MARITIME REPORTER
AND
ENGINEERING NEWS

General Dynamics Quincy Yard Delivers USS Portland (LSD-37) To Navy Ahead Of Schedule

(SEE PAGE 6)

OCTOBER 1, 1970

A Salute to ATLANTIC Container Lines'

Crown &

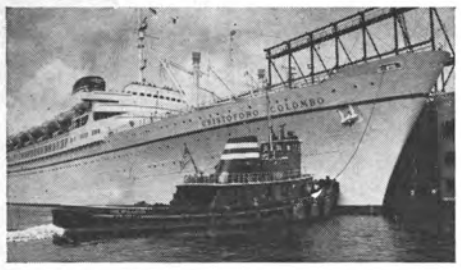
The S.S. Atlantic Crown uses Gulf Harmony oils in its turbine systems. These are the highest quality oils available for use in marine turbine systems, hydraulic systems, electric motors and other applications that call for stable, long-lasting oils in enclosed and circulating oil systems.

Cinderella

The S.S. Atlantic Cinderella also gets top-notch performance from Gulf Harmony oils. For efficient operation of your turbine systems, count on Gulf Harmony oils, the finest lubricants it is possible to use. **Steady they go with Gulf.**

Gulf®

GULF OIL TRADING COMPANY, NEW YORK, N.Y., U.S.A.



Cristoforo Colombo discovers the new McAllister.

Docking and undocking now faster, more efficient than ever.

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

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

Mac has the knack.

Seabulk Tanker Applies For Title XI Insurance For Tugs And Barges

In connection with the construction of four tugboats, each of 6,500 bhp, and four tank barges, each of 30,000 dwt, Seabulk Tanker Corporation, Deerfield Beach, Fla., has submitted an application to the Maritime Administration for Title XI mortgage insurance.

48 MK-35 Target Boats To Be Built For NSSC By Atlantic Research

The Naval Ship Systems Command has awarded an initial $2.4 million contract to Atlantic Research Corporation, Missile Systems Division, to design and build 48 target boats for the Navy.

The boats will have reinforced fiberglass plastic hulls and superstructures, and each will be powered by four 325-hp Mercruiser engines. Both manual and remote control are provided.

The 57-foot vessels, designated SEPTAR MK 35, will weigh 41,000 lbs. and be capable of speeds in excess of 30 knots.

Atlantic Research, a major division of The Susquehanna Corporation, has its boatbuilding facilities at Santa Ana, Calif. Current government contracts include 10 utility boats built for the Navy and a prototype search and rescue vessel under construction for the U.S. Coast Guard.

Harvey Gamage Bids Apparent Low To Build 109-Ft. Steel Dragger

The Maritime Administration has determined that Harvey Gamage Shipbuilders, Inc., South Bristol, Maine, submitted the low bid for the construction of a 109-foot steel dragger for Dorothy M. O'Hara, Inc., Rockland, Maine.

The bid price was $544,757 with a delivery time of 360 calendar days. Construction subsidy has been set at 40.2 percent, based on a cost of $310,000 in Japan.

Albina To Construct Twin-Screw Foss Tug

Foss Launch & Tug Company, Seattle, Wash., has placed an order for the construction of an 80-foot by 25-foot by 12-foot tug with Albina Engine & Machine Works, Portland, Ore.

The vessel, to be named Clara Foss, will be powered by twin-screw diesels of 1,700-total-bhp.

MARITIME REPORTER AND ENGINEERING NEWS

No. 19 Volume 32

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

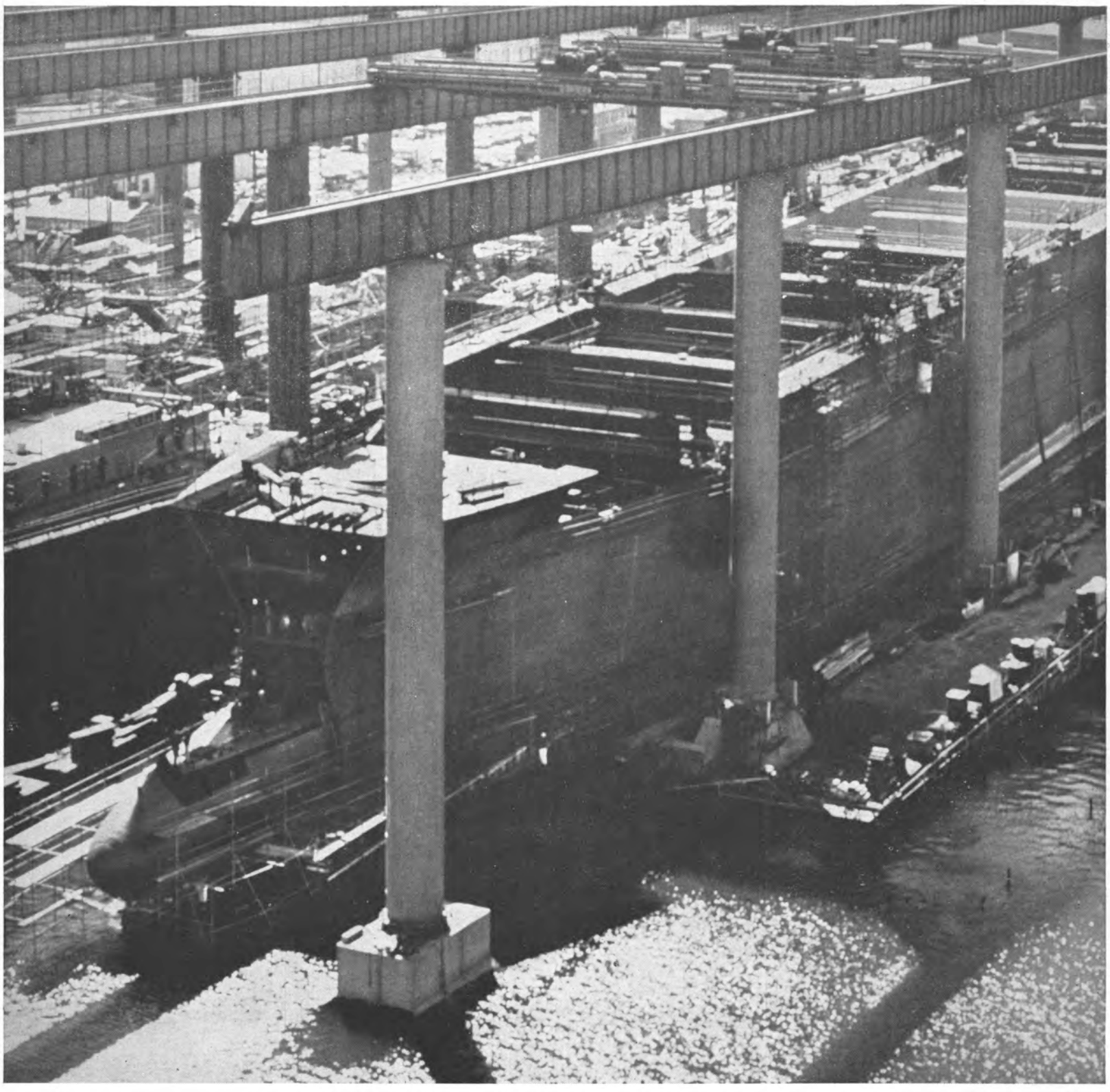
MUrray Hill 9-3266, 3267, 3268, 3269

ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc., with executive, advertising and editorial offices at 107 East 31st Street, New York, N. Y. 10016; publishing office at 41 First Street, Hoboken, New Jersey 07030

Controlled Circulation postage paid at Hoboken, New Jersey 07030

Member BPA Business Publications Audit of Circulation, Inc.



Rome wasn't built in a day, but we built Chicago in a year.

The Sea-Land containership *Chicago* nicely demonstrates the speed and the economy of Todd's conversion work. The forebody shown here – 533 feet long – was constructed and joined by Todd to an existing stern. Jumboizing techniques like this can generate new tonnage at about one-half the cost of building a whole new ship, in about one-third the time. Save time and money with Todd conversions.

TODD SHIPYARDS CORPORATION · New York · Brooklyn · New Orleans · Galveston · Houston · Los Angeles · San Francisco · Alameda · Seattle. Executive offices: One Broadway, New York, N. Y. 10004. Phone: (212) 344-6900. Cable: "Robin" New York.

Talk to TODD

ON THE COVER

NAVY'S NEWEST: The amphibious assault support ship USS Portland sails from Quincy for the Boston Naval Shipyard where she was turned over to the Navy.

The amphibious assault support ship USS Portland (LSD-37), described by the Navy as "an excellent ship in all respects," recently sailed from the General Dynamics shipyard in Quincy, Mass., for the Boston Naval Shipyard to be delivered to the Navy ahead of contract schedule.

The 562-foot-long ship, which will displace 13,700 tons fully loaded, left the Quincy Shipbuilding Division for the last time at 9:00 a.m. on August 28, and arrived before noon at the Boston Naval Shipyard where she is expected to be commissioned this month.

The Portland, first of four ships in the Navy's landing dock ship class to be built at Quincy, earned from the Navy Board of Inspection and Survey's Summation of their evaluation, high praise during preliminary acceptance trials held off the coast of Massachusetts.

Named after cities in Maine and Oregon, the Portland was christened December 20, 1969 by **Mrs. Emily Chapman,** wife of General **Leonard F. Chapman Jr.,** Commandant of the Marine Corps.

When in full operation, the Portland will carry a crew of 425, and will transport more than 300 combat troops and their vehicles as well as preloaded, heavy landing craft to assault areas. The troops and equipment will be discharged rapidly without the ship having to go onto the beachhead herself.

The Portland will undergo final outfitting in Boston and is expected to join the Atlantic Fleet Amphibious Force under the command of Capt. **Martin "M" Zenni.**

Ten Operators Submit Building Plans To MarAd

Ten United States ship operators have informed the Maritime Administration, U.S. Department of Commerce, that they intend to build 64-72 new ships, Maritime Administrator **A.E. Gibson** announced.

These ships are in addition to 60 new ships to be built by the presently subsidized operators through the mid-1970s to meet their ship replacement obligations.

Submitted in answer to a MarAd request for data on which to base its shipbuilding program for the next few years, the responses were described by Mr. **Gibson** as "very heartening, considering that many operators cannot firm up their plans until the President's new maritime program is enacted into law."

Legislation embodying the program is now awaiting Senate action, having been passed by the House last May.

"Once the final bill is signed by the President, I believe that more operators will respond to our request," Mr. **Gibson** added.

Companies replying prior to the August 31 deadline were: Marine Carriers Corp.; Cargo Brokerage Corp.; Anchor Shipping Corp.; Delta Steamship Lines, Inc.; Seatrain Lines, Inc.; Sun Oil Co.; Keystone Shipping Co.; Waterman Steamship Corp.; Columbia Steamship Co.; and Central Gulf Steamship Corp.

Among the ships included in their building plans were: three Bath Iron Works-designed 71,500-dwt ore/bulk/oil carriers; 18 LASH or combination LASH/containerships; six MarAd-designed twin-screw containerships; 10 Newport News Shipbuilding and Dry Dock Co.-designed 69,500-dwt ore/bulk/oil carriers; and five Newport News-designed 120,000-dwt tankers.

A detailed listing of the respondents and their submissions follows.

Respondents	Number of Ships	Type
Marine Carriers Corp.	1	Bath SACO—class 71,500-dwt OBO
	1	Bath MACHIAS—class 75,500-dwt tanker
Cargo Brokerage Corp.	2	Bath SACO—class 71,500-dwt OBO
Anchor Shipping Corp.	2	Multi-purpose bulk carriers
Delta Steamship Lines, Inc.	3	LASH/Container
Seatrain Lines, Inc.	6	MarAd twin-screw 22,940-dwt containerships
	6	Newport News CRESCENT—class 69,520-dwt OBO
	7	Seatrain 230,000-dwt tankers
Sun Oil Co.	1	80,000-dwt AMERICA SUN—class tanker
Keystone Shipping Co.	5	Newport News VOYAGER—class 120,000-dwt tankers
Waterman Steamship Corp.	12	LASH vessels
	5	Newport News VANGUARD—class 16,000-dwt containerships
	4	Newport News CRESCENT—class 69,520-dwt OBO
Columbia Steamship Co.	4-10	General purpose vessels
	2-4	OBO
Central Gulf Steamship Corp.	3	LASH
	64-72	

Israeli Shipowners Plan To Double Fleet

Tourism as their country's chief earner of foreign exchange is being challenged by Israeli shipowners.

In 1969, shipping was in second place with slightly over $60 million, compared with $95 million for the tourist business. But by 1975 the nation's shipping lines plan to add 2.5 million tons of new vessels. The present merchant marine is composed of 109 ships totaling slightly under 2 million tons.

Israel's Ministry of Transport has just estimated that by 1975, the annual freight volume will be 10.6 million tons compared with 6.8 million last year.

The high cost of construction is a limiting factor, but the shipping industry, which has already abandoned the unprofitable passenger business, is going ahead with plans for new types of ships geared to commercial requirements.

Israel's biggest line, Zim Navigation Company, is adapting to the container age. For the time being it will continue to carry containers in conventional freighters. But in 1973 it hopes to get the first eight of the 33 new vessels in which it plans to invest $300 million.

Four will be multipurpose freighters that can handle 450 of the 20-foot containers. Four will be roll-on/roll-off vessels accommodating 90 truck-trailers or 360 containers.

The other two major shipping lines are Cargo Ships El-Yam, which specializes in liquid and dry bulk transport, and Maritime Fruit Carriers, Ltd. which operates refrigerated ships in the international trade.

Israel's Ports Authority is planning facilities for containerships and roll-on/roll-off vessels as well as other improvements at the country's three main ports—Haifa and Ashdod on the Mediterranean and Elath on the Gulf of Aqaba, which leads into the Red Sea and the Indian Ocean.

Annual Convention Of AAPA To Be Held In Houston Oct. 18-22

The American Association of Port Authorities, Washington, D.C., will roll out the royal carpet for hundreds of port and transportation executives from all parts of the world when they convene at the 59th Annual Convention at the Shamrock Hilton in Houston, Texas, October 18-22, 1970.

The objectives and purposes of AAPA are to exchange technical information relative to port construction, maintenance, operation, administration, and management; and to promote city, state and national policy of all port affairs. Its studies and findings radiate into every aspect of world trade.

According to **Paul A. Amundsen,** executive director of AAPA, this convention will be the first opportunity in 15 years to meet in the dynamic city of Houston. The Association is headed by **Rae F. Watts.**

AAPA's meeting is expected to generate unprecedented attention, Mr. **Amundsen** said. There is tremendous interest in the latest aspects of water resources programs, channel capabilities, data processing, containerization, port financing, environmental affairs, intermodal transportation, public relations, labor-management relations, educational requirements, port management and ship operations, and the Association has arranged for exceptionally qualified panels of experts to make this conference informative and stimulating.

Mr. **Amundsen** pointed out that the business sessions will be balanced by special luncheons, each featuring an authorative and interesting speaker; and by visits and excursions in the Houston area. Among the latter is a welcoming reception at the Shamrock Hilton, hosted by the Port of Houston, and a special dinner at the River Oaks Country Club. On Wednesday, there will be a luncheon in the Astrodome followed by a tour of the NASA manned Space Center, with a reception and entertainment at the Petroleum Club. Also featured will be a special treat for the delegates and their families, a Texas barbeque and old-fashioned rodeo, hosted by the Journal of Commerce, with all the fun and flavor conducive to an unusual evening in the wide open spaces.

DILLINGHAM DOES IT IN HONOLULU.

The Dillingham Shipyard in Honolulu is the largest and best equipped of Dillingham's marine construction and repair facilities in the Pacific Basin. Utilizing the latest equipment and ship building techniques, the Dillingham Shipyard has a 3,000-ton floating drydock, a 1,500-ton marine railway, and a repair berth large enough for most ocean-going vessels.

When it comes to complete marine services, from ship building and repair to hauling cargo, Dillingham does it. Pacific-wide.

DILLINGHAM MARITIME SERVICES

Dillingham Corporation
P. O. Box 3288, Honolulu, Hawaii 96801 • telex: RCA-723330

DILLINGHAM SHIPYARD, HONOLULU
ALBINA ENGINE & MACHINE WORKS, PORTLAND
OAHU RAILWAY AND TERMINAL WAREHOUSING CO., LTD., HONOLULU

Controllable-Pitch Propellers Being Used To Improve Operation Of Large Ships

R. Norrby*

Controllable-pitch propellers (CPPs) have been used since the beginning of this century. Only small powers and mechanical transmission for the pitch change of the blades were then involved. The mechanical pitch-change mechanism could not, however, be used for higher powers. In the 1930's propellers were developed with hydraulic pitch-changing mechanism. This principle emanated from the Kaplan turbine, the development of which started in 1913.

During World War II, CPPs were ordered for small minesweepers and then followed among others by propellers for the Suecia and the Los Angeles of the Johnson Line in Sweden in 1944 and 1948. The latter cargo vessel had a total of 14,000 bhp developed by two engines.

During the 1940's and 1950's propellers were also delivered for combined passenger and cargo vessels on the Norwegian coastal run and for several car ferries. A number of ice-breaking tugs also were equipped with CPPs.

The breakthrough for CPPs on large vessels took place on the Great Lakes at the end of the 1950's. Then the bulk-carriers Alexander T. Wood and its sistership Avery C. Adams of 20,000 dwt for the Wilson Marine Transit Company were delivered. The Alexander T. Wood has a unidirectional, large-bore diesel of 6,800 bhp at 167 rpm which drives a CPP of 14.5-foot diameter. Its sistership has a reversible, large-bore diesel of 6,500 bhp at 121 rpm with a CPP of 12.5-foot diameter. These were the largest vessels for the Great Lakes and ocean service at that time and have been the prototype for the many vessels which have since then been built for the Great Lakes. The requirements for safe and swift maneuvering are considerable in the Great Lakes, especially in the locks.

When discussing the type of propeller to be used for larger ocean-going ships, other requirements dominated. The main points were how the CPP could be adapted to ship automation and its influence on the total efficiency of the propulsion system. The growing density of traffic in harbors and confined waters also resulted in demands for good maneuverability for ocean-going vessels.

The first ocean-going vessel with CPP which can be said to have developed engine room automation is the Danish East Asiatic Company's 10,000 dwt Andorra, delivered in 1964. The machinery consists of a large-bore diesel of 12,000 bhp connected to a CPP of 18-foot diameter. From 1530 to 0600 the next day as well as Saturdays and Sundays the vessel's engine room is unmanned. Remote control from the bridge to the propeller can also be effected with a fixed-pitch propeller (FPP) by maneuvering of the main engine from the bridge. However, the shipowner considers the remote control with CPP more reliable than the rather complicated automatic system required for remote control for starting, stopping and reversal of a diesel engine.

The number of CPPs is growing considerably. The principle of the CPP has now been accepted and this is, of course, to a high degree due to the experience gained from previous applications. In 1960 approximately 8 percent of all new buildings above 2,000 dwt were equipped with CPPs. For 1969 this figure is estimated to be 18 percent.

An increasing number of relatively large ships are driven by CPPs. The largest propellers with a diameter of 27 feet have been supplied for the three steam-turbine-driven 128,000-dwt ore/oil carriers delivered by Mitsubishi and Kawasaki in Japan to San Juan Carriers Ltd., Panama. These constitute the first vessels with steam turbine and CPP with the exception of a small trawler in the 1950's.

Among other large CPPs in service are propellers for the Finnish Neste O/Y for two 110,000-dwt bulk carriers delivered by Rheinstahl Nordseewerke in Germany and for a 130,000-dwt tanker for the Swedish Nynas Petroleum, built by Eriksberg in Sweden. The main machinery is a large-bore diesel of 26,000 bhp at 122 rpm. In the arrangement is also included a shaft-driven generator of 1,500 hp. The propeller has a diameter of 22.5 feet. The propeller can be remote controlled from three stations on the bridge and also from the control console in the engine room. There is an electric remote control from the bridge to the main engine for speed control and the auxiliary servomotor of the propeller for pitch control. Between engine and propeller there is an electronic load control developed by Karlstads Mekaniska Werkstad and the Axel Johnson Institute for Industrial Research in Sweden. The load control maintains the engine load at the desired value (full load or part load), by means of pitch adjustment independent of variations in external conditions. The input signals used for the load control are fuel rack position and the actual rpm value. Thus the engine is protected against overload both at reduced rpm and during periods of acceleration. To safeguard the stability, the pitch is adjusted stepwise. When the engine load is subject to considerable and swift alterations, there is a continuous pitch correction to enable the engine load to reach normal values as quickly as possible. When the desired load has been achieved, the last correction phase is done stepwise to avoid overswinging.

The propeller system for the Nynas 130,000-dwt tanker is shown in Figure 1. The remote control is of the pneumatic type. The main machinery consists of three 18-cylinder medium-speed diesels totaling 25,000 bhp. The propeller with a diameter of 26 feet is driven through flexible couplings and reduction gears. Two cargo pumps and a generator (1,090 hp) also are driven by the reduction gears. The propeller shaft speed is constant at 95 rpm. The propeller can be disconnected from the main machinery by releasing a coupling when the cargo pumps are running The oil distribution box is placed on the intermediate shaft aft of the main gear. When one or two engines are unclutched from the propeller, the pitch is automatically reduced so that it is not required to adjust the control lever. The load control has in principle the same design and function as

(Continued on page 10)

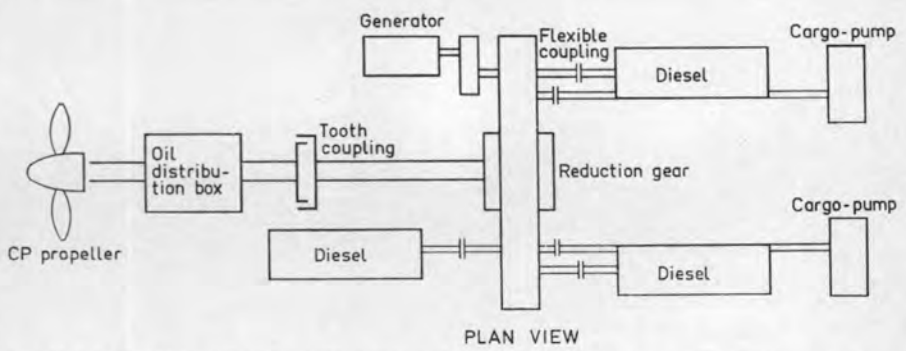


Figure 1—Multi-engine drive for controllable-pitch propeller on 130,000-dwt tanker.

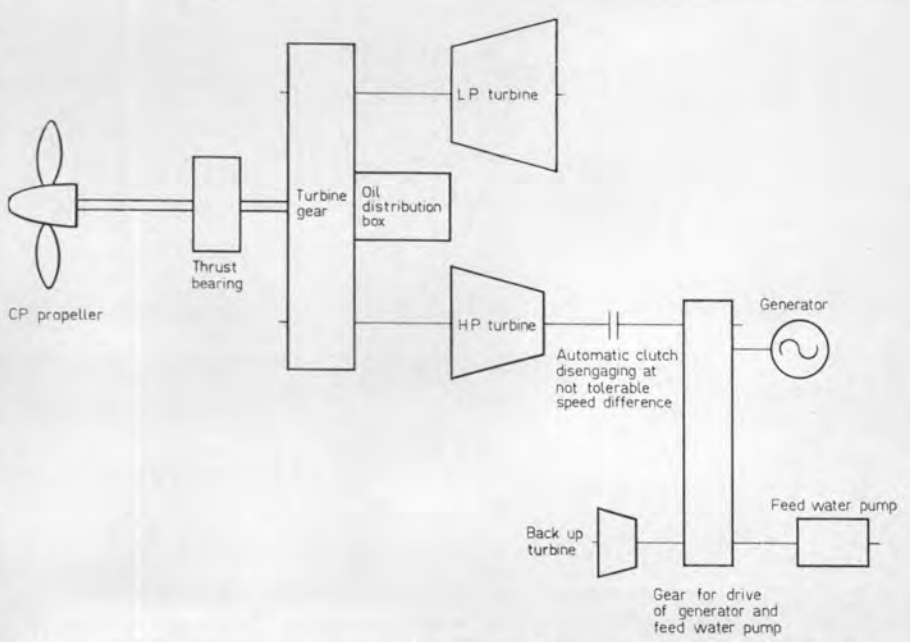


Figure 2—Steam-turbine arrangement for driving CPP on 128,000-dwt OBO carrier.

*Mr. **Norrby,** technical manager, Karlstads Mekaniska Werkstad (KaMeWa), Kristinehamn, Sweden, presented the paper condensed here before a meeting of the Northern California Section of The Society of Naval Architects and Marine Engineers.

and the winner is . . .

INGALLS WEST DIVISION OF LITTON INDUSTRIES . . . winner of the largest shipbuilding contract ever awarded.

The Navy's decision to place the DD-963 destroyer contract with Ingalls West was based on logic: Litton has the largest, most modern ship manufacturing facility in the entire world. *It also has the most forward looking team of naval engineers, architects and design specialists ever assembled.*

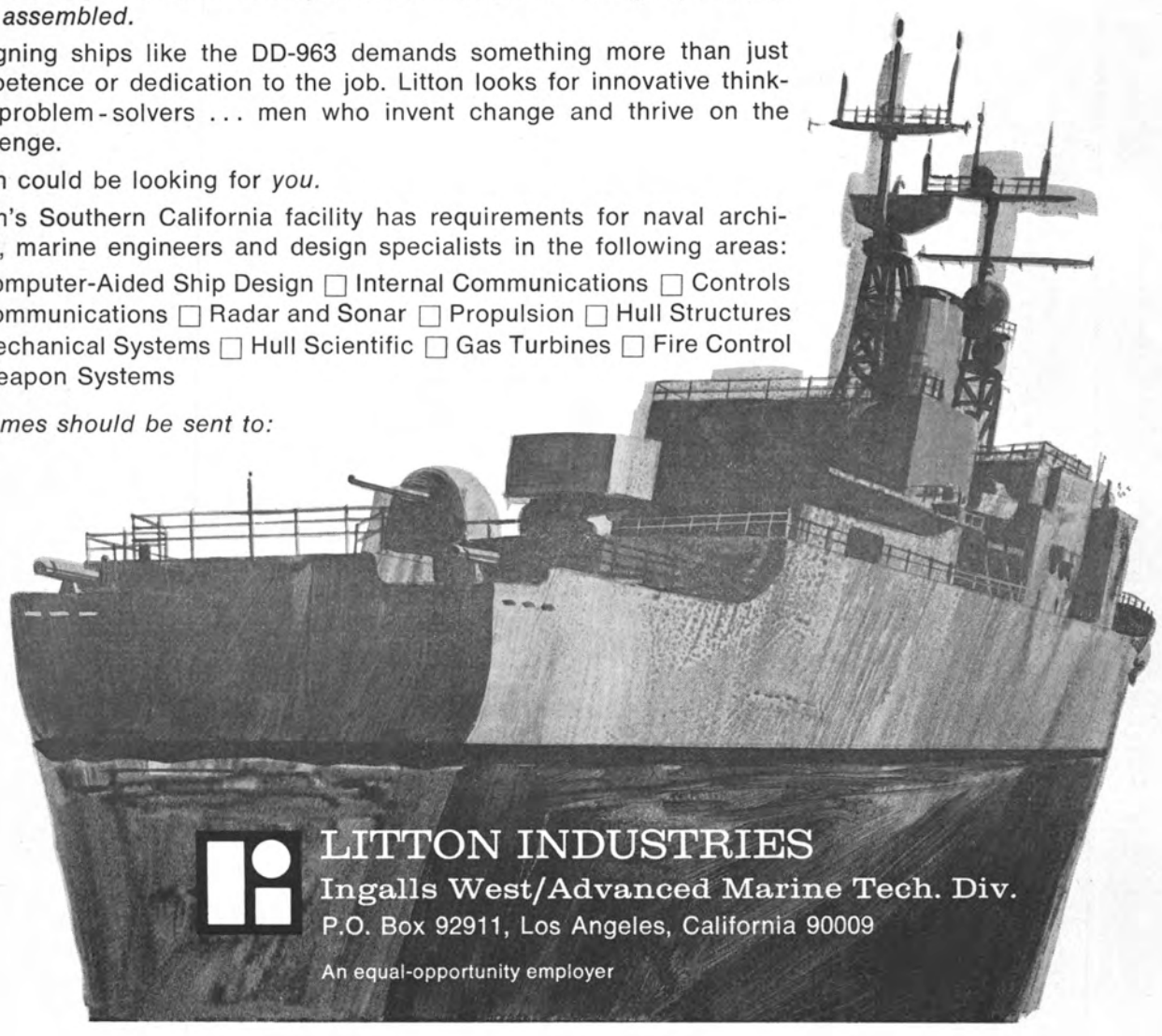
Designing ships like the DD-963 demands something more than just competence or dedication to the job. Litton looks for innovative thinkers, problem-solvers . . . men who invent change and thrive on the challenge.

Litton could be looking for *you.*

Litton's Southern California facility has requirements for naval architects, marine engineers and design specialists in the following areas:

☐ Computer-Aided Ship Design ☐ Internal Communications ☐ Controls
☐ Communications ☐ Radar and Sonar ☐ Propulsion ☐ Hull Structures
☐ Mechanical Systems ☐ Hull Scientific ☐ Gas Turbines ☐ Fire Control
☐ Weapon Systems

Resumes should be sent to:



LITTON INDUSTRIES
Ingalls West/Advanced Marine Tech. Div.
P.O. Box 92911, Los Angeles, California 90009

An equal-opportunity employer

Controllable-Pitch Propellers —

(Continued from page 8)

the one previously described for the Neste ships. Should there be a tendency for an engine to become overloaded, the load control receives a signal resulting in pitch reduction until the overload is eliminated.

