager, Perkins Marine & Hardware, was honored recently at the Miami International Boat Show for 50 years of service to the marine industry. **Marvin Perkins,** president of Perkins, is shown presenting one of the many plaques and gifts Mr. **Murphy** received during the ceremonies. Mr. **Murphy's** career began in March, 1919, with the old C. K. Durkee firm of ship chandlers beneath the bowsprits of the sailing vessels on South Street in New York. In 1921 he joined Perkins and has seen this internationally known firm rise to a position of prominence in the industry.



Surveyor 7 panoramic view of moon landscape. Photo courtesy of NASA.

Newport News Launches SS American Mail—Last Of Five Liners For West Coast Line

Principals at the launching of the American Mail, left to right: **Worth B. Fowler,** president, American Mail Line; **Philip Brown;** Sen. **Henry M. Jackson,** principal speaker; **Mrs. Brown,** matron of honor; **Mrs. Jackson,** sponsor, and **L. C. Ackerman,** president and chief executive officer, Newport News Shipbuilding and Dry Dock Co.

With champagne splashed on its red and gray hull, the super cargoliner American Mail recently slipped smoothly down her building way into the James River.

The ship was christened at the Newport News Shipbuilding and Dry Dock Co. by **Mrs. Henry M. Jackson,** wife of the Washington senator who delivered the principal address.

Participating in the festivities were several thousand shipyard workers and their families, invited by the company's new president and chief executive officer, **L. C. Ackerman,** to celebrate their accomplishment in building five cargoliners for the American Mail Line. The American Mail is the last of the five.

Officiating during the ceremonies, Mr. **Ackerman** said that tens of thousands of Americans participated in the ship's construction, noting that material and supplies flowed in from more than 500 suppliers in 40 states. He gave recognition to the accomplishment by citing the thousands of Newport News people who participated in construction of the flag vessel and her sisterships.

Senator **Jackson** in his remarks stated, "With the launching of this ship we are providing a qualitative answer to the modern fleets of our foreign-flag competitors.

"The American Mail will sail with the best anywhere with its rapid turn-around time and up-to-the-minute cargo-handling gear. These C-5 vessels rank among the largest general cargoliners in the world at 605 feet in length.

"The American Mail is big, it's fast, and it's versatile. It has to be. This country's merchant marine has to be more efficient than its competitors to survive. It is through the qualitative approach so inherent in this vessel that we keep our nation a leader on the seas."

"In other areas of commerce," the speaker said, "the United States has overcome cost disadvantages by turning out a superior product. This is what the American Mail Line and the Newport News Shipbuilding and Dry Dock Co. have accomplished here. They have produced a vessel with all the built-in efficiencies to challenge a growing foreign sea capability.

"The American Mail we launch today represents the best. But our bests are too few. Only about 10 new commercial craft of this type are turned out each year and the aging veteran ships are falling apart by the wayside faster than that.

"To compete, and to keep pace, we need a massive building program. We must add to our program of qualitative improvement, sheer quantities of ships."

Senator **Jackson** pledged to join in the continuing effort to do all that is possible in Congress to see that the federal government meets and enlarges its longstanding commitment for a strong merchant marine.

Featured in the American Mail are such aspects of modern ship design as automated boilers. Her versatility is demonstrated by the variety of cargo she will carry—more than 400 20-ton containers, bulk grains and other dry and refrigerated cargoes. This class of ships was designed by the J. J. Henry Co., Inc. of New York.

Total displacement of the vessel is 31,970 tons and her single-screw turbine unit will develop 24,000 shp. Cruising speed of the huge cargo vessel will be 21 knots and the ship will have accommodations for 12 passengers.

The contract for the ship was awarded November 30, 1966, and the keel was laid November 12, 1968. Scheduled delivery is August this year.

Ametco Shipping Relocates N.Y. Offices

Ametco Shipping, Inc., has announced the relocation of its offices to new quarters at 530 Fifth Avenue, New York, N.Y. 10036; telephone: 212 697-4612.

Sun Oil Economist Forecasts $1.2 Billion Will Be Spent For U.S. Tankers By 1980

United States requirements for tankers during the next 12 years will demand a minimum construction of 500,000-dwt capacity per year for a total cost of $1.2-billion over the 12-year period. This forecast of tanker demand was made by Dr. **James S. Cross,** Sun Oil Company economist, at the recent Annual Tanker Conference of the American Petroleum Institute's Transportation Division.

Dr. **Cross** also pointed out that the demand could reach one million deadweight tons per year if the attempt this summer to use the Northwest Passage is successful.

Dr. **Cross** stated, "The base construction requirement would be the replacement of U.S.-flag private fleet vessels 25 years of age or older. This means that we would have to replace 58 percent of our present private fleet by 1980. To do this would require four million deadweight tons of new building during the next 12 years. To this total should be added the incremental requirement of two million deadweight tons for shipping Alaskan North Slope crude to West Coast markets. Thus, a minimum requirement is six million deadweight tons over 12 years, or 500,000 dwt per year. This would be a higher rate of construction than in any post World War II year.

"At the higher extreme we can visualize not only this minimum construction but also the requirement for waterborne transport of North Slope crude to East Coast markets. If the Northwest Passage route proves technically feasible, this would require an additional five to seven million deadweight tons of tank ships specially designed for transiting ice. The alternative route to the East Coast by way of a trans-Panama pipeline would require more than five million tons of conventionally designed tank ships.

"Thus, taking a figure of six million deadweight tons for East Coast shipments and adding the four million deadweight tons for replacement and two million deadweight tons for the West Coast, we arrive at a figure of 12 million deadweight tons of tanker new building over the next 12 years. At today's prices this could involve an investment of $2.4-billion between now and 1980." He based his cost estimates on tankers of 250,000-dwt each.

Reviewing the fleet's current status, Dr. **Cross** reported that at the end of 1968 the U.S. fleet numbered 271 vessels, six percent of the world tank ship fleet. U.S. ships are on the average twice as old and are considerably smaller than those of the world fleet. Over the past five years, the U.S. fleet has been expanding at the rate of less than one percent per year, compared with 11 percent per year for the world fleet.

Dr. **Cross** summed up his presentation by stating, "We obviously need loading and unloading facilities which can handle these ships, as well as systems of tank farms, pump stations, and pipelines to provide low cost logistical support to the operation.

"We will need, by 1980, in the order of 2.2-million barrels per day of oil to supply our incremental domestic requirements. If this much crude is developed on the North Slope of Alaska, careful consideration must be given as to the markets into which it will flow as well as the location of new refining facilities.

"Also, it needs to be borne in mind that as crude becomes more difficult to find in more inaccessible places, its cost must go up. By the time North Slope crude is shipped to East and West Coast markets it will not be low-cost oil. It is therefore important that we bend every effort in one of the few areas where significant cost reductions are possible, namely, in the shipping over long distances by large tankers."

Rhode Island Univ. Receives U.S. Grant For Fishery Studies

An international center to develop competence for assisting less developed countries in utilizing food and other resources from the sea will be established at the University of Rhode Island in Providence with the help of the Agency for International Development.

Details of a five-year, $750,000 grant to establish the first center of its type in the nation were disclosed by representatives of Dr. **John A. Hannah,** new AID administrator; Dr. **Werner A. Baum,** URI president, and Sen. **Claiborne Pell,** a member of the Senate Foreign Relations Committee.

Focusing initially on the problems of developing fishery resources, the Rhode Island program is a result of more than a year's planning and discussions.

According to Dr. **Baum,** URI will strengthen its research, teaching, consultation, and service capabilities in the marine area to give them an international dimension. The program will be launched with the help of existing and new faculty in such divisions as the graduate school of oceanography, the research group in fish and animal nutrition, the departments of food and resource economics, fisheries and marine technology, ocean engineering, geography, and economics. The Law of the Sea Institute, based at URI, will also assist.

Buckeye Steamship Relocates N.Y. Offices

The Buckeye Steamship Co. has relocated its offices at 29 Broadway, New York City, according to an announcement by Capt. **J. A. Laine,** vice-president. The company had previously been located at 25 Broadway.

It takes great skill to maneuver today's huge freighters, tankers and passenger liners into the berths, slips and terminals of New York harbor. This is a skill that can be acquired only after long experience.

Moran is the specialist in this field. With the largest and finest fleet of tugs manned by the most experienced personnel and backed by more than a century of service—it's a combination that cannot be matched.

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Seatrain Lines Requests Aid To Build 225,000-DWT Tanker In Old Brooklyn Navy Yard

Plans for construction of the biggest commerical ship in the U.S. merchant marine—nearly double the 115,000-dwt tanker Manhattan, the present record holder—have been proposed by a new company affiliated with the Seatrain Lines.

The new company—Langfitt Shipping Corp.—which is headed by New York shipowners **Joseph Kahn** and **Howard Pack,** has asked for government mortgage aid to build a tanker of some 225,000 tons. The shipowners control Seatrain Lines, operator of the Manhattan.

According to the application for Title XI mortgage aid filed with the Maritime Administration, the huge new tanker could operate both in domestic oil trades from Alaska and possibly also in foreign trades. The proposal to the government suggests that the ship could compete effectively with foreign ships.

The new tanker, as it was explained to the Maritime Administration, would be built by a related company, Seatrain Shipbuilding Corp., which is in the process of setting up operations in the old Brooklyn Navy yard. The estimated cost was about $48-million.

The construction loan sought is roughly $36-million and the final mortgage—probably in the form of bonds, was expected to amount to $42,313,031. Financing has not been arranged, but Langfitt Shipping said it expects to pay 7½ percent interest on a 20-year mortgage loan.

The company said it plans to operate the ship to haul the North Slope oil from Alaska to a deepwater port on the U.S. West Coast, Port Cherry, Wash., where at least part of its cargo would be unloaded with the balance to be delivered to the Los Angeles area.

Alternatively, and depending on the economic possibilities, the ship could haul petroleum products from the North Slope to the U.S. East Coast via the Northwest Passage. The route through the Northwest Passage will be tested this summer.

Langfitt Shipping stressed that the huge vessel would be of the latest design and size. This should make it competitive with modern tankers for many years, both American and foreign, new built or on the ways, it was stated. John J. McMullen Associates, Inc., New York naval architects, was listed as supervisory naval architect.

American Bureau Assigns R. H. Hansen To Nashville

The American Bureau of Shipping has assigned **Raymond H. Hansen** to the Nashville, Tenn. office as senior surveyor. He succeeds **Jules U. Durham,** who died in April after serving the Bureau for more than 32 years in Nashville.

Mr. **Hansen** comes to Nashville after nearly 27 years with the bureau. Born in Baltimore, Md., he joined the Bureau in 1942, and has worked in Buffalo, New York City, and Piraeus, Greece.

Mr. **Durham,** a well-known figure in the Western Rivers marine community, was born in Reed City, Mich. and joined the Bureau in 1937.

King Crab Fishing Vessels Ordered By Pan Alaska

An order has been placed with Pacific Fisherman, Inc., in combination with Flohr & Co., both of Seattle, to build five new multi-purpose king-crab fishing vessels for Pan-Alaska Fisheries, Inc., according to **Ronald R. Jensen,** executive vice-president of Pan-Alaska.

Noting that the vessels will cost approximately $1,800,000, Mr. **Jensen** said that the ships are to be privately financed without federal or other government aid. He said that it represents the largest single order ever placed for vessel construction in the king-crab industry. The first vessel is due for delivery in August.

FIRST OF SIX SHRIMP TRAWLERS built for Continental Seafoods, Inc. of Secaucus, N.J., and destined for trawling in African waters has been completed by Rockport Yacht & Supply Company of Rockport, Texas. The 72-foot steel-hull trawler was ordered by Continental, a Ward Foods, Inc. subsidiary. The trawlers, with 340-hp engines, house a self-contained freezer unit capable of storing 70,000 pounds of shrimp and freezing 6,000 pounds of shrimp a day. The trawlers were built to specifications necessary for operating in African waters. **Irving Farber,** Continental's president, said that the company also has a number of trawlers in the active planning stage. These trawlers will be capable of operating in areas of supply throughout the world.

(Seems there's no end to it.)

We've built a big, modern repair dock not too long ago, now we're enlarging it already.
We've just modernized our building dock, now we're modernizing and improving it again. It's quite a task to keep in stride with our super-mammoth age; especially when you're not satisfied with just keeping in stride, but intent on staying ahead. Which is exactly what we had in mind when we started to make good things better: Our No. 3 Repair Dock on the left is in the process of growing into a 300,000 DWT mammoth dock covering an impressive 370x70m wet-area. From this May on, it will satisfy the most demanding repair-work requirements. The adjacent No. 4 Building Dock, where we've just launched the fifth of eighteen 210,000 DWT tankers, will be even more efficient with the addition of two 50-ton goliath cranes, a 120-ton jib crane and a workshop for special coating.
Now what more could one ask for? Information? Do drop us a line.

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Transportation Outlook For Second Half—1969

"The Outlook for the Transportation Industry for the Last Six Months of 1969" is the title of a booklet published by The Transportation Center at Northwestern University, Evanston, Ill. This booklet contains the remarks of nine of the Transportation Center's Advisory Committee members about the economic prospects for their industries during the last six months of 1969.

A. T. DeSmedt, president, Isthmian Lines Inc., advised on the American merchant marine. He said "The short range outlook for merchant shipping is extremely easy to predict, particularly in the United States. While the new Administration has given assurances that attention will be given to the condition of the merchant marine, no conceivable time table could produce positive action from Congress within a year."

Mr. **DeSmedt** further stated that "the forecast for the American merchant marine and for the welfare of those companies of all nations engaged in transporting cargo to and from the United States begins with a large IF. If the U.S. Government will recognize the need for American companies to act cooperatively with each other and with foreign shipping lines and if the individual American companies will appreciate that their avenue to participation in the future transportation systems lies through such cooperation, we can then expect that American shipping will hold its place, and that shipping companies serving the United States generally will prosper."

J. W. Hershey, chairman of the board, American Commercial Lines, wrote for the inland waterway transportation industry. He stated that "the industry will continue its steady growth in 1969, with an expansion of at least five percent anticipated in volume of tons transported over 1968."

Mr. **Hershey** described the changes and advancements in floating equipment and in the waterway systems, all of which have in the past and will in the future expand the industry. He spoke of the cooperation between the barging industry and trucking lines and expressed the hope that such cooperation will soon be obtained with the railroads.

Maritime Approves Sea-Land Service's Ship Exchange Request

The Chief, Office of Ship Operations, Maritime Administration, has approved the application of Sea-Land Service, Inc., to exchange the bulk carrier Peter Robertson for the government-owned T2 tanker Bull Run, the bulk carrier J. Upson for the T2 Roanoke, the bulk carrier Harry W. Croft for the T2 Petrolite, and the bulk carrier Philip Minch for the T2 Mission Dolores.

The transfer ships Bull Run, Roanoke, Petrolite, and Mission Dolores were determined to have an unadjusted fair and reasonable value of $257,000, $285,000, $285,000, and $377,500, respectively. The exchange ships were determined to have an unadjusted fair and reasonable value of $35,000 each. Sea-Land is to pay MarAd a total of $1,064,500—representing the excess values of the transfer ships over that of the exchange ships.

The company has proposed to convert the Mission Dolores to a containership having a capacity for 360 containers. The sterns of the remaining three transfer vessels are to be joined with the forebodies of three Sea-Land C4s to become 360-container capacity ships. The conversion work must be completed within 12 months after the signing of the Ship Exchange Contract.

Sea-Land revealed that it also plans to join the sterns of the three C4s—whose forebodies will be joined with the tankers it is receiving—to three new forebodies to make three elongated 600-container capacity ships. The C4s which will probably be used are the Anchorage (ex-Marine Panther), Seattle (ex-Marine Fox), and the Baltimore (ex-Marine Cardinal), which were traded out to Sea-Land previously under the exchange program.

Maxon Construction Elects Craig T. Capp

Craig T. Capp

The board of directors of Maxon Construction Company, Inc. elected **Craig T. Capp** a vice-president of the company recently. In addition to his responsibilities as a vice-president of the company, Mr. **Capp** will continue as general manager of the company's Shipbuilding-Manufacturing Division located at Tell City, Ind.

Mr. **Capp** joined Maxon in 1965 as sales manager and was made general manager in October, 1968. He has been associated with the inland marine equipment industry for many years.

SNAME Awards Three Graduate Scholarships

The award of three graduate scholarships for the 1969-1970 academic year has been announced by The Society of Naval Architects and Marine Engineers, now in its seventy-sixth year of continuous activity. The recipients were selected from a total of 16 applicants by the Society's Scholarship Committee, chaired by **Frank L. Pavlik** and approved at a recent meeting of the executive committee of the Society.

The first recipient, who will study naval architecture at the University of Michigan and who is also designated as the Society's "Wilbur N. Landers' Scholar" for 1969, is **Richard Clyde Moore,** a 22-year-old, who has worked at Newport News Shipbuilding and Dry Dock Co.

The recipient of the second award plans advanced study in business administration at the University of Chicago. He is **Glen Frederick Jurges,** employed at Puget Sound Naval Shipyard since graduation.

The recipient of the third award, who will study naval architecture at the University of California is **Lawrence Levy.**

Named as alternates, in order, were: **Leonard Anderson, Elizabeth Fergus, Tommy L. Richard** and **Robert C. Kendall.**

The competition for the scholarships was nationwide and open to all who could qualify. The Scholarships Committee of the Society carefully studied the merits of each applicant and the winners were selected on the basis of character, leadership and general promise for a future in the marine industry, as well as for scholastic ability and the desire to pursue advanced study. The total monetary value of the three graduate scholarships is $12,000. Included in each award is the tuition fee charged plus a living expense stipend of $2,100.

In addition to the above scholarships for graduate study, the Society is continuing its program of Undergraduate Scholarship Awards started 11 years ago. This undergraduate plan is now maintained with scholarship grants at the Massachusetts Institute of Technology, the University of Michigan, and the University of California, at Berkeley. Under this program it is anticipated that a total of 10 undergraduates will each receive $1,000 during the 1969-1970 academic year.

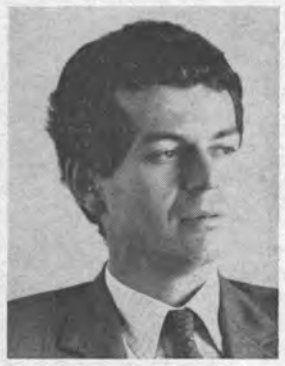
Interested high school and preparatory school students should inquire directly with these three colleges and not with the Society.

The basic objective of the Undergraduate Scholarship Program is to encourage new men to enter the maritime industry, particularly in the technical fields of naval architecture and marine engineering.

The Society is again making an annual grant to Webb Institute of Naval Architecture, Glen Cove, New York, to assist in training young men at this specialty school for the maritime industry, thus, in effect, including Webb in the undergraduate program.

Ocean Science Elects Roberts And Stancioff To Key Positions

Roy Roberts Jr.



Andrew S. Stancioff

Willard Bascom, president of Ocean Science and Engineering, Inc. of Washington, D.C. recently announced the appointment of **Roy Roberts Jr.** to the position of division manager for Ocean Science and Engineering's West Coast operations and as vice-president of Ocean Science Ships, Inc., a wholly owned OSE subsidiary. Mr. **Bascom** also announced the appointment of **Andrew S. Stancioff** to the position of director of advertising and public relations, reporting to **L. S. Johns,** director of corporate marketing.

In his new position, Mr. **Roberts** is in charge of OSE's systems engineering and hardware division. His responsibilities include supervision and control of all sales, contracts, and manufacture of complex winches, handling systems, search and recovery systems, deep ocean coring and anchoring devices and other equipment to accomplish useful work in the sea. Most recently Mr. **Roberts** directed the successful OSE effort to locate and recover over 20 tons and thousands of parts of an aircraft down in over 1,000 feet of water.

Mr. **Roberts** previously served as program manager at North American Rockwell and he was responsible for the overall direction of a number of research development and production programs carried out for the Department of Defense.

Mr. **Roberts** spent four years in the Navy during World War II and served as executive officer in a naval ordnance repair unit. He also supervised fabrication, assembly and testing of naval gun controls and fire control equipment.

Mr.**Roberts** attended Brown and M.I.T. He holds a bachelor of science degree in engineering.

Mr. **Roberts** replaces Dr. **Jack I. McLelland,** acting division manager who is vice-president for engineering of Ocean Science.

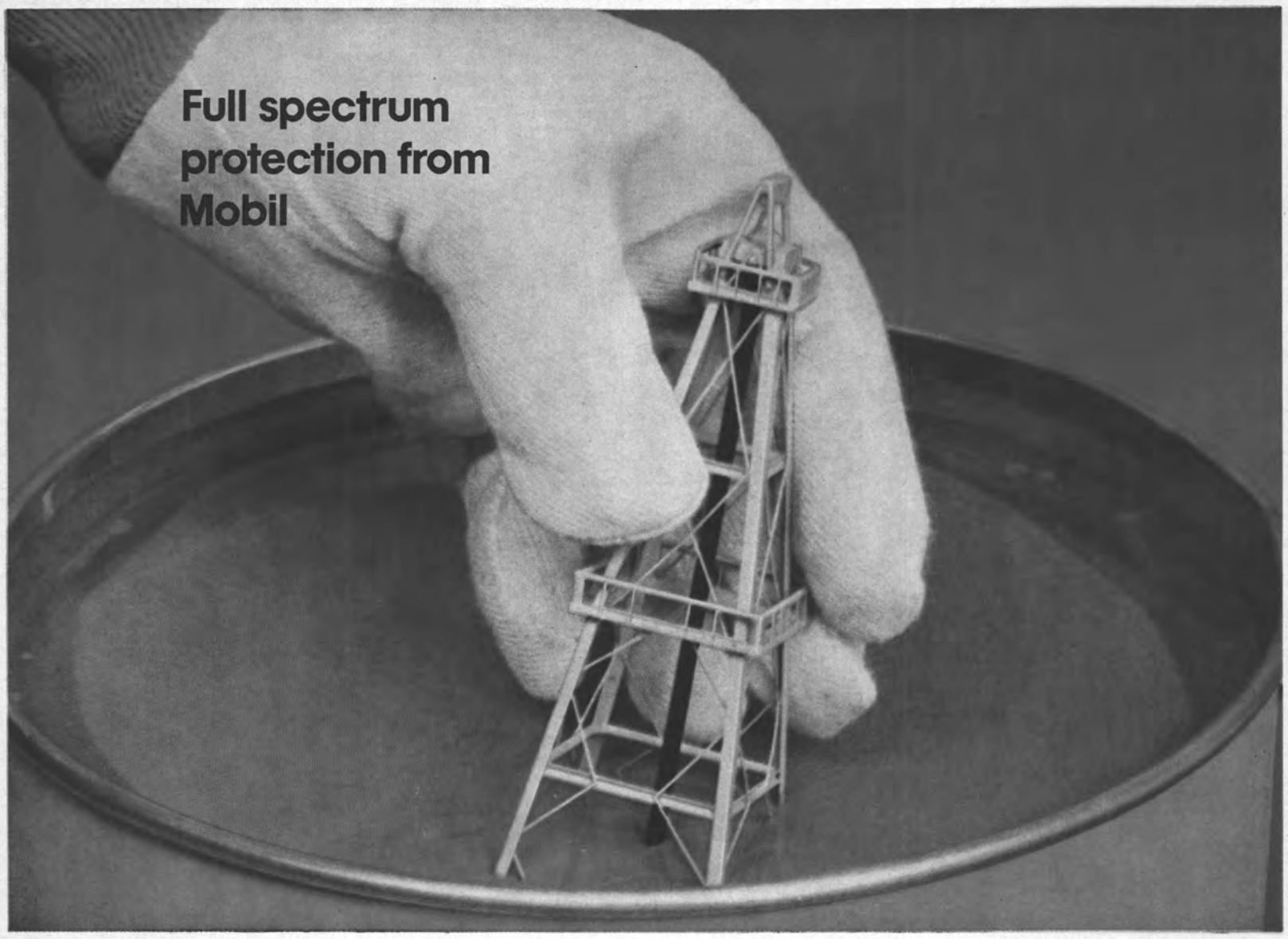
Mr. **Stancioff** has been with the company since 1964, at which time he joined Ocean Mining A.G. as a marine geologist. As a marine geologist, Mr. **Stancioff** worked in Alaska, Oregon, Hudson Bay and most recently in South America.

Since 1967, when Mr. **Stancioff** was appointed international marketing representative, he has traveled to Southeast Asia, Europe and South America in an effort to promote overseas sales.

Since early 1968, Mr. **Stancioff** has assisted in the design and production of company advertising, brochures and industrial displays.

Atlantic Marine Building Five Fishing Trawlers

Atlantic Marine, Inc., of Fort George Island, Fla., is building five fishing trawlers for various interests. Each fishing trawler will be propelled by 350-bhp diesels and will be of Atlantic Marine's 73-foot, 79-foot or 87-foot long standard design.



Mobilzinc® coating. Like dipping your steel structures in a galvanic bath.

Brushing or spraying steel with Mobilzinc gives the same protection as dipping it in a galvanic bath. That's why "Zinc-rich" Mobilzinc gives the most effective, longest lasting, easiest applying cathodic protection of any coating.

Mobilzinc leaves a tough coating of zinc on steel substrates. During immersion, or in highly humid environments, the steel becomes cathodic and Mobilzinc becomes anodic. If the steel becomes exposed by damage, the zinc film is sacrificed slowly, protecting the steel.

No demanding application techniques are necessary with Mobilzinc. It brushes or sprays on like ordinary paint. Its eye-appealing green color provides an easy-to-see contrast to unpainted surfaces. Setting time is just twenty minutes.

Extensive testing proved Mobilzinc effective for adverse marine and industrial environments, including bridges, offshore rigs, pulp and paper mills, chemical plants, caustic environments, and areas exposed to heavy abrasion or high temperatures.

For expert advice on the best Mobilzinc coating for you, see your favorite Mobil oilfield supplier, or write to Mobil Chemical, Maintenance & Marine Coatings Dept., Edison, N. J., the largest supplier of maintenance coatings to the drilling industry.

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New Face And Power For Famous Salvage Tug

Island Tug's new Sudbury will have 10,500 hp installed.

Big things are in store for Canada's largest salvage tug—the largest, as well, in the Pacific. Sudbury II, the central figure in a score of epic salvage rescues, is to undergo a major modernization program which will result in virtually a new tug. The most important phase of the modernization will be an increase of installed power to 10,500 hp. The name of the tug will be changed to take the name of Island Tug's first great salvage vessel, Sudbury.

The owners, Island Tug & Barge Limited, a member of the GenStar group, have worked closely with Vancouver naval architects Cove Hatfiield & Company in developing the 216-foot tug's new conformation. Plans call for the completion of renovations by the end of the year.

Propulsion will be delivered by two 20-cylinder, turbo-charged GM engines driving controllable-pitch propellers 10 feet in diameter. This system is expected to produce a high free-running speed in excess of 18 knots and will generate towline pulls of over 75 tons. Towing is the big tug's whole reason for existence. Her new equipment and power will enable her to handle just about anything afloat—from ships in distress to the largest of oceangoing oil-drilling rigs. A 75-ton towing winch is specified for the aft deck. It will carry close to ¾ of a mile of 2¼-inch cable.

The tug will have a cruising range of more than 10,000 miles without refueling, and she will be equipped to operate in tropical as well as North Pacific waters. Officers' and crews' quarters are completely air conditioned, as is the lounge, bridge, galley and other living and working areas. In keeping with the company's approach to accommodation in the past few years, all quarters are attractively designed and furnished. The tug's lounge-mess area, for instance, has a stereo system and television.

The galley and mess are designed to operate in cafeteria style. Few oceangoing cooks will ever have better or more complete equipment to work with. Tugboat crews, like armies, perform best on full and satisfied stomachs. On long voyages the cook can be almost as important as the captain.

The entire superstructure of Sudbury II will be renovated, altering the appearance of the vessel. Its profile will be lower and more raked; the funnel will be more streamlined. The new wheelhouse, with its wrap-around windows, will permit unobstructed vision in all directions. Navigation and communications equipment are of the latest type, including among other things: two radars, very-high-frequeny and single-side-band radio systems, radio-telephones, loran, depth sounders and radio direction finders.

The vessel's control functions will be completely automated. The master will be able to control all the prime functions of the tug from the bridge, as well as from three other command positions located to permit the operation of any kind of towing or salvage maneuver. The engineer will monitor the operation of main engines and auxiliaries from a sound-proofed and air-conditioned remote control booth, giving him a clear view of all machinery spaces.

Propeller Club Elects Campbell National V-P Southeast Region

Jack W. Campbell

At a meeting of the Southeast Region of the Propeller Club of the United States held at Tampa, Fla., May 2, 1969, **Jack W. Campbell,** president of Mobile Towing Company, Mobile, Ala., was unanimously nominated as national vice-president for the Southeast Region of the Propeller Club of the United States. Mr. **Campbell** who is now president of the Propeller Club of Mobile will assume his new office in October, 1969, at the Propeller Club of the United States' National Convention which will be held in Savannah, Ga.

The principal speaker at the meeting was the Hon. **Thomas E. Stakem,** president, The Propeller Club of the United States, and former chairman of Federal Maritime Commission.

W.R. Grace & Co. Elects H.R. Logan To Board Of Directors

Harold R. Logan

Stockholders of W. R. Grace & Co., at the company's annual meeting in Atlanta, Ga., voted to elect **Harold R. Logan,** executive vice-president, to the board of directors.

Mr. **Logan** has been an executive vice-president since 1968. He is an alumnus of Oklahoma State University and attended Harvard Business School. He served in the United States Navy from 1942 to 1947.

Prior to joining Grace Line Inc. as a vice-president in 1960, Mr. **Logan** was budget director in the Department of Defense. He became president and chief executive officer of Grace Line in May, 1967 and in 1968 was named chairman of the board of Grace Line.

Mr. **Logan** is also president of Gulf & South American Steamship Co., headquarted in New Orleans, and a director of the Shipowners' Mutual Insurance Company.

Burton To Build Oil-Well Supply Boat

Burton Shipyard, Inc., Port Arthur, Texas, is to build an offshore oil-well supply boat for Caspary-Wendell, Inc., Rockport, Texas. Designated Hull No. 460, the vessel will have the following dimensions: 165 feet by 38 feet by 13 feet and will be propelled by 1,700-total-bhp diesels.

Taylor Joins Todd Houston Division As Sales Representative

Arthur G. Taylor

Arthur W. Stout Jr., general manager, Todd Shipyards Corporation (Houston Division) announced that **Arthur G. Taylor** has joined the Todd Houston Division as a sales representative.

Mr. **Taylor** is a graduate of Muhlenberg College. In 1950 he joined the U.S. Coast Guard as a career officer and retired from the Service in January of 1969, after having had duty stations in Boston, District of Columbia, Honolulu, Jacksonville, and Houston. His last duty command was as captain of the Port of Houston. While in the latter assignment, he was awarded the Coast Guard Commendation Medal for meritorious service connected with the supervision of the fire fighting and rescue involved with the collision and explosion of the Liberian MV Christiane. Mr. **Taylor** also received the Legion of Merit award from the president of the United States for meritorious conduct in the performance of outstanding service, for keen foresight and dynamic leadership as captain of the Port of Houston.

Prior to joining the Todd organization, Mr. **Taylor** was vice-president of a Houston stevedoring firm.

He is a member of the Propeller Club of the United States and the Port Advisory Safety Committee of Houston.

TWIN-SCREW TUGBOAT CW-11 was recently delivered by Gladding-Hearn Shipbuilding Corporation to the Town of Hempstead, Long Island, N.Y. The 40-foot vessel was designed by **Richard Taubler,** naval architect, Brooklyn, N.Y. for dredging operations in harbor, bays, and sounds. Power is provided by two D330T Caterpillar diesels, supplied by H.O. Penn Machinery Company, turning 32-inch by 32-inch three-blade, Federal True-Pitch propellers through 2-inch Armco 17-4 PH boat shafting fitted with Johnson Rubber marine bearings.

Foresight And Planning Developed

Containerization In Holland

Dutch Ports Received 50,000 Containers And Shipped Out 44,000 In First Half Of 1968 In Overseas Trade

With the world's largest and busiest seaport, namely, Rotterdam, the Dutch have given very positive acceptance to the latest techniques of international transport, particularly containerization and other forms of unitized shipping.

According to the first statistics on container traffic in Dutch seaports, compiled by the Netherlands Central Bureau of Statistics at The Hague, almost 50,000 containers were unloaded from oceangoing ships during the first half of 1968, while more than 44,000 containers were shipped out to foreign ports. Over 15,000 of the incoming containers came from the United States, while 8,000 of the outgoing ones went to the United States.

Of the 50,000 arriving containers, about 33,000 came from North Sea ports, mainly the United Kingdom. Some 36,000 of the exiting containers were destined for the same area.

On an overall basis, there was a remarkable balance between the volumes of goods, loaded and unloaded. During the six-month period of January to June, 1968, some 288,000 tons of container-transported cargo were unloaded in Dutch ports, whereas some 285,000 tons were dispatched in containers.

The Central Bureau of Statistics also revealed that 98 percent of the containers coming from the U.S.A. were filled. Only 65 percent of those from the North Sea area were filled. In general, larger containers—20 feet and over—with average loads of about 13 tons were utilized on the North American routes. In contrast, a large part of the traffic to and from the United Kingdom was in containers of less than 20 feet, with loads averaging six tons each.

In terms of its ability to handle containers coming or going by all media—seaborne ships, inland waterways craft, road and rail—Holland is one of the best-equipped nations in the world. Both of its major ports—Rotterdam and Amsterdam—prepared themselves long in advance through the construction of special terminals for containerships and roll-on/roll-off traffic and application of the latest developments in materials handling.

Facilities in Rotterdam

Rotterdam can now accommodate container and ro/ro ships at seven sets of piers. Five trans-Atlantic container lines are now operating scheduled services into Rotterdam. They are: Sea-Land Service, Inc.; Atlantic Container Line Ltd.; Moore-McCormack Lines Inc.; United States Lines, and Hapag/Lloyd Container Line. Atlantic Container Line is a subsidiary of Holland-America Line, Cunard Line, French Line, Swedish-America Line, Swedish Transatlantic Line, and Wallenius Line.

Roll-on/roll-off service on a daily basis is now offered by ten different lines between Rotterdam and various British ports. Special terminals have been set up in the Europoort area and elsewhere.

Containerization officially began in the Netherlands in 1966 when Europe Container Terminus (ECT) N.V. was founded in Rotterdam by five large trans-shipment enterprises, together with the Netherlands Railways. Its stated purpose was the loading and unloading of container and roll-on/roll-off ships.

ECT's initial terminal site, able to take 325 thirty-five foot containers, soon proved inadequate. Thus, a second and much larger terminal was built at the Prinses Margriethaven. This terminal is operated by a joint venture set up by ECT and Holland-America Line. It comprises a 44½-acre park for up to 2,000 forty-foot containers, together with space for a further 170 cold-storage containers.

The pier is 2,600 feet long. The terminal buildings include a platform shed (43,100 square feet), a general cargo shed (45,200 square feet), and a main services building. Equipment available includes three container cranes of 35- 45- and 50-tons capacity, respectively, three mobile cranes, fourteen 30-ton tractors, 300 terminal chassis and three 60-ton weighbridges.

During its first year, ECT handled 380 container and/or ro/ro ships with a total of 57,000 units, which considerably exceeded the 40,000 originally planned.

In 1968, some 80,000 containers were handled.

On the basis of this experience, forecasts of the growth in container traffic have been revised upward. For 1969, ECT expects sharp gains to 110,000 containers and over 150,000 by 1970.

Container Transport Internatioinal Inc. (CTI), New York, and the Canadian Pacific Company have announced that they will use ECT for their containerships. The American LASH (Lighter Aboard Ship) vessels are also to run to Rotterdam from the U.S. East Coast. The accommodation for these special ships at Rotterdam's docks will be ready well in time.

Under the name of CONTREX N.V., 30 Dutch forwarding agents have formed a consortium for container traffic.

ECT and some Rotterdam enterprises have set up a concern for the making and repair of containers and for allied technical work.

The American Transport Pool Inc. now has a subsidiary in Rotterdam for the renting of containers, chassis and semi-trailers. Known as Transport International Pool N.V., it will have 340 semi-trailer units at its disposal.

Since the existing docks will not be adequate for general cargo traffic in the future, a new set of piers is planned to the north of the New Waterway, near the Hook of Holland. The new 1,150-acre port will have the most up-to-

(Continued on page 27)

ROTTERDAM—A partial view of Europe Container Terminus (ECT) N.V.'s container terminal at Rotterdam's Prinses Margriethaven. Up to 2,000 forty-foot containers can be left at any one time in this 44-acre outdoor area. Atlantic Container Line, Hapag/Lloyd Container Line, Moore-McCormack Line, Sea-Land Service and United States Lines operate scheduled services to this ECT terminal. Two of the giant mobile container cranes available are shown.

Essomarine®, for your Lady in the Inland Sea.

Kobe, Osaka, Hirohata, Mizushima... our busiest ports in the Inland Sea. But we have a dozen others as well.

Every one regularly delivers every Essomarine lubricant—plus our bunker fuel, marine diesel, and Intermediate Grades 2 to 25. At every one our service representatives will assist your ship when needed.

Elsewhere in Japan? 30 more Essomarine ports.

What does it prove? That Essomarine stays close to your lady. Wherever she sails.

ESSO

FUELS AND LUBRICANTS

When Hippo isn't towing rigs, she feeds them men, fuel, mud and steel.

It's a giant's job. Towing and supplying Penrod Drilling Company's modern offshore rigs. Anywhere in the world.

That's why her owners, Petrol Marine, made Hippo the superboat that she is.

They wanted her big. 192 ft long. So she could haul more than 800 tons of rig supplies, including dry mud, cement, fuel and drilling water in her built-in bulk tanks.

