MARITIME REPORTER
AND
ENGINEERING NEWS

Two Powerful New Tugs Delivered To McAllister

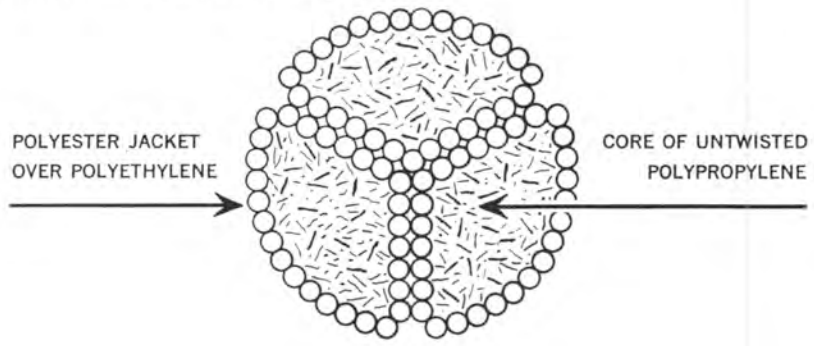
(SEE PAGE 6)

MARCH 15, 1969

SSR

...now available in exclusive, patented JETKORE construction

SSR Rope is an excellent blend of man-made fibers which combines the best features of polypropylene, polyester and polyethylene. Now, with JETKORE construction, it reaches a peak of performance that heretofore was unobtainable in marine ropes.



The explanation is simple. The SSR materials provide the highest resistance to abrasion and prevent fusing on bitts. The JETKORE construction wherein each strand contains a core of untwisted polypropylene, which is compressed by a unique, patented process into a homogenous mass of strong fibers, imparts as much as 15% greater strength to the rope. All this at no additional weight and therefore no additional cost. JETKORE construction also provides greater resistance to distortion, kinking and hockling.

SSR is manufactured in two types . . . SSR-100 and SSR-200. Each strand of SSR-100 contains a single outer layer of yarns, each of which is composed of a polyester jacket over polyethylene. SSR-200 has two such layers of combination yarns.

JETKORE construction (Pat. No. 3,380,243) will now be furnished for all SSR, PNX, PNX-Type T and polypropylene ropes in the following sizes:

3 Strand — 6" circumference and larger
8 Strand Square Braided — 7" and larger

Remember, no one but AMERICAN can offer you the patented JETKORE construction.

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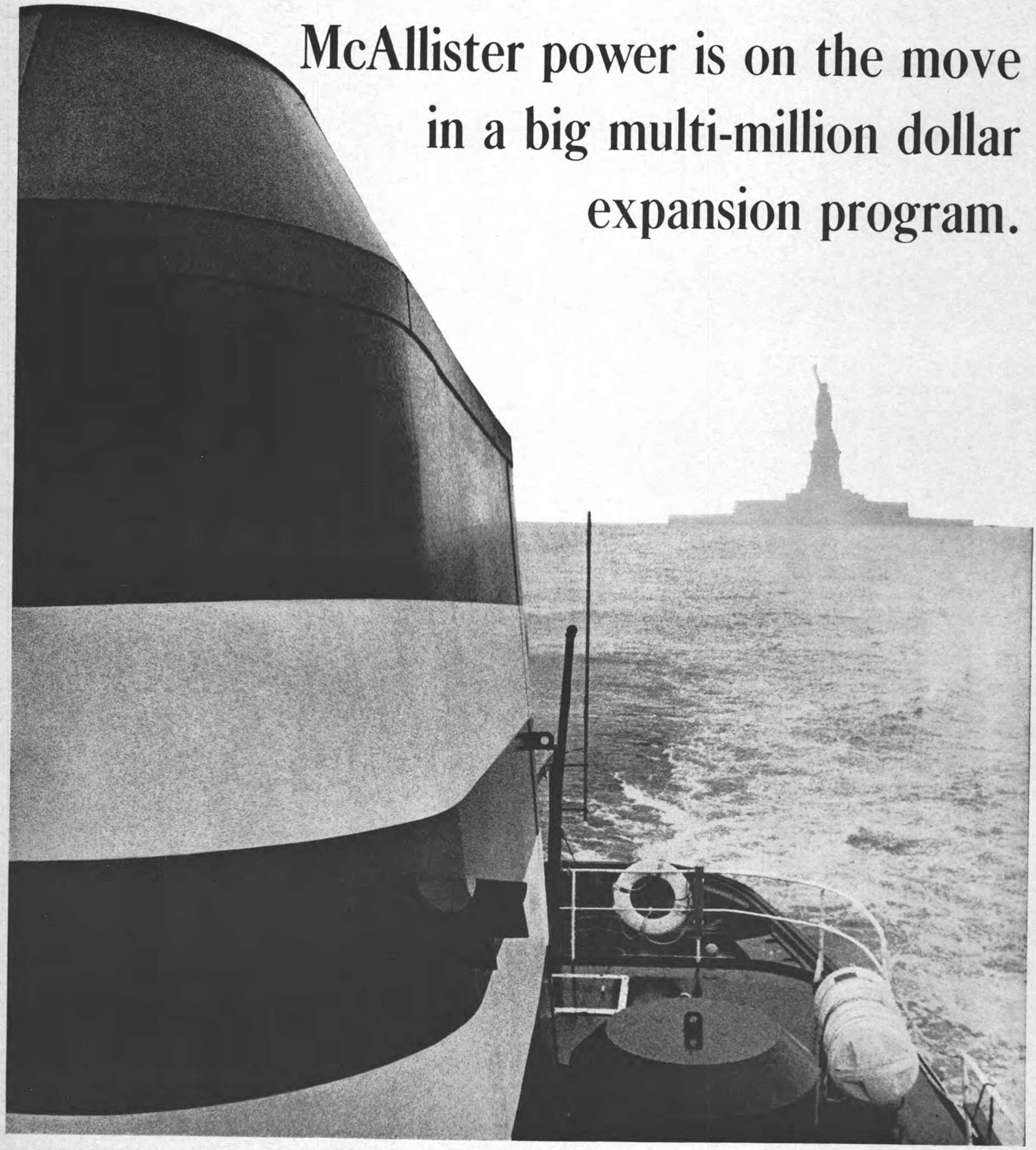
ANOTHER PRODUCT OF AMERICAN RESEARCH

Supertugs for superships.

McAllister power is on the move in a big multi-million dollar expansion program.



Missouri Barge Agrees To Acquisition Plans Set By Chromalloy

A. J. Demayo, executive vice-president for corporate expansion of Chromalloy American Corp., announced that it has come to an agreement with Missouri River Barge Line, Inc. of Kansas City for the acquisition of the barge line. Under the terms of the agreement, Chromalloy will issue 49,500 shares of its common stock in exchange for all of the acquired company's stock.

Missouri River Barge is a non-regulated water carrier operating principally in the bulk grain trade on the Missouri and Mississippi Rivers. Its fleet consists of two towboats and 31 barges.

Bethlehem To Build Liquid Sulphur Carrier For Marine Transport

Marine Transport Lines has announced the award to Bethlehem Steel Corporation's Sparrows Point shipyard of a $10-million contract to construct a liquid sulphur carrier. The contract calls for the construction of a 460-foot long forebody and the joining to a T-2 tanker stern. Actually, the Sparrows Point yard will build the forebody and Bethlehem's Key Highway yard will do the joining.

The resulting 612-foot vessel will have a capacity of 23,000 tons and will be a sistership to the Marine Floridian, which Bethlehem built about two years ago. Delivery is scheduled for April, 1970.

Holiday Inns Become Second Set Of Owners To Acquire Delta Lines

The Maritime Subsidy Board has cleared the way for acquisition of Delta Steamship Lines Inc., a subsidized liner company, by Holiday Inns of America Inc. Holiday Inns obtained control by acquiring all the capital stock of T.C.O. Industries which had acquired 98 percent of Delta's common shares in January.

The board's decision was conditioned only on Holiday Inns agreeing to assume all the outstanding conditions and obligations applicable to Delta's subsidized operation. Included would be using none of Delta's facilities, services or personnel without prior board approval, complying with the U.S. citizenship requirements of the 1936 Merchant Marine Act, and clearing the transaction with other state and government agencies, trustees and bondholders under Title XI ship mortgage insurance obligations.

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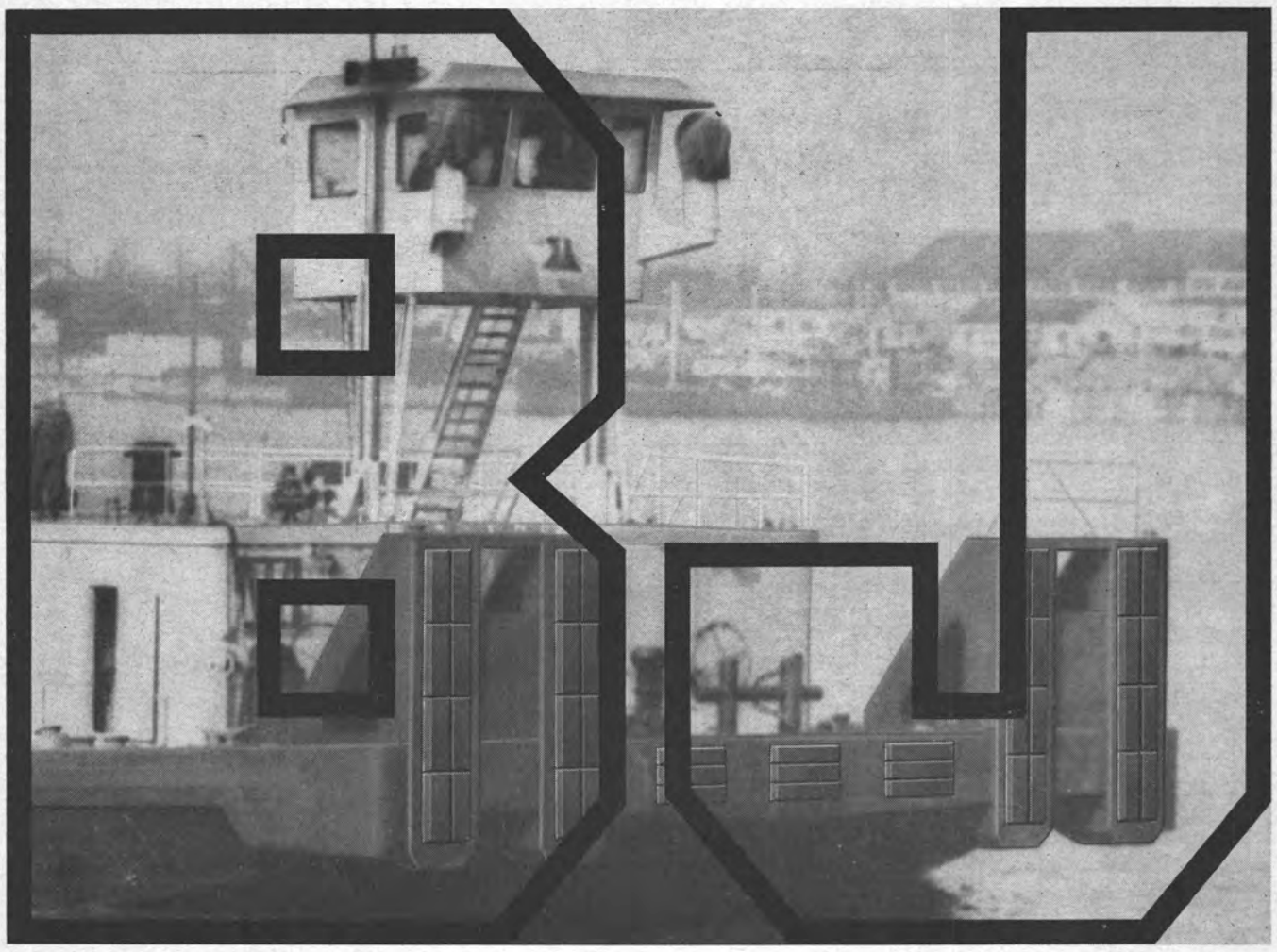
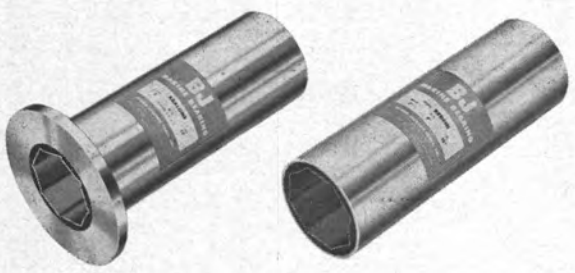
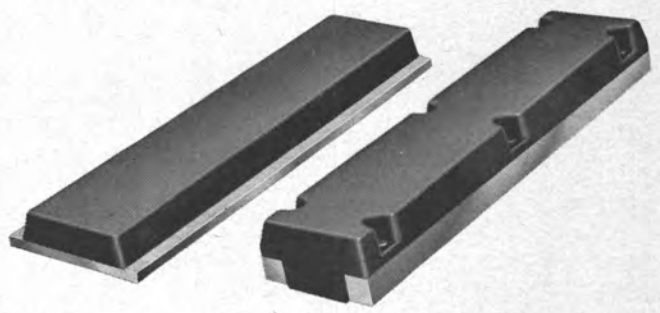


THE BIG NAME IN BEARINGS & BARGE BUMPERS



BJ Marine Bearings are especially suited for big boats. They keep shafts turning smoother, quieter and longer because we use the finest materials available. Our bearings are machined from the highest-quality naval brass and are constantly inspected to ensure utmost reliability. The BJ/Borg-Warner developed rubber compound used in the fluted rubber liner will stand up under all fresh or salt water conditions. Special sizes or materials are also available . . . and a BJ specialty is on-time delivery – every time.



BJ PUSHNEE™ Barge Bumpers are designed to withstand continuous heavy-duty usage on even the largest tugs and towboats. They are manufactured from BJ Marine Products' special Neolastic™ rubber compound, which is extremely resistant to high-impact shocks and abrasion, as well as aging from sunlight, water and air. The bumpers are available in three weld-on styles and one bolt-on model.

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BORG WARNER®

St. Louis Ship Delivers

New McAllister Tugs

The Marjorie McAllister And The Helen McAllister Both Powered By General Motors 4,000-HP Diesels Are Part Of A Multi-Million Dollar McAllister Expansion Program

McAllister Brothers, Inc., has placed in service the two most powerful tugboats in New York Harbor, the Marjorie McAllister and the Helen McAllister.

They are part of a multimillion-dollar construction program that will add a total of four high-powered tugboats to the McAllister fleet. These two tugs were built by St. Louis Ship, Division of Pott Industries, Inc., and designed by Marine Consultants and Designers, Inc., in conjunction with **C. R. Horton Jr.**

According to a McAllister spokesman, the new vessels can be characterized as "supertugs," as they have the greatly increased thrust necessary for the docking and undocking of supertankers, giant containerships, and large ocean liners. Chief features of the tugs are a Kort nozzle and a three-rudder steering arrangement. The Kort nozzle gives each tug a bollard pull of 120,000 pounds. The rudder arrangement (one steering rudder and two backing rudders) enables the tugs to back in any direction under full control.

Built on the comparatively shallow Mississippi River, the new tugs were equipped by St. Louis Ship with an ingenious set of sponsons to permit their launching and delivery to New Orleans. Dock and sea trials were completed there before the trip to New York.

Each of the tugboats with its equipment and propelling machinery was built under special survey of the American Bureau of Shipping and is classed A1-AMS ocean towing service.

The hull is 120 feet by 30 feet by 18 feet 4 inches with normal draft of 16 feet 6 inches, single-deck type, triple chine, transversely framed with fuel-oil bunkers located in wing tanks and double-bottom spaces. Hull plating is 7/16 inches with a 1-inch thick sheer strake and ¾-inch bow plating. A 12-foot by 2½-inch bar keel runs from the bow to the stern tube. Eighteen-inch bilge keels, 31 feet long, are fitted port and starboard.

Fuel capacity is 85,500 gallons, wash water 8,800 gallons, potable water 4,100 gallons.

Skin-cooling systems are built into the Kort nozzle and hull for cooling the main engine and auxiliaries.

Propulsion power is furnished by a General Motors model 20-645-E5 turbo-charged diesel engine developing 4,000 bhp at 900 rpm through a Falk model 4548 MRV reverse reduction gear with an Airflex clutch providing 135 rpm ahead. Estimated free-running speed is 14.7 knots.

The propeller is stainless steel, four-blade, solid type, 144 inches in diameter, turning in a stainless-steel-lined Kort nozzle. The propeller shafting extends in one length from the reduction gear to the propeller and is sized to exceed American Bureau of Shipping requirements. A B. F. Goodrich cutless rubber bearing is used in the stern strut. A spherical roller steady bearing is provided inboard. 'Ceramalloy' tungsten-carbide-clad sleeves on the shaft are located in way of the strut bearing and the stern-tube stuffing box. An inflatable seal in the stern tube enables the crew to repack the stern tube without drydocking.

Automation of the new McAllister tugs rivals that of the supertankers and large freighters that they will dock and undock. In addition to pushbutton controls for operating the main diesel engine, the pilot-house is fitted with controls for remote starting and stopping of the auxiliary diesel generators and for transferring the electrical load from one generator to another and for pumping bilges if water reaches a pre-determined level. The 'Tugmonitor' monitoring system features an alarm panel in the pilothouse and engine room. All primary and auxiliary systems are continuously monitored and any abnormal temperature, pressure, or liquid level will manifest itself by both visual and audible alarms on the engine-room panel, and certain functions will be indicated on the chief engineer's and pilothouse panels. For the steering rudder a Decca-Arkas autopilot is combined with a manual emergency system having a separate electric-battery power supply.

Electric power is furnished by two 75-kw, 3/60/440-volt, 1200-rpm General Motors 6151 E diesel-electric generator sets. In addition, an 'in-port' 30-kw generator will provide sufficient power for a stand-by condition. The two 75-kw generators are automatically controlled through the Tugmonitor system.

A General Electric deadfront switchboard is located in the upper engine room.

Engine room spaces are ventilated with two 22,500-cfm blower fans with natural exhaust through the stack.

The Marjorie McAllister, first of two 4,000-hp tugs, is at work in New York Harbor.

The engine room is fully sound proofed and is provided with work bench, tool boards, and spare parts stowage.

Auxiliaries include:

1—141-gpm Potable-water transfer pump.

1—10-gpm Potable-water pressure set.

1—30-gpm Wash-water pressure set.

1—40-gph Drinking-water evaporator.

1—15-gpm Fuel-oil and lubricating-oil sludge pump.

1—500-gpm Fire pump.

1—500-gpm General-service pump.

1—175-gpm Bilge pump.

1—7.6-gpm Circulating-water warm-up pump.

1—100-gpm Fuel-oil transfer pump.

1—6.3-gpm Fuel-oil service pump.

1—170-gpm Lubricating-oil priming pump.

2—25.5-cfm Air compressors with three 250-lb. air tanks.

1—Turbocharger before and after pump.

2—70-gpm Steering pumps.

One New England Trawler pedestal-mounted capstan is located on the aft deck. The capstan is hydraulically driven and has a capacity of 7,000 pounds line pull at 70 fpm.

The towing winch is by Garrett Corporation, with adjacent and remote controls, and is powered by a G.M. 6-V71 diesel engine. Capacity is 2,800 feet of 2-inch wire rope, 150,000 pounds line pull at 22 fpm.

All living quarters of the tugs are heated with a combination circulating hot-water and electric-heated warm-air system. The heat source is a Way-Wolff 'Ship Heater' with a normal rating of 210,000 Btu/hour.

Deck covering throughout the quarters is vinyl tile. Washroom floors are ceramic tile. The walls and ceilings throughout the quarters are lined with Marlite planking in attractive combinations of colors and finishes.

Appointments for the galley include a stainless-steel General Electric Model MR20A electric range with stainless-steel hood, stainless-steel sink and dresser, Foster stainless-steel combination refrigerator-freezer, and stainless-steel dish cupboards. A television set for the crew's diversion is mounted in the mess.

The pilothouse is fitted with stainless-steel-framed vertical slide windows. All windows are fitted with ⅜-inch thick tempered glass.

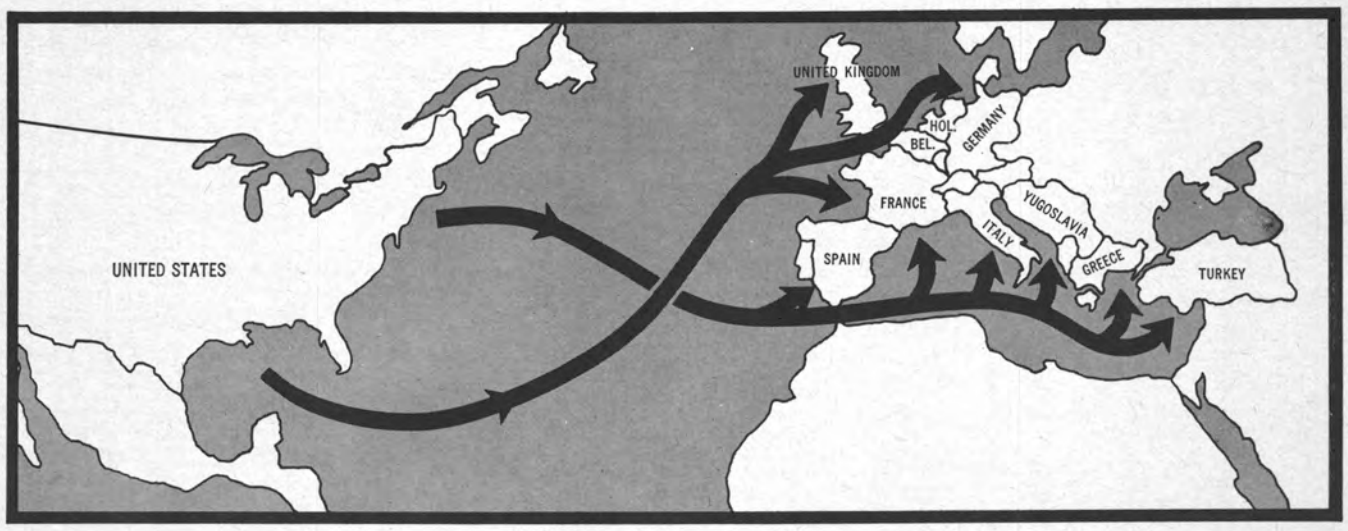
Navigating and communications equipment includes two SSB phones and one FM ship-to-shore radio telephone, one Decca RM-326 radar, one weather receiver, one Loran, and a Henschel 4-station sound-powered telephone system.

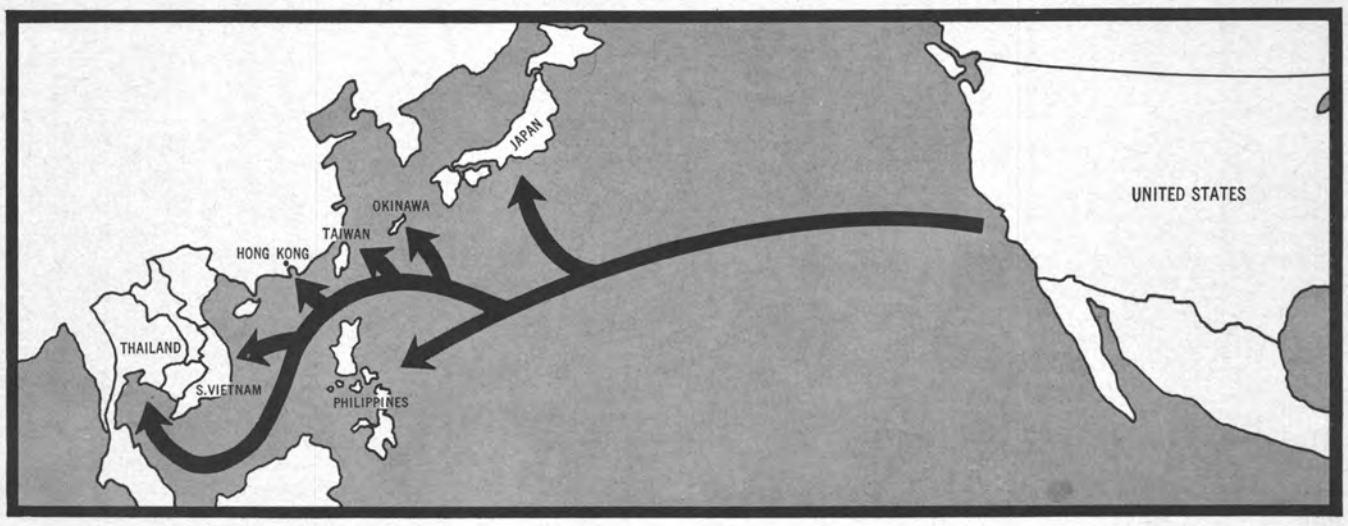
One 10-inch and one 20-inch incandescent searchlight are located atop the pilothouse. Also atop the pilothouse are a Kahlenberg 10-inch D4 air whistle and a fire monitor. Three 150-watt floodlights illuminate work areas on the forward and aft decks.

LASH TRADE ROUTES

3 continents, 18 countries

13 LASH ships now under construction to serve the areas below. LASH service begins this year.





LASH LIGHTER CONSTRUCTION

A total of 1200 LASH lighters are already being built to serve initial LASH trade routes. Photos at left were taken at one lighter assembly line.

The LASH System is the most flexible, most advanced cargo container system in production today. Its ability to transport cargo in lighters (floating containers) or standard over-the-road containers in an unmatched advantage for ship operators. The LASH System provides all trading nations—whether their economies are highly industrialized, agricultural or developing —the same high efficiency of cargo transportation.

LASH SYSTEMS, INC. *SUITE 1414, 225 BARONNE ST., NEW ORLEANS, LOUISIANA, U.S.A.*

Southern Ship Launches Navy Tug Eufaula (YTB 800)

Eufaula splashes into the water as it is side launched at Southern Shipbuilding Corp.

The U.S. Navy tug Eufaula (YTB 800) was launched recently at Southern Shipbuilding Corporation's Slidell, La. shipyard. **Miss Ellen Moorer,** daughter of Adm. **Thomas H. Moorer,** chief of naval operations, sponsored the vessel.

The Eufaula is named after the home town of Admiral **Moorer** and is the second of a four-tug contract underway at Southern Shipbuilding. This class of tugs was designed for the Navy by Southern Shipbuilding and the shipyard has built 11 of the class which are now in service.

Launching party for YTB 800 included, left to right: Rep. **F. E. Hebert** of Louisiana, **Miss Ellen Moorer,** sponsor; Adm. **T. H. Moorer, A. R. Seligman,** and Rep. **George W. Andrews** of Alabama who delivered the launching address.

The Eufaula is 109 feet long, and has a beam of 30 feet 6 inches and a draft of 13 feet 10 inches. It is a seagoing tug with diesel propulsion developing 2,000 hp and has berthing space for 12.

The most significant feature of the tug is its completely automated engine room. According to **Alain R. Seligman,** president of Southern Shipbuilding, this automation allows the Navy the flexibility of operating with an unmanned engine room.

Dubuque To Build Excursion Vessel

Dubuque Boat & Boiler Co., Iowa, was awarded a contract for the construction of a twin-screw diesel excursion vessel by the Kansas City Missouri River Navigation Co., Kansas City, Mo. It will have dimensions of 85 feet by 24 feet by 5 feet. The vessel will be named Border Star.

Ingalls Awards Crandall Design Contract For World's Largest Floating Drydock

Litton Industries has selected Crandell Dry Dock Engineers, Inc. of Cambridge, Mass., to design the world's largest floating drydock. A design contract has been awarded to Crandall by the LAMP Division of Ingalls Shipbuilding, division of Litton Industries, Pascagoula, Miss. for a floating drydock 960 feet long and 212 feet wide.

The dock will be self-docking and will be used to launch new ships which will be transferred from shore to the drydock. It will also be used to drydock ships already afloat which can then be transferred back to shore.

Farrell Lines To Purchase Five Racer-Class Vessels From United States Lines

Agreement has been reached between Farrell Lines Incorporated and United States Lines, Inc., for the purchase by Farrell Lines of five United States Lines Racer-class vessels. This was announced by **James A. Farrell Jr.,** chairman of the board of Farrell Lines, and Dr. **John J. McMullen,** president of United States Lines, Inc. An application for Federal Maritime Administration approval will be filed.

These five ships will be placed into Farrell Lines United States East Coast and Gulf service to Australia and New Zealand, pending delivery of the four C-6's recently contracted for and due to be delivered 1970-1971.

The five ships—American Racer, American Rover, American Ranger, American Reliance, and American Resolute—were constructed in 1964-1965, have a design speed of 21 knots and, in addition to breakbulk and deeptank space, will have a capability of carrying 182 standard 20-foot containers.

The special features of the American Racer-class vessels include flush, strengthened decks for the operation of forklift trucks, refrigerated cargo spaces with flush sills so that fork-lift trucks can operate into them from the hatch squares, triple hatches serving two holds, and air conditioning for all quarters.

These ships are 13,264 deadweight tons and have an overall length of 534 feet. They were originally built for the Australian trade prior to Farrell Lines taking over the trade route in 1965.

Fruit Carriers Institute U.S.-Australia Service

Chester, Blackburn & Roder, Inc., has announced that it has been named general agent for Maritime Fruit Carriers, which will be instituting a new service from the East Coast of the United States to Australia in May. Named to head this new service was **William Higgins,** assisted by **Paul Shinners.**

Maritime Fruit Carriers will initially be operating the 20-knot vessels, Lemoncore and Tangerinecore. After servicing several ports in the United States Atlantic Coast, the vessels will sail from New York directly for Sydney, Australia on a 21-day run, according to the company.

American Marine To Build Oil-Well Supply Boat

American Marine Corp., New Orleans, La., is to build an offshore, oil-well supply boat for Levy Boat Service, Inc., Morgan City, La. The boat, designated Hull No. 1024, will be equipped with 1,700-total-bhp diesels, and will have dimensions of 176 feet by 40 feet by 15 feet.

British Place Another Order For Rolls-Royce Gas Turbines To Power Type-42 Destroyers

The Industrial and Marine Gas Turbine Division of Rolls-Royce at Coventry, has announced that the Ministry of Defense (navy) has placed a production order worth $9.6-million for Rolls-Royce Marine Olympus gas turbines.

This follows the announcement in January of an $8.4-million order for Rolls-Royce Marine Tyne gas turbines.

Both engines will provide power for the Royal Navy's Type-42 destroyers, the first of which was ordered from Vickers Shipbuilding Group recently, and for further new classes.

The Marine Olympus is in full production and has been ordered by five other navies. It has already won over $7.2-million worth of exports.

Ingalls Lays Bow-Stern Keel For 1,000-Foot Ore Carrier

Participating in keel laying were, left to right: **George Geiger,** president of Erie Marine; **W. H. Hansen** of the American Bureau of Shipping; **S. M. Moodie,** manager of Bethlehem Steel's Great Lakes Steamship Division, and **Lloyd Bergeson,** executive vice-president of Ingalls.

Shipway construction has been started at Ingalls Shipbuilding division of Litton Industries, with the laying of the keel, of the bow-stern section of a 1,000-foot ore carrier.

Two Litton shipbuilding divisions—the Ingalls Shipbuilding division of Pascagoula, Miss., and Erie Marine division of Erie, Pa.—are teaming up to produce the giant carrier for Bethlehem Steel Corporation.

Litton's Marine Consultants and Designers of Cleveland, Ohio, designed the vessel which will be capable of transporting 51,500 gross tons of iron ore pellets.

In Pascagoula, Ingalls is constructing the carrier's 182-foot bow-stern section, scheduled for launching in July. When complete, the section will steam under its own power to Erie Marine where it will be assembled to an 818-foot mid-body section to form the 1,000-foot completed vessel.

Advance fabrication work on the mid-body has already started at Erie. The mid-body section will be the first product of Erie Marine's new mechanized ship-assembly plant, a technologically advanced facility built to produce large single-purpose vessels.

The new facility will manufacture large ship cargo sections (modules) on an assembly-line basis. The manufacturing concepts of the Erie facility are similar to those which will be applied in Litton's Shipyard of the Future, a $130-million plant being built in Pascagoula for the production of entire ship systems.

The ore carrier for Bethlehem Steel, scheduled for completion in 1970, will be the largest ship ever built for operations on the Great Lakes.

Containership Enters N.Y.-Bermuda Service

Amerind Shipping Corporation has placed a new, fully containerized ship in regular weekly service between New York and Bermuda.

The MV Gwendolen Isle sailed from New York in February on her maiden voyage to Bermuda. This 240-foot-long container vessel has cellularized space for 86 twenty-foot dry and refrigerated containers. With a design speed of 14 knots, the MV Gwendolen Isle will provide one round trip each week between New York and Hamilton, Bermuda. Loading berth in New York will be at Pier 13, Staten Island. Breakbulk cargo will also be received and containerized at another convenient location.

The Amerind Bermuda service will also continue every Friday sailings with its regular cargo vessels, loading at Pier 2, Port Authority, Brooklyn, pending enlargement of the container-handling facilities in Bermuda which cannot yet handle a complete shipload of containers.

Marinite®-23 can put the Navy at ease.

Firesafe bulkhead panels are easy to handle. Less expensive to install, when standard commercial methods are used.

We think Marinite-23 is a pretty special product. And many naval architects agree.

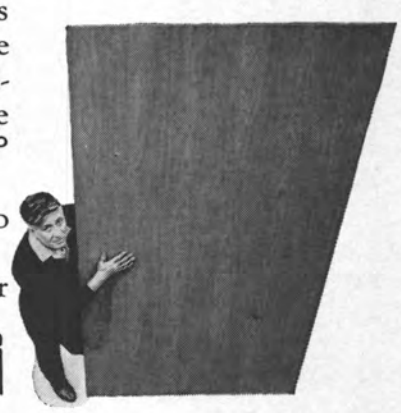
For good reasons.

They've found Marinite-23 ship interiors offer complete fire safety, effective sound control, good looks. And need only minimum maintenance.

Made of asbestos fiber, diatomaceous silica and an inorganic binder, Marinite-23 is the lightest approved B-15 bulkhead panel available. It cuts and handles easily. Can be erected by standard commercial methods. And allows complete design flexibility, depending on decorative finish used—colored marine veneers or melamine plastics.

In case of fire, Marinite-23 really proves its superiority. It contains flame, adding critical extra time for shipboard control.

Marinite-23 meets the strict fire test standards for bulkheads, which specify that the product be capable of preventing flame passage for half an hour. And its insulation value must be such that the original temperature on the unexposed side must not rise more than 250° within 15 minutes.



For painted out areas, use Marinite-36. It also meets these rigid bulkhead requirements.

For more information on Marinite and our other marine products, write Johns-Manville, Box 14, New York, N.Y. 10016. Also available in Canada. Cable: Johnmanvil.

Johns-Manville

A Shaft-Driven Thyristor Generator

Recently, Blohm & Voss AG, Hamburg, Germany, delivered the containerships Elbe Express and Alster Express to the Hamburg-Amerika Line. These 560-foot 4-inch ships are equipped with a fully-automated power generating plant for 16-hour unmanned operation, an innovation for containerships.

Each ship is propelled by a MAN/Blohm & Voss diesel engine, Type K9Z 78 155E with supercharging. These engines develop 15,750 ehp at 122 rpm and provide the ships with a speed of about 20.5 knots.

An outstanding feature on these vessels is the electrical generating plant, which includes a shaft-driven thyristor generator.