The propulsion machinery for the three steam turbine tankers for San Juan Carriers is shown in Figure 2. One high-pressure and one low-pressure turbine totaling 25,500 shp are driving the propeller through reduction gears at 85 rpm. The machinery is unidirectional and thus has no astern turbine. The high-pressure turbine drives a generator and a feedwater pump through an automatically controlled friction clutch and a reduction gear, when the shaft speed is between 95 percent and 103 percent. Beyond these limits the generator and the feedwater pump are driven from a back-up turbine which is always rotating. The friction coupling is clutched or declutched automatically at the set speed limits. The system has a time programmed unit which increases the propeller pitch stepwise during the warming up period of the turbine. In an emergency this time program can be bypassed. This system was developed by Karlstads Mekaniska Werkstad which has acted as consultants to Mitsubishi who built the system. There are three control stands on the bridge and one in the engine room. The remote control is pneumatic.

In the maneuvering mode with 50 rpm all maneuvering is carried out by pitch changing and propeller revolutions are kept constant by the turbine governor through the main steam valve. At part loads in the sea mode with the shaft generator and feedwater pump connected, the power is also controlled by setting propeller pitch and keeping 85 rpm with the turbine governor. At full power in the sea mode, the maneuvering lever on the bridge is set in its furthermost ahead position. Then the steam valve is fully opened while the turbine governor is set at 105 percent rpm. The load control is connected and keeps the revolutions constant at 85 rpm by correcting pitch. When decreased power is demanded, the reverse takes place, i.e. the turbine governor is connected and controls the steam valve while the propeller load control is disconnected. At crash astern and crash ahead, maneuvering is carried out by pitch changing and the turbine governor keeps the propeller revolutions at about 85 rpm. At the crash stop astern tests, the propeller speed varied between 82 and 87 rpm, i.e. 96.5 percent and 102.4 percent which are within the limits prescribed.

No doubt these three steam turbine tankers will be followed with great interest by shipowners as well as shipyards. As this propulsion system is simple and has proved reliable, more vessels are likely to be similarly equipped.

Arthur Levy Boat Service Adds Two New Vessels To Its Global Seahorse Fleet

The Charles McCartney, powered by GM Electro-Motive Division diesels, has over 4,600 square feet of clear deck space for the transportation of supplies and material.

Arthur Levy Boat Service. Inc., Morgan City, La., has added two new vessels to its Seahorse Fleet. One is an A.B.S. Class A-1 Maltese Cross tug built by Burton Shipyard, Inc., Port Arthur. Texas, to be used for towing, anchor handling and transporting supplies. The other is a triple-screw Coast Guard Certified crewboat built by Sewart Seacraft, Inc., Berwick, La.

The M/V Charles McCartney has dimensions of 185 feet by 40 feet by 17 feet. The Burton hull was redesigned for Arthur Levy Boat Service by Breit Engineering, Inc. of New Orleans, La. This modification provided both increased speed and bollard pull. It is powered by two General Motors Electro-Motive Division diesel engines coupled to Lufkin two-speed reverse reduction gears. 4,300 continuous shaft horsepower propels the boat at 17-mph and also provides 116,000 pounds of bollard pull. A 47-inch Bird-Johnson bow thruster powered by a Caterpillar D-333 provides maneuverability.

For towing and anchor handling this boat is equipped with SMATCO 66-DAW-200, 225,000-pound single-line pull winch, a fairlead, a wood deck covered with steel and a 36-inch stern roller. Aft steering and winch controls facilitate these operations as well as general boat handling near offshore structures.

Transportation of supplies and material is easily handled with over 4,600 square feet of clear deck space. Four 620-cubic-feet and two 700-cubic-feet vertical Halliburton bulk drilling mud and cement tanks are built in the hull with a remote loading and unloading station located on the forecastle deck. A General Motors 8V-71 diesel-driven 600-CFM Fuller C-120 air compressor located in the engine room provides air pressure for transferring bulk material. Over 108,000 gallons of fuel and 3,400 barrels of drill water can also be delivered with this vessel.

The boat is equipped with an Apelco AE190CM, a Decca RM 316 radar, a Decca RM 326 radar, a Simrad ES 2 BM Fathometer, a Sperry Mark 27 combination gyro compass and auto pilot, a Benmar 100 ADF, a RF-201M single side band, a DX navigator Loran and a Hallicrafter receiver. This navigational and communications equipment enables this vessel to operate anywhere in the world.

Twenty berths, nine state rooms, central air-conditioning and heating, a 1,000-cubic-foot freezer and chiller and a large galley and lounge provide adequate facilities for crew members and passengers.

The Amazon Seahorse is an all-aluminum crewboat that is 85 feet by 20 feet by 8 feet. It is powered by three General Motors 12V-71N diesel engines developing 1,350 horsepower through Twin Disc 512 2:1 reduction gears. Two General Motors 2-53 diesels driving Delco 20-kw generators, supply electricity for the vessel.

A speed of 30 mph was recorded during the shipyard tests of this boat. It will operate at a speed of 26 mph with a fuel capacity of 3,200 gallons and a range of 700 miles.

This vessel is certified to carry 48 passengers. It has central air-conditioning and heating, 36 reclining seats, a lounge, 4 state rooms and 8 berths to accommodate the passengers. This is in addition to the crew quarters.

It is also equipped with a Raytheon 1130 AM radio, a Decca 202 radar and DE726 Fathometer. Stern controls, dry exhaust stacks and a 570-square-foot wood covered deck are some additional features.

The addition of these two vessels to the Seahorse Fleet brings the total to 45. This total includes crewboats from 65 feet to 110 feet, utility vessels from 87 feet to 110 feet, supply vessels from 130 feet to 176 feet, and combination tug/supply vessels from 176 feet to 185 feet. Nine more vessels are being built for Arthur Levy Boat Service, Inc., six of which will be ready this year. At the end of this year the Seahorse Fleet will have 51 vesse's operating in six countries around the world.

Certified to carry 48 passengers, the all-aluminum triple-screw crew boat Amazon Seahorse recorded a speed of 30 mph during her trials.

P&O Building 25 Ships —16 In British Shipyards

Two British Shipbuilding groups have won orders worth nearly $39,600,000 for six vessels.

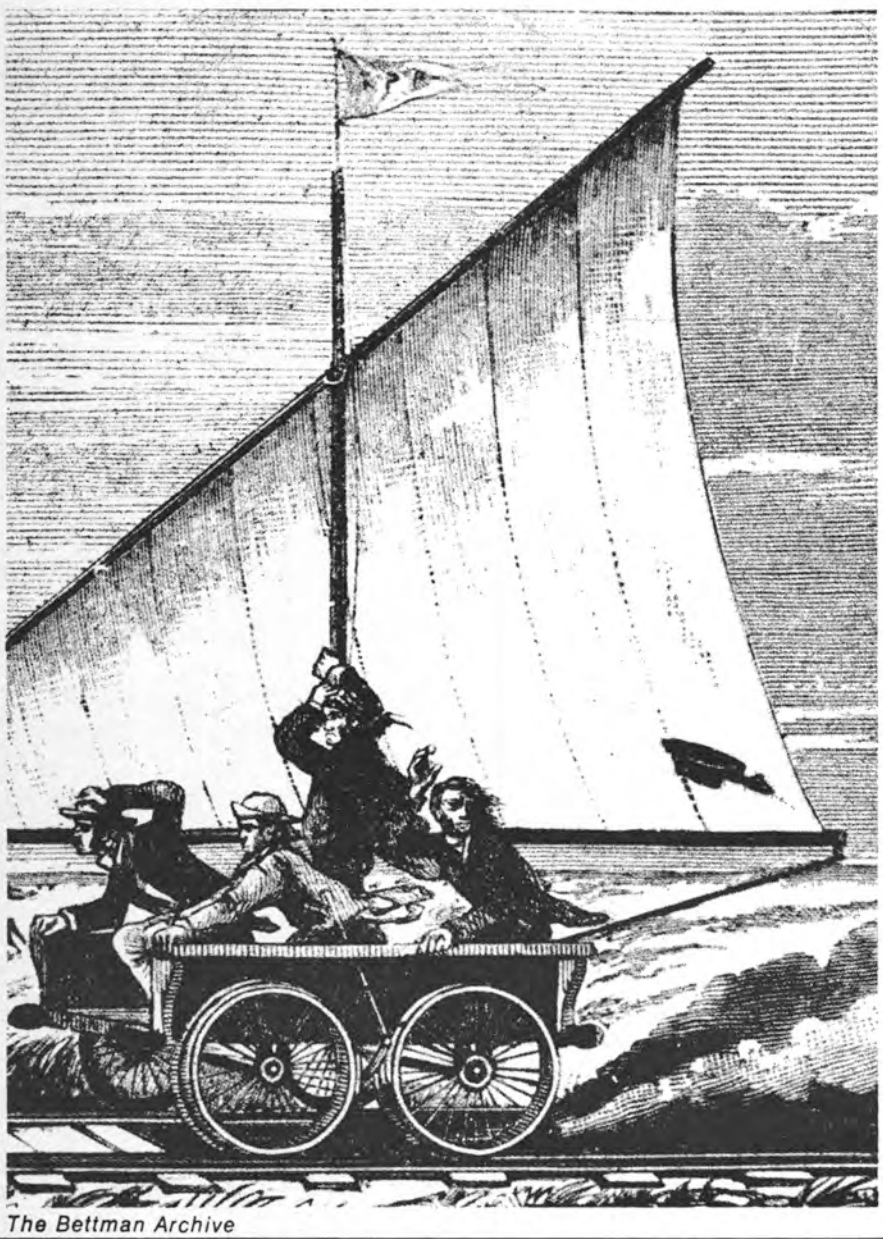
Upper Clyde Shipbuilders (UCS) are to build a series of four bulk carriers worth about $33,600,000 for Lyle Shipping and H. Hogarth and Sons, two of Glasgow's oldest shipping companies. The ships are a development of the group's bulk carrier design and will be built to a very high specification under the supervision of the Scottish Ship Management, who will also manage the vessels when they go into service. Deliveries are scheduled between late 1972 and mid-1973.

These orders bring the value of the Glasgow-based consortium's order book to around $192,000,000. Since January the group has taken orders worth between $160,800,000 and $168,000,000 for 25 ships. Seventeen of these are bulk carriers and the other eight are for the group's "Clyde" design standard cargo ship.

The other two new orders, worth about $6,000,000, were placed with Aberdeen, Scotland shipbuilders Hall, Russell and Co., by the Liverpool-based Moss Hutchinson Line, a member of the P. & O. group. The two, 38,850-ton gross cargo liners will carry general and perishable cargo between Britain and eastern Mediterranean countries. One is due for delivery in November next year and the other in February 1972. This brings the number of ships on order for P. & O. to 25, of which 16 are being built in British yards.

Even the most unconventional marine designers specify...

INCOLOY alloy 825 for exhaust systems



The Bettman Archive

This 19th century land-ship was typical of the many unconventional designs from that period.

When they do, they prevent the awkward problem of regularly repairing and replacing corroded exhaust systems. Also avoiding expensive labor, materials, and downtime.

INCOLOY* nickel-iron-chromium alloy 825 prevents that kind of trouble. We developed it specifically for use in aggressively corrosive environments.

INCOLOY alloy 825 has exceptional resistance to corrosion by seawater, and sulfuric acid condensate. It's also resistant to chloride-ion stress-corrosion cracking and intergranular attack. Even under the higher operating temperatures of a dry exhaust system, it keeps its strength and ductility.

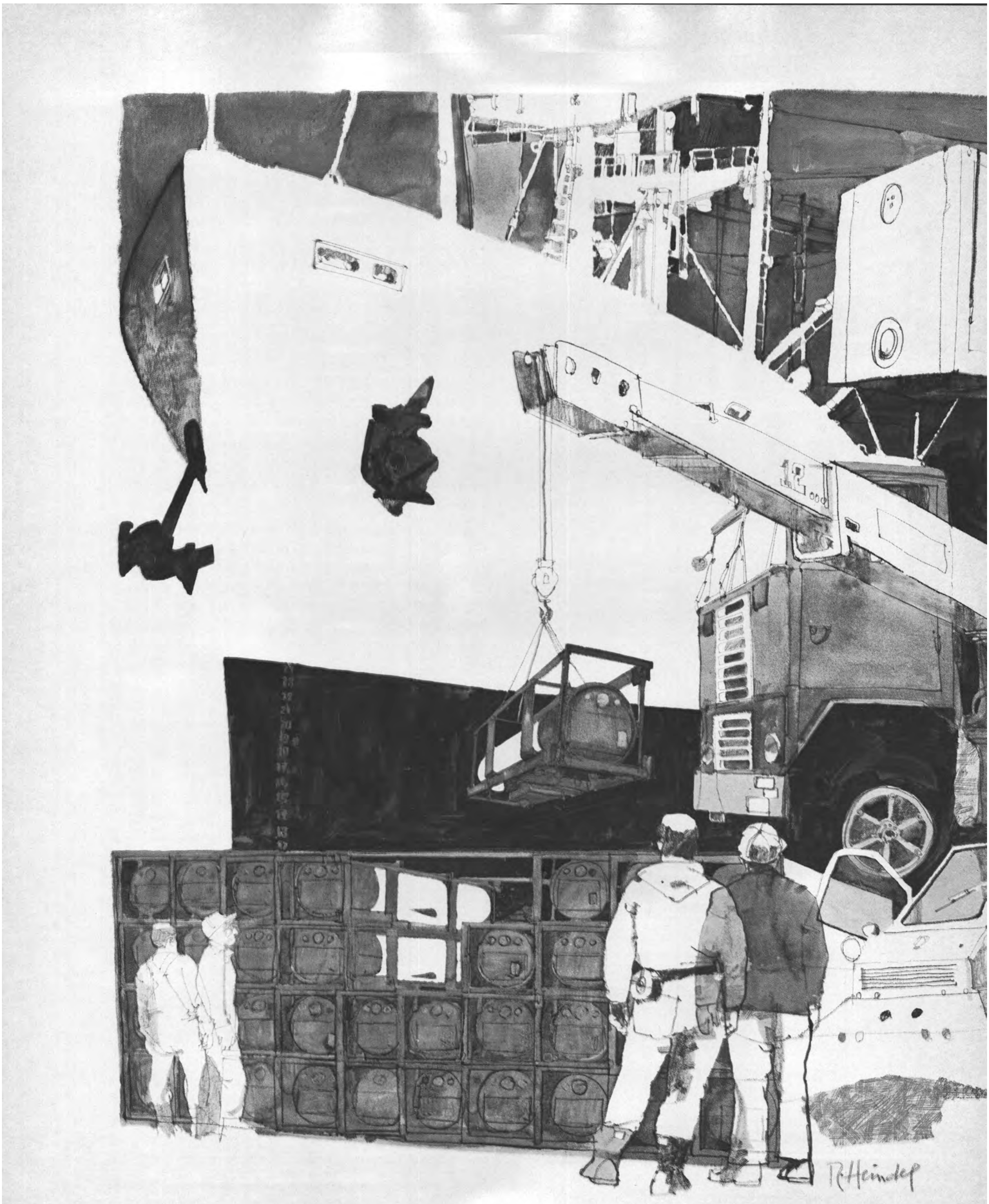
Amazingly, with all these properties and capabilities, it costs less than many competitive materials. INCOLOY alloy 825 has proven itself in many tough marine applications. See what it will do for you. Write for our booklet, "INCOLOY alloy 825."

By the way, it works in conventional exhaust systems, too.

Huntington Alloy Products Division, The International Nickel Company, Inc., Huntington, West Virginia 25720.

*Registered trademark of The International Nickel Company, Inc.

HUNTINGTON INCOLOY alloy 825



The POLARSTREAM Container Clip-on...a new concept in refrigerated shipping.

Suddenly a new era in ocean-going containerized shipping is at hand. New ships, equipped with central refrigeration to handle below-deck containers, are making containers with built-in refrigeration obsolete.

This development solves many old problems, creates many new opportunities. Container costs go down; container life expectancy goes up.

Safe, reliable POLARSTREAM clip-on units refrigerate containers before loading aboard ship and after unloading at destination. A fork-lift truck snaps a tank into place on the container and—instantly—there's cooling for overland transit and dock storage.

Utilizing liquified nitrogen (—320°F.) as a coolant, POLARSTREAM units offer...

- broadest possible temperature range—ambient down to —20°F.
- unmatched dependability and long life—no rotating parts.
- low cost—approximately half the investment required for Diesel-electric refrigeration units.
- precise temperature control—thermostat-operated valve capable of maintaining any temperature within a 2° range.
- silent, safe, non-pollutant—no engine, no flammable fuel storage, no exhaust fumes.
- flexibility—units can be used where needed for specific legs of trip, as an "assist" to existing systems, or as a total system for short hauls.

Overland test runs have already demonstrated the advantages of this system. POLARSTREAM clip-on units have recently been specified for use in connection with eight refrigerated ships now under construction for A.C.T. and other shipping lines.

POLARSTREAM refrigeration also offers interesting possibilities for the economical conversion of existing ships to containerization.

Planning to build, modernize, containerize? Make POLARSTREAM refrigeration a part of your plan. Let POLARSTREAM'S exclusive maritime distributor provide you with full details. Contact Mr. Robert L. Getz, MY National Corporation, 17 Battery Place, New York, New York 10004. Or, write to Union Carbide Corporation, Linde Division, 270 Park Avenue, New York, N. Y.10017.

UNION CARBIDE **CRYOGENIC PRODUCTS**

POLARSTREAM and GLAD are registered trade marks of Union Carbide Corporation

Facts about Union Carbide and POLARSTREAM Refrigeration

Introduced in 1961 POLARSTREAM represented a new concept in refrigerated transport, employing liquified nitrogen gas as its source coolant. Mechanically simple, the system consists of a vacuum-insulated storage container, a control valve, a temperature controller, a spray header, and attendant plumbing. As the liquid nitrogen is discharged into the container, it instantly vaporizes and expands throughout the cargo area, providing uniform temperature control in minutes.

• Union Carbide virtually "invented" liquid nitrogen, installing America's first air separation plant in 1907. Since that time Union Carbide has been the acknowledged leader in producing liquified gases and in pioneering the equipment and technology that have made these cryogenic fluids practical and economical to use.

• POLARSTREAM refrigeration is only one instance of Union Carbide's broad, diverse involvement in the production and protection of food. An involvement that ranges from plastic seed tape for planting crops to GLAD Wrap, a plastic film used for storing leftovers from the table. Another liquid nitrogen system provides a fast, economical means for processors to freeze foods.

Int'l Nickel Holds 3-Day Shipbuilding Materials Conference

Some 75 materials experts, marine engineers and naval architects gathered on September 14 for the opening session of International Nickel's 1970 Shipbuilding Materials Conference. Representatives of shipbuilding, shipping and supporting industries participated in three days of informal sessions to exchange techniques and experiences involving new developments in marine materials and their fabrication.

"There have been exciting developments since our last conference in 1968," said **Arthur H. Tuthill,** marine industries manager in Inco's market development department. "The icebreaker tanker had captured wide attention, and discussions were held on their propellers as well as steels for ice-belt and main-deck use."

Main topics for discussion included seawater cooling systems, propellers, improved hull plate steel, cryogenic plate steels, and cryogenic membranes. Hydrofoils, gas turbines and copper-nickel hulls were included in a special topics forum. Sessions were held at the Blockade Runner Motor Hotel in Wrightsville Beach, N.C.

The conference concluded with informal tours of Inco's Francis L. LaQue Corrosion Laboratory. The manager of the laboratory, **Will Kirk,** was the conference host.

Anixter Power Systems Appoints Wisniewski

John A. Wisniewski

John A. Wisniewski has been appointed marketing manager for Anixter Power Systems-Gulf Coast Operations, New Orleans, La., a subsidiary of Anixter Bros., Inc., Skokie, Ill. **John Key,** president of APS-Gulf Coast, made the announcement.

Anixter Power Systems serves the specialized e'ectrical equipment requirements of oil-drilling operations, shipboard systems and heavy industrial installations. APS designs, manufactures, tests and installs motor-generator and power control systems, and switching and distribution centers. They also offer motor and generator rebuilding and repair service. APS products range from electrical switchboards, panel boards, service entrance equipment to motor control centers, modular metering equipment, and voltage regulators for generators.

Mr. **Wisniewski,** a 1954 graduate of the United States Military Academy, West Point, N.Y., joined APS recently after working as sales manager for Lutron Electronics, Allentown, Pa. A native of Buffalo, N.Y., Mr. **Wisniewski** holds an M.B.A. degree from the University of Pittsburgh.

Anixter Power Systems-Gulf Coast is part of the Anixter Power Systems Group of Anixter Bros., Inc., of Skokie, Ill. Anixter is a specialist in the marketing and distribution of e'ectrical cable through a nationwide network of 20 warehouses. Along with their manufacturing division, they provide services to the petro-chemical, communications, mining, aerospace, automotive, shipboard, railroad, and utility industries.

5 Appointed To Board Of World-Wide Shipping

Y.K. Pao, governing director of the World-Wide Shipping Group, recently announced the appointment of the following senior executives to the board of World-Wide, (Shipping) Limited: **F.C. Lee,** deputy governing director; **B.M. Chang,** executive director; Dr. **Helmut Sohmen,** director; **Gonzaga Li,** director; and **Paul Lee,** director.

M.A.N.'s Reliability Program: Wear Data Analysis

Reliability engineering is confronting Research and Development Departments with new tasks. The compilation of wear data is one of the most important criteria for assessing the reliability of a technical system. M.A.N. have developed a method whereby the engineers on board collect the wear data of large engines. This permits detailed analysis by computer of the wear rates and relevant factors.
M.A.N.'s data processing centre has so far evaluated over 10,000 wear records of cylinder liners, piston rings, pistons, ring grooves and running gear components. The results will be invaluable for engine design, maintenance schedules and recommendations for engine operation including the selection of fuels and lubricants.

M·A·N

American M.A.N. Corporation,
500 Fifth Avenue, Room 5416,
New York, N. Y. 10036

Litton AMTD Awards $8-Million Contract To Technical Associates

A contract in excess of $8 million has been awarded to Technical Associates of New Orleans, Inc., by the Advanced Marine Technology Division of Litton Systems, Inc., El Segundo, Calif. The contract encompasses the design, development and fabrication of a complete automation system, including the ship's control console, forward and aft machinery - space - centralized control consoles and the data center for nine new U.S. Navy amphibious assault vessels. The electronic control systems will include the throttle control system, boiler control system, turbine bearing temperature detecting system and many other ship's systems.

The ships will be built at Litton's Ingalls Shipbuilding Division, Pascagoula, Miss. Technical Associates' president **Melvin Goldstein** said, "The Litton contract is the largest single contract awarded to Technical Associates, and with an average of 20 high quality merchant ships completed each year by U.S. shipyards, this places Technical Associates among the top five companies as a supplier for control systems and consoles for the marine industry."

Marine systems account for over 75 percent of the company's current business. Technical Associates is also under contract with Avondale Shipyards, Inc. for centralized control consoles on 11 LASH ships and the main propulsion system control consoles for three U.S. Coast Guard High-Endurance Cutters. Technical Associates also designed and fabricated the first American-built, centralized cargo-handling consoles for the ESSO San Francisco, ESSO Philadelphia and ESSO Baton Rouge, the largest ships built by Avondale Shipyards, Inc. to date.

Besides ship automation, Technical Associates is also involved with the design and fabrication of electronics equipment for the C-5A cargo aircraft under development by Lockheed-Georgia Company for the Department of Defense, industrial and offshore automation, data acquisition and supervisory control systems, and computer peripherals.

Pearlson Engineering Names James Long Manager Of Sales

James M. Long

James M. Long has been appointed manager of sales at Pearlson Engineering Company, and has assumed responsibilities for sales of all Syncrolift dry docks and related equipment to the marine field. According to **Raymond Pearlson,** president and founder, Mr. **Long's** duties will include overall direction of activities of a network of sales representatives in 19 countries.

Mr. **Long** joined Pearlson Engineering Company in July 1969 as a sales engineer. Previously, he was a member of the board of directors at Crandall Dry Dock Engineers, Inc., Cambridge, Mass. For more than 15 years, he supervised construction of new dry dock installations and was engineer in charge of major reconstruction projects from Newfoundland to the West Indies. In his present capacity, he is expected to travel more extensively to shipyards abroad assisting in initial planning of modern dry dock facilities.

Mr. **Long** was born in Norwood, Mass., served in the United States Navy for five years as a diver and instructor of diving and submarine escape apparatus. He attended Franklin Technical Institute, Northeastern University, and currently resides in Miami, Fla.

Pearlson Engineering Company is the exclusive worldwide producer and distributor of Syncrolift dry-docking and transfer systems. The company's main offices are in Miami, Fla.

Armco... the totally involved steel maker

Marine steels. It takes more than furnaces and a rolling mill to produce them.

It takes total involvement . . . an open dialogue with naval architects and designers, with ship owners and operators, with engineers in the yards and men who weld.

You have to be familiar with a unique breed of specs. ABS, HY-80, MIL-S-16113C Grade HT . . . to name some. We know them well. All of them. We specialize in marine steels.

Including new high-strength steels for saving weight, adding strength, improving stability, increasing performance in today's modern vessels. Steels like the 100,000 psi minimum yield strength Armco SSS® 100 series (ASTM A 514 and A 517). And Armco High-Strength B (ASTM A 441), with minimum yield strengths up to 50,000 psi, 70,000 psi minimum tensile strength.

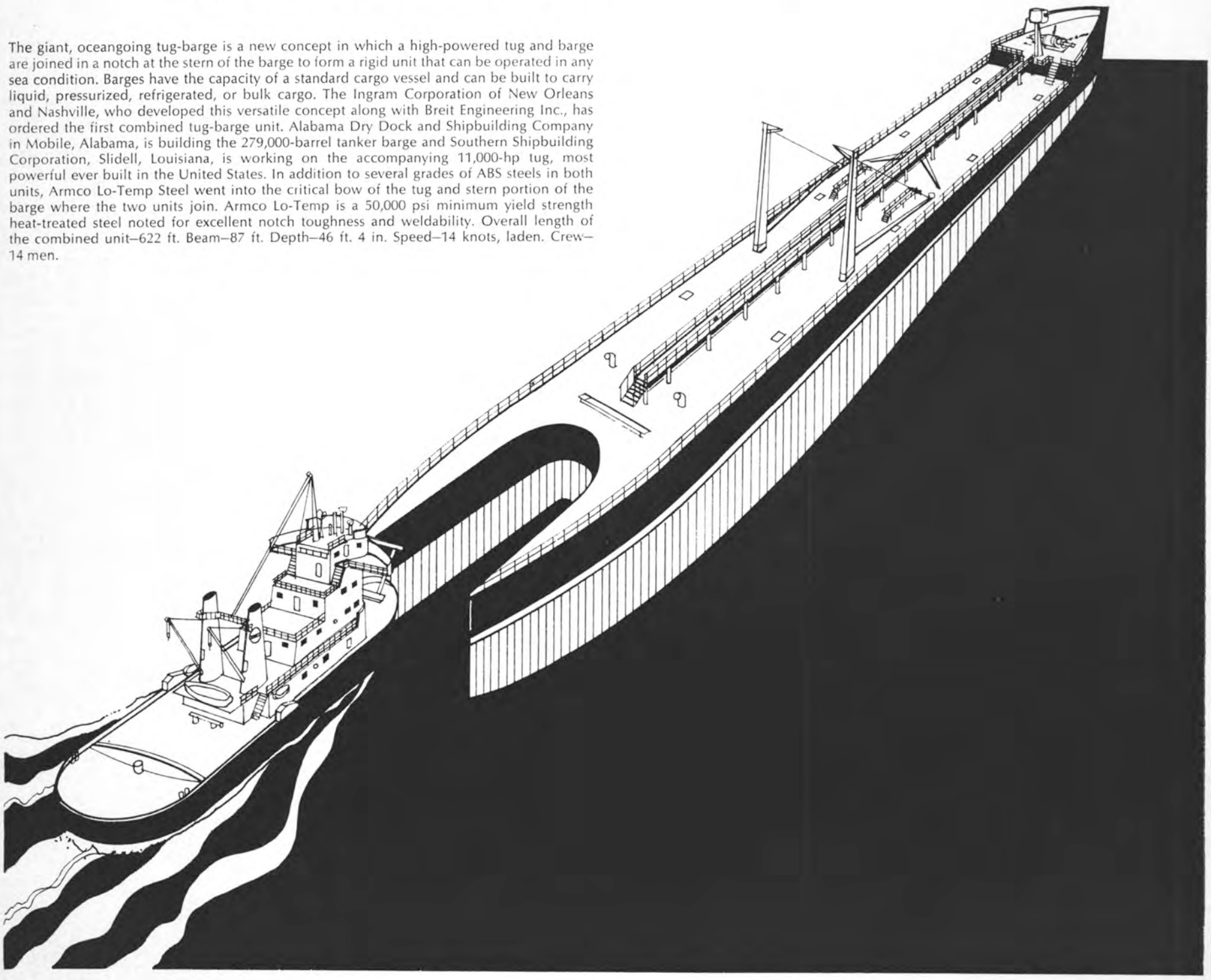
Plus a complete family of heat-treated carbon steels providing exceptional notch toughness. New Armco VNT™ Steel. Armco LTM. Armco QTC® Steel. And Armco Lo-Temp™ and Super-Lo-Temp™ Steels (ASTM A 537).

Total involvement means more than just products, too.

It means we welcome the idea of working with you in search of the best steels for your needs. It means a full array of technical data designed to assist you in using those steels. It means the metallurgical knowledge of our skilled team is yours whenever it's needed. It means prompt service from people who care. Armco people. Let's get involved . . . Armco Steel Corporation, Department H-30, P. O. Box 723, Houston, Texas 77001.

ARMCO STEEL ARMCO

Write today for a free copy of the new **Relative Cost and Property Card on Armco Marine Steels**



The giant, oceangoing tug-barge is a new concept in which a high-powered tug and barge are joined in a notch at the stern of the barge to form a rigid unit that can be operated in any sea condition. Barges have the capacity of a standard cargo vessel and can be built to carry liquid, pressurized, refrigerated, or bulk cargo. The Ingram Corporation of New Orleans and Nashville, who developed this versatile concept along with Breit Engineering Inc., has ordered the first combined tug-barge unit. Alabama Dry Dock and Shipbuilding Company in Mobile, Alabama, is building the 279,000-barrel tanker barge and Southern Shipbuilding Corporation, Slidell, Louisiana, is working on the accompanying 11,000-hp tug, most powerful ever built in the United States. In addition to several grades of ABS steels in both units, Armco Lo-Temp Steel went into the critical bow of the tug and stern portion of the barge where the two units join. Armco Lo-Temp is a 50,000 psi minimum yield strength heat-treated steel noted for excellent notch toughness and weldability. Overall length of the combined unit—622 ft. Beam—87 ft. Depth—46 ft. 4 in. Speed—14 knots, laden. Crew—14 men.