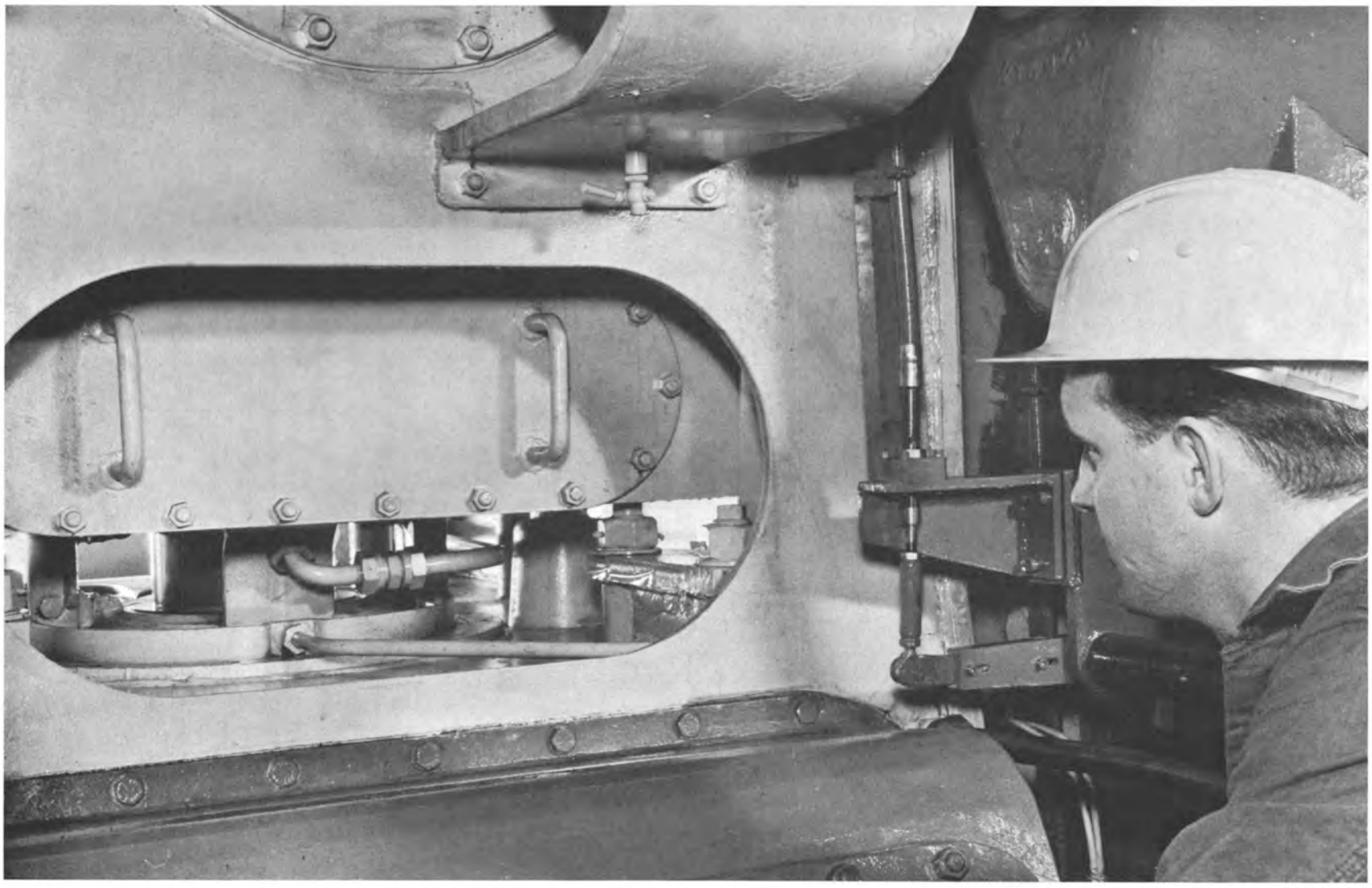
They wanted her fast. With a two-speed forward gear, first of its kind. In high gear, even with full cargo, Hippo can split the water at more than 15 knots. In low gear, she'll move her rig at close to five knots.

And she had to be powerful. As Captain Ray Davis tells it, "Get a ten-million dollar rig in a storm on open water and you learn what it means to have big engines you can count on." Captain Davis counts on two General Motors 645E5 16-cylinder Diesels, totaling 5750 shp.

Wherever boats work hard, you'll find rugged, reliable GM power. Ask your Electro-Motive representative to show you why.

GM
MARK OF EXCELLENCE

Electro-Motive Division
La Grange, Illinois

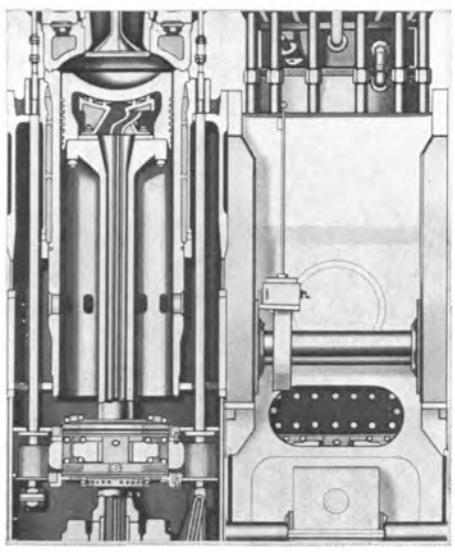


A noteworthy feature of the Götaverken engine

EASY INSPECTION — INSTANT MAINTENANCE

In the new range of Götaverken crosshead diesel engines there is an open cofferdam between the scavenging air belt and the crankcase. This cofferdam prevents the air and combustion residues, which are under pressure in the scavenge belt, from mixing with the oil in the crankcase which is at atmospheric pressure. Because of this, there is no possibility of oil mist vapour fouling the engine room.

Another advantage is that the functioning of the piston rod double scraper box, located in the cofferdam, can easily be observed — even while the engine is running. An opening with bolted cover (see illustration) in the cofferdam makes it easy to clean the bottom of the scavenge belt. Thus the open cofferdam contributes to easier maintenance and a cleaner engine room.



GÖTAVERKEN

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Telephone: HA 5-5530-1 Cables: Gotaverken, New York

Containerization—

(Continued from page 22)

date equipment, and it will be suitable not only for container and ro/ro traffic, but also for helicopter and hydrofoil traffic.

It is envisaged that this port with some 13,100 feet of pier space will be able to handle 20 million tons of general cargo per year. The cost of the project is estimated at $48-million.

Facilities in Amsterdam

Amsterdam was also very quick to realize the significance of the new developments in transport. In November, 1966, Container Terminal "Amsterdam" (CTA) was officially inaugurated in Amsterdam's west docks. This terminal is about 2½ hours by road from the Ruhr, the industrial heart of West Germany, and has a direct link with the Rhine through the Amsterdam-Rhine Canal.

The terminal is also the trans-shipment place for rail containers for Amsterdam and only six miles from the major international airport of Schiphol.

The terminal is run by CTA, which was set up by a group of shippers, stevedores, shipbrokers and the Netherlands Railways. There are about 164,000 square feet of space for parking about 1,500 twenty-foot containers or the equivalent number of 40-foot ones. The present quayage extends about 900 feet, and the water depth at the quay is 34½ feet.

Equipment available in Amsterdam includes two 50-ton container cranes with a 118-foot reach over the water and a 144-foot reach over the pier side. These cranes are able to lift two married 20-foot containers. In addition, there are two mobile gantry cranes and a large number of tractors and semi-trailers. A 46-door general cargo shed with a floor at platform height provides 32,300 square feet of covered space, while connections for cold-storage and freezer containers are also provided.

Container Marine Lines, a subsidiary of American Export Isbrandtsen Lines, calls direct at the Amsterdam terminal.

Twenty leading forwarding agents have formed the Cooperatieve Vereniging Amsterdam Container Consolidation Group U.A. (AMCON) for the dispatch and reception of inward and outward containerized goods. Container Service Amsterdam attends to the repair and maintenance of containers and rolling stock. Containers as such may be rented from CONVEN, a firm which can also arrange the entire transport, if required.

Transport by Road

More than 80 percent of the transport of containers between the seaports and the hinterlands and vice-versa is by road. Dutch road haulage concerns, which account for about 40 percent of all interstate road transport in the European Economic Community, have sufficient semi-trailer units for the container traffic.

Various Dutch over-the-road truckers engaged in hauling containers have linked up in the COMBICON consortium. In the ports, there are special agencies which function as centers for apportioning the available carrying capacity.

Transport by Rail

There has been a significantly sharp increase in the railways' share of the containers brought into and out of Amsterdam. In 1967, railborne containers accounted for only five percent of the total, but in 1968, their share went up to 10 percent. For 1969, the rail volume is expected to advance still further to 15 percent of a much higher overall total.

When containers swept over Europe as a wave from America, the Netherlands Railways advocated that they be handled on a European basis. This move led to the establishment on January 1, 1968 of Intercontainer, based at Basle and having the railway authorities of 15 European countries as members.

In each country, the national railways act as agent for the joint organization. The Netherlands Railways are agent for the Rotterdam-Milan service, operated thrice weekly in both directions via the Ruhr.

Like the Rotterdam terminal, the Amsterdam container terminal has a direct connection to the international railway system and the vast road network of Europe. Here, containers are transferred between road and rail carriers.

In addition, there is also Transcontainer Express Zeehavens, linking Amsterdam and Rotterdam on the one hand and Antwerp and Zeebrugge on the other.

A joint venture between Intercontainer, the German Federal Railways and the Netherlands Railways has led to the establishment of a service between Rotterdam and Frankfurt/Main, Mannheim and Ludwigsburg (near Stuttgart). This service is run three times weekly in both directions. This year, it will be extended to include Amsterdam.

Amsterdam and Rotterdam are linked with Copenhagen via Bremen and Hamburg by the TEEM (Trans-Europ-Express-Marchandises) container train.

The railway yard at Rotterdam's Prinses Margriethaven consists of three tracks 1,740 feet long alongside each other. A special crane spans two roadways in addition to the three rail tracks, so that trains and trucks can be loaded and unloaded simultaneously. A similar crane is to be installed in Amsterdam this year.

Inland Waterways Transport

Inland waterway shippers have not been left at the starting post either. In May, 1968, a Rotterdam Rhine shipping company inaugurated a Rhine container service. A few months later, a joint venture with an Amsterdam company resulted in scheduled services between the two major Dutch ports and Basle, calling at a number of intermediate Rhine Ports. A large increase in Rhine container traffic is expected together with the introduction of special container craft and a step-up in the production of containers.

In addition, four Dutch shipping companies have joined with others from four other countries bordering on the Rhine, in order to provide daily container services. Known as Rhine Container Line, this pool of companies will have more than a thousand vessels between them.

Mainly because the transport industry plays such an important part towards achievement of equilibrium on Holland's balance of payments, both the government and private industry have shown extremely intense interest in the development of containerization. The future cannot be told accurately, but one thing is certain: Containers will continue to gain ground as a method of transport.

AMSTERDAM—Container Marine Lines, a subsidiary of American Export Isbrandtsen Lines, is one of the major users of Container Terminal "Amsterdam", a 164,000-square-foot facility able to accommodate 1,500 twenty-foot containers at one time. The crane shown has a 50-ton lifting capacity and an outreach of 118 feet over the water and 144 feet over the quay. This terminal also is the trans-shipment center for containers coming by rail to Amsterdam.

McAllister Brothers Inc. And Great Lakes D & D Co. Announce Stock Agreement

Great Lakes Dredge & Dock Company, nationally known firm in the dredging, marine construction and land reclamation fields, and McAllister Brothers Inc., one of the oldest towing and marine transportation companies on the continent, have announced an agreement in principle to exchange all of the outstanding McAllister Brothers Inc. capital stock for stock of Great Lakes, thereby joining the interests of both companies.

Both organizations are to continue in their individual respective fields and under present managements. The agreement is subject to necessary corporate approvals and a satisfactory tax ruling.

Great Lakes Dredge & Dock has its main office in Chicago; its stock is traded on the Midwest Stock Exchange. McAllister Brothers, headquartered in New York City, is a privately owned company.

European Ports Added To Mooremack Run

The Maritime Subsidy Board has approved the request of Moore-McCormack Lines to include German and French ports on its subsidized service between the U.S. North Atlantic and North Europe and Scandanavian countries.

Moore-McCormack is authorized to make 54 to 66 sailings a year on the service and calls at continental ports may be made on no more than 56 voyages each way annually, the board said.

The new Moore-McCormack replacement ships of the C-5 design were deemed by MSB suitable for this essential trade route.

Barge Construction

American Bridge Division, U.S. Steel Corp., Ambridge, Pa., is to build twelve 1,500-dwt covered hopper barges for A. L. Mechling Barge Lines, Inc., Joliet, Ill. Designated Hull Nos. 3646 through 3657, each barge will measure 195 feet by 35 feet by 12 feet.

Bethlehem-Beaumont Yard was awarded a contract by Golden Hawk Corp. for the construction of a 2,500-dwt oil barge. Designated Hull No. 4854, it will have a length of 260 feet, a beam of 55 feet, and a depth of 17 feet. The barge will be named Golden Owl.

Bollinger Machine Shop & Shipyard, Inc., Lockport, La., is to build a 1,400-dwt oil barge for Bollinger & Boyd Barge Service, Inc., Lockport. Designated Hull No. 71, the barge will have the following dimensions: 150 feet by 44 feet by 10 feet.

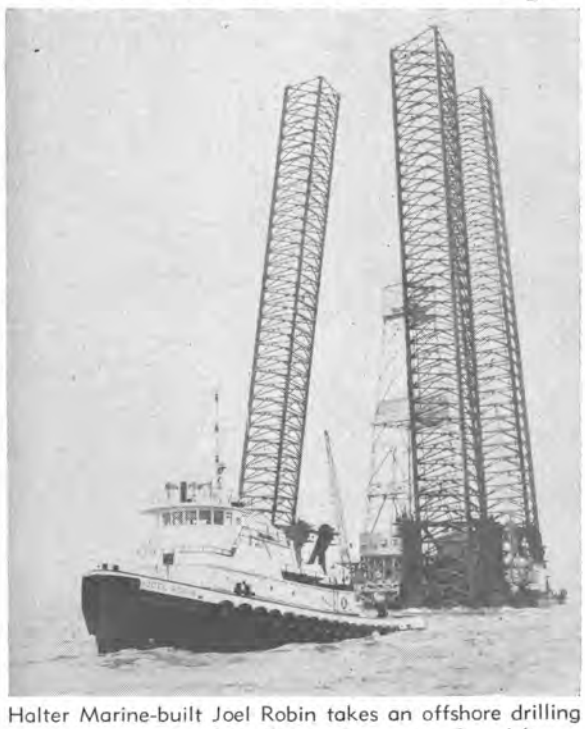
Ingalls Iron Works Co., Birmingham, Ala,. was awarded a contract by Stauffer Chemical Co., Houston, Texas, to build two 1,800-dwt independent pressure-type tank barges. Designated Hull Nos. 1698 and 1699, each barge will have the following dimensions: 195 feet by 40 feet by 13 feet 6 inches.

Jeffboat, Inc., Jeffersonville, Ind., is building thirty 1,500-dwt covered hopper barges for stock purposes. Each barge will have dimensions of 195 feet by 35 feet by 12 feet.

Reliance Marine Transportation & Construction Corp., Kingston, N.Y., is to build a deck cargo barge for Martin Marietta Co. Designated Hull No. 63, it will have the following dimensions: 130 feet by 40 feet by 11 feet 3 inches, and will be of 800 dwt.

Tidewater Equipment Co., Chesapeake, Va., was contracted by Lockwood Bros., Inc., for the construction of a 1,600-dwt cargo barge. Designated Hull No. 49, it will have the following dimensions: 200 feet by 35 feet by 14 feet.

Halter Marine Delivers Second Halmar 110 Class Tug



Halter Marine-built Joel Robin takes an offshore drilling rig in tow on one of its first assignments after delivery.

The second in a new class of all-purpose, ocean, and harbor service tugs has been delivered to Robin Marine Corporation of Harvey, La., by its builder, Halter Marine Services, Inc. The tug is the 3,600-hp 110-foot Joel Robin.

The new Halmar 110 (designation of the class developed by Halter Marine engineers) tug is built to American Bureau of Shipping classification Maltese Cross A-1 ocean towing service. It has a beam of 30 feet 6 inches, a depth of 16 feet 3 inches, and a draft of 14 feet 6 inches. The steel hull of the tug is divided into seven major compartments by six watertight bulkheads.

The hull form of the Joel Robin features a soft nose stem with a slightly flared bow to furnish dry performance. A double chine form with a third chine introduced aft of amidships provides an unusually good water flow to the propellers.

The Joel Robin is powered by two Enterprise Model DMG 38 turbo-charged, aftercooled and direct reversible engines furnishing 3,600 hp at 600 rpm. Stainless steel, four-blade, 10-foot diameter Coolidge propellers turn on 9¾ inch diameter ABS Grade 2 steel forged shafts with stainless steel liners riding on B. F. Goodrich Cutless rubber bearings through Reintjes WAV 1651 3:1 reduction gearing. The main propulsion units are controlled through Morse single-lever controls at five stations throughout the tug—three in the pilothouse and two aft on the boat deck. Steering is by Sperry Cub electrohydraulic system powered by 15-hp motors.

The new tug has a free-running speed of 13.5 knots and a bollard pull of 115,000 pounds. Fuel oil capacity, normal, is 70,000 gallons; maximum of 86,000 gallons. Potable water capacity is 5,000 gallons and wash water is 10,000 gallons.

The engine room of the tug is fully automated with monitoring stations in the engine room and bridge and with alarms in the galley and chief engineer's stateroom. The system, of solid-state design, was manufactured by Pan American Engineering of New Orleans.

Auxiliary equipment aboard the ocean tug includes electric motor-driven bilge, fire and washdown pumps, fuel-oil transfer pumps, potable water pressure sets, wash water and sanitary water pressure sets, two Quincy 350 tenhorsepower air compressors with six 114-gallon air receivers, and a Douglas watermaker, Model D-10, which uses waste hot water from the generator cooling system. Caterpillar D333 Series C diesel engines drive two 125-kw 460-volt, d-c, 3-phase paralleled generators.

The deck equipment on the Joel Robin is massive and is designed and constructed for heavy-duty operation. The combination towing and anchor pulling machine is an Intercontinental set with side-by-side double drums driven by a Caterpillar D330 diesel engine through a torque converter. The vessel is equipped with a 15-hp electric single wildcat anchor windlass with 1,000-pound anchor in a hull recess with 720 feet of 1⅛ inch high-strength chain, a Halter Marine vertical and horizontal hydraulically actuated stern roller assembly; and a 20-hp electrical vertical capstan with a 24-inch barrel.

The Halmar 110 tug is equipped with a great variety of navigational equipment including Sperry Mark 27 gyro compass; Sperry autopilot; Raytheon 1105 AM radio-telephone; Raytheon 1275 AM single sideband; Raytheon 40A VHF FM radio; Raytheon 358A automatic direction finder; Raytheon DE 726 fathometer; one Raytheon 2502 radar and one RCA CPM-10 radar.

The first tug in the Halmar 110 class was built for CIT Corporation, which leased the boat to Dole for operation in Hawaii. The class is available in several arrangements and in horsepower ranges from 1,700 to 4,500. The tugs are used primarily for ocean towing, anchor handling, and ship docking.

Dillingham To Acquire Vetco Offshore Ind.

Dillingham Corp., Honolulu, has announced it is negotiating to acquire Vetco Offshore Industries Inc., a maker of offshore drilling equipment, in a transaction that could involve $27-million of Dillingham stock.

The proposed transaction would be subject to the approval of the directors of both companies and shareholders of Vetco, which is based in Ventura, Calif. Dillingham is a diversified concern with interests in land development, various types of construction and other operations.

In a separate development, **George S. Wheaton,** executive vice-president, was named chairman of Dillingham, a post that has been vacant. **J. C. Walker,** senior vice-president, was made vice-chairman, a newly created position. **Lowell S. Dillingham** continues as president and chief executive.

Sign
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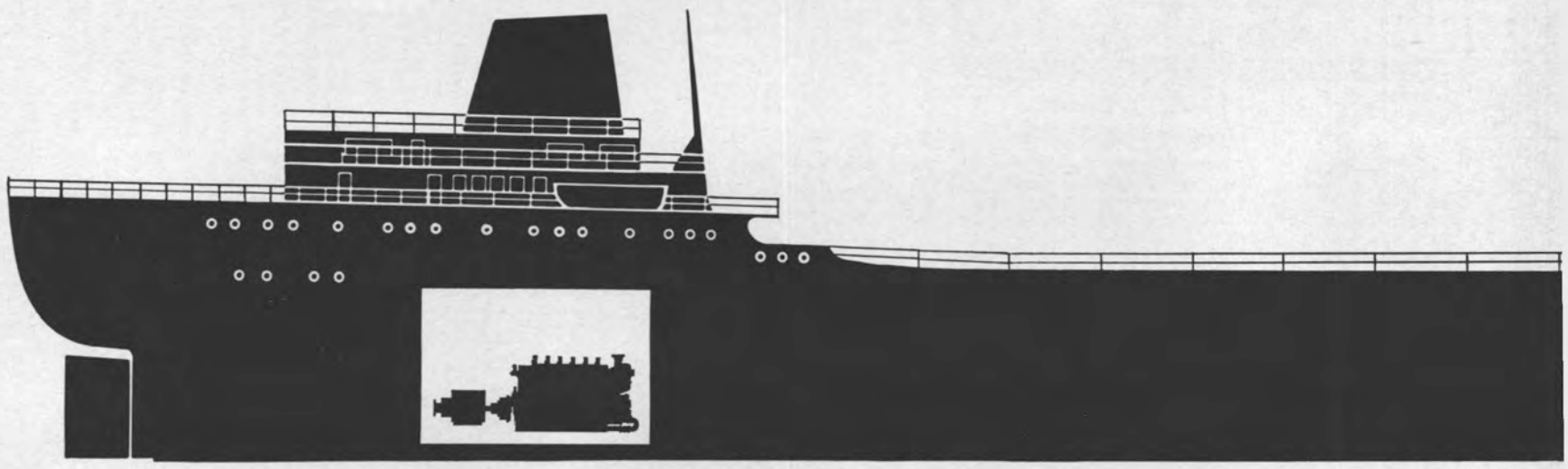

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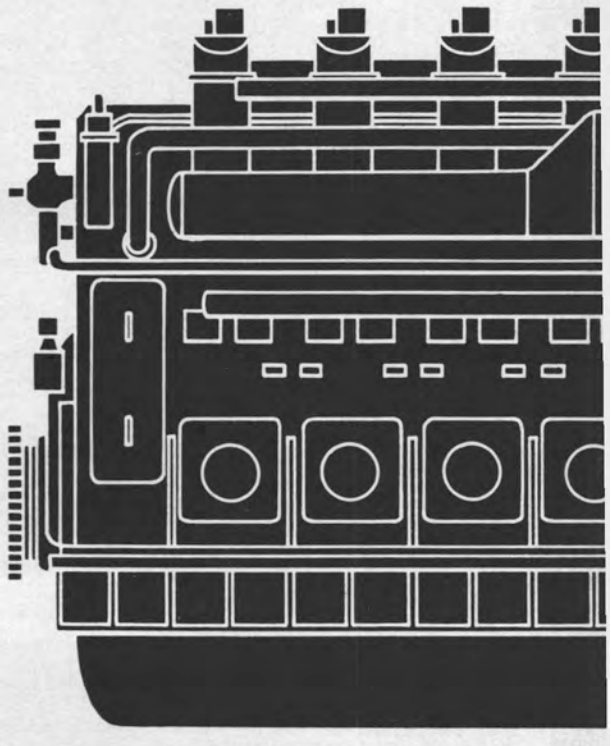

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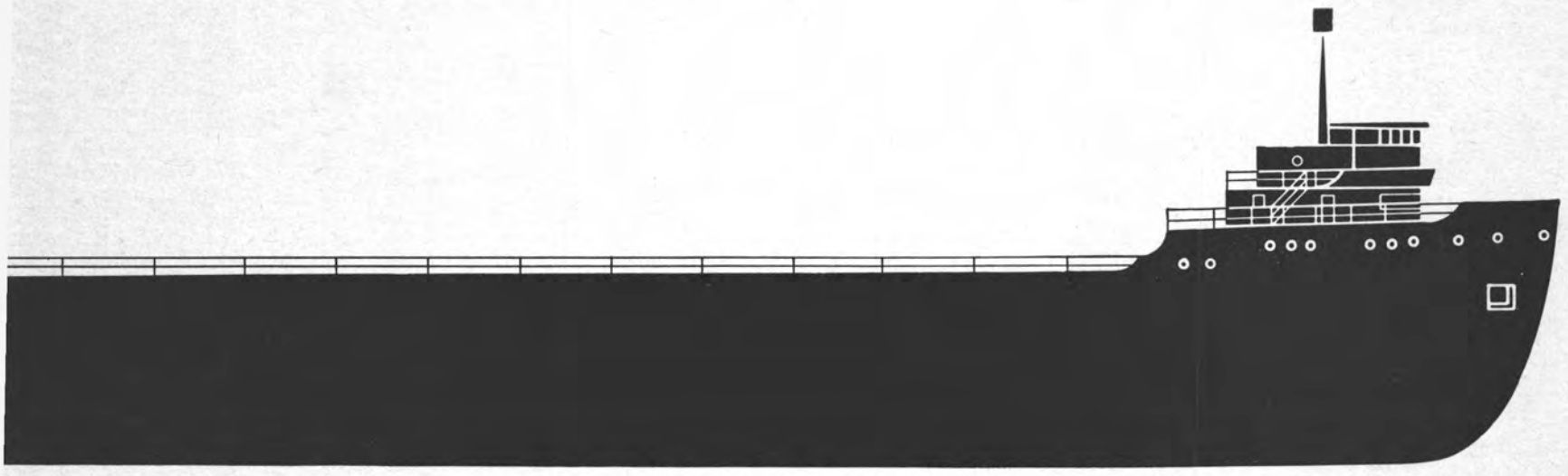

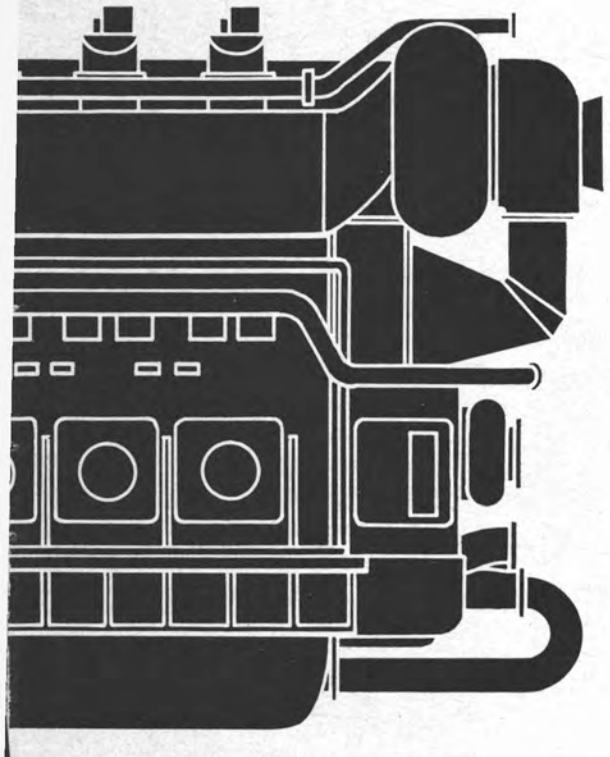

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Three of the invited dignitaries are greeted in the Basildon Room, left to right: **William E. Cleary,** president of the Harbor Carriers; Rear Adm. **Charles P. Murphy,** USCG, chief Office of Merchant Marine Safety; Adm. **Willard J. Smith,** USCG, commandant, United States Coast Guard; Rear Adm. **Mark A. Whalen,** USCG, commander, Eastern Area and Third Coast Guard District, and **William T. Tracy,** Banquet Committee chairman.

Major Gen. **Charles M. Duke,** USA (left), division engineer, North Atlantic, United States Army Corps of Engineers, and Hon. **George H. Hearn,** member of the Federal Maritime Commission.

Braxton B. Carr (left), president, The American Waterways Operators, talking to Hon. **Neal L. Moylan,** commissioner, New York State Department of Commerce. The AWO cooperates with the Harbor Carriers.

Harbor Carriers, Port Of New York Hold Annual Banquet

The Harbor Carriers of the Port of New York held its 35th annual banquet on April 25 in the Grand Ballroom of The Waldorf-Astoria. This annual affair opened with a reception in the Basildon Room.

William T. Tracy, secretary of M. & J. Tracy, Inc., was chairman of the Banquet Committee, assisted by **Francis B. Bushey,** president, Spentonbush Transport Service, Inc.; **Gerard M. McAllister,** vice-president, McAllister Brothers, Inc., and **Bart J. Turecamo,** president, Turecamo Coastal & Harbor Towing Corporation. **Eugene F. Moran Jr.,** retired vice-president of Moran Towing Corporation, who had been a member of the committee since the inception of the banquet in 1934 was named honorary chairman.

The Association's president, **William E. Cleary,** presided over the evening's festivities.

The Association was founded in 1934 as a successor organization to the old New York Boat Owners Association. Its purpose is to foster and preserve the interests of harborcraft operators and to promote the welfare of the Port of New York. It is a voluntary, nonprofit, marine trade association composed of 50 transportation firms.

Cooperation with other marine industry organizations is maintained through affiliation with The New York Tow Boat Exchange, the New York State Waterways Association, Inc., and The American Waterways Operators, Inc.

J. Frank Belford Jr. (extreme left), president of New York State Waterways Association is shown with, left to right: Col. **Harvey C. Jones,** USA, district engineer, New York District, Corps of Engineers; Hon. **Michael D. M. Westgate,** assistant commissioner, New York City Department of Ports and Terminals, and **Jeremiah J. Sullivan,** executive vice-president, The Security Bureau.

Left to right: Hon. **Morris Tarshis,** director, Bureau of Franchises, City of New York; **George H. Blohm,** chairman of the board, The American Waterways Operators; Capt. **Carl F. Pfeifer,** assistant director of operations, Atlantic Coast District, Maritime Administration, United States Department of Commerce, and **Ernest T. Bauer,** deputy executive director, Virginia State Ports Authority.

Left to right: **Eugene J. O'Connor,** executive secretary, Marine Towing & Transportation Employers Association; **James J. O'Brien,** director, Bureau of Motorboats, State Conservation Department; **Thomas F. Horan,** past president, Harbor Carriers, and Capt. **Joseph O'Hare,** president, United Marine Division, National Maritime Union.

From the left: **Robert J. Hughes,** North Atlantic regional vice-president, The American Waterways Operators, Inc.; Dr. **Ira U. Cobleigh,** past president, Harbor Carriers; **Richard N. Wright,** secretary-treasurer, Canal Society of New York State, and **Peter E. Edwards,** president, Foreign Commerce Club of New York.

The Hon. **J. Burch McMorran** (left), commissioner, Department of Transportation of the State of New York, joins with, left to right: Adm. **Willard J. Smith,** commandant, United States Coast Guard, Hon. **Jacob H. Gilbert,** United States House of Representatives, 22nd Congressional District, New York, and **William E. Cleary,** president, Harbor Carriers of the Port of New York, which represents 50 transportation firms.

From left: Hon. **William H. Allen Jr.,** chairman, Albany Port District Commission; **James P. McAllister,** member of the New York State Board of Pilot Commissioners; Rear Adm. **Edward J. O'Donnell,** USN (ret.), president, State University of New York Maritime College, and **Robert N. Kamp,** assistant superintendent, operation and maintenance—waterways, New York State Department of Transportation.

Deputy Inspector **Raymond J. Kenny** (left), commanding officer, Emergency Service Office, N.Y. City Police Department, is shown with, left to right: Rear Adm. **Gordon McLintock,** USMS, superintendent, U.S. Merchant Marine Academy; **Roger H. Gilman,** director of port development, Port of New York Authority, and Hon. **Michael Stramiello Jr.,** Regional Commissioner of Customs, Bureau of Customs.

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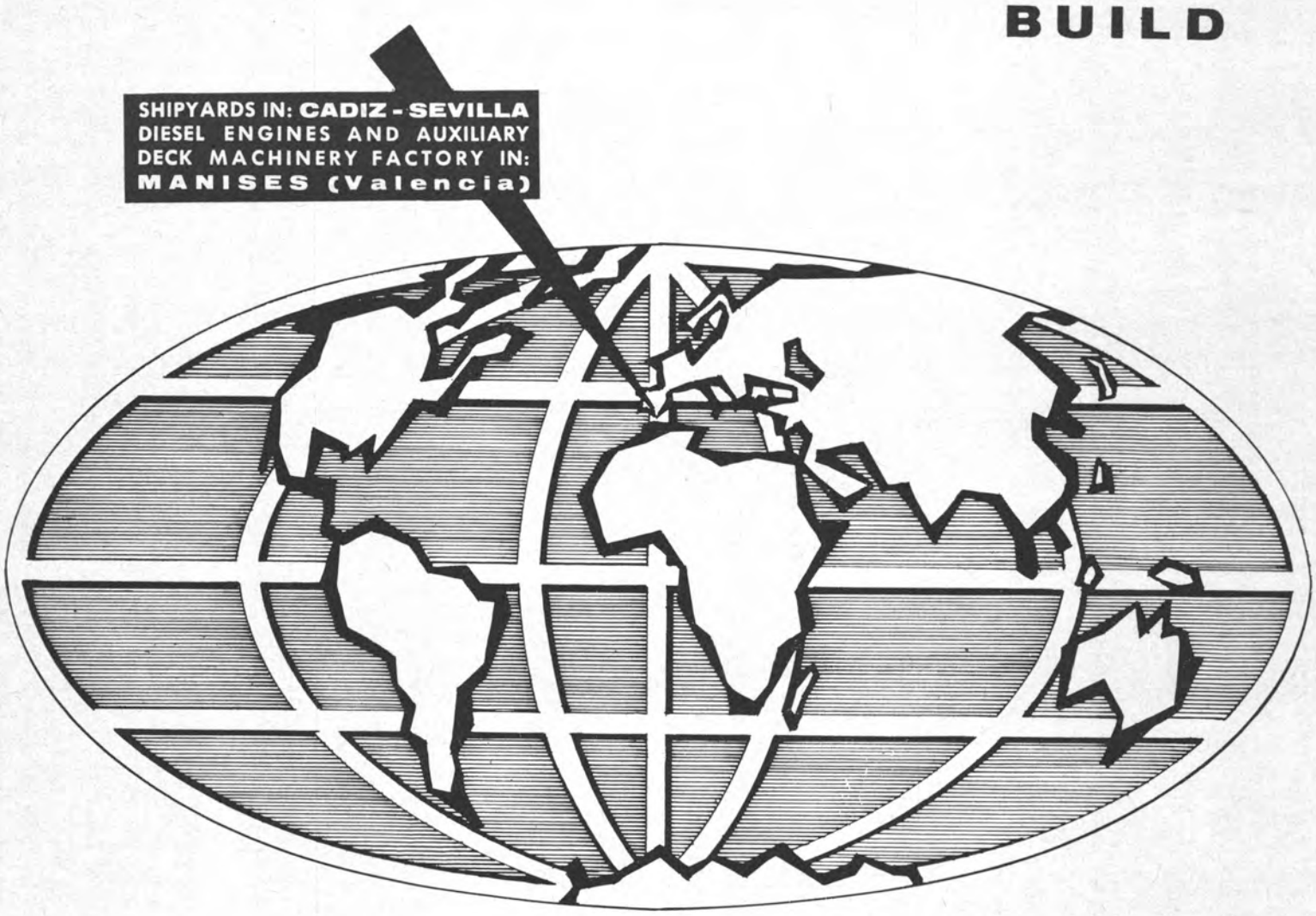

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Length of ships to be accommodated	896'6"	—	—	413'3"	344'6"
Length averall	—	777'4"	490'0"	—	—
Free breadth	137'9"	119'7"	82'0"	57'5"	45'11"
Draught	33'8"	—	—	18'4"	18'4"
Draught at high water	—	35'3"	26'0"	—	—
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Guide Scientific Buys Pacific Ship Repair

The acquisition of Pacific Ship Repair, Inc., San Francisco, by Guide Scientific Industries, Sun Valley, Calif., for an undisclosed amount of cash has been announced by GSI President **John J. Guarrera.**

In making the announcement, Mr. **Guarrera** pointed out that the acquisition will add in excess of $10-million to GSI's projected $4-million sales for the current fiscal year. Earnings per share for the 640,000 outstanding shares of Guide are expected to be in excess of one dollar. GSI is a western over-the-counter stock, while Pacific Ship is privately owned.

The 23-year-old San Francisco firm is the fifth in a series of acquisitions this year, carefully selected to complement and round-out the Sun Valley science-based company's specialized capabilities. Guide's Naval Division, a leader in high-power microwave and associated shipboard electronic equipment, will coordinate activities between the parent company and its latest acquisition. Increase in the division's annual volume over the next two years is consequently expected to range from $3-$5-million.

"The combined capabilities will result in one of the most modern and complete facilities on the West Coast for the installation and upgrading of fire-control, guidance and shipboard navigation systems," Mr. **Guarrera** reported. "Pacific Ship is a well-established firm with an excellent reputation for the conversion and modernization of a wide variety of ships. Among its largest regular customers are the U.S. Navy, Sea-Land, Matson Lines, and American President Lines."

President **John Bentzen** of Pacific Ship is convinced that the "one-stop modernization capability" engendered by the association with GSI will significantly broaden the scope of his company's services. "To date, the high-speed upgrading of ships for handling containerized cargo has represented our primary growth area," he said. "Our new electronics capabilities will add substantially to our growth."

Puget Sound Tug Names G.A. Watkins Marine Sales Manager

G. A. Watkins

G. A. Watkins of Everett, Wash., has been named marine sales manager for Puget Sound Tug & Barge Company, Seattle, Wash. The appointment was announced by **Leo L. Collar,** executive vice-president of the company. In addition, Mr. **Watkins** will serve as assistant project manager for North Slope operations this summer.

Prior to joining Puget Sound Tug & Barge Company, Mr. **Watkins** was vice-president and a director of American Tug Boat Company of Everett.