This synchronous generator is fitted directly in the line of shafting between the main diesel engine and the propeller. The variable-frequency voltage produced by this generator is converted into the ship's constant-frequency voltage by way of an electronic converter, Figure 1.

The thryristor shaft generator plant, supplied by the Siemens Aktiengesellschaft, consists of the following major components: a shaft generator, Figure 2; a converter cubicle, Figure 3, with the diodes, thyristors, the smoothing reactor, the control gear and a quick-acting electronic de-excitation device; a brushless synchronous condenser with built-in starting motor and flange-mounted generator providing the power supply for the control gear, and an air-cored short-circuit reactor.

The power generating plant is rated to supply the complete service requirements when the ship is at sea. In order to avoid any complications in the operating elements, the thyristor shaft generator plant is fully automated and incorporated in the power generating system. Parallel operation of the thyristor shaft generator plant and the auxiliary diesel generating sets is provided without any difficulty by the automatic control system whenever desired.

In the main engine speed range between 90 and 122 rpm the shaft generator has an output of 650 kw. Between 90 and 50 rpm the plant can operate at an output reduced proportionally to the speed, referred to 90 rpm. This means that the plant can operate at all maneuvering speeds occurring in practice at sea.

Since the shaft generator is fitted in the line of shafting between the main engine and the propeller, the frequency of the voltage generated varies with the speed. The power generated is supplied to a rectifier installed in the converter cubicle. The three-phase bridge-connected rectifier converts the variable-frequency voltage into a d-c voltage. The rectifier output is connected via the smoothing reactor in the intermediate d-c link to the a-c line-commutated inverter. There the d-c voltage is converted into the constant-frequency voltage for the ship's system. The converter cubicle also accommodates an electronic quick-acting de-excitation device for the shaft generator.

The inverter can only supply active power. Like an inductive load (e.g. reactor coil), however, it also requires reactive power demand of the inverter and the ship's system is supplied by the high-speed brushless synchronous condenser. This generator is designed as a voltage-controlled synchronous machine. In the event of system short-circuits, it also ensures selective tripping of the loads, since it supplies the short-circuit current required for positive tripping.

It was this very problem of dealing with system short-circuits that required particular attention in determining the rating of the thyristor shaft generator plant. The following brief description will help to explain the interaction of the different parts of the plant.

As a result of the voltage drop produced in its windings by the short-circuit current, the air-cored short-circuit reactor ensures that an exact predetermined residual voltage is applied to the thyristor shaft generator plant busbar despite the severe voltage drop. This residual voltage is necessary to ensure satisfactory commutation and thus prevent cummutation failure. The electronic quick-acting de-excitation device in the converter cubicle will then become effective in the event of a short-circuit. It is cut into the excitation circuit of the shaft generator instantaneously and 'blows out' the excitation current there in a remarkably short time. This will reduce decisively the supply of power from the shaft generator to the short-circuited section, thereby preventing operation of the fuses of the converter's high-duty diodes and thyristors by excessively high currents in the event of system short-circuits in the vicinity of the main busbar. Continued operation of the plant without delay would otherwise be impossible, even after having cleared the short-circuit.

Fully-automatic operation also provides for unloading of the thyristor shaft generator plant:

1. When the engine telegraph is moved back to give a main engine speed of less than 90 rpm and when the shaft generator speed drops below 90 rpm.
2. When the system frequency drops below 58 Hz.
3. When the shaft generator speed drops below 50 rpm or when the system frequency drops below 54 Hz or rises above 67 Hz.

The plant for the Elbe Express was the seventh thyristor shaft generator plant delivered by the Siemens Aktiengesellschaft in the last two years. Experience has shown that even under severe weather conditions with occasional racing of the propellers the proper functioning of the plants has never been impaired. The frequency and voltage in the system remained largely constant.

During the ship's trials it was shown that both the no-break transfer of the power supply between the automated auxiliary diesel generating sets and the thyristor shaft generator plant, and the operation of the thyristor generator plant, as such, satisfy in every respect the high expectations placed in them.

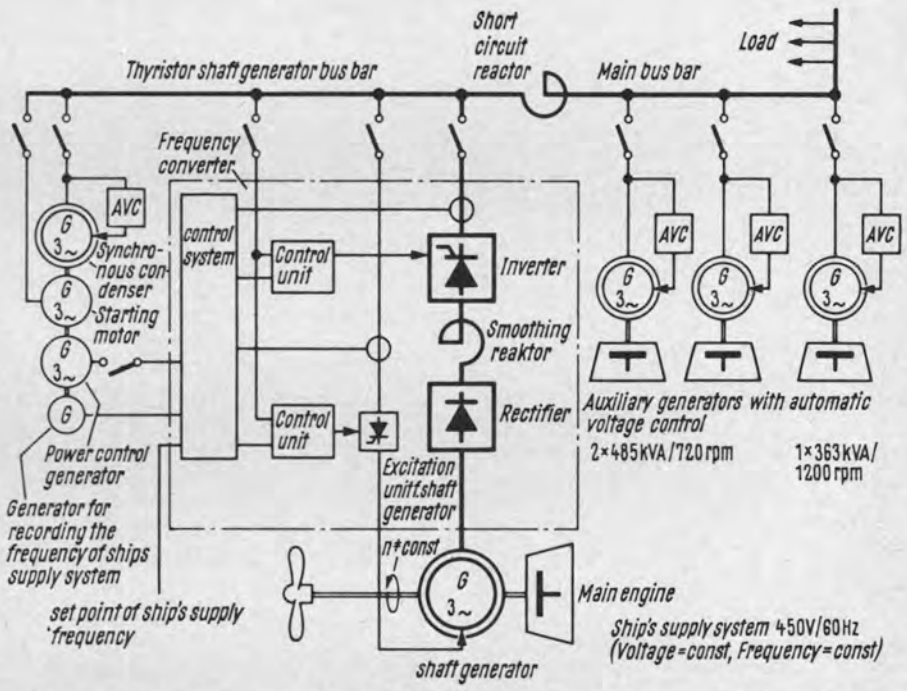


Figure 1—Schematic circuit of 650-kw thyristor shaft generator on containerships.

Figure 2—Synchronous generator fitted in line of shafting.

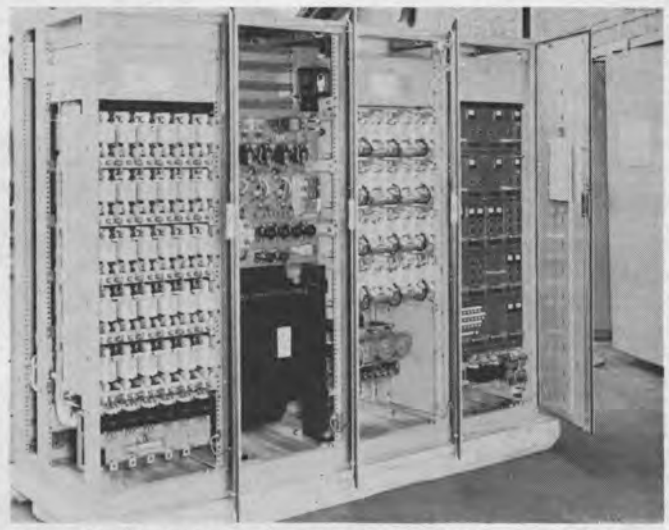


Figure 3—Front of converter cubicle with thyristors and diodes.

Tidewater Announces Personnel Appointments

A series of management and sales personnel appointments have been announced by Tidewater Marine Service, Inc.

Robert C. Milton has been named director, corporate development and new ventures. Mr. **Milton** will have responsibility for corporate supervision of Sandair Corporation, a wholly-owned subsidiary of Tidewater Marine, in addition to his other new duties, said **John P. Laborde,** president.

David L. Antill has been named sales representative for the Houston area and **James W. Hart** has been appointed area manager for the Indonesia area with headquarters in Singapore.

Mr. **Milton** is a native of New Brunswick, Canada. He joined Sandair in 1960 and served as president prior to his new assignment with the parent company. He had been associated with Johns-Manville Corporation and the A. V. Roe Company.

A native of Houston, Texas, Mr. **Antill** was a sales representative with IMC Drilling Mud Company prior to joining Tidewater Marine in January 1969.

Mr. **Hart** has held positions in the petroleum industry in Libya, Canada and Singapore. He will have operational supervision of the company's vessels in the Indonesia area.

Tidewater Marine is a New Orleans-based marine transportation company primarily engaged in servicing the offshore oil industry throughout the free world.

General Dynamics Appoints Quirk And Katzenstein Ship Construction Program Managers

John D. Quirk

Richard L. Katzenstein

John D. Quirk and **Richard L. Katzenstein** have been named ship construction program managers at the Quincy division of General Dynamics.

The appointments were announced by General Manager **Robert V. Laney.**

Mr. **Quirk** will manage an $88-million program in which the Quincy division will build four amphibious assault support ships for the United States Navy.

Mr. **Katzenstein** will manage construction of the $39-million Navy submarine tender USS L. Y. Spear, the first of a new type ship designed to provide logistic and service support for nuclear submarines. The vessel was christened in September 1967, and is scheduled for delivery later this year.

For the past three years, Mr. **Quirk** managed a program in which the ammunition ships USS Kilauea and USS Butte—the first of a new class of supply ships—were built and delivered to the Navy.

He was formerly with the Electric Boat divsion of General Dynamics, Groton, Conn., and Lockheed Shipbuilding and Construction Co., Seattle, Wash. At the Electric Boat division he was in electrical design management before becoming design project engineer and later contracts manager.

Mr. **Quirk** is a graduate of Rensselaer Polytechnic Institute and holds a degree in electrical engineering.

Mr. **Katzenstein** has been assistant to the submarine project manager and has played a key role in the construction of the four nuclear attack submarines built at Quincy since 1964.

Before joining General Dynamics, he was with Bethlehem Steel Co. for 28 years, assigned to management positions at San Francisco, Calif.; Staten Island, N.Y., and Quincy, Mass. shipyards. At the latter, Mr. **Katzenstein** was chief test engineer for construction of the nuclear-powered warships USS Long Beach and USS Bainbridge.

A graduate of the Franklin School, New York City, he earned his M.E. degree at Cornell University.

U.S. Navigation Announces Executive Appointments

United States Navigation Co., Inc., on the occasion of its 50th anniversary, has announced the following executive appointments, effective February 15, 1969: **John W. Oelsner** and **John E. Schmeltzer Jr.** as senior vice-presidents, **O. V. Portocarrero** as senior vice-president-traffic, Capt. **H. M. Lampe** as senior vice-president-operations, **F. J. Barry** and **H. H. Seifert** as vice-presidents-traffic, **E. H. Eckardt** as vice-president-sales, **George W. Losee** as vice-president-Scindia services, **T. M. Jacques** as vice-president-South American and Far East services, and **W. H. Siemers** as assistant to president.

Raytheon's Ray 1275 A/B is an ultra-reliable, super-selective, single sideband radiotelephone with a whale of a reach.

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RAYTHEON

USCG And Private Industry Seek Year-Round Passage For Oil From Arctic Alaska

The U.S. Coast Guard is cooperating with private industry in an effort to open a year-round route for oil out of Arctic Alaska, according to Adm. **Willard J. Smith,** commandant of the Coast Guard.

Admiral **Smith** discussed the various ways that oil could be taken out of Alaska, at a recent luncheon gathering of the Washington, D.C. Chapter of the Navy League. He noted that a pipeline, though possible, would be very costly. There are also engineering difficulties with respect to roads and highways, according to the admiral.

One hope lies in a project scheduled to begin this summer. The 115,000-ton tanker Manhattan is being converted for the project. The conversion consists of adding an icebreaker bow and protecting the propellers and rudder.

The Manhattan, with an assist from the U.S. and Canadian icebreakers, will attempt an east to west transit from the Atlantic to the Arctic coast of Alaska, sometime this summer.

In the meantime, Admiral **Smith** said that the Coast Guard is assisting in model testing and sharing costs with private industry on personnel and data on icebreaker model tests.

At present, according to Admiral **Smith,** the Coast Guard icebreaker Staten Island is on full-scale tests near the Bering Strait off Alaska, to see how far she can penetrate the ice to check the validity of the model test results.

Admiral **Smith** sees one big problem and that is the fact that there are no harbors along the Arctic coast and that for its entire length, the waters along the shore are extremely shallow. Enough water for deep draft ships varies from a mile or so off the shore to 20 miles and more out, according to the admiral.

While dredging a channel and harbor may not be impossible, he noted, building a sheltering breakwater strong enough to withstand the encroachment of the pack ice in winter may be a different matter, especially since there is no source of rock for hundreds of miles.

Aluminum Joiner Bulkheads Described In Revere Brochures

Double-faced extruded aluminum joiner bulkhead systems, principally for shipboard application, are described in a new brochure issued by Revere Copper and Brass Inc. The fully illustrated booklet includes many pictures of installations and specification drawings showing the systems components.

There is also available a test data book which describes the reports and the results of a thorough test program. It can provide the naval architect with pertinent design and engineering data.

For your copies of the book and brochure contact Department "M", Revere Copper and Brass Incorporated, 230 Park Avenue, New York, N.Y. 10017.

LeTourneau To Build Drilling Vessel

R. G. LeTourneau, Inc., Longview, Texas, will build an offshore, oil-well drilling vessel for Petrolia Oilwell Drilling Ltd. of Canada. The vessel, equipped with 5,000-total-bhp diesel-electric machinery, will be of about 5,000 gt.

G.E. To Supply And Test Gas Turbines On Ships

General Electric Co., Washington, D.C., has received a $1,250,000 negotiated letter contract from the Navy for two gas turbine engines and their installation and test aboard ship. The Naval Ship Systems Command issued the contract.

CHAMPAGNE WALLOP—Towboat CITation is christened by **Mrs. Charles F. Hodgins,** wife of the head of the New Orleans division of C.I.T. Leasing Corporation, as President **Jack Guidry** (right) and Vice-President **Lawrence Mazerac,** both of Main Iron Works of Houma, La., admire her champagne punch. Craft is named in honor of C.I.T.'s role in its funding: the leasing institution purchased the towboat from Main Iron Works and is leasing the craft, plus two barges, to Slade, Inc., of Orange, Texas, for transporting oil along the Gulf of Mexico intra-coastal waterway and Mississippi River.

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Kidde & Co. Acquires Container Manufacturer

The acquisition of the Theurer Group companies by Walter Kidde & Company, Inc., was announced by **Fred R. Sullivan,** chairman of Kidde, and **John Theurer Jr.,** president of the Theurer Group. The purchase was for an undisclosed amount of Kidde common stock.

The Theurer Group manufactures marine cargo containers and container chassis, commercial trailers and truck bodies, airport ground-support equipment, piggyback trailers for railroad service, drop-frame warehouse van trailers, and related products. The company, based in Newark, N.J., also has manufacturing facilities in Manhattan and Queens, N.Y., and Lansdale, Pa.

Sales in 1968 exceeded $10-million, and the company currently has a production order backlog of more than $14-million. Over the past seven years, according to Theurer, sales and profits have increased at an average annual rate of more than 65 percent.

Kidde, headquartered in Belleville, N.J., is engaged in manufacturing and services in the fields of safety, security and protection, industrial and technological products, commercial and consumer goods, and transportation systems. Kidde operates more than 100 plants and other facilities in 24 states and six foreign countries.

Gunderson To Build Four Carfloats

Gunderson Bros. Engineering Corp., Portland, Ore., is to build four railroad freight carfloats for Crowley Launch & Tugboat Co., San Francisco, Calif. Each float will have dimensions of 300 feet by 56 feet by 18 feet and will have a capacity for about 28 cars.

Alabama Ship Elects N.D. Knight Director

Directors of Alabama Dry Dock and Shipbuilding Company have elected **Newland DeP. Knight,** administrative vice-president and secretary of ADDSCO, as a member of the corporation's board of directors.

J. R. Maumenee, president of ADDSCO, in announcing the new director, said Mr. **Knight** fills a vacancy created last November by the death of **David R. Dunlap,** who was chairman of the board of ADDSCO.

A native of Indiana and an alumnus of Purdue University, Mr. **Knight** was first employed by ADDSCO in 1941. He became an assistant plant engineer in 1943 and served as maintenance superintendent from 1949 until 1952, at which time he was also named plant engineer. He was elected assistant vice-president in 1958, and named assistant vice-president and secretary in 1964. He was elevated to administrative vice-president and secretary in December 1967.

He is a director of the Mobile Chapter, American Red Cross, a member of The Society of Naval Architects and Marine Engineers, American Society of Mechanical Engineers, the Propeller Club of Mobile, and the Port Development Committee of the Mobile Area Chamber of Commerce.

Newport News Awarded Multi-Million Contract

Newport News Shipbuilding and Dry Dock Co., Newport News, Va., will convert two oil tankers, the Transchamplain and Transoneida, into full containerships. These tankers are war-built T-2's and are equipped with 10,000-shp turbo-electric propelling machinery. The multi-million-dollar contract was awarded to Newport News by Hudson Waterways Corp., New York.

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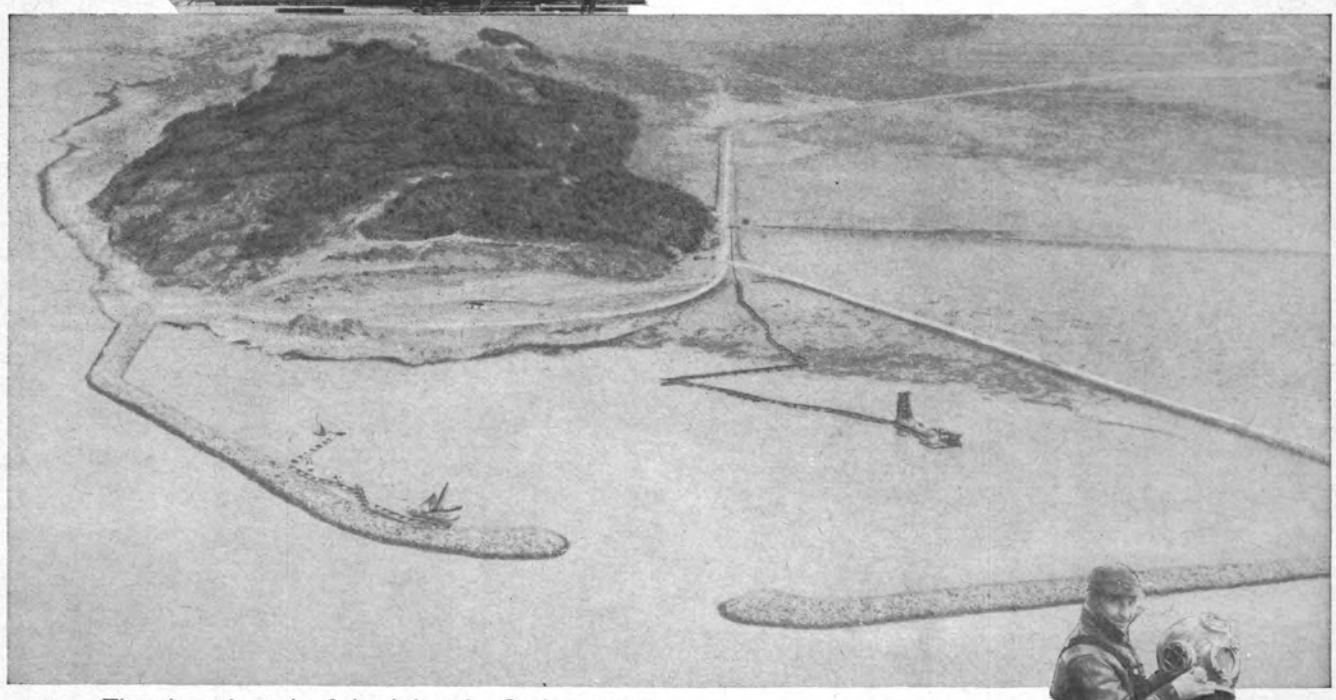
The General Tremblay, one of the world's most powerful dredging units. Built by Marine Industries and featuring the most advanced design, it is one of several dredges in the internationally known dredging fleet operated by Marine Industries. The exploits of Marine Industries dredging teams are known to shipping men everywhere.



The gigantic task of dredging the St. Lawrence River and providing part of the fill for Expo 67 was entrusted to Marine Industries. In the above photograph the company's dredges are digging an all-season deep-water harbor at Cacouna, near Rivière-du-Loup, about 130 miles downstream from Quebec City.

M.I.L.'s dredging crews include *full-time* deepsea divers of long experience. Marine Industries delivers on time.

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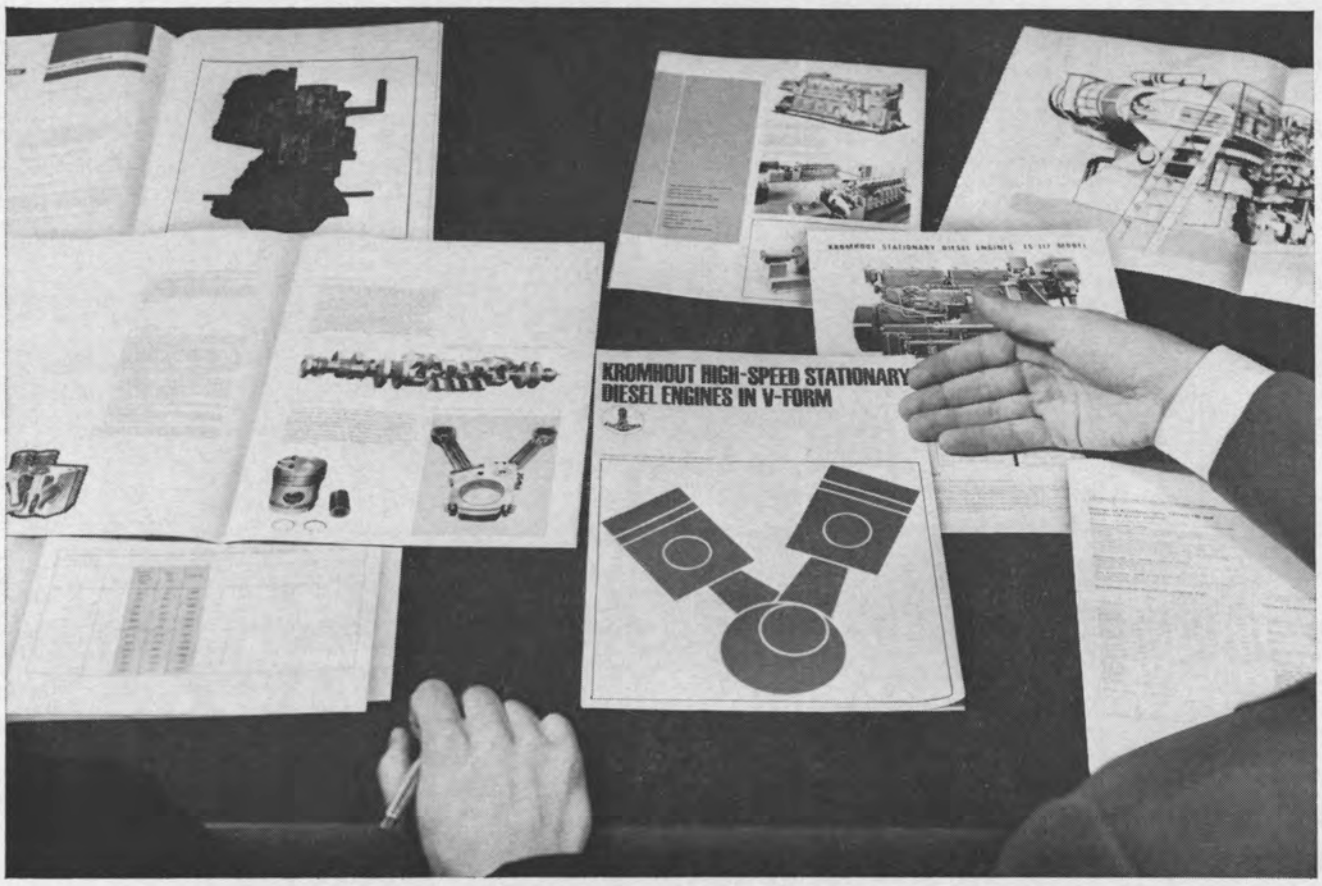

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For MEXICO: Division de Motores Stork-Werkspoor de Mexico S.A., Calle Queretaro 225-B, Mexico 7, D.F., Cables: Femenias, Tel.: 253423

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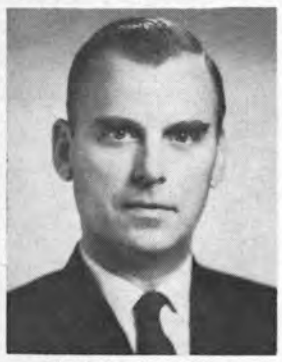
President Nominates Andrew E. Gibson Maritime Administrator



Andrew E. Gibson

Andrew E. Gibson has been nominated by President **Nixon** to be Maritime Administrator. In making this nomination, President **Nixon** has broken with tradition by appointing an administrator who is thoroughly familiar with the merchant marine, based on education and experience.

Mr. **Gibson** was graduated from the Massachussetts Maritime Academy in 1942. Following graduation, he joined the United States Lines as a junior officer. In 1945 he became the youngest captain in the history of U.S. Lines and was given command of the Liberty-ship Leonidas.

Following the war, Mr. **Gibson** worked for the Firestone Tire and Rubber Company and continued his education by earning an economics degree from Brown University. In 1950 he was called by the Navy to active service. He served as budget controller for the Military Sea Transportation Service in Brooklyn.

In 1953 Mr. **Gibson** joined Grace Lines. He served Grace in turn as assistant treasurer, cargo manager, terminals manager, assistant vice-president for cargo and terminal operations and finally as senior vice-president in charge of operations. In 1967, he left Grace Lines to take his present position as vice-president of the Diebold Group in New York, a management consultant frm.

MarAd Requests Plans For Ship Construction From U.S. Operators

The Maritime Administration has solicited from U.S.-flag operators future ship construction plans. The replies are to cover programs through the middle of 1974.

This has been done twice before—the last time being a year ago—without noticeable effect on the volume of available construction subsidy or how it might be distributed.

MarAd wants operators to submit a detailed description of the transportation service they intend to offer with the new ships, including plans for the land-ocean interchange of freight, the routes to be served, expected traffic and economic premise for the service, projections of revenues, manning scales, wage costs, and financing, estimate of the amount of construction subsidy and mortgage insurance to be needed, and the number of ships to be built and the number and type to be replaced.

Final responses are due by April 15. MarAd explained that the agency expects to "place major reliance on the responses . . . in its program planning during the coming five years . . ."

Last year 35 companies responded. Their plans called for construction of as many as 220 ships. Of these, 35 to 40 would be bulk carriers, 25 would be tankers and the remainder liner-types of advanced design.

Detsco Acquires Debardeleben Marine—Forms New Subsidiary

Detsco, Inc. of Houston, Texas, has completed the acquisition of Debardeleben Marine Corp. of Tampa, Fla., and has formed a new subsidiary, Marine Engineering Systems, Inc., it was announced by **Vernon Shaw,** chairman of the board of Detsco.

According to Mr. **Shaw,** Debardeleben's terminals in Tampa will now be called Detsco Terminals, Inc. and will be operated as a wholly owned subsidiary.

Marine Engineering Systems, a Houston-based firm, will provide a wide range of services including naval architecture, marine and ocean engineering, Mr. **Shaw** said. As a result of the acquisition, Detsco will become a publicly traded company in the over-the-counter market.

Ingalls Division Names Harry Crapon Director Of Facilities

Harry Crapon

Harry Crapon has been named director of facilities for the East Bank facility of Ingalls Shipbuilding division of Litton Industries, it was announced by Ingall's executive vice-president **Lloyd Bergeson.**

Mr. **Crapon** has 32 years of engineering experience in the fields of shipbuilding and industrial design and construction. He joins Ingalls after 15 years with Standard Oil Company of California. Mr. **Crapon's** latest assignment with Standard was at the Company's new refinery in Pascagoula where he assisted in the supervision of the original construction of the facility, and recent additions to the plant.

A graduate of Massachusetts Institute of Technology with a B.S. degree in marine engineering, Mr. **Crapon** was associated with a New York engineering firm as a construction manager before becoming affiliated with Standard. During World War II, he was assistant chief of design at the Walsh-Kaiser Shipyard in Providence, R.I.

A licensed professional engineer in Mississippi, Mr. **Crapon** is a member of the Marine Technology Society.

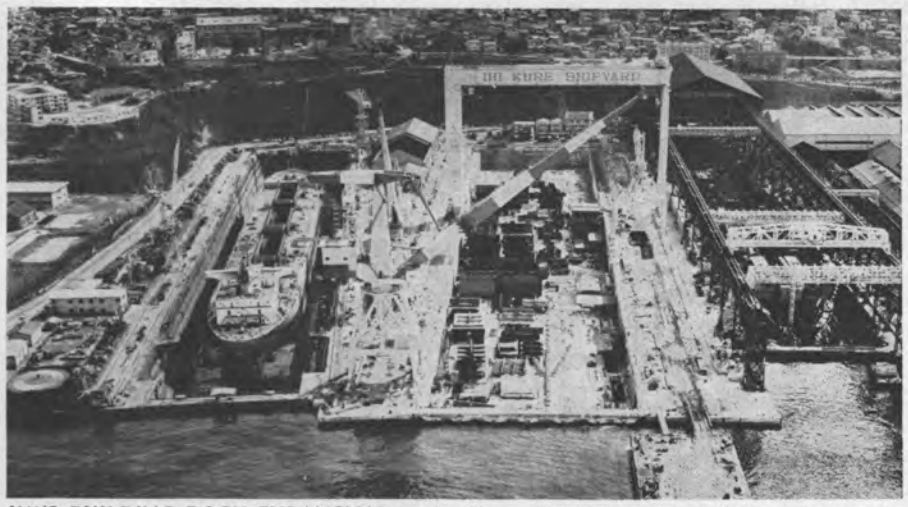
Morabito Promoted To General Manager Of Eureka Marine Co.

Carl S. Morabito Jr., has been promoted to general manager of the Eureka Marine Company. The announcement was made by **Edward G. Zelinsky,** president of the marine ship service firm, headquartered in Oakland, Calif.

Mr. **Morabito,** a four-year employee with Eureka Marine, previously was general sales manager.

According to Mr. **Zelinsky,** "The promotion of **Carl Morabito** was made both in recognition of the excellent contribution he has made to our organization and the need we have for aggressive leadership."

Eureka Marine Company serves the entire West Coast shipping industry, specializing in the sandblasting and coating of ships while performing other marine work. The company has recently received commendation for development of new methods of dispersing oil slicks.



IHI'S BUILDING DOCK EXPANSION at the Kure shipyard is over half completed with the No. 2 dock increased in size sufficient to handle 250,000-dwt tankers. The keel for a 220,000-dwt tanker already has been laid in this dock. The second phase of expanding this dock so that 400,000-dwt ships can be built is proceeding while the ship is being constructed in the completed portion. The largest tanker on order in the world, the 370,000-dwt vessel for Tokyo Tanker Company, will be built in this dock. The Goliath and jib cranes, shown in the picture, can each lift 200 tons.

Sioux City Barge Lines Names Cordaro Operations Manager

E. Thomas Drennan, president, Sioux City and New Orleans Barge Lines, Inc., has announced the new appointment of **Joseph R. Cordaro** as operations manager.

Prior to his association with Sioux City, Mr. **Cordaro** had 22 years' experience in the various echelons of river industry. For the past two years he was director of sales and manager of public relations and advertising for Rose Barge Line, Inc.

Mr. **Cordaro** received his associate of science degree in commerce and bachelor of science in commerce degree from St. Louis University (evening division). He also received his master of business administration degree from the University of Louisville (evening division).

Mr. **Cordaro** is an active participant in The Propeller Club, St. Louis Milling and Grain Club and St. Louis Coal Sales Club.

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and still wearing
her birthday suit

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You may not own a 74,000 ton "Baby", but if you want long-lasting protection against corrosion, wear and weather for structural steel, chemical plants, tanks, tank trucks, marine installations, get the 'Alloprene' story!

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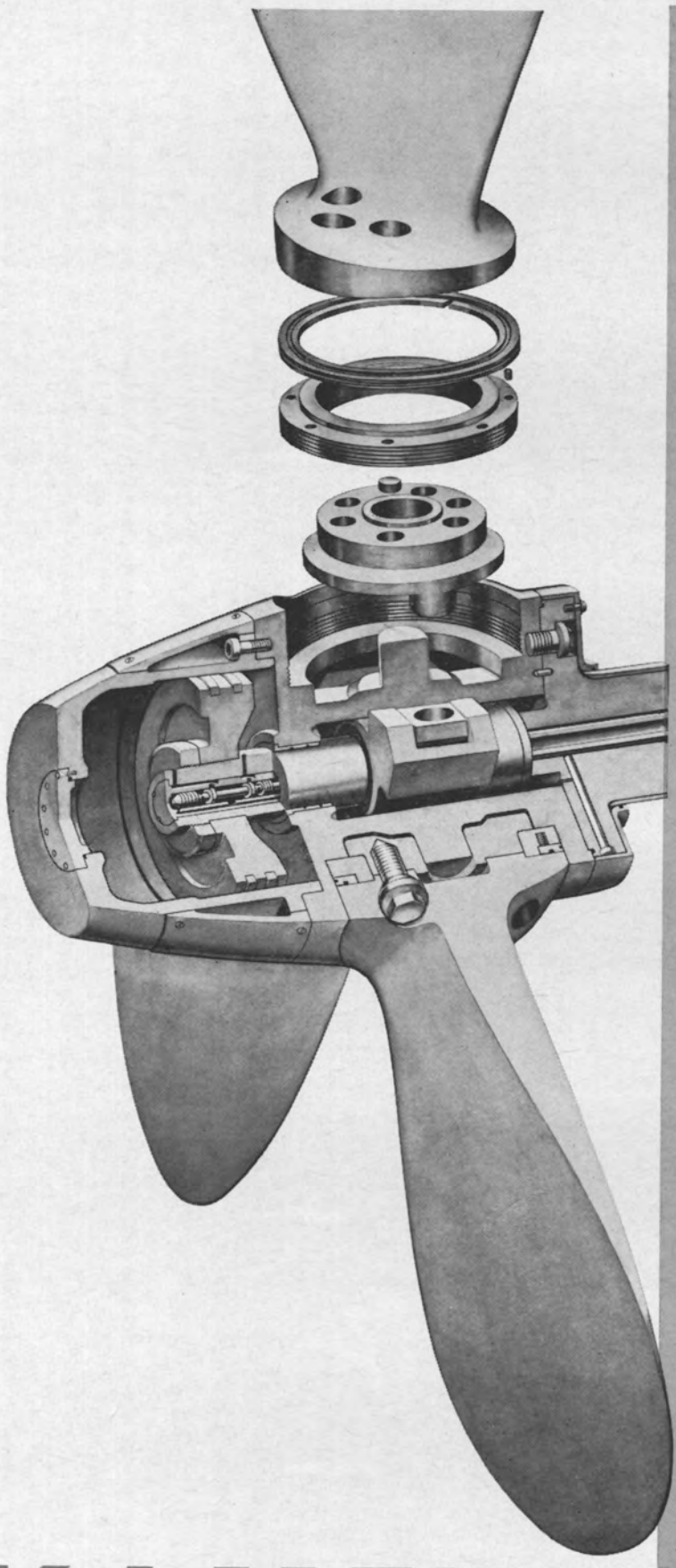

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MVA Celebrates 50 Years Of Growth— Grant Barcus Of Kansas Elected President

The recent 50th Anniversary meeting of the Mississippi Valley Association held in Washington, D.C., was an outstanding success, with some 1,800 delegates attending. The delegates, from 42 states, represented all facets of commerce, industry and agriculture.

