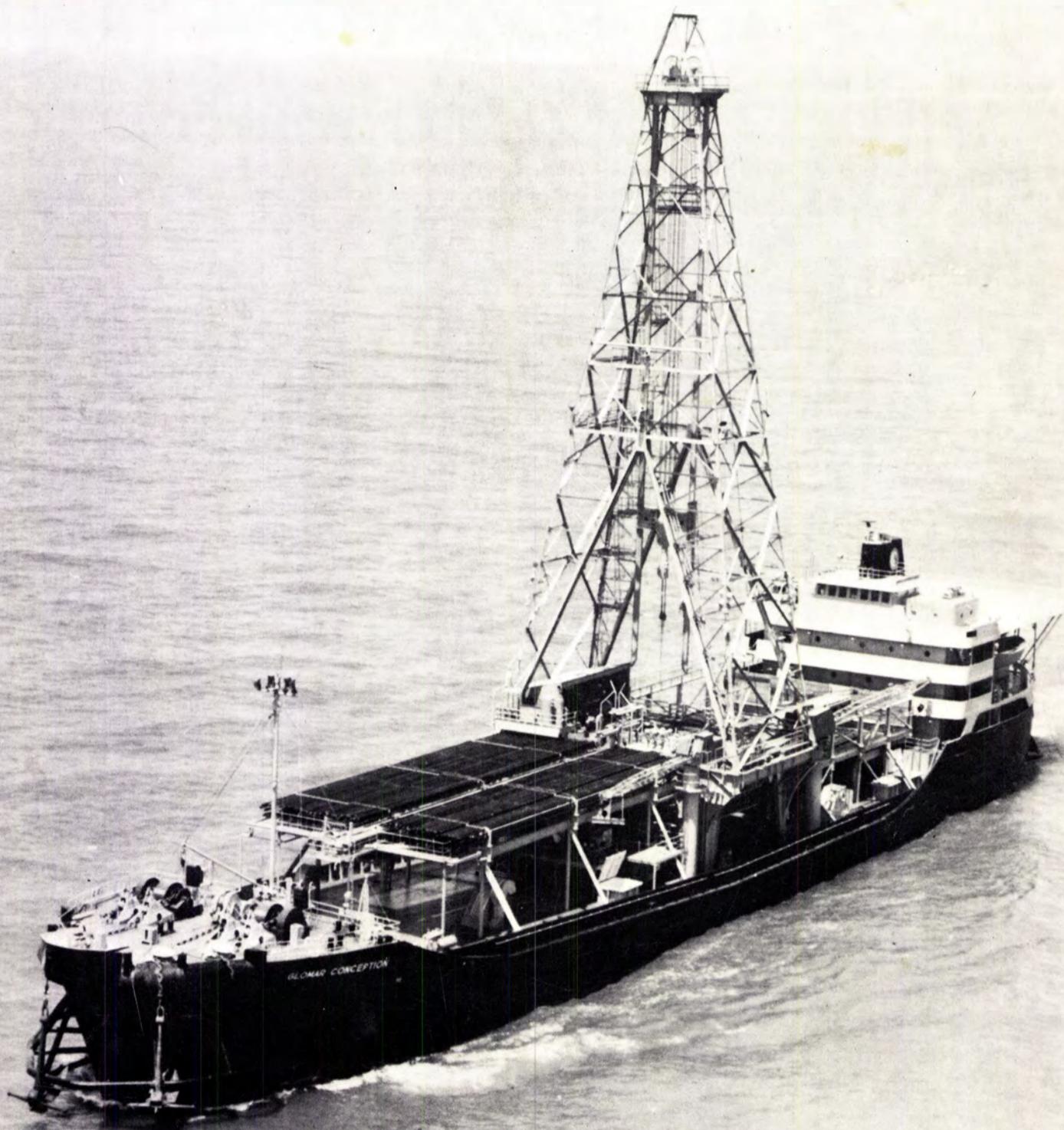


MARITIME REPORTER AND ENGINEERING NEWS



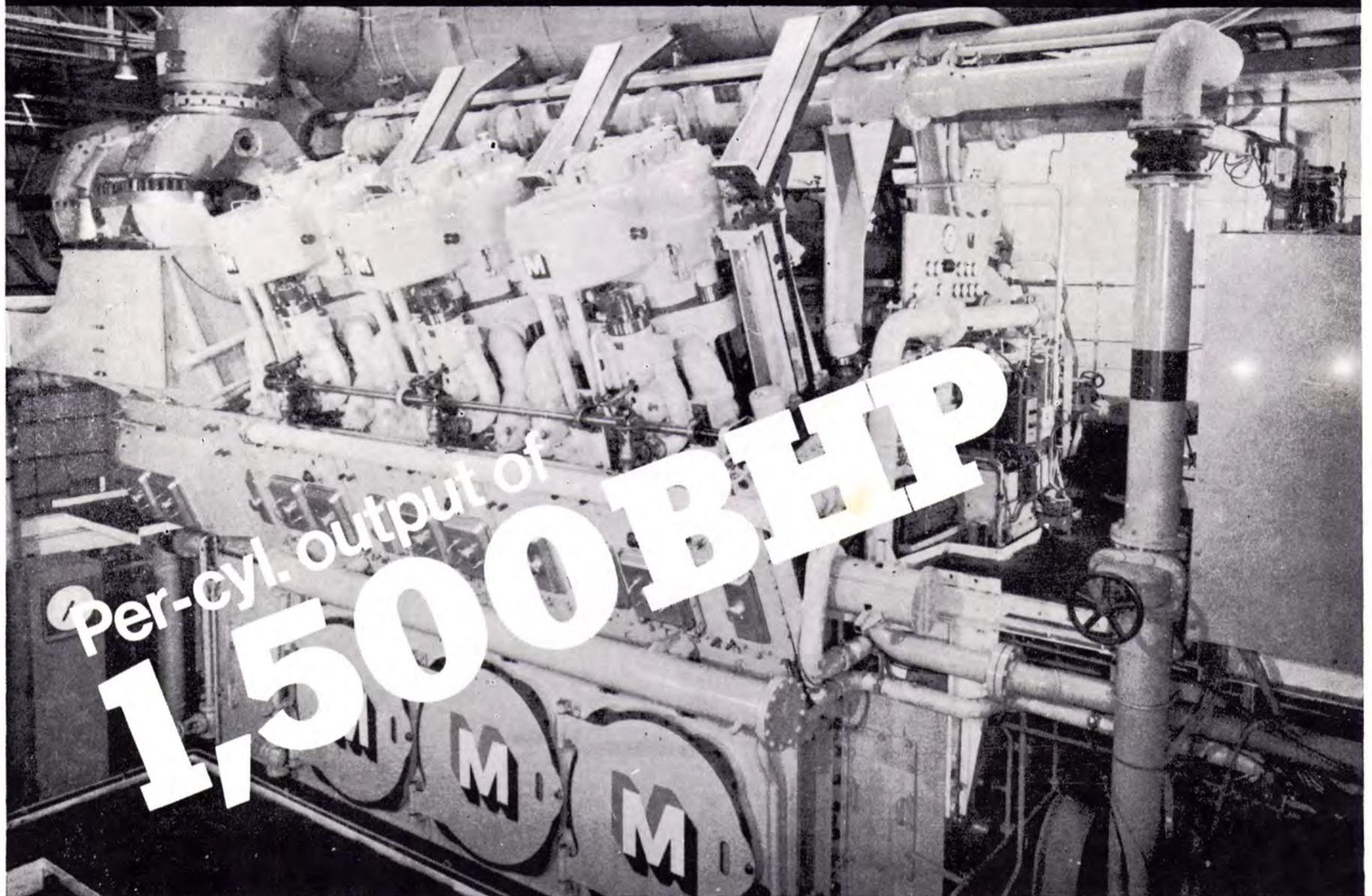
Global's Glomar Conception

**Global Marine And Mitsui O.S.K. Lines
Enter Joint Venture Based In Los Angeles**

(SEE PAGE 8)

JULY 15, 1974

New High-powered 4-cycle MITSUBISHI V60M Medium Speed Diesel Engine



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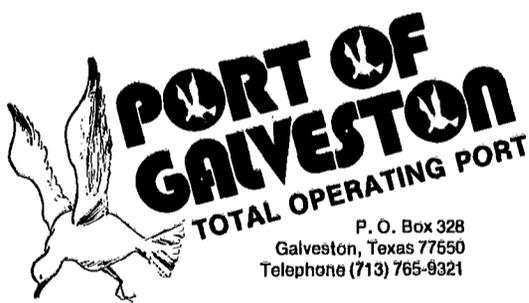
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OSE's Order Backlog Up To \$3.2 Million With New Financing

Ocean Science and Engineering, Inc. (OSE), Long Beach, Calif., has reported that it has concluded the placement with a group of private investors of approximately 2.3-million common shares at 25 cents per common share, providing the company with up to \$600,000 in equity capital according to an announcement by Edward R. Lawlor, president.