Mr. **Watkins,** a well-known figure in the local maritime industry, has been in the tug and barge industry for 21 years and has a wide variety of experience in all phases of the business.

Mr. **Watkins** began his maritime career by sailing for the U.S. Merchant Marine during World War II. He began sailing on tugs in 1948 for American Tug Boat Company. After several years on the boats, Mr. **Watkins** came ashore and worked in all phases of the business including dispatching, operations, sales and management.

Mr. **Collar** stated that the addition of Mr. **Watkins** to the management of Puget Sound Tug & Barge Company represents another step in the company's program to maintain leadership by providing the best management know-how and equipment to do any job.

Devoy Named Port Director —Port Of Galveston

C. S. Devoy was named port director of the Port of Galveston and general manager of the Galveston Wharves, operating agency of the Port, at a recent meeting of the board of trustees, governing body of the municipally-owned port facility.

Mr. **Devoy** signed a new three-year contract as chief executive and operating officer of the Port, effective July 1, 1969. He originally came to Galveston as general manager on July 1, 1963. He is also president of the Gulf Ports Association.

A native of Brooklyn, New York, Mr. **Devoy** was traffic manager for Lykes Brothers Steamship Company in Galveston when he joined the Port of New York Authority in 1957 to establish its sales office for Europe in London.

Under Mr. **Devoy's** leadership, the Port of Galveston has carried out successfully a campaign to attract diversified cargo; was the first American port to offer reduced charges on handling pre-palletized commodities; has increased its imports; doubled its sales efforts; established several new industries along the waterfront, and embarked on an ambitious plan for handling containerized cargo and vessels centered around four piers in Galveston's east end.

Contract Formally Concluded For 372,400-DWT Tanker

A contract for a 372,400-dwt tanker, the largest in the world, has been formally concluded between IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.) and the Tokyo Tanker Company, Japan.

Among people attending the signing ceremony held at the Tokyo Prince Hotel were **Toshiwo Doko** and **Renzo Taguchi,** chairman and president of IHI, respectively; **Haruya Horikoshi** and **Gengo Tsuboi,** president and vice-president of Tokyo Tanker Company; **Eisuke Kamimura,** president of Nippon Oil Co., Ltd.; **Awashi Jyochi,** president of Kowa Oil Co., and **S. E. Van Norstrand,** president of Caltex Oil (Japan) Ltd.

The contract price is approximately $25.72-million. The keel of the world's largest ship-to-be will be laid in a 400,000-ton capacity building dock at IHI's Kure Shipyard towards the end of 1970. Her completion is scheduled for November, 1971. After delivery, she will carry crude oil from the Persian Gulf to the Nippon Oil Group's Central Terminal Station (an oil storage complex) now under construction at Kiire in Kagoshima Prefecture, Japan.

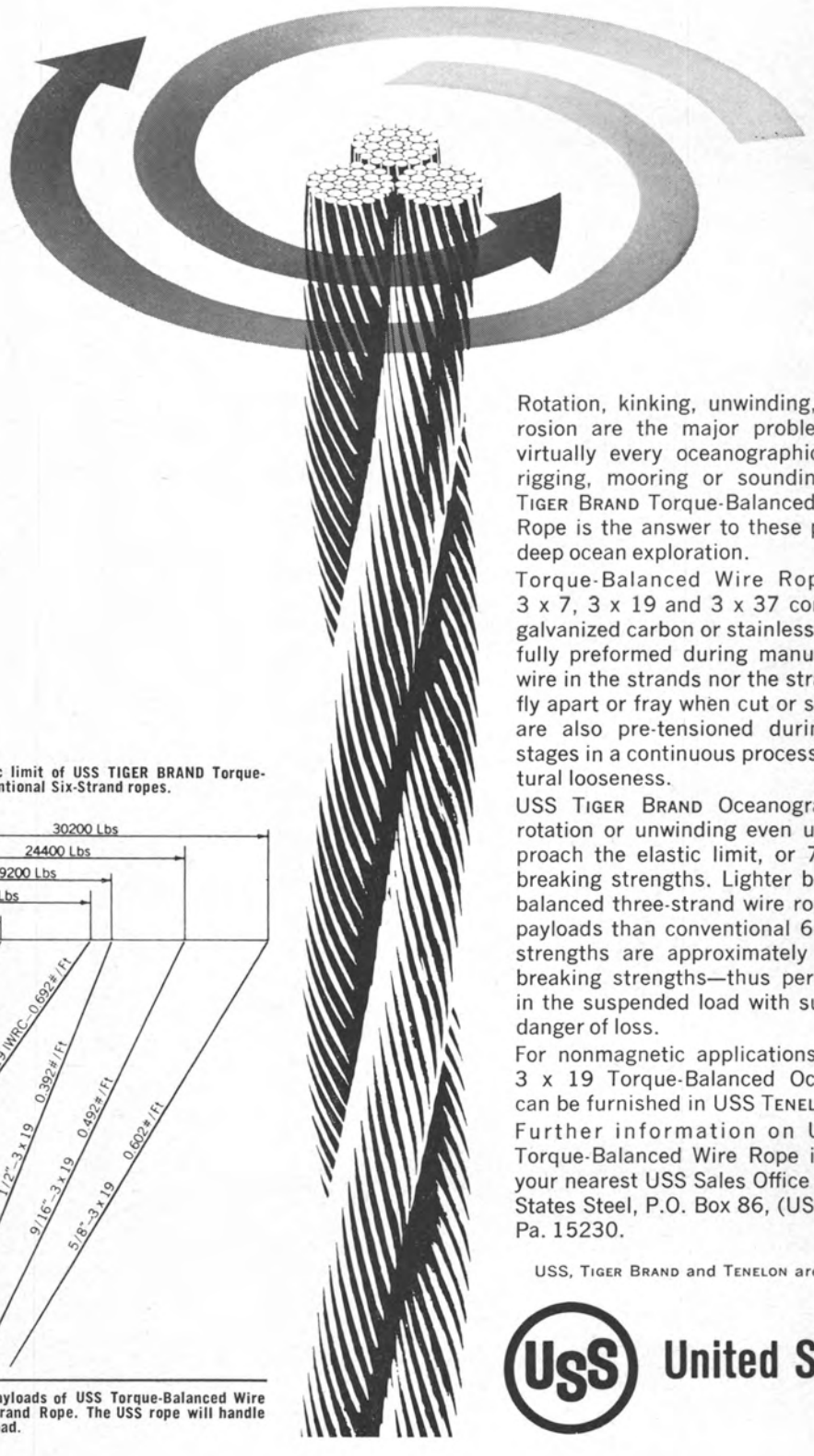
The mammoth tanker will have the following dimensions: length overall—1,133 feet 7 inches, length between perpendiculars—1,082 feet 9 inches, beam—178 feet 10 inches, depth —114 feet 10 inches, and draft—88 feet 7 inches. It will be propelled by an IHI steam turbine developing 40,000 shp. The speed has been given as 15 knots.

G.E. Awarded Contract To Develop Sewage Plant

General Electric's Re-entry Systems organization in Philadelphia, Pa., has been awarded a $228,000 contract to develop an on-board watercraft waste treatment plant.

The Federal Water Pollution Control Administration is funding the work as a step toward eliminating a source of pollution in harbors and waterways. The contract calls for development of a prototype waste treatment system and the testing of the system aboard ship. The work may eventually extend to a land-based application.

Tiger Brand Torque-Balanced Three-Strand Wire Rope... engineered to resist rotation, kinking and unwinding.



Rotation, kinking, unwinding, breakage and corrosion are the major problems encountered in virtually every oceanographic hauling, hoisting, rigging, mooring or sounding application. USS TIGER BRAND Torque-Balanced, Three-Strand Wire Rope is the answer to these problems of modern deep ocean exploration.

Torque-Balanced Wire Rope is produced in 3 x 7, 3 x 19 and 3 x 37 construction, in either galvanized carbon or stainless steels. Because it is fully preformed during manufacture, neither the wire in the strands nor the strands in the rope will fly apart or fray when cut or severed. These ropes are also pre-tensioned during final production stages in a continuous process that removes structural looseness.

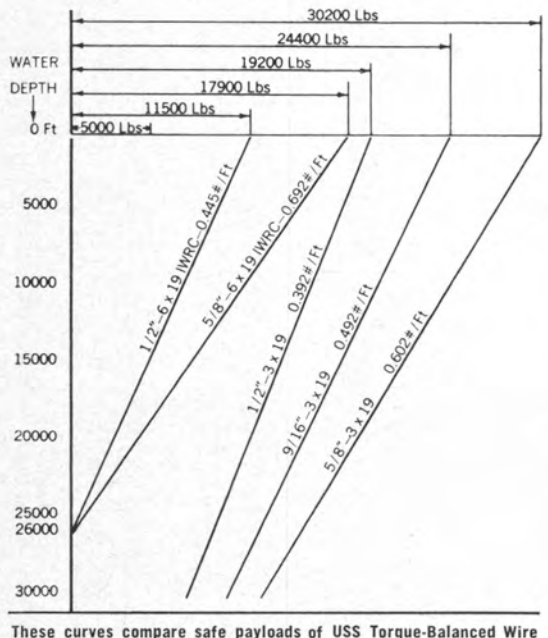
USS TIGER BRAND Oceanographic Ropes resist rotation or unwinding even under loads that approach the elastic limit, or 75% of their listed breaking strengths. Lighter but stronger, torque-balanced three-strand wire ropes allow for higher payloads than conventional 6-strand ropes. Yield strengths are approximately 88% of minimum breaking strengths—thus permitting an increase in the suspended load with substantially reduced danger of loss.

For nonmagnetic applications, USS TIGER BRAND 3 x 19 Torque-Balanced Oceanographic Ropes can be furnished in USS TENELON Stainless Steel.

Further information on USS TIGER BRAND Torque-Balanced Wire Rope is available through your nearest USS Sales Office or by writing United States Steel, P.O. Box 86, (USS 5445) Pittsburgh, Pa. 15230.

USS, TIGER BRAND and TENELON are registered trademarks.

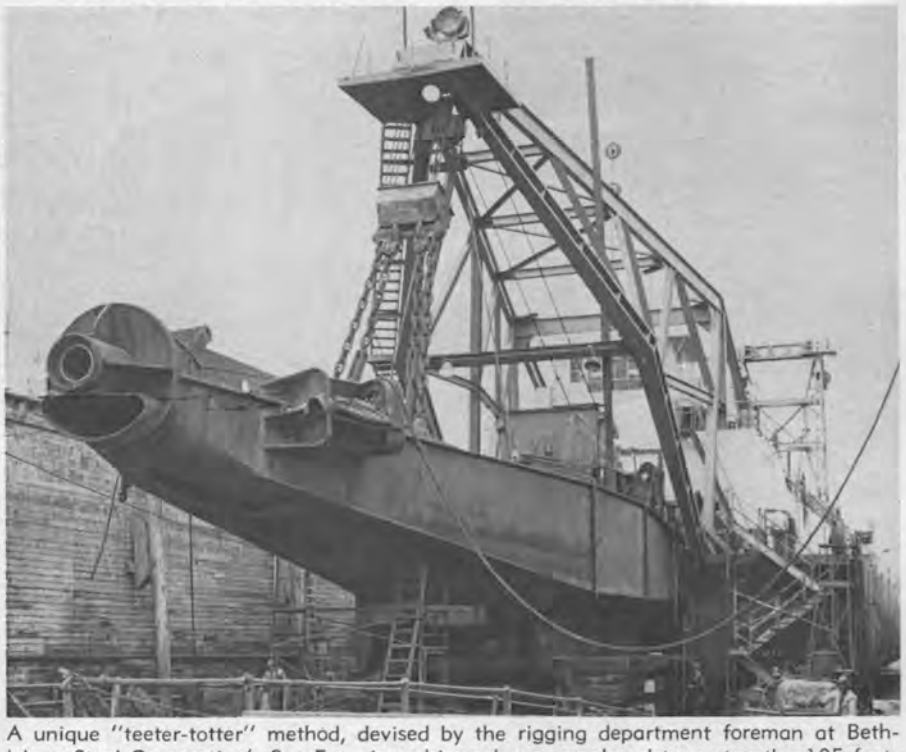
Comparative values for elastic limit of USS TIGER BRAND Torque-Balanced Wire Rope and Conventional Six-Strand ropes.



These curves compare safe payloads of USS Torque-Balanced Wire Rope and Conventional Six-Strand Rope. The USS rope will handle approximately 50% more payload.

United States Steel

There Is More Than One Way To Do A Job



A unique "teeter-totter" method, devised by the rigging department foreman at Bethlehem Steel Corporation's San Francisco shipyard, was employed to unstep the 105-foot-long digging ladder on the hydraulic suction dredge Franciscan. The dredge is shown on drydock at the yard before the ladder was unhinged and sponsons welded to the hull.

An ingenious "teeter-totter" method for unstepping a 360-ton digging ladder was developed at Bethlehem Steel Corporation's San Francisco shipyard during recent overhaul and modification work on the dredge Franciscan.

The huge hydraulic suction dredge draws bottom sand or mud through a 30-inch-diameter pipe which runs from the end of the 105-foot-long digging ladder through the hull and out the stern. Owned by the Utah Construction and Mining Co. of San Francisco, the Franciscan is one of the largest such vessels on the Pacific Coast. Two years ago, in preparation for an extensive San Francisco bay bottom dredging job, the Bethlehem yard lengthened the ladder from 78 to 105 feet.

When the dredge arrived at the yard for its latest overhaul in December of last year, it was decided to unstep the ladder in order to inspect the trunnion (hinge) pins and bushings.

Although removal of the cutter head and some of the suction pipe had reduced the weight of the ladder to approximately 330 tons, it was still far too heavy to be lifted by the 50-ton dock crane that normally serves the drydock. Use of a derrick barge was discarded as being too costly.

The "teeter-totter" solution to the problem was finally arrived at by **E. A. Bergeron,** foreman of the yard's rigging department. "Why not provide an off-center fulcrum so that if the forward end of the ladder were lowered, the other end would raise itself out of the trunnion bearings?," Mr. **Bergeron** reasoned. His proposal was accepted by the dredge owners as being the most efficient and economical.

The ladder, cribbed on 12-inch by 12-inch timbers which rose from the drydock floor to its underside, was lifted by its own hoisting tackle high enough to install a rotating steel pipe. The pipe was placed five feet nine inches inboard from the center of gravity to act as a fulcrum. The dockside crane was then used to lower the outboard end of the ladder within six feet of the dock floor. This raised the after, or inboard, end of the ladder six feet out of the trunnion bearings. The two, 34-inch-diameter, 6,000-pound trunnion pins were then removed. Both bearings and pins were replaced after inspection.

As part of the modification work, Bethlehem fabricated and installed two 180-foot-long sponsons, seven feet wide and 12 feet deep, in order to increase the Franciscan's buoyancy. One of these was then welded to each side of the dredge's hull.

Besides miscellaneous overhaul items of a general nature, the 30-inch-diameter suction piping in the digging ladder was replaced. Her overhaul and modification complete, the Franciscan is now ready for the next dredging assignment.

Dillingham Transfers Wilgus To New York

Dillingham Corporation, Honolulu, announced that **A. Wilgus,** Portland, Ore., has been transferred to New York to head a new office for the corporation's maritime activities.

Mr. **Wilgus,** for 17 years maritime sales manager for Albina Engine & Machine Works, Portland, has been selected by Dillingham, new owner of Albina, to open an office for the corporation in New York City. The office will be titled Dillingham Corporation, Maritime Services Division, and will be located at 299 Park Avenue, New York, N.Y.

Mr. **Wilgus,** a steamship man before joining Albina, has been active in the Portland Merchants Exchange, World Trade Club, Propeller Club, and Portland Shipping Club.

Replacing Mr. **Wilgus** as sales representative at Albina Engine & Machine Works will be **William Wilson,** veteran steamshipman, whose background includes Luckenbach Steamship Co. and more recently, Calmar Steamship Corporation.

Todd Reports Rise In Sales And Earnings

Todd Shipyards Corporation, New York, N.Y., has reported for the year ended March 31, 1969, sales of $216,400,000 and net income of $5,265,000 equivalent to $3.56 per share. This compares with $194,100,000 sales and $4,930,000 net income or $3.38 per share in the previous year. Earnings for the current year are after providing $0.28 per share for the federal tax surcharge.

J. T. Gilbride, president, in releasing the figures attributed the increase in volume to several large conversion contracts completed during the year and to acceleration in new construction work.

The board of directors declared a dividend of 30¢ per share, payable June 16 to stockholders of record June 9, 1969.

B&W Awards License To Chilean Shipyard For Diesel Repairs

Burmeister & Wain of Copenhagen, Denmark, entered into a service agreement with the Chilean shipyard Astilleros y Maestranzas de la Armada, ASMAR, in Valparaiso who have been conferred the rights to act as a B&W licensed repair shop and approved spare parts supplier.

ASMAR is the thirteenth company to join the Burmeister & Wain service organization, the aim of which is to offer the best possible service throughout the world for ships equipped with B&W diesel engines. ASMAR has three yards on the Chilean coast; the largest and most important is situated at Talcahuano, the facilities at Valparaiso and Punta Arenas being of minor importance. Talcahuano is one of the regular ports of call for shipping along the Pacific Coast of South America and is the terminal port for most shipping lines engaged in this trade. As there are also a number of vessels with B&W engines sailing under Chilean colors, the new B&W service station is well placed strategically.

The agreement includes repair and service as well as the delivery of spare parts for B&W main and auxiliary engines installed in ships registered in Chile or those which dock for repairs in Chile. The spare parts will either be delivered from Burmeister & Wain in Copenhagen or be manufactured by ASMAR in its own workshops from B&W's drawings and in close cooperation with B&W's technical departments.

47 Of 49 Nations Subsidize Shipping

Andrew E. Gibson, Maritime Administrator, has released a comprehensive study on "Maritime Subsidies" indicating that 47 out of 49 maritime nations give government assistance to their shipping and shipbuilding industries.

Direct and indirect government aids granted by countries having fleets of 50,000 gross tons or more include operating and construction subsidies, trade-in allowances, loans at low interest rates, interest subsidies, credit guarantees, accelerated depreciation, tax-free reserve funds, duty-free imports on ship construction materials, cargo preference, and cabotage.

"This study clearly indicates the type of competition with which the United States merchant marine must deal," Mr. **Gibson** commented, "and emphasizes the importance which maritime nations accord to the maintenance of their merchant fleets."

JEFFBOAT-BUILT FERRY for the state of Alaska was christened recently the E. L. Bartlett in ceremonies in Jeffersonville, Ind. The oceangoing passenger and vehicle ferry is named for the late Senator E. L. Bartlett of Alaska. **Mrs. E. L. Bartlett** was the vessel's sponsor. In attendance for the christening were Governor and **Mrs. Keith Miller** from Alaska and Indiana Governor and **Mrs. Edgar Whitcomb.** After the ceremonies, the $2.5-million vessel was open to the public for inspection.

Bremer Vulkan on the crest of the container wave

we have now delivered 4 container ships and have on order a further 9 with a total capacity of 10.348 containers of the 20 ft. type

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John J. McMullen Associates Realigns Top Management

Joseph J. Cuneo

Ralph A. Corvino

Norman K. Basile

Thomas F. Bridges

John J. McMullen Associates, Inc., naval architects, marine engineers and consultants has announced the election of **Joseph J. Cuneo** as president and the appointment of **Ralph A. Corvino** as vice-president in charge of the ship motions division, **Norman K. Basile** as vice-president in charge of the machinery division and **Thomas F. Bridges** as manager of the special projects group.

Mr. **Cuneo** has previously served as executive vice-president of John J. McMullen Associates, Inc. since joining the firm in July of 1968. He is a graduate of Webb Institute of Naval Architecture and of the Harvard Graduate School of Business.

Mr. **Cuneo** announced that Mr. **Corvino** will be responsible for the overall management of the ship motions division, which in addition to conducting the technical and engineering development work associated with the Flume Stabilization System for control of ships rolling at sea, also carries out comprehensive research and development concerning all types of ship motions and sea responses for conventional ships forms as well as for complex offshore structures such as drilling rigs, mooring buoys, etc. Mr. **Corvino** will also continue to be responsible for the activities and development of McMullen Associates' affiliated companies in Hamburg, Madrid and London. Mr. **Corvino** is a graduate of the U. S. Merchant Marine Academy, Kings Point, N.Y. and the City University of New York. He has been with McMullen Associates since 1964 and has served as vice-president and chief marine engineer of the machinery division prior to this new assignment.

Mr. **Cuneo** further advised that Mr. **Basile** has assumed the overall responsibility and management of the machinery division. He is a graduate of the New York State Maritime College and holds a master's degree in mechanical engineering from the City University of New York. He joined McMullen Associates in 1965 and has served as a supervisor in the machinery division and as manager of the special projects group responsible for merchant and naval ship powerplants and for the design of systems for the carriage of cryogenic liquefied gas products. Mr. **Basile** holds a number of patents in gas tanker technology.

Mr. **Bridges,** who also holds a number of patents in the field of cryogenic gas tanker technology, has been appointed to assume the responsibilities of the special projects group. He has been with McMullen Associates since 1957 and is a graduate of the University of Michigan. His most recent assignment has been as the special projects officer in charge of research and development responsible for conceptual design and specifications for a number of new vessel types.

Mr. **Cuneo** stated that these changes were made in order to most effectively utilize the talents of these men and to recognize their contributions towards the continued rapid expansion and growth of McMullen Associates' activities in the marine field.

Island Tug Adds Two Cargo Barges To Fleet

Island Tug & Barge Limited, Vancouver, Canada, in the second phase of its seven-million-dollar building program, has ordered two 2,500-ton barges from Yarrows Limited. The two $250,000 barges designed by Robert Allan Ltd. will be ready for delivery by June 30.

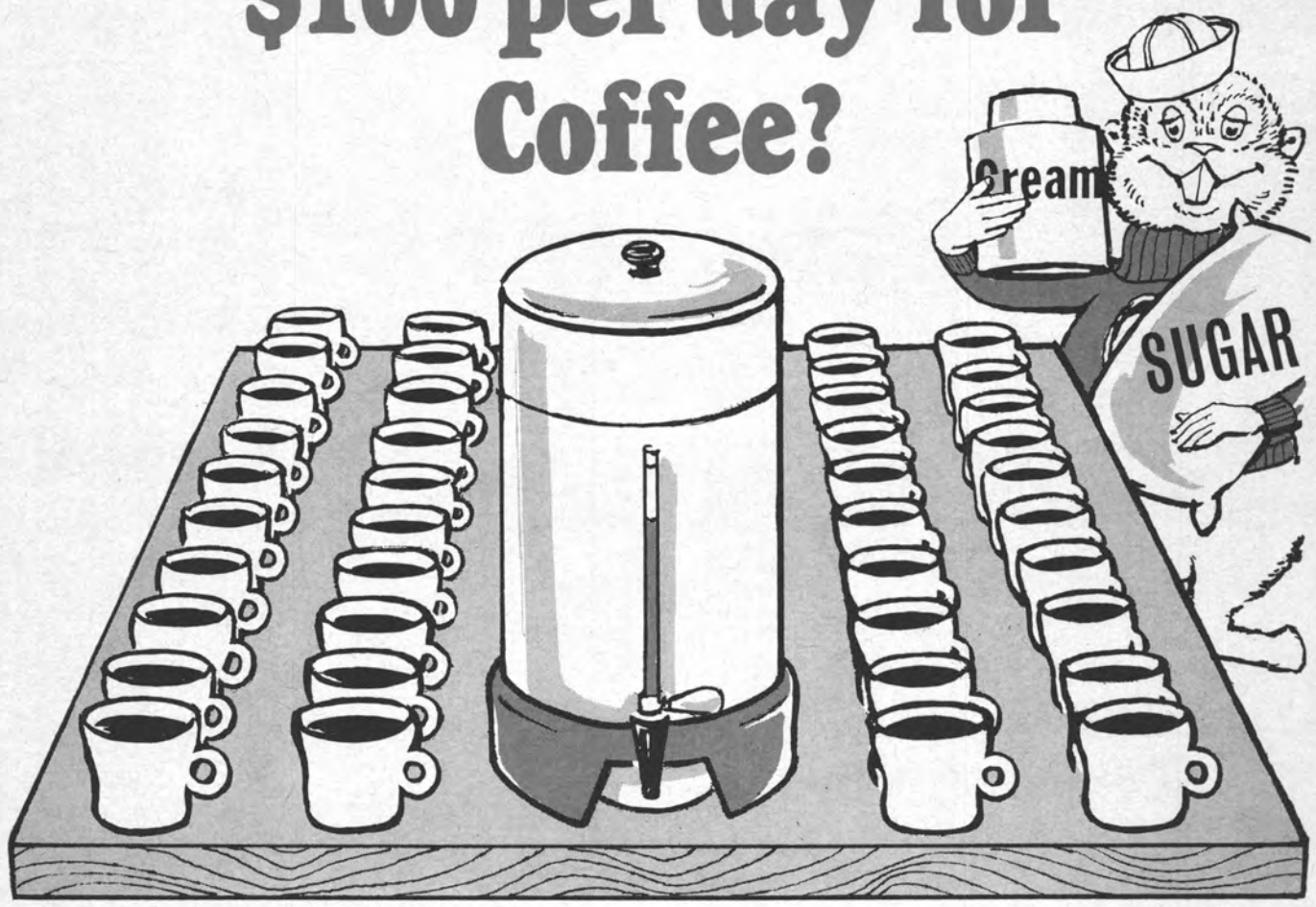
Although to be used primarily for bulk cargo, they will be able to carry a variety of products. The 212-foot by 49-foot by 14-foot vessels will complement Island's diversified fleet.

World's Largest Building Dock Partially Completed In Belfast

The first stage in the construction of what will eventually be the largest shipbuilding dock in the world has been completed at Harland and Wolff, Ltd.'s Belfast yard, according to an announcement by the firm.

Construction of the first of two 253,000-dwt tankers the yard is building for Esso has also been begun at the facility which, when completed in November, will be capable of accommodating a ship of more than a million tons.

$100 per day for Coffee?



For a 40-man crew to stand watch in the engine room to do the work of a TUGMONITOR.

No, we're not kidding. To do the work of one Tugmonitor you would need a 40-man crew in the engine room taking readings every second and they still couldn't do the efficient job of a Tugmonitor . . . and it doesn't take a coffee break.

Your solid state Tugmonitor automation system responds to pressures, temperatures, liquid levels and flow, voltages, current, rpm, or vibrations. It either recommends action to avoid a problem or takes action itself. The Tugmonitor is so foolproof it will report its own malfunctions. It doesn't prevent the trouble; it prevents the trouble from causing damage.

Tugmonitor is custom designed and built to fit each individual boat's requirements. National Marine technicians provide on-the-spot service during design and installation stages—your guarantee of satisfaction.

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Esso International Promotes R.S. Kleppe And R.L. Preston

Robert S. Kleppe has been elected a vice-president of Esso International Inc., and advanced from assistant general manager to manager of its tanker department.

At the same time, **Richard L. Preston** has been promoted from tanker operations manager to assistant general manager. Esso International, an affiliate of Standard Oil Company (New Jersey), coordinates international sales, supplies and transportation of crude oil and petroleum products, as well as providing marine management services.

Both Mr. **Kleppe** and Mr. **Preston** have engineering degrees and both are career employees of the Jersey Standard organization. Mr. **Kleppe** is a mechanical engineering graduate of Bucknell University and has a master's degree from Polytechnic Institute of Brooklyn. He started with Esso Research and Engineering Company, Linden, N.J., as a junior engineer in 1951.

After a variety of promotions in the research company, he was transferred to Esso International in 1968 as assistant general manager of the tanker department in New York.

Mr. **Preston,** an Air Force veteran, has a chemical engineering degree from Cornell University. He joined Humble Oil & Refining Company at Baytown, Texas, as a junior engineer in 1949. Two years later he transferred to the Bayonne, N.J., refinery as an engineer and by 1961 rose to plant superintendent.

Mr. **Preston** joined Esso International in 1963 and since then has risen through a series of promotions to operations manager.

O.A.R.N. Appoints Oddone General Manager

The board of directors of O.A.R.N. (Officine Allestimento e Riparazioni Navi) at its April meeting appointed Dott. Ing. **Giuseppe Oddone** general manager of the company.

The management of O.A.R.N. now consists of Dott. **Manrico De Rosa** as president, Dott. Ing. **Galliano Meneghetti** as vice-president, Mr. **Oddone** as general manager, Rag. **Giuseppe Del Brenna** as manager of accounting, purchasing, personnel and secretarial departments and Dott. Ing. **Massimo Pasquali** as vice-manager of operations.

James R. Porter, with offices at 17 Battery Place, New York, N.Y., is the firm's representative in the United States.

The Columbia goes a half knot faster now... on less fuel

The COLUMBIA runs a route that exposes it to every major type of marine foulant: from Atlantic ports through the Panama Canal, to Pacific ports, then back through the Canal. For protection below the waterline, it carries a two-coat system of USS Epoxy System Primer and USS TARSET 305 AF anti-foulant. Three months after application of the coating (see photo), the lower hull shows no pitting, no corrosion, and no fouling whatever. Without the weight and drag of a fouled bottom, the COLUMBIA had picked up ½ knot in speed—a gain of about 4%—and cut fuel consumption by an average of 5%.

TARSET 305 AF will not allow penetration of marine organisms to bare metal, so it prevents pitting. Having no solid metal toxicants, it resists galvanic corrosion. It saves tons of weight compared to other anti-foulant systems (1000 to 1400 lbs. per 10,000 sq. ft.), and it costs less to apply: only two coats provide a 12-mil minimum film thickness. It maintains full protection longer than any other system in use.

How much could you save in a year with this remarkable anti-foulant system? Send the coupon for our new Marine Coatings booklet, or to have a USS coatings specialist call. USS and TARSET are registered trademarks of United States Steel.

After 3 months' service, there is no fouling, corrosion, or pitting where USS TARSET 305 was applied, below the waterline. Above the line, corrosion, scaling, and pitting of the hull begin to show, despite conventional protective paint.

USS Chemicals, Division of United States Steel
Box 86 (USS 6068)
Pittsburgh, Pa. 15230

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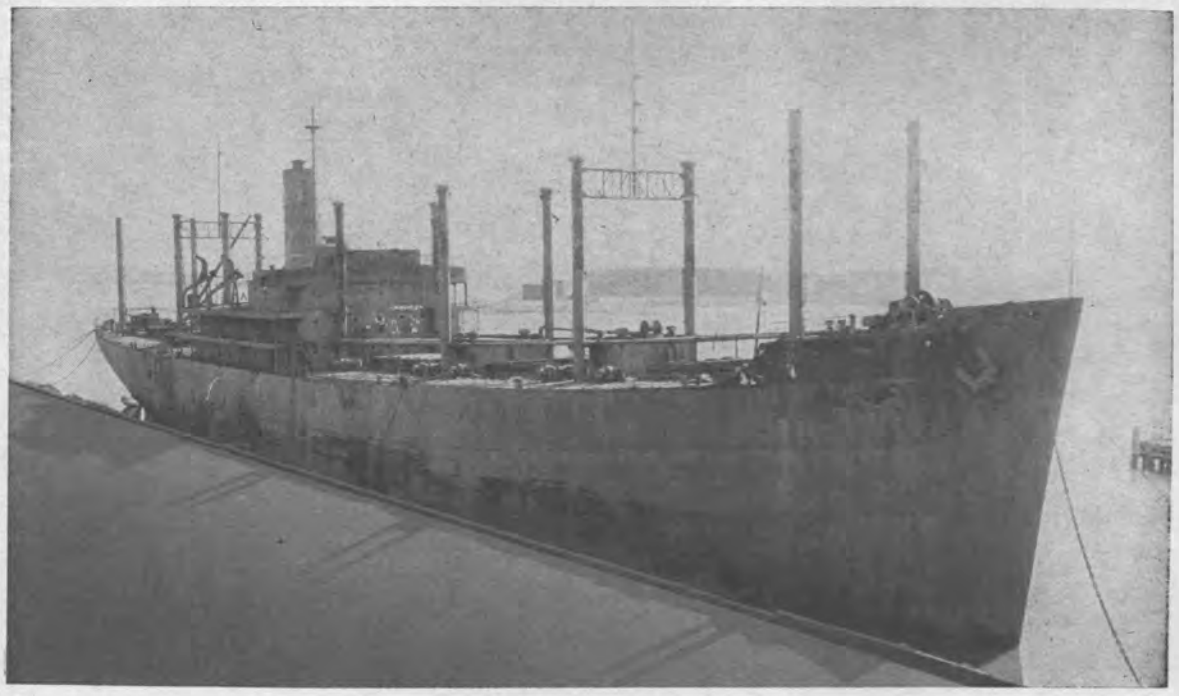
USS Marine Coatings

AP2/AP3 VICTORY C2/C3 NEW, US RECONDI



EQUIPMENT FROM MOORE DRYDOCK C-3 EX-MORMACSEA — HULL 197

350 KW TURBO GENERATORS: **Turbine**—De Laval 503 HP—10,000 RPM—6-stage—440#—282° superheat—28½" exhaust. **Gear**—De Laval—10,000/1200 RPM. **Generator**—Crocker-Wheeler 350 KW—120/240 DC—1458 amps—1200 RPM—compound wound—#230194 & 230195. Also fits Federal Hull 198. **BOILERS:** Foster-Wheeler type D—2-pass design—525# pressure. **FORCED DRAFT FAN MOTORS:** Westinghouse SK—46.5/13.81—2400/1660/960 RPM—230 VDC. **PROPELLERS:** 21'8" diameter—21.669 pitch. **REDUCTION GEAR:** De Laval 5015/3461/729/85—serial 228972. **SHAFTING:** 24'x19" diam. **STEADY BEARINGS:** 19¼" o.d. **EVAPORATOR:** Paracoil 36-17/48-23/28-11. **MAIN FEED TRIPLEX:** Worthington—4½"x8"—160 GPM @ 510#—72 HP—230 VDC—975/1750. **MAIN CIRCULATOR:** Worthington 20" LAS—12,000 GPM—19' head—100 HP Westinghouse motor—frame 184.5—230 VDC—485/645—365 RPM.
ALSO TAILSHAFT & RUDDER, KINGPOSTS, 16" PORTLIGHTS, BOOMS, DOORS, WINCHES, WINDLASSES, STEERING GEAR.

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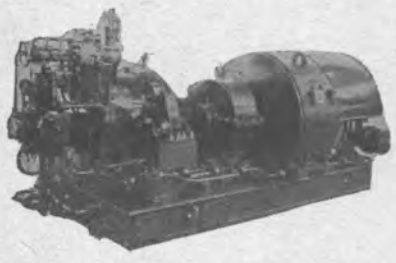
MATERIAL FROM MOORE-BUILT C-2 MORMACWREN — HULL 271

Specification class C2-S-B1—Maritime Commission Hull #1184. **Main Turbine Rotors:** HP & LP—HP serial 75382—LP serial 75363. ALSO, ALL MOTORS FOR FEED PUMPS, BILGE, CIRCULATORS, ETC.

TURBO-GENERATORS



300 KW — From AP2 Ex-Medina Victory

TURBINE: Worthington-Moore—serial 7547 & 7548—440 lbs.—740°TT—28½" vacuum—type S4—5-stage—6097 RPM. **GEAR:** Type 14x7—6097/1200 RPM. **GENERATOR:** Crocker-Wheeler 102-HD—120/240 VDC—125 amps—40° rise—serial No. 973643 & 999795—compound wound. Armature flange 8¼"—B.C. 7"—12 holes. **NEW ARMATURE AVAILABLE FOR THIS GENERATOR. SEE 3RD PAGE FOLLOWING.**

300 KW — From AP3 Ex-Ridgefield Victory

TURBINE: Worthington-Moore type S4—5-stage—6097 RPM—740°TT—440#—serial No. 7108 & 7106. **GEAR:** 6097/1200—type 14x7—serial No. 7108—5.081:1 ratio. **GENERATOR:** Crocker-Wheeler 102-HD—300 KW—120/240 DC—6-pole—3-wire—stab. shunt—1200 RPM—type CCD—serial 973583. Suitable for units 7541 & 7543 and 7089 & 7188. **WILL SELL ARMATURE SEPARATELY:** 12-Hole flange—⅝" bolt holes—8.247" diam.—7" B.C.—flange & shaft 5".

300 KW Murray

TURBINE: G.E.—DORV—325M—440#—740°TT—5645 RPM. **GEAR:** S-192—5645/1200. **GENERATOR:** Ideal—120/240 VDC—1250 amps—stab. shunt.

300 KW GENERAL ELECTRIC

TURBINE: G.E.—DORV—325M—440#—740°TT—reduction gear S-192. **GENERATOR:** G.E. 120/240 VDC—1250 amps—stab. shunt.

TURN TO 3RD PAGE FOLLOWING FOR 300 KW SPARE ARMATURES

BOILER SOOT BLOWER ELEMENTS

12 Units—Diamond Power Specialty Corp.—type FM-1220—for blower units S-3, S-4—84¼" overall—2" tubes—22 jets—calorized metal.

11 Units—Diamond Power Specialty Corp.—used with type FM-1220 coupling—2" tubes—Dialoy element—S1&S2—26 jets—12'6" OA—2x2 steel coupling.

3 Units—2" ID tubes—15 jet—8'10½" OA—with 2" steel coupling—with FM-1220 unit blower.

ENTIRE LOT $450.00

SHIPS SERVICE AIR COMPRESSOR

VEE-type—Sullivan—7x4½x4½—60 CFM—15 HP—230 volts—1850 RPM—light compound—with starter. **INGERSOLL-RAND ALSO IN STOCK**—model 15—type 40—5x4x4.

AP2 Victory Main Condenser Water Boxes

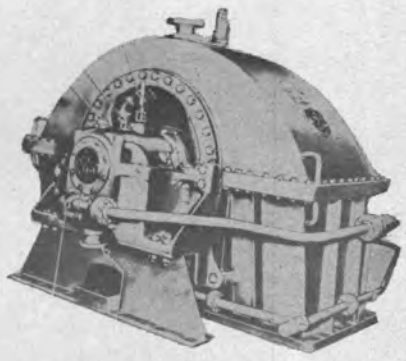
Mfg. by Graham—unused ABS and reconditioned ABS. Main condenser water boxes—AP3—Allis-Chalmers.