Grant Barcus

Grant Barcus, a Kansas City, Kan. heavy construction firm owner, was elected MVA president for the coming year. He succeeds **Tom Adams,** Florida's secretary of state, who became chairman of the board.

Tom Adams

Newly elected members of the Mississippi Valley Association's executive committee were **Henry Zac Carter,** New Orleans, La.; **James R. Smith,** Omaha, Neb., and **T. M. (Mark) Simmons,** Belzoni, Miss.

Re-elected for a new term on the executive committee were: **Alex Chamberlain,** Louisville, Ky.; **F. A. Mechling,** Joliet, Ill.; **Henry B. Miller,** Dubuque, Iowa; **Robert Nabholz,** Conway, Ark.; **E. C. Rippie,** Minneapolis, Minn., and **Joseph L. Quinn Jr.,** Terre Haute, Ind.

James R. Ayers Jr., president of Ayers Materials Co., Inc., of Harvey, La., and the Association's 1967 president, was elected to the advisory board. The advisory board, consisting of the Association's five past presidents, now includes **Glade R. Kirkpatrick,** of Tulsa, Okla.; **Charles J. LaMothe,** St. Louis,Mo.; **John C. Kelly,** Sioux City, Iowa; **Arnold Sobel,** Chicago, Ill., and Mr. **Ayers.**

There was, in addition to the regular business conducted, a suggestion to change the name of the half-century old Association. The proposal springs from the fact that the organization was originally founded in New Orleans, in 1919, and was initially intended solely to promote water transportation on the lower portion of the Mississippi River. Today, however, the Mississippi Valley Association includes a membership scattered throughout 38 states, and more importantly, its programs now encompass virtually every aspect of sound water and soil resource development within the United States.

Another important and popular aspect of the annually-held MVA meeting was, as it has been in the past years, the Waterways Exposition, the nation's largest and most complete display of waterways- oriented material and equipment. This year's exposition boasted mockups, scale-models and various presentations representing a widely assorted array of manufacturers and dealers in transportation equipment.

The group's 1969 convention featured addresses by Sen. **Karl E. Mundt,** (South Dakota); Sen. **Thomas F. Eagleton,** (Missouri); **George M. Stafford,** vice-chairman, Interstate Commerce Commission; Adm. **Willard J. Smith,** commandant of the U.S. Coast Guard; Gen. **William F. Cassidy,** chief, Corps of Engineers, U.S. Army; **Henry P. Caulfield Jr.,** executive director, Water Resources Council, and outgoing Association president, **Tom Adams.**

Mr. **Adams,** in the president's report, reviewed the changes and developments that have occurred within the Mississippi Valley Association during the past year. He noted that the Association "stands bigger, stronger and more diversified than ever before in our history."

He continued, "I wish I could report to you that our labors, and those of others, had been as successful with the Federal establishment as our organizational efforts have been.

"Expenditures for the war in Vietnam and for unproven economic and social programs continue to increase and water resource development continues to suffer. The appropriations which Congress has made continue to be simply figures on paper and the actual expenditure remains considerably lower than the appropriated figure."

Mr. **Adams** then commented that the Corps of Engineers was forced to stop letting virtually all new construction contracts late last year and the freeze continues. He stated that the outgoing Administration greatly increased the interest discount rate used in computing the benefits of water resource projects and scores of worthwhile projects have been dealt a severe body blow.

Of the discount rate, Mr. **Adams** said that the change "greatly reduced the cost side of the benefit to cost equation, but that the federal bureaucracy has steadfastly refused to recognize any of the obvious secondary and regional benefits of water resource projects. These are still not being considered in most instances. Thus the benefit side of the equation has been reduced and many projects which normally would have been presented to Congress for authorization this year are being sent back for further study. With new roadblocks constantly being created by the bureaucracy in the Bureau of the Budget and in the Office of the Secretary of the Army, many projects are slowly being reviewed to death while floods and droughts continue."

He then proposed that the Mississippi Valley Association "take the lead in urging presidential attention be given to the development of better and more realistic methods for identifying and measuring cost benefits in waterway construction—both in primary and secondary benefits."

He then told his audience that all of these kinds of problems did not rest in the nation's capital and that legislatures in practically all of the nation had sessions in 1969 and that "detrimental legislation has already been introduced in several states."

Mr. **Stafford** began his address by saying that "it has long been the desire of the Commission to encourage voluntary coordination of service, which in my opinion, is a better method when it can be achieved."

"My philosophy", he continued, "is to provide only such regulation in the public interest as is required to meet the specific demand presented.

"Those whose primary interest is transportation seldom realize the breadth of the water resource development programs which now include, besides navigation and flood control, bank stabilization so necessary to keep river bottom farms in one place from crop to crop, stream flow maintenance to combat pollution, irrigation, power, and now assuming a greater role, recreation," he said.

"The availability of water transportation does much to secure heavy industry and produce a flourishing agriculture," he pointed out. "But it cannot and does not accomplish this by itself. There must be railroads, pipelines, trucks and air lines. It is the interaction of these different modes which creates the willingness of industry to invest and the atmosphere for agriculture to prosper."

"In my view," Mr. **Stafford** continued, "the Commission has an obligation to foster a climate in which vigorous competition can flourish. To the extent that competition is healthy and effective in producing efficient service and reasonable rates, the job of regulation can be minimized. The chief problem is never whether a particular carrier gains or loses traffic, but whether an equally or more efficient means of transportation has a fair opportunity to compete for it. This is one of the basic reasons the Interstate Commerce Act was enacted. Despite the limitations which are necessary in any regulated industry, the basic public policy of encouraging competition as a means of promoting the public interest is nevertheless applicable to transportation as other areas of the economy."

He concluded by noting that "neither government nor individual members of society can answer the challenge of the public interest alone. But working together, government and industry can make good to the people the bright promise of the most efficient and inventive transportation system the world has ever known."

Maryland Shipbuilding Names Seitz Manager Engineering Department

Richard G. Seitz

Richard G. Seitz has been promoted to manager Engineering Department at Maryland Shipbuilding & Drydock Company, according to an announcement by **Arnold P. McIlwain,** president of the company. Maryland's Engineering Department is self-contained and capable of all phases of engineering and design work required for ship construction, conversion and repair.

Mr. **Seitz** is a graduate of the University of Michigan, with degrees in naval architecture and marine engineering. He joined the company in 1946; since that time he has had responsibility in all phases of the Engineering Department. Some of the past projects include engineering and design work on the oceanographic vessel Atlantis II, a ballistic missile tracking ship, American Mariner, USNS Point Barrow, T-2 jumbo concept, and various containership construction and conversion projects.

He is a member of the American Society of Naval Engineers, American Welding Society and The Society of Naval Architects and Marine Engineers. He has been active in the Chesapeake Section of SNAME since 1960, serving on various committees including membership and meetings, and was formerly vice-chairman of the Section.

Admiral James Retained By Bell On SES Project

Rear Adm. **Ralph K. James,** USN (ret.), has been retained as a consultant on air cushion vehicles by Textron's Bell Aerosystems Company.

Admiral **James** was formerly executive director of the Committee of American Steamship Lines and recently opened his own office as a marine consultant.

Tacoma Boat Names Fonda Chief Engineer Northern Line Machine

Leonard Fonda Jr., chief engineer for the Tacoma Boatbuilding Co. Inc., Tacoma, Wash., for the last several years, has been named chief engineer in charge of Northern Line Machine and Engineering Co., it was announced by **Arnold J. Strom,** Tacoma Boat president.

Northern Line is a division of the boatbuilding concern.

At the same time, Mr. **Strom** revealed that **Don Matheny** has been employed as sales manager for Northern Line, builder of specialty machinery including heavy deck equipment for fishing and research vessels. Mr. **Matheny** comes to Northern Line from the sales department of the Western Gear Corp.

Mr. **Fonda's** appointment fills a vacancy created by the resignation of **Claus Hackenberger,** former general manager of Northern Line.

World-Wide Orders 212,000-Dwt Tanker From Sasebo Industries

A contract for the construction of a 212,000-dwt tanker was signed recently in Tokyo, by **Y. K. Pao,** governing director of the **Hong** Kong-based World-Wide (Shipping) Ltd. and the Japanese shipbuilding firm of Sasebo Heavy Industries. Report of the transaction was announced by World-Wide Marine Inc., Mr. **Pao's** New York affiliate.

The huge ship—nearly 1,100 feet in length, with a draft of some 63 feet—is the latest in a series of new vessel buildings that is making Mr. **Pao's** fleet one of the largest in the world. The report noted that this vessel is the fourth placed this year, and it brings to 23 the number of new ships ordered by the World-Wide firm for global cargo operations. Slated for delivery in about three years, the tanker will have full automation for unmanned engine room operations. The ship will be built under supervision of Lloyds Register of Shipping.

European Banks Form Joint Firm To Handle Shipowners Financing

Norwegian, Dutch and British banks, some of which have played top roles in arranging shipping finance for more than 50 years, are to strengthen their joint international financing activity by forming a new joint company in Amsterdam. Called Ship Mortgage International (Norway) N.V. it is being formed by Den Norske Creditbank, Christiania Bank, o.g., Kreditkasse, Hambros Bank of London, Norsk Skibs Hypothek Bank A/S and Nederlandse Oversee Bank N.V.

The offices of the venture will be in Amsterdam.

Hambros Bank said that one of the motives for setting up the company was the further development of the shipping note plan introduced some years ago. Under the plan negotiable notes, issued by shipowners, have been sold to banks and other financial institutions in Europe.

Hambros will hold a large minority interest in the new company and the other major shareholder is Den Norske Creditbank.

Smaller participations will be held by Christiania Bank, o.g., Kreditkasse, Norks Skibs Hypothek Bank A/S and Nederlandse Oversee Bank N.V. Chairman will be **Charles Hambro.**

Hambros said negotiations are far advanced for setting up a similar company with Swedish interest and with a leading Swedish commercial bank as one of the two major shareholders. Its headquarters would also be in Amsterdam.

Sparrell Retires After 44 Years With Bethlehem

Lester S. Sparrell

Lester S. Sparrell, manager of ship repair sales for Bethlehem Steel Corporation, and widely known in maritime circles for his activities in behalf of the industry, retired at the end of February after almost 44 years of service with Bethlehem.

Mr. **Sparrell's** retirement was announced by **Daniel D. Strohmeier,** vice-president of shipbuilding for Bethlehem.

Mr. **Strohmeier** noted that Mr. **Sparrell** had played an important role in coordinating Bethlehem's ship repair activities during World War II and in the postwar readjustment period. He said the present excellence of Bethlehem's ship repair yards, which he described as the most modern and complete in the nation, was a tribute to Mr. **Sparrell's** foresight.

A native of Worcester, Mass., and a 1925 graduate of Norwich University with a degree in civil engineering, Mr. **Sparrell** joined the Bethlehem organization in June 1925 as a member of its Loop Course management training program for college graduates.

He was transferred to the shipbuilding department in 1930 and to ship sales in New York in 1937. He was named assistant manager of sales in 1938, and manager of ship repair sales in 1948.

This 299' 9" self-powered barge, equipped with two F-7 450 h.p. Harbormasters, finds new maneuverability in handling big payloads in busy harbor, river, canal and lake operations.

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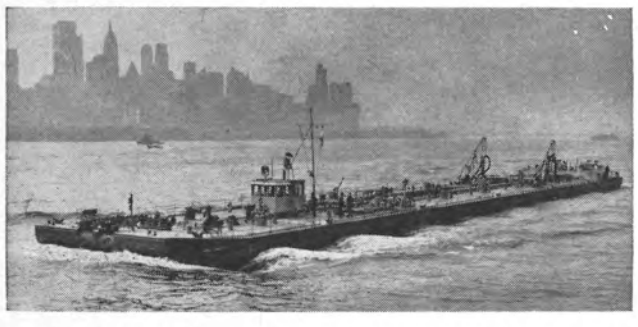

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The Design Of Container Lashings

J. E. Fathauer and D. R. Whiteman*

In operation today are some 85,000 demountable van containers ranging in size from 20 feet to 40 feet. Besides the differences in length, there are four major but different hardware systems used in handling and securing these containers.

This paper will not attempt to become involved in the difficulties of handling and securing containers of different lengths and systems, but rather describes the conditions that must be considered in lashing containers on deck.

In all too many cases, when a container operation is initiated by a steamship company, the problem of deck lashing is minimized or completely overlooked.

To reduce damage and improve the overall efficiency of container operations in which as high as 40 percent of the containers are deck stowed, it becomes essential for the naval architect to design a lashing system that meets the following criteria:

1. Has the ability to safely withstand the loads necessary for proper restraint of the containers.
2. Is easy and fast to apply and remove.
3. Has the lowest possible maintenance cost.
4. Has a minimum initial cost.

A review of existing information and experience that is available to the designer shows some of the problems that must be considered.

Basic reference material and design requirements include the United States of America Standards Institute (USASI) Standard MH5.1-1965 entitled "Specifications for Cargo Containers," The International Organization for Standardization (ISO) Draft Recommendation No. 1496 entitled "Specifications and Testing of Series 1 Freight Containers" and two papers published by The Society of Naval Architects and Marine Engineers.

The USASI Standard MH5.1-1965 first defines the size, strength and maximum weights of a cargo envelope, and secondly, the size and strength of corner fittings that must be utilized to secure this envelope to a ship's deck. Finally, the specification defines the forces imposed on this cargo envelope by ship operation.

Briefly reviewing this standard, which relates only to containers designated as USASI Standard Containers having nominal lengths of 10, 20, 30 and 40 feet; a height of 8 feet; and a width of 8 feet, it states that:

"Container construction shall have sufficient strength to withstand without permanent deformation of static and dynamic loads imposed by top corner pickup, stacking and the impact and shock stresses encountered in normal carrier service."

The standard designates maximum gross weights for each length of container and design loading specifications for the floor, front and rear panels, side walls, roof and corner structure.

In its present form, the standard is ambiguous with respect to racking forces in that no design or test loads are specified. Accordingly, it must be assumed that containers now in service are basically free standing bodies only, and have a minimum resistance to racking forces.

The International Organization for Standardization has proposed that each container regardless of size, be capable of withstanding without any permanent deformation a racking force of 28,000 pounds at each corner.

*Mr. **Fathauer,** general manager, and Mr. **Whiteman,** industrial product manager, RPC Division, Midland-Ross Corporation, presented the paper condensed here before a recent meeting of the Northern California Section of The Society of Naval Architects and Marine Engineers.

The American Bureau of Shipping (ABS) has specified in its new "Guide for the Certification of Dry Cargo Containers," a design load for racking that is based on both the laterally unrestrained superimposed load and the maximum gross weight of the container. Values are based on containers 3 high—with the top container empty.

Design racking loads on each end are:
20-foot container = 22,400 pounds.
30-foot container = 28,000 pounds.
40-foot container = 33,600 pounds.

A recent survey by one steamship owner indicated that for containers currently being manufactured, the racking strength per end averages 10,000 to 20,000 pounds for 20-foot containers, and 24,000 pounds for 40-foot containers.

A special sub-committee appointed by the USASI MH5 Committee on Container Standards has contacted the majority of container manufacturers and determined that it would cost between $4 and $10 per container to increase this racking strength to 35,000 pounds. Accordingly, this subcommittee will recommend that a 35,000-pound minimum racking resistance per end be included in the USASI specification.

The USASI standard and its corresponding Draft ISO Recommendation No. 1019, spell out in detail the design of both the top and bottom corner fittings used in lifting, moving and securing or restraining the container, Figures 1 and 2. It also specifies the design loads the corner fittings will be subjected to under these various conditions. All designs of lashing appurtenances must be made to mate with these corner fittings.

Again, the USASI Standard is ambiguous with respect to lashing loads, but the Draft ISO Recommendation specifies the following:

"Deck lashings should be designed that forces imparted (for test purposes) at front and side holes of both top and bottom corner fittings do not exceed 30 long tons vertically and 15 long tons horizontally, both forces being in a plane parallel to the face of the corner fitting to which attachment is made and the said plane should not be more than 1½ inches from the outer face of the corner fitting.

Material for the corner fittings is not specified in either standard, but the great majority of corner fittings produced in this country are cast steel conforming to ASTM A-27, Grade 70-36, which has a minimum yield strength of 36,000 psi.

The USASI Standard also specifies the following basis for design loading:

"Ship's rolling is assumed to be isochronous, simple harmonic-type motion. The time period for one complete roll is assumed to be a minimum of 13 seconds.

"The maximum angle of roll from the ship's upright condition is assumed to be 30 degrees.

"The maximum height of the center of gravity of a container above the ship's center of roll is assumed to be 45 feet."

These conditions appear to be somewhat conservative for the north Atlantic service where snap roll of 45 degrees has been recorded.

Depending on the ship's stability and the container loading pattern, containers may be stacked from one to four high on deck.

The forces acting on a deck stowed container are:

1. A vertical force due to the weight of the container and its cargo that is always perpendicular to the surface of the water, but under roll conditions, has a horizontal component that varies directly with the angle of roll.
2. A tangential force due to roll that varies with the angle and period of roll and the relation of the container to the roll axis.
3. A vertical force due to pitch that varies with the angle and period of pitch and the relation of the container to the pitch angle.
4. A vertical force due to heaving that varies with amplitude, but is uniform regardless of position of the container.
5. A horizontal force due to wind loads.

All vertical components of these forces are

(Continued on page 29)

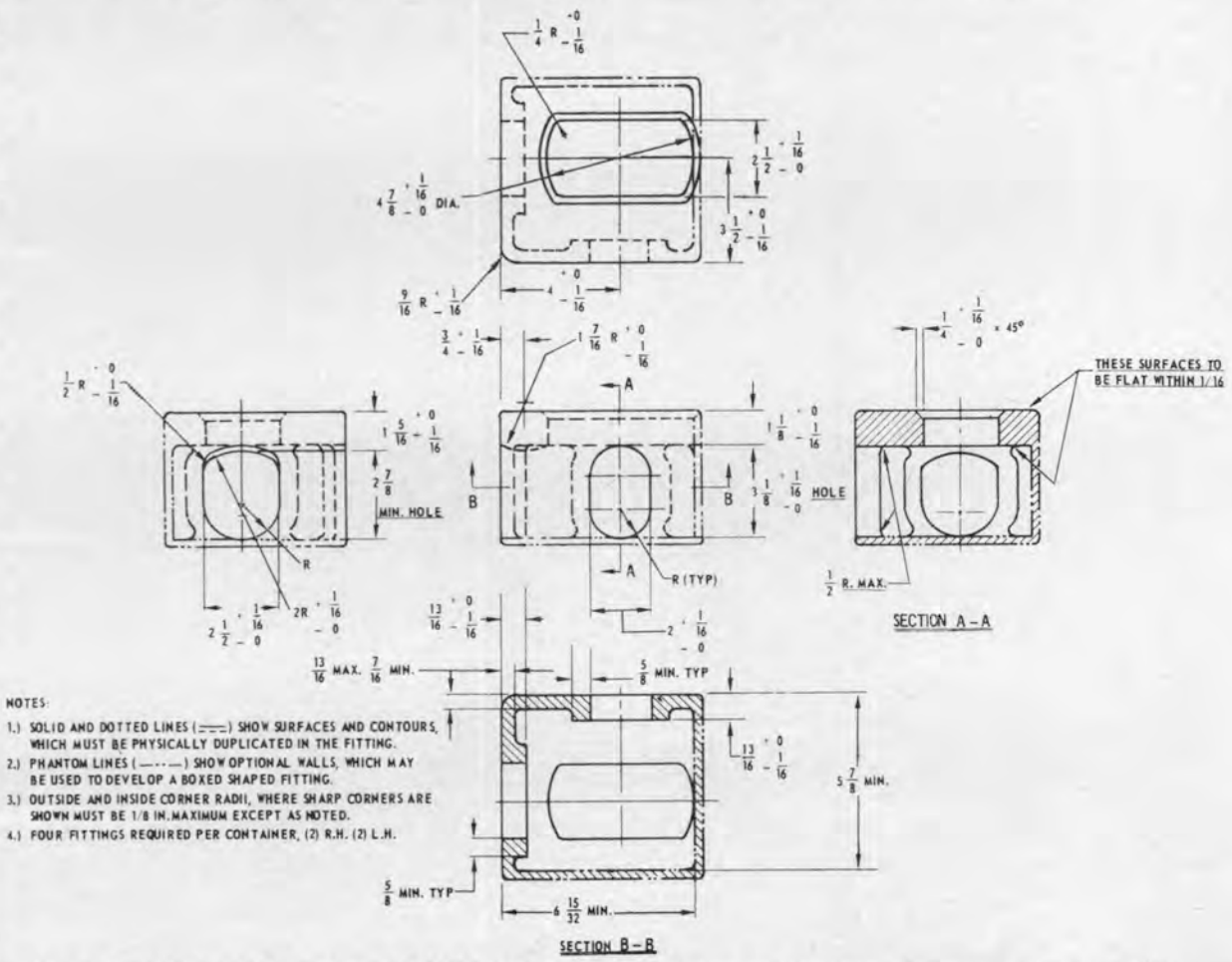

Figure 1—USASI MH 5.1 revised (I.S.O.) design of top corner fitting on containers. Dimensions given in inches.

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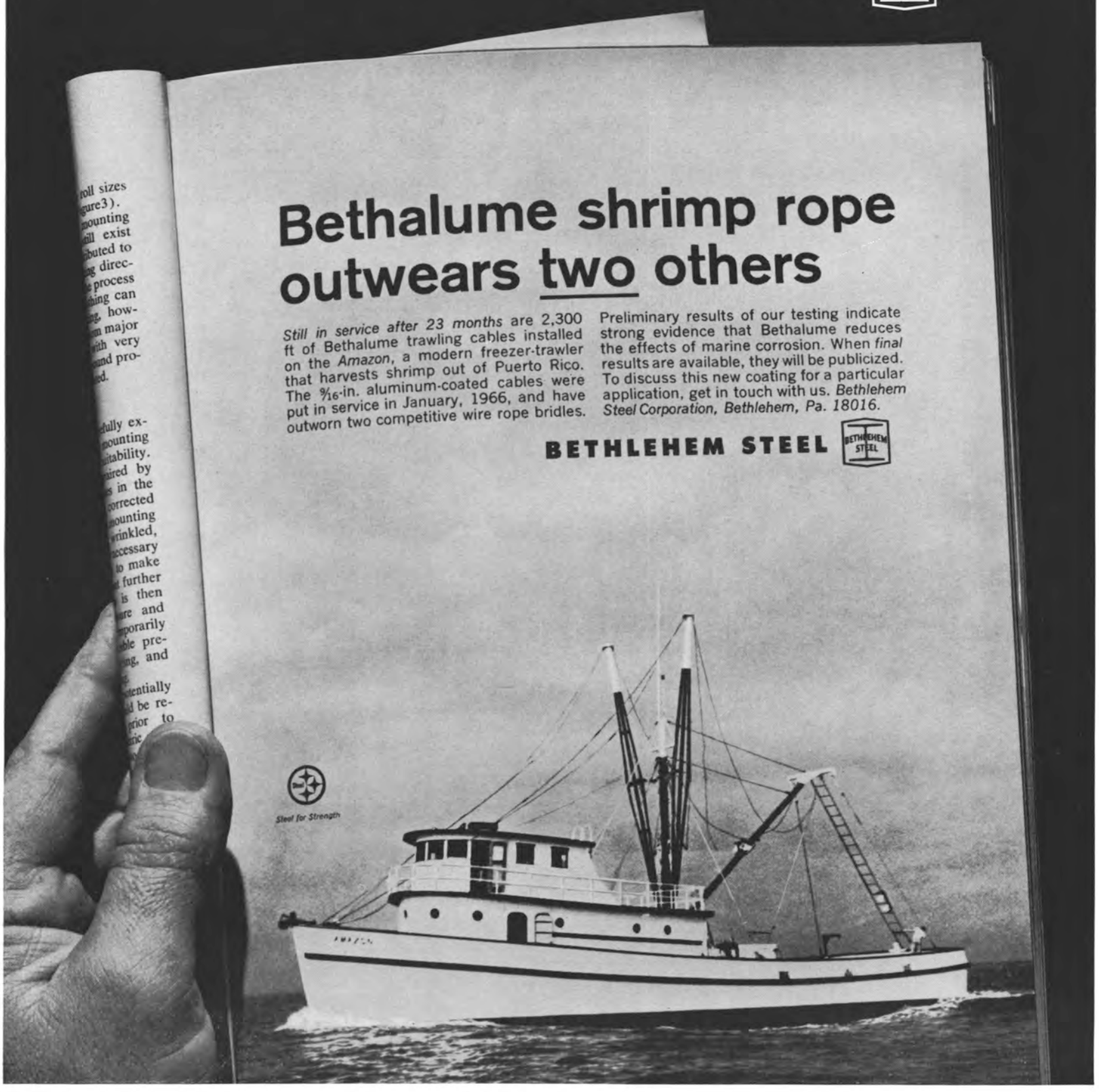
The Amazon reports: one year later

The performance of our Bethalume ropes on the *Amazon* was told briefly in the advertisement below. We wanted to know more about the total service life of these aluminum-coated cables. So again we got in touch with the owner of the trawler.

He reports that most of the 9/16 in. ropes lasted until February 1968, almost 25 months after the original installation. What's more, they outwore one additional set of bridles coated with a competitive material. That's a total of *three* sets of bridles.

We would like to tell you more about the money-saving advantages of Bethalume. *Bethlehem Steel Corporation, Bethlehem, PA 18016*

BETHLEHEM STEEL



Container Lashings—

(Continued from page 26)

specification has sufficient strength. It states the following:

"Vertical accelerations imposed by ships' motion (pitch and heave) shall be allowed for. The maximum vertical acceleration caused by combining pitching and heaving, taking into account the time phasing, has been estimated to be 0.8 G. When the equivalent dynamic force of 0.8 G is added to the static force of 1.0 G, the resulting total force is assumed equivalent to 1.8 G."

Assuming that the containers are stored in a fore-and-aft pattern, and that the containers have no resistance to racking, all lateral components of these forces must be taken by the lashing system. If the containers have a known shear strength to withstand transverse loads (racking resistance), the value of this shear strength can be subtracted from the requirements of the lashing system.

When containers are stacked only one high on deck, it has been satisfactorily proven in service that no lashings are required if the container is secured to the ships' deck.

In stacking containers two or more high, it is first necessary to both index the corner structures of the stacked containers for vertical loading of the corner post structure, and prevent shifting between the stacked containers. This is normally accomplished by inserting a double-ended stacking adapter between container corners, that engages the top and bottom openings of the contacting corner fittings.

It is obvious that under a roll condition of 30 degrees, a stack of four containers is unstable even with the stacking adapters in use. The apparent solution to this situation is to apply vertical lashings.

Due to the inability of the containers to withstand the lateral forces imposed on them, however, vertical lashings are ineffective in preventing the racking condition.

The addition of cross-lashings, shown in Figure 3, results in a stable container stack under all conditions.

Figure 4 illustrates a lashing pattern now in service for containers stacked four high and three abreast. The stacks are tied together at the top with an adjustable bridging connector that in effect forms a continuous chord member of the upper end sills of the top three containers.

This particular pattern rigidly secures the outer stacks and depends on them to restrict any lateral movement of the center stack caused by racking.

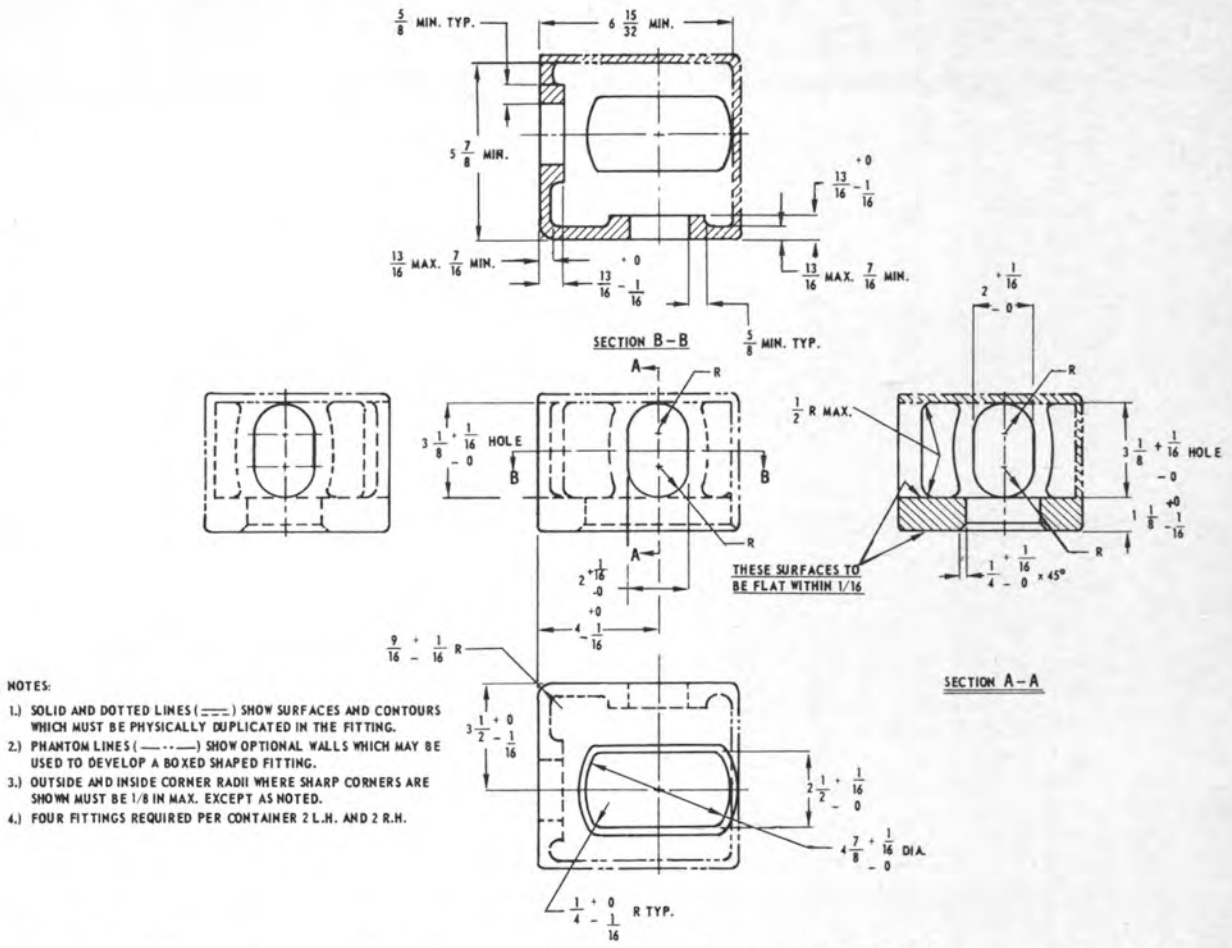


Figure 2—USASI MH 5.1 revised (I.S.O.) design of bottom corner fitting on containers. Dimensions given in inches.

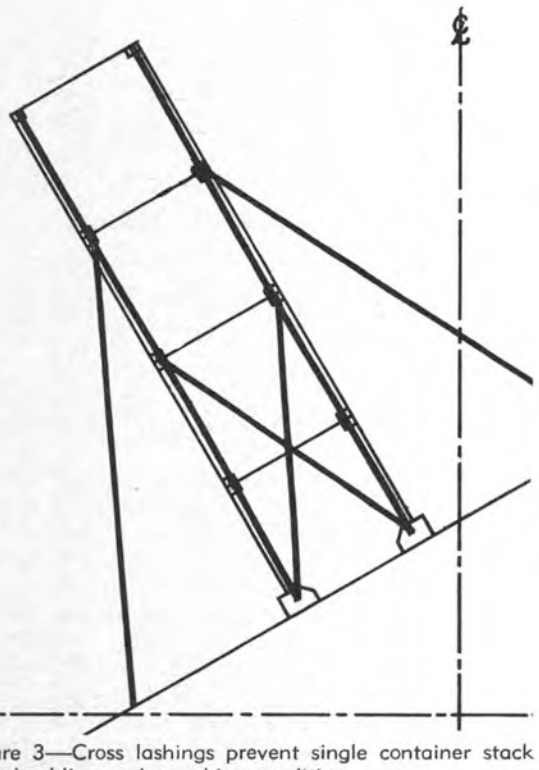


Figure 3—Cross lashings prevent single container stack from buckling under racking conditions.