Container Ship Loading/Unloading Simulation Subject Of SNAME Hawaii Section Meeting

Shown seated at the head table are, left to right: **J.A. Gilbert,** social activities chairman, 1971 Spring Meeting; Capt. **Kenneth Wilson,** USN, program chairman; **Bruce Nehrling,** author; **Dave Kearton,** chairman; **Robert Mende,** national secretary; **Ian Smith,** chairman 1971 Spring Meeting; and **Theodore Otero,** executive committeeman.

The Hawaii Section at its August meeting at the Ala Moana Banquet Hall, Honolulu, enjoyed a social hour and dinner before the technical session.

A paper entitled "Container Ship Loading and Unloading Simulation" was presented by **Bruce C. Nehrling,** a graduate naval architect from the University of Michigan, College of Engineering. Mr. **Nehrling,** whose visit to Hawaii for this purpose was sponsored by M. Rosenblatt & Son, was introduced by Capt. **Kenneth Wilson,** Commander of Pearl Harbor Naval Shipyard.

Mr. **Nehrling** described his computer program, which was written in GPSS (General Purpose Simulation System) for the IBM 360 computer. With the help of a slide projector and a table display graphically depicting container movements he explained his computer simulation of the operations of a system consisting of a containership, containers, container-handling vehicles, a terminal yard and a dockside crane. Interaction among system components is monitored along with ship displacement, stability, trim and list during the simulation. He pointed out the value of the computer simulation in allowing management to consider and test many options and conditions with the use of his program.

The presentation was of especial interest to a guest, **John Miller,** general manager, operations, of Sea-Train Lines and to member **Ted Otero,** representing Matson Lines, both of whom are heavily involved in seaborne container freight to the islands of the Pacific.

Robert Mende, national secretary of SNAME, was also present in connection with Hawaii's 1971 Spring Meeting plans. Mr. **Mende** commented on the consistently high turnout of the Hawaii membership at their Section meetings.

T. M. Reinhardt Elected President Of International Paint

Thomas M. Reinhardt

At the August meeting of the board of directors of International Paint Company, Inc., **Thomas M. Reinhardt,** executive vice-president and member of the board of directors, was elected president of the firm and its two subsidiaries, International Paint Co. (California), Inc., and International Paint Co. (Gulf), Inc. Mr. **Reinhardt** succeeds **William J. LeBlanc Jr.,** who announced his decision to retire from the presidency on September 1. **John W. Weber** will continue as chairman of the board and Mr. **LeBlanc** will remain a director of the corporation.

Before joining International in 1953, Mr. **Reinhardt** served for several years with the sales department of one of the country's leading shipbuilding and repair firms. He is a member of the Propeller Club, is an associate member of The Society of Naval Architects and Marine Engineers, a member of the National Association of Corrosion Engineers, and a member of the National Paint, Varnish and Lacquer Association.

Mr. **Reinhardt** is a native of New Orleans and now resides with his family in Short Hills, N.J.

Largest Marseilles Drydocking Handled By Terrin Shipyards

The Texaco Hamburg, a tanker of 208,900 dwt, built in 1969 by the West German yard of Hohwaldtswerke-Deutsche Werft for the British firm, Texaco Overseas Tankship Ltd., arrived at Marseilles on September 1 for repairs and guarantee drydocking at Terrin shipyards (Societe provencale des ateliers Terrin).

This vessel, with an overall length of 1,067 feet, a molded breadth of 154 feet, and a draft of 62 feet, is the largest vessel to have been drydocked at Marseilles, and the record seems likely to stand until the commissioning of the new Marseilles floating dock, capable of handling ships of up to 350,000 dwt.

Jakobson Shipyard Builds Twin-Screw Tug For Texaco's Port Arthur, Texas Fleet

Shown shortly after launching at the Jakobson Shipyard in Oyster Bay, the Houma II will be employed by Texaco on the intercoastal waterway.

A new tug, the 200-ton Houma II, built by Jakobson Shipyard in Oyster Bay, N.Y., recently joined Texaco's Port Arthur Tug Boat Fleet.

Mrs. Kay Walker of Port Arthur, wife of Texaco U.S. Fleet manager, **R.P. Walker,** served as sponsor of the new tug during the recent christening ceremonies at the Jakobson yard.

Equipped with hydraulic steering gear and twin screws, the Houma II is of conventional design. Powered by two General Motors diesel engines of 975 horsepower each, the new tug is equipped with the latest navigational gear, including radar and VHF radio. She is fully air-conditioned and semi-automated, meaning she is controlled entirely from the bridge.

Master of the new tug is **Nils Geitrheim** of Warren, Texas. Chief engineer is **O.J. "Doc" Pulliam** of Groves. The main job of the Houma II will be to handle barges in the delivery of light products such as gasoline and lubricating oil between Port Arthur and cities along the intercoastal waterway. Two of the other tug boats in Texaco's Port Arthur fleet, the Houma and the Ursa, have been moving barges on the intercoastal for more than 20 years. Another tug, the Havoline, is used only in the Port Arthur area.

Twin City Shipyard Producing Specially Designed Portable Barges

PORTABARGES being used to support a pile driver. This view shows the patented method of interlocking the barges and the variety of shapes that can be formed.

Twin City Shipyard, Inc. has recently developed a novel concept in the integration of portable barges into larger-size flotation or bridging units. **John Buursema,** executive vice-president and general manager of the firm, states that the variety of applications for these units is almost endless, including pile-driver pontoons, crane barges, bridge pontoons, cargo barges, mooring docks, beaching units, ferries, etc.

The patented system of PORTABARGES (registered) allows the customer to assemble the required flotation unit into any shape and size consistent with specific service requirements. A wide range of accessory equipment, such as bow rakes, spuds and spud wells, propulsion units, etc. are also available.

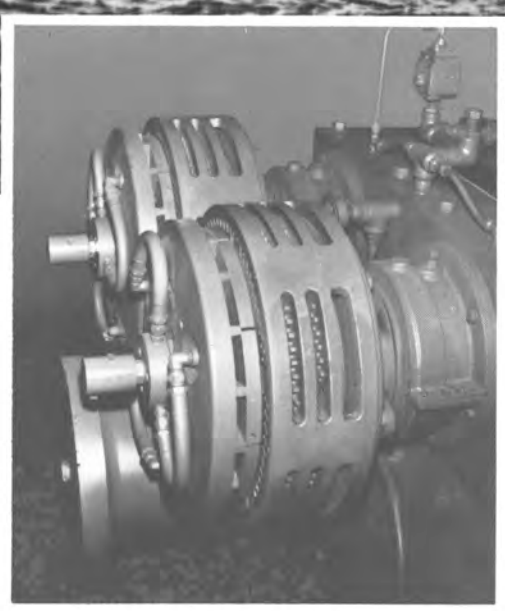
PORTABARGES are designed and precision built to exact dimensional standards with uniform light draft within each series, making the barges interchangeable. The exclusive deck fittings enable lesser skilled personnel to assemble the units. These same fittings are used for balanced lifting.

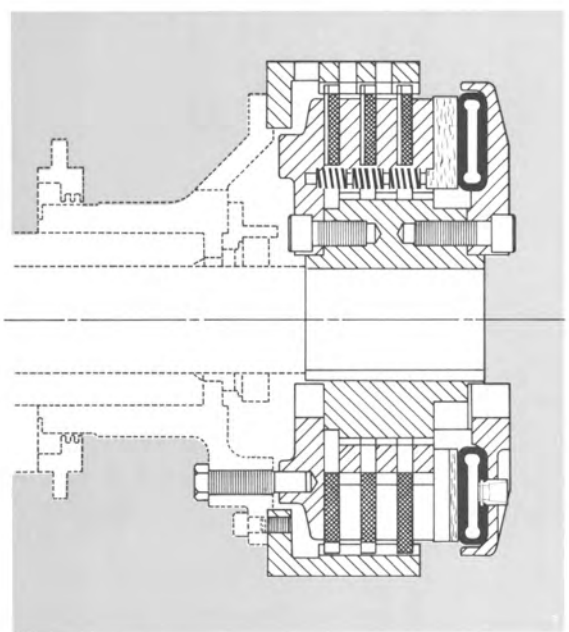
PORTABARGES can be purchased outright, rented or rental-purchased. Full details on these units may be obtained from Twin City Shipyard, Inc., P.O. Box 3032, St. Paul, Minn. 55101.

A NEW EFFICIENCY *in a* NEW BEAUTY...

for the TUNA FISHING FLEET!

With a new, smooth, twin-screw power through WICHITA CLUTCHES.





The GINA KAREN provides its owners with scientific and operating features revolutionary to American fishing.

Built by the Marine Division of Paceco in Alameda, California for Gina Karen Fishing, Inc., this seiner's all-steel hull with its modern bulbous bow provides 16 fish holds with a total capacity of 550 tons. Quarters are provided for an operating crew of 16. Five boats of this design are in operation . . . all are Wichita equipped.

Two Wichita ATD 318 Standard Ventilated Air-Tube Disc Clutches operating Western Gear 6200 series Reduction Gears provide smooth, remote-controlled power to the Gina Karen's Twin screws. The boat is powered by two D-399 Caterpillar diesel engines that develop a total of 2,250 b.h.p., providing a top speed of 14 knots.

WICHITA MARINE CLUTCHES WILL GIVE YOU:

- Positive control of propeller speed throughout entire range.
- Smoother remote controlled operation.
- Quick response.
- Added maneuverability.

WICHITA Clutch COMPANY, INC. WICHITA FALLS, TEXAS, U.S.A.

WRITE
for Wichita Clutch Catalog

INSIST ON WICHITA MARINE CLUTCHES FOR YOUR NEXT WORKBOAT OR SHIP

WICHITA CLUTCH CO., INC.

WICHITA FALLS, TEXAS 76307

CALL YOUR NEAREST WICHITA ENGINEER.

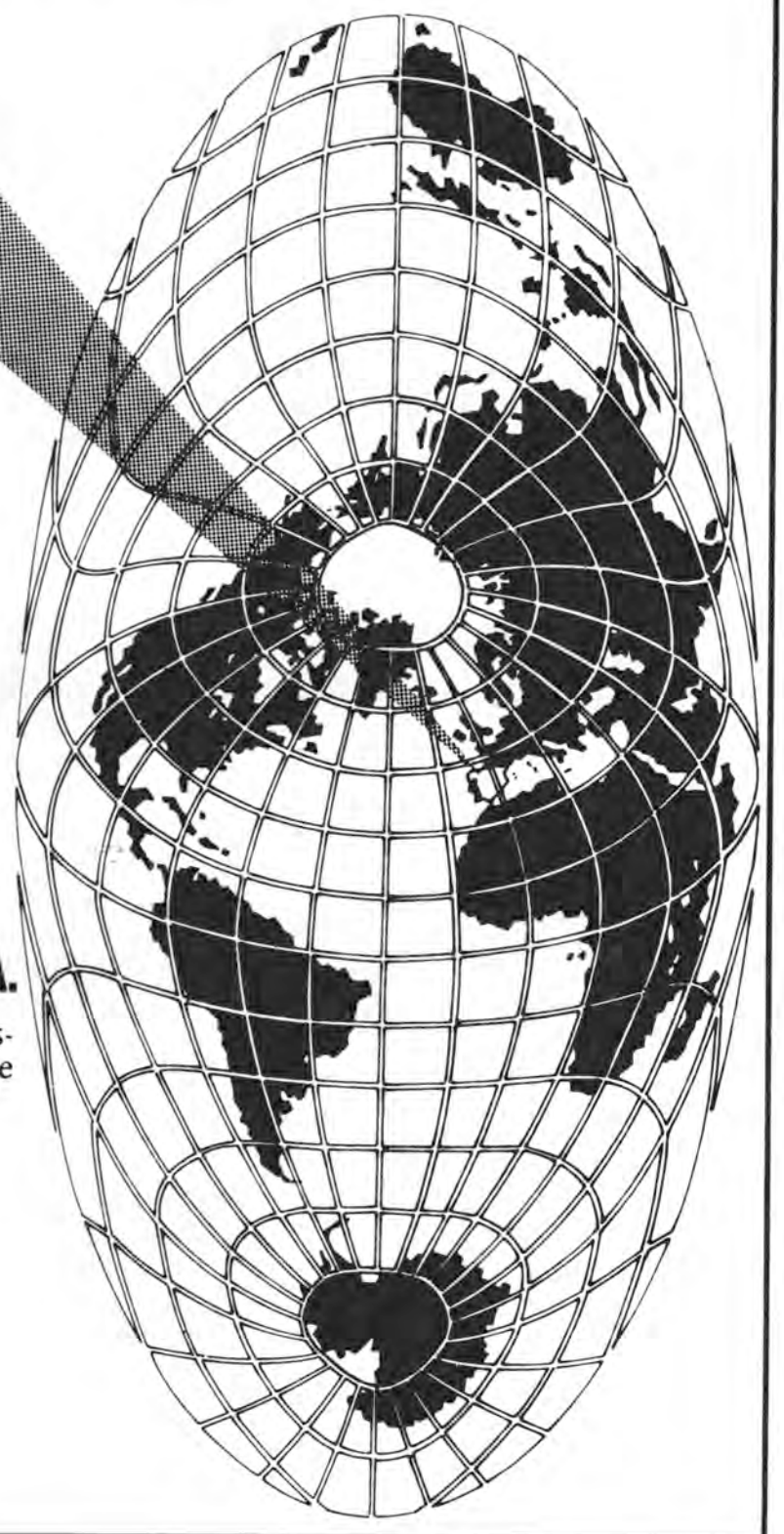
ALLIED-CALLAWAY EQUIPMENT COMPANY,
Kansas City, Missouri
CLUTCH ENGINEERING CO., Weatoque, Conn.;
Martinsville, New Jersey (Met. N. Y.)
DOMINION POWER PRESS EQUIPMENT, LTD.,
Burlington, Ontario, Canada;
Montreal, Quebec, Canada
FREMONT & LEWIS, INC., Cincinnati, Ohio
DONALD E. HARMAN, Dallas, Texas
R. M. HOFFMAN COMPANY, Sunnyvale, Calif.
W. G. KERR COMPANY, Pittsburgh, Penn.
ROBERT R. KING COMPANY,
Tiffin (Cleveland), Ohio
ANDREW T. LOBEL COMPANY, Denver, Colorado
A. L. MARTIN & COMPANY, Belleville, Illinois
GEORGE A. MINNS, LTD., Burnaby, B.C., Canada
MOTION, INC., Memphis, Tennessee
LARRY W. McDOWELL, Long Beach, California
NORMAN RUPP COMPANY, Portland, Oregon
SALES ENGINEERING CO., Salt Lake City, Utah
G. M. SOMMER CO., INC., Detroit, Michigan
C. ARTHUR WEAVER CO., Richmond, Virginia
NORMAN L. WILLIAMS, Houston, Texas
FRANK W. YARLINE & COMPANY, Chicago, Illinois

LICENSEES FOR BRITISH COMMONWEALTH & EUROPE:
WICHITA UNITED, LTD., Bedford, England

CONTINENTAL OFFICE:
WICHITA UNITED, LTD., Rotterdam, Holland

ASTILLEROS ESPAÑOLES, S.A.

An enterprise that increases its capacity by means of coordinating the technique, quality and experience of **Cía. EUSKALDUNA de CONSTRUCCION y REPARACION de BUQUES, S. A., SOCIEDAD ESPAÑOLA de CONSTRUCCION NAVAL and "ASTILLEROS de CADIZ, S. A".** at the service of Shipbuilding.



ASTILLEROS ESPAÑOLES, S. A.

Takes pleasure of informing of its constitution as a Society as a result of the merger of.

ASTILLEROS de CADIZ, S. A.
Cía. EUSKALDUNA de CONSTRUCCION y REPARACION de BUQUES, S. A.
SOCIEDAD ESPAÑOLA de CONSTRUCCION NAVAL, S. A.

HEAD OFFICE: 1, Covarrubias. Madrid-10 - Spain. - **P. O. Box** n.º 815. **Phones:** 223 28 27; 223 51 57; 223 49 41; 419 95 50/54/58/62
Telex: 27690-E et 27648 - ASTIL-E. **Cable address:** ASTILLEROS-MADRID.

World Tanker Fleet And Containerization Covered In Sixteenth Annual Report Of OECD

1969 was a year of change in the shipping world, both for oil transport and for general cargo. In oil, it saw the full impact of the 200,000-ton tankers which by the end of the year made up over 10 percent of the world tanker fleet. In general cargo, it saw the breakthrough of containerization on major ocean shipping routes, as the traditional liner vessels faced competition from new specialized ships with a total capacity of over 100,000 containers.

These are two of the important developments on the world shipping scene, covered in the 16th Annual Report of the Maritime Transport Committee of the Organisation for Economic Co-operation and Development (OECD). The report covers the main developments of topical interest in the field of shipping during 1969 and the early part of 1970; and an attempt is made to relate these to the longer term international shipping trends emerging from a decade of profound changes in the pattern of maritime transport.

The presentation of the report follows the model of previous years. Four chapters are devoted to international developments in shipping, the development of shipping demand and of shipping supply, and the world freight markets. This year's special chapter discusses the containerization of deep-sea general cargo movements and the problems that have followed in its train. In addition, the Statistical Annex has been further extended to present as complete a picture as possible of world seaborne shipping trends and recent developments.

In the field of international shipping policy, the report highlights the efforts that are being made internationally to harmonize administrative procedures whose diversity hampers the optimum development of worldwide container transport and the way the traditional Liner Conference system is adapting itself to the new conditions. The Maritime Transport Committee has continued its endeavors to maintain the free flow of shipping services and has tried to dissuade individual countries or groups of countries from practicing flag discrimination. The report discusses the work of the United Nations Conference on Trade and Development (UNCTAD) in the field of shipping in which the Member countries of the Maritime Transport Committee play an important part. The recent Brussels Conference on Marine Pollution damage is also mentioned.

The report then traces the development of the world freight markets in 1969 and the early months of 1970. During most of 1969 freight rates remained fairly stable and tended to stand lower than in 1968. However, in the last quarter of the year, the dry cargo market began a spectacular rise which has continued well into 1970, leading in some cases to freight levels higher than any paid since the first closure of the Suez Canal in 1956/57. Tanker freights also rose steeply and, throughout the early part of 1970, all markets remained delicately balanced. Combined carriers moving between the oil and dry cargo markets have contributed to making the best use of available shipping space, but supply became tight in spite of continued heavy deliveries of new tonnages.

The chapter on the demand for shipping services shows how this situation developed out of unusually rapid growth of world seaborne trade which increased by between 10 and 11 percent in 1969 compared with a long-term average of less than 8 percent. Particularly notable was the increase in coal and iron ore movements with Japan importing over 20 percent more than in 1968. Only grain movements continued their decline, as some Asian countries are becoming less dependent on imported cereals. Inter-regional oil movements reached 1,100 million tons, 10 percent more than in 1968. As a result, 1969 was the fifth consecutive year of virtually full employment for the world fleet.

The chapter on the supply of shipping services examines the growth in the world fleet and analyzes it by flag, size and vessel type. The fleet expanded in 1969 by over 9 percent, the highest absolute and relative increase since the Second World War. In mid-1969, world tonnage stood at some 210 million grt. In spite of this rapid growth, the level of demand ensured that vessels in lay-up reached a new low of only 0.15 percent of the world fleet. The section on new construction reflects the dynamic expansion of the shipping industry. Thus the ratio of deliveries to existing tonnage has steadily increased over a period of several years, reaching nearly 10 percent in 1969. In February 1970, there were 108 million dwt of shipping on order, nearly 20 percent more than a year earlier. Orders for containerships and combined carriers were 50 percent higher than a year before. The trend to larger ships also continues and a tanker of 400,000 dwt and a combined carrier of 270,000 dwt are now the biggest vessels of these types on order.

The special chapter of this year's report examines recent developments and trends of containerization of deep-sea general cargo movements. For some years the Maritime Transport Committee has followed the development and general economic implications of containerization, as far as shipping and ports are concerned, in view of particular policy issues which large-scale containerization raises in the field of international shipping and has reported on these to the European Conference of Ministers of Transport. The new report is in two parts, one relating deep-sea container transport to total inter-regional movement of general cargo, the other reviewing problems and policy issues raised by containerization for governments, the shipping industry, port authorities and labor.

The rapid growth of deep-sea containerization can be illustrated by a few figures: in the first half of 1969, 40 percent of all general cargo movements between the United States North Atlantic Coast and the United Kingdom/Continent were containerized, compared with 32 percent in 1968. On the United States/Pacific route, containerization of general cargo movements increased from 13 percent in 1968 to nearly 40 percent in the first half of 1969. Problems on the international level which arise from containerization concern, for example, standardization insurance and liability, temporary over-capacity of shipping space on certain routes, the concentration of container services into large consortia, the organization of container services in the framework of existing shipping conferences, competition between ports, and labor problems arising from rapid technological change, both on board ship and in ports.

Containerization and unit transport generally are now the most important elements in the modernization of general cargo shipping. While other international bodies are responsible for the more technical problems arising in the international field, the major economic problems and policy issues associated with containerization will continue to be a prime concern of the Maritime Transport Committee.

Copies of the report can be obtained at a cost of $3.50 each by writing to the Organisation For Economic Co-operation and Development, Chateau de la Muette—2, rue Andre-Pascal, Paris 16e.

Newport News Shipbuilding Promotes Taylor And Monroe

Robert N. Taylor

Harry Monroe Jr.

W.F. Wilson, vice-president of Newport News Shipbuilding, Newport News, Va., has announced the appointment of **Robert N. Taylor** to the post of director of the company's management systems and computer services division. Mr. **Wilson** also announced that **Harry Monroe Jr.,** a former program manager, will replace Mr. **Taylor** as director of the progress analysis and manpower planning division.

A native of Wilmington, N.C., Mr. **Taylor** was awarded a degree in naval architecture and marine engineering from Massachusetts Institute of Technology and a master's degree in industrial management from the University of Pennsylvania.

Immediately before joining Newport News in 1969, Mr. **Taylor** had worked as assistant to the vice-president for engineering at Sun Shipbuilding and Dry Dock Company in Chester, Pa.

Mr. **Monroe,** a past president of the Engineers Club of the Virginia Peninsula, has been with the Tenneco subsidiary's engineering divisions since 1948. Ten years later he was named assistant head of the machinery design department and subsequently has headed the chief engineer's staff and served as a deputy project director as well as program manager.

Mr. **Monroe** is a native of Hampton, Va., and holds bachelor of science degrees from both the United States Merchant Marine Academy and the University of Virginia.

Austin & Pickersgill License Brazilian Shipyard To Build SD 14 Type Cargo Ships

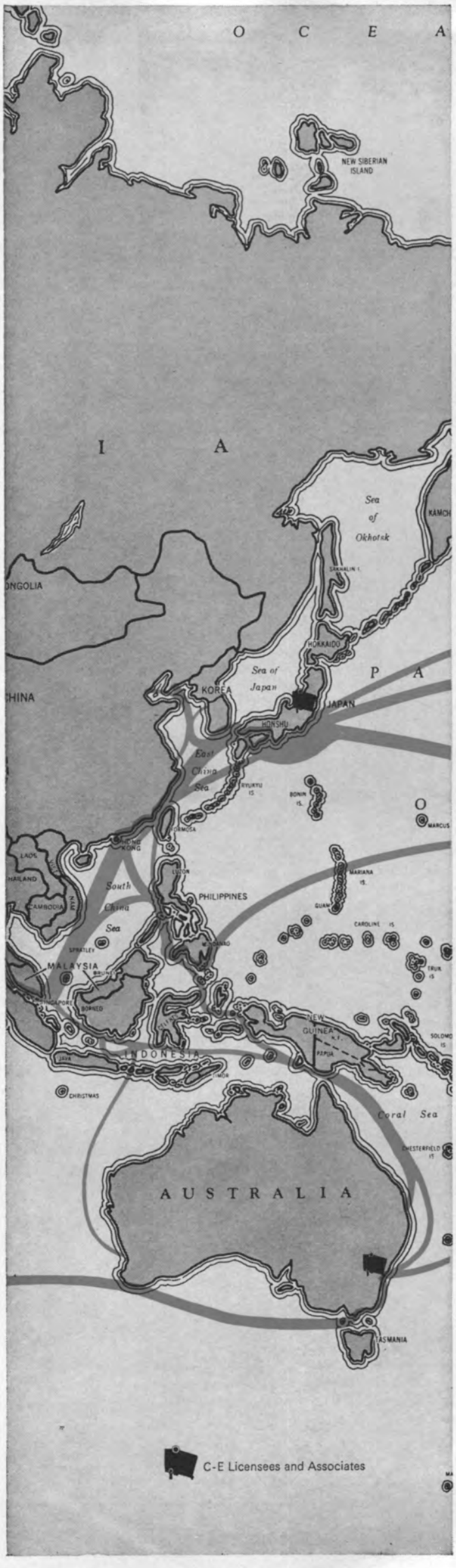
The highly successful SD 14 cargo ships, designed and created by the Austin and Pickersgill Group of shipyards at Sunderland, northeast England, will now be built in Brazil.

A licensing agreement has been reached with Estaleiros Maua SA Niteroi, Estado Do Rio De Janeiro, a member of the Group Companhia Comercio Navegacao, to build SD 14 ships for Brazilian and South American ownership. The first contract to be signed under the agreement is for four SD 14's for Empresa De Navegacao Alianca Sa, Rio De Janeiro, with delivery ranging from mid-1972 until mid-1973. This brings the world total at sea, under construction or on order, to 88.

The two Sunderland yards, Austin and Pickersgill and Southwick and Bartrams at South Dock, pioneered the SD 14 as a replacement for the aging fleet of "liberty" ships in service throughout the world.

The vessel has a compact overall length of 462 feet, beam of 67 feet, deadweight tonnage of 15,000 and a service speed of 15 knots. Its five cylinder turbo-charged diesel engine develops 7,500 bhp and consumes less than 20 tons of fuel a day. It can carry 13,652 tons of general cargo in five main holds and four between deck compartments and as a bulk carrier can handle 753,800 cubic feet of grain.

The SD 14 is already being built under license at the Hellenic Shipyards, Skaramanga, Greece.



In marine circles, C-E steam technology and service lead the way.

Everywhere, larger and higher-powered ships are being designed to service the growing demands of international trade. And steam power is the optimum propulsion method for most of these vessels.

Shipbuilders and operators know they can rely on C-E to provide the steam technology needed to keep pace with their advanced designs.

Why? Experience. Experience gained from the many proven technological developments made in C-E shoreside steam generators and the application of these advances to marine boilers. Many of these design details and innovations have become, in fact, standard requirements to many ship owners.

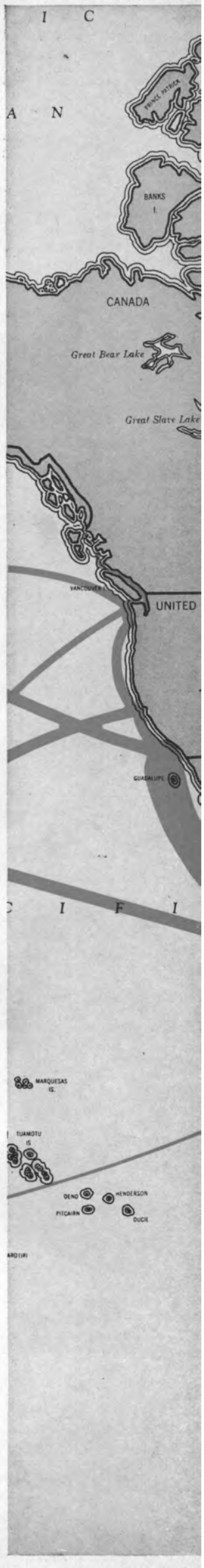
For example, welded wall construction and tangential firing enable C-E boilers to meet modern ship requirements for high performance, reliability, low maintenance, and operating economy.