Aux. Condenser Water Box & Return Cover

Reconditioned ABS—Graham design—mfg. by Ross.

NEW AP2 VICTORY ENG

6600 HP Main Propul



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GENERAL ELECTRIC
Low Pressure Turbine $18,500
High Pressure Turbine $19,500

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H.P. Turbine—complete—Serial 4A-2264—

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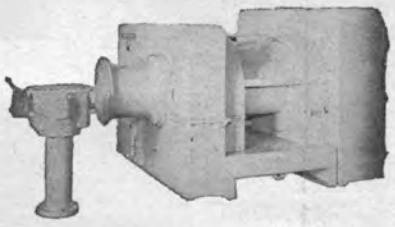
VICTORY SHIP UNIT WINCHES



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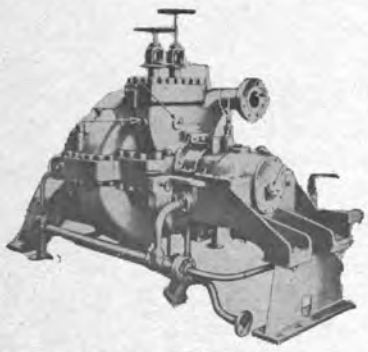

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labyrinth packing—diaphragms.

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00 lbs. @
both right

FORCED DRAFT BLOWERS–22-TD-18
Westinghouse—230 PSI—430° TT—back pressure 15 lbs.—normal capacity 8900 CFM—4.8" of water pressure. RPM 2875—9.6 HP—total steam 697—overload capacity—13,-700 CFM at 10.7.

WILL SELL FAN OR TURBINE SEPARATELY

n METALS CO.

E ST. • BALTIMORE 2, MD.
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MISCELLANEOUS PUMPS & PUMP MOTORS

DE LAVAL VERTICAL ROTARY MAIN LUBE OIL PUMP
10/15 HP—230 VDC—250 GPM @ 43 lbs.—980/1750 RPM. MOTORS: G.E. or Reliance.

MAIN CIRCULATOR & MOTOR FOR AP2 VICTORY
Ingersoll-Rand 18VCM bronze pump—20" suction—18" discharge—vertical. Flanges opposite each other. Distance flange-to-flange 4'5". Suction bolt circle 25"—discharge bolt circle 22¾". Suction (20) ¼" holes—discharge (16) ¼" holes. PUMP WEIGHT: 5100 lbs. MOTOR: 5700 lbs.—Allis-Chalmers 75 HP—230 VDC—500/670 RPM—frame E-Bu-162—drawing No. 31099.

SPARE ARMATURE AVAILABLE FOR ALLIS-CHALMER MOTOR — WILL SELL PUMP MOTOR SEPARATELY.

INGERSOLL-RAND 2VHM MAIN CONDENSATE PUMP
120 GPM—85 PSI—Pump only

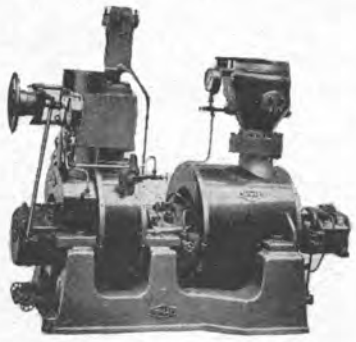
Motors for Above
15 HP Motors and Terry or Coppus turbine drive.

INQUIRE ABOUT ANY UNLISTED ITEMS THAT YOU NEED

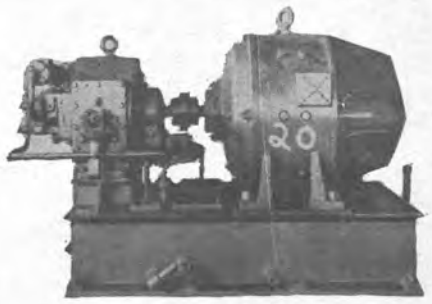
3000 G.P.M. AP2 – AP3 BRONZE AUXILIARY CIRCULATOR

Manufactured by Allis-Chalmers. 10.9 lb. head—36" flange to flange—12" suction and discharge—17" bolt circle—19½" O.D. flange. This pump was substituted for a Worthington LAS on a Victory Ship and was easily fitted into the existing piping. The flange to flange dimensions were only slightly larger. MOTOR: 25 H.P.—230 volts DC—stabalized shunt—92 amperes—type EBU-100 — 18812MK — 1150 RPM.

COMPLETE WITH MOTOR STARTER



WEIR TURBINE-DRIVEN FEED PUMPS TMFP7
PUMP: 7000 GPH—585 PSI—1380 ft. head—5600 RPM. TURBINE: 480 PSIG—750°TT—exhaust 5 PSIG.



AP3 Steering Gear Pumps $1750
Northern Hydraulic (variable stroke) and Hele-Shaw Hydraulic.

Motors For Above Pumps $1750
Reliance: 40 HP—230 VDC—147 amps—type T—900 RPM.

BUY COMPLETE UNITS OR PUMPS & MOTORS SEPARATELY

AUX. COND. PUMPS
Ingersoll-Rand 1-VHM—with 5 HP 230 VDC motor.

LUBE OIL STANDBY
Vertical Duplex—Worthington—7½x9x12.

FEED PUMPS
Worthington — vertical simplex—11x7x24.

HORIZONTAL DUPLEX PUMPS
Size 6x6x6 pumps.

Will Sell Pump separately.

AUX. CIRCULATOR MOTORS: 25 HP—230 VDC—96 amps—658/875 RPM—G.E. and Reliance

AP3 LARGE VICTORY MATERIAL

PROPELLER: DORAN—Seattle—4-blade—20'6" diam.—6' pitch—heal #4931—ABS (59) 645R.

ALSO TAILSHAFT—RUDDER—RUDDER CARRIER—UPPER STOCK

FORCED DRAFT FANS & TURBINES: Westinghouse type 25-TD-18—231.6 lbs. steam—exhaust 15.6 lbs.—superheat 31°F—max. capacity 19,000 CFM—static pressure 10.7—3950 RPM—45.8—serial nos. 5A2167-11 & 5A2167-12.

SPECIAL FROM RIDGEFIELD VICTORY

G.E. HP & LP TURBINES & REDUCTION GEAR—8500 HP—9350 HP Oregon Shipbuilding Hull #1224—Instruction Book 16263

TURBINES: G.E.: L.P.—8-stage—3509 RPM—#62043 H.P.—8-stage—6159 RPM—#62042 REDUCTION GEAR: #75143—type MD-48-A—8500 HP—9350 max.—6159/3509/763/85 RPM. Maneuvering valve, operating cylinder, etc.

PACIFIC FEED PUMPS – TYPE JB

Horizontally split—diffuser type centrifugal. CAPACITY: 150 GPM @ 542# or 1242' normal—185 GPM @ 600# or 1418' max. Steam inlet 440 @ 507°TT—RPM 3740—water rate 35 lbs/HP—pumping temp. 240°. Total weight 1 unit 3100 lbs. OAL turbine & pump on base 8' 9⅜"—OAW about 2'.

A 300 KW VICTORY SHIP & C-2 GENERATOR ARMATURES

CROCKER-WHEELER

New—as pictured above—with ABS certificate. From VC2-S-AP2 Ex-Medina Victory. For Crocker-Wheeler generator 102-HD-DP—type CCD—compound—serial 973-643; 999-795 and others in this group. Bearing shaft size commutator end—3½"; Flange size 8¼" OD; Bolt Circle 7", with 12 holes ½" diameter.

ALLIS-CHALMERS

120/240 volts DC—type MCW 21-11—1200 RPM—stab. shunt—148171 & 148173—from ex Stamford Victory—completely re-wound anuary 10, 1968—ABS—(1).

WESTINGHOUSE

120/240 volts DC—1250 amps—1200 RPM—stab. shunt—frame CB 208.4—Instruction Book 8301—51-S-20P-923 and 18-83H-313.

GENERAL ELECTRIC

120/240 volts DC—1250 amps—1200 RPM—stab. shunt—serial No. 2222725-2222807—In G.E. Instruction Book G.E.I. 16584.

C-2 ARMATURES

North Carolina C2-S-AJ-I—General Electric—120/240 volts DC—type MPC—stab. shunt.

T2-SEA-1 TANKER MAIN STEAM & AUXILIARY EQUIPMENT

B

MAIN TURBINE ROTORS

Large Turbine Rotors—Lynn
Large Turbine Rotors—Schenectady
Elliott Turbine Rotors—Fit G.E. small Schenectady turbine

C

G.E. MAIN PROPULSION GENERATOR REVOLVING FIELD

G.E. reconditioned—June 1967

D

G.E. MAIN GENERATOR STATORS

E

REWOUND WESTINGHOUSE MAIN PROPULSION GENERATOR REVOLVING FIELD

Was rewound for Gulf when removed from "Gulf Moon". Since that time, it has been re-checked in the Westinghouse Service Shop and balanced. ABS and ready to go. —December 18, 1968—certificate number 68-BA4831 — A-67B-JW — 12/18/68 Baltimore.

WRITE FOR COMPLETE INFORMATION

F

WESTINGHOUSE MAIN GENERATOR STATOR WITH OR WITHOUT COOLER

G

WESTINGHOUSE MAIN MOTOR FIELD COILS

COMPLETE SET

Westinghouse — universal type — newest design—80 pieces—one set.

H

T2 RUDDER

Reconditioned—ready to go.

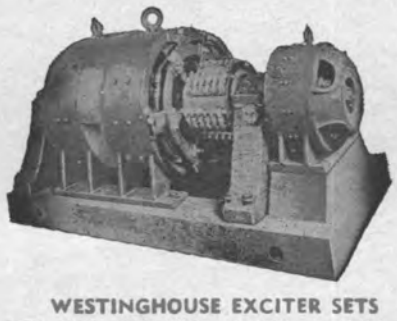
T2 TAILSHAFTS

Reconditioned

PROPELLERS

T2 propellers

I



WESTINGHOUSE EXCITER SETS

110 KW—28 KW—5 KW available
110 KW—32.5 KW—5 KW available

J

LORIMER

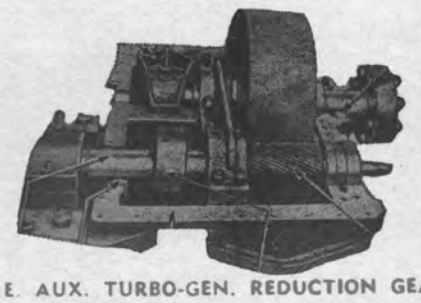
Emergency Generator Engine and Generator Parts

K

MAIN CIRCULATING PUMP MOTOR

125 HP—Westinghouse—Frame 876C—type CS—squirrel cage — 440/3/60 — 585 RPM. Reconditioned to ABS. Ready to go immediately.

L



G.E. AUX. TURBO-GEN. REDUCTION GEARS

Bull gear & pinion. With ABS.

M

WESTINGHOUSE AUXILIARY GENERATOR REDUCTION GEARS AND BEARINGS

COOLERS

N

MAIN MOTOR AIR COOLER

Westinghouse—ABS—ready to ship

O

MAIN GENERATOR AIR COOLER

Westinghouse — reconditioned with ABS—ready to ship

P

G.E. MAIN GENERATOR COOLER
type G4—bronze heads—AL brass tubes

ALL MACHINERY FROM U.S.M.C. NORTH CAROLINA C2-S-AJ1

INCLUDING MASTS, BOOMS, KINGPOSTS, AND RIGGING

Send us your inquiries

CENTRIFUGAL PUMPS

– ALLIS-CHALMERS –

MAIN CIRC. PUMP

9500 GPM @ 27'—800/600 RPM—type S.B. 20x20 — horizontal. MOTOR: Allis-Chalmers 100 HP—230 volts—600 RPM—Frame EB-162.

TURBINE DRIVEN MAIN FEED PUMP

Allis-Chalmers type BK-4—150 GPM @ 1465' head—180 GPM @ 1342' head. TURBINE DRIVE: Type ZS-1—94 HP normal—440 PSI —740°TT—4400 RPM.

AUXILIARY CIRCULATOR

Allis-Chalmers 8x6 — SE — 1500 GPM — 27' head—1200/1600—15 HP motor—horizontal.

MAIN CONDENSATE

6x3 CF2V — Allis-Chalmers — vertical — 120 GPM—185' head—1310/1750 RPM—15 HP.

AUXILIARY CONDENSATE

3x1½ SSL — 20 GPM — 185' head—1310/1750 RPM—7½ HP—vertical.

FIRE PUMP

4x3 B-2 — Allis-Chalmers — 400 GPM—280' head—1425/1900 RPM—50 H.P.

CIRCULATING PUMPS

Hot water & auxiliary sea water circulating pumps—1½x1½ SSH—20 GPM—10' head —1750 RPM—½ HP—and 80 GPM—70' head—2620/3500 RPM—3 HP.

– WORTHINGTON –

MAIN FEED PUMP

2 UQS-2—150 GPM @ 1465 T.D.H.—4000 RPM—115 HP. Turbine. Form S2RM—Moore steam turbine—1½" steam inlet—440 lbs WP —750°F @ 10 lbs gauge. Water rate 26.8 lbs BHP/HR.

MAIN CIRCULATOR

20-LAL-18 — 20" suction — 20" discharge — horizontal—9500 GPM—27' TDH—800 RPM — 100 HP. MOTOR: 100 HP — 360 amps — 800/600 RPM—horizontal—Frame 183 SK—light compound.

6-L-1 AUXILIARY CIRCULATING

1500 GPM—27' head—1450 RPM—horizontal —8" suction—6" discharge—15 HP—230 DC —56 amps—1450/1090—frame 83SK.

2½UZS-1 MAIN CONDENSATE

Vertical—6" suction—3" discharge—120 GPM —185' T.D.H. — 1750 RPM — 15 HP — 230 VDC—56 amps—1750/1310—ambient 50°C —frame 83SK.

3-UB1—FIRE SERVICE

Horizontal — 4x3 — 400 GPM — 281' head—1750—50 HP Motor—230 VDC—178 amps —1310/1750 RPM—frame 133SK.

AUX. SALT & HOT WATER CIRCULATING

1½ D—20 GPM—10' TDH—1750 RPM— 3 HP salt water circ.—1 HP hot water circ.

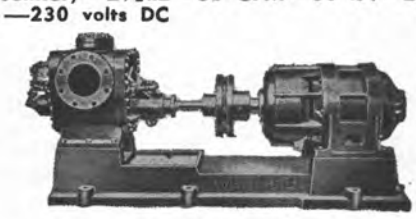
RECIPROCATING STEAM PUMPS

– WORTHINGTON –

- Port Feed — 8½x5¼x15 — 50 GPM—600 lbs.—VS
- Fire Service & Standby — 12x11x18 — 400 GPM—125 PSI—VS
- Dirty Ballast—Clean Bilge 10x11x18—400 GPM—50 PSI—VS
- Fuel Oil Standby—7x4x10—11 GPM—400 lbs—VS
- Lube Oil Standby—7½x9x12—250 GPM—47' head—VD
- Make-up Evaporator Feed—3x2 3/4x3—20 GPM—50 lbs.—HD
- Contaminated Evaporator Feed—20 GPM—75 lbs—HD
- Salt Water Evaporator Feed—3x2 3/4x3—20 GPM—35 lbs.—HD

– POWER RECIPROCATORS –

- Drinking water—2½x2—10 GPM—70 lbs—¾ HP—230 volts DC
- Sanitary—2½x2—30 GPM—80 lbs—2 HP —230 volts DC



KINNEY MOLASSES PUMP

430/215 GPM—size 8x8—pressure 60 lbs.—142/280 RPM—Motor RPM 875/1750—Reducer Falk 6.25:1. GE Motor—30/15 HP.

STEERING GEAR

McKiernan-Terry — size 10½ RAM Electro-Hydraulic. MOTOR: 40 HP. Westinghouse—frame 143S—690 RPM—230 volts.

– REFRIGERATION EQUIPMENT –

• CARGO REFRIGERATION PLANT

Compressor 7G8-EF—size 240—897 cu. inches —minimum displacement 39.2 tons—Carrier. Has 365 sq. ft. 3-pass Freon 12 condenser. MOTOR: 35 HP — 230 VDC — 1310/1750 Westinghouse—type 113-SK.

• SHIP SERVICE REFRIGERATOR

York 4x4—type Y-38—model 44-Fe—50 sq. ft. condenser. MOTOR: 10 HP—230 VDC—type SK—frame 43—1750 RPM—37.3 amps.

• COLD DIFFUSER

York type 4—Fan-Fin unit 1155 CFM—82 sq. ft. York type 2—543 CFM—36.8 sq. ft.

• CARGO WINCHES

North Carolina built type 73-S — mfg. by AH&D—50 HP—230 volts DC.

• BAILEY BOARD COMPONENTS

G.E. 300 KW TURBO GENERATORS

GENERATOR: Type DORV-325M — 5645 R.P.M. — 440 Lbs.—740° TT—18" exhaust. GEAR: Type S-192—right hand—5645/1200 —G.E. GENERATOR: G.E. 300 KW—120/240 —1200 RPM—type MPC—stab. shunt. WILL SELL ROTORS — GEARS — ARMATURES SEPARATELY.

SPRAY DEAERATING HEATER

54000 lbs. water/hour. Elliott Co.

FEED WATER HEATERS

- FIRST STAGE—Shell & tube—45000 lbs/hr —100°—172°F—305 sq. ft.—Heat Transfer Products.
- THIRD STAGE—5400 lbs/hr—240° to 318° 200 sq. ft. effective surface. Heat Transfer Products Co.

EVAPORATORS

Contaminated water — 36-14 Paracoil-Davis Eng.—Distiller 2F72D Davis.

EMERGENCY DIESEL GENERATOR SET

Heavy duty—75KW—120/240 DC—720 RPM Ideal. ENGINE: Lorimer 115 HP—7½x9½—720 RPM—4-cycle—radiator cooled. With all switchgear. OAL 12'4"—OAW 49"—OAH 79" Weight 10,500 lbs.

M.G. SET

D.C. final AC—Bus—MG set—5.5 HP—230 Volt 1800 RPM input—Diehl's—3 KW 120/1/60 output.

AIR EJECTORS

Ingersoll-Rand main air ejector and auxiliary air ejector.

AIR COMPRESSOR

Ship service — type PB-2 — 7x4x4 — Chicago Pneumatic—15 HP—230 volts—1750 RPM.

COMBUSTION CONTROL

Worthington—4¼x2½x2¾—2-stage — 17.9 CFM at 100 lbs.—5 HP—230 volts DC.

FORCED DRAFT BLOWER

Type 6-SL — 12000 CFM — 8.1 S.P. — 1830 RPM— Buffalo Forge. MOTOR: Allis-Chalmers type EB-100—20 HP—1190/1830 RPM—230 volts—75 amps.

FUEL OIL BURNER

Todd HexPress—3 per boiler.

FUEL OIL HEATERS

ALCO—4400# fuel oil—from 100° to 230° —shell & tube type—unit in four sections.

FUEL OIL METER

2"—DVHP—30 GPM—Buffalo.

SEPARATOR

Oil and water—50-ton—McNab Victor.

DeLAVAL OIL PURIFIERS

Unimatic model designation 55-N-13—for turbine or light oils—200 GPH. Powered by 2 HP 230 volt DC Allis-Chalmers motor—frame 224.

KNOWN 'ROUND THE WORLD

THE BOSTON METALS CO.

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Getting The Word Out On The 1969 LAGCOE Show

Keith Lindley, co-chairman (left) and **Granvel O. Salmon,** chairman, place the first LAGCOE bumper sticker in place announcing the October 15-18 show dates.

Preparations are already in full swing around Lafayette, La., to make this year's Louisiana Gulf Coast Oil Exposition the biggest and best ever held. LAGCOE, "The Working Man's Oil Show" is the product of hundreds of volunteers who make it possible for exhibitors to display thousands of pieces of equipment necessary to the exploration, drilling and producing of oil, as well as piping it to the refinery and ultimately to reach the consumer.

A balanced mixture of serious business and southwest-Louisiana-type fun, LAGCOE will attract exhibitors, large and small, from all segments of the industry and visitors by the thousands.

By May 1, five and one-half months before the October 15 opening of the exposition, contracts had been received from exhibitors for 95 percent of the booth space.

Newport News Shipbuilding Appoints Terrell And Hasty

The appointments of **Robert B. Terrell** as public relations manager and **C. Wayne Hasty Jr.** as community affairs manager were announced by **Ken Brigham,** director of public relations and advertising for Newport News Shipbuilding and Dry Dock Co., a major component of Tenneco Inc.

Mr. **Terrell** has been serving as director of information for The Rouse Company of Baltimore, a national mortgage banking and real estate development firm now building the new city of Columbia, Md.

Prior to joining the Rouse organization, Mr. **Terrell** was head of the public relations department of Connecticut General Life Insurance Company, Hartford, Conn.

A former reporter for The Hartford Courant, he is a graduate of Colgate University, Hamilton, N.Y., and of the management development program of Rensselaer Polytechnic Institute. He is a member of the Public Relations Society of America.

Mr. **Hasty** joined Newport News Shipbuilding in 1962 as publications editor and was appointed assistant publicity manager in 1967.

He is a 1961 graduate of Northwestern University and holds a master's degree from Ohio University. He is a member of Sigma Delta Chi, professional journalistic society.

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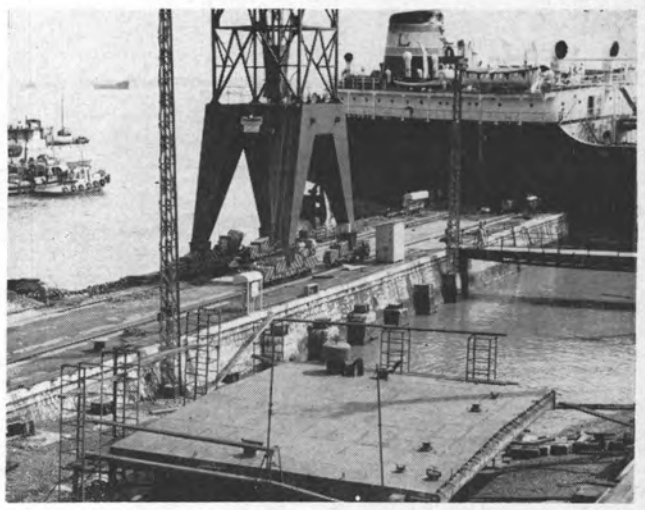

NORTH YARD: **Renewing main deck plating and cargo tank internals.**

400 tons in 41 days

4 drydocks up to 18,000 t.d.w.

SOUTH YARD: **Renewing fabricated cargo hatch covers and tank internals.**

400 tons in 34 running days

2 drydocks up to 300,000 t.d.w.

Representatives

DANMARK	AKTIESELSKABET MARITIME AGENCY	Copenhagen
NORWAY	HENNING ASTRUP A/S	Oslo-Bergen
U. K.	KELLER, BRYANT & Co. Ltd.	London
U. S. A.	LISNAVE SHIPYARDS Inc.	New York

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Billion Dollar Shipbuilding Contract Awarded Litton By Navy For Nine LHAs

Artist's concept of the LHA which will be built at Litton's new Ingalls shipyard.

The U.S. Navy has awarded Litton Industries a potential billion-dollar contract, the largest shipbuilding order ever received by one company, **Ellis B. Gardner,** senior vice-president in charge of Litton's Marine Group, announced.

Under the contract Litton will produce the first of the Navy's general purpose, amphibious assault ships (designated LHA), a new class of combatant vessel which will increase the readiness and effectiveness of Navy and Marine Corps amphibious forces.

Litton has received a fixed-price incentive contract in the potential amount of $1,012,500,000 for construction of nine LHA ships. The contract which was signed is for an increment of $113.9-million providing funds for the first ship ($112,500,000) and long lead-time equipment for the second and third ships ($1,400,000). Construction of all nine ships is contingent upon continued Congressional approval of the program.

Designed by Litton's Advanced Marine Technology division, El Segundo, Calif., the LHA will be produced by Litton's Ingalls Shipbuilding division in a new $130-million mechanized ship manufacturing facility in Pascagoula, Miss. The new ship production plant, incorporating the world's most advanced marine production technology, will produce the LHA's on an assembly-line basis using modular construction techniques.

LHA is unique by many standards, according to Capt. **R. F. Wilkinson,** the Navy's LHA project manager. He noted that it will be the first combatant ship to be designed and manufactured under the new Department of Defense acquisition process, Concept Formulation/Contract Definition, where the entire construction contract is awarded to a single firm as a Total Package Procurement.

R. R. Gunter, Litton LHA program manager, said the complex ship and the support systems were evolved together to insure the ship has the optimum amount of automation at the least cost over its lifetime. The complex command, communication and control system for directing single or multi-ship assault was principally designed by Litton's Data Systems division, which will continue its participation in the project throughout the entire LHA production.

"Further cost reductions will be realized by the assembly-line type of production possible in Litton's new 600-acre shipyard," Mr. **Gardner** said. The LHA will be the first naval vessels manufactured in Litton's new shipyard where commercial ship production will begin in December of this year.

These LHA's will be faster and more powerful than any modern amphibious ships now in the Navy and will perform a mission which now requires four different types of assault vessels. This "four-ship-in-one" capability offered by LHA will preserve the tactical integrity of combat units since the amphibious landing force and their required equipment (including combat cargo, tanks and trucks) will be carried in a single ship. LHA is similar to an aircraft carrier in size and appearance, being 820 feet long, with a 106-foot beam, full flight deck and side superstructure. A large open well at the stern permits rapid entry and exit of large landing craft.

The general purpose amphibious assault ship offers troop comforts far surpassing those of World War II troop carriers. Accommodations were designed to encourage high troop morale as well as fitness en route to combat. These include air conditioning, hot showers, ice cream bar, hobby shop and 40 closed circuit television units for movies, taped TV programs, briefings and training programs. Tropic-bound marines will have the benefit of working out each day in an acclimatization gymasium.

Steam will propel the amphibious assault ship. Litton Industries chose geared steam turbines after determining the comparative life-cycle costs of operating the mammoth ship.

An expandable flight deck will be incorporated on the LHA since it must be narrow enough to pass through the Panama Canal. At sea, a deck extension folds out to provide a 12-foot-wide passage to starboard of the superstructure. Troops waiting to board helicopters will be marshalled on walkways and passages just under the flight deck for protection and to screen them from activities on the flight deck, but still close enough for rapid debarkation.

Newly Created Post To Edward B. Colby At GM Detroit Diesel

Edward B. Colby

C. W. Truxell, general manager of Detroit Diesel Engine Division, General Motors Corporation, has announced the appointment of **Edward B. Colby** to the newly created staff position of general manufacturing manager.

In making the announcement, Mr. **Truxell** stated, "This appointment is being made to provide an expanded organization to help handle the problems associated with our explosive growth of today and to prepare for our continuing growth of tomorrow."

As general manufacturing manager, Mr. **Colby** will be responsible for coordinating the efforts of manufacturing, material control, purchasing, and reliability. Mr. **Colby** comes to Detroit Diesel from Rochester Products Division, where he was works manager.

Prior to his assignment at Rochester Products Division, he was with the Saginaw Steering Gear Division, where his assignments included material and production control, labor relations, assistant chief engineer, and manager of several plants.

During World War II, Mr. **Colby** served as a pilot with the U.S. Army Air Force. Following his discharge as a Lieutenant in 1945, he returned to Saginaw where he became a co-op student at General Motors Institute in Flint, Mich. He was awarded a bachelor's degree in industrial engineering in 1950. In 1956 he received a Sloan Fellowship to Massachusetts Institute of Technology, where he received a master of science degree in June, 1957.

Maritime Fruit Appoints Myron A. Gelberg Owners Representative

Maritime Fruit Carriers Company Limited, a refrigerated shipping firm headquartered in Haifa, Israel, has announced the appointment of **Myron A. Gelberg** as owner's representative.

In this capacity he will supervise the operations of Maritime Fruit Carrier's regular liner service recently initiated between the East Coast of the U.S. and Australia. Mr. **Gelberg** has his office at Chester, Blackburn and Roder, Inc., 1 Whitehall Street, New York, N.Y., general agents for the Maritime Fruit firm.

Prior to joining Maritime, Mr. **Gelberg** was traffic manager of the Pacific Star Line. He is a graduate of the U.S. Merchant Marine Academy, Kings Point, L.I.

LARGEST UNIT WORKING ON LAKE MARACAIBO, Shell's G.P. No. 9 floating drilling barge and work-over rig, is hauled out at the Varadero Y Astillero del Zulia Compania Anonima, Maracaibo, Venezuela, shipyard for repairs. The unit was enlarged and the cantilever platform added in 1966 by the same shipyard. With the derrick and rotary removed, the barge, as shown, weighs 2,619 tons.

Port Of Philadelphia Orders Second Kocks Pittsburgh 45-Ton Container Crane

Kocks Pittsburgh Corporation has received a contract covering a second 45-ton capacity container crane for the City of Philadelphia. Among the largest of its type in the world, the crane will be a duplicate of the Kocks unit scheduled for operation at the end of this year.

The second Kocks crane will be installed by March, 1970. The unit will serve a land backup area of 94 feet. It is a wide gauge model with 90 feet between tracks.

Featuring self-contained diesel power, the Kocks crane will handle 20- and 40-foot containers and also will provide for quick adaptation to general cargo use, bucket handling and scrap handling by magnet.

SS Manhattan To Use Collins Communications On Alaskan Voyage

Humble Oil & Refining Company, Dallas, Texas, has selected Collins Radio Company equipment for use in long-range communications connected with an experiment to develop transportation for bringing oil out of the Alaskan North Slope oil field. The Alaskan field is the newest, and forecasted to be among the largest oil fields in the world.

The Collins equipment will be installed aboard the SS Manhattan, a 115,000-dwt vessel and the largest oil tanker in the U.S.-flag merchant fleet. Within a few months the SS Manhattan will begin a testing program to obtain data necessary to design ships which could routinely navigate the Northwest Passage above the Arctic Circle.

Humble Oil is spearheading an industry effort to develop the sea route approach through the Northwest Passage. This appears to be one of the most economical and practical methods of getting the oil out of Alaska to refineries bordering on the Atlantic.

Humble Oil is converting the SS Manhattan into an icebreaking tanker for the project. The Manhattan will begin its maiden voyage into the Arctic from the East Coast later this year and proceed northward through the ice to Prudhoe Bay, Alaska, a distance of 4,427 miles.

Collins was selected to furnish the communication equipment because of the company's extensive experience in long-range communication, especially into the Arctic Zone. Collins' experience in long-range communication dates back to the Adm. Byrd expeditions to the Antarctic in the early 1930's, and most recently the company has designed and developed the long-range communication equipment used in the Apollo program.

The USS Manhattan will be equipped with two helicopters for ice reconnaissance missions and Collins will provide communication equipment for these, as well as for landing parties sent out from the Manhattan to test the ice along the tanker route.

Collins equipment to be installed aboard the Manhattan includes the MR-104A high-frequency single sideband shipboard communication system, complete S-line (30S-1 linear amplifier, 32S-3 transmitter, 312B-4 station control, 75S-3C receiver), a log periodic antenna and vertical antenna. Equipment to be used on the helicopters and by the landing parties will include very high frequency transceivers, locator beacons, homing devices and emergency beacons.

Besides supplying communications equipment, Collins also will be performing the systems engineering work necessary to tie the communication systems together.

Using the Collins equipment, the Manhattan will be able to communicate with Collins' facilities in Cedar Rapids for relaying to Humble Oil Company headquarters in Houston, Texas.

Approximately 30 scientists, engineers and technicians will be aboard the Manhattan to chart and study ice thicknesses, temperatures, icebergs, "whiteouts" (blinding hazes caused by ice crystals floating in the air), and the effects of these conditions on the performance of the ship.

Several hundred sensors will be located throughout the ship to assist in studying stress conditions as the ship plows through the ice. These sensors will be monitored continually by a computer.

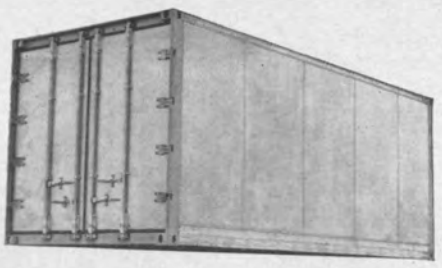
Data gathered during the voyage may be used in designing larger ships twice the size of the Manhattan to go through the passage. If the test is successful, the oil industry anticipates using a considerable number of ships with 250,000 tons capacity and more on a year-round basis to transport oil from Prudhoe Bay to oil refineries on the East Coast of the United States. The industry has announced a trans-Alaska pipeline for supplying West Coast refineries.

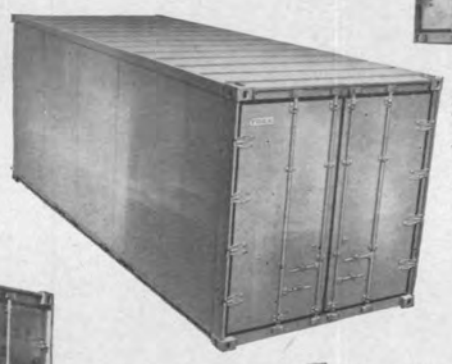
Sun Shipbuilding and Dry Dock Yard in Chester, Pa., is prime contractor for converting the SS Manhattan for Arctic operations. The modifications include installation of a new ice-breaking bow, reinforced hull, new high-strength propellers and tailshafts and additional navigation equipment.

Two other shipyards, Newport News Shipbuilding and Dry Dock Company, Newport News, Va., and Alabama Dry Dock & Shipbuilding Co., Mobile, Ala., are also modifying major portions of the ship which has been cut into four sections to speed the conversion.

All Steel
Tough, low-cost all steel box, ALCHEM-treated to beat rust. 10, 20, 27, 30 and 40 footers.

ALS2 aluminum/steel
Steel base and endframes, but with aluminum side panels, roof and extruded quarter panels to save weight. Any length.

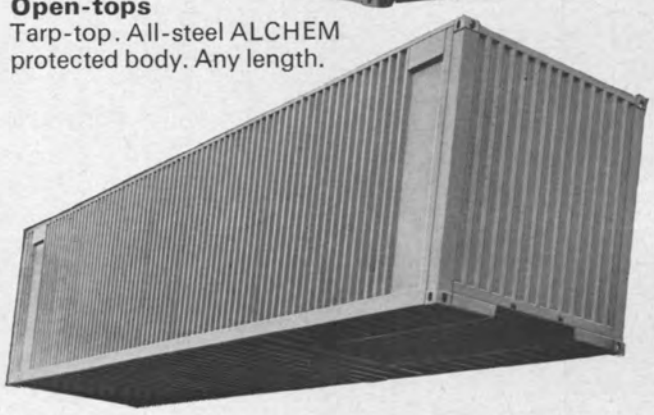




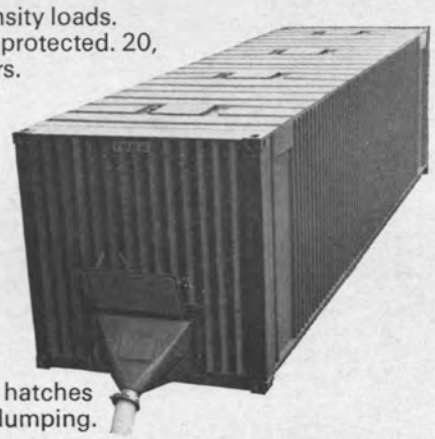
AL 'all aluminum'
The lightest box York make. 20 footer weighs only 3024lb (1372 kilos). Also 10, 30 and 40 footers.

Open-tops
Tarp-top. All-steel ALCHEM protected body. Any length.

Half-heights
4ft high for high density loads. All-steel ALCHEM-protected. 20, 27, 30 and 40 footers.



Tunnel-types
Steel with under floor well to fit gooseneck skeletal trailers. Open-tops too. 27, 30 and 40 footers.



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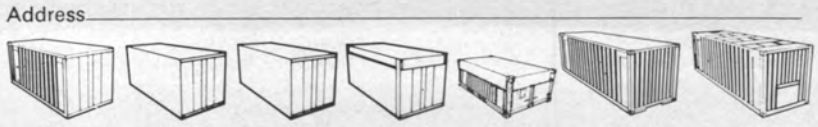

Steel	ALS2 aluminum steel	AL all aluminum	Open tops	Half-height	Tunnel-type	Bulker
☐	☐	☐	☐	☐	☐	☐

York's automated container plant is really churning them out now! Containers for every requirement at really competitive prices. Let York quote you now.

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Philadelphia Section Meets At Navy Yard —SNAME Dedicates Plaque To NBTL Founder

Taking part in the April meeting of the Philadelphia Section, SNAME, were, left to right: **G. H. Boyd,** Section chairman; **James J. Henry,** SNAME president; Capt. **F. W. Gooch Jr.,** USN, commander, Philadelphia Naval Shipyard, and guest speaker; Comdr. **J. C. Reaves,** USN, design superintendent, Philadelphia Naval Shipyard, and meeting coordinator; **Kent C. Thornton,** Section vice-chairman, and **George Johnson,** Section secretary-treasurer.

The Philadelphia Section of The Society of Naval Architects and Marine Engineers held its April meeting at the Commissioned Officers' Mess on the Philadelphia Naval Base. There were several special guests in attendance, notably among them **James J. Henry,** national president of SNAME, **Vernon Olson** of SNAME national headquarters, and two young ladies also from SNAME national headquarters, **Miss Betsy Byrnes** and **Miss Lillian Degering.**

Prior to the cocktail hour, the shipyard hosted a one-hour bus tour of some of its facilities. Highlighted during the tour was the reserve fleet; the submarine facilities which included the marine railways; the new steel handling facilities; drydocks 4 and 5, where the LCC-19 and the LST-1180 are under construction (both in Drydock 4) and where the aircraft carrier, USS Intrepid, is currently undergoing overhaul, and the new sheet metal shop. Rounding out the tour was a visit to the shipyard's noted propeller shop.