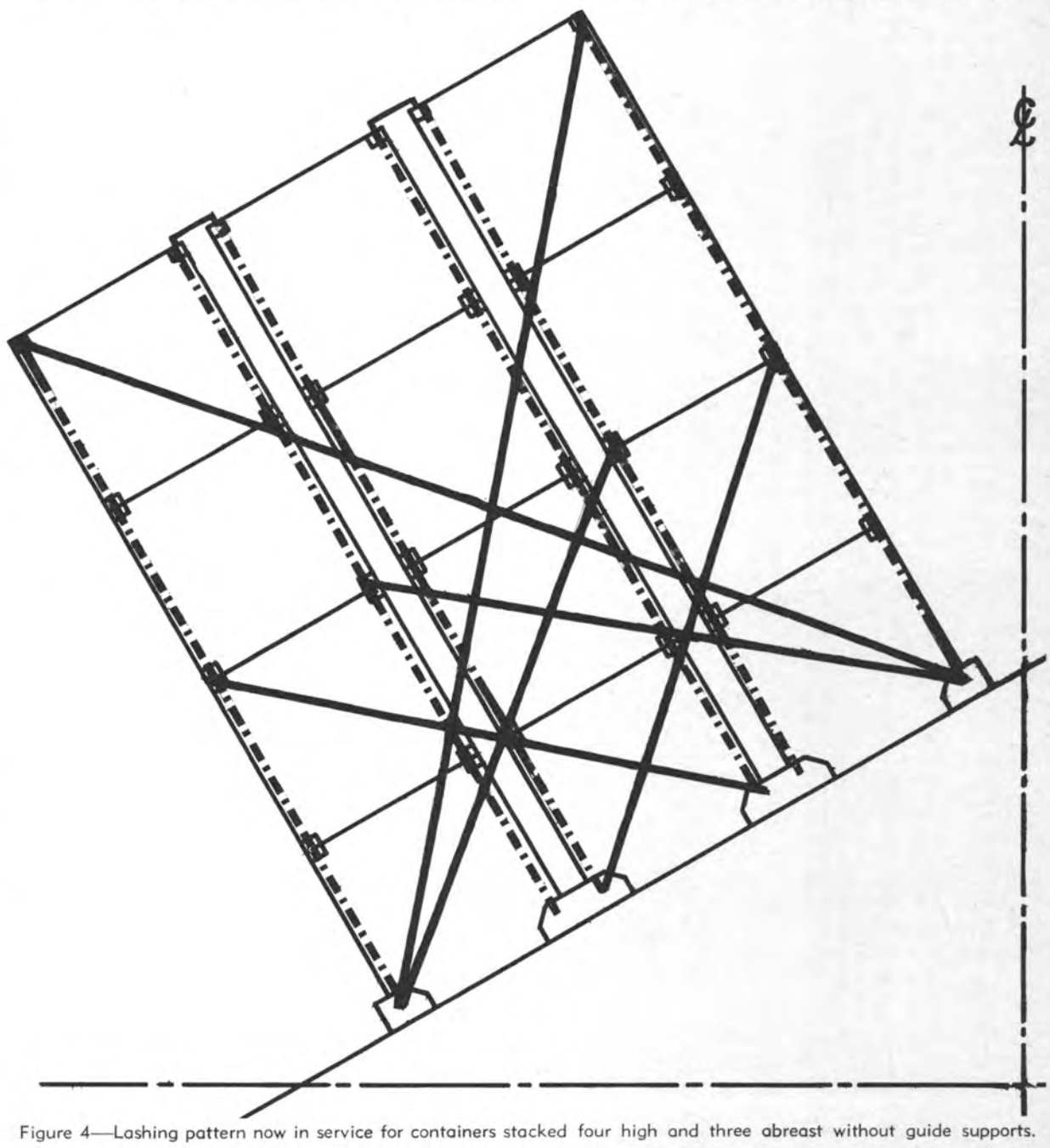
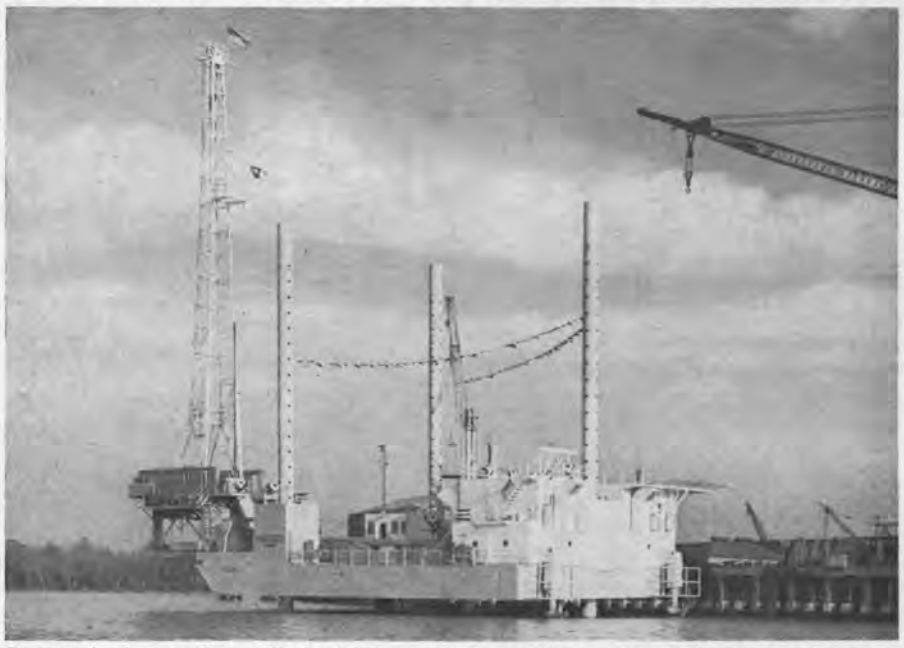


Figure 4—Lashing pattern now in service for containers stacked four high and three abreast without guide supports.

Offshore Workover Drilling Unit Christened At Bethlehem-Beaumont For Walker-Huthnance



Ranger I, first self-propelled offshore workover drilling unit designed and built by Bethlehem's Beaumont yard, glistens in the sunlight on christening day.

Ranger I, the first self-propelled offshore workover drilling unit designed and constructed by Bethlehem Steel Corporation's, Beaumont, Texas shipyard has been commissioned.

Built for Walker-Huthnance Offshore Workover Company of Houston, this rig is expected to be the prototype for a number of similar craft to be constructed by Bethlehem for the maintenance of previously drilled offshore oil wells.

Ranger I is a turnkey rig, with a full line of equipment and machinery for servicing wells in the Gulf of Mexico in water depths of up to 70 feet. This rig also has the capabilities for completing and deepening existing wells and for slim-hole and core drilling of exploratory wells.

Many of the existing wells in the Gulf of Mexico have minimum protective structures and contain little or no deck space for maintenance equipment. Ranger I has been designed to solve the problem of remedial work for these wells and to make it unnecessary to tow in and tie up multi-million dollar standard mobile drilling platforms for this purpose.

Because it is self-propelled it will not require towing services, and will be able to quickly detach itself from the well site and seek safe harbor under its own power when threatened by storms of hurricane force.

J. O. Crooke, general manager of the Bethlehem Beaumont yard, conducted an inspection of the novel rig during the commissioning and was host at a luncheon for invited guests at the Beaumont Country Club.

Commissioning of Ranger I took place in the afternoon with **Mrs. Hiram I. Walker,** wife of the president of Walker-Huthnance, and **Mrs. William B. Huthnance,** wife of the vice-president of that firm, acting as co-sponsors.

Both Mr. **Walker** and Mr. **Huthnance** attended the ceremonies and confirmed they have plans to build additional rigs of the Ranger type as well as additional self-erecting, fixed-platform rigs. Some of this equipment, they said, will be employed in international service.

Built in accordance with the rules of the American Bureau of Shipping, Ranger I is equipped with a heavy-duty workover rig nominally rated to handle 16,000 feet of 2⅞-inch drill pipe or 25,000 feet of tubing in triples.

The craft is propelled by a 1,000-hp propulsion system consisting of two right-angle drive 360-degree-revolving propulsion units with large-diameter, low-rpm power-type screws. Geared for open-sea operation, the overall design of the vessel provides power, stability, maximum maneuverability while positioning adjacent to well structures, and a safe, reliable means of platform self-elevation while employing the rig on location.

Major components of the craft are:

1. The platform, or upper hull. This has a length of 115 feet, beam of 74 feet and depth of 8 feet and contains the complete workover rig, all working and living areas, a heliport and the propulsion units.

2. The supporting mat. This has a length of 110 feet, beam of 84 feet and depth of 8 feet. It is designed to provide a stable foundation over a wide range of soil conditions, including the very soft, unconsolidated soils of the Louisiana offshore delta.

3. Three cylindrical steel columns, 4 feet in diameter and 125 feet long. These are connected to the upper hull by a hydraulic jacking system and terminate at the lower ends as an integral part of the supporting mat.

Upon arriving at location, Ranger I will use its propulsion system to position itself and then lower its mat to the ocean floor. After bearing has been established, the platform will be elevated by the jacking system until the rig floor is about 60 feet above the water level. Derrick, drawworks, substructure and rotary are mounted on skid beams which travel longitudinally. Starting with the rig in a stowed position, the beams will be jacked forward for positioning over the well head. In the cantilevered position, with the rotary extended forward 25 feet from the bow of the elevated upper hull—or 35 feet forward from the supporting mat, the workover unit has a working well load capacity of 250,000 pounds.

Participating in the Ranger I commissioning were, left to right: **W. B. Huthnance, Mrs. Huthnance,** and **Mrs. Walker,** co-sponsors, **H. I. Walker,** and **J. O. Crooke.**

Hamburg Sud Orders Three Cargoliners From German Yard

Hamburg Sud, the West German-flag shipping firm, has placed an order for three 7,300-dwt cargoliners with the Nobiskug-Werft shipyard in Rendsburg, according to reports from Hamburg. The ships, to be delivered during the first half of 1971, can carry 250 containers of 20-foot lengths. They are designed to operate at 17-knot speeds. An option on a fourth ship slated for delivery in the second half of 1971 is reserved to the company, the report said.

NAVMAT Appoints Grosson Head Of Weapons System

Joseph F. Grosson

Joseph F. Grosson has recently been assigned to the position of head of the Weapons System Section in the Training Systems Branch of the Navy Strategic System Projects Office. At the age of 28, Mr. **Grosson** is the youngest person in the history of the NAVMAT to obtain the level of GS-15.

Mr. **Grosson** has many other achievements to his credit. In 1961 he received a bachelor of marine engineering degree at the New York State Maritime College and also received a license as a merchant marine officer and a commission in the Naval Reserve. He also received in 1968 a master of mechanical engineering degree from the Catholic University of America. He is a registered professional engineer in Louisiana and is an engineer in training in Washington, D.C.

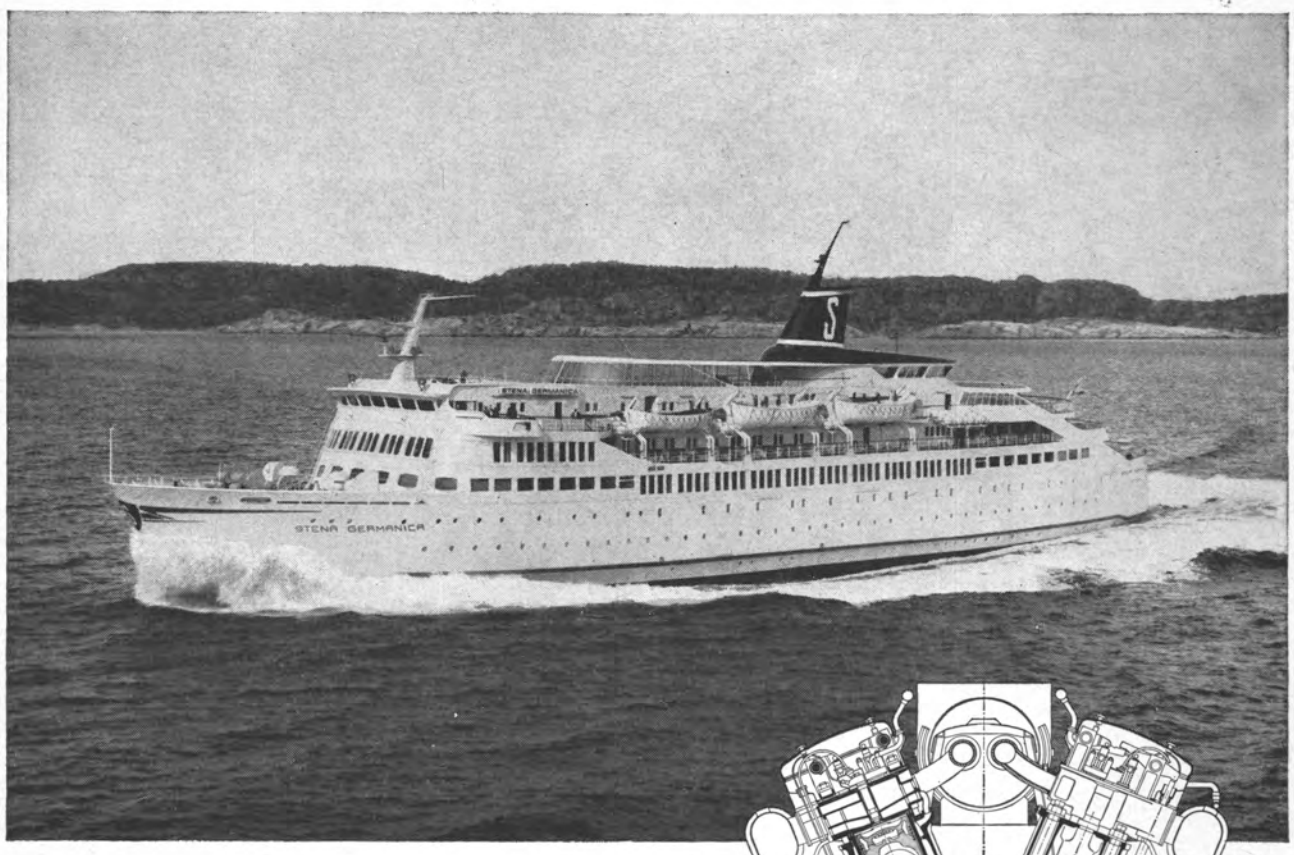
Mr. **Grosson** has received several Superior Performance Awards, Outstanding Performance Ratings and Memos of Appreciation for Service. In 1967 he was given a Patent Application Award for a seawater hydraulic system on deep-submergence vehicles. One of his technical articles, entitled "On the Transverse Vibration of a Jet Blast Deflector Panel", was presented at the Fifth Annual Technical Symposium of the Association of Senior Engineers.

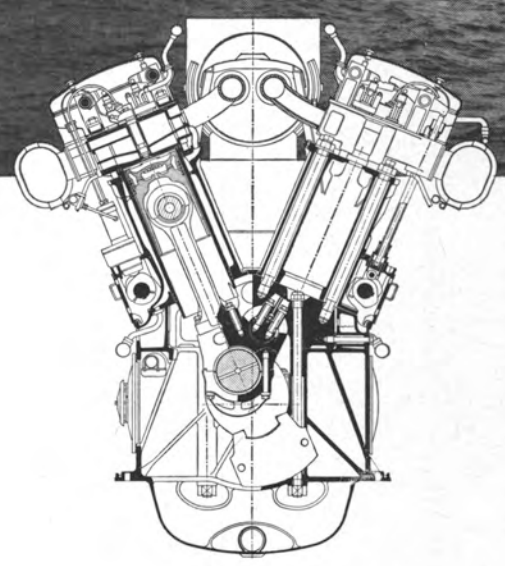
Mr. **Grosson** is a member of the American Society of Mechanical Engineers, the American Society of Naval Engineers, and the Association of Senior Engineers.

Turner Elected To Young Presidents' Organization, Inc.

Gilbert E. Turner, president of Gulf-Tampa Drydock Company, Tampa, Fla., has been elected to the Young Presidents' Organization, Inc. (YPO), an educational organization with an international membership of 2,300 young successful chief executives, who have become presidents of sizable companies before the age of 40.

YPO was founded in 1950 to help young presidents become better presidents through education and idea exchange. Members represent more than 30 countries and belong to 44 chapters—36 in the United States, four in Canada, and one each in Europe, Japan, Mexico, and the Caribbean area.





VV 40/54 FOR THE FASTEST BALTIC FERRY

M. S. „Stena Germanica" of Stena A. B., Goeteborg, is the fastest Baltic ferry to date. Two M. A. N. V8V 40/54 16-cylinder-engines, each with an output of 8640 BHP at 400 rpm, give the ship a speed of 23.5 knots. The ferry sails between Goeteborg and Kiel with a capacity of 1400 passengers and 200 vehicles. This is a further new vessel to be equipped with M.A.N. medium-speed heavy fuel engines.

We would be pleased to let you have further information. The "in-line" and "Vee-type" versions of the RV-VV 40/54 engines are available with outputs ranging from 2440 BHP to 10,000 BHP.

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U.S. Industries Names T.J. Uhl President Of Wyatt Division

Thomas J. Uhl Jr.

Glen H. Denison, chairman of the Energy Equipment Group of U.S. Industries, Inc., has announced the promotion of **Thomas J. Uhl Jr.** to the presidency of Wyatt Division, U.S. Industries, Inc.

Mr. **Uhl** attended the University of Texas where he received his BSME degree in 1946 and MSME degree in 1947. He was employed by Wyatt's Dallas plant in June of 1947 and was made production manager of that plant in December 1947. When Wyatt extended its operations into Mexico City in 1957, Mr. **Uhl** moved there and served as chairman, president and general manager of Wyatt de Mexico, S.A. de C.V. until 1965, when the plant was sold. He then returned to Wyatt's Houston plant and was named vice-president of operations. He was elected to Wyatt's board of directors in 1967.

Mr. **Uhl** is a member of the board of directors and executive committee of the Texas Manufacturers Association. He is also departmental vice-president of industrial relations for TMA. He is a member of the Plate Fabricators Association of Greater Houston and is a professional engineer registered in the State of Texas.

Mr. **Uhl** served in the U.S. Navy for three years during World War II.

Wyatt is a prominent manufacturer of high-pressure, heavy-wall vessels for the petroleum and chemical industries. Wyatt also manufactures plastic and rubber products and special-purpose barges.

New Ship Company Formed In New York

Charles T. Mattmann

The establishment of Netumar International, Inc., has been announced by **Charles T. Mattmann,** president of the newly formed company which maintains its offices at 80 Broad Street in New York City. The new company will represent and coordinate the activities of Companhia de Navegacao Maritima Netumar, Brazilian-flag steamship company, in the United States and Canada. Netumar, formed in 1958, entered into the international trade in 1967 after serving solely the Brazilian coastwise trade.

Mr. **Mattmann** was associated with Moore-McCormack Lines, Incorporated for the past 22 years and resigned as a director and executive vice-president in October, 1968. Mr. **Mattmann** has had extensive experience with Brazil and the East Coast-South American trade. In 1966, the Brazilian Government honored Mr. **Mattmann** by decorating him with the Order of the Cruzerio do Sul, the highest Brazilian decoration bestowed upon foreigners.

As an international carrier, Netumar has experienced rapid growth. They serve ports in Brazil to and from East Coast United States, Canada and Great Lakes ports, with their privately owned Brazilian-flag vessels supplemented with chartered tonnage. Netumar presently operates 15 vessels, eight of which are in the international trade. The company has eight new cargo vessels under construction at the Verolme Shipyards in Brazil and negotiations are about to be concluded for an additional two vessels. Four of the new vessels will have a deadweight capacity of 6,850 tons, a speed of 17 knots and a bale capacity of 360,000 cubic feet, including 7,000 cubic feet of refrigerated space and coated deep-tanks to carry up to 1,000 tons of vegetable oils.

Six of the vessels will have a deadweight capacity of 12,700 tons, a speed of 23 knots, a bale capacity of approximately 600,000 cubic feet, including 50,000 cubic feet of refrigerated space and coated deep-tanks to carry up to 1,000 tons of vegetable oils. The 12,700-ton class will also be able to handle 170 twenty-foot containers.

The first of the new vessels, the MS Marcos Souza Dantas, will be delivered this month with two other vessels scheduled for completion later this year.

With the completion of the new building program, the Netumar fleet will consist of 21 vessels totaling approximately 214,000-dwt with an average age of less than 5 years. With this fleet expansion of Brazilian-flag privately-owned vessels, Netumar will continue to develop its services to the East Coast United States, Canada and Great Lakes ports.

Mr. **Mattmann** also announced that T. J. Stevenson and Co., Inc. will continue to serve as Netumar's general agents in the United States and that March Shipping Company will continue to serve as their general agents in Canada.

The Study: EXTENSIVE

The 3800 h.p. M/V Thomas W. Martin, is the latest addition to the Gladders Towing Company fleet. It was ordered from St. Louis Ship, only after a thorough performance study was made. Mr. G. Warren Gladders, president of the firm, along with Mr. Thomas Gladders and Mr. Thomas Clark, personally observed the efficiency and performance of late model St. Louis Ship towboats, designed and built with the exclusive Hydrodyne Hull. G. W. Gladders, who was recently Chairman of the American Waterways Operators Association, studied competitive towboats as well. Then, based on these actual performance records, the M/V Thomas W. Martin was ordered from St. Louis Ship.

The Result: HYDRODYNE

When you need a new towboat, make it a Hydrodyne. Owners testify St. Louis Ship's exclusive hull form develops the highest propulsive efficiency known. Just call us at (314) 832-4000.

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DIVISION OF POTT INDUSTRIES INC.
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Offices: New York, Chicago, Kansas City, New Orleans, Memphis, Minneapolis, Houston and Mobile.

British Firm Producing Catamaran For 250 Passengers

Catamaran for Inland Waterways can seat 250 passengers.

A catamaran which can seat up to 250 passengers, depending upon the layout of its accommodation, will start regular passenger service on London's River Thames, later this year, in a version carrying 180 to 200 persons.

The craft's low profile allows her to pass under low bridges at high water, and her 3-foot 3-inch loaded draft permits navigation in shallow waterways. The minimal amount of wash produced reduces the risk of damage to banks and small craft.

Although designed specifically for rivers and inland waterways, according to **James R. Cheeseman,** managing director of the building yard, the all-steel catamaran has sailed safely through 35-mph winds and 9-foot seas. She is so stable that if all of the passengers were to crowd onto one of her two hulls, she would heel over only 2 degrees.

Highly maneuverable, she can turn on her own axis. Power is from a 62-bhp diesel engine on each hull, giving a cruising speed of 10 knots. Each of the welded steel hulls comprises a series of watertight sections to make her virtually unsinkable. Length overall is 58 feet 9 inches and the beam is 20 feet 2 inches. Gross tonnage is 67.11.

The River Thames craft, named the Suerita, is fitted with 235 seats: 100 on the top deck, 40 on the foredeck, 10 on the afterdeck and 85 in the main cabin, at the end of which is a bar.

This class of boat is being built by Breydon Marine Ltd., Burgh Castle, Norfolk, England.

Oriental Exporters Ships Now Managed By Ogden

Oriental Exporters, Inc., Ship Management Division, has announced that all vessels previously managed by them, will be managed by Ogden Marine, Inc., a subsidiary of Ogden Corporation.

This is a corporate change, only; and all personnel employed by Oriental Exporters, Inc., Ship Management Division, will continue their employment with Ogden Marine, Inc.

All future communications concerning any vessel(s) formerly managed by Oriental Exporters, Inc., Ship Management Division, should be directed to Ogden Marine, Inc., at Two Pennsylvania Plaza, New York, N.Y. 10001. The former telephone number — 212-565-5800 — will remain unchanged, as will the telegraphic address "BULKTRANS-NEWYORK", and telex numbers: RCA-224060, ITT-420418 and WUI-620148.

Halter Marine Building Oil-Well Supply Boat

Atlas Offshore Boats, Inc., Burns, La., has contracted Halter Marine Fabricators, Inc., Moss Point, Miss., to build an offshore, oil-well supply boat. The boat, to be equipped with 1,700-total-bhp diesel machinery, will have dimensions of 166 feet by 38 feet by 13 feet, and has been designated Hull No. 223.

Newport News Ship Launches SS Hong Kong Mail—Fourth AML Ship Being Built By Yard

Principals at the launching of the Hong Kong Mail were, left to right: Congressman **Thomas N. Downing** of Virginia, principal speaker; **Mrs. Thomas Minor Pelly,** sponsor; **Mrs. Thorvald F. Hammer,** matron of honor, and Congressman **Pelly** of the State of Washington.

Amidst a swirl of festive paper lanterns and colorful posters depicting the city of Hong Kong, several hundred guests watched as **Mrs. Thomas Minor Pelly** recently christened the Hong Kong Mail. The ship is the fourth of an order for five ships placed by American Mail Line Ltd. with Newport News Shipbuilding and Dry Dock Company.

The sponsor is the wife of Congressman **Pelly** of the State of Washington, who is a member of the House Committees on Merchant Marine and Fisheries and on Space and Astronautics.

Mrs. Thorvald F. Hammer, the sponsor's sister and a member of the Connecticut state senate, served as matron of honor. Congressman **Thomas N. Downing** of Virginia was the principal speaker at the ceremonies. In his address, Mr. **Downing** stated that "the maritime life of this nation is dependent on a four-way cooperative effort among the shipping companies, the shipbuilders, the men who man them and the federal government.

"I find no fault generally with the first three, but the same is not true about the government. We have no meaningful maritime policy today."

Speaking of the long history of the lack of concern on the part of the government, Mr. **Downing** said, "The maritime leadership in both houses of congress has shown the way and has drawn the support from both sides of the political aisle. Unfortunately, we have been rebuffed by president after president.

"I call upon our new president as I have called upon his three immediate predecessors to reverse this trend, to follow the leadership of the congress, and to give this nation a shipbuilding program which will relieve the dreadful situation in which we find ourselves, that of being at the mercy of other nations of the world to carry our international commerce."

"As a nation," he said, "we cannot survive on eight to ten new ships a year. At a bare minimum, we must have a program of 35 to 40 ships for a number of years to come."

Donald A. Holden, chairman of Newport News Shipbuilding, a subsidiary of Tenneco Inc., presided over the ceremonies.

Among the distinguished guests attending the launching were: **Worth B. Fowler,** president of American Mail, and Federal Maritime Commissioners **Ashton C. Barrett, James V. Day,** and **James F. Fanseen.** Also present were **Ralph E. Casey,** of the American Institute of Merchant Shipping and **Edwin M. Hood,** president of the Shipbuilders Council of America.

All five vessels contain many features of modern ship design, including automated boilers. Versatility of the ships is demonstrated by the fact that they can carry more than 400 twenty-ton containers, as well as bulk grains and various other dry and refrigerated cargoes. Cargo is loaded and off-loaded by a 70-ton heavy-lift cargo gear of Newport News Shipbuilding design, and 12 other units which have capacities of 15 and 20 tons.

The Hong Kong Mail measures 605 feet in length and 83 feet in width. Total displacement is 31,970 tons and her single-screw turbine unit will develop 24,000 shaft horsepower. The ship has accommodations for 12 passengers. J. J. Henry Co., Inc., New York naval architects and marine engineers, designed this class of ships and are serving as owner's representative during construction.

Panama Canal Transit Booklet Is Available

The 1969 edition of the annual publication, "Panama Canal Transit and Port Information," has been released by the Panama Agencies Company.

This handbook is intended to serve as a general guide for shipowners, operators, and master. It reflects all the latest changes in Panama Canal regulations and tariff rates. It does not transcribe all the information available in official publications or tariffs.

By combining data contained in the regulations into logical groupings for ready reference, this booklet can become a handy guide for various individuals using the Panama Canal.

The handbook is available from Panama Agencies Company, P. O. Box 1370, Panama, R.P.

AIMS Retains Former Sen. Geo. A. Smathers

George A. Smathers

Former Senator **George A. Smathers** of Florida has been retained as general counsel for the Washington-based American Institute of Merchant Shipping. This was announced by **Everett S. Checket,** AIMS' board chairman and general manager, Marine Transportation Department, Mobil Oil Corporation, New York.

Senator **Smathers,** a World War II Marine Corps colonel and a former special assistant to the attorney general, served 22 years in the Congress. From 1946-1950 he was a U.S. representative from Miami and then served for 18 years as a U.S. Senator from Florida. He announced he would not stand for re-election in November 1968 and became senior partner in the Washington law firm of Smathers, Merrigan and O'Keefe.

Senator **Smathers,** a staunch advocate of a strong American-flag merchant marine, is a former member of the Senate Commerce Committee which has jurisdiction over merchant marine matters. In recent years he has worked closely with Presidents **Kennedy** and **Johnson** on proposed maritime programs.

In making the announcement, Mr. **Checket** said that Senator **Smathers** "would contribute significantly to AIMS' primary objectives of unifying the American Merchant Marine and assisting in the development of a national program to revitalize all segments of the fleet, so essential to restore America's supremacy on the high seas."

AIMS' member companies own over 500 U.S.-flag merchant ships representing over half of the privately-owned vessels in the active merchant marine.

Port Of Seattle Names Roth To Traffic Post

Eldred S. Roth

Eldred S. Roth recently joined the Port of Seattle as traffic coordinator, replacing veteran waterfront traffic man, **Ted Bursett,** who will officially retire April 1.

Mr. **Roth** has had 20 years of traffic experience on the waterfronts of Portland and Seattle. He was many years with Tidewater Barge Lines, Portland, and later with the Commission of Public Docks, Portland. Most recently, he had represented Bakke Steamship Corp., Seattle, as traffic manager.

In his new post, Mr. **Roth** will handle the billing, forwarding and expediting of cargo through the Port of Seattle, primarily OCP cargo—that is, cargo which lands at Seattle for delivery to midwest and East Coast points. The cargo inbound from the Orient via Seattle is therefore routed Overland Common Point. More and more such cargo has been arriving at the Port of Seattle, cargo which might take only eight days trans-Pacific over the short great circle route, and then only 56 hours by rail to Chicago. Considerable coordination is needed to maintain this record for sea and rail, truck and air.

Bethlehem Launches 37,250-Dwt Tanker At Sparrows Pt. For Wabash Tanker Group

Mrs. Ralph E. Ablon holds a bouquet of flowers just prior to christening the Wabash at Bethlehem's Sparrows Point shipyard. With **Mrs. Ablon** are (left to right) her husband, chairman of the Ogden Corporation, **Daniel M. Mack-Forlist,** general manager of the Sparrows Point yard, **Mrs. Mack-Forlist, E. D. Bickford,** vice-president, sales, Bethlehem Steel Corporation, and **Daniel D. Strohmeier,** vice-president, shipbuilding, Bethlehem Steel Corporation.

The 37,250-dwt tanker Wabash was launched recently at Bethlehem Steel Corporation's Sparrows Point, Md. shipyard.

The vessel was sponsored by **Mrs. Ralph E. Ablon,** wife of the chairman of the Ogden Corporation, and is the second of two of this class to be constructed under a contract with Wabash Transport, Inc., of New York City, or an affiliate. Wabash Transport, Inc., and its affiliated companies were recently acquired by Ogden Marine, Inc., a subsidiary of Ogden Corporation.

All ships of Wabash Transport, Inc., and its affiliates are named for rivers in the United States. The Wabash is named for the Wabash River in the state of Indiana.

When delivered next spring, the Wabash will be assigned to the carriage of petroleum and/or grain products.

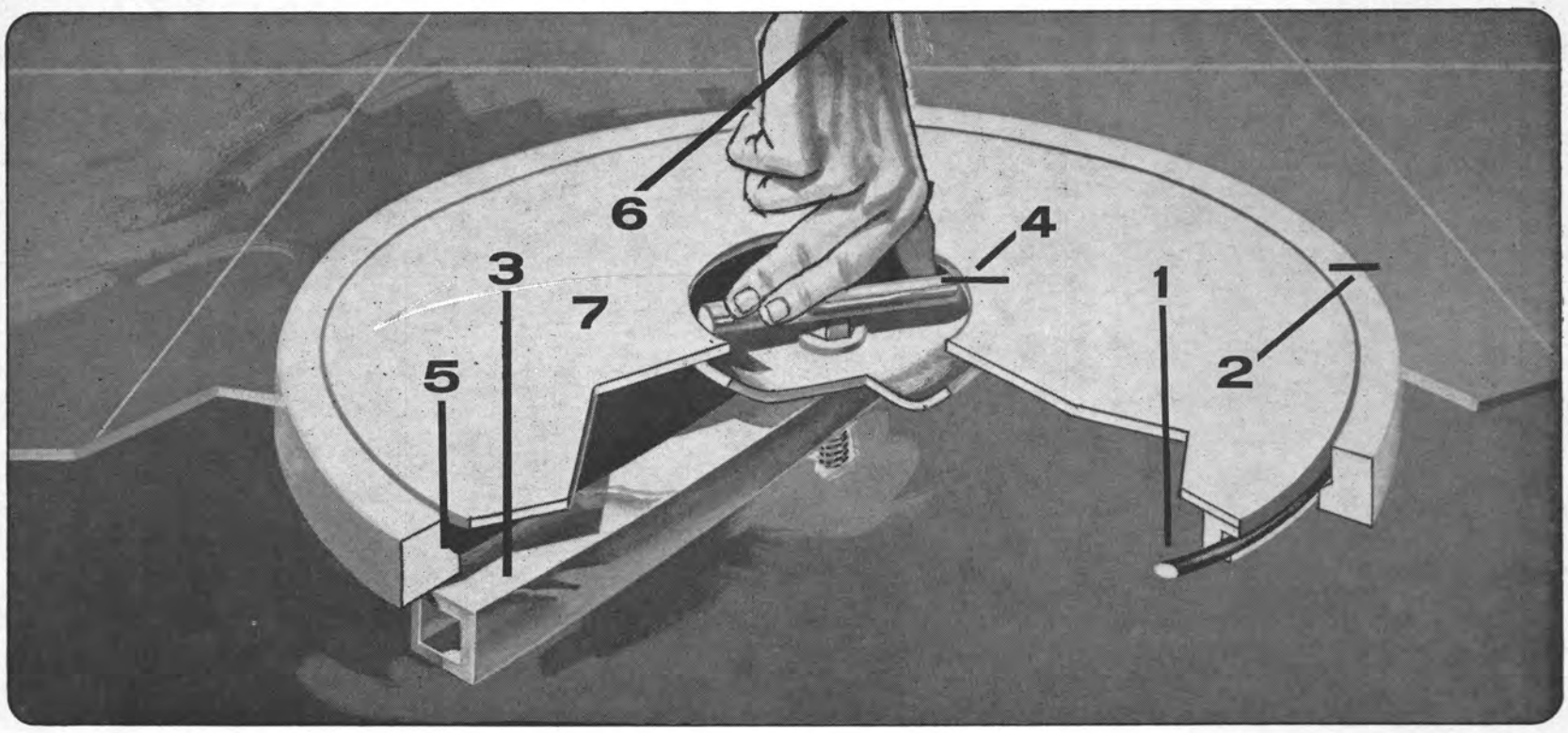
The vessel has a capacity of 333,000 barrels in its 15 tanks, and may be converted to the grain trade with a grain carrying capacity of approximately 1,500,000 bushels. Her cargo handling pumps will be capable of discharging a full liquid cargo in 14 hours.

The ship is equipped with Bethlehem centralized control, which allows control of the engine from the bridge. It is expected to operate at a normal sea speed of 16 knots. It has a 15,000-shp turbine driving a single screw. The design includes a curved rake stem, a cruiser stern and a spade rudder.

Length overall is 660 feet 2 inches, with length between perpendiculars of 630 feet. Its molded breadth is 90 feet and molded depth is 48 feet 9 inches. The draft will be about 36 feet 8 inches at 37,250 deadweight tons.

The Wabash is the eighth vessel of the 37,000-ton class to be launched at Sparrows Point.

Last year we thought our flush-mounted hatch was the best...



and then WE IMPROVED IT!

Nabrico Watertight, Flush-Mounted Hatch All Moving Parts Now Non-Corrosive Metal

It's difficult to be modest about this DF-430 Hatch . . . especially when Nabrico has come up with improvements to top even its former great performance! Now, this patented DF-430 Hatch has a threaded T-bar of stainless steel with a brass nut and washer. Result: no corrosion — never any seizing of parts. That's important anywhere — but it's especially vital to salt-water operation. Lighter than cast steel (63 lbs.) and with only two main components, the DF-430 Hatch has achieved ABS approval. The features listed right are ample proof that the DF-430 provides more and greater advantages than any other hatch. In fact, the only thing that's modest about the DF-430 Hatch is its price. It's actually lower than conventional hatches. Try the DF-430 as original equipment or replacement.

1. Hatch cover seats on neoprene O-ring gasket for watertight seal.
2. Mounting ring welded flush with deck to accept cover.
3. Strongback draws against mounting ring with just hand tightening.
4. Threaded "tee" handle, recessed in cover.
5. Mounting ring is machined steel with specially designed self-cleaning seal seat.
6. No tools needed to put on or remove DF-430 Hatch. Just a twist of the wrist!
7. One-piece construction of cover and fastening assures secured hatches every time. No projections to tear clothing, foul lines or trip deckhands.

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Nabrico DF-430 Hatch 18" Size

Can be furnished galvanized—also in 24" size.

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Mitchell Named Manager International Shipping For Getty Oil Company

Wallace W. Mitchell has been named manager of international shipping for Getty Oil Company's Supply and Distribution Division, succeeding the late Capt. **A. M. Pape.** Mr. **Mitchell** has been serving since last year as manager of supply and distribution for Getty Oil's Western Division and is succeeded by assistant manager **W. S. Davidson.**

A native of Fresno, Calif., Mr. **Mitchell** joined the company in 1936 at Coalinga and has progressed through various engineering and managerial positions in the company's pipeline and transportation departments in California. He served as a project engineer on special assignment during 1954 and 1955 for Getty Oil operations in the Saudi Arabia-Kuwait Neutral Zone and was named manager of the Western Division transportation department in 1956.

Mr. **Mitchell** attended Bakersfield College and received his bachelor's degree in electrical engineering in 1934 from the University of California at Berkeley. He is a licensed electrical engineer in California.