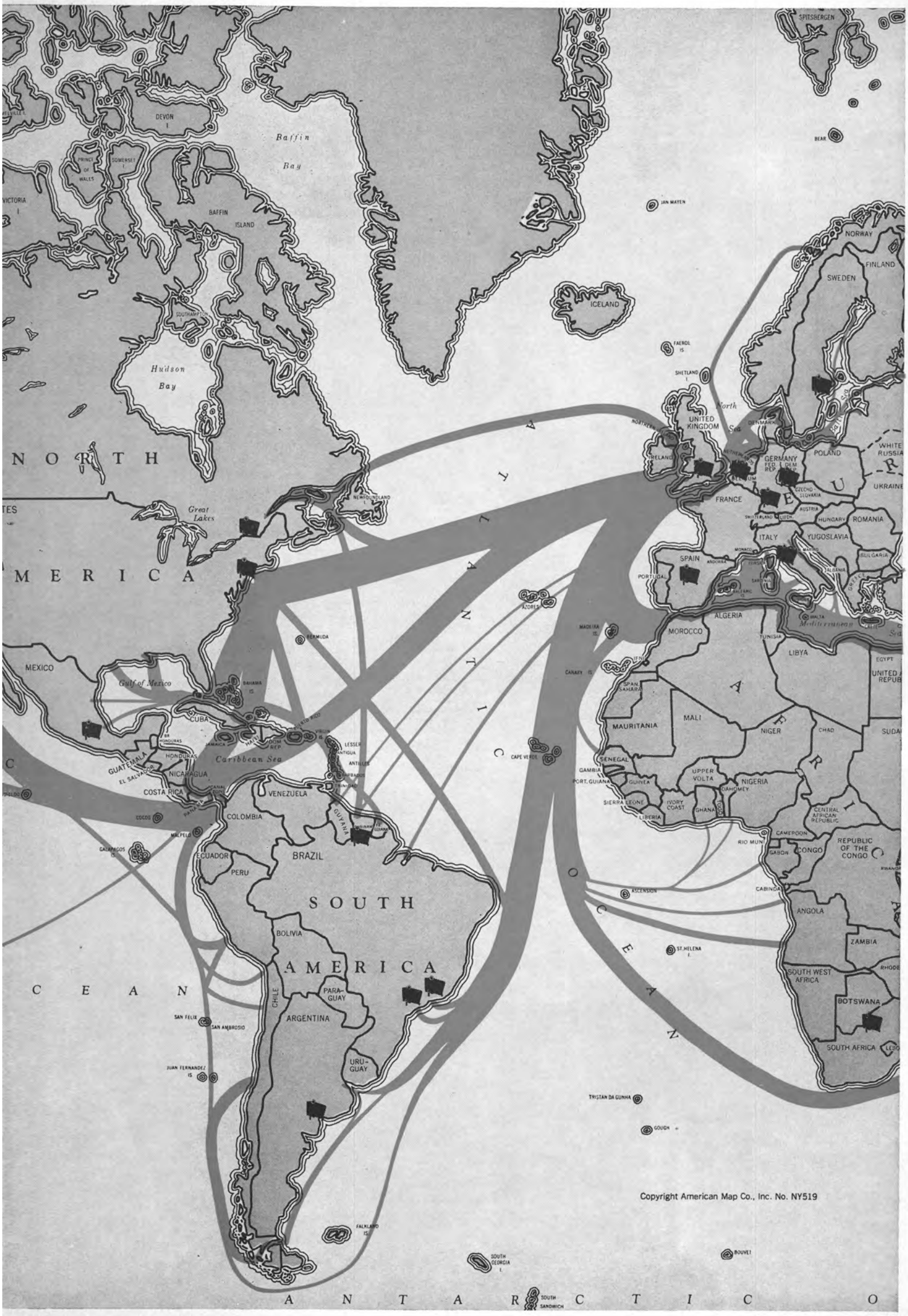
And you can be sure that C-E boiler designs and features are uniform—anywhere in the free world.

C-E steam generators are marketed by a worldwide network of licensees and associates who fabricate them to basic C-E designs. Service and parts also are available worldwide—as well as from our home office. Anytime.

For a complete list of our licensees and more information on our line of marine steam generating equipment, write C-E Marine Division, Combustion Engineering, Inc., Windsor, Conn. 06095, U.S.A.

MARINE DIVISION





Bethlehem Elects Williams Vice-President, Shipbuilding —D.D. Strohmeier To Retire

Walter F. Williams, assistant vice-president, shipbuilding, Bethlehem Steel Corporation, has been elected a vice-president, effective September 1, of Bethlehem Steel Corporation, and assigned to shipbuilding, **Edmund F. Martin,** chairman and chief executive officer has announced. At the same time, Mr. **Martin** announced that **Daniel D. Strohmeier,** vice-president of Bethlehem Steel Corporation in charge of shipbuilding, will retire April 30, 1971, and will be succeeded by Mr. **Williams.**

A native of Dover, Del., Mr. **Williams** received his bachelor's degree in civil engineering from the University of Delaware in 1951. He joined Bethlehem Steel as a member of that year's Loop Course, management training program for college graduates, and was assigned to the plant engineering department of the Lackawanna, N.Y., plant.

In 1960 he was transferred to the home office in Bethlehem, Pa., as a project engineer in construction engineering. Mr. **Williams** was named assistant chief engineer, projects, on the staff of the vice-president, operations, in 1965, and was appointed chief engineer of construction at Bethlehem's new Burns Harbor, Ind. plant in January 1966. He was assigned to the engineering department as chief engineer, projects group, in February 1967. Four months later he was promoted to manager of engineering in charge of projects, design and construction. He was elected assistant to vice-president, engineering, February 1, 1968. On May 1, 1968, he was elected assistant vice-president, shipbuilding, and was transferred to the shipbuilding offices at 25 Broadway, New York City.

Mr. **Williams** is a member of the American Iron and Steel Institute, The Society of Naval Architects and Marine Engineers, the Saucon Valley Country Club and the Downtown Athletic Club.

Walter F. Williams

Daniel D. Strohmeier

Mr. **Strohmeier** was born in Boston, Mass. He was graduated in 1932 from Amherst College with a bachelor of arts degree and from Massachusetts Institute of Technology in 1934, with a bachelor of science degree in naval architecture. While at Amherst he was elected to Phi Beta Kappa, national honorary scholastic society.

Mr. **Strohmeier** joined Bethlehem Steel in July 1934 and was assigned to the outside hull department of the firm's former Quincy, Mass., shipyard. He was transferred to the estimating department in 1935 and to the vice-president's office as a technical assistant in June 1936. In January 1939 he was assigned to the corporation's New York shipbuilding office in the same capacity, becoming assistant to vice-president in May 1942, and vice-president January 23, 1948. He served as a director of Bethlehem Steel Corporation from 1948 to 1965.

Mr. **Strohmeier** is a member of The Society of Naval Architects and Marine Engineers, American Society of Naval Engineers, American Iron and Steel Institute, American Bureau of Shipping, Lloyd's Register of Shipping, Shipbuilders Council of America, and the Propeller Club.

From 1948 to 1949 he served on the International Transport Committee of the U.S. Chamber of Commerce and since 1948 has been a member of the Chamber's National Defense Committee. Mr. **Strohmeier** is a member of the National Production Authority's Industry Advisory Committee for the Shipbuilding Industry, and the National Academy of Sciences' Maritime Cargo Transportation Conference. From 1949 to 1952 he was a member of the Military Petroleum Board Tanker and Barge Committee.

Exstran Offers Experimental Stress Analysis Services

A new consulting service in the field of experimental stress analysis is being offered by Exstran, a consulting firm at 646 Hegenberger Road, Oakland, Calif.

The new organization will serve clients anywhere in the United States. Its services will be offered to mechanical engineers and to naval architects in need of independent analysis for hulls and rigging.

The firm will work within the complete range of techniques—photoelastic model, photoelastic coating, brittle coating, moire fringe analysis, and strain gage.

Although some large corporations have these capabilities in-house, Exstran will be, to the best of its knowledge, the only independent firm on the West Coast offering such services on a contract basis.

DECCA NAVIGATOR MARK 21 AND MINIDEC RECEIVERS

THE **position fixing navaid used by over 18,000 ships giving unmatched accuracy and simplicity of operation — direct plotting on latticed charts.**

DECCA MARINE RADAR

A new generation of small, medium and large "solid state" radars with new design techniques giving incomparable reliability and performance.

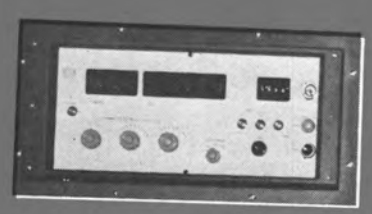
3 cm. and 10 cm. — True and Relative Motion Displays for any vessel.

GYRO COMPASS

Floating sphere principle gives exceptional bearing accuracy and trouble free operation. Solid state circuitry. Large scale vernier presentation. Compact Master compass with wide choice of repeaters.

DECCA PILOTS

Unprecedented course keeping.
All-weather operation.
Solid State reliability
Dial your course changes and vessel takes up new heading without overshoot. Course setting pointer returns to head-up position when on course.



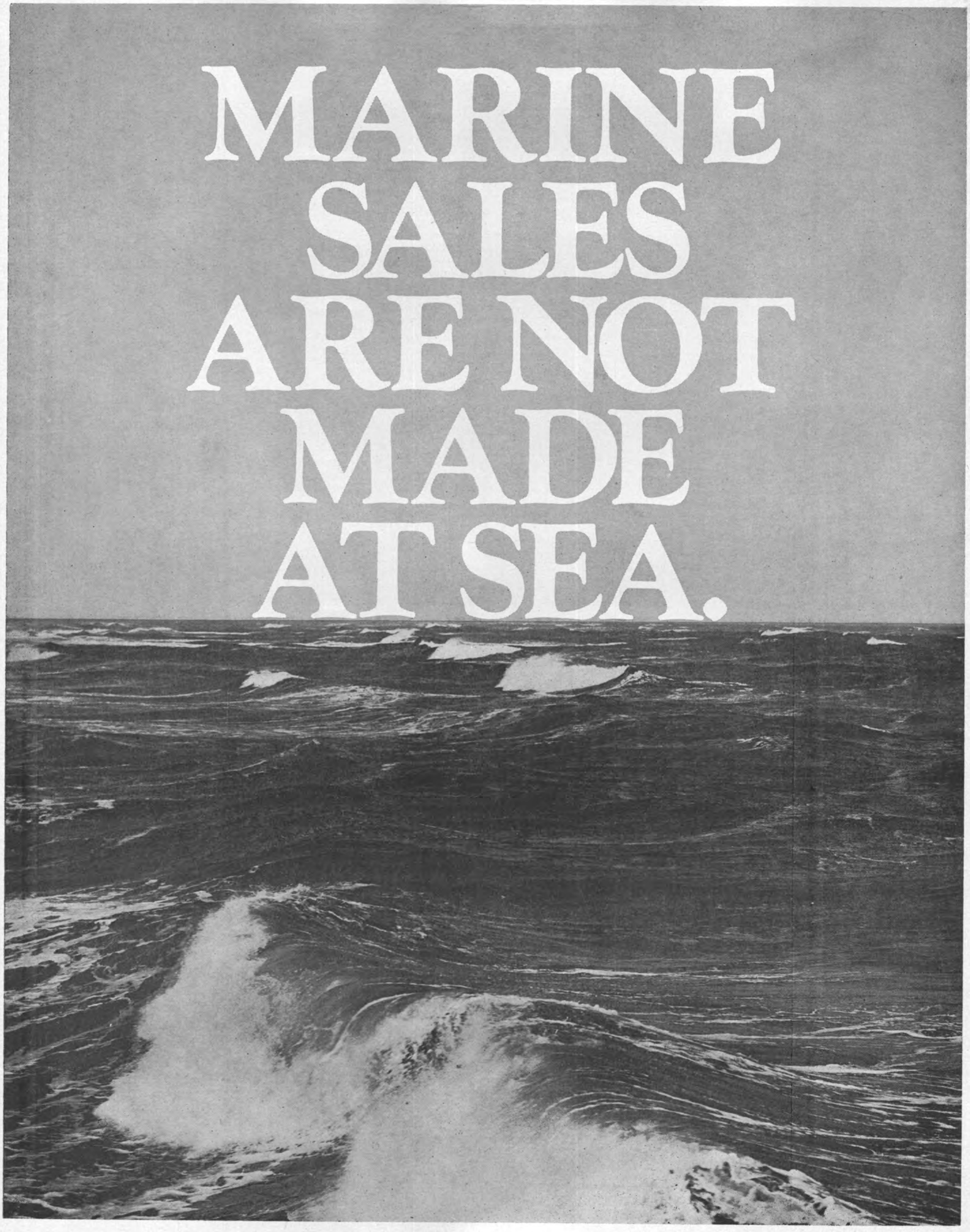
ISIS ALARM MONITORING AND DATA LOGGING SYSTEM

For engine room or other shipboard machinery. This solid state modular design equipment specifically designed for marine environment. High data rate and self checking features are combined in this high reliability system.

RADIO

Unsurpassed reliability and performance through solid state design and latest techniques. Complete range of communications equipment from sysnthesized single-sideband transmitters to multi-channel V. H. F. sets.

MARINE SALES ARE NOT MADE AT SEA.



That's why MARITIME REPORTER/Engineering News reaches thousands more shoreside buyers than any other marine publication . . . Twice the second magazine in the American market alone.

With all due respect, the man aboard ship does not specify or buy. It's the shoreside management and engineering men in vessel operations, shipbuilding, ship repair and naval architecture who have the authority to specify, order and buy all marine equipment, products and services. Ask any successful marine sales manager.

MARITIME REPORTER/Engineering News gives advertisers a circulation to these same shoreside buying power readers (titles listed below) THOUSANDS LARGER than any other marine magazine . . . DOUBLE that of the second magazine in the American market.

MARITIME REPORTER/Engineering News' total circulation is over 98% READER REQUEST . . . IN WRITING . . . BY INDIVIDUALS. More conclusive than any limited publication conducted survey — here is positive, audited evidence of unequalled reader demand. Thousands more of the right marine men want MARITIME REPORTER/Engineering News and have asked for it . . . in writing.

In 1969, MARITIME REPORTER/Engineering News carried more advertising than the second magazine, including more advertising from a larger number of shipbuilding, ship repair and vessel operating companies . . . the marine industry itself.

By every measure of magazine leadership — circulation, editorial excellence, proof of reader demand, largest amount of advertising and lowest cost . .MARITIME REPORTER/Engineering News is number one in the marine industry.

Why settle for HALF . . .
Advertise to your ENTIRE shoreside market
in the magazine you KNOW they want . . .

107 EAST 31st STREET
NEW YORK, N. Y. 10016
MUrray Hill 9-3266 • 7 • 8 • 9

These are the real buyers-the shoreside men referred to above.

IN VESSEL OPERATING COMPANIES
Directors, owners, agents, presidents, vice presidents, managers, secretaries, treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside

IN SHIPBUILDING & SHIP REPAIR COMPANIES
Directors, owners, presidents, vice-presidents, secretaries, treasurers, superintendents, managers, purchasing agents, naval architects, engineers and chief draftsmen

THE PROFESSIONAL MEN
Naval architects, engineers and consultants shoreside

MEMBER
BPA
Business Publications Audit of Circulation, Inc.

W.F. Hunt To Manage Fleet Services Division For Trident Tankers

Trident Tankers, Great Britain's largest independent tanker operator, has announced the appointment of **William F. Hunt** as general manager to head its fleet services division.

Earlier this year, the P and O subsidiary reconstructed its operations into three distinct fleets—tankers, liquid gas, and oil/bulk/ore carriers.

Mr. **Hunt,** who served at sea in two tanker companies for over a decade, before joining the marine department of the Hong Kong government, will supervise the personnel, fleet supplies and work study departments as his chief responsibilities.

$113 Million Contract Signed To Deliver Iron Ore Via Marconaflo Slurry System

The San Juan Exporter, huge ore carrier shown above, owned by Marcona Corporation, San Francisco, will be jumboized from a present 106,000 dwt to 141,000 dwt and converted to the company's recently introduced Marconaflo slurry system.

Japan's giant Nippon Steel Corporation has signed its first contract for iron ore concentrates to be delivered by the use of Marconaflo, it was announced in San Francisco by **C.W. Robinson,** president, Marcona Corporation. Marconaflo is the slurry method of materials handling which was developed and introduced by Marcona. (See August 15, 1969 issue of Maritime Reporter/Engineering News for feature with complete description and photos).

Under a 10-year, $113-million contract, Marcona will deliver 10 million tons of concentrates, beginning in April 1972, via the Marconaflo system from its iron ore mines in Peru to Nippon Steel's Hirohata Steel Works, where it will be converted into pellets for the production of steel.

Marconaflo permits shipboard pipeline loading of granular materials in slurry form or liquid suspension, subsequent decanting for the ocean voyage, and at destination, repulping of the ore into a liquid for pipeline discharge.

"This is a breakthrough of major proportions," Mr. **Robinson** said. "Marconaflo has now been accepted as a viable means of meeting the transportation crisis which faces the world's steel producers.

"Application of Marconaflo to such an operation eliminates the need for an expanded, multimillion-dollar conventional port facility employing the massive conveyor and grab bucket systems required for delivery of ore in dry form."

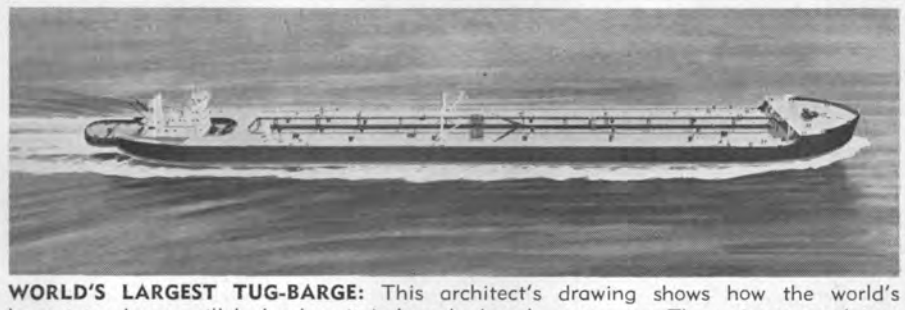
To accommodate the required one-million tons of annual shipments, Marcona will employ two large slurry ships with a combined capacity of 192,446 deadweight tons.

The San Juan Exporter, an existing Marcona ore carrier of 106,000 dwt, will immediately undergo a jumboizing and conversion operation to expand capacity to 141,000 dwt and for installation of Marconaflo equipment. The converted vessel will be capable of delivering nearly 850,000 tons per year.

The remainder of the contracted ore will be carried by the Marconaflo Merchant. This vessel became the world's first slurry carrier when converted to the system last year in Japan.

While the San Juan Exporter is being converted, Nippon Steel will construct a large, ground-level storage pond to receive the iron ore slurry, and a pelletizing plant adjacent to its existing steel works.

Marcona Corporation, owner of combination carriers with an aggregate of one-million dwt and operator of a total of 2.5 million tons in the combination trades, is one of the world's largest mining, shipping and natural resources development concerns.



WORLD'S LARGEST TUG-BARGE: This architect's drawing shows how the world's largest tug-barge will look when it is launched early next year. The unique vessel is a combination of one of the country's most powerful tugboats firmly nestled in the notched stern of a 532-foot tanker barge. Built with high-strength, notch-tough Armco Low-Temp Steel in critical bow-stern connecting sections, it will travel as a unit ocean routes never before attempted by a tug and barge. Ingram Ocean Systems and Breit Engineering Company co-developed the system. It combines the speed and capacity of an ocean-going vessel with the economy of tug and barge transportation. Tank and dry-cargo barges can be used for quick dockside turnaround of the tug and crew. Alabama Dry Dock and Shipbuilding, Mobile, will build the first barge, a 270,000-barrel capacity tanker. Southern Shipbuilding Corp., Slidell, La., is building the 11,000-hp twin-screw tugboat.

We were here 9 years before anyone whistled "Dixie"

Dan D. Emmett composed "Dixie" in 1859.
Our company was founded in

1850

And we've been making friends in the maritime business ever since.

Today, Luckenbach and its divisions serve the shipping industry through a network of ship agents, marine terminals and stevedoring companies on the Atlantic and Gulf Coasts of the United States.

Luckenbach
Steamship Company, Inc.
120 Wall St., New York, N. Y. 10004

Luckenbach Philadelphia, Pa.; Camden, N.J. • **Heide Company** Wilmington, Morehead City, North Carolina • **Luckenbach** Tampa, Fla.
Shaw Company Port Canaveral, Port Everglades, Miami, West Palm Beach, Fla.

KNOWN 'ROUND THE WORLD

THE BOSTON METALS CO.

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

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

TURBO GENERATOR SETS

1 

WESTINGHOUSE 440/3/60 200 KW UNIT

GENERATOR: Westinghouse 200 KW—250 KVA—450/3/60—1200 RPM—80% PF—with 40 KW—120 VDC on same shaft. GEAR: 9989/1200 RPM—double helical. TURBINE: Westinghouse—540 PSI—superheat 322°F. Test 930 PSI 800°TT. Also operates 615 PSI—850°TT.

2 

700 KW NON-CONDENSING MARINE TURBO GENERATOR SET

TURBINE: DRV-318-MRI — 850# — 850°TT — 24 pounds back pressure—10938 RPM. GEAR—Type S—432 — 10932/1200 RPM. GENERATOR: 700 KW—440/3/60—1200 RPM.

3 

75 KW 120 VDC GENERAL ELECTRIC TURBO GENERATOR SET

TURBINE: 225 lb. W.P.—150° superheat—15 lbs back pressure—4962 RPM. GEAR: 4962—1800 RPM. GENERATOR: compound—75 KW—120 VDC—651 amps—1800 RPM.

4 

WESTINGHOUSE 60 KW 120 VDC M-20-EH

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

5 

300 KW WORTHINGTON-MOORE CROCKER-WHEELER UNITS

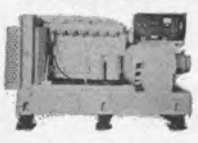
AP2 Ex-Medina Victory units. Worthington-Moore turbine—440 lbs—740°TT—28½" vac.—type S4—5-stage—6097 RPM—serial 7547 & 7548. GEAR: 14x7—6097/1200. GENERATOR: Crocker-Wheeler 300 KW 120/240 DC—1250 amps—type 102-H—compound—973643—999759 — armature flange 8¼"—bolt circle 7"—12 holes. Also new armature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

6 

VICTORY 300 KW WESTINGHOUSE TURBO GENERATOR SET

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

DIESEL GENERATOR SETS

7 

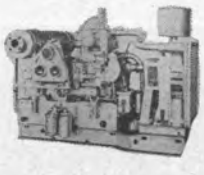
G.M. 6-71 DIESEL GENERATOR SET

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

8 

350 KW 120/240 VDC DIESEL GENERATOR SET

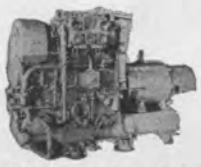
Ingersoll-Rand—heavy duty type S engine—8 cyl.—505 HP—10½ x 12. GENERATOR: G.E. 350 KW—120/240—600 RPM—switchgear. Good condition—as removed from Grace Line ships.

9 

NEW — UNUSED 10 KW SUPERIOR GAB-2 DIESEL GEN.

4½ x 5¾—BHP 16—RPM 1200—radiator cooled. GENERATOR: Delco 10 KW 120 VDC—83.3 amps—75" OAL—57" OAW—57" OAH.

$1695.

10 

GM 3-268A DIESEL GEN. SET

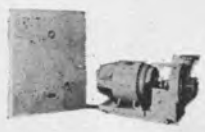
3-Cyl. diesel engine — 6½x7 — 1200 RPM — air or electric starting. GENERATOR: 100 KW—440/3/60—1200 RPM. Good condition. From U.S.N.

11 

200 KW G.M. 8-268A DIESEL GEN. SET

200 KW — 440/3/60/1200. 8-268A GM diesel heat exchanger cooled. Westinghouse generator.

PUMPS

12 

RALPH CARTER CO. 220 G.P.M. PUMP

220 GPM—3" suction—3" discharge. 230 ft. head at 220 GPM. 2600 RPM. MOTOR: 20 HP—115 volts DC—149 amps — with Allen-Bradley control.

13 

400 GPM BRONZE FIRE & FLUSHING PUMP

400 GPM at 150 lbs. 73 HP—440/3/60—3550 RPM.

14 

GARDNER-DENVER BRONZE DIESEL DRIVEN FIRE PUMP

6x5—1000 GPM—281' head—driven by BUDA 468-LD 6-cylinder diesel.

15 

VICTORY AP2 MAIN CIRCULATOR

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

16 

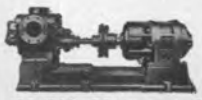
NEW BLACKMER FUEL OIL TRANSFER PUMP

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

17 

UNUSED BLACKMER VERTICAL ROTARY PUMP

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

18 

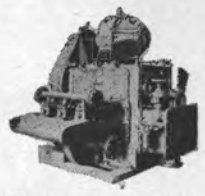
KINNEY MOLASSES PUMP

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

19 

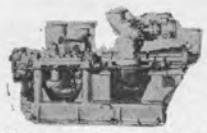
R-2418 WATEROUS CARGO PUMP

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

20 

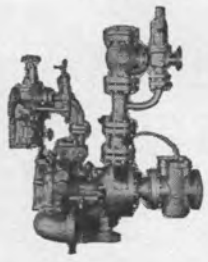
UNUSED BOILER FEED PUMP

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

21 

UNUSED SIZE 4 BUFFALO FEED PUMPS

Terry Turbine—BM—273 HP—5500 RPM—exhaust 15 lbs—590 PSI—superheat 0°—425 GPM Buffalo Pump—discharge pressure 750 lbs.—5" x 4"—built for USN DD destroyers.

22 

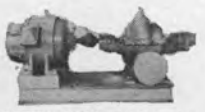
COFFIN MODEL F BOILER FEED PUMP—VICTORY OR T2

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

23 

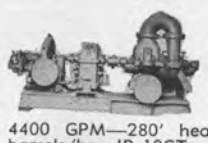
SELF-PRIMING RECIPROCATING BILGE PUMP

80 GPM @ 60 lbs.—5" x 8"—4" suction—3" discharge—22 HP motor—230 VDC—air dome.

24 

UNUSED WARREN BRONZE PUMP

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

25 

2 BRONZE I.R. 10GT CARGO PUMPS—14x12

4400 GPM—280' head—3500 GPM—350' or 4000 barrels/hr. IR-10GT—14 x 12—1750 RPM—driven by Elliott 2DRY turbine—400 HP—400 PSIG—500° TT—10 lbs. back pressure—4550 RPM. Gear: 4550/1750. Good condition.

26 

BRONZE 14x14x12 CARGO STRIPPING PUMPS

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

27 

NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

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

28 

RECIPROCATING VERTICAL DUPLEX PUMP

8x8x10—Hendy Pump Co.—8" suction—6" discharge—160 GPM @ 100 PSI.

29

NEW — UNUSED BRONZE VERTICAL LST BALLAST PUMP

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

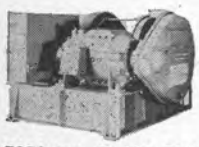
30

EXCELSIOR MOLASSES PUMP—SIZE 5½"

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

WINCHES AND WINDLASSES

31



AH&D SINGLE SPEED WINCHES

7250 lbs. @ 220 FPM—50 HP—230 VDC—with control. $1750 as is.

32

VICTORY UNIT WINCHES

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

33

MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES

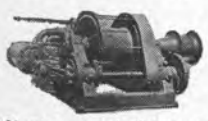
50 HP—230 VDC—reconditioned.

34

WATERMAN STEAM DECK WINCH—COMPOUND GEARED

Compound-geared "Valle Type"—9½ x 10. 7000 lbs.—185 FPM—single geared. 12,800 lbs. 101 FPM —compound geared.

35



WATERMAN STEAM DECK WINCH—SINGLE GEARED

Single-geared "Valle Type"—9½ x 10—10,720 lbs. @ 238 F.P.M.

36

HYDE NO. 7 WINDLASS

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

37

NEW — UNUSED LINK BELT WINDLASS

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

38

IDEAL WINDLASS—UNUSED

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

39

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

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

40

3-TON CLYDE DOUBLE DRUM WINCH

3-Ton double drum winch—10 HP—115 VDC—declutchable drums—with controls. Drum is 16" in diameter and 28" wide. Winch OAW 10' 2"—OAL 8'1".

MISCELLANEOUS

41

UNUSED DOCK CAPSTAN

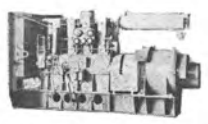
15 HP—220/440/3/60—3000 lbs @ 100 FPM. Gypsy 8"—waterproof box—floorplate.

42

HYDE 30" DOCK CAPSTAN

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

43



LORIMER 75 KW 120/240 D.C. DIESEL GENERATOR SET

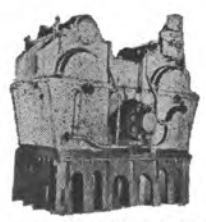
Lorimer engine FN—5 cylinder—7.5 bore—9.5 stroke —720 RPM—radiator cooled. GENERATOR: Ideal type DD—75 KW—120/240 VDC—720 RPM—313 amps—frame 350-27. CAN ALSO OFFER SAME GENERATOR WITH 75 KW 440/120/3/60 A.C. Emergency sets from T-2 tankers.

44

DOUBLE INPUT — SINGLE OUTPUT DIESEL REDUCTION GEARS

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

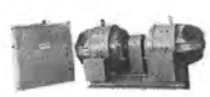
45



VICTORY AP2 — WESTINGHOUSE MAIN PROPULSION GEAR

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

46



GENERAL ELECTRIC LIGHTING M.G. SET

40 H.P.—230 volts D.C. input to 25KW—115 volts D.C. output—with 40 H.P. 230 volt D.C. controller.

47

DIESEL DRIVEN INGERSOLL-RAND AIR COMPRESSOR

I.R. Compressor—315 cu. ft. @ 125 lbs. Driven by International Harvester UD-18 diesel. Tank mounted on skid—radiator cooled—from Corps. of Engineers salvage vessel.

48

INGERSOLL-RAND MODEL 40 AIR COMPRESSOR

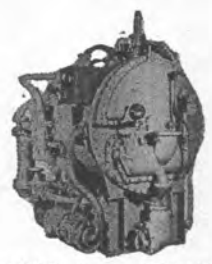
Two stage—135 CFM—7" x 6¼" x 5"—110 lbs.—870 RPM—inner cooler. MOTOR: Allis-Chalmers 40 HP — 230 VDC — 145 amps — 1750 RPM — Model EB121.

49

DeLAVAL PURIFIERS

Model 55-13—225 GPM. MOTOR: L.A.—Frame 224—2 HP—230 VDC—1750 RPM. Oil inlet & outlet 1"—water discharge 1½". Also available A.C. 440/3/60.

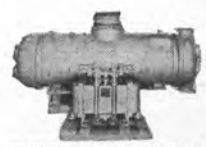
50



GRISCOM-RUSSELL EVAPORATOR

12,000 evap.—230 VDC pumps or 440 A.C. pumps. Complete with Weir automatic water valve.