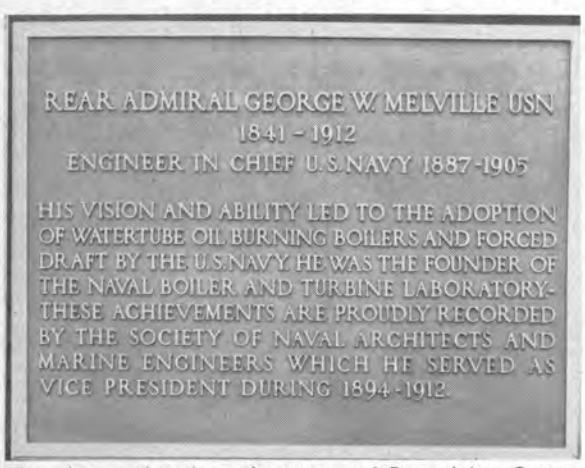
The meeting was opened by the chairman, **G. H. Boyd,** who introduced the noted guests. He then announced the new officers of the Philadelphia Section for the coming year, 1969-1970: chairman—**Kent C. Thornton;** vice-chairman—**George A. Johnson;** secretary-treasurer—**B. B. Cook Jr.,** and the executive committee—**Walter G. Neal Jr., T. J. Kavanagh,** and **G. H. Boyd.**

The coordinator for the technical session was Comdr. **J. C. Reaves,** USN, who is the design superintendent, Philadelphia Naval Shipyard.

The paper, entitled "The Navy's Program for Shipyard Modernization," was presented by Capt. **F. W. Gooch Jr.,** USN, commander, Philadelphia Naval Shipyard.

In beginning the presentation, Captain **Gooch** gave the background for the modernization program for the naval shipyards. The inception of this program began approximately five years ago and resulted in awarding certain private engineering contracts to make surveys and recommend actions for shipyard modernizations.

Noting that the Philadelphia Naval Shipyard has served as a pilot in this program, the shipyard commander proceeded to highlight several major programs which have been or will be instituted, resulting in an increase in this shipyard's capacity for naval ship construction, conversion, and repair. The shipyard modernizing is based not only on the recommendations of the study but also on projects initiated and programmed by the shipyard itself.



The plaque placed on the statue of Rear Adm. George W. Melville, USN, by the Society.

Statue of Rear Adm. George W. Melville in Navy Yard.

Summarizing those modernization programs which have been completed or are nearing completion, Captain **Gooch** noted the major relocation of crane tracks at one of the shipyard's large drydocks, which now permits efficient servicing of the large aircraft carriers whose overhanging flight deck had blocked a portion of the crane tracks. Continuing in this line, he cited the installation of a handling facility which will provide almost complete automatic handling and processing of steel plates. He outlined the flow of the steel plate from the point of receipt to final installation in a ship as the new facility will handle it.

The latest facility nearing completion is the sheet metal shop which will allow much greater efficiency and improved working conditions, as well as a greatly increased area for storing sheet and shape material processed in this shop.

Looking into the future, the shipyard commander summarized the building program—a new shop to house all electrical and electronics operations; a freight and passenger elevator in two of the drydocks; a service building in way of one of the major pier-drydock areas; an engineering/management building which will locate in one building the engineering and management personnel presently scattered in various areas of six different buildings; combining the structural shops in one building by enlarging the more modern of the two present structural shops; combining the machine shop complex in one building, and a processing facility to handle steel shapes much in the same way that steel plate will be handled.

Earlier in the day, dignitaries from the Philadelphia Naval Shipyard; Fourth Naval District; Naval Ship Engineering Center, Philadelphia Division (formerly the Naval Boiler and Turbine Lab), and SNAME were present at the statue of Rear Adm. George W. Melville, USN, to officially dedicate the plaque provided by SNAME. The shipyard commander, Capt. **F. W. Gooch Jr.,** gave a brief biography of the admiral who was the founder of the Naval Boiler and Turbine Lab and who served as vice-president of SNAME from 1894 to 1912. The plaque was officially dedicated by **James J. Henry,** national president of SNAME.

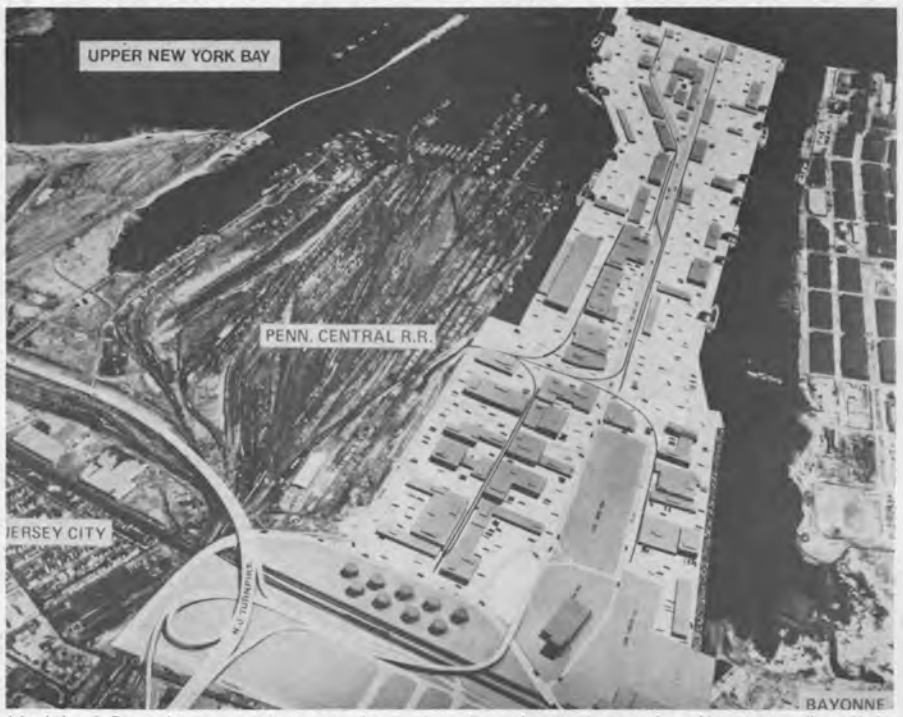
Hillman Appoints J. Dawson Provance Production Manager

Hillman Barge and Construction Company, Brownsville, Pa., has announced the appointment of **J. Dawson Provance** as production manager.

Mr. **Provance** joined Hillman at the firm's Alicia Marine Ways in January, 1943, as a mechanic. He became a foreman in the fabricating shop in 1948, was promoted to general shop foreman in 1953, and in 1955 became shop superintendent.

Mr. **Provance** is active in boating, and is a member of the U.S. Coast Guard Auxiliary, for which he is a courtesy examiner. He is also a member of the U.S. Power Squadron.

Port Jersey Starts Construction On First Building—One Channel Dredged



Model of Port Jersey superimposed on site. One-third of complex (foreground) will be 110-acre industrial center. Balance will be 300-acre deepwater port.

A contract has been awarded for the construction of a 100,000-square-foot multipurpose building at Port Jersey—the nation's largest privately owned industrial center/deepwater port complex. The building marks the beginning of a 2-million-square foot building program on the 110-acre industrial center portion of the 410-acre complex.

Port Jersey is west of New York City on upper New York Bay, partly in Jersey City and partly in Bayonne, N.J. No government funds have or will be used for development of the multi-million-dollar project.

One of the largest construction firms in New Jersey, Jos. L. Muscarelle, Inc. of Maywood, will build the rectangular, single-story structure on a 4½-acre plot. The all-steel building will have 97,000 square feet of space suitable for warehousing, distribution or manufacturing, nine oversized truck bays and 3,000 square feet of office space.

According to **C. B. Snyder,** vice-president of the Port Jersey Corporation—owners, developers and operators of Port Jersey—"approximately 250,000 square feet of space will be 'under roof' by the close of 1969."

Facilities at the Port Jersey Industrial Center are being offered as a total package. Buildings of at least 100,000 square feet will be designed and built to the requirements of lessees. To analyze their needs, the Port Jersey Corporation offers prospective occupants the counselling services of architects, contractors, engineers and transportation specialists.

Adjacent to the New Jersey Turnpike, Port Jersey is minutes away from some of the nation's finest transportation facilities. A new ramp, currently under construction, will lead directly from Exit 14A of the Turnpike to the complex.

As New Jersey's major commercial artery, the Turnpike feeds into important interstate highways—U.S. 1, 9, 78 and 22.

Thus, no point in the Boston-Washington megalopolis will be more than a five-hour truck run from the complex. Conceivably, a truck could travel from Port Jersey to Chicago without stopping for a traffic light.

Four miles west of the complex via the New Jersey Turnpike is Newark Airport, where air cargo can be received or shipped. The same route leads to Ports Newark and Elizabeth—and trans-shipment by sea.

The site will be serviced by six major trunkline railroads and is adjacent to the Penn-Central's Greenville yards. The freight yards are the railroad's largest in the East. A spur will connect the yard directly to Port Jersey.

The second stage of Port Jersey's development will be the construction of a deepwater port. The port will provide berthing and handling equipment for LASH, break-bulk, roll-on/roll-off, and containerships. These facilities will be built on 300 acres of reclaimed land in upper New York Bay, extending the site almost two miles into the harbor. Three shipping channels will provide easy access to the port. The first of these channels, 800 feet wide and 35 feet deep, was recently cleared while landfill was dredged for the industrial center.

Dredging is being done by Construction Aggregates Corporation, a Chicago-based engineering firm specializing in land reclamation. The company has already completed a project similar to Port Jersey at Kingston, Jamaica. **Ezra Sensibar,** president of the firm, is also president of the Port Jersey Corporation.

The C. B. Snyder Organizations, 550 Summit Avenue, Jersey City, N.J. are exclusive brokers for Port Jersey.

Morris Schapiro Dies

Morris Schapiro, the owner of Boston Metals Company of Baltimore, Md., and the scrapper of over 1,500 ships, died recently at the age of 86.

Mr. **Schapiro** came to the United States in 1902 at the age of 19 from Latvia to avoid religious persecution. In 1904, he began hauling junk—metal and lumber—from the ruins of the great Baltimore fire at two cents a load. With two relatives, Mr. **Schapiro** started the Boston Metals Company which grew to international proportions. Today, it is a $10-million-a-year business, the largest exporter of American-built diesel parts and the world's biggest machinery replacment firm.

Boston Metals has scrapped in its 65 years more than 1,500 ships, including the old USS Pennsylvania on which Mr. **Schapiro** sailed from Riga to the United States.

At the time of his death, Mr. **Schapiro** was chairman of the firm and still active in it.

St. Louis Ship Elects Patrick V-P Engineering

Robert J. Patrick

Robert J. Patrick has been elected vice-president, engineering of St. Louis Ship, a division of Pott Industries Inc., St. Louis, Mo., according to an announcement by **Edward Renshaw,** president. He formerly was chief engineer of the company.

Mr. **Patrick** will be responsible for all engineering and new construction estimating of the Shipbuilding Division.

Prior to coming with St. Louis Ship in 1963, Mr. **Patrick** was employed by Bethlehem Steel Company shipbuilding division in Quincy, Mass., and Maryland Shipbuilding & Drydock Company in Baltimore, Md.

He has a BS degree from the U.S. Merchant Marine Academy, a degree in naval architecture and marine engineering from the University of Michigan and is a registered professional engineer in the State of Missouri.

He is a member of The Society of Naval Architects and Marine Engineers and the Propeller Club Port of St. Louis.

Lockheed Shipbuilding Names M.L. Ingwersen Exec. Vice-President

Martin L. Ingwersen

Martin L. Ingwersen has been named executive vice-president of Lockheed Shipbuilding and Construction Company, Seattle, Wash., LSCC President **A. M. Folden** announced.

Mr. **Ingwersen,** who joined the company last July, has served as vice-president-operations, responsible for shipbuilding and manufacturing functions.

Before joining Lockheed, he was president and chief operating officer of Maryland Shipbuilding and Drydock Company, Baltimore, Md.

A native of Sandusky, Ohio, Mr. **Ingwersen** holds a degree in mechanical engineering from Notre Dame and completed other studies at Western Reserve University and at Navy schools at Princeton and New London, Conn.

Earlier in his career, he held positions with American Shipbuilding Company, Cleveland, Ohio, and Ingalls Shipbuilding Corporation, Pascagoula, Miss. He served as a naval officer in World War II, primarily in engineering and operations.

NEW LUMBER CARRIER—Mitsui Shipbuilding & Engineeering Co., Ltd., Japan, recently delivered at its Tamano Works the 19,000-dwt lumber carrier, Hiko Maru, to her owners, Sanko Steamship Co., Ltd. The 479-foot ship, which is to ply between Japan and North America, has three sets of 15-ton booms and one 20-ton boom, with strengthened upper deck, hatch coaming and hatch covers. The maximum trial speed of 18.59 knots was developed with the 9,400-bhp Mitsui B&W diesel engine.

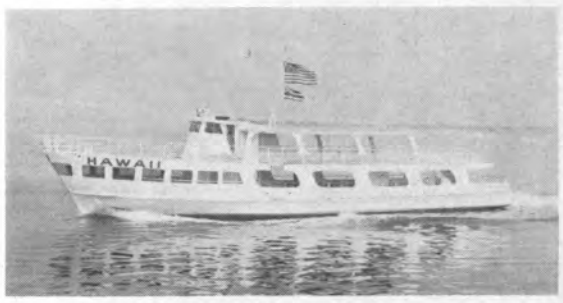
83′ PASSENGER-VEHICLE FERRY. This T/L Class vessel is another in the line of Blount Botruc designs. She now operates in regular ferry service carrying 4 trailers and 50 passengers for the Commonwealth of Puerto Rico Ports Authority.

85′ HARBOR TUG. Built for the Government of Antigua for service in St. John's Harbor as part of the "Deep Water Project", an overall harbor development program of the island.

80′ EASTERN RIG DRAGGER. A 380 h.p. all-steel beauty, complete with a Blount trawlmatic winch, now fishing out of Newport, Rhode Island.

85′ DOUBLE END VEHICLE FERRY. Delivered in May, this ferry went into immediate service on Lake Champlain. Fourth in a fleet of Blount double-enders operating on the Lake, she carries 15 automobiles plus passengers on her runs.

85′ HARBOR TUG. Sister ship to the vessel pictured above. Each is powered by twin 765 h.p. diesels and features sleeping quarters and modern galley for a 6-man crew.



110′ PASSENGER FERRY. This 400-passenger Vista View* (wrap-around bow windows. Patent applied for) sightseeing vessel operates between Waikiki Beach and the Battleship Arizona National Monument at Pearl Harbor.

65′ PASSENGER-VEHICLE FERRY. Delivered 2,500 miles in 8½ days, under her own power, this vessel entered ferry service between Water Island and Charlotte Amalie as well as on cruises between the American and British Virgin Islands.

110′ CRUISE VESSEL

Pictured here perched majestically on the Blount lift dock prior to launching, this cruise vessel will enter year round service in June 1969 on inland waterways in the eastern United States and Canada. Winters in the Caribbean. Spacious accommodations will provide a unique type of gracious "quiet water" cruising for her passengers.

65′ PASSENGER FERRY. Another successful 2-deck model. This 350-passenger vessel plies Casco Bay, Maine in regular service with 5 sister ferries of Blount design.

85′ PASSENGER FERRY. Another vessel built in 1968 for the Commonwealth of Puerto Rico Ports Authority. She carries 400 passengers in operations between Fajardo, Vieques and Culebra.

BLOUNT LIFT DOCK

Plans and right to build this patented 350 ton, 120′ x 42′ Lift Dock can be purchased for $1,500.00. It is so simple it can be pre-fabricated by the average welding shop.

Built By Blount in 1968

These owners are depending on Blount Marine to fill their requirements and solve their design problems on all types of vessels. All of the boats shown here were built and delivered during 1968, and may be viewed at their scene of operations. The variety of design demonstrates the versatility of our yard. We design and build any type of steel vessel from 65 to 250 feet. Imaginative design — quality construction — dependable service . . . these are the hallmarks that have made the reputation that Blount enjoys in the industry. When you next need a boat — consult the proven leader.

*Blount Marine Trademark

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Barbour Boat Delivers Unique Fishing Vessels

The MV Ruth-M and the MV Sheela-L can catch, process and deliver scallops ready for marketing when the vessels reach home port.

Barbour Boat Works, Inc., of New Bern, N.C., recently completed two modern 86-foot 0-inch scalloper fishing vessels which **R. R. Rivenbark,** president of Barbour Boat Works, feels marks a significant advance in fishing for scallops.

Both these vessels, the MV Ruth-M and MV Sheela-L, designed by naval architect **S. L. Petchul,** employ an efficient double chine type hull and are extensively outfitted with sleeping accommodations for 14 crew members, with all living areas being air conditioned. The pilothouse is aft, providing complete visibility of fishing operation. The trawl winches are located at the bow, keeping the trawl cables off the working deck.

Equipment includes the latest Marco hydraulic trawl winches, GM-12V-71N main diesel engine with a 6-to-1 reduction gear giving 340 hp, and a Southerner 4-bladed 62-inch diameter by 50-inch pitch propeller. The vessels are capable of a sustained speed of 10 knots fully loaded.

The unique feature of these vessels is the scallop processing machinery developed by **Elmer Willis** of Williston, N.C., who is an expert with many years of experience in the processing of scallops. Scallops are caught and processed on board the vessels with the shell and eviscerate being removed and the scallops being ready for marketing when the vessels reach port.

The MV Ruth-M and MV Sheela-L are both owned by Ocean Scallops, Inc., and are now being operated off the East Coast of Florida fishing the newly discovered scallop beds in the area.

Dr. S.K. Chen Joins F-M Power Systems Division Of Colt

Dr. Simon K. Chen

The appointment of Dr. **Simon K. Chen** as vice-president and general manager of the large engine operation was announced by **J. M. Monroe,** president of Fairbanks Morse Power Systems Division, Colt Industries.

"The interest in and general acceptance of the 38A20 line of large engines for both marine and power generating applications has brought a long-range, multi-million-dollar expansion program to the division's Beloit, Wisc. facilities," said Mr. **Monroe** in making the announcement. "Much of the program is already completed. Dr. **Chen,** in his new position, will be responsible for all engineering and manufacturing for these engines."

Dr. **Chen** replaces **E. E. Blystone** who has been advanced to vice-president and general manager of the medium engine operation.

Dr. **Chen** received his BS degree in mechanical engineering in 1947 from the National Chiao-Tung University in Shanghai, China. He obtained his MS degree from the University of Michigan and completed his PhD studies at the University of Wisconsin. He also obtained an MBA, Executive Program, from the University of Chicago.

Since 1952, Dr. **Chen** has served in various engineering management capacities with the International Harvester Organization. He is an active member of SAE, ASME and the Combustion Institute and has held various chairmanships. He has authored several technical papers, and in 1966 he was honored with the Arch T. Colwell Merit Award by SAE for his technical contribution to the Society. Dr. **Chen** holds several U.S. patents on instrumentation and on piston and gas-turbine engines.

Southern Machine Appoints Truxillo Sales Representative

Ruffin G. Truxillo has been appointed sales representative for Southern Machine and Tool Co., Inc., Houston, Texas, in the Gulf areas of Louisiana, Mississippi and Alabama. **R. G. Thompson,** vice-president of SMATCO, announced the appointment.

Mr. **Truxillo** will handle sales of winches, windlasses and deck machinery for the Houma, La. marine towing and hoisting equipment manufacturer.

Founded in 1948 as a specialized machine shop serving the oil industry, SMATCO is today the largest winch-manufacturing firm in the Gulf South, shipping custom-designed towing and anchor handling equipment to customers all over the world.

F.R. Harris Designs Nova Scotia Terminal For Mammoth Tankers

A new terminal to handle mammoth tankers will soon be under construction at Point Tupper, Nova Scotia. Frederic R. Harris of Canada, Ltd. in a joint venture with Gibb, Albery, Pullerits and Dickson have recently completed the design of a two-berth terminal for Gulf Oil of Canada, Ltd., under the auspices of the Department of Public Works of Canada, Atlantic Region.

The present schedule is to have the facility ready for the receipt of crude oil in August, 1970. The overall project is scheduled to be completed by late fall of that year. Upon completion, the terminal facilities will be able to accommodate 325,000-dwt tankers on the outer berth and product tankers up to 50,000 dwt on the inner berth.

The offshore facilities are part of a refinery complex being constructed by Gulf Oil on Cape Breton Island in Nova Scotia.

Harris-GAPD have had the responsibility of preparing the design from the battery limit on shore, seaward, for all the structural, mechanical, electrical and instrumentation construction.

During the course of the project, Harris assigned a team of specialists to head the work in the joint venture office in Toronto. Members of the team included: assistant vice-president **J. A. Ferenz,** project manager; **A. Olsen, O. Starke** and **L. Minazzi,** project engineers for the structural, mechanical and electrical aspects of the design. Vice-President **E. A. Stratton** was in overall charge of the project.

With the successful completion of the design of this project, Harris has now had the satisfying experience of being the engineers for all terminals designed to date for the mammoth-class tankers now coming of age.

Four OBO Carriers Ordered From NKK

Four orders for oil-bulk-ore (OBO) carriers have been announced by Nippon Kokan, Japan's only integrated shipbuilder-steelmaker.

Hiroo Ikematsu, NKK's New York naval architect, said Porthos Shipping Co. and Athos Shipping Co., both of Liberia have each ordered one 96,000-dwt OBO and that the prominent Norwegian shipping company, Anders Jahre, has ordered two of the triple-purpose vessels at 95,700 dwt.

The world's first OBO carrier, the 61,000-dwt San Juan Trader, was delivered to San Juan Carriers, Ltd. by Nippon Kokan in April, 1966. Japan's Ministry of Transport has approved the building of a total of 40 triple-purpose carriers during the last three years. These 40 vessels aggregate 3,701,960 dwt.

ORIGINAL PAINTING—C. James Gay, left, assistant director, Texaco International Marine Sales, presents an original artist's painting of the SS Ponce De Leon to **R. D. Carter,** president, Transamerican Trailer Transport Inc., the firm that owns the vessel.

Babcock & Wilcox Forms New Washington Office

The Babcock & Wilcox Company has formed a corporate-level Washington, D.C. office, replacing the existing Washington office of the company's Power Generation Division.

R. H. Harrison, vice-president, has been named to direct the new function. He will report directly to B&W President **George G. Zipf.**

All activity between the federal government and the company, its divisions and subsidiaries will be coordinated through the office. Service to Washington news media in addition to legislative and executive branch relations is included in its broad public affairs responsibility. Sales functions previously handled by the Washington office will be assumed by the company's divisions and subsidiaries.

Mr. **Harrison** joined B&W in 1961 following his retirement as an Army brigadier general. He directed B&W's Atomic Energy Division until 1968 when he joined the president's staff in New York. Mr. **Harrison's** Army career included service in Korea and the European theatre of World War II. His last military duty was deputy chief of the Defense Atomic Support Agency and chief of the Joint Atomic Information Exchange Group.

Mangone Building Offshore Oil-Well Supply Boat

Stewart & Stevenson Services, Inc., of Houston, Texas, has awarded a contract to Mangone Shipbuilding Co., Houston, Texas, for the construction of a 600-dwt offshore, oil-well supply boat. Designated Hull No. 94, and to be powered with 600-total-bhp diesels, the vessel will have the following dimensions: 156 feet 6 inches in length, 36 feet in beam, 15 feet in depth, and will be of 300 gt.

Container Feeder Service Slated For Sacramento

A container-shipping feeder service to connect the inland port of Sacramento, Calif. with container terminals on San Francisco Bay has been announced by Sacramento port director **Melvin Shore.** The new service will start early next year.

Mr. **Shore** estimates that 75 percent of the 1968 total cargo tonnage of 280,000 tons for Sacramento is containerizable. He is planning on providing a weekly sailing by leased barges between the two ports, located 85 miles apart.

Sacramento has a large, paved port area suitable for container storage. The port will buy only the necessary bridles for container handling to be used with existing gantry cranes.

Mr. **Shore** feels that this type of feeder service will be applicable to many ports.

New Consortium Buys York Containers

Containers valued at more than $120,000 are to be supplied to the new shipping consortium, Dart Containerline, by York Trailer Company Ltd., Corby, Northants, England. The units ordered are 20-foot open-top all-steel I.S.O. containers, designed to comply with T.I.R. regulations and used mainly for shipping heavy, crane-loaded machinery.

This is one of the first container orders for the consortium, which has been formed by Bristol City Line (U.K.), Compagnie Maritime Belge (Belgium) and Clarke Traffic Services (Canada). It was placed on their behalf by Swan Hunter, who is currently building two "super" containerships for the consortium. The containers will be built at York Trailer's new container plant at Northallerton, Yorkshire.

Lorain Electronics Forms Service Division For Inland Waterways

Lorain Electronics Corporation has announced the formation of a new service for workboat operators and shipbuilders on the inland waterways and Great Lakes. A separate engineering division has been organized to handle Decca ISIS automation equipment; Lake Shore Electric automatic generator transfer and switch gear; and a complete line of electric steering systems for workboats. Lorain will provide complete sales, engineering, and field service requirements for these products. The warranties of all three companies will back-up product quality and service.

Dudley Miller will head up the field service responsibilities for Lorain, with headquarters, administrative and engineering under the direction of **R. E. Scatterday.**

For some time it has been recognized that the increase in use of electronic tools for towboats requires that they be applied and maintained under one engineering responsibility. Lorain field service engineers throughout the inland waterways will be supplied with operational spare parts for all of this equipment and factory-trained for efficient 24-hour service on the vessels. Lorain has served the marine industry since 1933.

Any further information can be secured by writing or calling Lorain Electronics Corporation, Marine Automation Division, 2307 Leavitt Road, Lorain, Ohio 44052, area code 216 282-6116.

Stockholm Show Hears How Hydraulic Units Will Speed Shipbuilding

Hydraulic systems that could revolutionize shipbuilding techniques from construction through launching were described at the Shipbuilding and Equipment Show at Stockholm, Sweden, earlier this year.

Robert M. Bush, president of Hydranautics, Goleta, Calif., presented a paper, which described horizontal and vertical heavy-load-displacement systems that could be used to construct ships of up to 50,000 tons with significant cost savings.

Mr. **Bush** outlined two systems. The first was the friction-lock gripper which proved its capability in an end-launching system used by Maryland Shipbuilding. The shipbuilding firm indicated that more than $14,000 was saved on each launch using the Hydranautics system.

The second system is the "Yardworm," a new system from the research and development team of Hydranautics.

Friction-lock is a patented system that combines two components to move heavy loads either vertically or horizontally and provides its own moving anchor point.

The components are the gripper and jacking cylinders. Hydraulic pressures of up to 10,000 psi hold the gripper on a rail while the jacking cylinders move the load in the desired direction. For horizontal systems, the rail need not be anchored to the ground. Even on a greased surface the gripper will hold securely.

"Yardworm" is self-contained and provides three-axis movement for positioning subassemblies weighing up to 10 tons.

A load can be moved horizontally at speeds up to two feet per minute with controlled moves of 1/16th inch, Mr. **Bush** stated. Vertical movement can be programmed with accuracies of ⅛th inch. Pitch, roll and yaw movements can be controlled to within 1/16th inch.

While moving in the horizontal mode, the "Yardworm" can make turns of ½-inch per foot traveled.

Where the gripper system anchors itself to a rail and pulls the load, the "Yardworm" lifts the load on vertical jacks and pulls it along a self-contained horizontal jack, much like an inchworm.

Both systems employ state-of-the-art technology, but remain simple and extremely reliable, said Mr. **Bush.** Simliar systems have been exposed to the harsh environments of the sea for years without malfunction, he pointed out.

Sun Receives Contract For Vehicle Carrier

Sun Shipbuilding & Dry Dock Co., of Chester, Pa., is to construct another vehicle carrier for undisclosed interests at an estimated cost of $18-million. Designated Hull No. 650, this carrier will be propelled by double-reduction geared turbines developing 32,000 shp. It will have the following dimensions: a length between perpendiculars of 643 feet, a beam of 92 feet, a depth of 42 feet 1⅜ inches and will be of 15,200 gt and 14,500 dwt.

Sewart Seacraft Awarded $2,007,332 Contract By NSSC

Sewart Seacraft, Berwick, La., has been awarded a $2,007,332 fixed-price contract for 13 fifty-foot fast patrol craft (PCF). The Naval Ship Systems Command awarded the contract. (N00024-69-C-0302).

Edo Western Develops New Sonar Transceiver

Edo Western Corporation has announced the development of a third-generation, versatile, compact shipboard transceiver, the Model 248B solid-state sonar transceiver. The "B" model incorporates all of the features of its predecessor, the 248A, plus additions and modifications to increase output power, thereby enabling it to perform a larger range of capabilities. The new unit features extremely low input power and high output power. It performs a wide scope of oceanographic and ASW tasks and can be used as a "modular building block" for depth sounding, acoustic command, navigation, bottom penetration and automatic bathymetric systems.

The Model 248B was developed by the original designers of the widely used AN/UQN-1 depth sounder with consideration given to the present and future requirements of the oceanographic industries. Specific system requirements are achieved through a choice of operating frequencies from 1 to 38 kHz, continuous variation of output power to 2,000 watts, internally or externally controlled pulse lengths, and compatibility with all precision recorders and a wide variety of standard transducers. Minimum maintenance is assured through the use of high-quality components in the transmitter, receiver and power supply, and an MTBF of greater than 5,000 hours. Further information is available by contacting Edo Western Corporation, Salt Lake City, Utah 84115.

Universal Iron Building Twin-Screw Tugboat

Universal Iron Works, Houma, La., is to build a twin-screw tugboat for Twenty Grand Towing Corp., Berwick, La. Designated Hull No. 90, it will have the following dimensions: 115 feet by 31 feet by 13 feet 6 inches, and will be equipped with 2,400-total-bhp diesels.

Oglebay Norton To Buy Cleveland Foundry

Officials of Oglebay Norton Company, Cleveland, Ohio, and Taylor & Boggis Foundry Company, Inc., Cleveland, Ohio, have announced that they have reached an agreement in principle whereby Taylor & Boggis and its affiliates, Ohio Industrial Properties Corporation and Ohio Industrial Castings Corp., will be merged into Oglebay Norton. Terms of the proposed transaction were not disclosed at this time, but it was stated that it will involve the issuance of Oglebay Norton convertible preferred stock for all shares of common stock of Taylor & Boggis, Ohio Industrial Properties and Ohio Industrial Castings. The proposed merger is subject to working out a satisfactory definitive agreement, approval by the boards of directors of all companies involved and the stockholders of Taylor & Boggis.

Oglebay Norton's present plans call for the business and operations of Tayor & Boggis and its affiliates to be carried on by a subsidiary of Oglebay Norton with **Frank P. Gill**, Cleveland, Ohio, president of Taylor & Boggis, as president of the subsidiary and employing the present personnel and organization of Taylor & Boggis and its affiliates.

Taylor & Boggis, founded in 1862, is a fully operating gray iron foundry with extensive manufacturing facilities at 2469 East 71 Street, Cleveland, Ohio.

Oglebay Norton Company, its subsidiaries and predecessor organizations have been engaged in the mining, sale and transportation of iron ore, coal and other minerals since 1855. Its operations include a diversified fleet of Great Lakes vessels, general cargo docks on the Great Lakes, and coal mines in Ohio.

Amercoat Appoints Abbott And Andersen To New Posts

Amercoat Corporation, Brea, Calif., has announced the appointment of **D. T. Abbott** as sales manager, with responsibility for all national sales-oriented activities. Mr. **Abbott** had been manager of Amercoat's Cherry Hill, N.J. district office since 1964 and is being succeeded in his position by **Kjell F. Andersen.**

Before that, he held numerous important positions with the company in the New York and Philadelphia areas.

Prior to joining Amercoat he was regional manager for Plicoflex, Inc., in charge of overseas marketing, and held other responsible positions with Prufcoat Laboratories, Inc. and Quaker Rubber Corporation. He is a graduate of La Salle College in Philadelphia, with a degree in business administration.

Mr. **Andersen,** in his new position, will be responsible for sales and service throughout the Northeast area covered by that district. His appointment follows several years' experience with Amercoat as engineering sales representative in the Cherry Hill District.

Before joining Amercoat Mr. **Andersen** was general manager, Tollefsen Brothers Contracting Company and held other responsible positions with Bethlehem Steel Company and Texas Oil Company.

Amercoat Corporation is the manufacturer of corrosion-resistant products including: Amercoat protective coatings; Nukem chemical-resistant cements, grouts and membranes; Bondstrand and du Verre fiberglass-reinforced plastic pipe, tanks and fittings; Amer-Plate PVC sheet lining materials, and Nob-Lock PVC waterproofing system. Amercoat manufactures and distributes nationally and internationally; sales offices are located in key cities.

United Fruit Promotes Berry And McAuley

Richard W. Berry has been elected senior vice-president of United Fruit Company, Boston, Mass. Mr. **Berry** will be responsible for long-range planning of the company's worldwide transportation and distribution systems. He was formerly vice-president of transportation.

Capt. **Charles B. McAuley** has been elected vice-president and will be in charge of transportation operations.

Mr. **Berry** is a career employee, and in 1942 was named assistant to the vice-president, and in 1948 assistant vice-president. In 1962 he was elected vice-president of transportation. Mr. **Berry** is a graduate of Massachusetts Institute of Technology.

Captain **McAuley,** also a career employee with United Fruit, started his career aboard company ships. In 1961 he was appointed manager of general cargo operations in New York. In 1962 he was named assistant vice-president, and a year later assistant vice-president and director of distribution. He is a graduate of New York State Merchant Marine Academy.

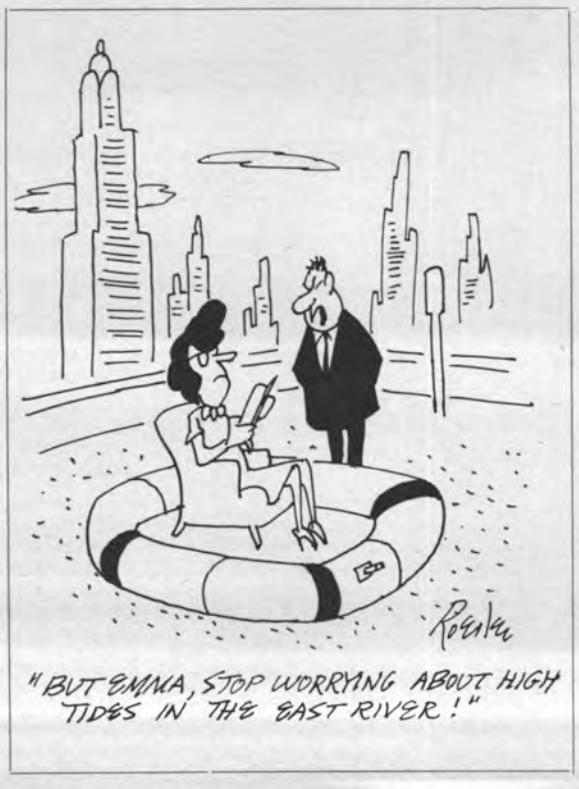
Marine Applications Booklet Published By Sandusky

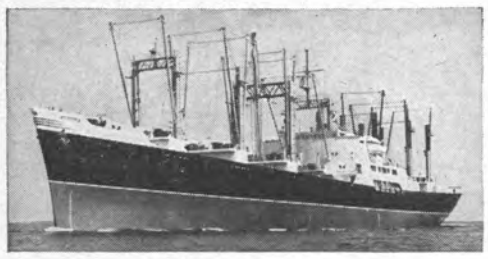
A new booklet published by Sandusky Foundry & Machine Co., shows applications of Sandusky centrifugal castings to the shipbuilding industry. The unique properties of centrifugal castings give them advantages in many marine components.

The book, written for marine designers, shows how Sandusky centrifugal castings have been used for propulsion shaft sleeves, stern tubes and bushings, rudder stock sleeves and bushings, hawse pipes, and even dredge spuds and spud sleeves. Mention is made also of the use of Sandusky cylinders for naval vessels for snorkel tubes, radar masts, torpedo ejection cylinders, and steering and diving gear hydraulic cylinders.

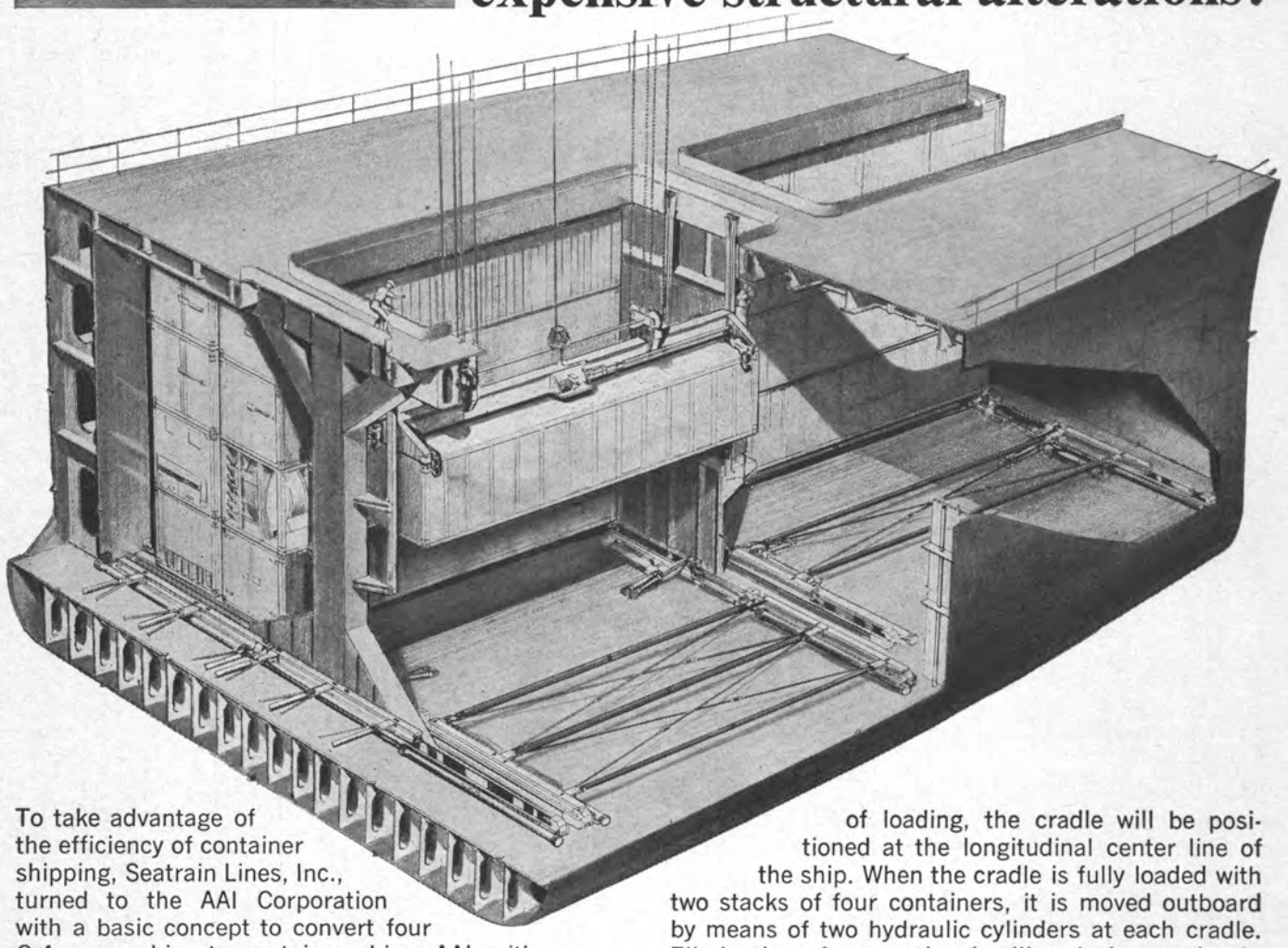
A table in the book lists typical compositions of a wide variety of metals for marine usage. Included are specifications and compositions for such metals as copper-base alloys, copper-nickel alloys, nickel-base alloys, carbon and alloy steels, and high alloy steels.