Mr. **Mitchell** has been active in a number of professional and civic organizations, including the American Petroleum Institute, Western Oil & Gas Association, past president of the Western Pipe Liners Club, Rotary Club, Al Malaikah Temple Shrine, Masonic Lodge, Jonathan Club of Los Angeles, and the Petroleum Club of Los Angeles.

Mr. **Davidson,** who has served as assistant manager of supply and distribution for Getty Oil's Western Division, also joined the company at Coalinga in 1936 and is a native of Fresno. He has served in various managerial capacities with the company at Coalinga, Watson, New York City and Los Angeles.

Mr. **Davidson** attended Taft College, Armstrong College at Berkeley, and the University of California at Los Angeles. His professional and civic affiliations have included the Petroleum Club of Los Angeles, New York Athletic Club, American Petroleum Institute, Western Oil & Gas Association, Pipe Liners Club and Elks Club.

Panama Canal Asks $1,300,000 For Tugs

The Panama Canal Co. has requested from Congress, for its FY '70 budget, the sum of 1,-300,000. This money will be used for the purchase of tugboats.

LAST OF TEN HOPPER BARGES—Amherst Industries, Inc., recently accepted delivery of the last of a series of ten, 175-foot by 26-foot by 11-foot hopper barges built at Hillman's shipyard in Brownsville, Pa. These barges are raked on both ends and feature a ⅝-inch steel cargo deck with sump wells, a continuous rub bar at the midbody bilge knuckle, port and starboard, and watertight manhole assemblies for all compartments. As with all Hillman designed barges, these have been heavily constructed throughout to meet every rugged requirement of their intended use. Hillman Barge & Construction Company is a leading builder of this size hopper barge which is widely used in the coal trade on the Ohio River.

Portland, Me. To Be Terminus For New Nova Scotia Ferry

Portland, Maine has been chosen to become the New England terminus for a new Nova Scotia ferry service.

The Lion Ferry Company, a Swedish concern, plans service to Yarmouth, Nova Scotia, to begin in June 1970. It is constructing a $7-million vessel in West Germany to be used in making daily round trips between the two cities.

The Canadian National Railways already operates a ferry, the Bluenose, which plies between Yarmouth and Bar Harbor. Her operation is daily in summer, and three times weekly in the off season. Reports are that she had to turn away fares last summer because of lack of space.

The new ferry will be larger, operate at least 360 days each year, and have amusements aboard in the off season. She will be 400 feet long and will have space for 1,000 passengers and 200 automobiles or 40 trucks. The trip will take 9½ hours each way.

Stig Leuhusen, managing director of Lion Ferry, told Portland city officials when he gave them news of the selection, that the Nova Scotia government agreed with the decision.

Portsmouth, N.H., and Gloucester, Mass., also wanted the ferry. Lion Ferry officials said they preferred Portland because it had better access to highways, had a nearby airport with jet service and sufficient first-class hotel accommodations and entertainment.

Portland's business leaders were instrumental in gaining the new service for this city. They pledged $1-million to offset any losses Lion Ferry might incur in any year during the first five years of operation. Nova Scotia also pledged a $1-million guarantee several months ago.

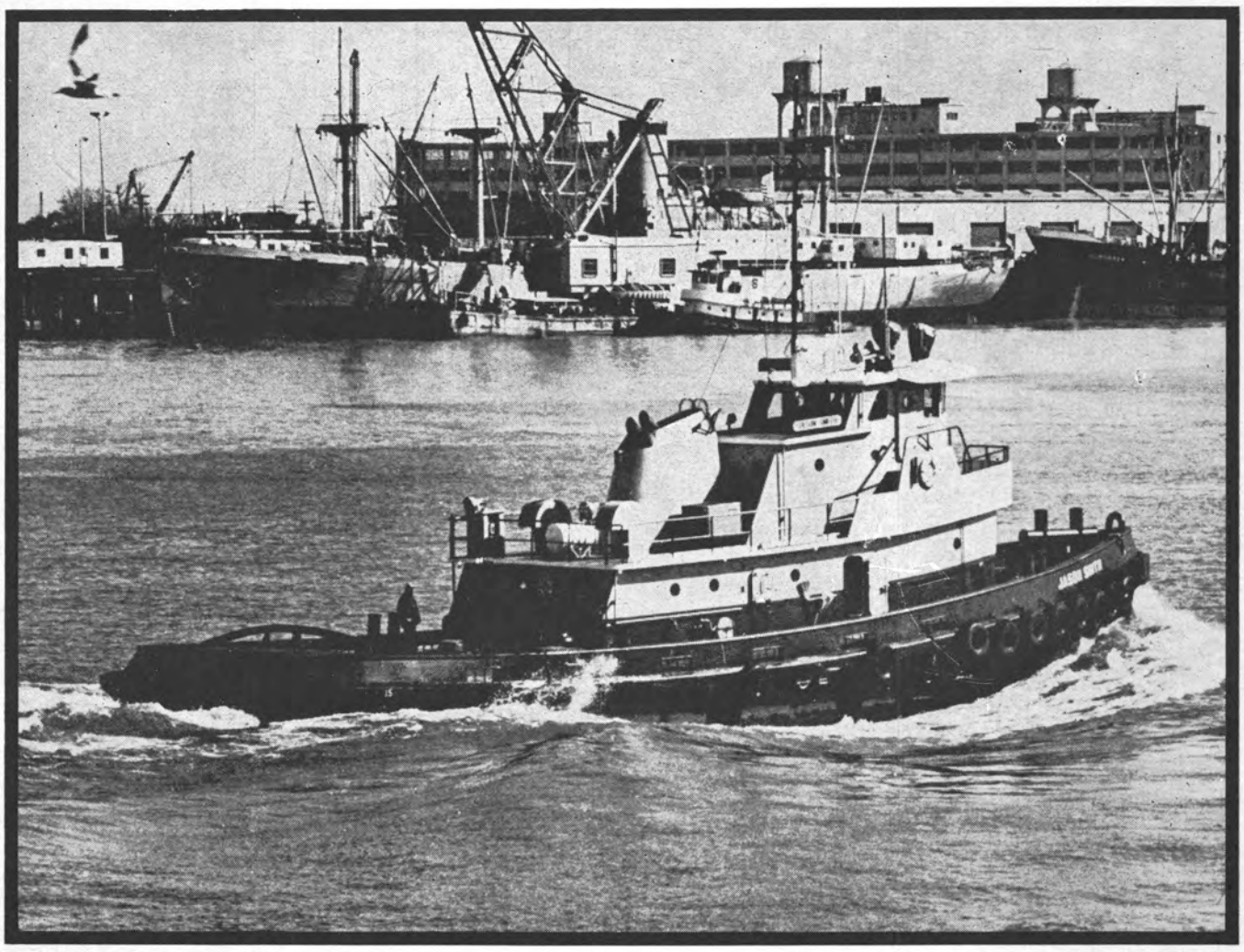
Aluminum Is Important To New LNG Tankers

Aluminum is playing a large part in the construction of four special tankers being built in Europe for the carriage of liquified natural gas (LNG). The LNG project, which involves nearly a third of a billion dollars investment by Standard Oil Company (N.J.), will provide natural gas via a new liquefaction plant in Libya to Italy and Spain.

LNG, composed mostly of methane, will be shipped at −260°F. in huge insulated tanks of aluminum, which was selected because of its excellent strength and ductility at super-cold temperatures. In the liquid condition the gas is concentrated about 600 to 1.

Three of the 37,000-dwt tankers are being built by the Ansaldo Shipyard near Genoa and one by the Astano Shipyard at El Ferrol, Spain. Each ship will hold four of the aluminum tanks, measuring 95 feet long, 80 feet wide and 61 feet high, to provide a capacity of 250,000 barrels of liquefied gas per ship. The 16 tanks are being fabricated in Italy and Spain by subsidiaries of Chicago Bridge & Iron Co.

Kaiser Aluminum Werke, Inc., Koblenz, Germany, has supplied 4,000 tons of 5083 aluminum alloy plate—about half of the aluminum plate requirements for the tanks—in thicknesses from 0.256 inches to 1.579 inches. In addition, Kaiser Aluminum's extrusion plant at Halethorpe, Md., supplied 122 tons of heavy structural extrusions in alloy 5083, weighing 34 pounds per lineal foot, for bottom supports for the tanks. Aluminum also is used extensively in the liquefaction plant nearing completion at Marsa el Brega, Libya. The facility has been equipped with 192-foot long cryogenic heat exchangers fabricated by Air Products & Chemicals, Inc., at Allentown, Pa. Kaiser Aluminum's Ravenswood, W. Va., plant supplied 145 tons of alloy 5083 plate for their shells.



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American Ship Names Knapp Vice President For Shipbuilding/Repair

Walter J. Knapp, a veteran of 34 years in marine construction, has been elected group vice-president for shipbuilding and ship repair at The American Ship Building Co., it was announced by **George M. Steinbrenner III,** chairman and chief executive officer. Mr. **Knapp** has been vice-president-operations since March, 1967. Mr. **Knapp** becomes the first of four group vice-presidents who will head divisions of American Ship under a new organization plan announced at the company's annual meeting.

The remaining three groups, for which vice-presidents will be named soon, are: transportation, cargo and material handling; metal fabricating and building materials, and marine technology and pollution control.

Mr. **Knapp,** a native of Staten Island, New York, began his marine career as an apprentice shipfitter with United Shipyards, Inc. Between then and the time he joined American Ship, he worked at the New York Naval Ship Yard, and Federal Shipbuilding & Drydock Co.

In 1948 he joined American Ship and subsequently became manager of the company's yards in Buffalo and Toledo, before being named vice-president of yard operations in 1967.

Baker, Carver & Morrell And General Standard Combine Operations

Alec M. Choremi

Baker, Carver & Morrell, Inc. established in 1827, and General Standard and Marine Corporation, marine suppliers since 1948, have announced the combining of their businesses under the name of Baker, Carver & Morrell, Inc., at 170 John Street, New York.

The merger of the two companies will provide facilities and services not previously available and will handle all phases of the marine supply field. Included with provisions, cabin, deck and engine items will be the availability of all types of engine, winch, pump and generator spare parts and allied equipment.

C. M. Carver will continue as president and director while **Alec M. Choremi,** in addition to being executive vice-president, will also be a director.

Holland-America Elects Dubbelman Manager

John F. A. Dubbelman

Holland-America Line has announced the appointment of **John F. A. Dubbelman,** formerly a special assistant to management, as manager of its Freight Department in New York.

Mr. **Dubbelman** joined the company's Freight Department in Rotterdam in 1950. After spending four years there gaining experience in several divisions, he was transferred to the New York freight office. Later he became assistant to the freight traffic manager.

Assigned to the Holland Inter-America Line in 1957, Mr. **Dubbelman** remained there until 1960 when he was transferred to San Francisco and later to Los Angeles. Moving back to New York in 1964, he was promoted to assistant manager of the North Atlantic Division and in January, 1966, was named manager of the Documentation Division. One year later he was named special assistant to management.

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The SS Delta Argentina exists for one purpose only: to make money transporting cargo.

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WORLD WIDE

MARINE FUELS AND LUBRICANTS

Port Authority Chairman Wins Man Of The Year Award

James D. Goodloe (right), Port of Jacksonville Propeller Club president, presents 'Man of the Year' award to **R. R. Thomas,** chairman of Jacksonville Port Authority.

The Port of Jacksonville, Florida, Propeller Club has honored **Randolph R. Thomas** by awarding him the Club's first annual 'Man of the Year' award. Mr. **Thomas** is chairman of the Jacksonville Port Authority.

James D. Goodloe, the Club's president, said the award was established to recognize the individual in the community who has distinguished himself in the area of port development.

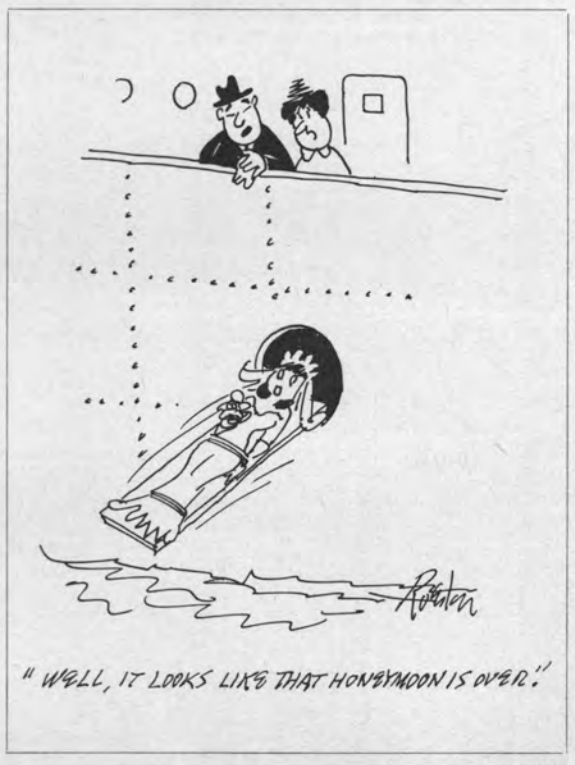
Besides serving on the Port Authority, Mr. **Thomas** is president of McDuff Appliances Inc., a director of Junior Achievement and the YMCA, and a member of the Jacksonville Area Chamber of Commerce and its Committee of 100, and many other organizations. He has served on the Port Authority since 1966 and has been its chairman for nearly the full time since then.

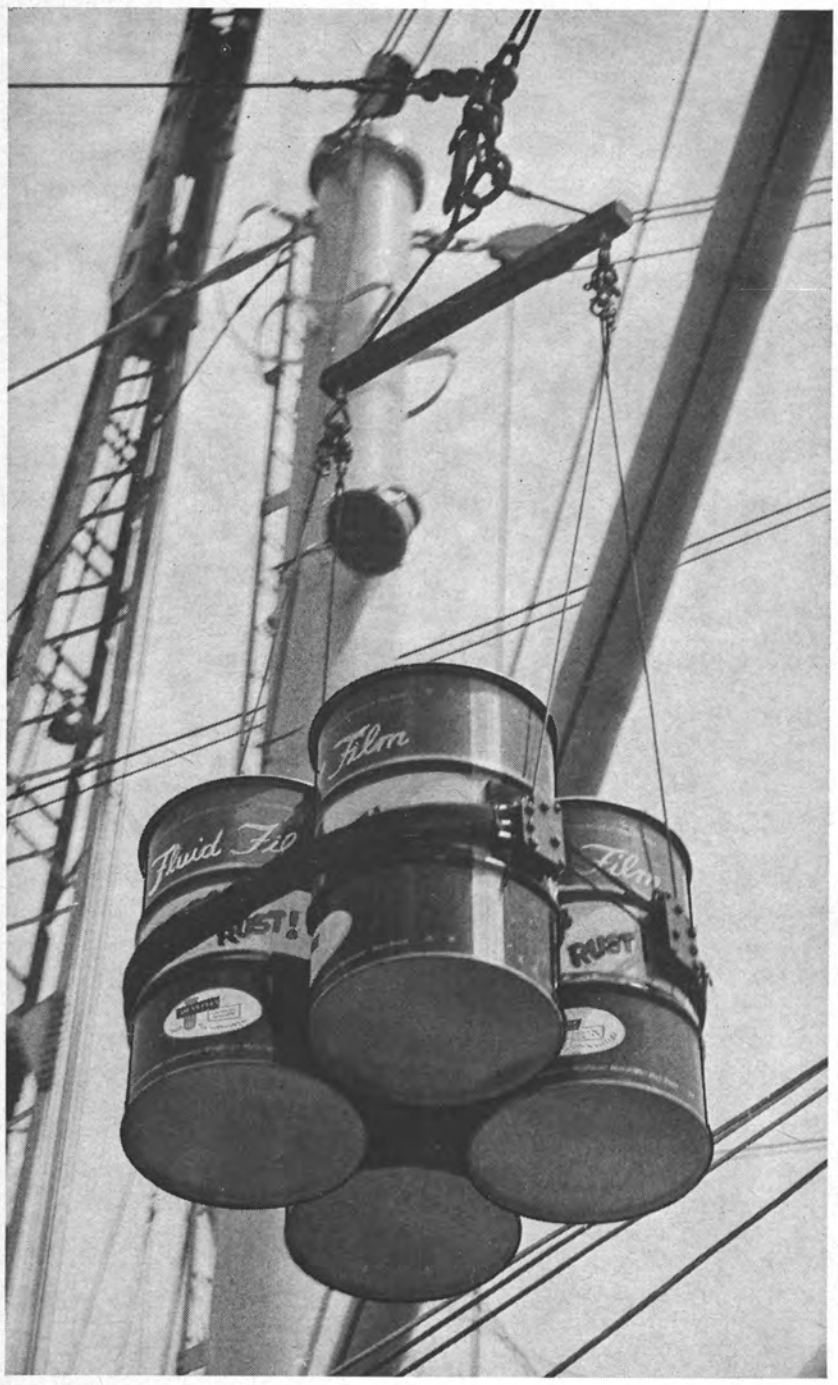
Four Huge Tankers Ordered From Kockums

Kockums Mekaniska Verkstads A/B of Malmo, Sweden, has announced the receipt of a contract worth $40-million for four tankers, totaling 963,-000 deadweight tons.

The buyers are foreign shipowners but Kockums said they did not want their identity revealed for business reasons.

The orders included three 251,400-ton tankers —the biggest ships ever ordered in Swedish yards —and one 210,000-ton vessel.





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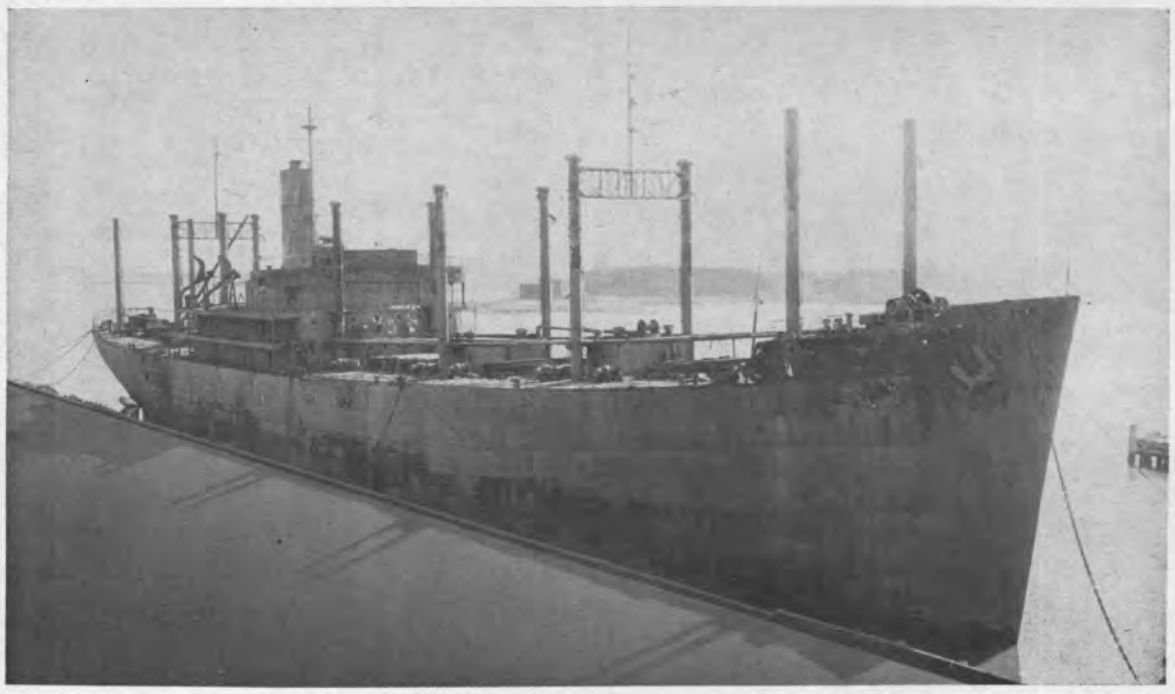
AP2/AP3 VICTORY C2/C3 NEW, USE RECONDI



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

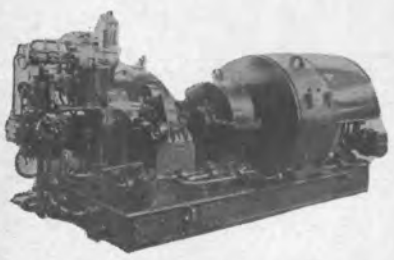
350 KW TURBO GENERATORS: **Turbine**—De Laval 503 HP—10,000 RPM—6-stage—440#—282° superheat—28½" exhaust. **Gear**—De Laval—10,000/1200 RPM. **Generator**—Crocker-Wheeler 350 KW—120/240 DC—1458 amps—1200 RPM—compound wound—#230194 & 230195. Also fits Federal Hull 198. BOILERS: Foster-Wheeler type D—2-pass 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.

THIS IS JUST A PARTIAL LIST OF AVAILABLE MATERIAL!
INQUIRE ABOUT OTHER ITEMS YOU NEED

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

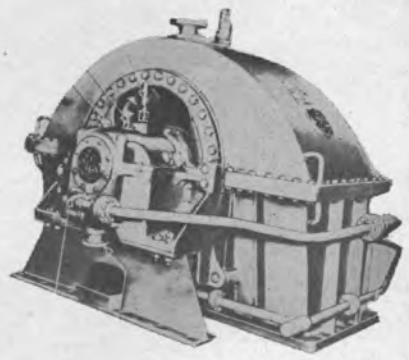
Mfg. by Graham—unused ABS and reconditioned ABS. Main condenser water boxes—AP3—Allis-Chalmers.

Aux. Condenser Water Box & Return Cover

Reconditioned ABS—Graham design—mfg. by Ross.

NEW AP2 VICTORY ENGI

6600 HP Main Propulsi



G. E
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COMPLETE TURBI

GENERAL ELECTRIC

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

NEW THROTTLE VA
Schutte and

NEW H. P. AND L. P.
For General Electric and Allis-Chalmers

ABS RECONDITIONED 660

L. P. & H. P. MAIN PRO

FROM EX-MEDINA VICTORY—MARA
H.P. Turbine—complete—Serial 4A-1618—L

FROM EX-SHEEPSHEAD BAY VI
H.P. Turbine—complete—Serial 4A-2264—L

AP2 VI
WESTIN
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Immediate
6000 SHP—RP
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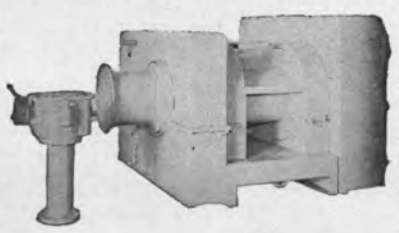
—AB No. PA
Ex-Medina Vict
1620.

VICTORY SHIP UNIT WINCHES

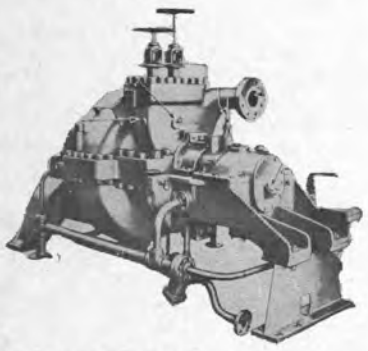


50 HP—230 VD
house, G.E. or Croc
U-1, U-3 single
lbs. @ 223 FPM
double speed—19
96 FPM. We hav
and left hand units

D AND IONED MACHINERY & EQUIPMENT

E ROOM EQUIPMENT

n HP & LP Turbines



RS

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E ASSEMBLIES

ALLIS-CHALMERS

Low Pressure Turbine $17,500
High Pressure Turbine $18,500

VES – $6750.00

erting

URBINE BEARINGS

abyrinth packing—diaphragms.

H.P. WESTINGHOUSE

ULSION TURBINES

HULL 586—BUILDERS HULL 586

Turbine—complete—serial 4A-1619.

TORY—OFFICIAL NO. 81752

Turbine—complete—serial 4A-2265.

TORY
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Delivery

H.P. pin-
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57 — from
serial 4A-

NEW H. P. & L. P. FLEXIBLE COUPLING

NEW SPARE BLADING FOR WESTINGHOUSE L. P. TURBINE

—Westing-
er-Wheeler.
eed—7450
U-2, U-5
00 lbs. @
both right

FOR AP2
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.

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y, New York, N.Y. 10004—(212) 943-2640

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

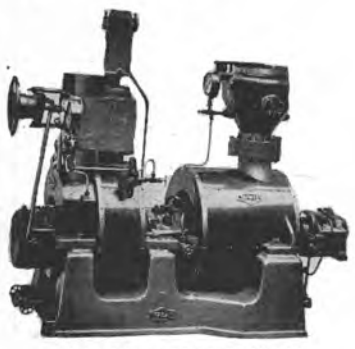
15 HP Motors and Terry or Coppus turbine drive.

INQUIRE ABOUT ANY UNLISTED ITEMS THAT YOU NEED

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

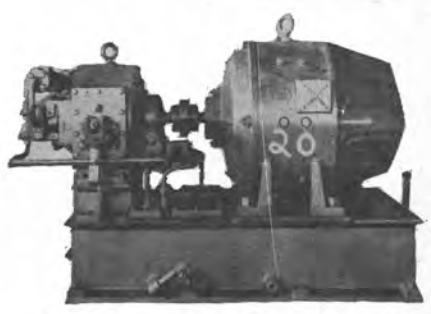
Manufactured by Allis-Chalmers. 10.9 lb. head—36" flange to flange—12" suction and discharge—17" bolt circle—19½" O.D. flange. This pump was substituted for a Worthington LAS on a Victory Ship and was easily fitted into the existing piping. The flange to flange dimensions were only slightly larger. MOTOR: 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.

Will Sell Pump separately.

LUBE OIL STANDBY

Vertical Duplex—Worthington—7½x9x12.

FEED PUMPS

Worthington—vertical simplex—11x7x24.

HORIZONTAL DUPLEX PUMPS

Size 6x6x6 pumps.

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

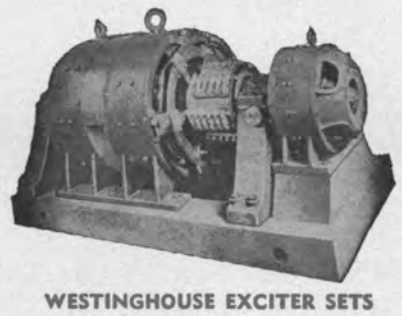
Reconditioned—ready to go.

T2 TAILSHAFTS

Reconditioned

PROPELLERS

T2 propellers



I WESTINGHOUSE EXCITER SETS

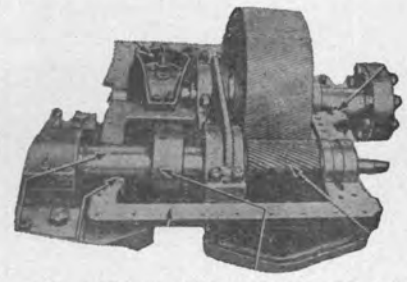
110 KW—28 KW—5 KW available
110 KW—32.5 KW—5 KW available

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

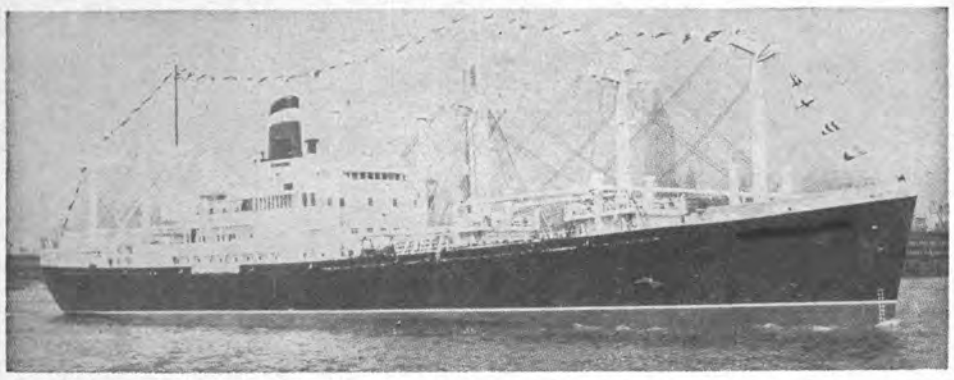
O MAIN GENERATOR AIR COOLER

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.

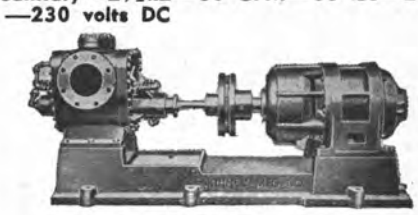
RECIPROCATING STEAM PUMPS

— 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.

THE BOSTON METALS CO.

313 E. BALTIMORE ST. • BALTIMORE 2, MD.

Main Office: LExington 9-1900 • Marine Dept.: ELgin 5-5050

New York Office: 11 Broadway, New York, N.Y. 10004—(212) 943-2640

SNAME San Diego Section Inspects Desalting Plant As Guests Of Aqua-Chem

One-hundred sixty naval architects, marine engineers and mechanical engineers with their wives and guests from San Diego and other California cities met recently at Rosarito Beach, Baja California, Mexico for a tour and technical paper presentation of the new Tijuana Seawater Desalting Plant.

Comision Federal de Electricidad (CFE), the agency of the federal government responsible for the organization of all power generation facilities in Mexico, sponsored the tour.

Buses transported a majority of the party from Tijuana to the desalting plant at Rosarito Beach where plant engineers escorted the party on an interesting tour of the facilities.

Those in attendance were members of The Society of Naval Architects and Marine Engineers, San Diego Section, their wives and guests, and members of the Los Angeles and San Francisco Sections of SNAME and the American Society of Mechanical Engineers of San Diego.

Following the tour of the plant, a technical session was held at the Rosarito Beach Hotel where **Charles D. Rose,** vice-president of Aqua-Chem, Inc., welcomed the group. Aqua-Chem made all the arrangements for the tour and technical session.

A special paper was presented by **Armando B. Steinbruchel** chief engineer, Aqua-Chem, Inc., assisted by **Hector M. Zuccolotto,** plant superintendent for Comision Federal de Electricidad. The author commented on the fact that the Tijuana plant is the world's largest multi-stage flash seawater desalting plant capable of producing 7.5 million gallons of fresh water each day at a cost of only 65 cents for each 1,000 gallons. The fresh water produced is distributed to Tijuana and adjoining towns.

This plant was designed and constructed by Aqua-Chem, Inc. and is one of many located throughout the world.

Gordon N. Carpenter, San Diego SNAME Section chairman, **Victor Millman,** San Diego ASME chairman and **Henry Rumble,** Los Angeles, SNAME Section chairman agreed that this was the largest turnout of members and guests for a monthly meeting.

The Society of Naval Architects and Marine Engineers, San Diego, on behalf of all those in attendance, expressed their appreciation and thanks to **Armando Charval,** CFE general superintendent and district engineer and to Aqua-Chem, Inc. for a very interesting and enjoyable meeting.

British Place Study Contracts For Two Mammoth Tankers

The British Ministry of Technology (Mintech) has announced that they are initiating a study into the technical problems involved in the design and construction of mammoth oil tankers.

Belfast shipbuilders, Harland and Wolff, and Swan Hunter's on Tyneside, have been awarded the initial study contract to design two tankers, of 400,000 dwt and 1,000,000 dwt, at a cost of $288,000. This, according to a Mintech spokesman, "will provide British shipbuilders with data to design and build vessels of these and any intermediate sizes."

The study is being carried out in conjunction with Lloyd's Register of Shipping and the British Ship Research Association, which will also liaison with Mintech's National Physical Laboratory (NPL) and the Naval Construction Research Establishment (NCRE) of the Ministry of Defense.

Estimated to take some 18 months to complete, the study is a forward-looking move to give U.K. shipbuilders a lead in the very competitive market of building oil carriers of constantly increasing size.

Two Towboats Ordered From Humboldt Boat

Humboldt Boat Service, St. Louis, Mo., is to build two towboats for Shappert Engineering Co., Belvidere, Ill. To be equipped with 460-total-bhp General Motors diesels, each vessel will have dimensions of 50 feet by 18 feet by 5 feet.

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Barge Construction

American Marine Corp., New Orleans, La., has received a contract from Tidewater Morgan City, Inc., New Orleans, La., for the construction of a deck cargo barge. The barge will have the following dimensions: 240 feet by 70 feet by 14 feet, and it will be of 4,000 dwt.

Avondale Shipyards, Inc., New Orleans, La., has been awarded a contract for the construction of 360 cargo barges by Prudential Lines, Inc., New York. Prudential Lines will be using these barges in the operation of its five LASH ships which are presently under construction at Avondale.

Each barge will have a bale capacity of 19,500 cubic feet, with the following dimensions: 60 feet by 31 feet by 13 feet, and a maximum draft of 8 feet 6 inches. They will be of 375 dwt and will be built at a cost of $35,000 each.

An option extending to July 31 has been given for the construction of 65 additional barges, which will bring the contract expenditure to a total of $12.6-million. It is anticipated that the barges will be completed in five groups. Deliveries will commence February 2, 1970 and extend through November 24, 1971.

Greenville (Miss.) Shipbuilding Corp. has received an order from Al Johnson Construction Co. to build a deck cargo barge. Designated Hull No. 28, the barge will have the following dimensions: 120 feet in length, 46 feet in beam and 8 feet in depth, and will be of 800 dwt.

Gretna Machine & Iron Works, Inc., Harvey, La., has received a contract from McAllister Brothers, Inc., New York, for the construction of an oil barge. Designated Hull No. 185, it will have the following dimensions: 245 feet by 50 feet by 16 feet, and will be of 3,500 dwt.

Hillman Barge & Construction Co., Pittsburgh, Pa., has contracted to build two tank barges for Allied Chemical Corp., New York. Each barge is to be of 1,600 dwt and will have the following dimensions: a length of 200 feet, a width of 35 feet and a beam of 12 feet 6 inches.

Jeffboat, Inc., Jeffersonville, Ind., is to build nine tank barges for stock purposes. Each barge will have the following dimensions: a length of 195 feet, a beam of 35 feet and a depth of 12 feet 6 inches, and will be of 1,500 dwt.

Southwest Shipyard, Inc., Port Arthur, Texas, is constructing a cargo barge for stock purposes. To be of 400 dwt, it will have dimensions of 100 feet by 28 feet by 6 feet.

Todd-Houston Yard is to construct a work barge which will be used by Todd-Galveston Yard. Similar to a previously ordered barge in 1967, it will be 170 feet in length, 35 feet in beam and 8 feet in depth.

Zigler Shipyards, Inc., Jennings, La., is to construct a deck cargo barge for Movable Offshore, Inc., Lafayette, La. Designated Hull No. 196, the barge will have the following dimensions: 240 feet by 72 feet by 15 feet and will be of 4,500 dwt.

Atlantic & Gulf Stevedores Enlarging Houston Facilities To Handle Container Repairs

Joseph F. McGoldrick, president of Atlantic & Gulf Stevedores, Inc., has announced the signing of a contract with Superior Building Systems, Inc., for the construction of a new office and gear yard at 1300 Boyles St., Houston, Texas, in the port area.

Capt. **Charles A. Alcorn,** resident manager of Atlantic & Gulf Stevedores, said the new facility was needed to properly service their customers in the Houston port. With the greatly enlarged facilities they plan to handle the repair and maintenance of containers, chassis, and bogies for their customers.

Construction is to be completed by July, 1969.