Mr. Lawlor also noted that OSE's order backlog has increased to \$3.2 million, including a sharp increase in ship repair business, an order from a group of San Francisco Bay Area oil companies for OSE Air Deliverable Anti-Pollution Transfer and Storage System (ADAPTS), a number of ocean engineering and oceanographic development contracts, and an initial order for the construction of equipment modules for the petroleum production industry.

Brown & Root Orders Pipelaying Barge From Rotterdam Dockyard

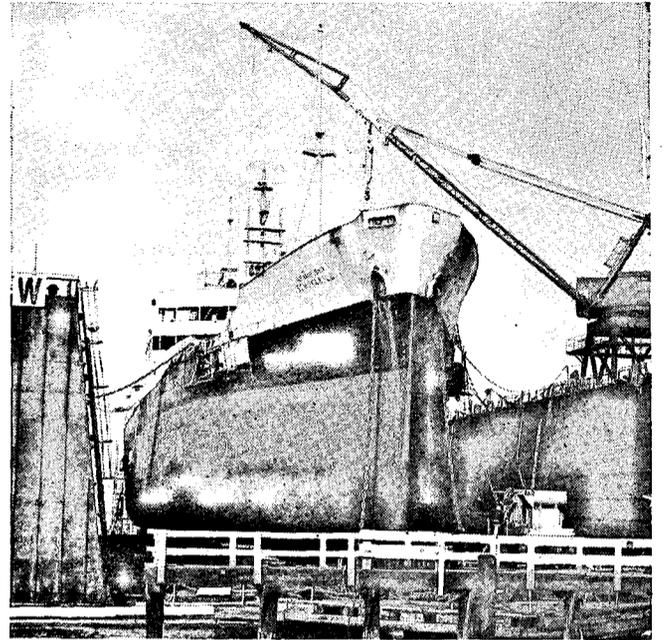
Brown & Root, Inc. of Houston, Texas, subsidiary of Halliburton Company, has announced in Rotterdam the signing of a contract with Rotterdam Dockyard Company for a third generation pipe-lay barge.

The barge-shaped vessel, with center lay configuration, will be 650 feet by 140 feet by 50 feet. It will be capable of laying underwater pipe up to 60 inches in diameter, and will be capable of laying pipe in water depths of 1,000 feet.

The barge is designed for work in the northern waters of the North Sea under severe wind and wave conditions.

Delivery is scheduled during the first half of 1976.

Rotterdam Dockyard Company is a subsidiary of Rhine-Schelde-Verolme.



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MARITIME REPORTER AND ENGINEERING NEWS