Individual copies of the Bulletin 900 on marine applications are available free from Sandusky Foundry & Machine Co., 615 West Market Street, Sandusky, Ohio 44870.





Container Handling System converts ordinary cargo ships into container ships—without expensive structural alterations!



To take advantage of the efficiency of container shipping, Seatrain Lines, Inc., turned to the AAI Corporation with a basic concept to convert four C-4 cargo ships to container ships. AAI, with capabilities in electronic, mechanical and hydraulic materials handling systems, engineered and furnished much of the hardware for a hydraulic system which allows 24 containers to be loaded in each bay through a conventional hatch. This eliminated expensive structural alterations to the ships.

The system, adapted to a specially designed spreader bar, will take over the container after it comes over the side of the ship, guide it into the ship's hold and position it on a skidway or cradle. At the time of loading, the cradle will be positioned at the longitudinal center line of the ship. When the cradle is fully loaded with two stacks of four containers, it is moved outboard by means of two hydraulic cylinders at each cradle. Elimination of conventional rolling devices and substitution of a modern low friction materials application — proven through exhaustive testing — substantially lowered the conversion costs and will assure a lifetime maintenance-free operation. When a cradle of containers has been positioned to each side, in each bay, a special center foundation is positioned hydraulically to accommodate two more stacks of four containers each. This is accomplished without requiring personnel below decks. Restrainers are provided to prevent motion of the containers while the ship is in a seaway.

INDUSTRIAL DIVISION

AAI CORPORATION
Phone: (301) 666-1400
Write: P.O. Box 6853
Baltimore, Maryland 21204

Developers and builders of complete cargo handling systems for shipboard and dockside.

New Propeller Shaft RPM Indicator System With Digital Readout

Henschel Corporation has announced a new propeller shaft speed indicator system with digital readout, featuring accuracy to 1 rpm, rugged marine construction and solid-state integrated circuitry. The indications are easily read from a distance and at a wide viewing angle without parallax distortion. The price of the new system is competitive with the traditional dial and pointer system.

The new system consists of a transmitter geared to the propeller shaft, a converter-indicator which is usually mounted in the engine room, and as many as ten remote indicators. Both the transmitter and the converter-indicator have total-turns counters. The converter-indicator and the remote indicators display rpm in digital form.

The transmitter closely resembles those of previous systems and is gear driven at a three-to-one ratio from the propeller shaft. It has a six-figure mechanical counter which indicates total turns of the propeller regardless of direction. Counting every ten revolutions, it will record up to ten million turns before it repeats.

The converter-indicator has a three-digit display of propeller shaft rpm plus a seven-figure total-turns counter. This is also arranged to count every 10 rpm and will count to 100 million before it repeats. The display of shaft rpm is by three digits of the nixie tube type. An indicator light on the front panel flashes red to indicate reverse direction. A front panel control is provided to dampen the rpm indication in the event of rough weather when the shaft speed changes too rapidly for easy readability.

Propeller rpm indicator by Henschel.

The remote indicators are small units designed for panel, bulkhead or console mounting. They display only propeller shaft rpm with three seven-segment digits, each a full one-inch high, illuminated by long-life incandescent lamps. A red filter is provided to make these instruments suitable for use in the wheelhouse or bridge wings where dark adapted vision is essential. A dimmer control and lamp test button are provided on the front panel. There is also a warning light which flashes red to indicate reverse direction of the propeller.

The new system employs solid-state integrated circuits of a type noted for their reliability. Every indicator throughout the ship always reads identically. Only one calibration is required for the entire system. This is made at the engine room unit which does the computation for the entire system. The standard Henschel dial-and-pointer type indicator may also be used with this system. A BCD output is available which is compatible with most types of data logging equipment. It is designed especially for maritime use and is therefore of rugged construction suitable for the vibration and hazards of a marine environment.

Further information may be obtained from **George Curry,** chief engineer, Henschel Corporation, 14 Cedar Street, Amesbury, Mass. 01913.

Canada Marine Group Elects R.S. Misener Association President

The Dominion Marine Association has elected as its president, **Ralph S. Misener,** president of Scott Misener Steamships Ltd. of St. Catharines. Elected vice-president was **Alex Pullin,** vice-president of Hall Corp., of Canada, Montreal.

The association, which represents Canada's inland shipping fleets trading in the Great Lakes-St. Lawrence Waterway, also elected 10 other directors.

Raytheon Company Promotes Massara To Managerial Post

Aldo Massara

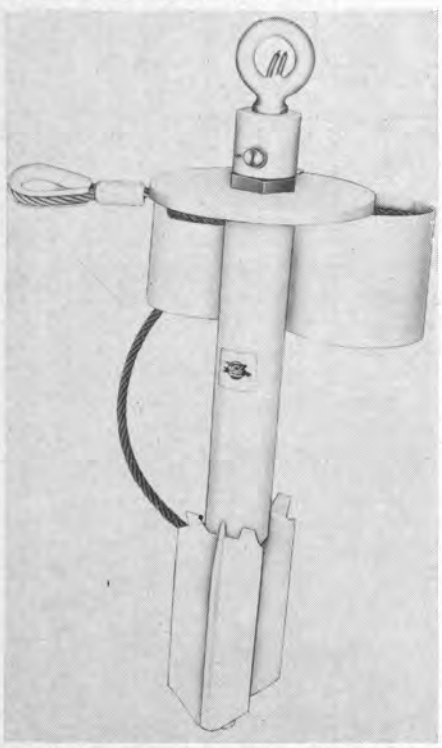
Aldo Massara has been promoted to manager of marine equipment sales for Raytheon Company's Office of International Affairs, Lexington, Mass.

He joined Raytheon in 1967 and for the past two years has worked in the area of export and foreign sales of the company's radars, radiotelephones, depth sounders and related products.

From 1963 to 1967, Mr. **Massara** was assistant product manager for marine products at Selenia S.p.A., a Raytheon affiliate in Rome, Italy. Earlier, he had been with Sindel, a predecessor firm of Selenia, where he worked in product planning and engineering of surveillance and fire-control radar systems. He also served as assistant sales manager for communication products for RCA Engineering.

Mr. **Massara** is a graduate of the Institute for Electronics, Rome (1958).

Edo Western Adds Embedment Anchors To Marine Line



Embedment anchor weighs 60 pounds.

The "Vertohold" Embedment Anchors have recently been added to Edo Western Corporation's line of oceanographic products. These 5,000- and 10,000-pound capability anchors may be employed in either hard or soft bottom conditions for various purposes such as anchoring offshore pipelines, sewer outfalls and hydroelectric intakes, pontoon bridge moorings, and ship and small boat mooring systems. By means of a gun assembly, the anchor is fixed into the bottom and becomes permanently keyed, thus permitting a direct vertical pull. Emplacement can be initiated from the surface by means of a remote firing lead, or upon contact with the bottom. In both modes of firing, the fuses incorporate an out-of-line safety feature. The gun assembly can be recovered and reused, thereby affording continued convenience and economy of operation. "Vertohold" Embedment Anchors are applicable with submersibles. With each 10,000 pound rated anchor only weighing 60 pounds, a submersible could deliver a sizable amount of holding power to the bottom.

Having acquired the patent rights and technology for the "Vertohold" Embedment Anchors, Edo Western Corporation can now offer a highly effective, practical and economical anchor with countless applications, extreme reliability, ease of handling, perfect safety, and worldwide service.

A comprehensive brochure on the "Vertohold" Embedment Anchors is available upon request to Edo Western Corporation, 2645 South 2nd West, Salt Lake City, Utah 84115.

NEW & REBUILT EQUIPMENT FOR IMMEDIATE DELIVERY

NEW AND REBUILT SHIP PARTS

One (1) **T2 SE A1 Tailshaft** with liner and ABS Certificate
One (1) **C2 Federal Tailshaft,** with liner and ABS Certificate
One (1) **CIA Tailshaft,** unused, with liner and ABS Certificate
One (1) CIB Tailshaft, with liner and ABS Certificate
One (1) rebuilt, T2 General Electric Revolving Field—5400 KW with ABS Certificate
One (1) T2 Westinghouse Main Generator Stator, 5400 KW with ABS Certificate
One (1) T2 Elliot Main Generator Air Cooler
One (1) **retubed T2 Westinghouse Main Generator** Air Cooler
One (1) **new, Elliott type, Schutte & Koerting** Main Generator Air Cooler
Two (2) **new, 300 KW, General Electric Armatures** for C3 type vessel
Two (2) **new 250 KW Generator Armatures,** Westinghouse, for CIB type vessel

FANS

Fifteen (15) Centrifugal Fans, 500 CFM @ 3", driven by ¾ HP, 115 V DC, 1750 RPM Star Electric Motors. New $121.00 ea.
Six (6) Centrifugal Fans, 5000 CFM @ 3", driven by 5 HP, 115 DC motors.

INDUCED DRAFT TURBO-BLOWERS—UNUSED

1—36,000 CFM — Sturtevant, Vertical, Turbo-Vane, Geared, 400 Lbs/sq. in. Inlet, 0°F Superheat, 10 Lbs/sq. in. Exhaust, 5300 RPM, 8.0 Inches Static Pressure, 1630 RPM Blower.
1—56,500 CFM — Sturtevant, Vertical, Turbo-Vane, Geared, 400 Lbs/sq. in. Inlet, 0°F Superheat, 10 Lbs/sq. in. Exhaust, 4670 RPM, 6.8 Inches Static Pressure, 1265 RPM Blower.
4—40,000 CFM—Sturtevant, Horizontal, Multi-Vane, Direct Connected, 280 Lbs/Sq. In. Inlet. 0°F Superheat, 10 Lbs/sq. in. Exhaust, 8.0 Inches Static Pressure, 1200 RPM.
4—37,000 CFM—Sturtevant, Horizontal, Multi-Vane, Direct Connected 250 Lbs/sq. in. Inlet, 0°F Superheat, 10 Lbs/sq. in. Exhaust, 8.0 Inches Static Pressure, 1200 RPM.

Hundreds of other Fans in Stock.

One (1) Maxim Evaporator—all bronze and cupro nickel—W120D, 8000 GPD, single effect—vertical basket, type manufactured in 1958—equal to new. $4900.00

Two (2) Griscom Russell Evaporators, 12,000 GPD, all bronze—complete with condensate coolers and pumps.

MOTORS

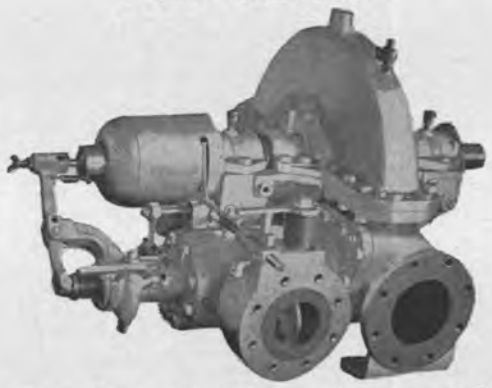
One (1) Westinghouse DC motor, 100 HP, 230 V, 1750 RPM, Frame 143L.
Sixteen (16) Westinghouse, 35 HP, 500 RPM, totally enclosed winch motors.
Five (5) Westinghouse, 50 HP, 600 RPM, 230 V DC, Frame CK9, totally enclosed winch motors. New $895.00 ea.

If its a DC Motor we have it ——

One (1) Chrysler Airtemp, 5 cylinder, Radio Compressor—model ACR 15, complete with condenser and receiver. $495.00

Three (3) 6" Andale Duplex Strainers—cast iron.
One (1) 5" Andale Duplex Strainers—cast steel—New.
Twenty (20) Taco Steam Hot Water Heaters—900 GPH —36" long—12" dia. New $99.00

TURBINES
TURBINE ROTORS
TURBO GENERATORS



1—DeLaval HP Turbine—for C3 or P2 vessel	8500 HP
1—DeLaval LP Turbine——for C3 or P2 vessel	8500 HP
1—Bethlehem HP Turbine—for T3 vessel	7000 HP
1—Bethlehem LP Turbine—for T3 vessel	7000 HP
1—Westinghouse HP Turbine—Victory Ship type	6000 HP
1—Westinghouse LP Turbine—Victory Ship type	6000 HP
1—Allis-Chalmers HP Turbine	6000 HP
1—Allis-Chalmers LP Turbine	6000 HP
1—General Electric HP unit, 11 stage, for C2 vessel	6000 HP
1—General Electric HP—for Victory Ship	6000 HP
1—General Electric LP—for Victory Ship	6000 HP
2—General Electric, Type DR125, 3600 RPM, single stage	1000 HP
2—Westinghouse, Type C25, 3600 RPM	600 HP
2—Worthington, Type T2R, 5000 RPM	500 HP
2—General Electric, Type DR125, 5000 RPM, Single Stage	400 HP
1—Westinghouse, Type CA20, 4600 RPM, single stage	107 HP
1—General Electric, 5636 RPM, 3 stage, part #668288141	525 KW
1—General Electric, Type DORV 325, 5636 RPM, 3 stage, part #66822883	300 KW
1—Worthingotn, 6081 RPM, 7 stage	300 KW
2—General Electric, Type DS60-25, RPM 5636, 3 stage	300 KW
1—DeLaval, 5940 RPM, 8 stage	300 KW
1—Westinghouse, 5215 RPM, 3 stage	300 KW
2—General Electric, 5 stage, 10,002 RPM, part #5547208	250 KW
2—General Electric, Type DS60-25, 5636 RPM	250 KW
1—General Electric, Type 418, 10,012 RPM, 4 stage	250 KW
6—General Electric, 10,002 RPM, 5 stage, part #5547002	200 KW
1—Westinghouse, Type 20 MEH, 7000 RPM, single stage	60 KW

We also have a large quantity of other units in stock. All of the above are new or rebuilt, with ABS Certificates. Call us for your Turbine or Turbine Generator requirements.

WINCHES

(12) **American Hoist & Derrick Cargo Winches,** Model 73, Capacity 5 Ton, 226 FPM, driven by 50 HP, 230 V DC Westinghouse CK9 Motors **$995.00 each**
(4) **American Hoist & Derrick,** 2-speed, Capacity 5 Ton-30 Ton, complete with 50 HP, 230 V DC Westinghouse Motors, Equal to New **$1195.00 each**
(1) **Westinghouse,** U-2 Unit Winch complete with Motor & Controller, Unused **$3500.00**

NEW AND REBUILT PUMPS

Warren Ballast or Circulating Pumps—**26500 GPM**—all bronze—driven by 300 HP, vertical turbines 450 to 600# steam pressure, 15# exhaust. (2 in stock)
Ingersoll Rand Main Circulating Pump—**9500 GPM** @ 30' hd.—all bronze—18 VCM—driven by 60 HP, 230 V DC motors. (1 in stock)
Allis Chalmers Circulating Pump—**6000 GPM** @ 30' Hd. (1 in stock)
Vertical Circulating Pumps, **3500 GPM** @ 30' hd, all bronze—driven by 43 HP Terry Turbines 400# steam pressure, 400# back pressure. (5 in stock)
Gould Pumps—**3000 GPM** @ 125 PSI—complete with Elliott Turbines, 250 HP (2 in stock)
DeLaval Lubeoil Pumps, **600 GPM** @ 50#, 1150 RPM, complete with 30 HP, 440 V AC Westinghouse motors. (10 in stock)
Buffalo Sanitary Pumps—**600 GPM** @ 85#—all bronze—complete with 40 HP, 440 V AC Westinghouse motors. We can also furnish these pumps with turbines. (4 in stock)
Buffalo Main Condensate Pumps—new—**375 GPM** @ 162' hd., 1150 RPM, complete with 25 HP, vertical Allis Chalmers motors and controllers—pumps are all bronze. (2 in stock)
Ingersoll Rand Boiler Feed Pumps—**500 GPM** @ 750# —complete with Worthington Turbines, 350 HP, 600# steam pressure, 15# exhaust. (2 in stock)
Allis Chalmers horizontal centrifugal pumps—**300 GPM** @ 100 PSI—all bronze—driven by 40 HP, 230 V DC, 1750 RPM motors. (4 in stock)
Weil Pumps—**50 GPM** @ 75 PSI complete with 7½ HP, 440 V AC motors—all bronze— 10 in stock at $395.00 each
Worthington Pumps—**30 GPM** #35 PSI—bronze—complete with 2 HP, 440 V AC 30 in stock at $285.00 each

We also have hundreds of other pumps in stock.

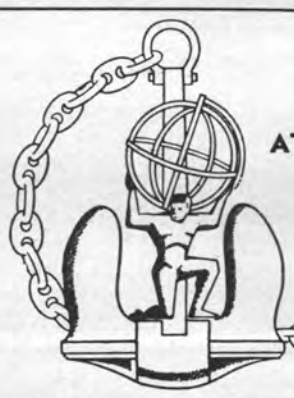
One (1) Star Motor Generator Set—Motor: 125 HP, 230 V DC, 1200 RPM, driving Generator: 75 KW, 115 V DC, 1200 RPM, marine type, drip proof complete with starter—two bearing enclosed unit.

Three (3) General Electric Destroyer Escort Turbo Generators, 5400 KW. Turbine: 6000 HP, 5600 RPM, 440# Steam pressure, 750° 28½" vacuum, driving Generator: General Electric, 5400 KW, 2300 V AC $9950.00 ea.
We also have this unit with 4000 KW, 3600 RPM, 2300 V, 60 cy. General Electric Generator.

Three (3) Westinghouse Turbo Generators, 60 KW, 120 V DC, driven by 60 KW, 210# steam pressure, 10" exhaust, Westinghouse turbines, type 20 MEH.

TWO (2) 500 HP Whiton Cargo Pump Turbines—450# steam pressure, 750°, 3600 RPM.

Two (2) 1000 HP, General Electric, 3500 RPM Cargo Pump Turbines—850 PSI, 900°, 10# back pressure, complete with high pressure throttle valve.



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M & T Units Accurately Position AG-162 Sonar Research Ship

Propulsion pod being lifted aboard Mission Capistrano.

The Mission Capistrano, a specially converted T-2 tanker, is presently doing research work for the U.S. Navy Office of Naval Research. The ship is of the well-known Mission Class T-2, 524 feet long, 68-foot beam, and 31-foot draft. She is identified by the Navy as AG-162 Sonar Research Ship.

In 1961 the Mission Capistrano had an oversize acoustical device in the form of an array of transducers installed. The ship was modified to conduct experiments on Project Artemis, sponsored by ONR to improve the country's ASW capabilities. The operating requirements called for holding the Mission Capistrano precisely on a selected station for extended lengths of time. The use of tugs and deep sea anchoring had proven unsatisfactory in some instances.

As the oil industry had experimented with deep sea position-keeping, it appeared that their successful installations should be studied to see if they could be applied by the Navy.

The first attempt to hold a vessel stationary at sea was attempted on the well-known project MOHOLE. Murray & Tregurtha, a Division of Mathewson Corporation, supplied the large outboard propulsion units installed on the CUSS I used in this program.

Out of this successful exploration the words, "Dynamic Positioning" were born, and the system successfully used on the exploration vessel Eureka and drilling vessel Caldrill.

As greater power was required on each one of these drilling vessels, Murray & Tregurtha designed larger marine propulsion units to meet their needs.

Station keeping requirements also became more sophisticated, and General Motors Corporation was selected to produce a system to meet the Mission Capistrano's exacting needs.

After extensive reviewing of the operating requirements, Hudson Laboratories of Columbia University, under contract to ONR, awarded General Motors a contract to design a station-keeping system that would hold the Mission Capistrano within a 1,000-foot radius with concurrent beam winds of 25 knots, and current of 1 knot, operations to be in 20,000-foot depths of water.

To satisfy the underway requirements of having the auxiliary propulsion units retractable into the hull, the M&T Harbormaster Drives were specially designed.

The M&T Propulsion System was selfcontained in a watertight housing containing the 1,250-hp GE vertical motor, Eaton Dynamatic coupling, motor and coupling controllers, heat exchangers for the motor and coupling, steering motor and controller, emergency pumps, and alarm transmitters.

An M&T Series 12 Harbormaster was directly coupled to this power pod and incorporated a kort nozzle, swinging an 84-inch diameter 4-bladed propeller. The total weight of the M&T thruster package was 118,300 pounds. The entire package is guided by rails and is firmly locked down in the operating position. The system was elevated by cable to the raised or stowed position.

One unit is installed just ahead of the wheelhouse, and the aft unit is positioned just ahead of the after quarters and pump room.

The General Motors control system was designed and manufactured at the AC Electronics Defense Research Laboratories. The system utilizes an acoustic position measurement and an analog control computer that can be operated automatically, semi-automatically, and manually. Included as part of the system is a data recording subsystem which records positional information, heading information and discrete events on magnetic tape.

In the automatic mode, the thrust levels and directions are determined by the control computer so as to maintain both heading and ship position. Using a coordinate transformation unit developed by Hudson Laboratories, some semi-automatic position keeping runs were made using loran C as a position input. Runs were also made in the automatic mode using the same unit with an Autotape for a position input.

Actual performance of the system is demonstrated by the following data taken during sea trials: In 13,000 feet of water with winds averaging 28 knots and gusting to 35 knots, swell height of 11 feet, the standard deviation of the ship from the desired location was 142 feet with a peak deviation of 241 feet as determined by the Autotape.

Although the Mission Capistrano was specifically designed to service Project Artemis. the ability to hold station in deep sea oceanographic work has given the Navy a new, stable, precision tool, allowing an expanded study of our oceans.

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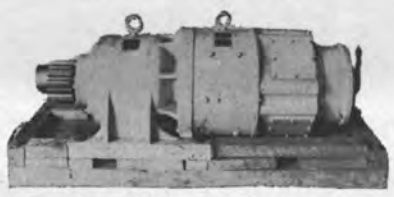

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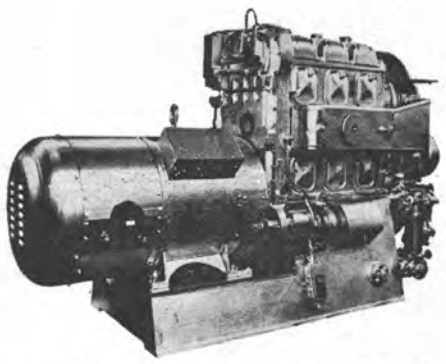

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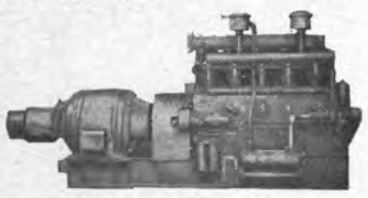

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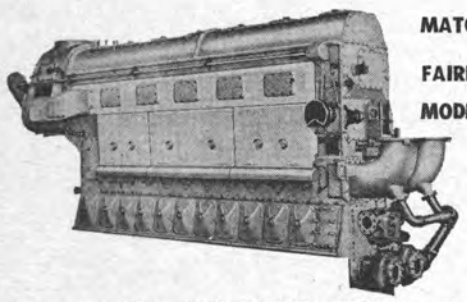

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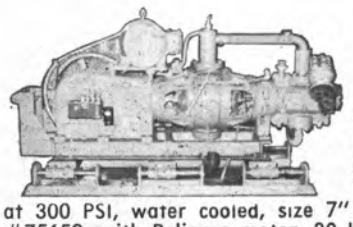

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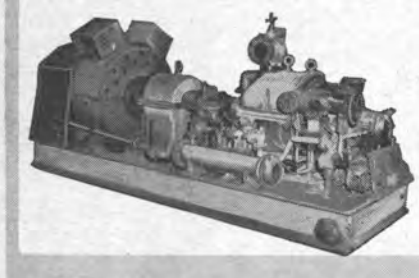

WESTINGHOUSE Turbines, 440 PSI, 740° F, with Westinghouse Generators, 250 KW, 120/240 DC.

DE-LAVAL Turbines, 450 PSI, 750° F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.

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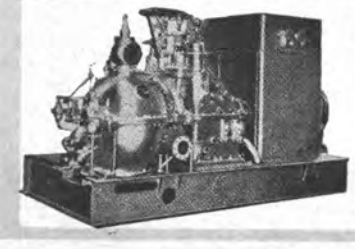

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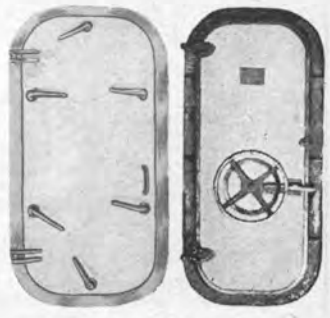

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AC PUMPS—Horizontal Centrifugal

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1—Ingersoll-Rand, 3000 GPM, 250' head, Size 8ALV, with Westinghouse Motor, 250 HP, 2200/3/60, 1775 RPM.

1—Worthington, 400 GPM, 150 PSI, 5½" suction, 3½" discharge, with G.E. Motor, 75 HP, 440/3/60, 3550 RPM.

2—Goulds, 300 GPM, 336' head, 3" suction, 2" discharge, with G.E. Motors, 50 HP, 440/3/60, 3550 RPM.

7—J.C. Carter, 365 GPM, 250' head, stainless steel, 3" suction, 3" discharge, with 220/440/3/60 Motors.

6—326 GPM, 138' head, C.I. pump housing, 3" suction, 3" discharge, with Westinghouse Motors, 20 HP, 220/440/3/60, 1755 RPM.

6—682 GPM, 60' TDH, C.I. pump housing, 5" suction, 5" discharge, with Westinghouse Motors, 15 HP, 220/440/3/60, 1700 RPM.

2—Worthington, 80 GPM, 60 PSI, 2½" suction, 2" discharge, with G.E. Motors, 8 HP, 440/3/60, 3450 RPM.

3—Worthington, 650 GPM, 9 PSI, 6" suction, 6" discharge, with Star Motors, 6 HP, 440/3/60.

1—Worthington, 175 GPM, 20 PSI, 3½" suction, 3" discharge, with G.E. Motor, 3.74 HP, 440/3/60, 3450 RPM.

4—Worthington, 60 GPM, 22 PSI, 3½" suction, 2" discharge, with G.E. Motors, 3 HP, 440/3/60, 3450 RPM.

3—Allis-Chalmers, 35 GPM, 100' head, 2" suction, 1½" discharge, with Allis-Chalmers Motors, 3 HP, 440/3/60, 3500 RPM.

1—Allis-Chalmers, 65 GPM, 80' head, 1½" suction, 1½" discharge, with Allis-Chalmers Motor, 3 HP, 220/440/3/60, 3500 RPM.

2—Worthington, 13 GPM, 51 PSI, 1½" suction, 1½" discharge, with G.E. Motors, 2.64 HP, 440/3/60, 3490 RPM.

1—Worthington, 75 GPM, 22', 3" suction, 2½" discharge, with G.E. motor, 1.9 HP, 440/3/60, 3450 RPM.

5—Worthington, 30 GPM, 30 PSI, 1½" suction, 1½" discharge, with G.E. Motors, 1.75 HP, 440/3/60.

14—Warren, 6 GPM, 36 PSI, 1¼" suction, 1" discharge, with G.E. Motors, 1.25 HP, 440/3/60, 3450 RPM.

AC PUMPS—Vertical Centrifugal

6—Worthington, 275 GPM, 56.6 PSI, 8½" suction, 3½" discharge, with G.E. Motors, 22.9 HP, 440/3/60, 1180 RPM.

4—Worthington, 490 GPM, 35 PSI, 7" suction, 4½" discharge, with G.E. Motors, 19.6 HP, 440/3/60, 1175 RPM.

6—Chicago Pump Co., submersible, 400 GPM, 6 # suction, 30 # discharge pressure, with Wagner Motors, 15 HP, 440/3/60, 1740 RPM.

6—Dayton-Dowd, 1160 RPM, 15 PSI, 10" suction, 8" discharge, with Wagner Motors, 10 HP, 440/3/60.

4—Worthington, 100 GPM, 40 PSI, 5" suction, 3" discharge, with G.E. Motors, 7.37 HP, 440/3/60, 1750 RPM.

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

1—Worthington, 35 GPM, 62.4 PSI, 3" suction, 2" discharge, with G.E. Motors, 5.83 HP, 440/3/60, 1150 RPM.

7—Allis-Chalmers, 68 GPM, 114' head, Type SSV-C, 3" suction, 1½" discharge, with Wagner Motors, 7½ HP, 440/3/60, 1750 RPM.

3—Worthington, 350 GPM, 11.1 PSI, 10" suction, 3½" discharge, with G.E. Motors, 5 HP, 440/3/60, 1150 RPM.

12—Allis-Chalmers, 10 GPM, Size 2"x2½", with Wagner Motors, 3 HP, 440/3/60, 3600 RPM.

AC PUMPS—Horizontal Rotary

4—Warren, 197 GPM, 175 PSI, with Electro Dynamics Motors, 30 HP, 440/3/60, 1750 RPM.

2—Northern, 10 GPM, 350 PSI, 3" suction, 2" discharge, 200 RPM, with G.E. geared Motors, 5 HP, 440/3/60.

3—DeLaval, 25 GPM, 50 PSI, with G.E. Motors, 1.8 HP, 440/3/60.

AC PUMPS—Vertical Rotary

2—DeLaval, 550 GPM, 50 PSI, with G.E. Motors, 27.4 HP, 440/3/60, 1180 RPM.

7—Quimby, Size 2½, 10/6 GPM, 350 PSI, 2½" suction, 1½" discharge, with Wagner Motors, 6/3 HP, 440/3/60, 1160/865 RPM.

8—Blackmer, 50 GPM, 35 PSI, 420 RPM, with G.E. geared Motors, 2 HP, 440/3/60, 1750 RPM.

DC PUMPS—Horizontal Centrifugal

6—Worthington, Size 8L1, 2100 GPM, 138.5 TDM, with Westinghouse Motors, 100 HP, 230 DC, 1310/1750 RPM.

6—Worthington, Size 12 LA1, 4000 GPM, 67.3 TDM, with Westinghouse Motors, 100 HP, 230 DC, 1310/1750 RPM.

6—Worthington, Size 3UB1, 400 GPM, 280' head, with Westinghouse Motor, 50 HP, 230 DC, 1310/1750 RPM.

2—Weil, 400 GPM, 100 PSI, with 40 HP Motors, 230 DC.

1—Goulds, Figure 3380, 4" suction, 3" discharge, 250 GPM, 100 PSI, with 30 HP Motor, 230 DC, 2200 RPM.

6—Worthington, Size 4L1, 400 GPM, 83' head, with Westinghouse Motors, 15 HP, 230 DC, 1225/1750 RPM.

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

3—Warren, 1175 GPM, 11.2 PSI, with Reliance Motors, 10 HP, 230 DC.

4—Gardner-Denver, 900 GPM, 30' head, with Crocker-Wheeler Motors, 10 HP, 230 DC.

1—Westco, 100 GPM, 100 PSI, 2" suction, 2" discharge, with 10 HP Imperial Motor, 115 DC.

DC PUMPS—Horizontal Centrifugal

2—Yeomans, 135 GPM, 3" suction, 115' head, 3" discharge, with Kimble Motor, 10 HP, 230 Volts DC.

2—Warren, size 5, 600 GPM, with Electro-Dynamics Motors, 8/4.5 HP, 230 Volts DC.

1—Warren, 5" suction, 4" discharge, with Reliance Motor, 7½ HP, 115 Volts DC.

1—Dayton-Dowd, 3" suction, 2½" discharge, with Crocker-Wheeler Motor, 5 HP, 120 DC.

1—Ingersoll-Rand, Model A, 45 GPM, 125' head, with G.E. Motor, 5 HP, 115 Volts DC.

3—Ingersoll-Rand, Size 1MVR, 50 GPM, with Electro-Dynamics Motors, 3.9 HP, 230 DC.

1—Fairbanks-Morse, 250 GPM, 13' head, with Fairbanks-Morse Motor, 3.72 HP, 230 Volts DC.

2—Worthington, 150 GPM, 22 PSI, 3½" suction, 3" discharge, with Diehl Motors, 3.47 HP, 230 Volts DC.

DC PUMPS—Horizontal Centrifugal

1—Yeomans, 40 GPM, 75' head, 1½" suction, 1" discharge, with Master Motor, 2 HP, 230 Volts DC.

2—Westco, 20 GPM, 50 PSI, with Century Motors, 1½ HP, 120 Volts DC.

2—Worthington, 60 GPM, 23.7 PSI, 2½" suction, 2" discharge, with Diehl Motors, 1.43 HP, 230 Volts DC.

7—Warren, 4 GPM, 38 PSI, 1½" suction, 1" discharge, with Century Motor (4-230 DC, 3-115 DC), 1.25 HP.

DC PUMPS—Vertical Centrifugal

2—Buffalo, Size 3 SAV, 400 GPM, 125 TDH, with Electro-Dynamic Motors, 50 HP, 230 Volts DC, 1350/1800 RPM.

1—Gardner-Denver, 1500 GPM, 56' head, 8" suction, 6" discharge, with Century Motor, 30 HP, 230 Volts DC, 1750 RPM.

1—Ingersoll-Rand, Size 18VCM, 8500 GPM, with Electro-Dynamic Motor, 20/40 HP, 230 Volts DC, 410/545 RPM.

2—Worthington, 16" LAS-2, 5600 GPM, 10 PSI, with G.E. Motor, 20/40 HP, 230 Volts DC, 540/720 RPM.

1—Ingersoll-Rand, 10" suction, 10" discharge, 1050/2000 GPM, with G.E. Motor, 20 HP, 230 Volts DC, 805/1150 RPM.

1—Worthington, 340 GPM, 33.6' 6" suction, 3" discharge, with G.E. Motor, 15 HP, 230 Volts DC.

1—Ingersoll-Rand, 1050 GPM, ... 5" suction, 5" discharge, with Crocker-Wheeler Motor, 15 HP, 230 Volts DC. 1150 RPM.

2—Ingersoll-Rand, 450 GPM, 15' head, 4" suction, 3" discharge, with G.E. Motors, 10/15 HP, 230 Volts DC, 1300/1750 RPM.

1—Allis-Chalmers, 750 GPM, 30.3' head, 5" suction, 5" discharge, with Star Motor, 10 HP, 230 Volts DC, 1750 RPM.

2—Buffalo, Size 3SLV, 425 GPM, 35 TDH, with Electro Dynamic Motors, 7½/15 HP, 230 Volts DC, 1310/1750 RPM.

3—Ingersoll-Rand, Size 1VHM, 18 GPM, 75 PSI, 3¼" suction, 1½" discharge, with G.E. Motors, 7½ HP, 230 Volts DC.

1—Worthington, 175 GPM, 50 PSI, 4" suction, with G.E. Motor, 7½ HP, 230 Volts DC.

2—Ingersoll-Rand, Size ..... 8 VCM, 1400 GPM, with Electro Dynamic Motors, 5/10 HP, 230 Volts DC, 950 RPM.

2—Ingersoll-Rand, Size 1½ VBM, 70 GPM, with Electro Dynamic Motors, 5/10 HP, 230 Volts DC, 1500/2000 RPM.

2—Ingersoll-Rand, Size 1MVR, 20 GPM, with Electro Dynamic Motors, 3/1.5 HP, 230 Volts DC, 1950/2600 RPM.

2—Worthington, 8" LS-1, 1400 GPM, 10 PSI, with G.E. Motors, 5/10 HP, 230 Volts DC, 875/1200 RPM.

2—Worthington, Type 1½ UZS-3, 20 GPM, 75 PSI, with G.E. Motors, 5 HP, 230 Volts DC, 1800 RPM.

2—Weil, 20 GPM, 40 PSI, 1½" suction, 1¼" discharge, with G.E. Motors, 3 HP, 230 Volts DC.

DC PUMPS—Horizontal Rotary

3—Worthington, Size 5GES, 400 GPM, 50 PSI, with Westinghouse Motors, 20 HP, 230 Volts DC, 1750 RPM.

1—DeLaval, 15 GPM, 350 PSI, 2½" suction, 2½" discharge, with Diehl Motor, 10 HP, 230 Volts DC.

2—Viking, Type EKK, 60 GPM, 70 PSI, 2" suction, 2" discharge, with Diehl Motors, 5 HP, 230 Volts DC.

3—National Transit, 50 GPM, 50 PSI, 3" suction, 2½" discharge, 3 HP, 230 Volts

DC PUMPS—Vertical Rotary

6—Quimby, Size 5, 400 GPM, 60 PSI, 6" suction, 5" discharge, with Westinghouse Motors, 30 HP, 230 Volts DC.