FIRST OF FIVE—Shown underway on her recent sea trials on San Francisco Bay is the Vivian Ann, first of five tuna boats to be built by Paceco of Alameda, Calif., under a U.S. Bureau of Commercial Fisheries subsidy program. The tuna seiners will provide their owners with operating features new to the fishing industry: a bulbous bow for greater speed and stability, and a bow thruster propeller for quick maneuverability. Engine rooms are positioned aft so shafts are shorter, thus reducing vibration and noise levels as well as maintenance and alignment problems. With engine rooms near the stern, stack gasses and heat—a nuisance to lookouts—are thrown clear. The 1,188-ton, 151-foot boats have a cruising speed of 14 knots and a fish hold capacity of 550 tons. They will go to five San Diego-based fishing companies.

In good weather the new Radiomarine Loran Receiver saves time.

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It's one of the unfortunate facts of life that the need to know your position increases as the weather gets dirtier, while the chance to shoot a sight gets less and less. Especially since three-handed navigators are in short supply.

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New England Section Discusses Calculation Of Metacentric Height

The New England Section of the Society of Naval Architects and Marine Engineers held its January meeting at A. D. Little, Inc., Cambridge, Mass. This was the second meeting of the current year. The technical paper, presented by **Charles L. Wright,** formerly the chief design engineer of the Boston Naval Shipyard, entitled "The Significance of Metacentric Height", elicited considerable discussion from those attending the meeting.

Guests in attendance were **Lester Rosenblatt,** chairman of the Society membership committee and Comdr. **Richard Gardner,** USN, design superintendent of the Boston Naval Shipyard, and chairman of the New England Section of the Society of Naval Engineers.

In his technical paper, Mr. **Wright** reviewed in detail the significance of metacentric height as a function of the configuration or hull form of a ship and the distribution of its weight. Because it can be determined relatively easily and quickly, either by empirical relations or by direct calculation, it is often relied upon as a principal indication of the stability of the ship and its ability to survive extensive flooding due to underwater damage. The accuracy to which it is meaningful was evaluated by the author. Some modifications to present procedures for weight and moment control, which would simplify these procedures without significantly reducing the effectiveness of this control, are recommended in the paper. A simplification to present procedures for determining the location of the center of gravity by inclining experiment is also proposed.

Charles L. Wright presenting his paper on the significance of metacentric heights to the New England Section of SNAME.

Apollo Appoints Popiel General Sales Manager

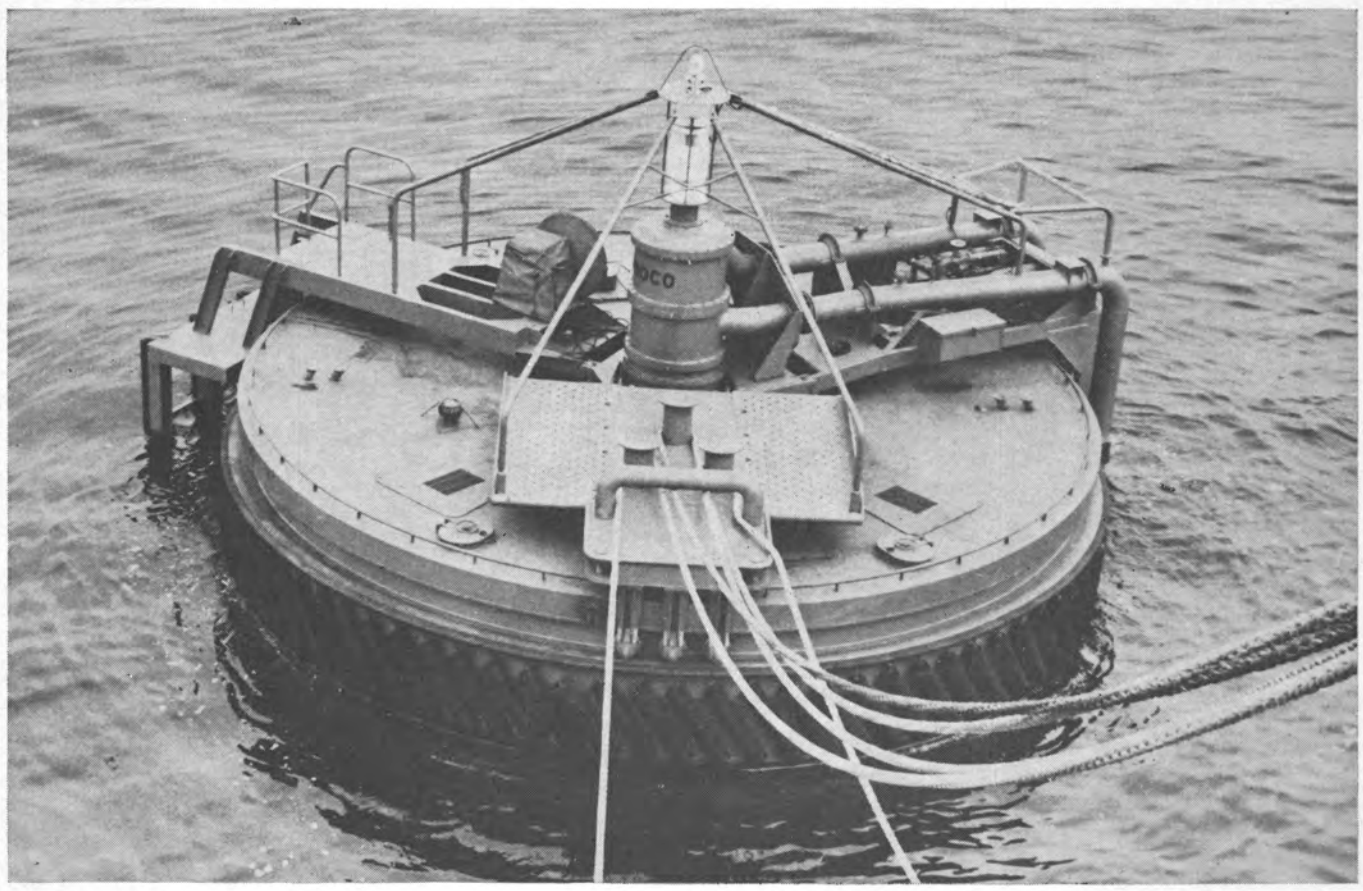
Harry Popiel

Dr. **Ira Kukin,** president of Apollo Chemical Corp. of Clifton, N.J., has announced the appointment of **Harry Popiel** as general sales manager responsible for sales and technical services to refinery, utility, heavy industry and transportation companies.

Mr. **Popiel** was, prior to his appointment, western regional technical representative in Apollo's West Coast marketing area. Previously, he was western regional manager for a specialty chemical firm. He is a graduate of the University of Colorado with a degree in chemical engineering.

MarAd Accepts Bid Of Goudy & Stevens For 155-Foot Trawler

The Maritime Subsidy Board has declared the $1,291,040 bid of Goudy & Stevens of East Boothbay, Maine, to build a 155-foot fishing trawler for Amagansett, Inc., of Amagansett, New York, a fair and reasonable bid and the lowest responsible domestic bid received. Estimating that the cost of building the vessel in Japan would cost $749,000, construction differential subsidy was set at $542,040.



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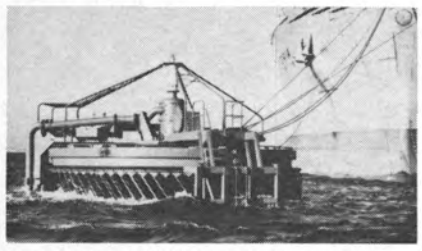
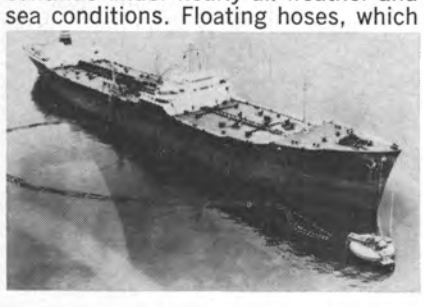


The Imodco SPM system provides a simple, economical solution to the problem of loading and discharging supertankers and other bulk liquid carriers which have already outgrown all but a handful of the world's existing port facilities. Securely anchored offshore, it permits cargo operations to continue under nearly all weather and sea conditions. Floating hoses, which



rotate about the SPM terminal with the tanker, connect the ship's cargo manifolds to the SPM. Other hoses connect the underside of the SPM to the submarine pipelines.

Among its many advantages, an Imodco SPM offshore tanker "sanctuary" permits complete freedom of movement in the approach and departure of supertankers, eliminating extensive maneuvering in congested

waterways. It overcomes restrictions imposed by narrow, winding and shallow channels and reduces or eliminates costly harbor development and subsequent continuing maintenance.

Imodco designs, constructs and installs SPM terminals capable of handling multiple fluid cargoes. This enables bulk liquid carriers to perform cargo loading, unloading, bunkering, deballasting operations simultaneously.

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Ship Poster Contest Winners Are Selected

Top officials headed by **James F. Fanseen,** vice-chairman of the Federal Maritime Commission, have selected the winners in the annual United States maritime industry poster contest. The event is held each year as a cooperative venture between government agencies and maritime organizations to help spur interest among high school students in the American merchant marine. The theme for this year's poster was "American Ships: Freedom's Lifeline."

The winning posters, including the top price winner of $500 which will be displayed on the side of U.S. Post Office trucks during the month of May, will be announced later this spring. However, the judges recently reviewed some 200 final entries from an original list of approximately 5,800 posters submitted by students from all parts of the nation.

In addition to the Post Office, the Maritime Administration and the Federal Maritime Commission, ship industry groups participating in the sponsoring of the contest include the American Institute of Marine Underwriters, the Lake Carriers' Association, the Shipbuilders Council of America, the Propeller Club of the U.S. and the American Institute of Merchant Shipping.

The contest sponsors noted that last year about 9,000 students in 39 states participated in the event. A total of 45 winners are selected from the final 200 posters on display at the judging at the Seamen's Church Institute in New York.

The grand winner will receive the $500 prize on the steps of the capitol in Washington. In addition there will be four regional first prizes, 20 second prizes and 20 third prizes.

McDermott Expanding Bayou Boeuf Facilities

Roger W. Wilson, president of J. Ray McDermott & Co., Inc., New Orleans, La., has announced the signing of a long-term lease with C. M. Thibodaux Co., Ltd. for more than 900 acres adjoining the company's facilities on Bayou Boeuf near Morgan City, La.

H. W. Bailey, vice-president, said "At present we have 238 acres which are being fully utilized. With the additional property we will immediately begin a series of expansions. These additional fabrication facilities will service the new offshore construction equipment which the company is now building."

He also said "Some of the acreage would probably be used for operations which would complement present facilities and operations now being carried on at this location."

Allis-Chalmers Obtains Rights To Sell And Build British Container-Handling Equipment

Allis-Chalmers, Milwaukee, Wis., has announced the signing of an agreement with a British firm to market, with manufacturing rights in North America, a line of heavy-duty fork lift trucks and specialized container-handling equipment.

The agreement was reached with Lancer Boss, Ltd., of England, a major British material handling firm. It was signed in London by Group Vice-President **J. J. Chluski** for Allis-Chalmers, and by the chairman of Lancer Boss, **G. Neville Bowman-Shaw.**

"The Lancer Boss equipment will augment our own already substantial line of material handling equipment and enable us to make a greater penetration in North American markets," Mr. **Chluski** said.

"We are particularly interested in these units," he said, "because of today's widespread emphasis on containerized shipping and specialized applications. The line includes a unique approach to handling quickly existing sizes of containers, including those 40-feet long."

Under the terms of the agreement, Allis-Chalmers will market 13 models of engine-powered lift trucks with lifting capacities from between 8,000 to 100,000 pounds. None of the units is competitive with the currently marketed Allis-Chalmers line of lift trucks.

Mr. **Chluski** said the Lancer line of container handling sideloaders included 21 models, which range in capacity to 100,000 pounds. Allis-Chalmers does not produce this type of equipment.

Murphy Promoted By Marine Transport

H. Lee White, president of Marine Transport Lines, Inc., New York, N.Y., has announced the appointment of **Thomas E. Murphy** to manager, Marine Personnel Division. The assignment was effective as of February 1, 1969.

MarAd Awards Hydronautics Air Jet Propulsion Study

The Maritime Administration has signed a $43,350 contract with Hydronautics Inc., Laurel, Md., for that company to make a study of an augmented air jet propulsion development program for a craft of about 4,000 tons.

Hyronautics is to report on the likely efficiency of the captive-air-bubble craft and its feasibility using jet propulsion.

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British Revive Interest In Passenger Liners

A revived interest in passenger liners could produce orders for British shipyards worth about $72-million within the next two years. Three big passenger lines—P & O, Furness Withy, and Cunard—are studying proposals which could produce new orders and a fourth company, British and Commonwealth, is "thinking very carefully" about new tonnage.

Higher passenger fares and better loading facilities are currently yielding returns that make new cruise ships and liners at around $20-million each, appear as profitable investments.

P & O, the world's biggest passenger operator, has established a special department to plan new passenger tonnage. The deputy-chairman in charge of passenger operations, **Peter Parry,** said that business was improving with a resurgence of public interest in passenger shipping. "We would prefer to build new ships rather than recondition, if there is an economic case for it," Mr. **Parry** said.

Cunard Line managing director **John Whitworth** said that design studies were under way for a pair of full-time cruise ships about the size of the Carmania. They would be used mainly for the lucrative Caribbean run.

Designs for a small full-time cruise ship are at present being prepared by a British yard for Furness Withy.

Capt. Pfeifer Named To Key MarAd Post In Atlantic District

Appointment of Capt. **Carl F. Pfeifer** as assistant director for operations of the Maritime Administration's Atlantic Coast District has been announced by the Atlantic Coast director, **Thomas A. King.**

Captain **Pfeifer** retired in 1968 from the United States Navy, after a 30-year career. Graduating from Annapolis in 1939, his service afloat has included assignment as chief engineer of an Essex-class aircraft carrier, command of a destroyer, and commander of a destroyer division. Ashore he has served in training commands, was an instructor and deputy director of the Industrial College of the Armed Forces, commanding officer of the Military Sea Transportation Service in Viet Nam and inspector general of MSTS in Washington, D.C. His varied career also includes additional duty as a naval aide to the President at the White House.

Under the Atlantic Coast director his duties will include coordination and program implementation of the Atlantic Coast District's responsibilities, relating to the full scope of operating activated reserve fleet vessels in the Viet Nam sealift, the successful retention of laid-up ships in the National Defense Reserve Fleets, government aid to the American merchant marine and certain training and planning functions.

Pilot Controlled Tugs And Thomson Cranes Subjects Of Pacific Northwest Meetings

Attending the meeting held at Skagit Corporation were, left to right: **R. A. Hardin** and **J. E. Henroit,** authors; **G. C. Snyder,** W. C. Nickum & Sons; **Sidney S. McIntyre Jr.,** president of Skagit; **D. H. Bartlett,** Westinghouse Electric Corporation and Section secretary; **M. J. Markey,** Markey Machinery Company and Section chairman; **R. H. Richards,** Philip F. Spaulding & Associates and Section papers chairman, and **B. Bard,** Skagit Corporation. On the left is a model of the Thomson crane system.

A new dry-cargo ship crane system and pilot-controlled tugs were discussed at two recent meetings of the Pacific Northwest Section of The Society of Naval Architects and Marine Engineers.

The first of the two meetings was held at the plant of the Skagit Corporation, Sedro-Woolley, Wash., about 70 miles north of Seattle. During the afternoon the members were shown the Skagit shock basin installation at Big Lake and then were given a tour of the Skagit manufacturing facilities.

R. A. Hardin and **J. E. Henroit** of Skagit presented a paper entitled "The Thomson Crane System." This type of crane was developed in Scotland and has been used on numerous foreign-flag ships. To date, the crane has not been installed on any American-flag ships. However, a 30-ton Thomson crane system or equal has been specified for the American President Lines' and Farrell Lines' ships on order at Ingalls Shipbuilding. The cranes provide considerable flexibility and can handle containers and breakbulk with equal ease.

The second meeting was sponsored by the British Columbia Area of the Section. It was held at the Waldorf Hotel in Vancouver, B.C. **Robert M. Keenholts,** of Puget Sound Tug and Barge Company, presented a paper entitled "Pilot Controlled Tugs." The paper covered the actual development, design, installation and operation of the alarm systems and automatic equipment installed in several seagoing tugs by the Puget Sound Tug and Barge Company in 1968.

Attending the meeting which discussed pilot-controlled tugs, were left to right: **M. J. Markey,** Markey Machinery Company and Section chairman; **C. S. Cosulich,** president, Rivtow Marine Ltd.; **R. M. Keenholts,** author; **Jacques Heyrman,** Island Tug & Barge Ltd. and chairman of the British Columbia Area; **J. Grey,** Island Tug & Barge Ltd.; **W. P. Wood,** Foss Launch & Tug Company, and **D. R. Case,** Burrard Dry Dock Co., Ltd. and vice-chairman of the British Columbia Area.

Scandinavian Owners Pool Fleets To Operate In Far East Service

Three Scandinavian shipping companies have pooled their resources to become the largest concern plying the European-Far East route. The combined fleet will total 33 ships aggregating 412,000 dwt.

The companies—The Swedish East Asia Company of Gothenburg, Wilh. Wilhelmsen of Oslo, Norway, and The East Asiatic Company of Copenhagen, Denmark—announced jointly that the pool, to be called the Scandinavian Joint Shipping Service, or Scanservice for short, will enable them to call at 28 ports in 22 countries, offering eight sailings a week in each direction.

Under the directorship of **Borge Rathje** at headquarters in Copenhagen, Scanservice will cut out competition between the three companies, offer opportunities for greater rationalization and effectivity and facilitate greater use of containerships, a spokesman for the group said.

Scanservice will go into operation on April 1, with a timetable that specifies exact dates of arrival and departure from each port 12 months in advance, enabling importers and exporters to plan shipments more easily.

Of the 33 ships, 16 will be contributed by the Danish company, 8 by the Norwegian and 9 by the Swedish company.

Humble Oil Names Chase Senior Marine Sales Representative

Herschel Chase

Herschel Chase has been promoted to the professional rank of senior marine sales representative, according to a recent announcement made by Humble Oil & Refining Company, Los Angeles, Calif.

A native of Houston, Texas, Mr. **Chase** has been a Humble employee for 22 years. He attended the University of Houston and joined Humble in the Controller's Department at Houston in 1946. He later moved to the Exploration Department as a draftsman in the geologic section, then to machinist in the geophysics section and joined the Marketing Department in 1964 as consumer sales representative in Los Angeles. He later joined the region marketing staff as commercial representative and was appointed marine sales representative in Los Angeles in September, 1967.

MSTS Requesting Bids For Shipping Services Worth $200-Million

The world's largest ocean-freight traffic order worth more than $200-million, has been put up for bidding by the Military Sea Transportation Service.

The Defense Department's transportation agency has announced that it would require approximately 6.6 million measurement tons of shipping during the fiscal year 1970, which begins July 1. A measurement ton, a unit of volume for cargo freight, equals 40 cubic feet.

The agency's requirements are up sharply from fiscal 1969 when the agency shipped 5.6 million tons of military cargo throughout the world. Those contracts, worth some $170-millions, were divided among 23 United States shipping companies.

Industry sources reported that at least 30 companies were expected to seek a share this year.

The agency has successfully used the competitive bid system for the last two fiscal years since it abandoned the system of negotiating contracts with a steamship conference which was organized to establish rates on military shipments.

The bids will cover shipments on 48 trade routes. On all but five of these routes, which are not susceptible for container type traffic, the bids call for container movements as well as conventional break-bulk shipments.

FIRST OF TWO 87,000-DWT TANKERS was recently delivered by Mitsui Shipbuilding & Engineering Co. Ltd., Tokyo, Japan, at its Tamano Works to Drummond Shipping Company of Monrovia, a member of the Niarchos group. The 810-foot vessel, World Kindness, is propelled by a 20,700-bhp, Type 984VT2BF-180, Mitsui B & W diesel engine which gave a trial speed of 17.2 knots. The second ship, World Knowledge, will be delivered this spring. Both vessels are classed by the American Bureau of Shipping.

Todd Shipyards Stock To Be Handled By N.Y. Stock Exchange

The 1,593,418 shares of common stock of Todd Shipyards Corporation, New York City, have been approved for listing by the board of governors of the New York Stock Exchange. Trading is scheduled to begin on Tuesday, March 25. These shares are presently listed on the American Stock Exchange.

Todd operates seven shipyards located in Brooklyn, New York; New Orleans, La.; Galveston and Houston, Texas; Los Angeles and San Francisco, Calif., and Seattle, Wash. The corporation specializes in vessel construction, repair and conversion, and in heavy marine and industrial fabrication. In recent years the company has diversified into the manufacture of metal die-casting and plastic injection-molding machines by the acquisition of Lester Engineering Company, located in Cleveland, Ohio. Todd has also organized a Nuclear Division to service atomic-powered vessels and other nuclear installations.

The Company reported income of $2,290,919 or $1.57 per share for the six months ended September 30, 1968, compared with $2,198,201 or $1.51, for the same period a year before. For the fiscal year ended March 31, 1968, Todd reported income of $4,930,955 or $3.38 per share, compared with $4,556,760 or $3.12 per share a year before.

Penn Machinery Names Hufford Supervisor Of Engine Division

The H.O. Penn Machinery Company, Inc., New York City, supplier of Caterpillar diesel and natural gas engines and Caterpillar earthmoving equipment, recently appointed **Paul E. Hufford,** supervisor of operations of the company's Engine Division in Westbury, Long Island, N.Y. In his new capacity, Mr. **Hufford** will be responsible for engineering, production and operations at the Westbury facility.

Penn Machinery engineers and supplies Caterpillar standby and total energy power systems to area contractors for a myriad of operations which must depend on continuous electrical power in the event of a power failure.

Mr. **Hufford** formerly served as a salesman and total energy coordinator for Penn Machinery's Engine Division. Prior to joining Penn in 1961, Mr. **Hufford** was employed by General Electric de Vem, and the Caterpillar Tractor Company in Peoria, Ill.

He received a B.S. degree from Texas A & M, and attended Adelphi University's Graduate School of Business. He served as a first lieutenant in the United States Air Force.

Braincon Forms Canadian Subsidiary

Braincon Corporation, Marion, Mass., manufacturer of oceanographic vehicles and instruments, has announced the formation of a new subsidiary, Braincon Canada Limited, as the initial step in a planned expansion program in the international market. The parent company is a wholly owned subsidiary of General Time Corporation, operating in the space and systems division.

Comdr. **John J. Coates,** RCN (ret.), has been named president of Braincon Canada Limited which has been established with new facilities in Dartmouth, Nova Scotia, one of Canada's fastest growing research and industrial centers.

Terrence Hallett will serve as chief engineer.

Edward C. Brainard II, president of Braincon Corporation, noted the new subsidiary will not only design and manufacture oceanographic and other geophysical instrumentation for the general Canadian market, but will also be engaged in the development of specialized equipment and services dictated by the unique characteristics of Canadian climate, geography and ocean environment.

Fred W. Purdom Named Manager Of SmYth Intl. Van Lines

Fred W. Purdom

Fred W. Purdom, former assistant vice-president-administration for Alaska Steamship Co., has been named manager of SmYth International Van Lines, Inc., which serves as Alaska marine arm for household goods operations for SmYth Worldwide Movers, Inc.

Douglas B. Barnes, executive vice-president of SmYth Worldwide Movers, Inc., announced the appointment of Mr. **Purdom** and two others in the moving company's Tacoma, Wash., and Honolulu, Hawaii, offices.

Mr. **Purdom** succeeds **Don Connelly** who has become administrative assistant for SmYth Moving & Storage Company, Inc., Tacoma.

Mr. **Purdom** joined Alaska Steamship Company in 1963 as executive assistant. Earlier he had held a number of executive positions with moving companies in Washington, Hawaii and Puerto Rico.

SmYth, organized in Seattle in 1940, now is one of the major movers of household goods in the Pacific area and the Far East. In addition to its Seattle headquarters and 10 domestic facilities throughout California and Washington, SmYth maintains full-service facilities throughout the Pacific and agents throughout the free world.

General Electric Makes Key Appointments In Diesel Department

Key appointments within the newly created diesel engine department of General Electric Co.'s transportation systems division, which includes marine propulsion, have been announced by the firm in Erie, Pa.

Included are **C. Eugene Hart,** as general manager of the department; **Donald T. Wonderly,** as manager of the manufacturing section; **William Speicher,** as manager of the engineering section; **George C. Mason,** as manager of the financial analysis and planning section; and **John J. Juniewicz,** as manager of the employee relations section.

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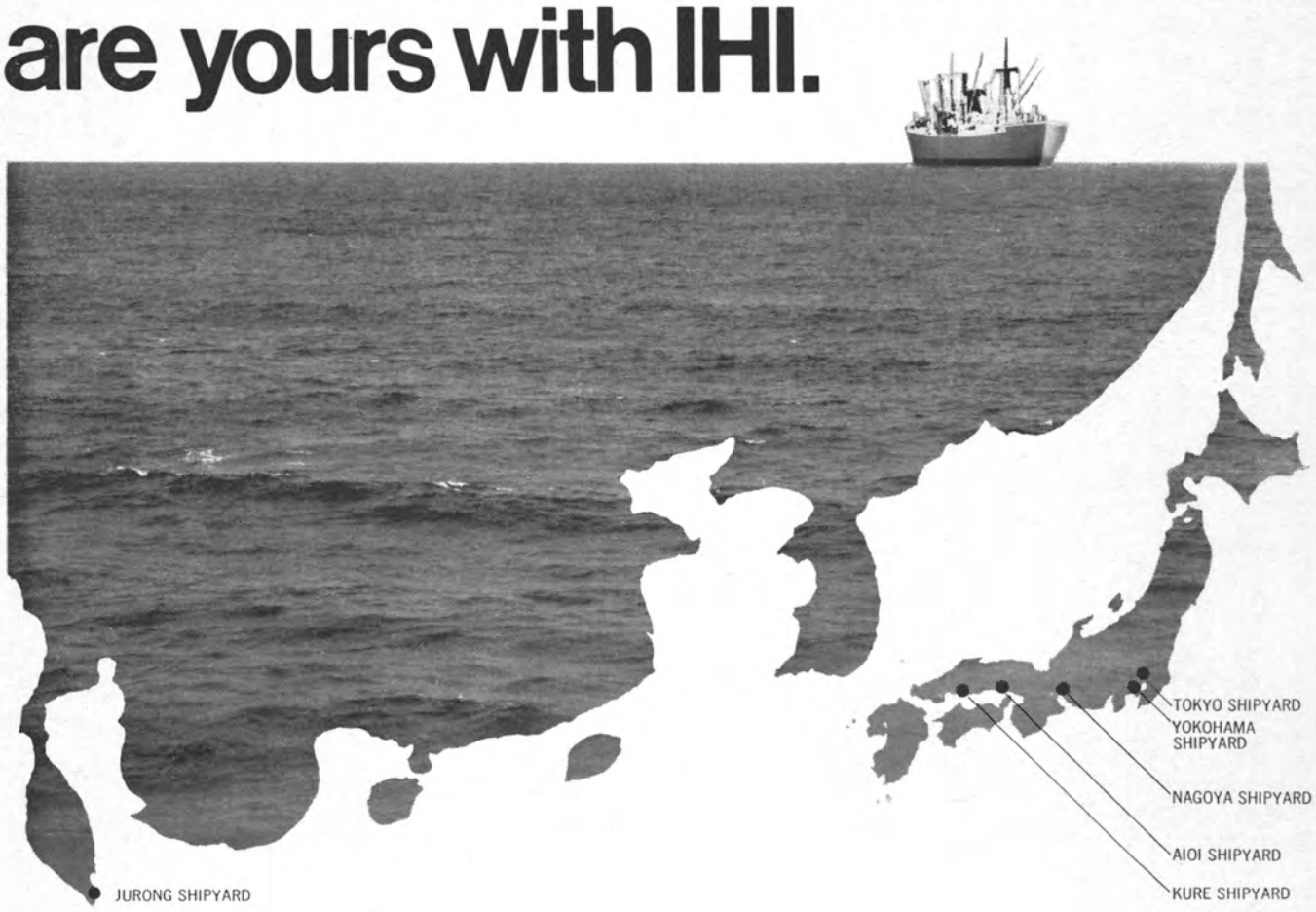

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Location		Maximum size of ships to be accommodated L.O.A.	B.	d	D.W. (LT)
TOKYO	No. 1	459′3″	60′4″	18′	11,000
	No. 2	605′3″	76′9″	18′	23,000
YOKOHAMA		1.181′1″	177′1″	19′8″	300,000
NAGOYA		500′	63′	14′9″	13,700
AIOI	No. 1	780′9″	108′3″	18′	73,000
	No. 2	512′1″	63′11″	14′9″	14,000
	No. 3	1.118′9″	177′1″	19′8″	300,000
KURE	No. 1	487′2″	64′10″	16′4″	13,600
	No. 2	549′10″	78′8″	19′8″	22,000
	No. 4	1.110′	141′	19′8″	160,000
SINGAPORE (Jurong Shipyard)	No. 1	885′9″	127′11″	16′4″	90,000
	No. 2*	853′	173′10″	19′8″	100,000

*Starting April, 1969

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Diesel Ferryboat Islander Incorporates Many Unique Features

Gladding-Hearn designed and built ferry for Long Island/Shelter Island operation.

The double-ended steel diesel ferryboat Islander was recently delivered by Gladding-Hearn Shipbuilding Corporation of Somerset, Mass. to the Shelter Island-Greenport Ferry Co., Shelter Island, N.Y. The new boat is a duplicate of the Shelter Island and Prospect, previously built by Gladding-Hearn for the same principals.

The 84-foot-long, 29-foot-6-inch-beam, 8-foot-6-inch-deep craft conforms to all the latest U.S. Coast Guard rules for passenger carrying vessels up to 100 gross tons. Her capacity is certified for 150 persons and 14 automobiles, for a total of 47 long tons of vehicles and passengers. Prior to completion at the shipyard, a thorough inclining test was carried out under Coast Guard inspection to insure adequate stability in all operating conditions, even assuming one of the five separate water-tight compartments to be flooded.

The hull has heavily reinforced brow shelves at each end and multiple layered guard strakes along the sides to protect the hull from frequent contact with pilings and fendering of the landing slips. End-to-end trusses between deck and bottom give longitudinal rigidity and support for heavy deck loads. Ice-breaking posts at each end protect the rudders and hull from damage during severe winter weather. The hull is coated with Socony paints.

Propulsive power is supplied by a Caterpillar D-342-C diesel engine rated 170 hp at 1,225 rpm, purchased through H. O. Penn Machinery Company. This engine is set 3 feet off the centerline of the ship and turns the shafting through a 3:1 Snow Nabstedt hydraulic reverse/reduction gear driving the main shaft with 16 'D'-section Goodyear vee belts. At each end of the five-part, 4-inch diameter main shaft is a Federal three-bladed 50 inch by 32 inch right-hand propeller. The propellers thus turn together, one pushing and one pulling, until direction is reversed. Thrust is absorbed by two SKF roller thrust bearings amidships and the various sections of the shaft are joined by Link-Belt split-sleeve couplings with internal annular ring thrust keys.

The main engine is fitted with a keel cooling system, using galvanized wrought-iron pipes welded to the exterior of the hull and circulated through an internal heat exchanger. Engine coolant is distilled water and anti-freeze.

Ships power and lighting is 32-volt direct current, obtained from a bank of heavy-duty 203-ampere-hour Surrette batteries which are charged from either a Leece Neville alternator driven off the main engine, or one driven from the Lister LD2 auxiliary diesel. Distribution is arranged from an engine room board designed and built by Federal Pacific Electric Company. An Oceanic Electric Company's shore connection is provided for using shore power when not operating. Separate battery banks are provided for the Henschel general alarm, the emergency lights, magnesyn compass system, and auxiliary engine starting. Communications between pilothouses and engine room are made through a sound-powered telephone system and ship-to-ship or ship-to-shore through an Apelco radio. Portable Light Company searchlights are installed. All electric fittings were supplied by Oceanic Electric Company.

The vessel's 600 gallons of fuel is divided between two tanks and soundings for these are indicated on the main deck level by Liquidometer Midget Levelmeter gauges.

Several unique features incorporated into the construction of the boat reflect the experience of her operators and the peculiarities of the run. A small rotary blower is driven from the vee belt idler shaft and distributes the warm engine room air to the other underdeck compartments through a system of ductwork. This eliminates any condensation in these spaces by the circulation of air and is expected to result in a maintenance-free hull interior.

An electrical magnesyn compass system using a master compass on an aluminum mast six feet above the deckhouse and repeaters in each pilothouse, remains free of deviation shown in the magnetic compasses due to the presence of large trucks and irregular disposition of magnetic loads. At each end, rolling aluminum-plate gates extend from the bulwark to keep the deck free of spray from the short choppy seas common to the run and also provide an additional measure of safety for passengers and vehicles.

In cold weather, cabin radiators are heated by hot water from a heat exchanger on the engine cooling system. Since the engine is in continuous operation, heat is readily obtainable upon demand by use of Minneapolis-Honeywell heating controls.

Each pilothouse is fitted out with intership phone, radio controls, special Kearfott aluminum-framed full drop windows, electric windshield wiper, engine and auxiliary engine controls, general-alarm contact makers and positive action pedestal steerers with mechanism for automatically locking the bow rudder in center position.

Features such as these, plus an all-out effort on the part of all parties involved in its creation, has resulted in a highly efficient vessel meeting the latest standards for passenger comfort and safety and using the most up-to-date materials and methods acceptable to the service.

AMF Cuno Appoints MacCulloch Manager For Marine Sales

William W. MacCulloch

William W. MacCulloch has been appointed manager, marine sales, for the evaporator products group of the AMF Cuno Division, American Machine & Foundry Company, Meriden, Conn., it was announced by **Thomas S. Willets,** general sales manager.

In this capacity, Mr. **MacCulloch** will be responsible for the sale of the company's Maxim Thermoflash and Aquafresh Evaporators for service aboard merchant and naval vessels. Maxim marine evaporators are used in sizes up to 100,000 gpd aboard ships for converting seawater into freshwater for potable use and boiler make-up feed.

Before joining AMF Cuno, Mr. **MacCulloch** held the position of contracts administrator with the W. B. Arnold Company, Inc., of Hoboken, N.J. He was previously associated with Aqua-Chem, Inc. in a marine sales capacity and served in the merchant marine where he was licensed as second assistant engineer for both steam and diesel vessels.

A 1960 graduate of the Massachusetts Maritime Academy with a bachelor's degree in marine and electrical engineering, Mr. **MacCulloch** has also pursued studies in oceanology at the University of Miami and geology at Boston University.

C. Stone To Represent Walz & Krenzer, Inc. And Marine Products

Carson Stone

Walz & Krenzer, Inc. of Rochester, N.Y., and Marine Products & Engineering Co. of New York City, have announced the appointment of **Carson Stone** (Carstone Corporation) as their Gulf area representative.

MP&E and W&K specialize in the design and manufacture of hydraulic power and manual activated sliding watertight doors, sideports, ramps, bulkhead doors and Pilgrim propeller nuts.

In addition to the main offices and plant, both companies jointly maintain branches in San Francisco, San Pedro, Seattle, Vancouver and Montreal.