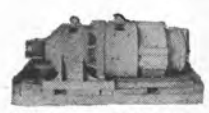
51



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

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

52



UNUSED GEARHEAD MOTORS

20 HP — 230 VDC — 30 RPM output.

53

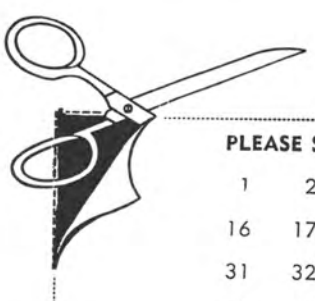
UNUSED 20 KW SWITCHBOARD

20 KW 120 volt switchboard for two generators in parallel with distribution.

54

1 PAIR OF 300 HP UNION DIESEL ENGINES

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



PLEASE SEND INFORMATION ON THE FOLLOWING: (Please circle items) 10/1/70

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	29	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54						

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

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

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

USCG To Invite Bids To Construct 400-Foot Icebreaker

Bids for the construction of one icebreaker for the U.S. Coast Guard will be invited early in 1971. The invitation may possibly involve multi-year procurement of two ships and will call for a fixed price contract with about three years delivery for the first ship.

The icebreaker characteristics were identified as follows: 400-foot length overall; 78-foot normal beam; 28-foot draft; 11,000 tons displacement; and 17 knots speed. Special features will include: controllable pitch propellers; geared gas turbine propulsion for breaking heavy ice; diesel electric propulsion (AC-DC) for cruising and normal icebreaking; oceanographic research facilities; helicopter servicing and storage facilities; comfortable living accommodations with air-conditioned living and working spaces; and passive roll stabilization system. Hull material will be mild and A537 types steel.

Interested shipyards, referring to RFP CG-10, 243-A, should contact the Contracting Officer (FSP-2/71), U.S. Coast Guard Headquarters, 400 Seventh Street S.W., Washington, D.C. 20591.

Prudential-Grace Lines Names Renehan VP— To Head LASH Program

Lawrence A. Renehan

Lawrence Arthur Renehan has been appointed vice-president of Prudential-Grace Lines, Inc., in charge of the new LASH program, it was announced by **Edmund J. Camuti,** executive vice-president.

LASH (lighter aboard ship) is a revolutionary concept of totally modular ocean cargo transportation utilizing large, pre-loaded barges or lighters. The LASH system was conceived and designed by the New Orleans naval architectural firm of Friede and Goldman, Inc. Prudential-Grace is the pioneer of this unique transportation system. The company expects delivery early next month of the first of five LASH vessels for service in the American merchant marine.

Mr. **Renehan** has extensive experience in the maritime industry, and comes to Prudential-Grace after five years at International Paper Company, where he was director of export and marine services. It was in this capacity that Mr. **Renehan** actively led the way for the adoption of the LASH concept for hauling paper and wood pulp. He supervised its development and directed all LASH activities for the company. Previously, he was vice-president of Southern Star Shipping Company, a bulk cargo carrier.

Mr. **Renehan** began his career with Farrell Lines as a seagoing cadet, and he quickly worked his way up to command of cargo ships. He came ashore in 1956 to become marine superintendent and assistant to the president of Farrell Lines.

Mr. **Renehan** is a graduate of Kings Point Merchant Marine Academy.

Rampmaster To Build Gangways & Ladders

The newly formed Marine Division of Rampmaster, Incorporated, a nationally known manufacturer of rail and truck dockboards, will produce marine gangways.

Robert H. Davis Jr., president, announced that the company will use its experience in aluminum fabrication to produce high quality, lightweight, heavy duty truss and beam gangways and aluminum accommodation ladders. Other marine products are now in the engineering stages.

Rampmaster Marine Division is supplying military and commercial customers from its plant at 1226 N.W. 23rd Avenue, Fort Lauderdale, Fla. 33311.

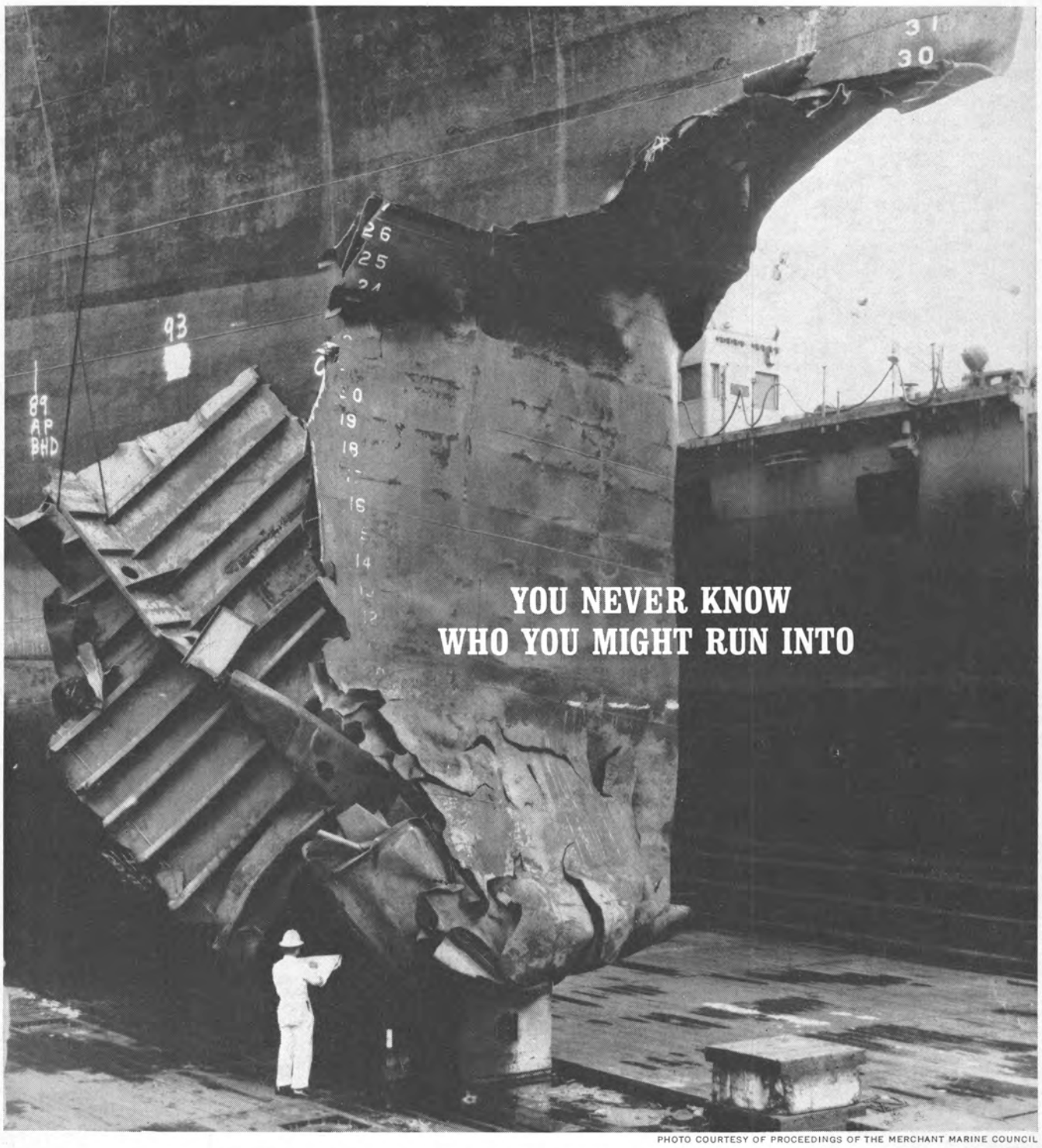


PHOTO COURTESY OF PROCEEDINGS OF THE MERCHANT MARINE COUNCIL

TRUE SAFETY IS KNOWING YOUR TRUE SPEED

Take the guess-work out of knowing how fast or slow your vessel is moving. Know your precise speed anywhere with the Marquardt Speed Log.

Based on the pulse doppler sonar principle, this new generation speed log measures your true speed *over the bottom* to 800 feet depth. What's more, by having precise speed readings, it provides a continuous performance check for greater savings.

The Marquardt Speed Log is also an aid to dead-reckoning navigation. Its accurate velocity measurements are relative *to the ocean floor* in channels, harbors, coastal waters and for docking.

To get the full story on this precise speed log, contact Marquardt today.

MARINE ELECTRONIC PRODUCTS • THE MARQUARDT COMPANY

CCI Corporation

16555 Saticoy Street, Van Nuys, California 91409 • Phone (213) 781-2121

Pickel And Amendola Promoted By Western Gear Corporation

R.B. Pickel

John Amendola

Two major staff promotions to the marketing and sales activities of Western Gear Corporation's Industrial Products Division have been announced by **D.O. Dishno,** division manager.

R.B. Pickel, formerly product manager, was promoted to marketing manager; and **John Amendola,** formerly sales manager of the division's New York District, was promoted to national field sales manager.

Mr. **Pickel** holds a degree in business administration from Marquette University, and Mr. **Amendola** has a degree in mechanical engineering from Villanova University. Both men joined Western Gear Corporation in 1966.

Bethlehem Beaumont To Build Mammoth Seagoing Barge To Transport 235,000 Bbls.

Bethlehem Steel Corporation's Beaumont, Texas yard has received a contract to build a huge tank barge capable of carrying 28,000 long tons of petroleum products for Sabine Towing & Transportation Co., Inc., a subsidiary of Chromalloy America Corp.

The mammoth seagoing barge will be one of the largest ever built, and will have a capacity of 235,000 barrels at a draft of 32 feet in salt water. It will have an overall length of 520 feet, breadth of 85 feet and depth of 40 feet. To be certified by the U.S. Coast Guard for the transportation of Grade A petroleum products, the barge will be classed by the American Bureau of Shipping for A-1 Ocean Service. Delivery of the barge is scheduled for August 1971.

With almost twice the capacity of the conventional T-2 tanker, the World War II standard, this huge barge will be towed or pushed by tugs to east coast ports of the United States from Gulf coast refineries. A deep notch is provided at the stern of the craft together with adjustable skegs to permit either towing or pushing.

The Sabine barge will have three U.S. Pump Co. automatic prime deep well pumps rated at 4,500 gpm at 328-foot head, driven by General Motors radiator-cooled diesel engines developing about 550 hp at 1,800 rpm. For handling of small quantities of mixed cargo, one pair of tanks will be divided into four smaller tanks by an additional transverse bulkhead. These tanks will be serviced by two interconnected 2,250-gpm U.S. Pump automatic prime deep well pumps driven by suitable General Motors radiator-cooled diesel engines.

Cargo boom winches as well as the eight Patterson mooring winches, anchor windlass and capstan will be operated by a Tyrone hydraulic pump driven by a General Motors 6-71 diesel engine. A 150-pound Quincy air compressor will be clutched to this engine and sized to use its full power. A five-hp 150-pound electric driven air compressor will also be installed. Electric power will be furnished by a 20-kw General Motors diesel engine driven generator.

All pumps and other machinery will be enclosed in suitable houses on deck. The paint system will include coating of the interior of tanks.

Time for your Essomarine® check-up, Lady.

Essomarine service to customers includes periodic laboratory analysis of main engine system oil.

But reminding chief engineers that samples are due is a mammoth job. Here in the United States, where the hundreds of U.S. flag ships we lubricate call at ports along thousands of miles of coastline, the clerical work was getting to be staggering.

That's why we introduced the industry's first computerized lube sample record system. Now Essomarine port representatives throughout the country get monthly printouts listing customers' ships due for analysis. So they can remind you to use this free service.

The computer knows other tricks, too. For example, complete printouts can be made of the lube analysis status of all your ships we lubricate.

We have a brochure about this newest service to your Lady of the Sea. For more details, call or write.

Marine Sales Department
Esso International Inc.
15 West 51st Street, New York, N.Y. 10019 (212) 974-5237

Esso

St. Louis Ship Delivers New Towboat/Snagboat ROS To U.S. Army Engineers, Mobile

The Army Corps of Engineers' newest vessel, the Ros, was recently commissioned in Mobile, Ala. Design of the modern workboat, to be used on inland waterways in the central southeast under the jurisdiction of the District Engineer at Mobile, was by the Philadelphia District.

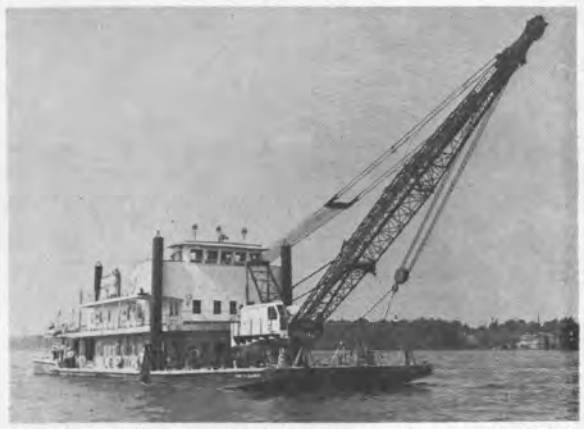
The vessel's keel was laid at the St. Louis Ship Division of Pott Industries on April 17, 1969, and the launching took place April 3, 1970. Delivery to the Mobile District of the Corps of Engineers was at the U.S. Coast Guard Dock at Mobile, where the commissioning ceremony took place. The vessel underwent rigorous testing and sea trials before formal acceptance.

The Ros has an overall length of 170 feet 6-5/16 inches, with a beam amidship of 42 feet 8½ inches and a molded depth of 7 feet 8 inches. The vessel draws 5 feet and displaces 850 long tons.

Two 500-hp Caterpillar diesels, Model D-379, with Caterpillar 3192 reverse reduction gears with Twin-Disc clutches propel the ship at 10.6 miles per hour. The ship's power is provided by two 100-kw Cummins diesel generator sets. The American Whirley Crane, powered by a Cummins diesel engine, has a 106-foot boom with a 270 degree swing and a lifting capacity of 69 tons at 26-foot radius and 32 tons at 56-foot radius. The crane operator has full visibility.

Steering and flanking rudders are controlled by an electro-hydraulic steering system manufactured by Propulsion Systems, Inc. Three remotely controlled 40-foot spuds facilitate the ship's operation in maintaining the navigation channel in the area's busy inland waterways.

Although the Ros is designated a snagboat, this prosaic appellation conjures up a picture which is a far cry from the accommodations and equipment of the modern vessel. All interior areas are air-conditioned with the exception of the engine room, which has an air-conditioned enclosed space for the engineer on duty. There are three remote power and steering control consoles—one in the pilothouse and one each in the port and starboard bridge to enable exact positioning and maneuvering of the vessel and the barges in its tow. The Ros presently has a crew of 14, of whom 4 are licensed and 10 are rated civil service workers. It has accommodations for 26 men.



The Ros will be based at Tuscaloosa, Ala., on the Black Warrior River, where the Mobile District maintains a facility to service inland waterway vessels.

The vessel will be used primarily in removing snags and deadheads from navigation channels. However, the boom can handle both dragline and clamshell dredging equipment for the emergency removal of shoaling. In addition to snagging and towing, the vessel will also place stop logs when necessary at nine navigation locks on the Black Warrior, Tombigbee, and Alabama Rivers for dewatering for maintenance and repairs. Each stop log, a segmented cofferdam-type bulkhead, weighs 45 tons with its strong-back lifting beam.

Taking part in the commissioning ceremony were **Edward Renshaw,** president of St. Louis Ship, Pott Industries, who presented the commissioning sponsor, **Mrs. L.H. Roberts Sr.,** daughter of the vessel's namesake, with a silver tray; District Engineer, Col. **James A. Johnson** of the Philadelphia District, who received the vessel from Mr. **Renshaw**; District Engineer Col. **Harry A. Griffith** of the Mobile District to whom Colonel **Johnson** conveyed it; and Capt. **Willie A. Gantt,** the newly appointed master, to whom Colonel **Griffith** presented the ship's flag as a symbol of his command.

The vessel is named for the late **R.E. Ros,** a native of Pascagoula, Miss., and a long-time Corps of Engineers official. Some 20 members of the Ros family attended the commissioning and presented the ship with a gift of china.

The increasing importance of inland waterways to the area's economy is reflected in waterborne commerce statistics for 1969, when the Black Warrior-Tombigbee system carried 10,587,423 tons of barged commodities. Navigation on the Alabama River to Montgomery, Ala., is scheduled for late 1971, when the last of three navigation locks becomes operational. The Alabama River carried 1,096,070 tons in 1969.

British Shipbuilding Order For Burmeister & Wain

For the first time since the war, Burmeister & Wain's shipyard has received a shipbuilding order from a British owner. Cory Maritime Ltd., a subsidiary company of Wm. Cory & Son Ltd., London, has ordered two bulk carriers, each of 50,950 deadweight tons, for delivery during the second half of 1973.

The two ships are of a bulk carrier type which Burmeister & Wain build in series, of which seven vessels have already been delivered, and a total of five are now on order.

Both ships will be equipped with a seven-cylinder B&W diesel engine type K74EF, having a maximum continuous rating of 13,100 bhp. The ships will have a speed of about 15.5 knots.

Gulf Oil Co.—Transportation Names Five Directors To Pittsburgh Headquarters Posts

Gulf Oil Company-Transportation, the newly organized division of Gulf Oil Corporation, has appointed five new directors to headquarters positions in Pittsburgh, Pa. The announcements were made by **P.B. Binsted,** president of the new company which is charged with managing Gulf's tanker and pipeline operations around the world.

The new officials are: **D.P. Ash,** director, development and regional coordination in the former transportation coordination department of Gulf Oil Corporation, who has been named director, coordination for Gulf Oil-Transportation; **J.I. Craik,** director, marine and offshore in the old department, who has been appointed director, marine for the new company; **E.J.H. Mules,** former vice-president, transportation for Gulf Oil Company, East Asia, who has been named director, chartering; **C.E. Nowak,** former departmental financial representative for transportation in the comptroller department of the corporation, who has been appointed director, finance and economic services; and **A.O. Smyth,** director, pipeline and inland, who has been named director, pipeline.

Mr. **Ash** is a native of Stamford, Conn., and received his A.B. degree in 1947 from Dartmouth College and the M.B.A. degree from Dartmouth's Amos Tuck School of Business Administration in 1949. He joined Gulf's transportation department in Pittsburgh in 1952 and held various managerial positions with Gulf and its transportation subsidiaries in New York, Naples and London before being named vice-president, transportation, for Gulf Oil Company, Eastern Hemisphere in 1967. The next year, he was given the additional responsibility of transportation representative for Gulf Oil Trading Company, and in 1969, he returned to the Pittsburgh executive offices of the corporation as director of development and regional coordination on the staff of the worldwide coordinator for transportation.

Mr. **Craik** was born in Portsmouth, England, and was graduated from Southhampton University School of Navigation in 1944. He joined Gulf in 1957 and later became manager, charters and traffic for Gulf Oil Marine Agency S.A. in Antwerp, Belgium. He moved to Tokyo in 1962, where he became manager of transportation for Pacific Gulf Oil Company, and in 1967, was transferred to Pittsburgh as director, marine and offshore for the transportation department.

Mr. **Mules** is a native of Delabole, Cornwall, England, and attended the Thames Nautical Training College at Greenhithe, Kent, where his studies included practical marine training aboard the H.M.S. Worcester. He was graduated from the Royal Naval College at Greenwich in 1942. He joined Gulf Eastern Company in London as a chartering broker in 1961 and was named chartering and scheduling advisor in 1966. In 1968, he was transferred to Tokyo as manager, transportation, for Gulf Oil Company-Asia, and additionally, named transportation representative for Gulf Oil Trading Company in the Far East.

Mr. **Nowak** was born in Booth, Texas, and received his B.B.A. degree from the University of Texas in 1949. He joined Gulf's Houston production department in 1949 and held various accounting positions until he was named director of accounting for Gulf Refining Company in 1959. In 1962, he was transferred to the Pittsburgh executive offices of the corporation as director of profit and loss accounting for the transportation department, and in the same year was transferred to the comptroller's staff as a departmental accountant. In 1968, he was named accounting coordinator and departmental financial representative for the transportation department.

Mr. **Smyth** is a native of Pittsburg, Okla., and was graduated from Oklahoma State University in 1950, with a B.S. degree in industrial engineering. He joined Gulf Refining Company, in Buras, La., in the same year and held various engineering and supervisory positions in Gulf pipeline operations until 1957, when he was transferred to the Pittsburgh executive offices of the corporation as a staff engineer in the transportation department. In 1961, he went to Houston as an estimating, planning and design engineer and subsequently spent 1½ years on loan to the Colonial Pipeline Company, of which Gulf is a part owner, as the hydraulics engineer responsible for design and selection of pumping equipment. He returned to Pittsburgh in 1967 as director, pipeline and inland, for the transportation department.

Hoffman Acquires Largest Mobile Truck Crane In Country

Unveiling the largest mobile crane in the country for work in the Port of New York are, left to right: **Henry Harnischfeger,** president of Harnischfeger Corporation, the crane manufacturer; **Harry L. Hoffman,** chaiman of Hoffman Rigging & Crane Service, the owner of the machine; and **Clifford B. O'Hara,** director of port commerce for the Port of New York Authority.

The largest mobile truck crane in the United States demonstrating its unique container-handling capability. An elevated cab and a special container tip enables easy leveling of an unbalanced container and the automatic container spreader frame. This machine represents Hoffman Rigging Service's latest and most modern container-handling mobile crane.

As world shipping rushes into containerization, it is prompting the development of increasingly large and swift dockside equipment to expedite the movement of the giant boxes.

The largest of this new equipment is the largest truck crane ever produced in the United States. Made by Harnisohfeger Corporation of Milwaukee with rated capacity of 250 tons, it can stow 17 to 19 containers per hour below deck and up to 25 boxes per hour on deck, depending on conditions. Its boom can be lengthened to 320 feet plus 80 feet of jib.

Demonstrated at Port Newark, N.J., by Hoffman Rigging & Crane Service, Inc., specialists in cargo and container handling who operate in Western Hemisphere ports along the Atlantic Seaboard and in the Caribbean, the new crane proved its capacity for handling 40-foot containers as they are put into general use. It is expected to add needed container-handling muscle to major ports, complementing existing gantries, as well as to give secondary ports containerization capacity.

"With the new P&H Model 6250-TC Truck Crane, container-handling capacities of ports can be increased significantly," said **Harry L. Hoffman Jr.,** chairman of the equipment rental organization, "and our company is prepared to offer this type of equipment and service, on a rental basis, throughout the world. In addition to container handling," Mr. **Hoffman** added, "the new crane will enhance the heavy lift capability of the Port of New York as well as other ports." He noted the two special features, consisting of a special container-handling tip for leveling uneven boxes, and an elevated cab that were designed into the Hoffman machine particularly for maritime work. In addition, Hoffman has installed a computer load-sensing device to increase operational safety.

At the demonstration, **Clifford O'Hara,** director, port commerce, Port of New York Authority, traced the growing worldwide trend to containerization.

Ray Morgan, general manager, Construction Equipment Division, of Harnischfeger, described the new crane's features: Rigged with a heavy duty boom tip, the Model 6250-TC can load 250 tons in a single pick as high as 70 feet up and 18 feet out. With a container-handling double boom tip, the crane can carry containers of over 30 tons to the offshore side of the vessel, at a 100-foot radius. It can move around the entire port area to unload railroad cars, group and stack cargo, and assist with heavy construction and installations. By facilitating the vertical stacking of containers, valuable dockside space can be saved.

The new crane's unique capacity will be utilized at dockside for the handling of heavy cargoes, in addition to container loading, Mr. **Morgan** said. For heavy lifts with the regular crane tip, the crane can handle 120 tons at 40 feet, 100 tons at 45 feet, and 85 tons at 50 feet.

A new concept in power transmission and controls employs the use of a modulated clutch in line with a torque converter and a power shift transmission. With this arrangement, the operator can raise and lower the load on the hook by merely turning his wrist or a twist grip. Extra precision and safety in load placement is achieved.

It is expected that advanced mobile truck cranes such as the one demonstrated will provide an answer to the immediate needs of container shipping ports around the world.

Raytheon Introduces New Precision Depth Digitizer

A new precision depth digitizer has been introduced by Raytheon Company's Submarine Signal Division, Portsmouth, R.I.

Model PDD-200A is designed to convert depth data obtained from precision sounding systems into digital information for automatic processing by computer.

Novel features include a selection of feet, fathoms, or meters; a print signal to the depth recorder that displays depth gate edge marks on the chart paper; and an echo search function for automatically widening the gate if an echo is lost.

The new unit can be mounted in a 19-inch rack or in its own cabinet and is compatible with most existing sounding equipment. A seven-segment digital display permits real-time monitoring.

For more information on the PDD-200A and other oceanographic equipment, write to Marketing Manager, Raytheon Company, Ocean Systems and Equipment Department, P.O. Box 360, Portsmouth, R.I. 02871.

Lufkin Export Headquarters Moves From NYC To Houston —Office Opened In New Jersey

Robert Gibbs

T.L. Bowers

John Fincher

Robert Evans

Effective August 1, the Export Division Headquarters for Lufkin Industries, Inc., has been moved from New York City to Houston, Texas, according to **R.L. Poland,** president of the Lufkin, Texas, manufacturer of oilfield pumping units, commercial and marine gears and truck trailers.

The change is in conjunction with the transfer of **Robert Gibbs,** Lufkin's Export Division manager, from New York City to Houston. Offices will be at 1108 C&I Building, Houston, Texas 77002, phone 713-222-0108.

Lufkin also announces the opening of a district export office in Edison, N.J., effective September 15, and replacing the office in New York City. District manager **T.L. Bowers** will handle oilfie'd sales, and **H.J. Trout Jr.** will be district sales engineer in charge of gear accounts. The address for the new office will be 100 Menlo Park, Edison, N.J. 08817.

Also announced by Lufkin is the transfer of **John Fincher** from Tripoli, Libya, to London, England, where he is district manager of the new export office at 123 Pall Mall, London S.W. 1, England, and **Robert Evans** from New York City to Singapore, where he is district manager of the new export office at 126 Eng Neo Avenue, Singapore 11, Singapore.

Other district export offices of Lufkin Overseas Corporation, S.A. are located at Maracaibo and Anaco, both in Venezuela, and Bogota, Colombia.

Dravo Corporation Delivering 20 Barges To Valley Line

Twenty covered hopper barges, enough to make up a tow of 32,000 tons, are being delivered by Dravo Corporation, Pittsburgh, Pa., to Chromalloy American Corporation for its subsidiary, The Valley Line Company of St. Louis. Delivery of the 200-foot by 35-foot by 12-foot vessels will be completed this fall.

Designed by Dravo for maximum stress resistance and minimum maintenance, the barges will also be equipped with weathertight hatch covers for added cargo protection. They meet or exceed the American Bureau of Shipping requirements in all respects.

The Valley Line is one of the largest barge lines operating on the inland waterways with its fleet of over 700 barges and 20 towboats. It services over 11-million tons of cargo per year on the Mississippi River and its tributaries.

Offshore Drilling Rigs Symposium To Be Held In London Nov. 24-25

A two-day Symposium on Offshore Drilling Rigs, organized by the Royal Institution of Naval Architects, will be held on November 24-25, 1970, in the Weir Lecture Hall, 10 Upper Belgrave Street, London, S.W. 1.

The following papers will be presented: Tuesday, November 24 at 10:00 a.m., Paper No. 1—"Environmental Conditions" by **L. Draper,** National Institute of Oceanography; Paper No. 2—"Types of Rigs" by Ir. **A. Starink,** Shell Group, and Dr. **F.G. West,** Bataafse Internationale Petroleum Maatschappij N.V., The Hague; 2:30 p.m., Paper No. 3—"Design Considerations for Offshore Drilling Structures with Particular Reference to Arctic Conditions" by **W.H. German,** German and Milne, Consultants, Montreal; Paper No. 4—"Construction and Repair" by **H.W. Stapel,** The Rotterdam Dockyard Company; Wednesday, November 25 at 10:00 a.m., Paper No. 5—"Exploration and Drilling" by **K.B. Charles,** B.P. Petro'eum Development Limited; Paper No. 6—"Towage, Insurance and Safety" by Capt. **W.D. Noble,** W.D. Noble & Co. Marine Consultants; 2:30 p.m., Paper No. 7—"Service and Supply Craft" by Brig. **E.F. Parker,** Offshore Marine Limited, and a panel discussion in which all authors will participate.

Admission will be by ticket only, but the meetings will be open to non-members. Further details and registration forms are available on application to the Secretary, The Royal Institution of Naval Architects, 10 Upper Belgrave Street, London, S.W. 1.

Mobil Oil Promotes Johannes Saakes In Marine Sales Dept.

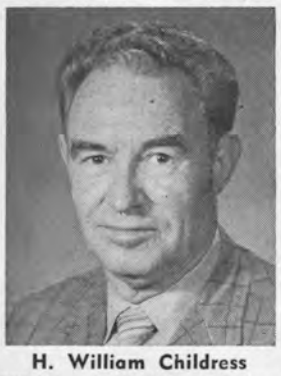
Johannes Saakes

Mobil Oil Corporation has announced the promotion of **Johannes Saakes** to marine sales engineer in the Atlantic marine district, it was announced by **R.C. Schnepf,** general manager of the domestic marine sales department.

Mr. **Saakes** is a graduate in marine engineering from Nijmegen Naval School and sailed as chief engineer for five years. He joined Mobil Oil in 1968 and has been a marine representative at the port of New York.

Mr. **Saakes** replaces **J.A. Gatti,** who has been transferred to the West Coast as district marine manager.

Newport News Ship Names H.W. Childress



H. William Childress

H. William Childress has been named director of office services at Newport News Shipbuilding and Dry Dock Company, according to **W.F .Wilson,** vice-president of the Tenneco subsidiary.

Mr. **Childress,** who joined Newport News in 1968 upon retirement from the Navy, received his B.A. degree in physics from the University of North Carolina in Chapel Hill in 1956, and his M.S. degree in education from Old Dominion University in Norfolk, Va.

A native of Ararat, Va., Mr. **Childress** joined the Navy in 1937 as an apprentice seaman and retired as a commander. His last tour of duty was as operations officer for the Atlantic Fleet Amphibious Force in Norfolk, Va.