1—DeLaval, IMO, 250 GPM, 40 PSI, with G.E. Motor, 15/20 HP, 230 Volts DC, 1310/1750 RPM.

3—Worthington, Model 4GRVS, 225 GPM, 35 PSI, with G.E. Motors, 15/20 HP, 230 Volts DC.

4—Worthington, Model 4GRVS, 175 GPM, 50 PSI, with G.E. Motors, 7½/10 HP, 230 Volts DC.

1—Quimby, Size 4, 175 GPM, with Electro Dynamic Motor, 7.5/10 HP, 230 Volts DC, 865/1150 RPM.

2—Worthington, Type 3GRVS, 90 GPM, 75 PSI, 2¾" suction, 2½" discharge, with Diehl Motors, 7½ HP, 230 Volts DC.

1—Quimby, Size 2, 8 GPM, with Electro Dynamic Motor, 2/5 HP, 230 Volts DC, 575/1150 RPM.

2—Worthington, Type 2GRVS, 7 GPM, 400 PSI, with G.E. Motors, 2½/5 HP, 230 Volts DC, 900/1800 RPM.

BOILER FEED PUMPS — TURBINE & ELECTRIC

4—Worthington, Vertical type, single acting, triplex, constant speed, size 2¼ x 4, 47 GPM, 525 PSI, with G.E. Motors, 20 HP, 230 Volts DC.

2—Worthington, 5" UFD, 460 GPM, 750 PSI, 5" suction, 5" discharge, driven by Sturtevant Steam Turbine, Size CC-22', Type 21, 2½" steam inlet, 5½" exhaust.

2—Aldrich Pump Co. Triplex, Vertical, Size 2½ x 4, 65 GPM, 575 PSI, with G.E. Motors, 25 HP, 230 Volts DC.

2—Ingersoll-Rand, 165 GPM, 575 PSI, with turbine drives.

TURBINE DRIVEN PUMPS — Various

2—Worthington, Size 20-LAL-18, Main Condenser, Centrifugal, 10500, 27' head, Vertical, with Whiton Turbines, 95 HP.

1—Ingersoll-Rand, Size 5UV, Centrifugal, Horizontal, 1200 GPM, 225' head, 6" suction, 5" discharge, with Elliot Turbine, 84.3 HP.

1—Worthington, Fire, Flushing & Emergency Bilge, Centrifugal, Horizontal, Rating—Fire: 500 GPM, 150 PSI, Flushing: 1000 GPM, 60 PSI, Bilge: 750 GPM, 25 PSI, 5½" suction, 4½" discharge, with Whiton Turbines, 72.9 HP.

1—DeLaval, Fuel Oil Transfer, Vertical, Rotary, 250 GPM, 150 PSI, 7" suction, 6" discharge, with DeLaval Turbine, 35 BHP.

8—Goulds Main Circulating, Vertical, Centrifugal, 3700 GPM, 13 PSI, Size 12", with Elliot Turbines, 30 HP.

2—DeLaval Fuel Oil Service, Vertical, Rotary, 50 GPM, 350 PSI, 3½" suction, 3½" discharge, with DeLaval Turbines, 14.4 HP.

4—DeLaval—IMO, L.O. Service, Vertical, Rotary, 300 GPM, 45 PSI, 6" suction, 6" discharge, with DeLaval Turbines, 14.1 HP.

8—Allis-Chalmers, Type SSC-V, 68 GPM, 114' head, 3" suction, 1½" discharge, with Carling Turbines, 7½ HP, 1750 RPM.

2—Warren, 85 GPM, 60 PSI, For Lube Oil Service, Turbine Driven.

2 — Warren, Main Circulating, 3500 GPM, 13.5 PSI, Turbine Driven.

STOCKLESS ANCHORS

USED, GOOD QUALITY . . . SAVE!

3,000 pound size
8,000 pound size
10,000 pound size

ANCHORS... Unused, surplus 3000 # size Danforth

ANCHOR CHAIN . . . Used, good, with or without test certificate . . .

1 1/2" size
1 3/8" size
2 1/16" size
2 1/4" size

ANCHOR WINDLASS

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.

7—American Hoist and Derrick Company, horizontal, double wildcat—for 2¼" chain double gypsy, 70 HP, 230 Volts DC, with electric controls.

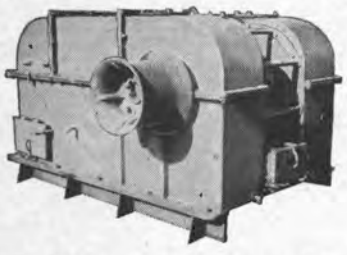
3—Hesse-Ersted, horizontal, double wildcat, 2⅛" chain, 60 HP, 230 DC.

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.

UNIWINCHES



LAKESHORE UNWINCHES, 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.

HYDRAULIC CYLINDERS

3000 PSI

Bore	Stroke	Rod Diameter	Overall 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

STEERING STANDS

Brass Steering Stands. Complete with angle indicator on top, used, 11" base diameter by 35½" high, and with 42" overall, 8-spoke brass steering wheel.

$195.00 each

CAPSTAN WINDLASSES

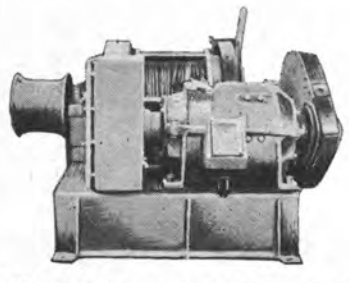
Model CWP-3, Vertical 24" Planetary Capstan Windlasses, Single Wildcat — using 1¼" Anchor Chain, Single Gypsy with 20 HP motor, 230 volts DC, complete with Contactor Panel, Master Switch, and Resistors.

3—Hesse-Ersted Vertical, Single Wildcat—for 1⅜" Anchor Chain, single gypsy, with 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.

McKiernan — Terry, Single Wildcat — for ¾" chain, Single Gypsy, with underdeck drive with Star Motor, 7½ HP, 115 DC, with Electrical control equipment.

CARGO WINCHES



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

Type 66—single speed, single drum.

Type 67—two speed, single drum.

CENTRIFUGES

Sharples Purifiers—For Diesel Service or for Lube Oil Service.

150 GPH—440 AC, 230 DC

350 GPH—230 DC

600 GPH—230 DC

FAIRLEADS

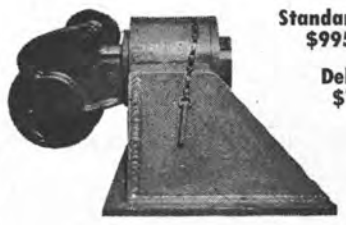
Designed and Manufactured by ZIDELL EXPLORATIONS, INC.

To Give You These Features:

One size fairlead with universal type sheave to accommodate wire rope sizes 1" up to and including 2".

Self Aligning, Swivel Type Head.

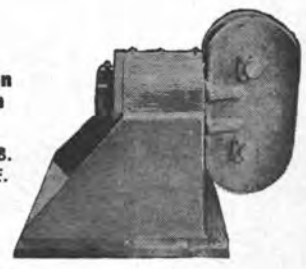
Dependable and Ruggedly built to perform consistently year after year with minimum maintenance.



Standard Design $995 each

Deluxe Design $1250 each

Model Design $1350 each



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HIGH SPEED COUPLINGS

(Flexible Couplings between Turbines and Reducing Gear)

1—Set from C3-S1-A3 Vessel

1—Set from C2 Vessel (Moore built)

1—Set from AP2 Victory Ship

PROPELLERS

From C2-SU Vessel

From C2 Vessel (Moore built)

From AP2 Victory Ship

From Liberty Ships and LST Vessels

PROPELLER SHAFTS

From C3-S1-A3 Vessel

From C2-S-B1 Vessel (Moore built)

From C2-SU Vessel

From Liberty Ships and LST Vessels

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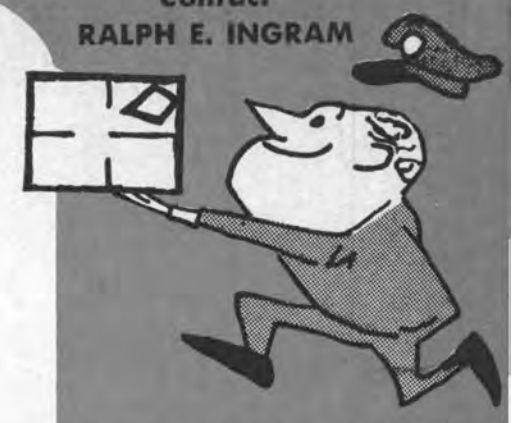
RALPH E. INGRAM



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LaDel, STURTEVANT etc.

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

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Size A¼	@ $160 each
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Size A1	@ $215 each
Size A2	@ $290 each
Size A3	@ $350 each
Size A4	@ $410 each
Size A5	@ $500 each
Size A6	@ $550 each
Size A8	@ $630 each
Size A10	@ $695 each
Size A12	@ $750 each
Size A16	@ $900 each

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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, repeater panel, and repeaters with mounts.

Machinery and EQUIPMENT

as removed from S.S. "JAMES O'HARA" (AP-179) C3-S1-A3

for Immediate Sale!

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5 ton rated, steel, as removed from surplus Liberty Ships. Manufactured by Young, Draper, etc. 12" or 14" sizes, your choice

$29.50 each

$35.00 each with pull test certificates.

HP TURBINE, Allis-Chalmers, Impulse Reaction type, 5003 RPM, 740° F, 440 PSI, Serial #1737.

LP TURBINE, Allis-Chalmers, Straight Reaction, Type, 4289 RPM, 740° F, 440 PSI, Serial #1738.

2 — TURBINE GENERATORS, Allis-Chalmers, Turbines: Impulse Condensing Type, 740° F, 440 PSI, 8000 RPM, Generators: 300 KW, 240 Volts DC, 2 wire, 1200 RPM.

CARGO WINCHES
2—Jaeger, 2 drum, 2 speed, 50 HP, 230 DC.
2—Parkersburg, 2 drum, 1 speed, 50 HP, 230 DC.
2—O.C.S., 2 drum, 1 speed 50 HP, 230 DC.
2—Vulcan, 1 drum, 2 speed, 50 HP, 230 DC.
2—American Hoist & Derrick, 1 speed, 1 drum, 50 HP, 230 DC.

SALT WATER EVAPORATOR, Davis, Size 36-17, rated 2500 lbs. per hour.

MAKE UP FEED EVAPORATOR, Davis, Size 26-8, rated 1500 lbs. per hour.

LAKESHORE TOPPING WINCHES, single speed, capacity 10,000 # at 67 FPM, 5 HP, 230 DC.

ANCHOR WINDLASS, Markey, Type CWA-4, horizontal, double wildcat—for 2 5/16" anchor chain, 70 HP, 230 DC.

MAIN CONDENSER, Allis- Chalmers, 7800 sq. ft. cooling service, 2 pass, horizontal.

LUBE OIL PURIFIER, Sharples, Type M-34-W-22U43, 350 GPH, 230 Volts DC Motors.

FUEL OIL STANDBY PUMP, Worthington, horizontal duplex, Size 5½" x 3" x 6", 13 GPM, 410 PSI.

GENERAL SERVICE PUMP, Worthington, vertical simplex, Size 12 x 14 x 18, 600 GPM, 50 PSI.

FIRE & STANDBY PUMP, Worthington, vertical duplex, Size 12 x 8½ x 12, 400 GPM, 150 PSI.

BOILER FEED PUMP, Worthington Auxiliary, vertical simplex, Size 11 x 7 x 24, 120 GPM, 550 PSI.

FRESH WATER PUMPS, 2—Worthington, Size 4x6, horizontal duplex, 100 GPM, 80 PSI, 7½ HP, 230 DC.

BALLAST PUMP, Allis-Chalmers, Type SGV, Size 5 x 5, double suction, vertical centrifugal, 600 GPM, 30 PSI, 20 HP, 230 DC.

SUBMERSIBLE BILGE PUMPS, 2—Worthington, 5", vertical centrifugal, 600 GPM, 30 PSI, 20 HP, 230 DC.

BILGE PUMP, Allis-Chalmers, Size 5 x 5, Type SGV, double suction, vertical centrifugal, 600 GPM, 30 PSI, 20 HP, 230 DC.

EVAPORATOR TUBE NEST DRAIN PUMPS, 2—Allis-Chalmers, Type SS-LH, horizontal, Size 2½ x 2, 17 GPM, 127' head, 5 HP, 230 DC.

MAIN CONDENSATE PUMPS, 2—Allis-Chalmers, Type CF-2V, vertical volute, Size 6 x 3½, 170 GPM, 208' head, 20 HP, 230 DC.

DISTILLER CONDENSATE PUMPS, 2 — Allis-Chalmers, Type SS-L, horizontal centrifugal, Size 4 x 2, 45 GPM, 2 HP, 230 DC.

AUXILIARY CONDENSATE PUMPS, 2—Allis-Chalmers, Type CF-2V, vertical volute, Size 2½ x 1½, 30 GPM, 208' head, 7½ HP, 230 DC.

DIESEL OIL PUMP, Viking, Type ZKK, gear type, Size 3 x 2½, 40 GPM, 30 PSI, 2 HP, 230 DC.

DISTILLER FRESH WATER DISTRIBUTION PUMPS, 2—Allis-Chalmers, Type SS-DH, horizontal centrifugal, Size 2½ x 2, 55 GPM, 51' head, 2 HP, 230 DC.

FIRE PUMPS, 2—Allis-Chalmers, Type B2-V, vertical centrifugal, Size 4 x 3, 400 GPM, 280' head, 50 HP, 230 DC.

MAIN FEED PUMP, Terry Turbine, Type ZS-1, 124 HP, with Ingersoll-Rand horizontal pump, Size 4 x 3½, 4 stage, 250 GPM, 1340' head.

STEERING GEAR PUMP, Waterbury, Size 5, Type K, with Westinghouse Motor, 55 HP, 230 Volts DC.

LUBE OIL SERVICE PUMPS, 2—Quimby, vertical screw, Size 5, 400 GPM, 48 PSI, 6 x 5, 25 HP, 230 DC.

FUEL OIL TRANSFER PUMP, Quimby, vertical screw, Size 4D, 225 GPM, 50 PSI, 15 HP, 230 DC.

FUEL OIL SERVICE PUMP, Quimby, vertical screw, Size 2½, 20 GPM, 400 PSI, 2½ x 1½, 10 HP, 230 DC.

ICE WATER CIRCULATING PUMP, Allis-Chalmers, Type SS-RH, 10 GPM, 81' head, 1" x ¾", vertical volute, 1 HP, 230 DC.

HOT WATER CIRCULATING PUMP, Allis-Chalmers, Type SS-HH, 35 GPM, 70' head, 1¼ x 1¼, vertical volute, 2 HP, 230 DC.

REFRIGERATION CONDENSER CIRCULATING PUMPS, 2—Allis-Chalmers, Type SJK, 180 GPM, 81' head, 2½ x 2, horizontal volute, 7½ HP, 230 DC.

MAIN CONDENSER CIRCULATING PUMP, Allis-Chalmers, Type LS-V, 12,550 GPM, 20' head, 20 x 20, vertical volute, 100 HP, 230 DC.

AUXILIARY DISTILLER CIRCULATING PUMPS, 2—Allis-Chalmers, Type SG, 650 GPM, 29' head, 5 x 5, horizontal volute, 7½ HP, 230 DC.

AUXILIARY CONDENSER CIRCULATING PUMPS, 2—Allis-Chalmers, Type SE-V, 2820 GPM, 29.2' head, 12 x 12, vertical volute, 40 HP, 230 DC.

AIR COMPRESSOR, Ingersoll-Rand, Type 40, 2 stage, air cooled, 194 CFM, 110 PSI, 40 HP, 230 DC.

FORCED DRAFT BLOWERS, 2—American Blower, Sirocco capacity 17560 CFM, 5½ SP, 75 HP, 230 DC.

COURSE RECORDER, Sperry, Mark 65091.

AUTOMATIC PILOT, Sperry, Mark 642840.

LIFEBOAT DAVITS, 2—sets, Welin, gravity trackway type, Size 135, capacity 21,500#.

AIR COMPRESSOR, Chicago Pneumatic, 161 CFM, 100 PSI, 2 stage, air cooled, Model PB2, 40 HP, 230 DC.

Attention Shipbuilders!

FORGED STEEL LINE SHAFTING

Excellent buys on used—good shafting for re-machining to your requirements:

6—Sections 19" diameter, 23'—11" long, flanged

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39—Sections 13½" diameter, 22'—0" long, flanged

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1 Only, Model 17-DE-90

CLYDE WHIRLEY CRANE

LIFTING RATE: 25 tons at 50 foot 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—POWER: Diesel Electric (DC).

1 Only

ORTON WHIRLEY GANTRY

With specifications similar to Clyde 17-DE-90. Complete specifications and prices on request.

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Used, Davis Engineering or equal, with ABS and/or Coast Guard certification. 5 sizes available:

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MISCL. D.C. MOTORS

1—Westinghouse, 304 HP, 115 V, DC, 900 RPM, Sh. Wd., 2 pedestal bearings.

3—Allis-Chalmers, 50 HP, 230 V, DC, 600 RPM, Comp'd Wd., Mod. MDS-11975.

6—Westinghouse, 50 HP, 230 V, DC, 600 RPM, Comp'd Wd., Type CK, Fr. 9.

4—Westinghouse, 9.3 HP, 230 V, DC, 640/852 RPM, Type SK, Fr. 93.

20—Westinghouse, 7½ HP, 120 V, DC, 1750 RPM, Stab. Sh. Wd., Type SK, Fr. 43.

Others in stock: 5 HP & up . . . 115 & 230 V.

230 VOLT D.C. MOTORS

1—250 HP, G.E., Type CY, Form HJ, Model 24G, 1200 RPM Horizontal, 2 B.B., Shunt Wd.

2—220 HP, G.E., Type CDM—1348S, Form HA, Model 25G 339, 1800 RPM, Stab. Sh. Wd. Horizontal, 2 B.B.

6—100 HP, Westinghouse, Type SK, FR. 163, Style 1B4631, 1150 RPM, Shunt Wd. Horizontal, 2 B.B.

2—55 HP, Electro-Dynamic, FR 25-SL, 550 RPM, Compound Wound, Single Ball Bearing. Originally for high pressure Air Compressor.

6—50 HP, Westinghouse, 600 RPM, Compd. Wd., Type CK, FR 9, Horizontal 2 B.B.

1—40 HP, Allis-Chalmers, 1750 RPM, Compound Wound, Horizontal, 2 B.B.

1—40 HP, G.E., Type CDM, FR 95, Model 35A1663, 1800 RPM, Compound Wound, Horizontal, 2 B.B.

1—18/25 HP, Electro-Dynamic, 1225/1750 RPM, Compd. Wd., FR. 7½ S, Horizontal, 2 B.B.

6—15 HP, Allis-Chalmers, 1225/1750 RPM, Stab. Sh. Wd., Type EB90, Horizontal, 2 B.B.

2—10 HP, Allis-Chalmers, 1225/1750 RPM, Compd. Wd., Type EB80, Horizontal, 2 B.B.

4—9.3 HP, Westinghouse, 640/852 RPM, Type SK, FR. 93.

120 VOLT D.C. MOTORS

1—304 HP, Westinghouse, 900 R.P.M., Shunt Wound, Horizontal, Pedestal Bearing.

3—25 HP, G.E., Type CDM, 1200 R.P.M., Horizontal, 2 B.B., unused. Removed from M.G. Sets.

20—7½ HP, Westinghouse Type SR, FR 43, Stab. Sh. Wd., 1750 RPM,.

STEERING GEAR MOTORS

2—General Electric, 30 HP, 230 V, DC, 600 RPM, Stab. Sh. Wd., Type CDM, Fields Continuous Duty, Armature 1 Hr.

1—Westinghouse, 35 HP, 230 V, DC, 850 RPM, Stab. Sh. Wd., Type SK, Fr. 123, Fields Continuous Duty, Armature 1 Hr.

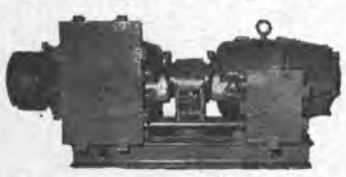
SHIP'S LIGHTING M-G SETS

230 V, DC/115 V, DC. Ship's Lighting M.G. Sets for C3-S1-A-3 150 K.W. and Moore built C2 100 K.W.

SPECIAL D.C. GENERATORS

3—Unused, G.E., 15 KW, 100 A, 15 V, Type CDM, 1200 RPM, 2 B.B., D.P. Generators.

MOTOR-GENERATOR SETS
Unused Surplus in Original Boxes



Janette M-G Sets. Input: 1.75 HP, 230 V, DC, 7.2 Amperes, 1800 RPM. Output: 1-KVA (.85 KW), 115/1/60, 4 ball bearing, with speed regulator, and with noise filters. Navy Type CJM-21151, continuous duty. Net weight 435 #, Dimensions 44" L, 19½ W, 18⅝" H. Instruction book and parts list included.

D.C. MARINE CONTROLLERS

1—Cutler-Hammer, 250 HP, 230 V, DC, No. 232 793A14.
2—General Electric, 225 HP, 230 V, DC, CR 5430-B32D.
6—Westinghouse, 100 HP, 230 V, DC, Type 8585A SO-1B4636.
1—Cutler-Hammer, Unused, 50 HP, 230 V, DC, No. C280981A290, Contactor Panel for Stern Anchor Haulage Winch. Many others from ¼ HP & up—115 and 230 V.

ROTOTROLS

15—Westinghouse Rotorols, driven by 5 HP, 440 V, 3 phase, 60 cycle, 1700 RPM, AC Motors.

D.C. TRANSFER PANEL

Cutler-Hammer, 3-pole, 300 A, 120/240 V, DC, Bul. 6007, No. B870102A2.

SPARE ARMATURES

For C-3-S1-A3 Auxiliaries . . . Send for List A-1. Many others — Let us have your inquiries.

SWITCHBOARDS

Westinghouse Propulsion Control Switchboards as used on S-4 Vessels. AC and DC Switchboards. Let us know of your requirements.

CIRCUIT BREAKERS

2 and 3 Pole Air Breakers, 2 and 3 Pole Molded Case Navy Type Breakers. 2 and 3 Pole Trip Elements for Molded Case Breakers.

Need 3 Wire 120/240 Volts DC for Shore Power? Motor-Generator Sets and Engine Driven Units from 15 KW to 500 KW . . . Let us quote.

D.C. GENERATORS

2—500 KW, 120/240 V, Westinghouse FR. CB813.7, 750 RPM, 2 Pedestal Bearing, with Balance Coils. Removed from GM 8-278 Engines.

2—250 KW, 120/240 V, Westinghouse, 1200 RPM, Single Pedestal Bearings. Balance Coils not available, Type 12S18P107PH, removed from Turbines.

2—150 KW, 120 V, G.E., Type CDM-1348-S, Form HA, Model 25G 340, 1800 RPM, Compound Wound, Horizontal 2 B.B.

1—150, 120 V, GE, Type CDM, Form AA, Model 24G, 1200 RPM, Compound Wound, Horizontal, 2 B.B.

6—100 KW, 120/240 V, Westinghouse, Type SK, FR. 143.8, 1800 RPM, Single Ball Bearings. Balance Coils available.

3—100 KW, 120/240 V, Delco, 1200 RPM, Single Bushed Bearings, with Balance Coils. Removed from Superior GDB-8 Engines.

1—100 KW, 120/240 V, Allis-Chalmers, 1200 RPM, Single Sleeve Bearing, Shunt Wound, Type 4-14-45-13, removed from GM 3-268A Engine.

10—90/165 KW, Westinghouse, 125/400 Volt, Type SK, FR. 185, Shunt Wound, separately excited (120 V), 1200 RPM, Horizontal, 2 B.B.

4—75 KW, 120 V, G.E., Type CDM-1234, Mod. 24GA71, 1200 RPM, 2 Ball Bearing, Tapered Shaft. Removed from Motor-Generator Sets.

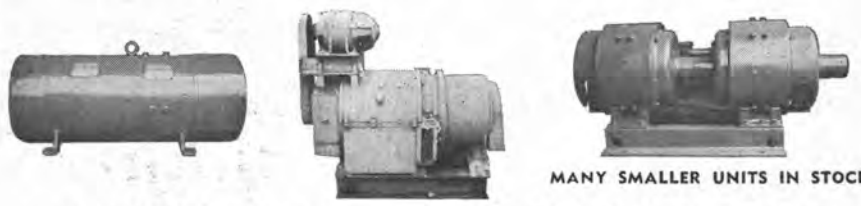
6—60 KW, 120 V, Westinghouse, Type SK, FR 143, Style 3B2855-PH, 1800 RPM, 1 B.B. Removed from Turbines.

6—60 KW, 120 V, Westinghouse, Type SK, FR. 153-L, Style 1B4632, 1200 RPM, Compound Wound, Horizontal, 2 B.B.

A.C. TO D.C. M.G. SETS

From 250 Watts to 500 KW in 115 Volt, 230 Volt and 120/240 Volt, 3 Wire DC. Any drive including Synchronous Motor. Let us have your inquiries.

Reconditioned
MOTOR GENERATOR SETS



MANY SMALLER UNITS IN STOCK

230 VOLTS D.C. TO A.C.

Hertner. Input: 230 V, DC, 24A. Output: 3.5 KVA, 440 V, 60 cy., 3Ø.
Hertner. Input: 230 V, DC, 28A. Output: 5 KVA, PF .85, 115 V, 60 cy., Ø1.
Continental. Input: 230 V, DC, 28A. Output: 7.5 KVA, 3.5 KW, 120 V, 1Ø, 60 cy., 62.5A.
Century. Input: 10 HP, 230 V, DC. Output: 7.5 KVA, 3.75 KW, 120/1/60.
Bogue. Input: 230 V, DC, 57A, 15 HP. Output: 10 KVA, PF .8, 120 V, 60 cy., 1Ø.
Fidelity. Input: 15 HP, 230 V, DC. Output: 12.5 KVA, 10 KW, 120/1/60.
Bogue Electric. Input: 15 HP, 230 V, DC. Output: 12.5 KVA, 10 KW, 120/1/60.
Burke Electric. Input: 20 HP, 230 V, DC. Output: 25 KVA, 12.5 KW, 120/1/60.
General Elec. Input: 25 HP, 230 V, DC. Output: 18.75 KVA, 15 KW, 120/1/60.
Star Kimble. Input: 30 HP, 230 V, DC. Output: 25 KVA, 20 KW, 120/1/60.
Ideal. Input: 40 HP, 230 V, DC. Output: 31.3 KVA, 25 KW, 450/3/60.
Star Elec. Input: 40 HP, 230 V, DC. Output: 33.4 KVA, 25 KW, 450/3/60.
General Elec. Input: 230 V, DC, 40 HP. Output: 25 KW, 480 V, 60 cy, 3Ø, 24A, 1800 RPM.
Star Elec. Input: 125 HP, 240 V, DC. Output: 93.75 KVA, 75 KW, 450/3/60.

115 VOLTS D.C. TO A.C.

Marathon. Input: 1 HP, 115 V, DC. Output: .500 KVA, .425 KW, 115/1/60.
Bludworth. Input: .75 HP, 115 V, DC. Output: .500 KVA, .450 KW, 115/1/60.
Elec. Spec. Input: 1 HP, 90/130 V, DC. Output: .500 KVA, .500 KW, 115/1/60.
Century. Input: 1.5 HP, 115 V, DC. Output: .750 KVA, .600 KW, 102/1/60.
Janette. Input: 13 Amp, 115 V, DC. Output: 1 KVA, 110/1/60.
Elect. Prod. Input: 1.5 HP, 115 V, DC. Output: 1 KVA, 115/1/60.
Allis-Chalmers. Input: 14 Amp, 115 V, DC. Output: 1.250 KVA, 1 KW, 115/1/60.
Cont. Elect. Input: 6 HP, 115 V, DC. Output: 2.9 KW, 440/3/60.
Louis Allis. Input: 10 HP, 105/130 V, DC. Output: 7.5 KVA, 440/3/60.
Cont. Elect. Input: 12 HP, 120 V, DC. Output: 7.5 KVA, 440/3/60.
Star Elect. Input: 12½ HP, 115 V, DC, 1800 RPM. Output: 7½ KW, 120 V, 60 Cy.
Ideal. Input: 40 HP, 115 V, DC. Output: 31.3 KVA, 25 KW, 450/3/60.
Continental. Input: 50 HP, 115 V, DC. Output: 50 KVA, 25 KW, 120/3/60.
Burke. Input: 20 HP, 115 V, DC. Output: 25 KVA, 12½ KW, 120/1/60.
RCA. Input: 4 HP, 105/130 V, DC. Output: 2.22 KVA, 2 KW, 120/1/60.

BARGES on the SPOT

For Charter • Steel Deck Barges

60′ x 26′ 110′ x 40′ 190′ x 50′
100′ x 28′ 120′ x 32′ 195′ x 35′
110′ x 30′ 150′ x 34′ 269′ x 50′
175′ x 35′

Also Available:
Hopper—Offshore—Oil & Spud Barges

For Sale.
110′ x 30′ x 7′

McDONOUGH MARINE SERVICE
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Telephone: 949-7586 (A/C 504)
Lafayette, La. 234-1052 (A/C 318)

New Watertight Doors

FOR IMMEDIATE DELIVERY

6 Dog right and left hand hinged steel doors—with frames. Built and tested to A.B.S. specifications.

SIZES:
26″ x 48″
26″ x 57″
26″ x 60″
26″ x 66″
30″ x 60″

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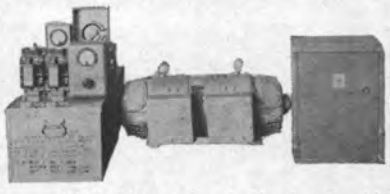
NEW — UNUSED 3.5 K.V.A.—2.97 KW
GENERAL ELECTRIC
MOTOR GENERATOR SETS



G.E. Type CG-21ACR in a single frame. MOTOR: 5 HP—115 V.D.C.—38 amps—3600 RPM. GENERATOR: 3.5 K.V.A.—2.97 KW—115 volts—1 phase—60 cycle—30.4 amps—model 5LY128A5. DIMENSIONS: 30¾″ long x 14″ wide x 12¾″ high. Includes magnetic motor starter—Westinghouse 115 V.D.C.—size 3DC—class 6311-S31—push button station. Voltage regulator: type CG-23ACE——weight about 800 lbs. each. 2 Boxes of spare parts.

230 VOLT D.C. ALSO AVAILABLE:
Exactly as above, except input is 230 volts DC.

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FOR SALE

2 Heavy duty Lufkin Marine reduction gears. SIZE LM 1815, RATIO 3.06 to 1, INPUT RPM 900, REMOVED FROM 750 HP TUG 1969 in good condition.

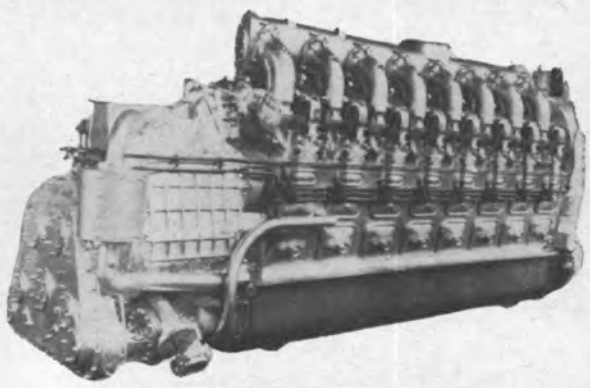
CALUMET MARINE TOWING **Box 216**
South Chicago Station **Chicago, Illinois 60617**
312/721/1180

FOR SALE OR CHARTER

One deck barge, steel construction, 220′ x 45′ x 11′, 8″ wood protective decking, removable 4½′ bin sides, excellent condition.

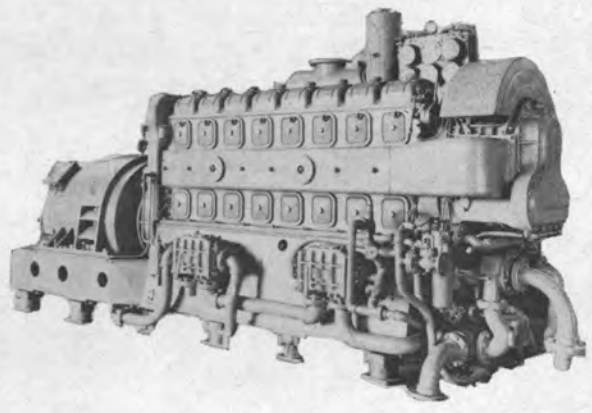
NOLAN BROS., Incorporated
800 Builders Exchange **Minneapolis, Minn. 55402**

DIESEL WAREHOUSE
CLEARANCE
— We're Moving —
GENERAL MOTORS



16-278A DIESELS
1700 HP @ 750 RPM
Large Quantity to Move
COMPLETE INSPECTION INVITED
PRICE ~~$9750~~ ?

8-268A DIESELS
500 HP @ 1200 RPM
DRIVING
240 KW 3/60/440
GENERATORS
COMPLETE!
ALL ACCESSORIES



3-268A DIESELS — 150 H.P. @ 1200 RPM
DRIVING 100 KW 3/60/440 GENERATORS
COMPLETE — ALSO D.C. UNITS AVAILABLE

MANY OF THESE ENGINES HAVE BEEN MODERNIZED WITH THE LATEST TYPE PARTS

COME MAKE ANY INSPECTION YOU WISH
All Equipment is Priced to Move!

ALSO AVAILABLE:
FAIRBANKS-MORSE 10 CYL 38D8⅛ **COPPER-BESSEMER** **NORDBERG** **GM 6-71** **LORIMER**

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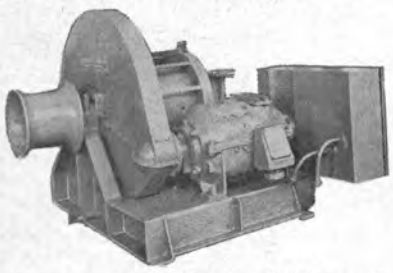
NEW YORK OFFICE: 11 Broadway — New York, N. Y. 10004 **PHONE: 943-2640**

From American Export Vessel "Explorer"

COMPLETE SET OF 20 LIDGERWOOD CARGO WINCHES



(16) single gear—single drum—7200 lbs. @ 125 FPM. MOTOR: 35 HP—230 VDC—480 RPM—compound—½ hour duty. Electric Brake and all controls.

$1450.00 Each

(4) Double geared—heavy lift. 12,000 lbs. @ 70 FPM; 7800 lbs. @ 125 FPM; 7200 lbs. @ 125 FPM. MOTOR: 35 HP—230 VDC—½ hour duty—Electric brake and all controls.

$1650.00 Each

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5 H.P.—230 VOLT D.C. REVERSING CONTROLLER

Resister type—magnetic—semi-automatic—overload protection. Continuous duty—waterproof enclosure—16½" wide—23" high—10" deep. For starting, stopping, reversing topping winches and other uses requiring reversing starters.

$139.50

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NEW - UNUSED

1-5/16 ANCHOR WINDLASS

Made by Ideal Electric Co.—with spares. Double wildcat—1-5/16"—15 HP—115 volts DC—1750 RPM—all controls—two outboard gypsies. Wildcats 36" between centers—6000 lb line pull @ 50 FPM. DIMENSIONS: O.A. width over gypsies—84"; OA length 81". Will sell windlass without power if desired.

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14" & 16"

ALL-BRONZE PORTLIGHTS with deadlights

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DUPLEX STRAINERS
in good condition

4" **$349.00**
2" x 3" between mounting holes

2" **$249.00**
15" x 3" between mounting holes

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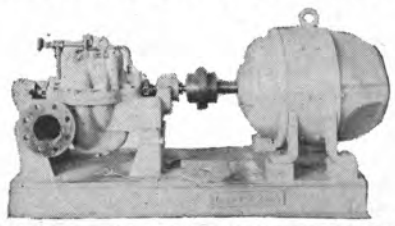
MARINE PUMPS - FIRE - BILGE - GENERAL SERVICE



GENERAL SERVICE BUTTERWORTH & FIRE

2-Stage 300 GPM @ 339 ft. Mfg. by Gould & Ingersoll-Rand. Bronze—5 x 4—50 HP 230 VDC—2500 RPM—with magnetic starters—reconditioned.

NEW ALL-BRONZE BUFFALO PUMP

Fire & General service—550 GPM @ 30 lbs.—14.5 440/3/60 motor—built for USN.

MOORE C2 AUXIL. CONDENSATE

Worthington—1½ UZ-3—20 GPM @ 208'—5 HP—230 VDC—1577/2250 RPM—2½" suction—1½" discharge.

INGERSOLL-RAND FIRE & BILGE PUMP

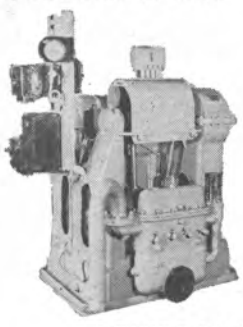
Self-Priming

200 GPM—bronze—224' head—90/100 lbs fire service—suction lift 23'—3500 RPM. MOTOR: 20 HP—440/3/60/3500 RPM—28 amps—G.E. type KF—frame 326—class B—totally enclosed—Navy Service A — 3½" suction — 3" discharge. PRIMER MOTOR: 1½ HP — 440/3/60/3600 RPM—fan cooled—totally enclosed—2.2 amps. Nash priming pump complete with priming valve. Reconditioned.

$497.50

BRONZE FEED-WATER BOOSTER PUMPS

220/237 GPM @ 144' head—2-stage—1750 RPM with 30 HP 440/3/60 motor control & spares. Built for USN.



MOTOR DRIVEN RECIPROCATING BILGE PUMP WITH AIR DOME

RECIPROCATING PUMP

80 GPM @ 60 lbs.—self-priming motor-driven, with air dome. 2-Cylinder—5" bore—8" stroke—4" suction—3" discharge Variable speed 6 HP motor—230 VDC—reduction gear ratio 22:1. German-built—long a favorite on foreign ships for reliability.