THE ALCOA SEAPROBE, a trailblazing all-aluminum oceanographic vessel, will be one of the first major applications of new corrosion-resistant temper H117 developed by Aluminum Company of America. The new temper endows aluminum marine alloys 5456 and 5086 with virtual immunity to exfoliation corrosion. Scheduled to get under construction within a few months, the 2,000-ton displacement ship will require more than 500,000 pounds of aluminum alloy 5456-H117. Alcoa Seaprobe will have the ability to hold its position in rough seas; search, core, drill and sample mineral deposits on the ocean floor; locate and retrieve heavy objects more than a mile beneath the surface; and perform other exploratory oceanographic functions.

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Comparative Considerations

Steam Power Vs Gas Turbines

V. A. Johnson*

It would be presumptuous to represent myself as an expert on the subject of marine propulsion systems. I have, therefore, taken the opportunity to review studies recently made by authorities on the subject. Thus, I propose to interpret the observations of some competent information sources which will allow us to make an analysis of the advisability of switching from a proven and improving system of marine propulsion, to one which is still substantially in the experimental stages of development.

Let me first make you aware that there have been many significant advances in marine boiler technology in recent years. Since the boiler is such a major and significant component of the total steam-propulsion system, it is being continually studied for improvements. A depth study of over 500 selected service reports on recent designs has led to the conclusion that virtually all problems associated with marine boilers has resulted from one, or a combination of the following causes:

1. An inadequate combustion process.
2. Inadequate boiler water chemistry control.
3. Poor operating techniques and neglect.

Let us focus on a few of the components. There is now being developed a register and steam atomizing Racer-type oil-burner combination that will result in a turn-down range in the order of 75 to 1. The marine steam-atomizing oil burner is capable of burning fuels direct from previously ballasted tanks and can, without difficulty, burn fuels that contain up to approximately 10 percent seawater.

The modern marine boiler design includes the maximum practical amount of water cooling in the furnace, basically to protect the refractories in the furnace envelope. Recent designs have increased furnace water cooling by additional waterwalls in the furnace rear wall, front wall, and floor and have tightened tube pitch centers all around.

The superheater vulnerability to vanadium attack has been tackled by giving rigid attention to the tube-metal temperature of superheater surface and improved combustion. Slagging has been controlled by employing mass-action sootblowers and more judicious bending of superheater pass tubes into the inter-pass lane area in order to restrict flow of gas into this area.

With automatic feed and boiler water chemistry monitoring and treatment we can virtually eliminate the need to mechanically or chemically clean the boiler watersides.

Thus we now have boilers that can effectively burn any common grade of fuel oil, a minimum of gas-side fouling, virtual elimination of waterside cleaning, and related economy advantages.

It is encouraging to us that the trend is to an interest in systems since so many steam-plant problems of the past have resulted from lack of system integration and inherent divided responsibility.

The real challenger as a new prime mover for ship propulsion is the aircraft gas-turbine plant and we propose to compare this plant with the modern steam plant.

Principal desired features of a modern ship-propulsion plant can be enumerated as: fast response rates for all desired maneuvers, any available fuel can be utilized, minimum needs for operating manpower and efficient fuel consumption rate.

The steam turbine is inherently reversible with its integrally attached reversing turbine. Thus, no additional components are required to effect the reversing function.

The steam plant can have an extremely fast response capability for any maneuvers required. This can be categorized as less than a 30-second response rate for any required maneuver from dead stop to flank speed or from ahead to astern. This response rate is achieved significantly by the single boiler and wide-range burner concepts, since all equipment is on the line all the time assisted by the substantial thermal storage in the boiler drum.

The low temperature cycle of the steam plant, in the order of 850° to 950°F. in modern systems, allows for the use of rugged, proven materials within comfortable margins of safety.

In addition, the existence of boilers provides a convenient, flexible and efficient source of energy for essential auxiliary functions in the engine room.

Reduced manning is achieved by the single boiler per shaft principle and by the use of optimum degree of automation.

It is not sufficient that we extoll the virtues of one system without considering the attributes of the closest contender, the aircraft gas-turbine propulsion plant. Our comparison is directed at the growing commitments for propulsion gas turbines in larger horsepower vessels and, in particular, warships of the destroyer class.

The main component, of course, is the gas generator which we familiarly see under an aircraft wing, only a few hours or minutes from skilled ground technicians. However, in our context, we must move it into the marine engine room environment where it will be exposed to long periods of demanding performance.

First we must provide it with substantial acoustic and ventilation accouterments. This is particularly significant with the trend to light-weight types of gas-turbine units.

Then we must add a power turbine and reduction gear, and, because it is inherently non-reversing, we need an external reversing gear assembly. This may involve possibly anywhere up to 21 gear rotors (11 gear rotors for a conventional steam system), clutches (not required in a steam system), and/or a controllable-pitch propeller.

Inherent with a gas-turbine system is the poor part-load performance, necessitating multiple engine outputs to each propulsion shaft, with the associated clutching arrangement and a fuel consumption penalty at cruising power.

Like all high-performance gas turbines it can only use distillate and gaseous fuels. This is the result of gas-turbine high-blade temperatures and sensitivity to contaminates in normal fuel oils.

It is known that aircraft gas-turbine electric generators have a high fuel consumption—thus it will likely be found that it is economically essential to supply diesel-electric generators on the gas-turbine ship. A separately fired or waste-heat steam generating unit will be found most effective for other auxiliary engine room functions, such as water distillation and miscellaneous heating.

The gas-turbine has a remarkable thirst for clean air in the order of 55 lb./hp-hour, compared to the steam plant requirement of about 12-15 lb./hp-hour. Characteristically, hot gas-turbine exhaust gases present a problem in designing flues—relative to insulation and material selection. A major air-duct design complication is the problem of removing entrained particulate salt water, to limit sodium sulphate attack on hot turbine parts.

Now let us make some comparisons between steam and gas propulsion systems. The steam plant's claim for use of proven components for marine service does not hold in the case of the aircraft gas-turbine. With respect to the gas generator itself, only advanced engines still in development stages can even hope to approach a competitive situation from a life-cycle viewpoint.

The steam plant has an acknowledged versatility in accommodating a wide range of fuels. The gas turbine cannot accommodate fuel tolerance, and thus is at a disadvantage. As there is continuing talk of a multi-purpose fuel (MPFO), the compatability of the gas-turbine engine becomes even more unrealistic.

The gas-turbine compares unfavorably in its ability to achieve the reversing function. This is a simple inherent capability with the steam turbine. Uncertainties of development, system control complexity and machinery reliability risks all contribute to the vulnerability of the gas-turbine system, in this regard.

The high temperature cycle of the gas-turbine, and particularly of the advanced engines, implies the uncertainty of necessary advanced materials technology. The relatively low temperature of the steam cycle allow it to be accommodated with rugged, proven materials void of early deterioration risk.

The high-temperature, light-weight characteristics of the gas turbine engine classify it as a short time constant system. It is critically dependent upon extremely fast, accurate response from control systems and operators. In this regard it compares unfavorably with the self-regulating features of the steam plant.

And finally, we have the function of the steam plant to provide a flexible energy source for auxiliary engine room functions—not available from the gas-turbine plant.

The steam plant has ample prospects for future development for marine use with further life-cycle-cost advantages. Conversely, it is reasonable to argue that as aircraft engines reach higher states of development, they will become more technically sensitive and, therefore, less compatible to the marine environment.

From an economical point of view, we wish to point out one of the principal advantages of the steam plant and that is the very flat fuel-rate curve from full power down to cruising load. This is in contrast to the increasing fuel-rate curve for the aircraft engine as power is decreased, necessitating multiple engine arrangements with inherent complications and redundancy of equipment.

In closing, may I comment that it is apparent that nuclear propulsion will play an increasing role in future marine propulsion systems. In acknowledgement of this prospect it would seem logical to advance steam plant technology as a main stream development rather than embark on any costly diversion with alternate non-steam powerplant development which would entail expensive duplication of technical training, logistic and financial resources.

*Mr. **Johnson,** sales promotion manager, Babcock & Wilcox Canada Ltd., presented the paper condensed here before a recent meeting of the Eastern Canadian Section of The Society of Naval Architects and Marine Engineers held in Saint John, N.B.

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Zidell To Build Four Barges Equipped With Star Iron Cranes

Zidell Explorations, Inc., Portland, Ore., has won a $2-million contract to build four steel barges, rated for unlimited ocean service, at its Portland yard, according to **Emery Zidell,** president.

The barges will be built for Star Iron & Steel Co. of Tacoma, which holds a $6.5-million contract to deliver them, outfitted, to the U.S. Navy.

Each barge will be 140 by 70 feet and more than 12 feet deep. Including crane foundations and base, which Zidell will build, each will contain 700 tons of steel. The relatively great weight is due to the exceptionally heavy construction specified by the Navy.

Zidell will deliver in Tacoma at the rate of one unit a month beginning in June.

Star Iron & Steel will equip each barge with a 100-ton lift capacity crane and also install power-generating equipment, machinery and lighting in the below-deck engine rooms.

Although the Navy has made no announcement of the intended end use for the barges, it is presumed that they will be employed in loading operations from ships and docks overseas.

Built to American Bureau of Shipping as well as Navy and Coast Guard specifications, the four will qualify for 'Star A-1' ratings, which will permit their being towed anywhere.

Vancouver Tug Elects Lindsay Vice President

J. Rod A. Lindsay

The appointment of **J. Rod A. Lindsay** as vice-president of Vancouver Tug Boat Co. Ltd., Vancouver, B.C., and subsidiary companies was announced by Capt. **J. C. F. Stewart,** president and chief executive officer, following a meeting of directors.

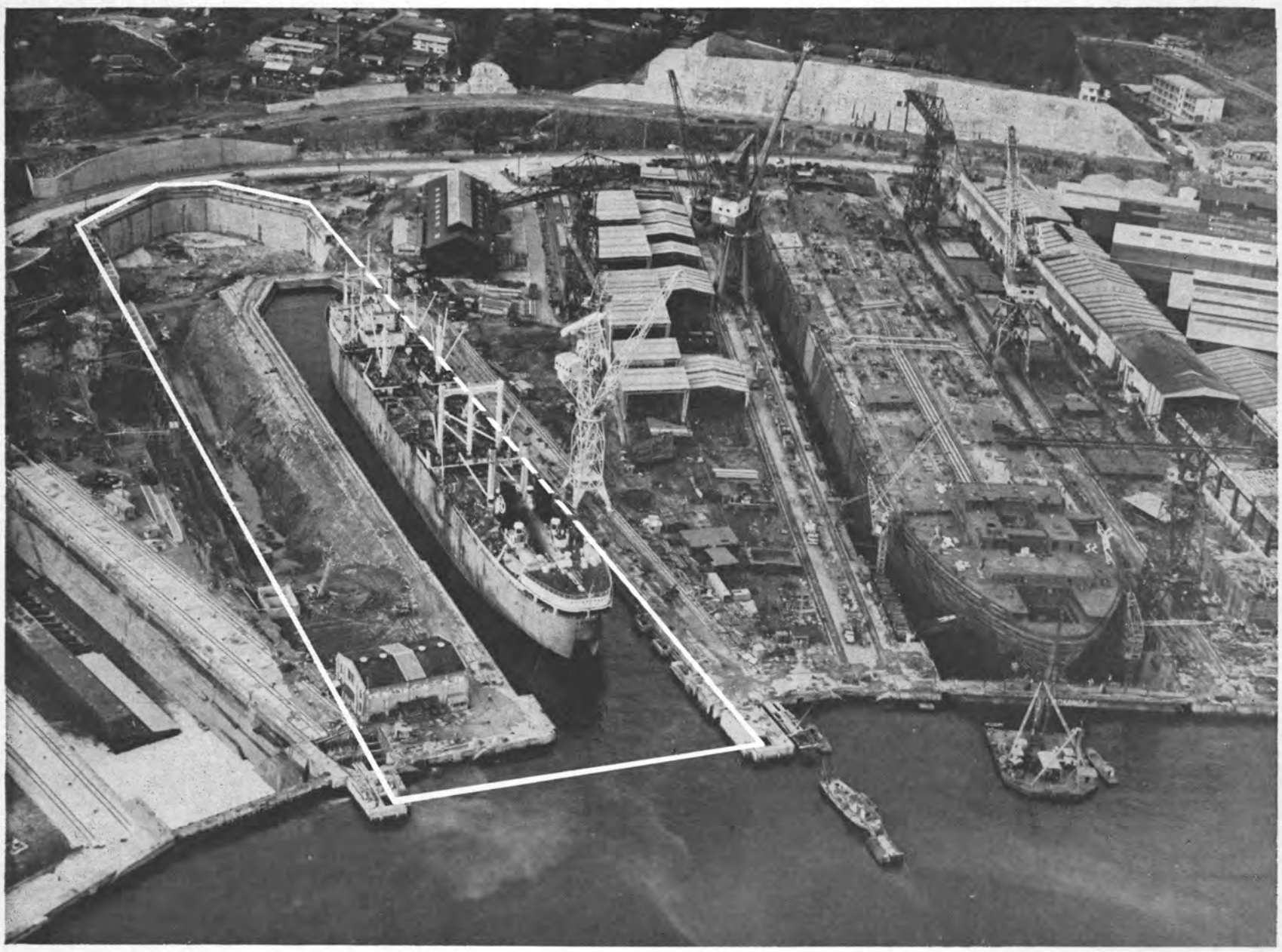
A veteran of 20 years in the tugboat industry, Mr. **Lindsay** served in the Vancouver Tug fleet and subsequently held various shoreside executive positions prior to his appointment as general manager in 1956. As vice-president, he will retain the responsibilities of general manager. Mr. **Lindsay** is currently president of the B. C. Towboat Owner's Association, and a past president of the Plimsoll Club of Vancouver.

Matson Containerships On Order In Germany To Have B&W Boilers

The key components of the powerplants for two American-flag containerships that Matson Navigation Co. is having built in West Germany, have been awarded to the Babcock & Wilcox Co., of New York, according to an announcement by B&W. The firm has contracted to supply four marine boilers — two for each vessel — with the Bremer-Vulkan Shipyard of Bremen.

The boilers, B&W said, will be designed and built in conformance with the requirements of the U.S. Coast Guard as well as other ship regulatory agencies. Under the contract, the design of the boilers and major components will be supplied by B&W. However, boiler components of a less critical nature will be fabricated by the West German shipyard in accordance with B&W design and details.

The two Matson containerships will be registered under the American flag and are scheduled for operation on the trans-Pacific container route of the unsubsidized ship line. The company is also building two high-speed containerships at the Bethlehem Steel Corp's Sparrows Point shipyard for operation both on its trans-Pacific and Hawaiian route.



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Some time back we launched the world's first 130,000 DWT mammoth tanker and the whole world looked with awe. Today this feat is but another page of our progressive history. But since those days we've made unmistakable headway. In ship construction as well as dock facilities. Expansion work is progressing right on schedule at our No. 3 repair dock. And it will surpass a capacity of 300,000 DWT when ready for service this May.

No questions about it. With facilities as unique as any in the world it's no wonder that Sasebo builds mammoth tankers bigger and better than ever.

Right: No. 4 building dock.
Building 14 consecutive 210,000 DWT mammoth tankers.
Left: No. 3 repair dock.
Capacity will be expanded to the size outlined.
Completed dimensions 370m x 70m.

Sasebo Heavy Industries Co., Ltd.

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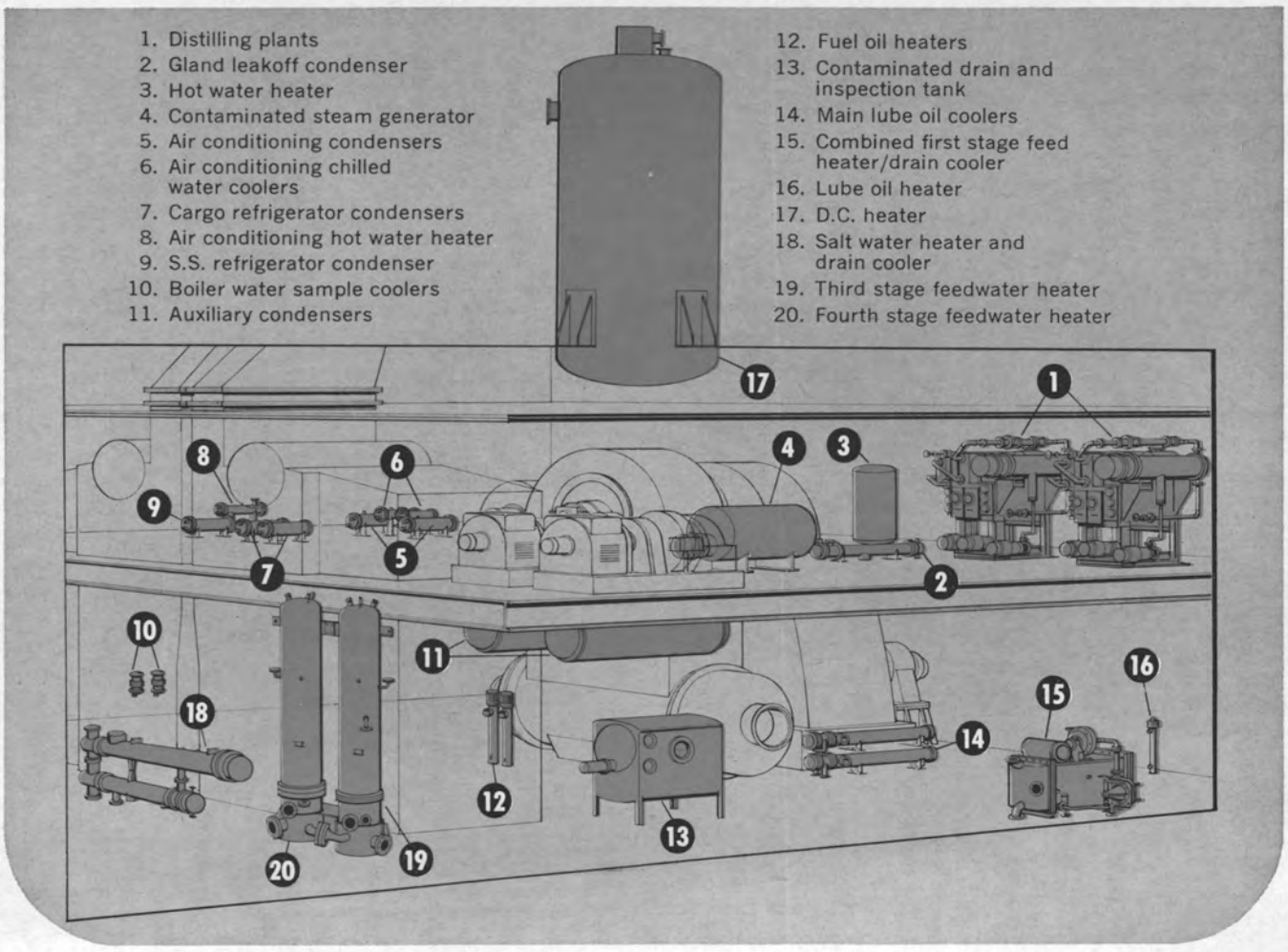
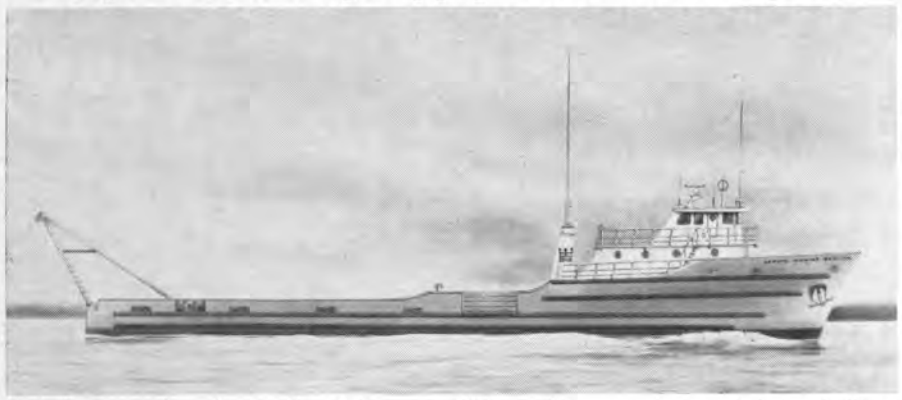


Burton Shipyard Building Unusual Deep-Sea Triple-Screw Tug-Supply Vessels For Zapata



Artist's conception of versatile triple-screw offshore oil tug-supply vessels being built by Burton Shipyard for Zapata Marine Service.

Four 5,600-hp deep-sea offshore service vessels of a radically new design have been ordered by Zapata Marine Service for delivery in the first half of 1969. Each of these vessels will cost in excess of $1-million. Construction is underway on two of the new type vessels at Burton Shipyard in Port Arthur, Texas.

These are the first triple-screw, three-engine vessels to be specifically designed for offshore oil tug-supply service. Powered by three 12-cylinder turbo-charged engines with two-speed reduction gears, the new vessels will command maximum power, speed and maneuverability whether running free or towing.

A diesel-powered remote-controlled bow thruster is incorporated in the new vessels. This bow thruster, combined with the extra power and agility supplied by the three 104-inch by 88-inch pitch stainless-steel propellers, makes the new Zapata vessels superbly maneuverable, efficient and safe.

In addition to the triple screws and bow thruster, these vessels have one of the most modern hull designs in the industry. The all-steel welded hull has an overall length of 175 feet. Amidships depth is 16 feet.

These new Zapata vessels are capable of operating in any offshore area in the world. Diesel fuel supply capacity is over 120,000 gallons, providing a cruising range in excess of 10,000 miles at 12 knots. With a maximum speed of 16 knots, the vessels are well suited for fast turn-around jobs.

Zapata Marine Service has a growing fleet of modern crew boats, supply boats, tugs and utility boats. Zapata vessels are currently operating throughout the seas of the world.

Western Gear To Build Ship Transfer System For New Litton Yard

Western Gear Corporation, Lynwood, Calif., has been awarded a $4.6-million contract to design, manufacture and install an automated ship-transfer system in Litton Industries' new 'shipyard of the future' now under construction in Pascagoula, Miss. The contract was awarded by Litton's Ingalls Shipbuilding Division.

The system, the largest of its type in the world, will be used to transfer complete sections (modules) of merchant ships and naval vessels, as they move along the assembly line of the new $130-million ship-manufacturing facility. A sophisticated complex of self-propelled dollies, moving along 23 miles of rail, will shift ship sections from work-station to work-station, using electro-hydraulic motive power controlled from a central operator's station. Some sections will weigh up to 5,000 tons as they approach the final assembly area where they will be welded together to become oceangoing vessels.

Contract for design, manufacturing and installation of the transfer system will be managed by the Los Angeles-based construction department of Western Gear's Advanced Systems Division. Pallet cars, transfer equipment, and power units will be manufactured at the company's plant in Everett, Wash.

The shipyard, scheduled to begin fabricating ships in mid-1969, will be completed by 1970, and will incorporate the most advanced marine production technology.

First vessels produced in the new facility will be seven super-containerships. In addition, Litton has been named by the Navy as design winner of a billion dollar potential program for the construction of a series of Landing Helicopter Assault Ships (LHA).

Litton presently is one of three firms selected by the Navy to submit proposals for a major project, known as the DX program, to replace the aging U.S. destroyer fleet.

Litton's new shipyard is being built on a 611-acre site across the Pascagoula River from the traditional shipbuilding facility which Ingalls has operated in Mississippi for 30 years.

Wm. R. Lindsey Joins Lucian Q. Moffitt Staff

William R. Lindsey

William R. Lindsey has joined the staff of Lucian Q. Moffitt, Inc., Akron, Ohio, as a full-time factory representative.

In announcing the appointment, **Claire A. Drach,** president, said Mr. **Lindsey** will be working throughout the Gulf Coast with headquarters in Houston, Texas.

Mr. **Lindsey** has more than 12 years experience in selling marine products and supplies to shipyards, boatbuilders, fishing fleets, marine distributors and the offshore oil industry. He attended The Citadel and is a former U.S. merchant marine officer.

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Front-panel controls permit selection of gate width and receive sensitivity from 50 mvrms to 5 vrms. Audible and visual alarms indicate bad data if no echo is received, or if echo is received out-of-gate.

A built-in self-test feature rapidly checks out most circuitry by simply flipping a switch. The tracker can be bench operated in its cabinet or mounted in a standard 19-inch rack. It is completely self-contained, having its own d-c power supplies, and requires 115 volts ±10 percent, 60 Hz ± 5 percent, 50 watts, single-phase power. It weighs 50 pounds.

For more information write or call: Alpine Geophysical Associates Inc., 65 Oak Street, Norwood, N.J. 07648. Telephone: (201) 768-8000.

RUDDER CLUB CHANGE OF COMMAND—Donald T. Quinn (right), newly elected commodore of the Rudder Club, receives gavel from outgoing Commodore **Thomas J. Giardino,** at ceremonies in the St. George Hotel, Brooklyn. Mr. **Quinn** is a vice-president of Boise-Griffin Steamship Co. and Mr. **Giardino** is traffic manager of Marchessini Lines. The Rudder Club is a maritime organization comprised of 400 steamship and stevedoring executives, managers and supervisory personnel. Other officers elected for 1969 were: **A. C. Mele,** Mealli Protective Service; **James L. Bailey,** Wedemann & Godknecht; **Louis J. Suarez,** Garcia and Diaz; **John J. Devine,** Anderson-Linton Lumber Co.; **Clifford Palmer,** Lee and Palmer, Inc.; **Anthony D'Ambrosio,** Atlantic Coast Industries, and **Daniel J. Altilio,** Central Gulf Lines.

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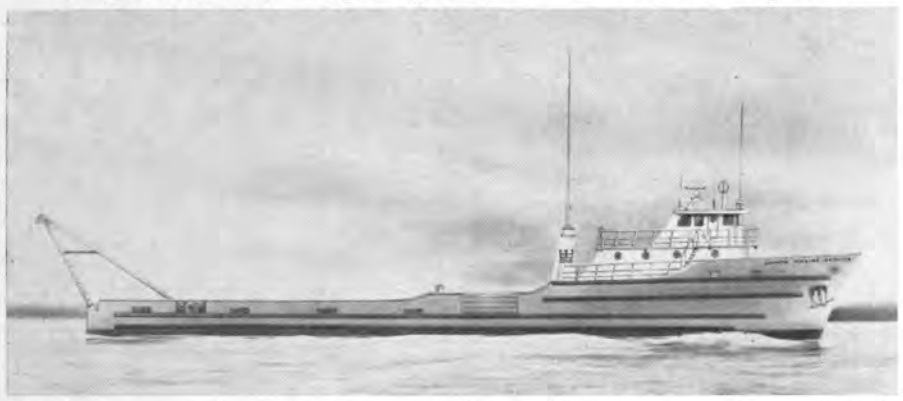
NEW 100-FOOT "EQUITY" STANDARD stock deepwater taxi, built by Equitable Equipment Company, Inc., New Orleans, has been placed into operation by its owner, Sea Service, Inc., a division of Zapata Off-Shore Company, in Nigerian waters. The "Equity" standard vessel, Best Service, was delivered by Equitable in 45 days and sailed from the Port of New Orleans for the 7,118-mile, 576-hour voyage to Warri, Nigeria, under the command of Capt. **W. Gilson,** Zapata Marine Service, Inc., Houston. The all-steel boat, designed and built for operation in offshore petroleum fields throughout the world, is powered by two General Motors 16V71N diesel engines developing 1,270 hp and speeds of 20 miles an hour. American Bureau of Shipping-classed and built for Coast Guard certification, the crewboat has a passenger capacity of 49 and five tons of deck cargo, or 16 passengers, 8 tons of deck cargo and 15 tons of liquid cargo.

Burton Shipyard Building Unusual Deep-Sea Triple-Screw Tug-Supply Vessels For Zapata



Artist's conception of versatile triple-screw offshore oil tug-supply vessels being built by Burton Shipyard for Zapata Marine Service.

Four 5,600-hp deep-sea offshore service vessels of a radically new design have been ordered by Zapata Marine Service for delivery in the first half of 1969. Each of these vessels will cost in excess of $1-million. Construction is underway on two of the new type vessels at Burton Shipyard in Port Arthur, Texas.

These are the first triple-screw, three-engine vessels to be specifically designed for offshore oil tug-supply service. Powered by three 12-cylinder turbo-charged engines with two-speed reduction gears, the new vessels will command maximum power, speed and maneuverability whether running free or towing.

A diesel-powered remote-controlled bow thruster is incorporated in the new vessels. This bow thruster, combined with the extra power and agility supplied by the three 104-inch by 88-inch pitch stainless-steel propellers, makes the new Zapata vessels superbly maneuverable, efficient and safe.

In addition to the triple screws and bow thruster, these vessels have one of the most modern hull designs in the industry. The all-steel welded hull has an overall length of 175 feet. Amidships depth is 16 feet.

These new Zapata vessels are capable of operating in any offshore area in the world. Diesel fuel supply capacity is over 120,000 gallons, providing a cruising range in excess of 10,000 miles at 12 knots. With a maximum speed of 16 knots, the vessels are well suited for fast turn-around jobs.

Zapata Marine Service has a growing fleet of modern crew boats, supply boats, tugs and utility boats. Zapata vessels are currently operating throughout the seas of the world.

Western Gear To Build Ship Transfer System For New Litton Yard

Western Gear Corporation, Lynwood, Calif., has been awarded a $4.6-million contract to design, manufacture and install an automated ship-transfer system in Litton Industries' new 'shipyard of the future' now under construction in Pascagoula, Miss. The contract was awarded by Litton's Ingalls Shipbuilding Division.

The system, the largest of its type in the world, will be used to transfer complete sections (modules) of merchant ships and naval vessels, as they move along the assembly line of the new $130-million ship-manufacturing facility. A sophisticated complex of self-propelled dollies, moving along 23 miles of rail, will shift ship sections from work-station to work-station, using electro-hydraulic motive power controlled from a central operator's station. Some sections will weigh up to 5,000 tons as they approach the final assembly area where they will be welded together to become oceangoing vessels.

Contract for design, manufacturing and installation of the transfer system will be managed by the Los Angeles-based construction department of Western Gear's Advanced Systems Division. Pallet cars, transfer equipment, and power units will be manufactured at the company's plant in Everett, Wash.

The shipyard, scheduled to begin fabricating ships in mid-1969, will be completed by 1970, and will incorporate the most advanced marine production technology.

First vessels produced in the new facility will be seven super-containerships. In addition, Litton has been named by the Navy as design winner of a billion dollar potential program for the construction of a series of Landing Helicopter Assault Ships (LHA).

Litton presently is one of three firms selected by the Navy to submit proposals for a major project, known as the DX program, to replace the aging U.S. destroyer fleet.

Litton's new shipyard is being built on a 611-acre site across the Pascagoula River from the traditional shipbuilding facility which Ingalls has operated in Mississippi for 30 years.

Wm. R. Lindsey Joins Lucian Q. Moffitt Staff

William R. Lindsey

William R. Lindsey has joined the staff of Lucian Q. Moffitt, Inc., Akron, Ohio, as a full-time factory representative.

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Sewart Seacraft Building All-Aluminum Lobster Boat

The world's first all-aluminum lobster and crab boat—another major step in modernizing the United States commercial fishing fleet—will be built by Sewart Seacraft, Inc. shipyard in Berwick, La.

About 19,000 pounds of Alcoa sheet, plate and extrusions in marine alloy 5086 will be used to build the craft. The cost will be $122,-689, of which 42.1 percent will be paid by the U.S. Maritime Administration. It is the first federal subsidy ever granted for an aluminum fishing boat.

Naval architect **Peter J. Statile,** Brooklyn, N.Y., the boat's designer, told why aluminum was chosen for the lobster boat:

"Our prime needs are speed, durability and low maintenance costs. Aluminum gives us these qualities. Higher speeds mean more trips and more time at the fishing grounds. More trips and lower costs for upkeep mean profit."

Mr. **Statile** said the boat will be 50 feet 6 inches long and have a beam of 14 feet. It will be powered by a 700-hp V-16 diesel engine and cruise at 23 miles an hour.

With a draft of only five and one-half feet, the boat will be capable of plying inshore as well as offshore waters. A special water circulation system and ice storage facilities will keep the lobsters and crabs fresh from ocean to shore.

The craft will offer amenities to crewmen rarely found in older lobster boats. Included will be shower, cooking and sleeping facilities, allowing longer stays at sea. The latest in electronic navigation and detection devices and handling equipment, will add to the boat's efficiency.

Capt. **Nicholas Rosa,** New York, will own and operate the lobster boat, to be called Pot Luck. It will be operated in the general vicinity of New York Harbor.

Associated Container Trans. Opens New York Offices For New Service To Australia

Associated Container Transportation (Australia) Ltd. has opened a New York office as the prelude to an expected start of an integrated cargo service from North America to Australia and New Zealand. Under the title of Associated Container Transportation (U.S.A.), the New York office is located in the headquarters of Norton Lilly and Co. Inc., at 90 West St., according to the announcement.

M. B. Northen, the North American representative of Blue Star Line, will coordinate development of the service and **D. Chakas** formerly with Caterpillar Tractor Co., will serve as senior executive of the new company. Associated Container Transportation (Australia) and a second company—Overseas Containers Ltd.—will shortly begin a container service between Europe and the Australian area with a combined fleet of nine high-speed ships. Following the decision to introduce service on the North American route, the company expects shortly to order construction of three or more large containerships for the operation. Service on a fortnightly basis is expected to begin early in 1971.

NAVSHIPS Orders Total 65 Landing Crafts

Southwest Welding & Manufacturing Co., Alhambra, Calif. was contracted by NAVSHIPS for 52 of the 56-foot landing craft, diesel (LCM-6) at a total price of $1,850,732. NAVSHIPS also ordered 13 of the same type craft from New Bern Shipyards, Inc., New Bern, N.C. at a total price of $398,840.

Mobil Oil Engineers Conduct Diesel Technology Symposium For Japanese Manufacturers

Japanese diesel engine manufacturers and Mobil Oil Company engineers recently met in Tokyo to discuss current diesel engine technology. The symposium was devoted to technical problems concerning lubrication and fuel for high-output marine and stationary diesel engines.

Among the lecturers were Dr. **Hideo Fujita,** professor of the Department of Technology, Meiji University, Dr. **Iwao Koizumi,** professor of the Department of Technology, Tokyo University, and Mobil research scientists. The formal meetings were followed by workshops where specific problems were discussed in open forum.

Representatives of Japan's shipbuilding and shipping industries also attended the meeting which was held in Keidanren Kaikan Hall, Tokyo's new convention center.

Late last year a Mobil research symposium was held in Copenhagen for European builders of diesel powerplants.

Edo Introduces Compact 800-Watt Sonar Transceiver

Edo Western Corporation has recently introduced the Model 444 solid-state sonar transceiver, an instrument specifically designed for operation with a variety of transducers and precision recorders to perform a wide scope of oceanographic, offshore and ASW tasks. The modular-concept transceiver can be utilized in depth sounding and recording, acoustic command, navigation, bottom penetration and automatic bathymetric systems.

The Model 444 transceiver delivers 800 watts rms with pulse lengths of 0.2 ms, 5 ms and 30 ms. Various output impedances are available at a rear panel.

Due to its conservative design and the use of high-quality components, this low-cost, compact unit (19 inches wide by 5¼ inches high by 11 inches deep) provides a high degree of reliability with a minimum amount of maintenance. It is easily installed, as it requires only that the cable connections be made at the rear of the panel.