Philadelphia Gear Corp. Develops Synchroclutches For Gas Turbines

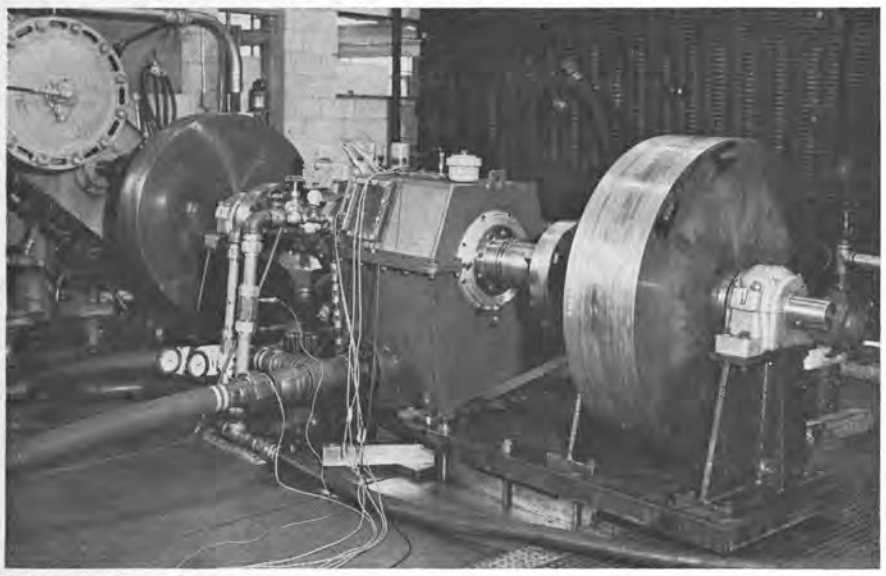


Figure 1—New clutch for gas-turbine propulsion units undergoing pre-delivery test.

The Philadelphia Gear Corporation has developed a compact, heavy-duty. synchronizing clutch which was specifically designed for marine-propulsion systems using high-powered gas turbines, such as the Pratt & Whitney FT-4 or the General Electric LM2500. The clutch, known as the Synchro-clutch, features a friction and dental mechanism in parallel.

The friction elements are used to bring the prime mover and load into fixed synchronism and the dental elements are then engaged to transmit the full-load power. The dental elements will remain engaged without external power required.

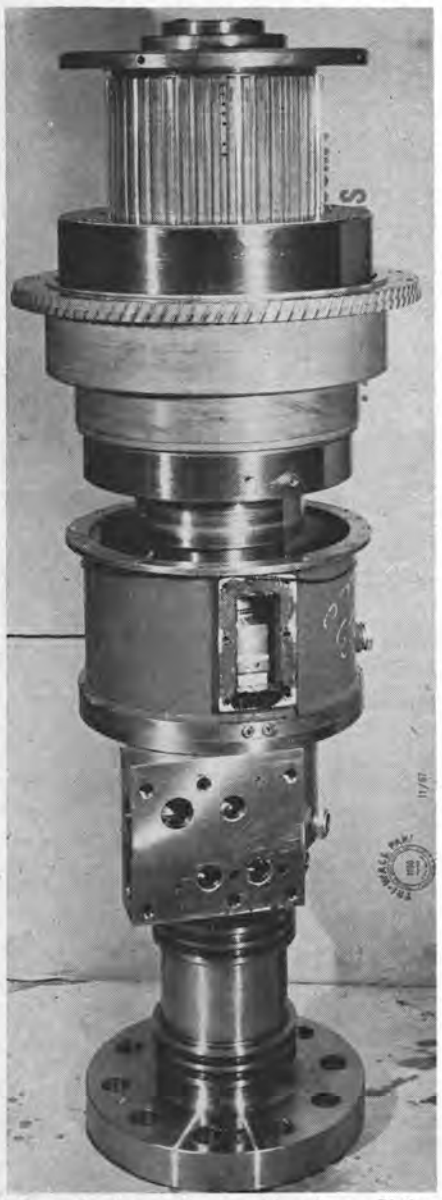


Figure 2—Internal assembly of new Philadelphia Gear synchronizing clutch.

Two specific sizes have been developed to date, one under a Navy contract and the other under a contract from the Naval Ship Engineering Center, Philadelphia Division. Both of these models are rated at 30,000 hp at 4,000 rpm. The first model is intended for quill shaft mounting and the other for in-line mounting. The unit ordered by the Naval Ship Engineering Center in Philadelphia has been delivered for qualification testing, which will include full load runs using a Pratt & Whitney FT-4 gas turbine.

Figure 1 shows the clutch undergoing pre-delivery tests at the Philadelphia Gear plant using inertia wheels that simulate the entire propulsion train, including the propeller shafting and propeller. Figure 2 shows the internal assembly of the clutch and indicates the compactness of the rotating elements.

The new clutch is available in either "in-line" or "quill shaft"configurations, and may be used at speeds up to 6,000 rpm. It comes in four sizes with ratings from 9,000 to 110,000 hp.

East Asiatic Names Pignaz And Saunders To Container Dept.

The East Asiatic Company, San Francisco, Calif., has named **Ross M. Pignaz** and **George D. Saunders** to head the company's new container department, in anticipation of the introduction of pure container vessels in 1971 by the Blue Star-EAC Joint Service.

The joint service began operations with existing ships on September 1 of this year, operating between the United States and Canadian west coast and the United Kingdom, North European Continent, and Scandinavia.

Kockums Delivers 212,350-DWT Tanker Eugenie S. Niarchos To Bethel Shipping

The Eugenie S. Niarchos, sixth in a series of seven 210,000-dwt tankers ordered from Kockums, is shown above underway in the roads of Stavanger on delivery trip.

The 212,350-dwt tanker Eugenie S. Niarchos, built by Kockums Mekaniska Verkstad, Malmo, Sweden, was delivered recently to the Bethel Shipping Company, a subsidiary of the Niarchos group. This ship is the sixth in the yard's series of seven 210,000 tonners. It was built under special survey of the American Bureau of Shipping and safety arrangements comply with the SOLAS 60 recommendations.

The Eugenie S. Niarchos has an overall length of 1,037 feet, a beam of 160 feet, a depth of 80 feet 4½ inches, and a draft of 62 feet 4¾ inches. It has a cargo capacity of 9,161,775 cubic feet and a ballast capacity of 34,092 tons. The hull is longitudinally framed and is provided with a cylindrical bow raked at the upper end. High-tensile steel was used in the longitudinal strength members in the deck and bottom.

The main propulsion machinery consists of a triple-reduction geared Kockum-Stal-Laval Advanced Propulsion type turbine rated at 32,000 shp at 85 rpm. Steam is supplied by two Kockum-Combustion Engineering type boilers, each having a maximum capacity of 66 tons of steam per hour at 865 psig and 950° F. The boilers are regulated by a Kockum Combustion Control Mk 3 T. The turbine drives a 28-foot propeller. This machinery provides a service speed of 16 knots.

The engine-room alarm system is based on continuous one-man operation from an open control station.

Aldon Smith Named Director Alabama State Docks Dept.

Aldon L. Smith

Aldon L. Smith, 45-year-old businessman and civic leader, is the new director of the Alabama State Docks Department. Appointed by Governor **Albert P. Brewer,** Mr. **Smith** succeeds **Houston H. Feaster** in the position.

Upon taking over the top management post for Port of Mobile operations, Mr. **Smith** said that progressive operational policies will continue with the same emphasis on development of port facilities and services to provide expeditious and efficient services to shippers and all interests using the State Docks facilities.

"The Port of Mobile," said Mr. **Smith,** "is outstanding among the ports of the world. We expect to maintain this high rank of performance."

Mr. **Smith** has a background of experience in business and finance. He has been in the merchandising field for a number of years. A native of Mobile, he formerly served as a member of the Mobile County Commission, the county's governing body, and also as a member of the Mobile County Personnel Board, the agency operating the merit system for employees of local governing agencies.

Mr. **Smith** was serving in the cabinet rank post of chairman of the Alabama Alcoholic Beverage Control Board at the time of his appointment as State Docks director. He resigned that position to assume his new duties at the State Docks.

A veteran of World War II, he is a board member and vice-president of Guaranty Savings and Loan Association of Mobile, and a member of the Mobile Area Chamber of Commerce.

Halter Marine Services Delivers 86' Tug To River Lines, Inc.

The Modoc is the second in a series of a new 86-foot Halmar class tug developed by Halter Marine Services for docking, towing and harbor operations.

Halter Marine Services, Inc., New Orleans, La., one of the world's largest builders of tugs, offshore crewboats, cargo vessels and towboats, has delivered the 86-foot tug Modoc to River Lines, Inc., San Francisco, Calif.

Overall dimensions of the Modoc are 86 feet by 26 feet by 12 feet six inches, and a draft of 10 feet six inches. The tug is American Bureau of Shipping classed for ocean service. It is powered by two GM16V149NA diesel engines with Twin Disc MG 540 6:1 reduction gear, and equipped with Westinghouse Air Brake pneumatic controls. Steering is hydraulic Orbitrol. The main engines turn 82-inch three-blade stainless steel propellers on 7¼-inch diameter forged steel propeller shafts with stainless steel liners.

The Modoc is also equipped with two 40-kw General Motors generator sets with power take-off for driving hydraulic pumps powering a hydraulic towing winch. The towing winch is a Markey 8N8045-21ESS. There is a one-horsepower hydraulic windlass at the bow of the tug.

Other equipment aboard the vessel includes a three by three, 10-horsepower, electrically-driven Barnes fire pump; a two by two Barnes 10CCE five-horsepower, electrically-driven bilge pump; a 10CCE five-horsepower fuel oil transfer pump; central air-conditioning; Raytheon 75 radio; Raytheon 2840 radar; Raytheon DE776 depth recorder; a 12-man inflatable life raft; Kearfott pilothouse windows; and Kahlenberg Triplex air horns.

STAL-LAVAL OPEN HOUSE: In line with its policy of expanding its many services to its clients, Stal-Laval, Inc., has relocated to larger quarters at 400 Executive Boulevard (Cross Westchester Executive Park), Elmsford, N.Y. 10523. Stal-Laval, Inc., is the U.S. sales and service agent of Stal-Laval Turbin AB of Sweden. The company provides the marine industry with Stal-Laval turbines, generators and reduction gears, ASEA Power Marine bridge controls, deck cranes and electricals, Thrige Nakskov mooring winches and cargo winches, and Titan lube and fuel oil purifiers. Pictured during the recent housewarming in Elmsford are, left to right: **John A. Albino,** manager, marine engineering, Stal-Laval, Inc., **Carl Larsson,** president, Stal-Laval Turbin AB, and **Thomas E. Stott,** president, Stal-Laval, Inc.

LST Launching/Keel Laying In Dual Ceremonies At NASSCO

Dignitaries present included (left to right): Capt. **John M. Danielsen,** USN, Force Chaplain, Amphibious Force, U.S. Pacific Fleet; Capt. **Henry A. Gerdes,** USN, Supervisor of Shipbuilding, Conversion and Repair, USN, 11th ND, San Diego, Calif.; **John V. Banks,** NASSCO executive vice-president; Rear Adm. **Robert C. Gooding,** USN, Vice Commander, Naval Ship Systems Command; **Mrs. Edwin B. Hooper Jr.,** matron of honor; **Mrs. Edwin B. Hooper,** sponsor; Vice Adm. **Edwin B. Hooper,** USN, Director of Naval History, prineipal speaker; Vice Adm. **Nels C. Johnson,** USN, Commander, Naval Amphibious Force, U.S. Pacific Fleet; and **John M. Murphy,** NASSCO vice-president, sales.

The USS Racine (LST-1191), a Newport-Class Tank Landing Ship, was launched from the ways of National Steel and Shipbuilding Company on August 15, 1970. Immediately following the launching, Vice Adm. **Nels C. Johnson,** USN, Commander, Amphibious Force, U.S. Pacific Fleet, officiated at the keel laying of the USS Barbour County (LST-1195). The Racine is named for the county and city of Racine, Wis., and is the second ship of the fleet to bear the name.

The Racine was launched under the sponsorship of **Mrs. Edwin B. Hooper,** wife of Vice Adm. **Edwin B. Hooper,** Director of Naval History. **Mrs. Edwin B. Hooper Jr.** assisted as matron of honor in the traditional christening ceremony.

Other participants in the ceremonies included: Vice Adm. **Edwin B. Hooper,** USN, as principal speaker; Rear Adm. **Robert C. Gooding,** USN, Vice Commander, Naval Ship Systems Command; Capt. **Henry A. Gerdes,** USN, Supervisor of Shipbuilding, Conversion and Repair, USN, 11th Naval District, San Diego, Calif.; Capt. **John M. Danielsen,** USN, Force Chaplain, Amphibious Force, U.S. Pacific Fleet; **John V. Banks,** executive vice-president, National Steel and Shipbui'ding Company; and **John M. Murphy,** vice-president, sales, National Steel and Shipbuilding Company.

The Racine has an overall length of 522 feet, a beam of 60 feet, a full load displacement of 8,000 tons, and a speed in excess of 20 knots. She is one of a new class of Tank Landing Ships having a greatly increased combat vehicular lift and landing capability over those of World War II. Vehicles may be loaded or offloaded over the bow by means of 112-foot-long one-piece aluminum landing ramp that extends forward and lowers on pontoon causeway or beach. When stowed, the ramp rests on the main deck forward between guide tracks at-

Immediately following the launching of the Racine (LST-1191), the keel was laid for the Barbour County (LST 1195). Participating in the ceremony were, from the left, **John V. Banks,** NASSCO executive vice-president; Vice Adm. **Nels C. Johnson,** USN, Commander, Amphibious Forces, U.S. Pacific Fleet, keel layer; and **John Tackett,** NASSCO welding foreman.

tached to the inboard side of two permanently installed derrick arms protruding over the bow. A stern ramp, which also serves as a watertight stern closure when retracted, is designed to launch or retrieve amphibian craft from the open sea. It can a so be put to use as a vehicular bridge between the ship and various utility landing crafts (LCU's) or a pier.

The keel was laid for the Racine on December 13, 1969. She is scheduled for delivery April 20, 1971, and is the tenth ship in a series of 17 under construction at NASSCO under a $250-million Navy contract.

Approximately 2,000 people were on hand to view the ceremonies.

Newly Formed Hapag-Lloyd Will Operate 114 Vessels

The merger of the Hamburg-Amerika Linie (Hapag) and the Norddeutscher Lloyd, effective September 1970, places the new company, Hapag-Lloyd AG, among the leading liner companies in the world. The Hapag-Lloyd flag will be flown by 114 ships with a total of more than one million tons gross. Head offices will be maintained in both Hamburg and Bremen.

The trade routes regularly served by Hapag-Lloyd extend from Europe to Canada and the Great Lakes, the east and west coasts of the United States, the U.S. Gulf, Mexico, the West Indies, the west coast of South America, North Brazil, the Canary Islands, Australia, New Zealand, Indonesia and the Far East. Altogether, calls are made at 231 ports.

The new company has a staff of 11,500, of whom some 5,000 are seagoing personnel. In Europe alone, Hapag-Lloyd AG maintains 137 freight offices, with a total of over 400 worldwide. A closely interwoven network of their own travel agencies in many German cities arrange passenger bookings not only on the passenger liners Bremen and Europa as well as on the line's freighters, but has also proved itself in the national and international tourist business.

A dry dock owned by the line, a towage company, and an insurance subsidiary, the Niedersachsen Versicherungs-AG, complete the picture of activities of this new large undertaking.

After 123 years of Hapag history and 113 years of Lloyd history, the first page of Hapag-Lloyd AG history will be written in 1970.

$2,035,400 Contract For Two Starporter Container Cranes Awarded By Port Of Seattle

Star Iron & Steel Co., Tacoma, Wash., has been awarded a $2,035,400 contract for the construction and installation of two Starporter container cranes by the Port of Seattle, it was announced by **Charles Allen,** president of Star Iron & Steel Co. One of the 40-ton cranes will be installed as part of the new container terminal at Pier 25 of the Port. The other will supplement the present two cranes at Terminal 18.

The cranes for the Port of Seattle are identical and have some special features. Both will be capable of operating up to 30 percent faster than average container cranes. This is made possible by a hoist that is driven with a 500-horsepower motor. They will operate at speeds up to 300 feet per minute. The cranes will be powered by self-contained, independent diesel-electric engines of 850 horsepower. The diesel generators are AC power which is used to run all AC components. The AC power is converted to DC by static rectifiers to provide DC adjustable voltage control for all main drive motions. They will be located in the machine house and allow the crane to continue operation in case of power failure from outside sources.

The total reach of these cranes is 193½ feet. Each is 174 feet high, weighs 625 tons and is capable of operating in the back reach area with the boom stowed. Other special features include a telescoping spreader and a detuning system to reduce radio frequency energy that could cause electrical problems if not controlled. Both cranes will be installed and in full operation by early 1972.

Sellers Injector Systems Moves To New Headquarters

Sellers Injector Systems, Division of Prosser-East, is the new identity of the old Philadelphia-based company formerly known as Sellers Injector Corporation established in 1848. Marketing and Manufacturing has been moved to the new 46,000-square-foot office and production facilities recently completed for Prosser-East at Horsham Ridge Industrial Park, Horsham, Pa. The new location is about 20 miles northwest of Philadelphia. Sellers is a foremost manufacturer of hydraulic jet cleaners, industrial and marine tank cleaners, and special steam-jet cleaning systems.

Prosser-East is a division of Purex Corporation Ltd., Lakewood, Calif. **Thomas White** is general manager and **Robert R. Streeton** is assistant general manager in charge of Sellers Injector Systems. There are no basic changes in sales organization or product mix.

Ocean-World, Inc. Forms Ocean Systems Advisory Service Div.

Russell S. Delano Sr., president of Ocean-World, Inc., Boston, Mass., announces the formation of a new division, Ocean Systems Advisory Service. To be headquartered in Houston, Texas, the new division will be headed by **Allan B. Rose,** former Commander of the United States Coast Guard and former Captain of the Port of Houston. Commander **Rose,** a vice-president of Ocean World, will serve as general manager of national activities for the new division.

Arthur (Spike) Taylor, also former United States Coast Guard Commander and former Captain of the Port of Houston, will serve as local manager of the Houston area.

In announcing the formation of this new division, Mr. **Delano** said: "In our 15 years of experience in combating and controlling over 3,000 oil spills in major ports throughout the country, we have become increasingly aware of modern day needs of ports and harbors. We feel that Ocean Systems Advisory Service is designed to fulfill many of these needs.

"Ocean Systems Advisory Service will act in an advisory capacity on a national basis to help eliminate the many existing problems connected with port traffic. These areas will include port planning and management, traffic control, chemical and gas vessel operations and engineering, vessel and cargo surveying, and chemical spill abatement. In addition, the division will act as a liaison with the multiplicity of Government agencies concerned with marine environment."

Newport News Elects Charles E. Dart VP

Charles E. Dart

At a recent meeting of the board of directors of Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a Tenneco subsidiary, **Charles E. Dart** was elected a vice-president.

Mr. **Dart,** who holds a degree in naval architecture and marine engineering from the University of Michigan, joined Newport News Shipbuilding in 1939 as a hull draftsman. In 1942 he was assigned to the cost engineering staff and in 1961 became contract administrator.

Mr. **Dart** was named assistant to the executive vice-president in 1964, manager of estimating and contracts in 1965 and, most recently, manager of the contracts division in 1967.

A native of Port Huron, Mich., Mr. **Dart** is a member of The Society of Naval Architects and Marine Engineers, Engineers Club of the Virginia Peninsula, U.S. Naval Institute, and the Propeller Club of Newport News.

$1.9 Million Contract Awarded To Peterson

The Naval Ship Systems Command, Washington, D.C., has awarded (under IFB NOOO24-70-C-0302) a contract totaling $1,932,368 for the construction of four wood-hulled patrol craft (YP) to Peterson Builders, Inc., Sturgeon Bay, Wis.

99-Foot Towboats To Be Propelled By M&T Harbormaster Units

Canadian National Railways, Montreal, recently awarded a contract to F.M. Yorke & Son, Ltd., Vancouver, B.C., for the construction of two towboats, each measuring 99 feet by 34 feet by 10 feet.

Each vessel will be propelled by Murray & Tregurtha Harbormaster units—one of 3,000 hp and one of 2,000 hp.

The towboats will operate between Sarnia, Ont., and Port Huron, Mich., and between Windsor, Ont., and Detroit, Mich., pushing carferries.

Carlton Speight Named Sales Manager Of Nabrico's Marine Dept.

Carlton C. Speight

Carlton C. Speight has been appointed sales manager of the marine department at the Nashville Bridge Company. The announcement was made by **John B. Kopp,** president of Nabrico. Prior to this promotion, Mr. **Speight** was manager and administrator for the marine department. He joined Nabrico in 1936 and has spent his entire business career with the company. He is well known among the inland water transportation people.

Mr. **Speight** is a graduate of Isaac Litton High School and studied drafting and engineering with ICS. His first job with the company was as a blueprint operator, and he has subsequently worked as weight calculator, draftsman, office manager and contract administrator.

Mr. **Speight** is a member of the Nashville Propeller Club and the American Welding Society. His civic affiliations include Lion's International, 32 degree Scottish Rite Mason and the Boy Scouts of America.

A History Of Alaska Barge And Transport In South China Sea

PAC, 400 Norton Building, Seattle, Wash. 98104, has published a paper-covered book entitled "Towboats to the Orient." The 100-page book was written by **Robert S. Mansfield** and **William L. Worden.**

Ostensibly, this book is a comprehensive history of the fullfillment of a contract. In reality, this is a narrative, complete with many pictures, of a most unlikely assignment, based upon a most unusual contract and accomplished, to date, in an unorthodox and ultimately successful manner. It is the story of a branch of the military service realizing that a group of professional civilians, highly motivated and experienced in all phases of the operation, could do a necessary job at a saving to the military and a profit to themselves.

This book is the narrative history of Alaska Barge and Transport, Inc. in Viet Nam in document form. It was compiled from the records of the United States Navy and of Alaska Barge and Transport. It also contains considerable statistical data.

NORDATA Announces New York Seminar On Shipboard Computers

NORDATA, Inc. is sponsoring a one-day seminar entitled "Applications of Shipboard Computers." The seminar will be held at the Embassy Room of the New York Holiday Inn, 440 West 57th Street, New York, N.Y., on November 4, 1970, starting at 9:30 a.m. Technical discussions will be presented by the Norcontrol designers of the M/S Taimyr project, the world's first major installation of a computer-based navigation and engine room control system on board a merchant ship. Operational aspects will be covered by the former captain of the M/S Taimyr, who sailed with these systems for over one year. For further information concerning seminar registration, write NORDATA, Inc., 459 E. Main Street, Denville, N.J. 07834 or call (201) 625-0789.

NORDATA, Inc. was recently appointed exclusive United States representative for the marine automation systems of Norcontrol, division of Noratom-Norcontrol. Horten, Norway. These systems include a complete computer integrated navigation system, engine room monitor and control systems and level measuring systems for tankers.

Destroyer Escort Aylwin Eleventh In A Series Of 27 Launched At Avondale Yard

The Aylwin (DE 1081), a destroyer escort of a new class and the eleventh of 27 DE's being built by Avondale Shipyards was launched recently at Avondale's Main Yard Division, New Orleans, La.

Principals of the launching (left to right): Dr. **Gardiner L. Tucker,** Assistant Secretary of Defense (Systems Analysis) as principal speaker; **Mrs. Charles K. Duncan,** sponsor of the Aylwin; Rear Adm. **Nathan Sonenshein,** USN, Commander Naval Ship Systems Command; and **Edwin Hartzman,** executive vice-president production and engineering, Avondale Shipyards.

Sponsor of the vessel was **Mrs. Charles K. Duncan,** wife of Adm. **Charles K. Duncan,** USN, Designate Commander in Chief Atlantic Fleet and Supreme Allied Commander Atlantic. Principals of the launching included Capt. **R.J. Leuschner,** USN, supervisor of shipbuilding conversion and repair, 8th Naval District; **Edwin Hartzman,** executive vice-president engineering and production; Rear Adm. **Nathan Sonenshein,** USN, Commander Naval Ship Systems Command, and Dr. **Gardiner L. Tucker,** Assistant Secretary of Defense (Systems Analysis) as principal speaker.

The Aylwin (DE 1081) is side launched at the Main Yard of Avondale Shipyards in New Orleans.

The Aylwin, built under the multiple-year procurement contracts awarded in 1964 and 1966, is designed for optimum performance in locating and destroying submarines. Integral bow-mounted long-range sonar, variable depth sonar and gyro stabilizers provide for improved seaworthiness and increased anti-submarine warfare capabilities over previous DE's. The Aylwin is 438 feet in length, with a beam of 47 feet, and is capable of attaining speeds in excess of 25 knots. Her total complement consists of 19 officers and 226 men.

The USS Aylwin, an escort ship, is the fourth ship of the Fleet to be named in honor of Lt. **John Cushing Aylwin,** U.S. Navy. Lieutenant **Aylwin** was commended for gallantry in action on August 19, 1812, when the Constitution scored her brilliant victory over the British frigate Guerriere. He was promoted to lieutenant on September 24, 1812 and was severely wounded during the engagement between the Constitution and the British frigate Java, December 29, 1812.

Lt. **Aylwin** was highly praised by Capt. **Issac Hull** for his skill in handling and maneuvering the Constitution during the engagement with the Guerriere. He was also commended for bravery in command of the forecastle division of the Constitution during her fight with the Java. The gallant officer died from the effect of his wounds on January 23, 1813.

Gwynedd Equipment Supplies Engine Consulting Service

A personalized consulting service on tape—CONSULTAPE—has been introduced to the marine field by Gwynedd Equipment Services, Inc., Gwynedd, Pa.

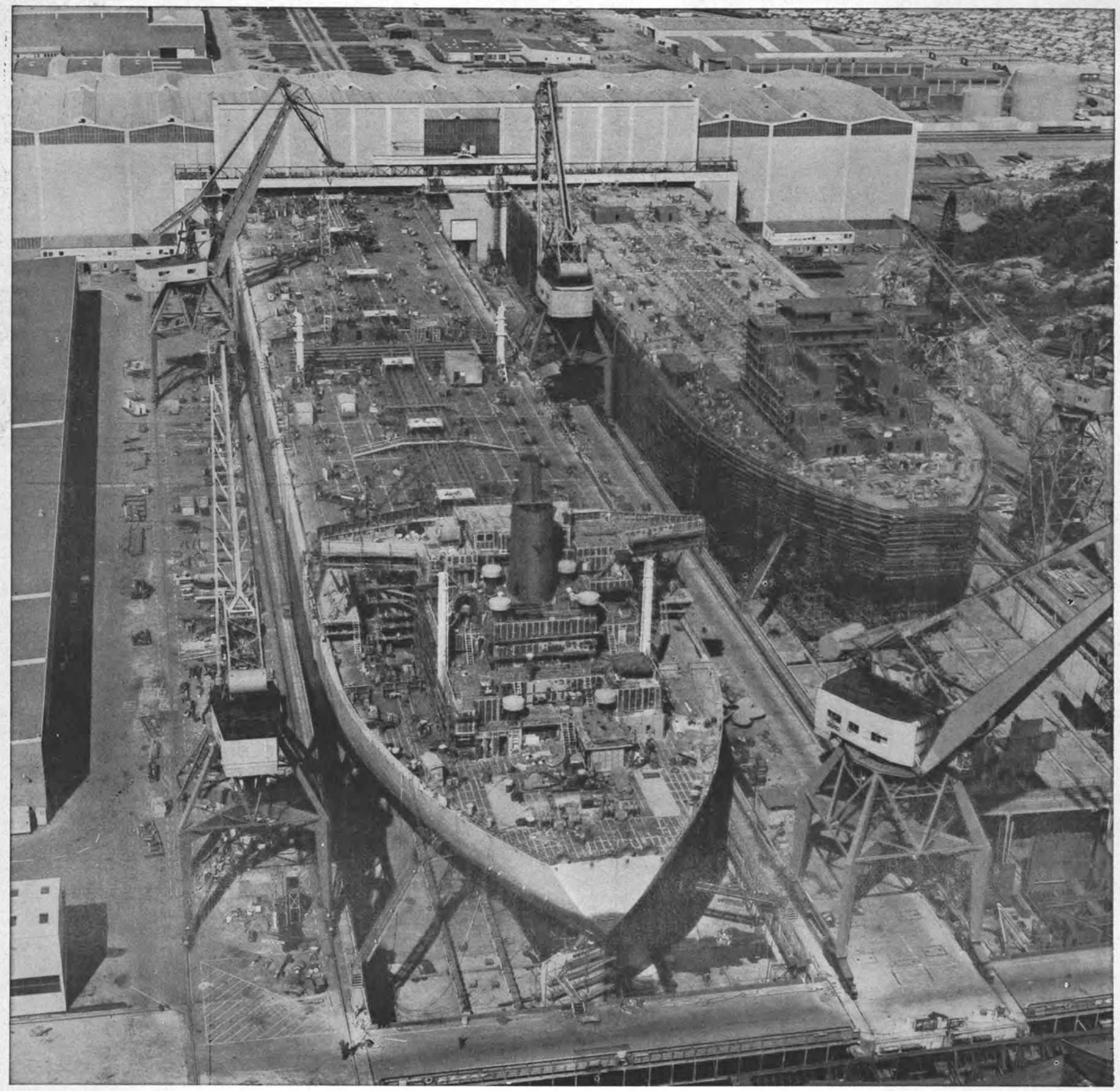
This service is available to manufacturers and customers alike for their mutual benefit and is offered on a subscription basis.

The GES organization operates throughout North America and specializes in providing field technical service assistance to owners and operators of diesel engine equipment—not entering into competition with the manufacturer, but attempting to comp'ement its services. To that end, GES has immediately available the added simplicity of CONSULTAPE assistance for operating engineers and management—to seek and receive their answers by word of mouth.

The method is to place the questions on tape (utilizing a standard type tape recorder/player unit) while actually at the equipment site and involved in a questionable situation and then mail or telephone that message to GES or a "participating equipment manufacturer or dealer subscriber." The reply to such a taped message is then processed and returned in a like manner, providing not only the answer but a confirming copy for reference.

William E. Newton, who was the assistant east coast service manager for the former Cleveland Diesel Engine Division (merged with Electro-Motive Division) of General Motors, is president of Gwynedd Equipment Services, Inc. Mr. **Newton's** background to provide technical assistance in achieving preventive maintenance objectives stems from years of engine experience (primarily General Motors) in the marine and stationary fields. Supplementing this is an engine background with GMC Truck and Coach Division and a mechanical packing sales and service engineering background with France Packing (a Garlock subsidiary).