$1250.00

INGERSOLL-RAND FIRE & FLUSHING PUMP

200 GPM—total head 224'—discharge pressure 100 PSI — 3½" suction — 3" discharge — 3500 RPM—bronze construction—flanged. MOTOR: 20 HP — 440/3/60/3600 RPM — G.E. type K.F.—frame 326 — full load amps 28 — fan cooled — ambient 50°C—class B insulation—totally enclosed — Navy Service A. DIMENSIONS: OAL 37¼"—OAW 18 31/32"—OAH 18½"—total weight 1225 lbs. Reconditioned.

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NOW DISMANTLING
AIRCRAFT CARRIER "TARAWA"
CV-40—Essex Class—Built Norfolk

CALL FOR ANY ITEMS

Axial Flow Fans, Pumps, Navy, Auxiliary Condensers, Boiler Parts, Catapult Hydraulic Equipment, Armored Door Hatches, Winches, MG Sets, Motors, Etc.

NAVY YARDS PLEASE NOTE!

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3 TON CLYDE
DOUBLE DRUM WINCH

Driven by 10 HP—115 volts DC motor & controls —complete—drums declutchable.

$2250.00

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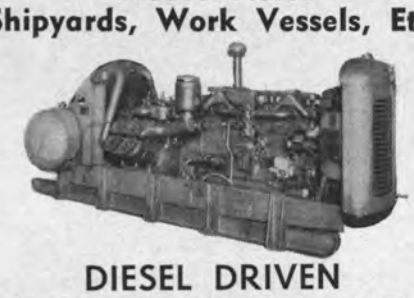
Please Note!
Shipyards, Work Vessels, Etc.



DIESEL DRIVEN
INGERSOLL-RAND AIR COMPRESSOR

Tank mounted. Ingersoll-Rand compressor—315 cu. ft. @ 125 lbs—driven by International Harvester UD-18 diesel. Radiator cooled and skid-mounted, Reconditioned and ready to go. Formerly aboard Corps of Engineers vessel "Griswold". Has had very little use.

$3950.00

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NEW — UNUSED
ROSS COOLERS
FOR LUBE OIL SERVICE

Screw connections — copper jacket — cupro-nickle tubes. 8" diameter x 6'3" length—84 sq. ft. surface. Water inlet 3"—outlet 3". Oil inlet 2½". Two Pass. Complete with zinc plugs.

$695

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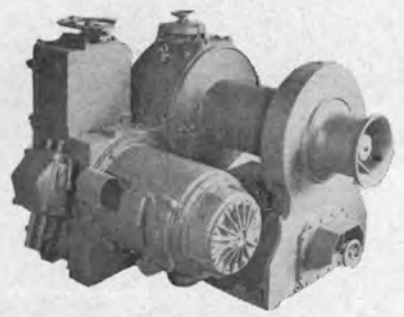
SPECIAL WINCH OFFER



10 A.E.G. Unit-Type Winches—with all controls attached to winch. In very good condition—removed from vessel run for only 1 year. 3-Ton capacity—25 H.P.—230 volts D.C.—Priced to sell!!

$1850 EACH

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NEW – UNUSED
10 H. P.
REVERSING CAPSTANS

Shipboard Use
Duty 10,000 lbs @ 60 FPM

MOTOR: 10 HP—totally enclosed—fan cooled—continuous duty — horizontal flange mounted — special shaft & oil seal fitted—440/3/60—1760 RPM. CONTROL: Marine type water-tight push-button—forward/reverse/stop—watertight starter box—rated for 40 starts per hour—triple pole contactor with silver contacts, thermal overload relay and trip adjustment. DIMENSIONS: Barrel 10" diameter — Flange 10" diameter — approx. 26" wide and 36" long.

6 IN STOCK FOR IMMEDIATE DELIVERY

$1675

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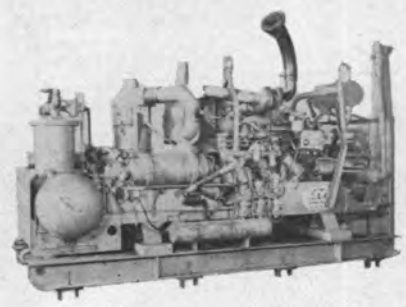
FOR AUTOMATIC REMOTE OPERATION OF UNMANNED BARGE, SHORE LOCATIONS etc.



Practically New

GARDNER-DENVER ROTA-SCREW ROTARY AIR COMPRESSOR

Model SP-600-DB—mfg by Gardner-Denver—600 CFM @ 100 lbs. Full load 1800 RPM—no load 1100 RPM. Water cooled. Engine is Caterpiller D-333—4½ x 5½—with electric starting. 6-Cyl.—turbo-charged. NOTE: This unit was used to remotely operate an anchor windlass on an unmanned barge. It has all automatic 24 volt electrically controlled air valves for low oil alarm, water temperature, shut down and starting service, and can be left for long periods of time unmanned. Complete with large air receiver, it was made by Elliott-Brandt—W.P. is 150 lbs.—test 500 lbs.—shell ¼"—heads ⅜"—radius of head 36". Dimensions: approx. 14'6" long—by 42".

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14" R-2418 WATEROUS CARGO PUMP
With Reduction Gear & Diesel Drive

PUMP: All bronze body & rotors. Shaft and gears of Hi Tensile steel. Suction and discharge 14". Top discharge—side suction. CAPACITY: Bilge service 2500 GPM @ 20 PSI @ 71 HP. Oil service 2400 GPM @ 75 PSI @ 130 HP. Gear input at top (12 o'clock). Length of pump and gear: 75⅜" long by 51" wide. ENGINE: Cummins diesel model JN-130-M—6 cyl.—4⅛ x 5—130 HP @ 2500 RPM with power takeoff. Weight 2080 lbs.—reduction gear ratio 10.059:1—air starting but can be converted to electric starting. Typical serial No. 5289.

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RENT, LEASE OR SALE!

BARGE MOUNTED REVOLVING CRANE 50-Ton capacity, Barge dimensions: 57' wide x 190' long.
CRANES-WHIRLEYS: One American 1956 model R20 HHE heavy duty 50 Ton. One practically new American model 254 capacity 90 Tons at 50', 25 Tons at 140'. One Clyde model 24E 50 Tons at 45'.
CONTINUOUS LIBERTY SHIP DISMANTLING—Marine parts always available.
STEEL BARGES AVAILABLE IMMEDIATELY—180'x42'x 12' and 150'x42'x12'—A.B.S. Newly Constructed. OTHER SIZES ALSO AVAILABLE.

SCHNITZER INDUSTRIES
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3300 N.W. Yeon Avenue, Portland, Oregon 97210
Phone: (503) 224-4321 Cable: Schnitzerbro Telex: 503-224-1802
Ft. of Adeline St., Oakland, Calif. Phone: 415-444-3919

AXIAL FLOW FANS

NEW UNUSED 230 V. D.C.

Navy size A10D2W6—LaDel Co., 10,000 CFM @ 3" S.P. MOTOR: Reliance Motor Co.—7.5/3.1 HP, 230 VDC—1310/1750 RPM. DIMENSIONS: 32⅛" OD—31¼" BC—29¼ ID—40¾" length.

$450.00

Navy size A8D2W5—Buffalo Forge Co.—8000 CFM @ 3" S.P. MOTOR: G.E. 6/1.8 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 30 9/16" OD—29¼" BC—27¼ ID—37¾" length.

$329.50

AF80—Sirocco—8000 CFM @ 2" S.P. MOTOR Welco 4/1.9 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 30½" OD — 29¼ BC — 27¼ ID—37¾" length. U.S. Maritime type fan.

$329.50

AF100—Sirocco—10,000 CFM @ 2" S.P. MOTOR: Welco 5/2.2 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 32½" OD—31⅛" BC—29¼ ID—40⅝" length. U.S. Maritime type fan.

$375.00

NEW — UNUSED — 115 V.D.C.

20000 C.F.M. — 115	10000 C.F.M. — 115
16000 C.F.M. — 115	5000 C.F.M. — 115 (explosion-proof)
12000 C.F.M. — 115	4000 C.F.M. — 115

RECONDITIONED — 440 V.A.C.

A1A4W5 to A16A4W5—with starter—440/3/60

1000 C.F.M.	6000 C.F.M.
2000 C.F.M.	8000 C.F.M.
3000 C.F.M.	10000 C.F.M.
4000 C.F.M.	16000 C.F.M.

LARGE AXIAL FLOW FANS 30000 C.F.M.

A304W5—25 HP—440/3/60, 30000 C.F.M. @ 3" static; 40000 CFM @ 1" static. I.D. 44¼"

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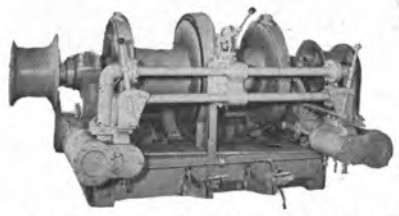
7 x 10 CLYDE DOUBLE DRUM WINCHES



Drum 8500 lbs @ not less than 120 FPM; 13,000 lbs at no specified speed. Gypsy head 22,500 lbs. static pull. Foot brake to hold 17,000 lb. pull. Steam cylinders with standard 250 PSI.
DIMENSIONS:
9' 5¾" wide over winch heads
5' 10½" wide on bedplate
4' 1" deep over bedplate
6' 5" overall—brake pedal, etc.
2" steam—2½" exhaust.
Drums 16" diameter—20" wide—33 13/16" over flanges. Rebuilt by U.S.N. equal to new.

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CARRIER REFRIGERATION UNITS

40-Ton Air Conditioning & Cargo Refrigeration Units

Carrier compressor—model 7G8-EF—freon compressor with manual cylinder cut-out—426 RPM—39.4 tons—suction temp. 45°F—cond. temp.—105°F—35 HP—230 volt DC motor. Complete with motor control—refrigeration condenser—receiver — fittings. 8 Complete units. Dimensions: Compressor 6'8½" long—4' 10½" OAW—approx. 6' high over suction connection. Condenser about 14' long—approx. 12" diameter. Just removed from Grace Line vessels. Excellent for fishing industry, banana boats, air-conditioning quarters, etc.

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M.G. SETS

NEW JANETTE 1 KVA SETS

2-Bearing Sets—type D.E.—3L. MOTOR INPUT: 2 HP—115 volts DC—3.5 amps—1800 RPM. OUTPUT: type C.E.I.—120 volts 60 cycle single phase. 8.3 amps—40°C Temp rise—0.8 P.F.

$179.50

1.24 KW G.E. MG SETS

G.E. Motor—3 HP—115 volts DC—1800 RPM. OUTPUT: G.E. generator—1.24 KW—1.56 KVA—120/60/1—0.8 PF—14.2 amps—1800 RPM. With spare armature. Overspeed trip on motor side.

$339.50

25 KW IDEAL M.G. SETS

INPUT: 40 HP—115 volts DC—290 amps—1800 RPM—frame 445. OUTPUT: Generator 31.5 KVA—25KW—440/3/60—1800 RPM. Control cabinet includes motor starter & generator control.

UNUSED SURPLUS 1 KVA SETS

INPUT: 1.75 HP—115 Volts DC—17 amps—1800 RPM. OUTPUT: 1 KVA—115 volts—8.7 amps—60 cycle single phase—0.9 PF. Unit is self-excited and will carry load immediately on starting. Regulation ±5%. Complete with magnetic starter & spare parts. Units designed and built to rigid Navy specs. SIZE: 19.5" long—26.5" wide—16" high. Weight 285 lbs. SPARES: 85 lbs. CONTROL: 20"X15"X10"—75 lbs.

$189.50

NEW 0.5 KVA HERTNER SETS

Type CHT-211761. INPUT: Motor 115 volts DC—9.0 amps—1800 RPM—1 HP. OUTPUT: 0.5 KVA—115 volts single phase 60 cycle—4.3 amps—.85 PF.

$127.50

CONTINENTAL: 3.7 KW—Input: 7½ HP 230 volts DC/28 amps/1800 RPM. Type D-324X—continuous. Output: Generator type DS-324XB 3.7 KW/7.5 KVA/120/1/60—62.5 amps—0.5 PF compound wound.

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So we made a bet that we can find any marine replacement item you need.

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VERTICAL BOILER

Suitable for

Pile Drivers
Steam Cranes
Hoists, etc.

$1450.00

100 HP @ 100 PSI. Water heating surface 747 sq. ft. — total heating surface 1144 sq. ft. A.S.M.E. Built by International Boiler Works—East Stroudsburg, Pa. Height to top of cylinder 12' 0"—diameter 66"—4" main steam line—2 1½" safety valves —practically new—very little if any use. Oil burning. Boiler stamped Mass.—Standard—100#—5290—National Board No. 6395.

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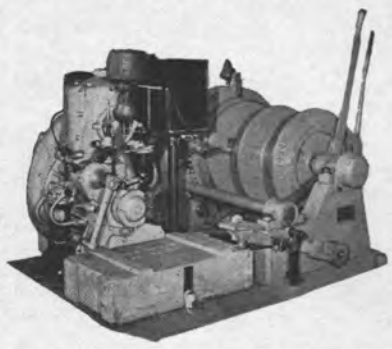
NEW
2500 LB DIESEL WINCHES



Small general purpose winches, mfg by Jaeger. Rated 2500 lbs @ 75 FPM. Driven by air-cooled Enfield single Cylinder diesel engine. Declutchable free spooling drum has center flange which can be removed if required. Excellent for small vessel use and general purpose service on all vessels. Has spare parts box. Weight about 1500 lbs.

$995 EACH

THE BOSTON METALS COMPANY

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TRANSFORMERS

15 KVA—3 per bank—450 V primary—117 volt secondary.

$190.00 PER BANK

Also inquire about other sizes: 10 KVA/20 KVA/ 25 KVA/37 KVA

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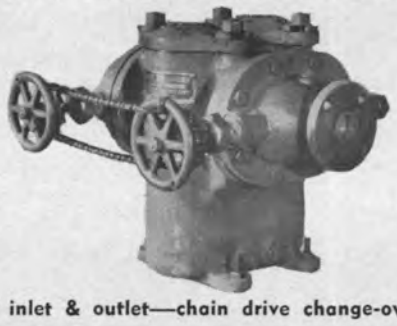
ELLIOT DUPLEX LUBE OIL STRAINERS



1½" inlet & outlet—chain drive change-over.

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NEW-UNUSED LIBERTY SHIP
Troy-Enberg 20 KW Generators

WHILE THEY LAST

$695 CLOSE OUT PRICE

Factory Packages

120 volts DC—400 RPM—drip-proof marine type. 2-Wire direct connected set. Reciprocating 6 x 7 type E vertical self-oiling steam engine—plug & piston valve—220 lbs PSI—80 lbs. BP.

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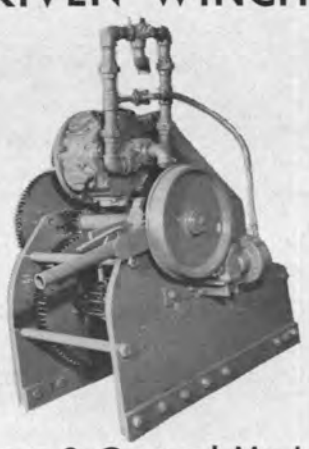
NABRICO AIR-MOTOR DRIVEN WINCHES



For Barge & General Marine Use

Winch duty 11,000 lbs. @ 39 FPM. Drum capacity 115 ft. of 1" wire. Drum size—11". Air motor mfg by Gardner-Denver—type MKB-A—reversible —11.5 HP @ 100 lbs. pressure. 1" Pipe connections for air. Units complete with air and hand brakes. Typical serial No. 458307. Just removed from unmanned barge. Good operating condition. 7 Units, with motors, available.

$695.00 Each

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T-2 TANKER VALVES

24" OVERBOARD DISCHARGE VALVES

Reconditioned to ABS *standards*

LOW INJECTION VALVE

Rebuilt to ABS and Coast Guard requirements

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LESLIE PUMP GOVERNOR VALVE

New—in original crates. For U.S. Naval Vessels—type CT-HNS-3. For merchant vessels—type CTHS. Size 2". Typical serial 241-423. For immediate delivery.

$495

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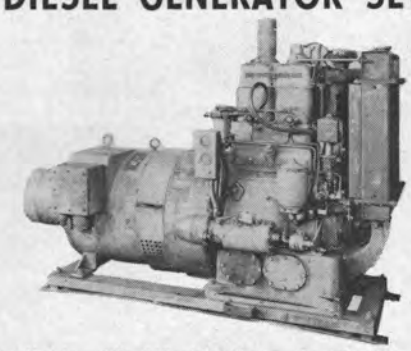
20 KW NORDBERG
"Power Chief"
DIESEL GENERATOR SET



2 Available. 30 HP Nordberg 2-cylinder diesel engine — 4½" bore — 5½" stroke — 4-cycle—1800 RPM—167 cu. inch displacement. Electric starting. GENERATOR: Kato Engineering Co.—20 KW A.C.—1800 RPM—120/240 volts DC—D.C. exciter. Panel boards have Regohm voltage regulator. Panel is rigged for automatic standby control.

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Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
The West Indies Oil Co., Ltd., St. John's Antigua, W. I.

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Eureka Chemcial Co., 234 Lawrence Ave., South San Francisco, Calif. 94080
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USS Chemicals (Div. of U. S. Steel), P. O. Box 86, Pittsburgh, Pa.

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Lighter Aboard Ship, Inc., 225 Baronne St., New Orleans, La. 70112
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
RPC Corp., Marine Sales, 200 Park Ave., New York, N.Y. 10017
Star Iron & Steel Co., 336 Alexander Ave., Tacoma, Wash. 98421
York Trailer Ltd., Corby, Northants, England

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Clyde Iron Works, Inc., P.O. Box 370, Duluth, Minnesota 55801
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 7 Dey Street, N.Y., N.Y. 10007
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Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
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Smith-Berger Mfg. Corp., 3236 16th Ave.S.W., Seattle, Wash. 98134
Western Gear Corp., Heavy Machinery Div., Everett, Wash. 98201

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Bruce GM Diesel, Inc., U.S. Route 46 at Savoy St., Lodi, N.J. 07644
Burmeister & Wain, 2 Torvegade, Copenhagen K, Denmark
Electro-Motive Division General Motors, La Grange, Illinois 60525
Fiat, Turin, Italy, U.S.A. 375 Park Ave., New York, N.Y. 10022
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
M.A.N. Maschinefabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany.
H. O. Penn Machinery Co., Inc., Caterpillar dir., 140th St. & East River, New York, N.Y. 10454
Stewart & Stevenson Services, Inc., 4516 Harrisburg Blvd., Houston, Texas 77011
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Bethlehem Steel Corp., Shipbuilding, 25 B'way, N.Y., N.Y. 10004
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Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202

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Vickers, Marine & Ordnance Division, P.O. Box 302, Troy, Mich. 48084

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Reef Industries, Inc., P.O. Box 23221, New Orleans, La. 70123

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Electronics Concepts Inc., (Div. of Automatic Sprinkler Corp. of America) P. O. Box 813, Charlottesville, Va. 22902
Fisher Research Laboratory. 1890 Embaracadero Road, Palo Alto, California 94303
Griffith Marine Electronics, Inc., 79 Fourth Street, New Rochelle, N. Y. 10801
Kaar Electronics Corp., 2250 Charleston Road, Mountain View, Calif. 94041
Marquardt Corp., 16555 Saticoy St., Van Nuys, Calif. 91406
National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo.
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
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Gadelius, K. K., P.O. Box 802, Kobe Port, 651-01 Japan
Gulf Coast Marine, Inc., P.O. Box 52987, Houston, Texas 77052
H & H Engineering Co., 430 So. Navajo, Denver, Colo. 80223
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Kearfott Marine (Div. of The Singer Co.) 21 West St., New York, N.Y. 10006
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
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Mathers Controls, Inc., 902 N.W. Ballard Way, Seattle, Wash. 98107
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York 10014
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Western Gear Corp., Precision Products Div., P.O. Box 190, Lynwood, Calif. 90262

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Motorola Communications & Electronics, Inc., 4935 W. LeMoyne Ave., Chicago, Ill. 60651
RF Communications, Inc., 1680 University Ave., Rochester, N.Y. 14610
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
Raytheon Marine Products Operation, 213 East Grand Avenue, South San Francisco, California 94080
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101

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Coast Engineering Co., 711 West 21 St., Norfolk, Va. 23517
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Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 2825 Oak Ave., Miami, Florida 33133
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Mobil Oil Co., Inc., 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

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The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.

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Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936

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Escher Wyss, G.M.B.H., 798 Ravensburg, Germany

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York Corp., Grantley Road, York, Pa. 17405

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Columbian Rope Co., Auburn, N.Y. 13022
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Plymouth Cordage Company, Plymouth, Mass. 02364
Tubbs Cordage Company, 200 Bush St., San Francisco, Calif.
Wall Rope Works, Inc., Beverly, N. J. 08010

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

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Syntron, a division of FMC Corp., 398 Lexington Ave., Homer City, Pa. 15748

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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

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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

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Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros de Cadiz, S.A., Zurhono 72, Madrid 10, Spain
Atlantic Gulf & Pacific Co. of Manila Inc., 45 Muelle De La Industria, Manila
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Barbour Boat Works, Inc., P.O. Box 1069, New Bern, N.C. 28560
Bender Ship Repair, Inc., 265 So. Water St., Mobile, Ala. 36602
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Brewer Dry Dock Co., Mariners Harbor, Staten Island, N.Y.
Ira S. Bushey & Sons, Inc., 764 Court St., Brooklyn, N.Y. 11231
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
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Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., 410 Camp St., New Orleans, La. 70130
Furness-Smiths Dock (Trinidad) Ltd., P.O. Box 893, Chaguaramas Dockyard, Port Chaguaramas, Trinidad, West Indies.
Gotaverken American Corp., 39 Broadway, New York 6, N.Y.
Greignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
Halifax Shipyards, Ltd., P.O. Box 640, Halifax, Nova Scotia, Canada
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hitachi Shipbuilding Co.,25 Nakanoshima2-chomeKitaku,Osaka-Japan
Ishikawajima-Harima Heavy Industries Co., Ltd., 50 Broad Street New York, N.Y. 10004
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla.
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
LISNAVE, P.O. Box 2138, Lisbon, Portugual
Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Lone Star Marine Salvage Co., 7200 S. Harbor Drive, Houston, Texas 77001
Maryland Shipbuilding & Drydock Co., P.O. Box 537, Baltimore, Maryland 21203
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville 1, Tenn.
National Steel & Shipbuilding Corp., San Diego 12, Cal.
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Nippon Kokan Kabushiki Kaisha, 2, 1-chome, Otemachi, Chivoda-ku, Tokyo, Japan
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Pacific Coast Engineering Co., P.O. Drawer 6, Alameda, Calif. 94506
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J.
Puerto Rico Drydock and Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
Rodermond Industries, Foot of Henderson St., Jersey City, N.J. 07302
L. Rodriquez Shipyard, 24 Molo Norimberga, Messina, Italy.
St. Louis Shipbuilding—Federal Barge, Inc. 611 East Marceau, St. Louis 11, Mo.
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Southern Shipbuilding Corp., P.O. Box 1089, Slidell, La. 70458
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Terrin Agency, Inc., 17 Battery Place, New York, N.Y. 10004
Todd Shipyards Corp., 1 Broadway, New York City
Vare Corp., Equipment Systems Div., 516 Sylvan Ave., Englewood Cliffs, N.J. 07632
Vickers Ltd., 222 London Rd., St. Albans, Herts, England
Wiley Mfg. Co., Port Deposit, Md.
Wyatt Industries Inc., Port Houston Shipyard Div., P.O. Box 3052, Houston, Texas 77001
Zigler Shipyards Inc., P.O. Box 492, Jennings, Louisiana 70546

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

SHIP STABILIZERS
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 7 Dey Street, New York, N.Y. 10007
John J. McMullen Associates, Inc., 17 Battery Pl., N.Y., N.Y. 10004
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

STEAM GENERATING EQUIPMENT
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STEVEDORING
M. P. Howlett, Inc., 415 32nd St., Union City, N.J.
Luckenbach Steamship Co., 120 Wall St., New York 5, N.Y.

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

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Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore 2, Md.
G & H Towing Company, 509 Texas Building, Galveston, Texas 77550
Henry Gillen's Sons Lighterage, 140 Cedar St., New York, N.Y. 10006
James Hughes, Inc., 17 Battery Pl., New York, N.Y.
Jackson Marine Corp., P.O. Box 1087, Aransas Pass, Texas 78336
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y.
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
P. F. Martin, Inc., Mall Bldg., 325 Chestnut St., Philadelphia, Pa.
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Nickerson Marine Towing Co., 1670 Southeast 17th Street, Ft. Lauderdale, Fla. 33316
Red Star Towing & Transportation Co., 500 Fifth Ave., N.Y. 10036
L. Smit & Co., 11 Broadway, New York 4, N.Y.
Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
M. & J. Tracy, Inc., 1 Broadway, New York, N.Y.
Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y.
Vancouver Tug Boat Co., Ltd., 10 Pemberton Ave., No. Vancouver, B.C., Canada

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Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn 31, N.Y.
Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 39 Redfern Ave., Inwood 96, L.I., N.Y.
Mechanical Marine Company, 45-15 37th St., Long Island City, N.Y.
Todd Products, Div. of Todd Shipyards Corp., Halleck St., Brooklyn, N.Y. 11231

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TURBO-GENERATORS, AUXILIARY— Westinghouse Turbine, 440 P.S.I., 740 Deg. F., 7288 R.P.M., Westinghouse 100 K.W., D.C. Generator, 240/120 Volts, 416 Amps, 1800 R.P.M.

WINCHES, CARGO—Lake Shore Engineering Co. UNIWINCH, Type VB, Model 21, single speed double drum, line pull-7450 lbs. at 220 Ft. per min., Allis-Chalmers D.C. motor, 50½ H.P., 230 Volts, 180 Amps, Cutler Hammer marine brake.

WINCHES, CARGO—Lake Shore Engineering Co. UNIWINCH, Type 4-B, model 12, two speed, single drum, single line pull—7450 lb. at 220 Ft. per min. and 14,440 lbs. Allis Chalmers D.C. motors, 50½ H.P., 230 Volts, 180 Amps.

PURIFIER, LUBE OIL—Sharples Corp. **Type:** M-67-28, 8N39, Speed, 15,000 R.P.M. Wagner Elect. Corp. A.C. Motor, 1 H.P., 3/60/440, 3500 R.P.M.

DIESEL ENGINE—Buda, Mod. No. 6LD468, 6 cylinder, 4½ x 5½ 1850 RPM, 100 BHP.

AIR COMPRESSORS—Sullivan Machinery, Type EA, V Belt Driven, 60 C.F.M., free air, 880 R.P.M., 110 lb. disch., Press, Wagner Motor, 15 H.P., 1750 R.P.M., size: 4½" x 4½".

MAIN CONDENSATE PUMPS—Vertical Centrifugal Motor Driven, Allis Chalmers, Type SSC-V, 3" x 1½", 68 G.P.M. Wagner A.C. Motor, 7.5 H.P., 1750 R.P.M., 114 Ft. total Hd.

AUX. CIRCULATING PUMPS—Vertical Centrifugal Motor Driven, Dayton-Dowd Pump, 8"x10", 1150 RPM, type CSLHV, 5 P.S.I. suction, 15 P.S.I., disch., 22.4 Ft. head. Wagner Motor, 10 H.P., 3/60/440, 1600 R.P.M.

FUEL OIL SERVICE PUMP—Quimby Vertical Rotary, Motor Driven Screw Pump, Size 2½" x 1½", Capacity 10/6 GPM, Disch. Press 350 PSI, 1150 RPM. Wagner Motor; 6/3 H.P., 3/60/440, 1160/575 RPM.

BOILER FEED PUMP—Wilson Snyder, Vert, Simp., 95 GPM, 10"x7"x24", 4" Suction, 3" Discharge, 440 lbs. steam press @ 500°F.

FIRE & SANITARY PUMP—Wilson Snyder, Vert. Simp. 400 GPM, 14" x 12" x 12", 5 lbs. suction press, 100 lbs. disch. press., 150 PSIG @ 435°F.

BILGE PUMPS—Wilson Snyder, Vert, Simp., 410 GPM, 10" x 12" x 12", 6 lbs. Suction Press., 30 lbs. discharge.

GENERAL SERVICE—Wilson Snyder, Vert. Simp., 330 GPM, 10" x 12" x 12", 5 lbs. Suction Press, 35 lbs. discharge.

FRESH WATER PUMP—Wilson Snyder, Vert, Simp., 100 GPM, 10" x 7" x 12", 4 lbs. suction press., 80 lbs. discharge pressure.

FUEL OIL TRANSFER—Wilson Snyder, Vert. Simplex, 150 GPM, 14" x 10" x 12", 5 lb. suction, 150 lbs. discharge.

FIRE PUMP—(Handy-Billy), Johnson Motor Co., Model P-500E, 500 G.P.M., 4500-5000 R.P.M., 100 P.S.I.

FORCED DRAFT FANS—Buffalo Forge Co., 5000 CFM, 6000 CFM, 8000 CFM, 12,000 CFM, Wagner Motor, 3/60/440.

LIBERTY SHIPS

REFRIGERATION UNITS—Compressor York Corp. Vertical 2 cylinder 4¼" x 3", 600 RPM Motor-Westinghouse Mod. 4B3608, 7.5 HP. Stab Shunt 1750 RPM, 57 amps, 120 Volts D.C.

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FEED WATER HEATERS—Davis Eng. Co. Size 11-13 E. Capacity 48,000 Lbs. per hour 125° to 230° F. Multi-Pass closed type. Shell 150 PSI. Tubes 600 PSI.

GYROS—Sperry Mk. XIV, Motor Generator, Control Panel, Carbon Pile, Steering and Bearing Repeaters, with stands.

DISTILLERS—Davis Paracoil: Type Vert. Marine. Capacity 6000 GPD. Shell Test 50 PSI. Tube Test 100 PSI. ¾" OD. Aluminum Brass Tubes. Muntz Metal Tube Sheets.

LIFEBOATS—EC2 (Liberty) Motor & Oar Propelled, Wood & Steel Hulls 22' and 24' 4 Cyl. Eng. Palmer, Gray & Universal.

EVAPORATORS—Vertical Type: Single Effect. Size 36 x 14. Capacity 24 Tons per day. Max Shell Press. 30 PSI. Max Tube Press 150 PSI.

GENERATORS, D.C.—EC2 (Liberty) Manufacturer: Generator, G.E. 20 K.W. 120 Volts D.C. 167 Amps. Mod. 256333. Within, Recip. Steam Engine, 6 x 7 Single Cyl. Model C, 400 RPM, 220 PSI.

WINCHES, CARGO—Steam-EC2 (Liberty) 2 Cyl. Double Geared Horizontal 5/15 Tons. 7" x 12", Working Pressure 125 PSI. Also 9" x 12". Heavy Duty.

WINDLASS, ANCHOR—Steam-EC2 (Liberty) Manufacturer: Summer Iron Works—Size 10" x 12", Working Pressure 125 PSI. Chain Size 2-1/16".

CARGO BOOMS—EC 2 (Liberty) 5 Ton 47' & 55', 15 Ton 51', 30 Ton 51', 50 Ton 51'.

PUMPS, BOILER FEED—Worthington: Vertical Simplex. 12 x 8 x 24 Head 300 PSI. Capacity 200 GPM. Steam 220 PSI.

PUMPS, VERT. DUPLEX—Fuel Oil, Transfer-EC2 (Liberty) Manufacturer: Worthington—10" x 11" x 12"—320 GPM Working Pressure, 220 PSI.

PUMPS, VERT. DUPLEX—Ballast, Fire, Bilge and General Service—EC2 (Liberty) Manufacturer: Worthington—10" x 11" x 12"—560 GPM, 125' Head.

PUMPS, VERT. SIMPLEX—S. W. Service—EC2 (Liberty) Manufacturer: Worthington—6" x 8" x 8". With Air Chamber.

PUMPS, HOR. DUPLEX—F.W.—EC2 (Liberty) Manufacturer: Various—5" x 7" x 10". 220 PSI.

PUMPS, AUX. COND.—Circ. And Condensate, Under Condenser—EC2 (Liberty) Manufacturer: Worthington—Typ. Ser. 1075376—10" x 12" x 12" x 12"—220 PSI.

PUMPS, MAIN COND.—Circ. Centrifugal Pump—EC2 (Liberty) Manufacturer: Sturtevant—30 HP. Engine 5" x 6"—400 RPM, 220 PSI, 14" Pump. 3650 GPM, 25' Head.

PUMPS, VERT. SIMPLE—Fuel Oil Service—EC2 (Liberty) Manufacturer: Worthington—7½" x 4" x 10" 8 GPM.

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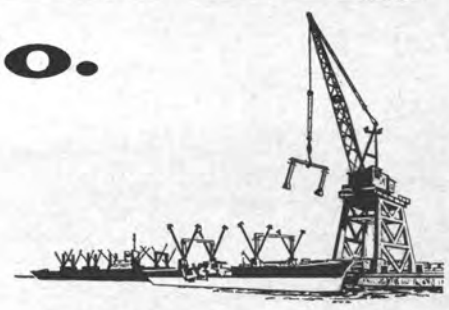

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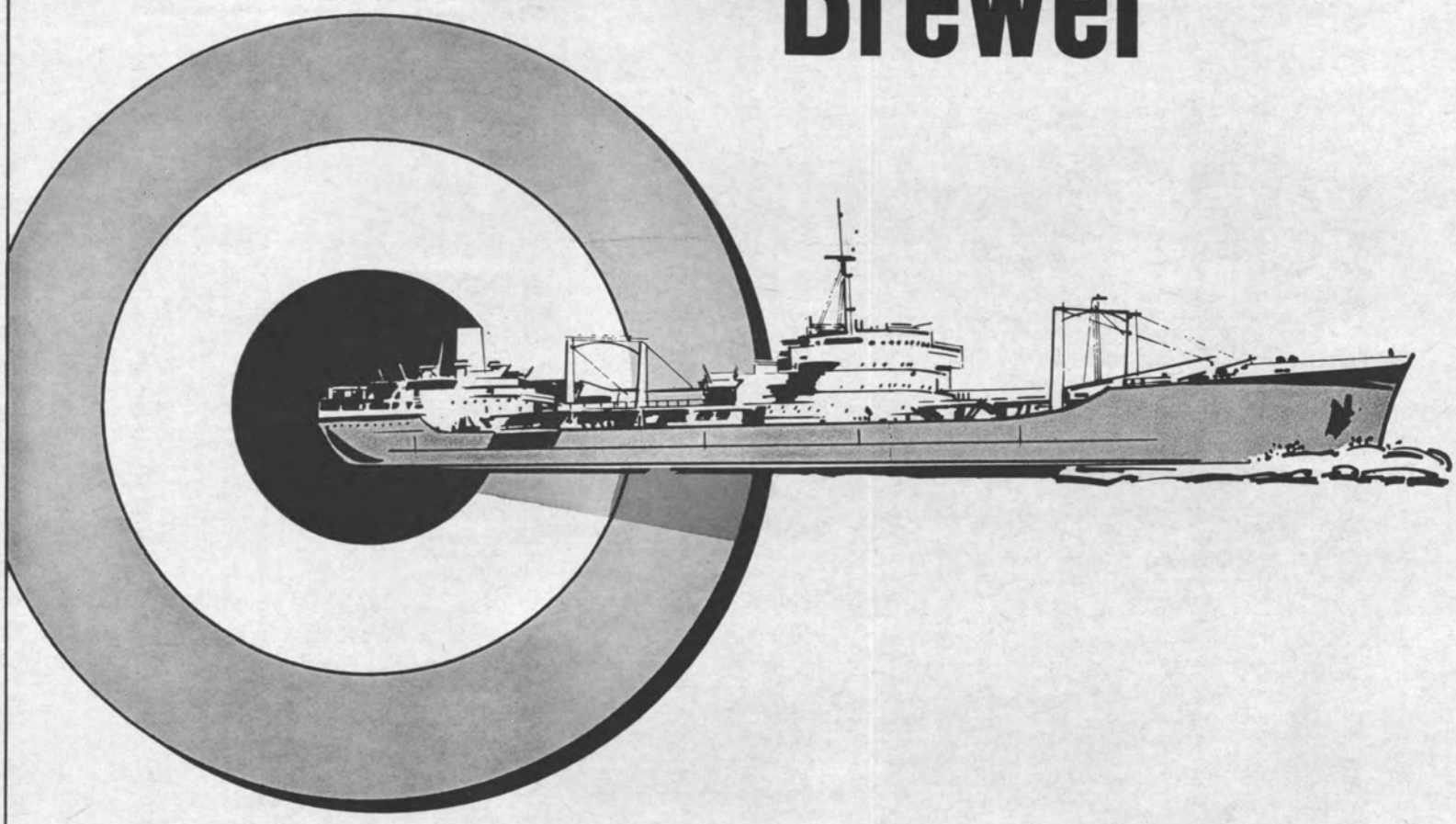

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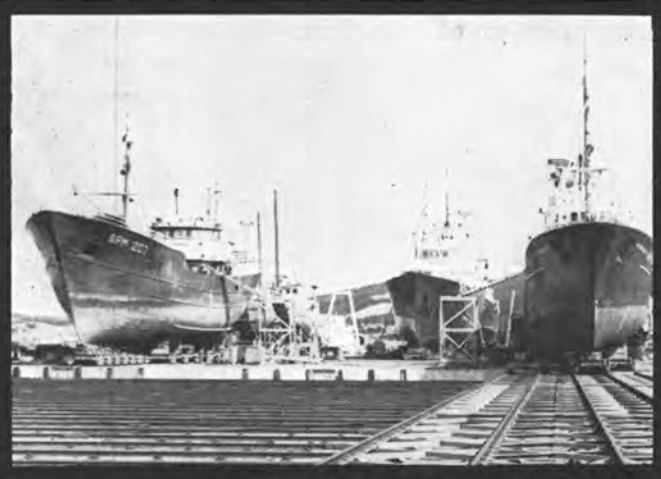

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