Additional information on this unit is available from Oceanographic Instrumentation and Systems, Edo Western Corporation, 2645 South 2nd West, Salt Lake City, Utah 84115.

MONTHLY MARINE SPECIALS

FOR SALE

STEEL DIESEL TUG—143′ x 32′ x 16′ 1,900 H.P., built 1944	$150,000
STEEL DIESEL TUG—110′ x 25′ x 13′ 1,600 H.P., rebuilt 1948	$100,000
STEEL DIESEL TUG—83′ x 24′ x 9.8′ 900 H.P., built 1945	$100,000
STEEL OIL BARGE—236′ x 50′ x 14.8′ Capacity 24,000 bbls., built 1965	$275,000
SIX STEEL COVERED DECK BARGES— 90′ x 30′ x 9′, built 1953; Each	$15,000
SIX STEEL DECK SCOWS— 80′ x 30′ x 8′, built 1943; Each	$12,500

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Barges On The Spot

For Charter

Hopper Barges	***Spud Barges***
175′ x 26′ Open	110′ x 30′
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120′ x 32′	120′ x 45′	190′ x 42′
120′ x 40′		160′ x 50′

Oil Barges 7,000 to 10,000 bbl.

Also Available: Various Deck Barges

For Sale
120′ x 30′ x 7′ Inland Deck Barge

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TURBO-GENERATORS
With A.B.S. Certificates

G.E. DORV 325	525 KW
G.E. DORV 325	300 KW
G.E. DS 60	300 KW
Worthington	300 KW
De Laval	300 KW
Hendy (Terry Design)	300 KW
Westinghouse	300 KW
Westinghouse	250 KW
Worthington	150 KW
Westinghouse CA 20	100 HP
Westinghouse CA 20	50 HP
Westinghouse HP & LP Turbine	4400 HP
Allis Chalmers HP & LP Turbine	4400 HP
G.E. Main Turbine Rotor T2	6000 HP
G.E. HP & LP Turbine C2	6000 HP

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FOR SALE
SULZER DIESEL ENGINE
Type 6Ts-29 With Perkins—75HP. Gen. Oil Cooler and Spare Parts. Good Running Condition. Very attractive price.
SPOONER'S SALVAGE
Box 343, Newport News, Va. Tel. 703-245-0097

FOR SALE
"The Professionals"
(MOREY MACHINERY)

12′-16′ CINCINNATI HYPRO High Column Extension Type Vertical Boring & Turning Mill; 2 swivel ram heads on cross rail. The cross rail is furnished with an extension rail fitted with an auxiliary swiveling head. The arm is of sufficient length to bore at center of table when housings are moved back. 1949.

96″ x 72″ x 20′ CINCINNATI HYPRO Open-side Planer; 2 swiveling toolheads in adjustable rail 40/60°; 1 RH side toolhead swivels 30/30°; pendant control; pneumatic tool lifters; 1951.

HILL Horizontal Type Deep Hole Drilling Machine; with G.E. Mark II tape control & chip conveyor. To be used either as target drill, gun drill, or oil hole drilling machine. Accommodates drill pattern 10′ high by 10′ long and supports weights of up to 50 tons. Speed Range—200 to 4000 RPM in increments of 200 RPM. Feed Range variable—from 0 to 60 IPM. Maximum drill size 1½″. Year of mfr. 1960. RETROFITTED. EXCEPTIONAL VALUE!!! SET UP IN OUR SHOP. INSPECT IT UNDER POWER.

OVERHEAD TRAVELING BRIDGE CRANES. New Cranes at very attractive prices for early delivery. Up to 35 tons and 80′ span. Top running and gantry.

MOREY Machinery Co., Inc.
4-71 26th Ave., Astoria, L.I., N.Y. 11102 • (212) 274-7373

MARINE EQUIPMENT FOR SALE

1—24″ Hydraulic Cutter Head Dredge, Diesel Electric, 1600 Gross Ton, Sectionalized, 6,400 Total Horsepower.

1—20″ Hydraulic Cutter Head Dredge, Diesel, 420 Gross Ton, Sectionalized, 1,600 Total Horsepower.

1—6 Cubic Yard Walking Clamshell Dredge. 3-48″ x 60′ Spuds, 1,000 Gross Tons, Diesel Electric, 130′ x 45′ x 10′.

1—30″ Dredge Booster Plant, 3,200 HP, Diesel Electric, Mounted in 200′ x 35′ x 6′ Vessel.

1—22″ Dredge Booster Plant, 3,000 HP, Diesel Electric, Mounted on three Lowboy Trailers.

2—1000 HP Tugboats, Push Knee Bow, 65′ x 22′ x 9′, Twin Screw, W/Two GM 8-268A Diesel Engines. Two 4-Blade, 60″ Props. Accommodations for 8, complete with Navigational Aids.

2—Floating Warehouse Barges, Navy Type LSM Vessel, 203′ x 34′ x 13′, W/15 Ton Traveling Gantry Crane on full length rail. Two GM 3-268A driving 150 KW Generators.

1—Flat Steel Barge, 150′ x 35′ x 8′.

1—Luhrs 32′ Fiberglass Sportsboat, 300 HP Chrysler Gasoline Engine, Single Screw, Sleeps 4. 88 Total Hours, New 1968.

1—Dredge Tender, 563′ x 68′ W/80 Ton Colby Traveling Gantry Crane on Rail full length Main Deck. 10,000 Ton.

Additional Items Available — Not Listed

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Sioux City, Iowa 51101
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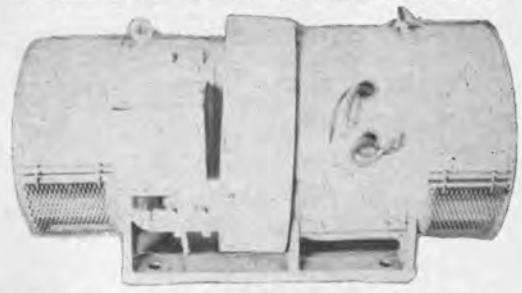
MOTOR GENERATORS
DC to AC

24 KW Bogue Model 2303
Motor: 40 HP 230V DC 140 amp. 1,800 RPM
Generator: 24KW 30KVA .8pf 120V AC 1 Phase 60 Cycle 260 Amps. with Switchboard (4 each)

20 KW Continental
Motor: 30 hp 230V DC 110 amp. 1,800 RPM
Generator: 20 KW 25 KVA .8pf 120V AC 1 Phase 60 Cycle 208 Amps. with Switchboard (4 each)



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55/65,000#/hr. Wickes "A" type, 250 psi W.P. #6 Oil, Assembled, Ready for shipment as a package.

74,000#hr. B&W "St. Tube, Sec. Hdr. Type 300 psi W.P. #6 oil 500° TTF Suphtr., Unassembled.

121,650#hr. F.W. "Express type" 565 psi W.P. #6 oil 850° TTF Suphtr. & Economizer, Unassembled.

177,300#/hr. B&W "Express type" 300 psi W.P. #6 Oil, Unassembled.

211,027#/hr. B&W "Express type" 565 psi W.P. #6 Oil, 850° TTF Suphtr., Economizer, Unassembled.

All boilers have ABS stampings.

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Suitable for non-transport service such as oil storage, distilling or converting to offshore drilling platforms, etc.

(1) Z-ET-S-C3 VESSEL,
ex-Distillery Ship "Leon Godchaux"
DIMENSIONS: 417′-8″ x 56′-10″ x 37′-4″ DRAFT: 27′-8″ (approx.) TONNAGE: Gross 7176, Net 4380, Dwt. 10,800 (approx.) STORAGE CAP: 2,750,000 to 3,000,000 gallons.

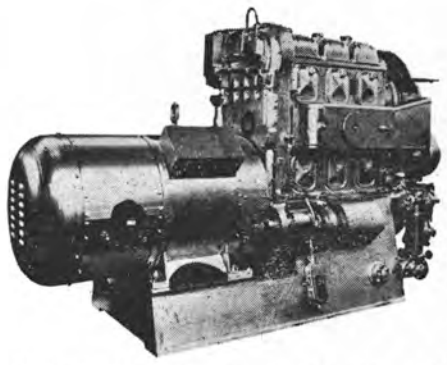
(2) N3-M-A1 VESSELS, ex Navy
Port Repair Ships "Arthur C. Ely" (AK-88) and "SS Henry Wright Hurley" (AK-86)
DIMENSIONS: 255′ x 42′-6″ x 25′-3″ (approx.) TONNAGES (approx.): Gross 2483, Net 1577, Dwt. 2226, Light Ship Tons 1130 (excludes permanent ballast and is the reported tonnage applicable to standard ship of N3-M-A1 type, prior to conversion to port repair ship, which will have increased tonnage to each ship).

Contact: Arnold Zidell

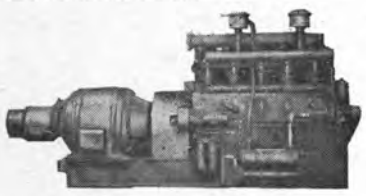
ZIDELL, INC.
3121 S.W. Moody, Portland, Ore. 97201
Phone (503) 228-8691 ✦ Telex 036-701

MARINE DIESEL GENERATORS

SUPERIOR, 10 KW, 120 Volts DC.
HERCULES, D0OC, 10 KW, 120 DC, Radiator cooled.
BUDA, radiator cooled, 15 KW, 120/240 Volts DC.
FAIRBANKS-MORSE, radiator cooled, 25 KW Continental Generator, 120/208/3/60.
Hercules DJXC, 25 KW, 120 DC.
GM 3-71, 30 KW, 120 DC.
Cummins A1, 30 KW, 120 DC.
MURPHY, Model ME 66, radiator cooled, 75 KW, 120/240 Volts DC.
CATERPILLAR DIESEL ENGINE, Model D17000, 167 HP, 900 RPM, Heat Exchanger cooled, with Louis-Allis Generator, 85 KW, 220/3/60.
LORIMER, F5SS, 75 KW, 120/240 DC, radiator cooled.
COOPER-BESSEMER, JS-5, 250 KW, 240 DC.



LORIMER 100 KW
450/3/60 Volts DC.



BUDA 6DHG691, 60 KW, 120 Volts DC.

GM-3-268A, 100 KW, 240/120 Volts DC.

SUPERIOR GBD-8, 100 KW, 240/120 Volts DC.

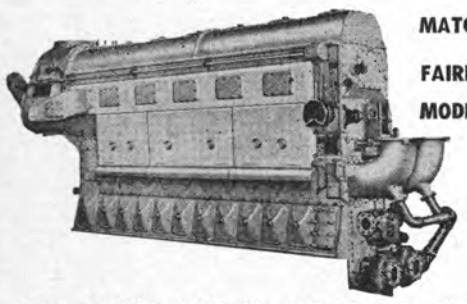
SUPERIOR, Model IDB-8, 100 KW, 450/3/60.

GENERAL MOTORS Diesel Generator Sets Model 3-268A, 152 BHP, 1200 RPM, heat exchanger cooled, with 100 KW Generators, 450 volts AC, 3 phase, 60 cycles.

GM 8-268A, radiator cooled, air start with Westinghouse Generator, 250 KW, 440/3/60, complete with switchboard.

GENERAL MOTORS DIESEL ENGINES, Model 8-278, with 500 KW Generators, 115/230 DC.

MARINE DIESEL ENGINES



MATCHED PAIR . . .

FAIRBANKS-MORSE

MODEL 38D8-⅛

1 Port;

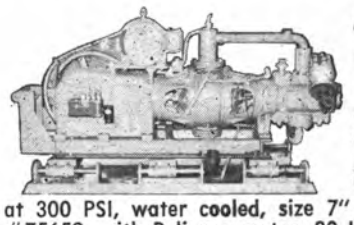
1 Starboard

Used condition, 1800 HP, 800 RPM, 2 cycle, 8½" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio—with hydraulic coupling.

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

HYDRAULIC PUMPS (STEERING)
Hele Shaw, Type JLP 12, 1000 PSI, 850 RPM. Northern radial piston. Size 5430, 44 GPM, 1500 PSI, 850 RPM.

AIR COMPRESSORS



JOY
CLASS WG82
JOY Air Compressors Class WG82, 2-stage rated 100 CFM at 300 PSI, water cooled, size 7" x 3⅜" x 7", Typical Shop #75652, with Reliance motor, 30 HP, 220/440 AC/3/60.

SULLIVAN, 60 CFM, 110 PSI, with 15 HP Motor, 440/3/60.

INGERSOLL-RAND, 150 CFM, 600 PSI, Model 75, with Westinghouse Motors, 75 HP, 230 DC.

INGERSOLL-RAND, 50 CFM, 600 PSI, Model 30, with Westinghouse Motors, 15 HP, 230 DC.

WESTINGHOUSE Air Brake, 246 CFM, 140 PSI, with 50 HP Motors, 440/3/60.

WORTHINGTON, 175 CFM, 125 PSI, with 50 HP Motors, 440/3/60.

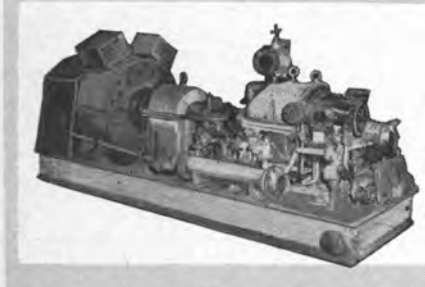
STEAM AIR COMPRESSORS
Westinghouse Air Brake Company, Size 11 x 11 x 12, Vertical, rated 66 CFM at 100 PSI (2 available).

REDUCTION GEARS . . .

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

WESTINGHOUSE, 2.216:1 ratio, with hydraulic coupling; as used with 1800 HP, 800 RPM Fairbanks-Morse engine—Starboard.

FALK REDUCTION GEARS . . . Port and Starboard, interchangeable with T-3 Tanker Gears, Falk No. 148-300. Also interchangeable with Falk Gears on A051 Class Tankers (14 ships). Also on A097 to A0100 Tankers. Gears are available as complete assemblies and/or rotating elements in sets. Gears offered with a current inspection report of condition by a representative of Falk Corporation.



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.

TURBINE GENERATORS

JOSHUA HENDY Turbines, 300 PSI, temperature 550° F with Westinghouse Generators, 300 KW, 120/240 Volts, DC.

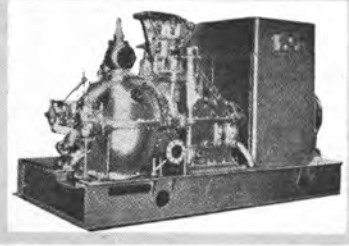
WORTHINGTON Turbines, Form S-4, 440 PSI, 740° F, driving on same comman shaft a 250 KW Generator, 440/3/60, and a 90 KW Generator, 125 Volts DC.

WORTHINGTON Turbines, Form S-4, 440 PSI, 740° F, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC.

GENERAL ELECTRIC Turbine, Type FN3-FN24, Steam 265#G., Serial 54110, with G.E. Generator, 750 KW, 440/3/60, Frame 985 Y, Serial 580447.

JOSHUA HENDY Turbines, with Westinghouse Generators, 150 KW, 120 volts DC.

TERRY TURBINES, type TM5, 440 PSI, 750° F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.



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As removed from reserve "mothballed" vessels. Huge inventory of practically all sizes and types ready for immediate delivery . . . and more on the way. These doors have the frame trimmed and are suitable for re-use. Doors are available in 4, 6, 8 and 10 dog types; many are "Quick-acting-wheel controlled."

Save over new replacement costs as shown in the **"Typical Price"** listing below . . .
26" x 48"—4 dog type $ 60.00 ea.
26" x 66"—6 dog type $ 85.00 ea.
26" x 66"—Quick Acting $150.00 ea.

USED, GOOD STEEL
"QUICK-ACTING WHEEL TYPE"
and DOG TYPE

Other sizes and prices quoted on request.

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AC & DC *Marine* PUMPS

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(503) 228-8691

Hundreds of other pumps in our stock
Phone or mail required specifications.

AC PUMPS—Horizontal Centrifugal

2—Goulds, 2000 GPM, 470' head, Size 8x10, with Westinghouse Motors, 350 HP, 2300/3/60.

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.

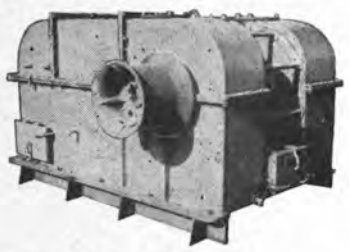
3—Hesse-Ersted, horizontal, double wildcat, 2⅛" chain, 60 HP, 230 DC.

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.

$149.50 each

CAPSTAN WINDLASSES

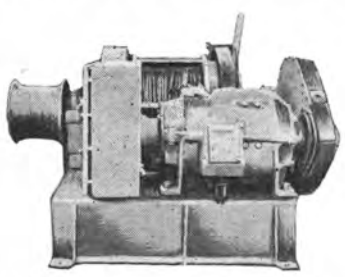
Model CWP-3, Vertical 24" Planetary Capstan Windlasses, Single Wildcat — using 1¼" Anchor Chain, Single Gypsy with 20 HP motor, 230 volts DC, complete with Contactor Panel, Master Switch, and Resistors.

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

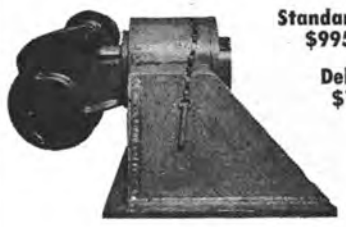
Designed and Manufactured by ZIDELL EXPLORATIONS, INC.

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

PRICES ARE F.O.B. PORTLAND, ORE.

SPECIAL MARINE ITEMS

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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LaDel, STURTEVANT etc.

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

EXAMPLE LISTING:

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Size A½	**@ $185 each**
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2—O.C.S., 2 drum, 1 speed 50 HP, 230 DC.
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GENERAL SERVICE PUMP, Worthington, vertical simplex, Size 12 x 14 x 18, 600 GPM, 50 PSI.

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SUBMERSIBLE BILGE PUMPS, 2—Worthington, 5", vertical centrifugal, 600 GPM, 30 PSI, 20 HP, 230 DC.

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MAIN CONDENSATE PUMPS, 2—Allis-Chalmers, Type CF-2V, vertical volute, Size 6 x 3½, 170 GPM, 208' head, 20 HP, 230 DC.

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AUXILIARY CONDENSATE PUMPS, 2—Allis-Chalmers, Type CF-2V, vertical volute, Size 2½ x 1½, 30 GPM, 208' head, 7½ HP, 230 DC.

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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.

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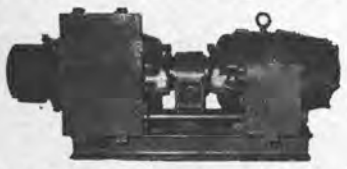

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1—150, 120 V, GE, Type CDM, Form AA, Model 24G, 1200 RPM, Compound Wound, Horizontal, 2 B.B.

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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.

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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.

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Marathon. Input: 1 HP, 115 V, DC. Output: .500 KVA, .425 KW, 115/1/60.

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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.

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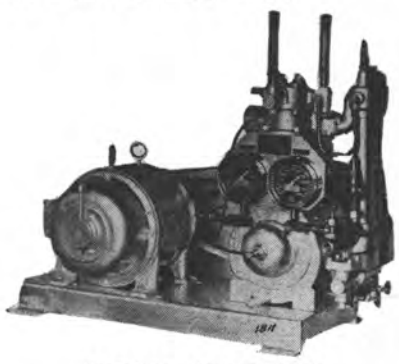
DIESEL-DRIVEN INGERSOLL RAND

Ingersoll-Rand compressor—315 cu. ft. at 125 lbs. —driven by International Harvester UD-18 diesel. Tank mounted on skid—radiator cooled—from Corps of Engineers salvage vessel.



DIESEL STARTING

Ingersoll-Rand type 30—class T—4 x1½x3½—10 CFM at 600 lbs.—7.5 HP—motor is 440/3/60—1750 RPM—class A—50°C—weight 700 lbs. Complete with inter- and after cooler. OAL 3'6"—OAH 4'1½"—OAW 2'2¾".

$1750

T2 TANKER SHIPS SERVICE

Ingersoll-Rand type 30—model 253x5—5x3x3½ —20 CFM @ 100 lbs—self unloader. Westinghouse 5 HP 440/3/60 motor.

$695

SHIPS SERVICE

Ingersoll-Rand—type 30—class R—5x5x4x4—50 CFM @ 150 lbs. 20 HP 440/3/60 motor & controls—1750 RPM—50°C—class A. Complete with centrifugal unloader. OAL 4' 1⅛"—OAH 3' 2½" —OAW 2' 6½"—total weight 1505 lbs.

$1250

T2 TANKER SHIPS SERVICE

Worthington—5½x3⅛x3½—VA2—20 CFM @ 100 lbs. Motor 5 HP—440/3/60—1750 RPM—marine type ball-bearing drip-proof—fan cooled—with magnetic starter & self-unloader. OAL 4' 8½" —OAH 28"—OAW 25 5".

$695

T2 TANKER COMBUSTION CONTROL

Ingersoll-Rand type 30—5x5 & 4x4—54.4 CFM @ 100 lbs. Motor 15 HP—440/3/60—1750 RPM—with magnetic control, self-unloader, etc. Weight complete 1122 lbs. OAL 4' 11¼"—OAH '2 10"—OAW 2' 7¾".

$995

T2 TANKER COMBUSTION CONTROL

Worthington 6½x3½x4—VA2—52 CFM @ 100 lbs. Motor is 15 HP—440/3/60—1750 RPM. Complete with magnetic starter, self-unloader, etc.

$995

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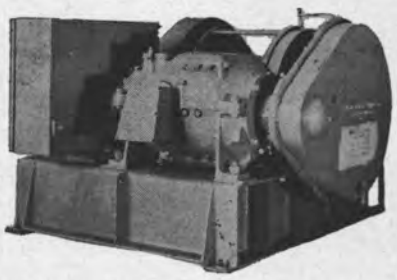
539-1900 (Area Code 301) 355-5050

AH & D CARGO WINCH



American Hoist & Derrick—single speed—single drum—all steel cargo winches. 7250 lbs @ 220 FPM based on first layer of ¾" rope. Drum 18" diameter—20" wire. G. E. Motor—50 HP—230 volts—600 RPM. Excellent condition. Priced with controls.

ALL REBUILT BY USMC

$1950 EACH

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NEW BERGER

Self-Aligning

MARINE FAIRLEADS

Model 623—for 1¾" wire. 23" Sheave—shank opening 9½"—4500 lbs.—BASE: 37" long—50" wide—throat 11".

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BANKS SHIP RIGGING CORP.

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6925 Inter Bay Blvd.
Tampa 11, Florida
Phone 839-4191

255 Van Brunt St.
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DUPLEX STRAINERS
in good condition

4" $349.00
22" x 3" between mounting holes

2" $249.00
15" x 3" between mounting holes

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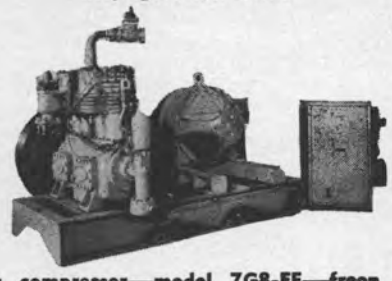
CARRIER REFRIGERATION UNITS

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.

$17950

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.

$18950

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.

$33950

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.

$12750

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.

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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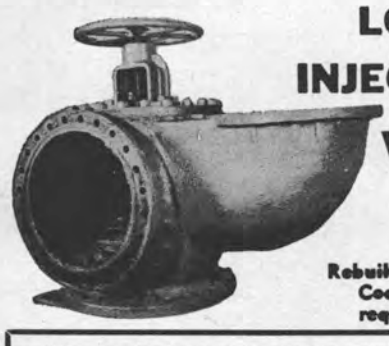
NEW YORK OFFICE: 11 Broadway — New York, N. Y. 10004 PHONE: 943-2640

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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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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WATER BOXES—RETURN HEADS
MAIN AND AUXILIARY
ALL TYPES—ALL VESSELS
QUICK DELIVERY

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Phila., Pa. — Phone Walnut 5-6750-6751

SPECIAL!
BATTERIES
NEW SURPLUS BARGAIN

Heavy Duty, 8 volts, 500 amps. 13¾" Wide, 27¼" long, 18" high. Weight in case, 488 lbs.

AL EPSTEIN, INC.

Most Anything in Marine Supplies
JA 5-5526 or JA 2-5141 — P.O. Box 51569
1226 St. Thomas St., New Orleans, La. 70130

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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NEW - UNUSED

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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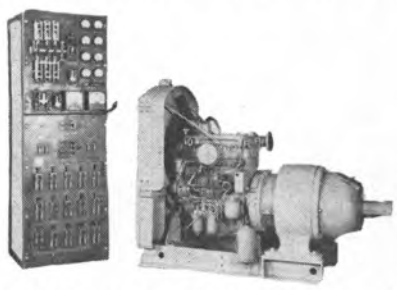
15 KW DIESEL

GENERATOR SET



Hercules DOCC 4" X 4½" diesel engine. Generator: Fidelity Electric — LCD3 — 15 KW — 120/240 Volts DC—62.5 amps. With switchboard and automatic transfer switch. From C2-S-AJ2—North Carolina built. Good operating condition.

$1450

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INGERSOLL-RAND PUMPS

From Ex-Naval Vessels

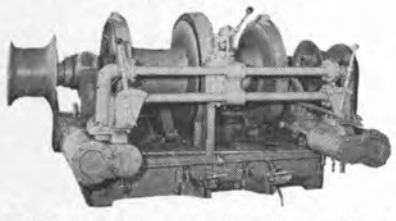
FIRE & FLUSHING PUMP

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.

$397.50

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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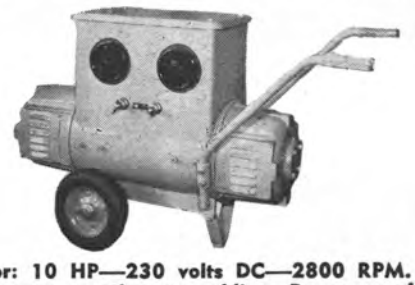
FACTORY-NEW

200 AMP WELDERS



Motor: 10 HP—230 volts DC—2800 RPM. 200 amps max. continuous welding. Range regulation 15/200 amps. Dimensions: 38" X 30" X 20". Weight: 514 lbs. Shipping case—48" X 35" X 25". Complete with 100 ft. welding cable—ground clamp & electrode holder. Built to Lloyd's—Register BS 638—1954.

$1175 EACH

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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.

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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

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Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
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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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BG Marine Services, Div. of Genge Industries, Inc., 4419 Van Nuys Blvd., Sherman Oaks, Calif. 91403
Coast Engineering Co., 711 West 21 St., Norfolk, Va. 23517
Commercial Radio Sound Corp., 652 First Avenue, N.Y., N.Y. 10016
Consultec, 1725 K St., N.W., Washington, D.C. 20036
Crandall Dry Dock Engineers, Inc., 238 Main St., Cambridge 42, Mass.
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Christopher J. Foster, 17 Battery Place, New York, N.Y. 10004 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 21 West St., New York, N.Y. 10006
Morris Guralnick, Associates, Inc., 74 New Montgomery St., San Francisco, Calif. 94105
J. J. Henry Co., Inc., 90 West St., New York, N.Y. 10006
L. K. Homyer, Box 408, Corona Del Mar, California 92625
James S. Krogen, 1460 Brickell Ave., Miami, Fla. 33131
Littleton Research and Engineering Corp., 95 Russell Street, Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Applications Co., Inc., P.O. Box 167, Mineola, N.Y. 11502
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 1180 Ave. of Americas, N.Y., N.Y. 10036
Rudolph F. Matzer & Associates, Route 1 - Box 314 D, Jacksonville, Fla. 32211
John J. McMullen Associates, Inc., 17 Battery Pl., New York, N.Y.
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 2825 Oak Ave., Miami, Florida 33133
Research & Design Corp., 17 Battery Place, Suite 1227 New York, N.Y. 10004
Philip L. Rhodes, 369 Lexington Ave., New York, N.Y. 10017
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R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler, 44 Court St., Brooklyn, N.Y. 11201
H. M. Tiedemann & Co., Inc., 74 Trinity Pl., New York, N.Y. 10006
Transcaribbean Shipping & Trading Corp., Panam Docks, Isle Grande, P.O. Box 564, San Juan, P.R. 00902
H. Newton Whittelsey, Inc., 17 Battery Pl., New York, N.Y. 10004

OIL & POLLUTANT DISPOSAL
Spentonbush Fuel Transport Service, 500 Fifth Ave., N.Y. 10036
OIL PURIFIERS—Repair
Norse Electric Mfg. Co., Inc., 57-59 Commerce St., Bklyn, N.Y. 11230
OILS—Marine—Additives
Esso International Inc., Esso Bldg., 15 West 51 St., New York, N.Y.
Gulf Oil Trading Co., 1290 Ave. of the Americas, New York, N.Y.
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
PAINT—Marine—Protective Coatings
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Devoe & Raynolds Co., Inc., Marine Division, Newark, N.J. 07105
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
International Paint Co., 21 West St., New York, N.Y. 10006
Mobil Chemical Company, Metuchen, N.J. 08840
PETROLEUM SUPPLIES
Independent Petroleum Supply Co., 277 Park Ave., New York 10017
Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., W. 50 St., New York 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.
PLASTICS—Marine Applications
Atlas Minerals & Chemical Div., ESB, Inc., Mertztown, Pa. 19539
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936
POLLUTION CONTROL
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Tretolite Div., Petrolite Corp., 369 Marshall Ave., St. Louis, Mo. 63119.
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Baldwin-Lima-Hamilton Corp., Phila., Pa. 19142
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bird-Johnson Co., 883 Main Street, Walpole, Mass. 02081
Escher Wyss, G.M.B.H., 798 Ravensburg, Germany
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Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City. Kansas 66110
De Laval Turbine, Inc., 853 Nottingham Way, Trenton, N.J. 08602
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American Forge & Mfg. Co., McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Broket St., Pittsburgh, Pa. 15233
REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Frigitemp Corp., 329 Herzl St., Brooklyn, N.Y. 11212
Thermo King Corp., 314 W. 90 Street, Minneapolis, Minn. 55420
York Corp., Grantley Road, York, Pa. 17405
ROPE—Manila—Nylon—Hawsers—Wire
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Cating Rope Co., 309 Genesee St., Auburn, N.Y. 13022
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
RUBBER PRODUCTS—Dock Fenders, Hose, Life Preservers
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
RUDDER ANGLE INDICATORS
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
SEALS
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Syntron, a division of FMC Corp., 398 Lexington Ave., Homer City, Pa. 15748
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Portable Light Co., Inc., 67 Passaic Ave., Kearny, N.J. 07032
Snelson Oilfield Lighting Co., 1201 E. Daggett St., Forth Worth, Texas 76104
SEWAGE DISPOSAL
Youngstown Welding & Engineering Co., 3708 Oakwood Ave., Youngstown, Ohio 44509
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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
SHIP BROKERS
Gulf Coast Marine, Inc., P.O. Box 52987, Houston, Texas 77052
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006
Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119
SHIPBUILDING—Repairs, Maintenance, Drydocking
Albina Engine & Machine Works, 2100 N. Albina Ave., Portland, Ore. 97227
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Groignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
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Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
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Hitachi Shipbuilding Co.,25 Nakanoshima2-chomeKitaku,Osaka-Japan
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Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
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Terrin Agency, Inc., 17 Battery Place, New York, N.Y. 10004
Todd Shipyards Corp., 1 Broadway, New York City
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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
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P. F. Martin, Inc., Mall Bldg., 325 Chestnut St., Philadelphia, Pa.
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Todd Products, Div. of Todd Shipyards Corp., Halleck St., Brooklyn, N.Y. 11231
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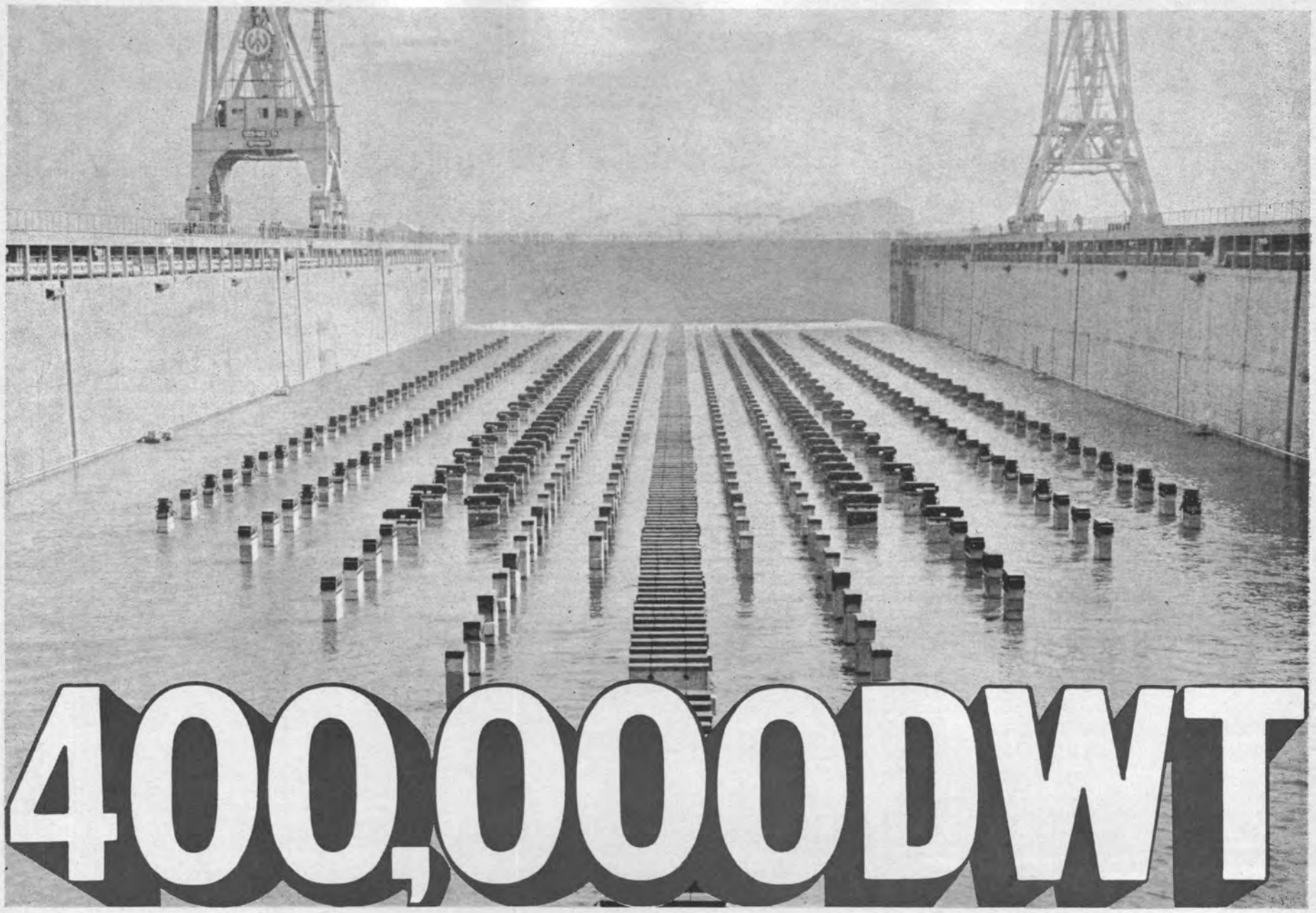

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