Further information concerning this new CONSULTAPE service can be obtained from Gwynedd Equipment Services, Inc., P.O. Box 37, Gwynedd, Pa. 19436.



Half-a-million Tons at a Time Building Ships Indoors

Two 227,000-ton tankers, totalling nearly half-a-million tons, emerging into the building docks at Arendal. These tankers are the first in a series of 11. Another series—of 15 OBO-ships in the 96,000-ton range—is being built simultaneously by Götaverken (10 at Arendal and 5 at Öresund).

GÖTAVERKEN
GÖTEBORG SWEDEN

ARENDALSVARVET
GÖTEBORGSVARVET
ÖRESUNDSVARVET
Yards of the Götaverken Group

GÖTAVERKEN AMERICAN CORPORATION, 39 Broadway, New York, N.Y. 10006. Telephone: HA 5-5530-1. Telex: MNY 420181 New York. T.A.: Gotaverken, Newyork.

Japan's Steel Industry Expects Great Demand From Ocean Development

Japan's steel industry expects a substantial domestic steel market from development of ocean resources and ocean space utilization, according to the Japan Steel Information Center in New York City.

In the next 10 years, Japan's development of ocean resources and related activities are expected to require a total of some 47-million net tons of steel. Total requirement for 1970 is forecast to be about 550,000 tons. Rapid increases are expected in the years ahead with an average annual increase of about 45 percent. Annual requirement of over 15-million tons in 1979 is anticipated.

The Center cited a recent report of the Kozai Club, a Japanese steel industry trade association, summarizing the industry's participation in the country's massive efforts in ocean technologies. The Kozai Club, made up of virtually all leading steel makers and steel trading firms in Japan, formed a Committee for the Promotion of Ocean Development in July 1969 with **Takeo Hori,** now auditor of Nippon Steel Corporation, as chairman.

In its first progress report, the Hori committee noted that the Japan Iron and Steel Federation and the Society of Steel Construction are leading elements of the joint effort by the Japanese Government and private industry to develop ocean resources.

Japan's individual steel companies have participated in their industrial group programs, and have also invested in their own subsidiaries for ocean development. New ventures on and under the oceans will require special steel products to withstand the ocean environment, the Kozai Club pointed out. Technology departments of the Japanese steel companies are conducting extensive programs in that direction. Some Japanese steel mills have also concluded business of technical agreements with United States and European corporations to bring the most advanced ocean technology to Japan. The report also noted that the move into the oceanology field may further alter the traditional role of Japan's steel mills as mere suppliers of materials. The trend, it said, is for Japan's steelmakers to extend their work into new fabricating ventures of oceanology.

Governmental programs have been under way since 1961, headed by the Council for Oceanic Science and Technology. Several ministries and government agencies have developed special oceanology departments in the last decade, and government budgets for these activities reached $136 million in 1970. These expenditures are expected to more than double next year.

In the last two years, the Kozai Club reports, six of the great private industrial groups have formed special companies to perform different aspects of ocean development.

The Mitsubishi Group has organized the Japan Ocean Drilling Company, which now is developing oil wells in Indonesia.

The Mitsui Group has Mitsui Ocean Development Company, specializing in ocean engineering and marine services, with future targets in the development of ocean energy and utilization of offshore space.

The Sumitomo Group established Offshore Equipment, Ltd., to provide machinery and equipment for marine work, and Ocean Systems Japan, Ltd., for deep-sea diving services.

The Fuji Group formed the Fuyo Marine Development Company to conduct research and development of oceanic resources. The Sanwa Group has the Sanwa Society for Research into Ocean Exploration, and the Daiichi Group has Daiichi Ocean Exploration Society, both organizations engaged in gathering marine development information.

Barge Construction

Bethlehem Steel Corporation, Beaumont, Texas, has been awarded a contract by Interstate Oil Transportation Co., Philadelphia, Pa., to construct one 30,000-dwt oil barge. Designated Hull No. 4864, it will be 525 feet long, have a beam of 80 feet, and a depth of 40 feet. Contract cost was reported to be more than one million dollars.

Brown & Root Shipyard, Houston, Texas, is building a 500-dwt deck cargo barge for Brown & Root, Inc., Houston. The barge is to be 119 feet 9¾ inches long, have a beam of 30 feet, and a depth of 6 feet 6 inches. It has been designated Hull No. 304.

Equitable Equipment Co., New Orleans, La., has been awarded a contract for construction of an oceangoing deck cargo barge by Seatrain Shipbuilding Corp. The barge will measure 200 feet by 56 feet by 13 feet 4 inches.

Also awarded to Equitable by Seatrain Shipbuilding Corp. is a second contract for construction of an oceangoing deck cargo barge. This barge is a duplicate of the one ordered above.

Jeffboat, Inc., Jeffersonville, Ind., is building 20 covered hopper barges for American Commercial Lines, Inc., Jeffersonville. Each 1,400-dwt barge is to have a length of 195 feet, a beam of 35 feet, and a depth of 12 feet. They have been designated Hull Nos. 2390 through 2399 and 2402 through 2411.

The same yard is to build a tank barge for American Commercial. The 2,000-dwt barge is to measure 200 feet by 52 feet 6 inches by 12 feet 6 inches. It has been designated Hull No. 2412.

Kelso Marine, Inc., Galveston, Texas, has been awarded a contract by the Central American Barge & Towing Co., of Houston, Texas, to construct one 5,000-dwt independent pressure type tank barge. It will be 385 feet long, have a beam of 56 feet, and a depth of 26 feet. The barge will be Hull No. 053.

Missouri Valley Steel, Inc., Leavenworth, Kan., has been awarded a contract by the U.S. Corps of Engineers, Philadelphia District, for construction of two 800-dwt deck cargo barges, at a total cost of $107,200. The barges will be 150 feet long, have a beam of 35 feet, and a depth of 7 feet.

Nashville Bridge Co., Nashville, Tenn., has an order from Union Carbide Corp., New York, for nine double-skin tank barges. Eight of the barges will have a length of 236 feet, and one a length of 180 feet. All will have a beam of 52 feet 6 inches, a depth of 12 feet 6 inches, and a total dwt carrying capacity of 20,000 tons. They have been designated Hull Nos. 2085 through 2093.

Also awarded to Nashville Bridge is a contract for the construction of two box-type oil barges for Thomas Barge Co. Each barge is to measure 120 feet by 54 feet by 13 feet 7 inches and be of 1,400 dwt. They have been designated Hull Nos. 2094 and 2095.

Tidewater Equipment Corp., Norfolk, Va., is to build a deck barge for Tidewater Construction Corp., Norfolk, Va. The 1,000-gt barge is to measure 150 feet by 70 feet by 11 feet. It has been designated Hull No. 60 and will be named Rig 20.

United States Steel Corp., American Bridge Division, Ambridge, Pa., is to build 20 covered hopper barges for Ohio Barge Line, Inc., Dravosburg, Pa. Each 1,400-dwt barge is to measure 195 feet by 35 feet by 12 feet. They have been designated Hull Nos. 3795 through 3814.

INGALLS EAST OVERHAUL FACILITIES DEDICATED: Congressman **William R. Anderson** (D-Tenn.), snips a ribbon during ceremonies Saturday, August 22, dedicating a new submarine overhaul facility at the Ingalls East Division of Litton Industries in Pascagoula, Miss. The new facility, constructed at a cost of $26 million, gives Ingalls East the capabilities to refuel and overhaul all submarines in the Navy Fleet. The company has been building nuclear submarines for 13 years. Also participating in the dedication ceremonies were Vice Adm. **H.G. Rickover,** second from right, Director of the Atomic Energy Commission's Division of Naval Reactors; and Mississippi Congressman **William M. Colmer,** left. Congressman **Anderson,** former commanding officer of the nation's first nuclear submarine, the Nautilus, delivered the principal address at the ceremonies.

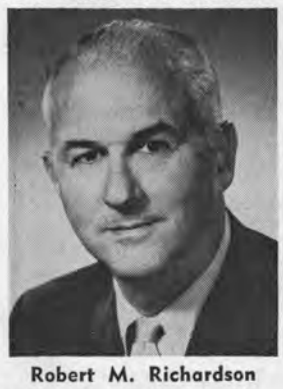
John H. Baker

John H. Baker, vice-president in charge of sales and a director of Todd Shipyards Corporation, died suddenly at his summer home in Southampton, Long Island, N.Y. on September 1. He was 60 years old and resided at 135 East 83rd Street, New York City.

Mr. **Baker** began his long and varied career with Todd in January 1929 as an apprentice salesman. During the early years of World War II he was Todd's Washington representative. In 1943 he was appointed secretary of the New England Shipbuilding Co., South Portland, Maine, a Todd affiliate. He returned to Todd headquarters in New York in 1945. For a short period during 1948 and 1949 he was manager of Todd's sales office in London. In 1953 he was named assistant to the president of the corporation, and in 1960 was elected a director. In 1962 he was elected vice-president in charge of sales.

Mr. **Baker** was a member of The Society of Naval Architects and Marine Engineers, Maritime Association Port of New York, Navy League, American Society of Naval Engineers, and the Propeller Club. He was also a member of the River Club of New York, Shinnecock Hills Golf Club, Southampton Club, Meadow Club, Bathing Corp. of Southampton, Whitehall Club, and the Downtown Athletic Club. He was an honorary member of the Royal Corinthian Yacht Club of London.

Matson Navigation Names Richardson VP



Robert M. Richardson

Robert M. Richardson, vice-president of The Matson Company in Tokyo since 1968, has been named vice-president for industrial relations of Matson Navigation Company, **Malcolm H. Blaisdell,** Matson president, announced

Mr. **Richardson** started his Matson Navigation Company service as an ordinary seaman in 1933. He was vice-president and general manager of Matson Terminals, Inc., from 1954 to 1960, when he transferred to Matson's Hawaii freight service.

He served in various capacities in the Hawaii freight division, including vice-president. He was transferred to Tokyo in 1968 as vice-president of The Matson Company.

Mr. **Richardson** was born in Hilo, Hawaii, and graduated from the University of Washington's College of Business Administration, where he majored in transportation.

Matson's container ship, the S.S. Pacific Trader

Jakobson Shipyard Apparent Low Bidder For Steel Stern Trawler

Jakobson Shipyard, Inc., Oyster Bay, L.I., New York, was the apparent low bidder, with a price of $836,366 and a delivery time of 360 calendar days, for the construction of a steel stern trawler.

The 118-foot six-inch vessel is to be built for Trawler Fordham, Inc., Boston, Mass., with the aid of a subsidy under the terms of the Fishing Fleet Improvement Act.

Richard R. Taubler, Inc. Announces Acquisition Of Lightner's Boat Yard

Richard R. Taubler, president of Richard R. Taubler, Inc., naval architects and marine engineers of Brooklyn, N.Y., announces that his firm has acquired Lightner's Boat Yard, Inc., West Sayville, N.Y.

At present the yard is engaged in hauling, repairs, slip rental and dry storage as well as boat and equipment sales. In addition, the construction of small commercial vessels will be undertaken.

Lightner's Boat Yard, Inc., is located at 125 Clyde Avenue off Atlantic Avenue in West Sayville, N.Y. The telephone number is (516) LT 9-0415.

Babcock & Wilcox Names Profita VP Power Generation Div.

Gerald A. Profita

Gerald A. Profita has been named a vice-president of Babcock & Wilcox's power generation division and head of the B&W Construction Company with headquarters in Barberton, Ohio.

The B&W Construction Company was formed recently from the power generation division's erection department to reflect its widening scope of activities. It will operate as part of the power generation division, reporting to **Ellis T. Cox,** division vice-president. The construction company will continue its primary job of erecting boilers and other products sold by the division. But, in addition, it will capitalize on its experience and expand its work in general construction, piping, mechanical erection, equipment repairs and real estate development.

Mr. **Profita,** who has been with B&W for 41 years, has held managerial positions in manufacturing and field erection of both marine and stationary boilers. Since 1963 he has been manager of the erection department and during 1969 was concurrently general manager of manufacturing for the division.

Mr. **Profita,** a registered professional engineer, is a member of the American Society of Mechanical Engineers and The Society of Naval Architects and Marine Engineers.

USCG Design Contract For Polar Icebreaker Awarded To Lockheed

A $53,715 contract has been awarded to Lockheed Shipbuilding & Construction Company, Seattle, Wash., to prepare contract design plans, drawings and specifications for the design of Polar icebreaker (WAGB-10) by U.S. Coast Guard Headquarters, Washington, D.C.

Western Transportation Elects Newman VP

George Jackson, president, Western Transportation Company, Portland, Ore., has announced that its board of directors have elected **Merrill H. Newman,** operating manager of the company, as vice-president.

A graduate of Oregon State University, Mr. **Newman** joined Western in 1954 as a boat dispatcher, later was manager of Astoria operations and has been operating manager since last December.

Propeller Designer John G. Hill Opens Consulting Office

On July 31, 1970, **John G. Hill** retired from the U.S. Naval Ship Engineering Center after more than 30 years of service to enter private practice as a propeller designer and a consultant in propeller and shafting matters. Mr. **Hill's** new office is located at 8814 Bellwood Road, Bethesda, Md. 20034.

Since 1952 Mr. **Hill** had been head of the propeller, shafting and bearing branch of the Bureau of Ships and the Naval Ship Engineering Center, following 13 years at the former David Taylor Model Basin where he was in charge of the propeller section.

During his career with the Navy, Mr. **Hill** designed many propellers, including those for the USS Forrestal and later aircraft carriers and nuclear submarines. He has also designed the propellers for many large bulk carriers, tankers and containerships.

Mr. **Hill** is a member of The Society of Naval Architects and Marine Engineers and the Society of Naval Engineers. He is also a Registered Professional Engineer and a member of the American Bureau of Shipping Propeller Panel.

DOUBLE DUTY: This view of the big dry dock at Bethlehem Steel's Beaumont, Texas, shipyard shows the cutter suction dredge Captain Clark and the SS San Mateo Victory sharing the recently expanded and modernized facility. The Captain Clark, 252 feet by 50 feet by 11 feet, was in the yard for repairs following collision with a ship in the Mississippi River outlet to the Gulf of Mexico. Extensive repairs to the hull, hull internals and spud keepers were necessary, and the original wood upper house was replaced by a completely new steel one. The San Mateo Victory, 436½ feet by 62 feet by 38 feet, was being prepared for layup in the U.S. Government's Beaumont Reserve Fleet in the Neches River. The Beaumont yard dry dock has a length of 650 feet, width of 87 feet, and lifting capacity of 17,500 tons and handles ships ranging up to the C4 types.

Sky Climber, Inc. Publishes New Brochure Describing Powered Scaffold Systems

An eight-page brochure describing the patented Sky Climber hoists and powered scaffold systems has been published by Sky Climber, Inc., subsidiary of Western Gear Corporation. The booklet is profusely illustrated with pictures of actual work in progress using Sky Climber hoists. Included are operational features such as the reduction in productive time with use of the Sky Climber "leap frog" rigging system, as well as a clear-cut description of the numerous safety features of the equipment.

For a free copy of the Sky Climber Powered Scaffold Systems brochure, call or write Marketing Manager, Sky Climber, Inc., 17311 South Main Street, Gardena, Calif. 90247.

TURBINES

ROTORS DIAPHRAGMS
GOVERNORS REDUCTION GEARS
MISC. PARTS

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 (Victory type)	300 KW
Westinghouse	250 KW
Worthington	150 KW
Westinghouse CA 20	100 HP
G.E. Main Turbine Rotor T2	6000 HP
G.E. HP & LP Turbine C2	6000 HP
G.E. HP & LP Turbine	8500 HP
Westinghouse Turbine & Gear C4, C3 Some AP3	8500 HP

Complete Inventory List Free Upon Request

NICOLAI JOFFE CORPORATION
San Francisco Branch
P. O. Box 2445 445 Littlefield Ave.
South San Francisco, California
Phone (415) 761-0993

FOR SALE or LEASE

177' O. A. 32' Beam Steel Vessel—For Sale or Lease
Twin Screw 2 G. M. 500-278A-12 Plus Knots
Two each New Aux. 8-71 G. M. Generator Sets
Simrad Sounder 850 Fathoms
Two—48 Mile 326 Decca Radars
150 W. Northern Radio—40W Emergency Radio—Auto Alarm—Meets FCC Regulations—Bendix Automatic D. F. —DX Navigator Loran
Steam Heat and Electric
Automatic Hydraulic Steering with Sperry Automatic Pilot
Two Boom Hydraulic Hoisting and Vanging
Complete Pilot House Engine Controls
One Cargo Hold has Reefer Coils. Have Coils for Other.
Electric Stove—Washer—Dryer
Suitable for Any Type Work. Tanked and Equipped for King Crab Fishing.

APOLLO, INC.
8306 16th N. W.
Seattle, Washington 98107
Phone: 206-784-2613

SUBMARINE SCUTTLES

Used, good as removed from four (4) ex-U.S. Navy submarines. All are quick acting type, wheel controlled spring hinged, heavy steel construction.

Available Sizes:
27" diameter, 30" diameter
21" x 27"—oval

Contact: RALPH E. INGRAM

ZIDELL EXPLORATIONS, INC.
3121 S.W. Moody Ave., Portland, Ore. 97201
Phone: 503/228-8691 • Telex: 036-701

BARGES FOR LEASE

12 - PONTOON SECTIONAL BARGES
@ $300.00 Ea. PER MONTH

Each Pontoon Measures 40L. x 10W. x 6D. These Manitowoc pontoons can be bolted together to achieve various sizes and load capacities. A pontoon light draws fourteen inches. The carrying capacity of one section is at the rate of 2000 lbs. per inch of draft. Features spud wells and deck fittings.

ONE - 65 TON STIFFLEG "A" FRAME
DERRICK BARGE $5,000/MONTH

American Hoist and Derrick, Caterpillar D17000 diesel. Two American 25,000 SLP deck hoists. Load Test: 62½, long tons at 65 ft. Steel Hull, non-propelled. 135L x 50W. x 11D. Draft 4' 4". Displacement 952 long tons. Equipped with machinery cab, crew's mess room and quarters.

KOCH CRANE AND DERRICK CO., INC.
400 Roosevelt Ave. — Carteret, New Jersey 07008
Tel: 201/969-1700 Cable: ERECTING

FOR SALE OR LEASE M/V TROPIC HAVEN

150' x 27' x 11'
Single Screw Cat. D-397
Speed 10 Knots
DWT - 690

Class: Bureau Veritas
Type: Coastal Freighter
Refitted to Handle 23 — 20 containers

TROPICAL SHIPPING CO., LTD.
Port of Palm Beach
Phone 305-844-0281

FOR SALE

Fog Nozzles, Applicators,
Y Strainers, 1½" & 2½"

J. MENDELSOHN & SONS
3493 Klickitat Ave. S.W., Seattle, Wash. 98134
(206) MA 3-3290

For Sale or Charter Seagoing Tugs: 210' Big Tug 3600 HP, 40' Beam, 18' Draft; 125' 1600 HP; 100' 1000 HP, $25,000; 74' 1200 HP; 55' 400 HP; Tanker 1000 Tons; Landing Craft; Freight Vessels and Barges. Ocean Service Corp., P.O. Box 2409, Miami, Fla. 379-4038.

UNUSED 10KW SUPERIOR DIESEL GEN. SETS

GENERATOR: Delco 10-KW — 120 volts DC — 83.3 amps—1200 RPM. ENGINE: Superior diesel — 2 cylinder — 4½ x 5¾—15 HP—heat exchanger cooled.

ONLY 9 UNITS LEFT

PRICED TO SELL! While They Last
$1395

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

CYCLOTHERM SELF-CONTAINED AUX. BOILERS

Oil burning 0 2500 lbs/hr. Design pressure 125 lbs—WP 100 lbs—2-pass. Complete with self-contained motor-driven blower 5HP—440/3/60—Fuel Oil Service pump 3 HP—440/3/60. Burner is pressure atomizing type.

$1775.00 Each
YOUR INSPECTION INVITED

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

New Watertight Doors
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"

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

UNUSED WORTHINGTON BRONZE-FITTED HORIZONTAL MARINE DUPLEX PUMPS

Type VC—7½x5x6—4" suction—3" discharge 1½" steam—2" exhaust. Liquid pressure to 250 lbs.—steam and pressure 200 PSI. Capacity 100 GPM — 100 PSI @ 80 strokes/minute. OAL 48¼"x20"x23"—weight 930 lbs. Suitable for port feed, general service, evaporator feed, fuel oil and other pressure service.

$775 each

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

UNUSED 10x9x12 VERTICAL SIMPLEX FUEL OIL TRANSFER PUMPS

Furnished on some T2 tankers. 160 GPM Bunker C—viscosity 70 to 700 SSF 122°F @ 100 lbs discharge press. WP steam 150# —exhaust 10#. 1¼" Steam inlet—1½" exhaust. 4" pump suction—3½" discharge.

$1450

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

14" & 16" ALL-BRONZE PORTLIGHTS with deadlights

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

UNUSED AURORA PUMP

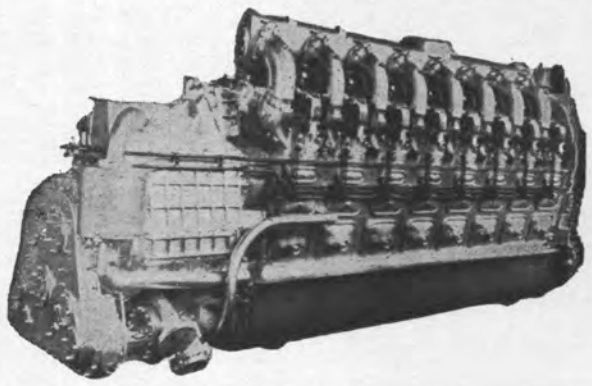
$877.77

300 GPM—37' head—5 HP—120 volts DC Centrifugal Pump. Bronze — size 5x4 — flanged. MOTOR: Reliance—super T.D.C. Electric Motor—5 HP—120 VDC — 36.8 amps — 1750 RPM — Frame L216A—with control by Cutler-Hammer. Excellent condition. Latest USN surplus.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

FINAL CLEARANCE

G.M. 16-278A DIESEL ENGINES

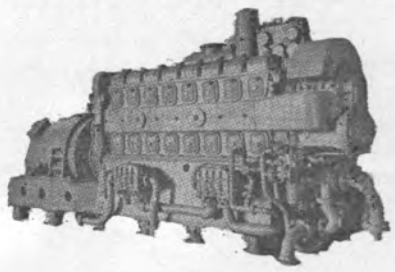


30 TO CHOOSE FROM!
Complete – Clean – And
in very good condition
AS REMOVED FROM U. S. NAVAL VESSELS

1700 H.P. @ 750 R.P.M.
YOUR THOROUGH INSPECTION INVITED

NOW! $6750 F.O.B. BALTIMORE

G.M. 8-268A 200 KW A.C. DIESEL SETS



As-Is- While They Last at This Price

Engine: 6½" bore x 7" stroke — 1200 — driving 200 KW Westinghouse generator: 440 volts — 3-phase — 60-cycle — 321 amps — 80% power factor at 1200 RPM.

WITH 200 KW WESTINGHOUSE GENERATORS. YOUR THOROUGH INSPECTION IS INVITED.

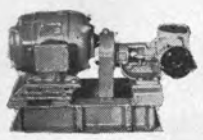
NOW! $2750 F.O.B. BALTIMORE

FLEXIBLE PIPE
For use with 16-278A diesel engines.
$77.50

KINNEY VERTICAL ROTARY PUMP
Fuel oil transfer pump—2" x 2"—875 RPM—20 GPM—20 lb head—for diesel fuel. MOTOR: G.E. 440 volts 3/60—3.7 amps—2 HP—Type K. Dimensions: 42" high x 20" wide.
$288.50

HIGH PRESSURE STARTING AIR TANKS
600 Lbs working pressure. 1200 lbs. test pressure—16½" diameter —7' 3" overall length.
$269.50

DeLAVAL BRONZE CIRCULATING PUMP
5"x5"—540 GPM @ 15 lbs — circulating pump. DRIVE MOTOR: Allis-Chalmers 7½ HP—440/3/60 — 1740 RPM — type ARZV — Frame 284V.
$339.50



VIKING LUBE OIL PUMP
For thrust bearing, motor bearings, etc. 5 GPM @ 25 PSI—680 RPM—1¼" suction—1" discharge. MOTOR: Howell Elec. Co.—¾ HP—type K—1150 RPM — 440/3/60 — frame 204. BASE: 23" long x 10½" wide.
$139.50

MOTOR DRIVEN RECIPROCATING PUMP
Deming 20 GPM—15 lbs @ 160 RPM. 2" Bore—2⅜" stroke—frame 225. 1½" suction—1" discharge. MOTOR: Marathon—1HP—440/3/60—1750 RPM. $164.50

THIS IS THE TIME TO BUY AND SAVE

THE BOSTON METALS CO.

313 E. Baltimore Street (301) 539-1900 or 355-5050 Baltimore, Md. 21202

MARINE DIESEL GENERATORS

SUPERIOR, 10 KW, 120 Volts DC.

HERCULES DOOC, 10 KW, 120 DC, Radiator cooled.

CATERPILLAR, radiator cooled, 15 KW, 120/240 Volts DC.

GM, 4-71, 60 KW, 220/440 AC.

HERCULES, DJXC, 25 KW, 120 DC.

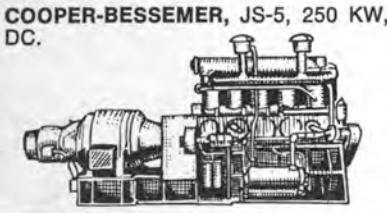
CUMMINS A1, 30 KW, 120 DC.

MURPHY, Model ME 66, radiator cooled, 75 KW, 120/240 Volts DC.

CATERPILLAR DIESEL ENGINE, Model D13000, 167 HP, 900 RPM, with Louis-Allis Generator, 85 KW, 220 AC.

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.

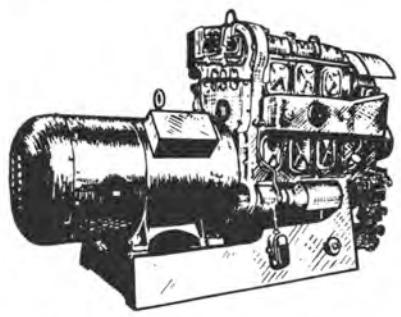
BUDA 6DHG691, 60 KW, 120 Volts DC.

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

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

SUPERIOR, Model 1DB-8 100 KW, 450/3/60.

GM, 8-268, 300 KW, 260/345 DC.



GENERAL MOTORS Model 3-268A, 152 BHP, 1200 RPM, 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.

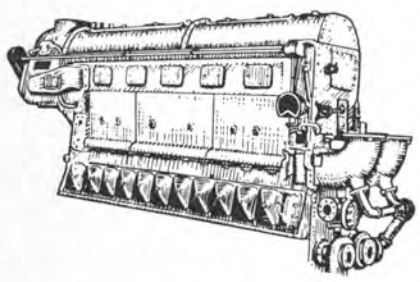
FAIRBANKS-MORSE, 38 E 5¼, 300 KW, 260/345 DC.

8 FAIRBANKS-MORSE MARINE DIESEL ENGINES

4-Model 38D8-⅛, 9 Cylinders, 1600 HP, 720 RPM, 8½" Bore, 10" Stroke, Air Start.

Condition: *Used, Very Good*

$5950 ea.



4-Model 38D8-⅛, 10 Cylinders, 1600 HP, 720 RPM, 8½" Bore, 10" Stroke, Air Start.

Condition: *Used, Very Good*

$7950 ea.

Take advantage of these well priced Engines, for use as standby Power Units and/or a Self-contained Warehouse of spare parts.

AIR COMPRESSORS

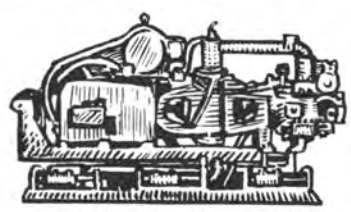
INGERSOLL-RAND, 150 CFM, 50 PSI, 20 HP, 440/3/60.

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.

CHICAGO-PNEUMATIC, 161 CFM, 100 PSI, 40 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.

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

STEAM AIR COMPRESSORS **Westinghouse Air Brake Co.,** Size 9½ x9x10 Vertical.

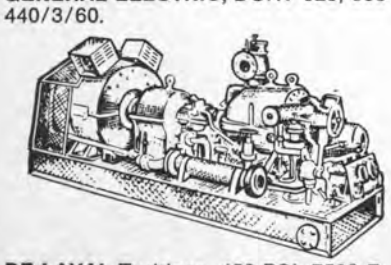
TURBINE GENERATORS

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 common 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, DORV 325, 300 KW, 440/3/60.



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

ALLIS-CHALMERS, 440 PSI, 740° F, with Allis-Chalmers Generators, 300 KW, 120/240 DC.

TERRY Turbines, Type TM5, 440 PSI, 750° F, with Crocker-Wheeler Generators, 300 KW, 120/240 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.

2—G.E. DORV Turbines, with G.E. Generators, 200 KW, 440/3/60.

CLYDE 17-DE-90 WHIRLEY

Lifting Rate: 25 tons @ 50 Ft. Radius @ 50 to 60 FPM.—

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

Whip: 10 tons @ 125 FPM—2 part line

Track Centers: 20'—Engine: Cummins HBIS 601, 180 HP supercharged, elec. start—

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

Power: Diesel electric (DC)

RED HOT BUYS from ZIDELL EXPLORATIONS, INC.

if it's on a ship we probably have it!

NEED IT NOW?

Contact Ralph E. Ingram

Telex: 36-701

3121 S.W. Moody
Portland, Ore. 97201
(503) 228-8691

Submarine Type

PROPULSION MOTORS AND GENERATORS

ELLIOTT MOTORS, 1362 HP, 415 Volts DC, 2585 Amperes, Design 28AN02.

ELLIOTT GENERATORS, 1122 KW, 720 RPM, 415 Volts DC, 2705 Amperes, Design 37C02.

GENERAL ELECTRIC MOTORS, 1375 HP, 415 Volts DC, 2600 Amperes, Type MCF.

GENERAL ELECTRIC GENERATORS, 1100 KW, 750 RPM, 415 Volts DC, 2650 Amperes, Type MCF.

ELECTRIC MOTORS

230 VOLTS D.C.

1—250 HP, G.E., Type CY, Form HJ, Model 24G, 1200 RPM Horizontal, 2 B.B., Shunt Wd.

2—220 HP, G.E., Type CDM—1348S, Form HA, Model 25G 339, 1800 RPM, Stab. Sh. Wd. Horizontal, 2 B.B.

6—100 HP, Westinghouse, Type SK, FR. 163, Style 1B4631 1150 RPM, Shunt Wd. Horizontal, 2 B.B.

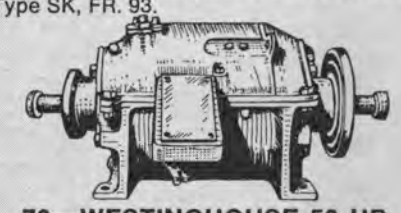
2—55 HP, Electro-Dynamic, FR 25-SL, 550 RPM, Compound Wound, Single Ball Bearing. Originally for high pressure Air Compressor.

1—40 HP, Allis-Chalmers, 1750 RPM, Compound Wound, Horizontal, 2 B.B.

1—65 HP, WESTINGHOUSE, 560 RPM, Type CK, Form 10, 260 Ampere, B.B., D.P., Compound Wound.

2—220 HP, G.E., 1800 RPM, Type CDM-13485, Model 25G 339, 775 Ampere, B.B., D.P., Stab. Shunt.

4—9.3 HP, Westinghouse, 640/852 RPM, Type SK, FR. 93.



70—WESTINGHOUSE 50 HP

230 Volts DC, 600 RPM, Type CK, Frame 9, Compound Wound, 181 Amperes, Double Shaft, Totally Enclosed—Waterproof, Horizontal, Approximate Weight 2000 lbs.

CARGO HOISTER BLOCKS

5 ton rated, steel, as removed from surplus Liberty Ships. Manufactured by Young, Draper, etc. 12" or 14" sizes, your choice

$34.50 each

$39.50 each with pull test certificates.

ESCAPE SCUTTLES

18" Steel
Quick Acting
Complete with coaming. Wheel control from above and below.

$125.00 ea., F.O.B. Portland

AXIAL FLOW FANS

LaDel, STURTEVANT etc.

Rebuilt—Guaranteed

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

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.

$239.50 each

ALSO SEE ZIDELL'S 5 PAGE SPREAD IN ALTERNATE ISSUES OF MARITIME REPORTER

BUYERS DIRECTORY *for* ADVERTISERS

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Carrier Air Conditioning Co., Carrier Parkway, Syracuse, N.Y. 13201
Union Carbide Corp., Linde Div., 270 Park Ave., N.Y., N.Y. 10017

ANCHORS AND ANCHOR CHAINS
Baldt Anchor, Chain & Forge, P.O. Box 350, Chester, Pa. 19016
Disco International Div., 141 Andros Ave., Staten Island, N.Y. 10303

BEARINGS
BJ Marine Bearings, a Borg-Warner Industry, P.O. Box 2709, Terminal Annex, Los Angeles, Calif. 90054
Johnson Rubber Co., Marine Division, Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186

BOILERS
Babcock & Wilcox Co., 161 E. 42nd Street, New York, N.Y. 10017
Combustion Engineering, Inc., Windsor, Connecticut 06095

BOW THRUSTERS
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171

BUNKERING SERVICE
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y. 10019
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
The West Indies Oil Co., Ltd., St. John's Antigua, W. I.

BURNERS—Oil
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231

CABLE ELECTRIC MARINE
Anixter Bros., Inc., 8707 Skokie Blvd., Skokie, Illinois 60076
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150

CLUTCHES, GEARS & BRAKES
Amarillo Gear Co., 517 No. Polk St., Amarillo, Texas 79105
Fawick Airflex Div. Power Transmission Systems, 9919 Clinton Rd., Cleveland, Ohio 44111
Wichita Clutch Co., Inc., Wichita Falls, Texas 76307

COATINGS—Protective
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144
Enjay Chemical Company, 60 West 49th St., New York, N.Y. 10020
Farboil Company, 90 West St., N.Y., N.Y. 10006
Norton Co., Protective Div., Worcester, Mass. 01606
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Porter Paint Co., Louisville, Ky. 40201
Zinc-Lock Co., 6460 Hollis St., Emeryville, Calif. 94608

CONTAINERS—CONTAINER HANDLING SYSTEMS
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Dorsey Trailers, Elba, Alabama 36323
Lighter Aboard Ship, Inc., 225 Baronne St., New Orleans, La. 70112
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
RPC Corp., Marine Sales, 200 Park Ave., New York, N.Y. 10017
Star Iron & Steel Co., 326 Alexander Ave., Tacoma, Wash. 98421
York Trailer Ltd., Corby, Northants, England

CONTAINER LASHINGS & COMPONENTS
American Engineered Products Co., Box 74, McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Brocket St., Pittsburgh, Pa. 15233
Pro Par Div. Fruehauf Corp., 10940 Harper Ave., Detroit, Mich. 48232
Seasafe Transport AB, Torstenssonsgatan 3, S 114 56 Stockholm, Sweden

CONTROL SYSTEMS
Barber-Colman Co., Marine Prod. Div., Rockford, Ill. 61101
General Electric Industry Control Dept., Salem, Virginia
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231

CORROSION CONTROL
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Corrosion Dynamics, 1100 Walnut St., Roselle, N.J. 07203
Radiator Specialty Co., 1400 Independence Blvd., Charlotte, N.C. 28205
Zinc-Lock Co., 4660 Hollis St., Emeryville, Calif. 94608

CRANES—HOISTS—DERRICKS—WHIRLEYS
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Hoffman Rigging & Crane Service, 560 Cortlandt St., Belleville, N.J. 07109
Kocks Pittsburgh Corp., Four Gateway Center, Pittsburgh, Pa. 15222
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y., 10021
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
Hensen-Rotterdam, P.O. Box 5040, Rotterdam, Holland
Star Iron & Steel Co., 326 Alexander Ave., Tacoma, Wash. 98401

DECK COVERS (METAL)
Lockstad Co., Inc., 179 W. 5th Street, Bayonne, New Jersey 07002
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Pyrate Mfg. Co., Inc., 222-17 Northern Blvd., Bayside, N.Y. 11361

DECK MACHINERY—Cargo Handling Equipment
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Beebe Bros., Inc., 2724 - 6th Avenue So., Seattle, Wash. 98134
Blackburn Marine Equipment, 6105 England St., Houston, Tex. 77021
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
Red Fox Machine & Supply Co., P.O. Drawer 640, New Iberia, La. 70560
Smith-Berger Mfg. Corp., 3236 16th Ave.S.W., Seattle, Wash. 98134
Howard Turner Mfg. Co., 2545 Palm Drive, Signal Hill, Calif. 90806
A. G. Weser, Seebeckwerft, 2850 Bremerhaven 1, Germany
Western Gear Corp., Heavy Machinery Div., Everett, Wash. 98201

DIESEL ACCESSORIES
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Kiene Diesel Accessories, Inc., P.O. Box 216, Franklin Park, Ill. 60131

DIESEL ENGINES
Bruce GM Diesel, Inc., U.S. Route 46 at Savoy St., Lodi, N.J. 07644
Caterpillar Tractor Co., Industrial Div., 100 N.E. Adams St., Peoria, Ill. 61602
Colt Industries Inc., Fairbanks Morse Power Systems Div., Beloit, Wisc. 53511
Electro-Motive Division General Motors, La Grange, Illinois 60525
Fiat, Turin, Italy, U.S.A. 375 Park Ave., New York, N.Y. 10022
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany.

DIESEL ENGINE MUFFLERS
Marine Products & Engrg. Co., 20 Vesey St., New York, N.Y. 10007

DOORS—Watertight—Bulkhead
Overbeke-Kain Co., 209 Aurora Rd., Bedford, Ohio 44014
Walz & Krenzer, Inc., 20 Vesey St., New York, N.Y. 10007

ELECTRICAL EQUIPMENT
Arnessen Electric Co., Inc., 335 Bond St., Brooklyn, N.Y.
Galbraith-Pilot Marine Corp., 600 4th Ave., Brooklyn, N.Y. 11215
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150
Oceanic Electrical Mfg. Co., Inc., 148 Perry Street, N.Y. 10004
Pauluhn Electric Mfg. Co., Inc., 422 Broome St., New York 10013

EVAPORATORS
Aqua-Chem, Inc., 225 N. Grand Ave., Waukesha, Wis. 53186
Bethlehem Steel Corp., Shipbuilding, 25 B'way, N.Y., N.Y. 10004
Drew Chemical Corp., Marine Div. sub. Slick Corp., 522 Fifth Ave., N.Y. 10016
Mechanical Equipment Co., Inc., 861 Carondelet St., New Orleans, La. 70130

FITTINGS & HARDWARE
H. M. Hillman Brass & Copper, Inc., 2345 Maryland Road, Willow Grove, Pa. 19090
hi-shear Corp., 2600 Skypark Drive, Torrance, Calif. 90509
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FLOATING EQUIPMENT—Steel—Aluminum Pontoons
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.

GALLEY RANGES
Elisha Webb & Son Co., 136 So. Front St., Philadelphia, Pa. 19106

HEAT EXCHANGES
Aqua-Chem. Inc., 225 N. Grand Ave., Waukesha, Wis. 53186

HEATERS—Ship
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231
Valad Elec. Heating Co., 71 Cortlandt St., Tarrytown, N.Y. 10591

HYDRAULICS
Bird Johnson Co., 883 Main St., Walpole, Mass. 02081
Bond Hydraulics Equipment Service Inc., 9264 Kennedy Blvd., North Bergen, N.J. 07047

INSULATION—Marine
Bailey Carpenter & Insulation Co.,Inc.,74SullivanSt.,Brklyn,N.Y.11231

LININGS
Amercoat Corporation, Brea, Calif. 92621

MACHINE SHOP—TROUBLE SERVICE
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231

MACHINERY MONITORS
IRD Mechanalysis, Inc., 6150 Huntley Rd., Columbus, Ohio 43229

MARINE DRIVES—GEARS
Hydro Drive Corp., 4420 - 14th Ave. N.W., Seattle, Wash. 98107
Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa. 19406
Western Gear Corp., Industrial Products Div., P.O. Box 126, Belmont, Calif. 94003

MARINE NAVIGATION EQUIPMENT & AIDS
American Hydromath Co., 2020 Jericho Tpke, New Hyde Park, N.Y. 11040
Dynel Electronics Corp., 75 Maxess Road, Melville, N.Y. 11746
Edo Western Corp., 2645 So. 2nd St., W. Salt Lake City, Utah 84115
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
Marquardt Corp., 16555 Saticoy St., Van Nuys, Calif. 91406
National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo.
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
Satellite Positioning Corp., 16033 Ventura Blvd., Los Angeles, Calif. 91316
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

MARINE EQUIPMENT
Adsco Div., 34 Milburn St., Buffalo, N.Y. 14212
Beaver Tool & Machine Co., P.O. Box 94717, 525 S.E. 29th St., Oklahoma City, Okla. 73109
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Kearfott Marine (Div. of The Singer Co.) 21 West St., New York, N.Y. 10006
Chas. Lowe Co., 6340 Christie Ave., Emeryville, Calif. 94608
Marine One, P.O. Box 1657, Morgan City, La. 70380
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
Stow Mfg. Co., 225 Shear St., Binghamton, N.Y. 13902
Vokes Filter Div. (Cardwell Machine Co.), Cardwell and Castlewood Rd., Richmond, Va. 23221
Thomas C. Wilson, Inc., 21-11 44th Ave., L.I.C., N.Y. 11101

MARINE FURNITURE
Bailey Joiner Co., 115 King Street, Brooklyn, N.Y. 11231
Wilson & Hayes, Inc., 1601 Eastlake East, Seattle, Wash. 98102

MARINE INSURANCE
Adams & Porter, Cotton Exchange Bldg., Houston, Texas
Midland Insurance Co., 29 Broadway, New York, N.Y. 10006

MARINE PROPULSION
Combustion Engineering, Inc., Windsor, Connecticut 06095
De Laval Turbine, Inc., 853 Nottingham Way, Trenton, N.J. 08602
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Western Gear Corp., Precision Products Div., P.O. Box 190, Lynwood, Calif. 90262

MARINE RADIO COMMUNICATIONS EQUIPMENT
Collins Radio Co., M/S 416-118, Dallas, Texas 75207
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
E. F. Johnson Corp. Waseca, Minn. 56093
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

NAVAL ARCHITECTS AND MARINE ENGINEERS
BG Marine Services, Div. of Genge Industries, Inc., 4419 Van Nuys Blvd., Sherman Oaks, Calif. 91403
Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130
Commercial Radio Sound Corp., 652 First Avenue, N.Y., N.Y. 10016
Crandall Dry Dock Engrs., Inc., 238 Main St., Cambridge, Mass. 02142
Cushing & Nordstrom, 50 Trinity Place, New York, N.Y. 10006
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Christopher J. Foster, 17 Battery Place, New York, N.Y. 10004 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 21 West St., New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
Morris Guralnick, Associates, Inc., 583 Market St., San Francisco, Calif. 94105
W. R. Henderson & Co., 3611 Revere, Houston, Texas 77006
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 Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Applications Co., Inc., P.O. Box 167, Mineola, N.Y. 11502
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 1180 Ave. of Americas, N.Y., N.Y. 10036
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01782
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
Philip L. Rhodes, Inc., 369 Lexington Ave., New York, N.Y. 10017
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 45 Second St., San Francisco, Calif.
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver 10, Canada
Philip F. Spaulding & Associates, 65 Marion St., Seattle, Wash. 98104
Specialty Ships Unlimited Inc., 1000 Vermont Ave., N.W., Washington, D.C. 20005
The Stanwick Corporation, 1401 Wilson Blvd., Arlington, Va. 22209
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler, 44 Court St., Brooklyn, N.Y. 11201
H. M. Tiedemann & Co., Inc., 74 Trinity Pl., New York, N.Y. 10006
H. Newton Whittelsey, 17 Battery Pl., New York, N.Y. 10004

OIL PURIFIERS—Repair
Peck Equipment Co., 3500 Elm Avenue, Portsmouth, Virginia 23704
OILS—Marine—Additives
Esso International Inc., 15 West 51 St., New York, N.Y. 10019
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Humble Oil & Refining Co., Humble Building, Houston, Texas 77002
Mobil Oil Corp., 26 Broadway, New York, N.Y. 10004
Refineria Panama, S. A., 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., 50 W. 50 St., New York 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
PAINT—Marine—Protective Coatings
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Devoe & Raynolds, Subsidiary Celanese Coats Co., 224 E. Broadway, Louisville, Ky. 40201
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Farboil Company, 90 West St., New York, N.Y. 10006
International Paint Co., 21 West St., New York, N.Y. 10006
Mobil Chemical Company, Metuchen, N.J. 08840
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Woolsey Marine Industries Inc., 201 E. 42nd St., New York, N.Y. 10017
Zinc-Lock Co., 4660 Hollis St., Emeryville, Calif. 94608
PETROLEUM SUPPLIES
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., 50 W. 50 St., New York, N.Y. 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.
PLASTICS—Marine Applications
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Atlas Minerals & Chemicals Div., Mertztown, Pa. 19539
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936
Rotocast Plastic Products, Inc., 6700 N.W. 36th Ave., Miami, Florida 33147
POLLUTION CONTROL
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Hemisphere Marine Chemicals Co., Inc., 300 Main St., Orange, N.J.
Specialty Ships Unlimited Inc., 1000 Vermont Ave., N.W., Washington, D.C. 20005
PROPELLERS: NEW AND RECONDITIONED
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bird-Johnson Co., 883 Main Street, Walpole, Mass. 02081
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
Marine Propulsion Engrg. Inc., Statler Office Bldg., Boston, Mass. 02116
PUMPS
Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City. Kansas 66110
Goulds Pumps, Seneca Falls, N.Y. 13148
Worthington Corporation, Harrison, New Jersey 07029
RATCHETS
American Engineered Products Co., Box 74, McKees Rocks, Pa. 15136
REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Frigitemp Corp., 329 Herzl St., Brooklyn, N.Y. 11212
York Corp., Grantley Road, York, Pa. 17405
ROPE—Manila—Nylon—Hawsers—Wire
American Mfg. Co., Inc., Noble & West Sts., Brooklyn, N.Y. 11222
Cating Rope Co., 309 Genesee St., Auburn, N.Y. 13022
Columbian Rope Co., 309 Genesee St., Auburn, N.Y. 13022
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Tubbs Cordage Company, P.O. Box 709, San Francisco, Calif. 92669
Wall Rope Works, Inc., Beverly, N. J. 08010
RUBBER PRODUCTS—Dock Fenders, Hose, Life Preservers
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
La Favorite Rubber Mfg. Co., 275 Wagaraw Rd., Hawthorne, N. J. 07507
Yokohama Rubber Co. Ltd., P.O. Box 46, Shiba, Tokyo 105, Japan
RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland Street, Phila., Pa. 19142
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
SCAFFOLDING
Patent Scaffolding Co., 11-11 - 34th Ave., Long Island City, N.Y. 11106
SEALS
FMC Corp., Syntron Div., 398 Lexington Ave., Homer City, Pa. 15748
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
La Favorite Rubber Mfg. Co., 275 Wagaraw Rd., Hawthorne, N. J. 07507
SEARCHLIGHTS
Portable Light ITT, 67 Passaic Ave., Kearny, N.J. 07032
Snelson Oilfield Lighting Co., 1201 E. Doggett St., Fort Worth, Texas 76104
SEWAGE DISPOSAL
Youngstown Welding & Engineering Co., 3708 Oakwood Ave., Youngstown, Ohio 44509
SHAFT REVOLUTION INDICATOR EQUIP.
Electric Tachometer Corp., 68th & Upland Sts., Phila., Pa. 19142
SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
National Metal & Steel Corp., 1251 New Dock St., Terminal Island, Cal. 90731
Northern Metal Co., Minor & Bleigh Sts., Philadelphia, Pa. 19136
Peck Equipment Co., 3500 Elm Ave., Portsmouth, Va. 23704
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201
SHIP BROKERS
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006
Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119
SHIPBUILDING STEEL
Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh, Pa. 15219
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
Huntington Alloy Products, Div. International Nickel Co., Inc., Huntington, W. Va. 25720
SHIPBUILDING—Repairs, Maintenance, Drydocking
Albina Engine & Machine Works, 2100 N. Albina Ave., Portland, Ore. 97227
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bender Ship Repair, Inc., 265 So. Water St., Mobile, Ala. 36602
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Detyens Shipyards, Inc., Route 2, Box 180, Mt. Pleasant, So. Carolina 29464
DeVries Lentsch-Leopold, Inc., 275 Via Rosada, Royal Palm Plaza, Boca Raton, Fla. 33432
Dillingham Corp., P.O. Box 3288, Honolulu, Hawaii 96801
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gotaverken American Corp., 39 Broadway, New York, N.Y. 10006
Groignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
Gunderson Bros. Engrg. Corp., 4700 N.W. Front St., Portland, Oregon 97208
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Harbor Boat Building Co., 258 Cannery St., Terminal Island, Calif.
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hitachi Shipbuilding Co.,25 Nakanoshima2-chomeKitaku,Osaka-Japan
Industrial Steel & Mach. Works, Inc., P.O. Box 2217, Gulfport, Miss. 39501
Ishikawajima-Harima Heavy Industries Co., Ltd., 15 William St., New York, N.Y. 10005
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla.
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
Kockums Malmo, Fack, Malmo, Sweden
Levingston Shipbuilding Co., P.O. Box 968, Orange, Texas 77630
LISNAVE, P.O. Box 2138. Lisbon, Portugual
Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Marine Industries, Ltd., 1405 Peel St., Montreal 2, Quebec
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville 1, Tenn.
National Steel & Shipbuilding Corp., San Diego, Cal. 92112
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Nippon Kokan Kabushiki Kaisha, 2, 1-chome, Otemachi, Chivoda-ku, Tokyo, Japan
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
O.A.R.N. (officine Allestimento e Riparazioni Navi) Genoa, Italy
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
Rodermond Industries, Foot of Henderson St., Jersey City, N.J. 07302
St. Louis Shipbuilding—Federal Barge, Inc.
611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Tampa Ship Repair & Dry Dock Co., Inc., P.O. Box 1277, Tampa, Florida 33601
Todd Shipyards Corp., 1 Broadway, New York, N.Y. 10004
Zigler Shipyards Inc., P.O. Box 492, Jennings, Louisiana 70546
SHIP MODELS
Boucher-Lewis Precision Models, Inc., 36 E. 12 St., N.Y., N.Y. 10003
Yankee Shipwrights, Route 4, Wayzata, Minn. 55391
SHIP MODEL BASIN
Arctec, Inc., 2834 Belair Drive, Bowie, Md. 20715
Hydronautics, Incorporated, Laurel, Maryland 20810
SHIP ROUTING
Bendix Commercial Services Corporation, Owings Mills, Md. 21117
Weather Routing, Inc., 90 Broad Street, New York, N.Y. 10004
SHIP STABILIZERS
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
STEAM GENERATING EQUIPMENT
Combustion Engineering, Inc., Windsor, Connecticut 06095
STEVEDORING
Luckenbach Steamship Co., 120 Wall Street, New York, N.Y. 10004
M. J. Rudolph Corp., 8 Sackett St., Brooklyn, N.Y. 11231
SWITCHBOARDS
Hose McCann Telephone Co., Inc., 524 West 23 St., N.Y., N.Y. 10011
TANK CLEANING MACHINES
Pyrate Sales, Inc., 222-17 Northern Blvd., Bayside, N.Y. 11361
TOWING—Lighterage, Transportations, Barge Chartering
American Waterways, 1250 Connecticut Ave., Washington, D.C. 20036
M. J. Batty & Co., P.O. Box 2316, Singapore, 1
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
G & H Towing Company, 509 Texas Building, Galveston, Texas 77550
Henry Gillen's Sons Lighterage, 140 Cedar St., New York, N.Y. 10006
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
Jackson Marine Corp., P.O. Box 1087, Aransas Pass, Texas 78336
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
P. F. Martin, Inc., Mall Bldg., 325 Chestnut St., Philadelphia, Pa.
Moran Towing & Transportation Co., Inc., 17 Battery Place, New York, N.Y. 10004
L. Smit & Co., 11 Broadway, New York, N.Y. 10004
Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
M. & J. Tracy, Inc., 1 Broadway, New York, N.Y. 10004
Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y. 11214
Vancouver Tug Boat Co., Ltd., 10 Pemberton Ave., No. Vancouver, B.C., Canada
VALVES AND FITTINGS—Hydraulic—Safety Flanges
Empire Machinery & Supply Co., 3550 Virginia Beach Blvd., Norfolk, Va. 23501
Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn, N.Y. 11231
Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 45-15 37th St., Long Island City, N.Y. 11101
WINCHES
Skagit Corp., Box 151, Sedro Woolley, Wash. 98284
WIRE ROPE
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18018
Don R. Hinderliter, Inc., 1240 No. Howard, Tulsa, Okla. 74104
United States Steel Corp., P.O. Box 86, Pittsburgh, Pa. 15230
ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

Where big things are happening.

Sparrows Point, Md.

Construction of the largest and most modern shipbuilding basin in the United States is now underway here at Bethlehem's shipbuilding yard. The new basin will measure 1,200-ft long and 200-ft wide, and will have the capability of handling tankers up to about 300,000 dwt, which is approximately four times the capacity of the largest vessel the yard is now able to build.

During 1970, Sparrows Point is scheduled to deliver eight ships, ranging from USN ammunition ships to 61,000-ton class tankers. Three 120,000-dwt tankers are also on order here, with the keel of the first scheduled to be laid in the new big basin early in 1972.

NEW PANEL SHOP, TOO

Another major facility being built at the yard is a 750-ft by 90-ft "L"-shaped panel shop in which essentially flat ship subassemblies will be built with considerably more speed and economy than has heretofore been possible. Featuring a sophisticated materials handling system, the shop will be able to turn out structural ship units weighing as much as 200 tons. It will be complemented by a new sand-blasting and coating building, and will serve all of the yard's building ways.

BETHLEHEM STEEL
Shipbuilding
GENERAL OFFICES: 25 Broadway, New York, NY 10004
Telephone: 212 Digby 4-3300 Cables: BETHSHIP

For Sea Power see Fiat

Safety and Progress at Sea

Any form of marine propulsion for modern ships can be met by Fiat engines. And exclusive in Fiat diesels is the **SAFTI-FRAM,** a truly noteworthy safety design which eliminates scavenging complications and attendant dangers. This "ounce of prevention" that can save lives, ships and cargoes is distinctive with Fiat. Every cylinder in a Fiat diesel is separated from the crankcase by a diaphragm that keeps everything open to the atmosphere. Thus the name **SAFTI-FRAM**—saving ventilation, providing peace of mind to owners and operators.

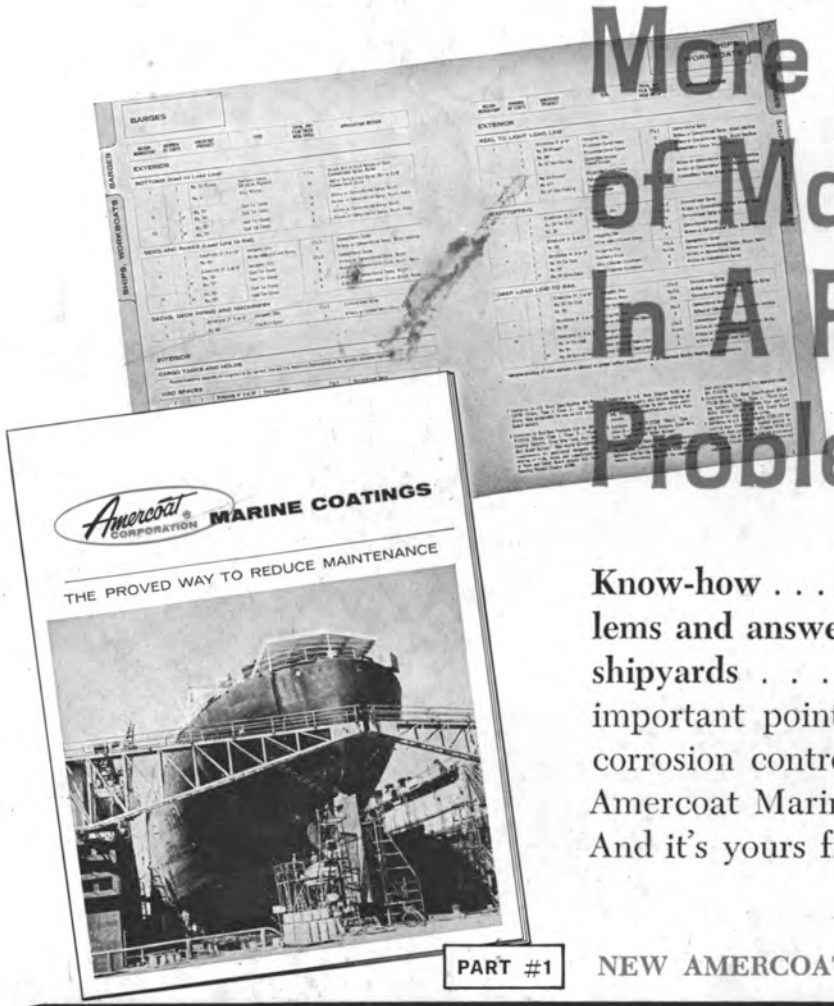
Where space-saving is paramount, Fiat offers continuing advances in the two-stroke crosshead type 600 S and the 4-stroke trunk-piston engine. Multi-engine installations replacing huge single units are being used more and more.

For sea power see Fiat. Another good reason is Fiat's non-profit after-sales maintenance service. It assures economical operation and gives Fiat sure knowledge of product performance.

FIAT

GRANDI MOTORI • VIA CUNEO 20
10100 TURIN, ITALY

U.S. Representative 375 Park Avenue,
New York, N.Y. Tel. (212) 886-4400



More than 30 years of Marine Experience In A Free Problem-Solving Kit

Know-how . . . experience . . . familiarity with marine problems and answers to those problems . . . direct assistance to shipyards . . . representatives around the world. All the important points to be considered when you specify your corrosion control program are contained in the brand new Amercoat Marine Coatings Brochure — the problem solver. And it's yours free.

PART #1 NEW AMERCOAT MARINE COATINGS BROCHURE

TYPICAL MARINE PROBLEM	Slash Costs of New Vessel Construction	Prolong Periods Between Maintenance . . . to 10 Years and More	Achieve Better Speed and Fuel Economy	Reduce Corrosion Costs Drastically — Even in Difficult Services
HOW BROCHURE SOLVES THE PROBLEM	Tells How Dimetcote Steel Primer Saves 20% On New Construction	Recommends Specific Coatings Systems for Hulls, Interiors, Superstructures, Tank Linings, etc.	Specifies Proved-superior Systems of Anticorrosives and Antifoulings For Ships, Barges, Workboats, Subs	Recommendations Are Graded Relative to Economy and Amount of Protection Needed

SIMPLY FILL IN AND MAIL...

AMERCOAT CORPORATION — BREA, CALIFORNIA 92621

Please send me your Amercoat Problem-Solver Kit. I want

☐ Part #1 — Amercoat Marine Coatings Brochure

☐ Part #2 — Amercoat Tank Lining Brochure

Name_____

Firm_____

Address_____

City_____

State_____ Zip_____

NEW AMERCOAT TANK LINING BROCHURE

Over 400 solvents and liquid chemicals in a chart that helps to select the tank lining needed to prevent chemical attack or corrosion of the steel, contamination of products carried, and difficulties in tank cleaning and clean-product changeover.

Amercoat® CORPORATION

BREA, CALIFORNIA 92621