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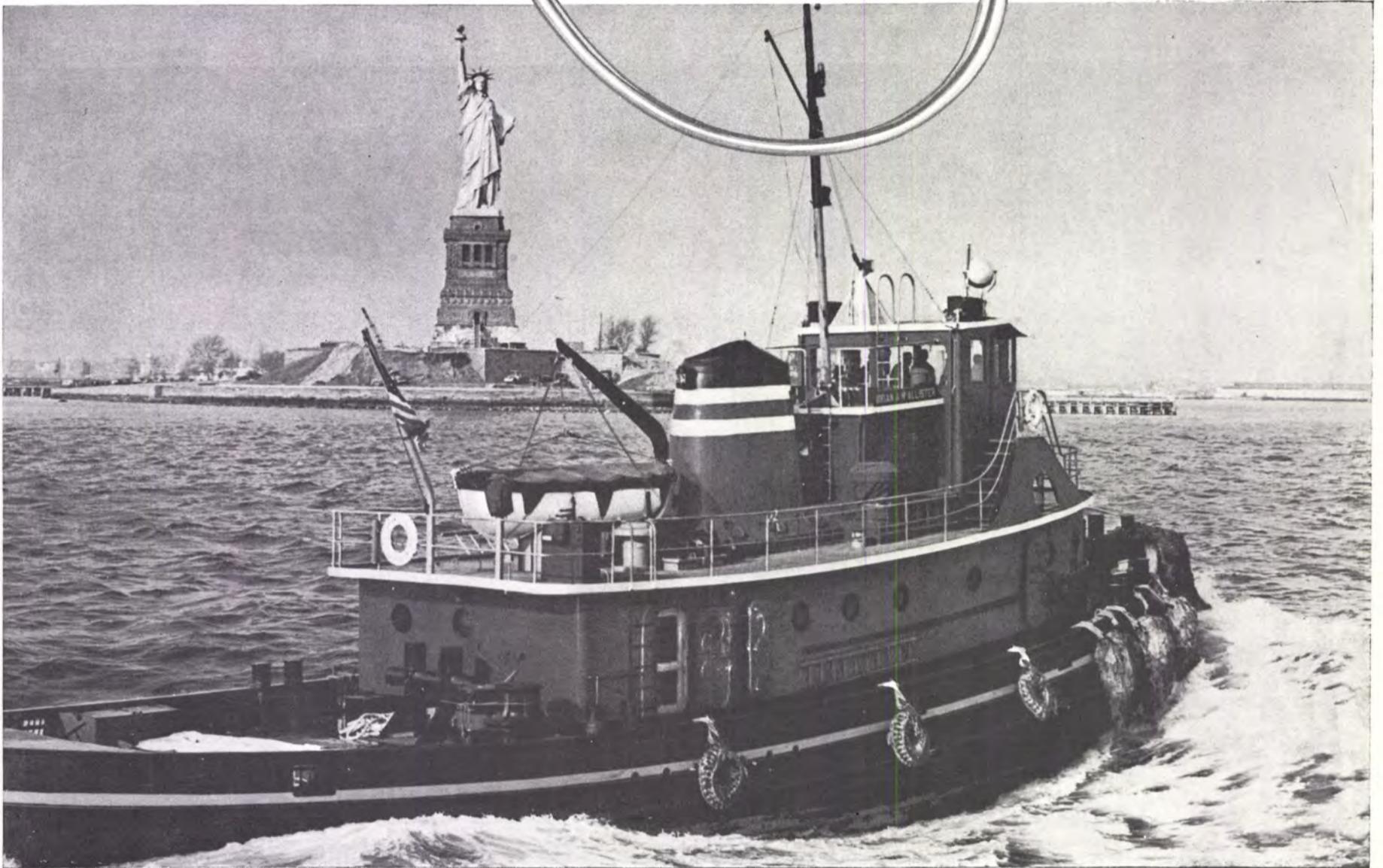
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Turbo Power & Marine Additive Improves Gas Turbine Durability

Turbo Power & Marine Systems, Inc., Farmington, Conn., a subsidiary of United Aircraft Corp., has introduced a new fuel additive that significantly improves the durability of industrial and marine gas turbines.

Called TURBOGARD™, the fuel additive neutralizes the effects of sodium sulfate which

normally forms during the combustion process and deteriorates turbine blades and vanes.

"It should significantly reduce the maintenance costs to electric utilities and marine operators using combustion turbines of any manufacturer," said William J. Closs, president of TPM®. He said that the results of 1,800 hours of testing TURBOGARD aboard a Seatrain Lines' containership operating between the United States and Europe showed

practically no evidence of hot section distress due to sulfidation.

TURBOGARD is economical and simple to use. The estimated cost at the minimum injection rate will be about a fraction of a cent per gallon of fuel used, Mr. Closs said. Manufactured in concentrated form and supplied in 55-gallon drums, the additive is mixed with the fuel at 285 parts per million for most operating conditions. It mixes readily without changing the fuel character-

istics. TURBOGARD requires no special toxic liquid safety precautions for handling and storing.

Turbo Power & Marine Systems secured the patent rights for TURBOGARD after several years of research that demonstrated the effectiveness of the additive. The research was conducted by United Aircraft Research Laboratories and involved experiments and tests in the East Hartford, Conn. facilities. TPM verified the conclusions by conducting field tests with combustion turbines used for electric power generation and marine propulsion.

TURBOGARD works by neutralizing the sodium sulfate which normally forms at the high combustion temperatures existing within combustion turbines. The sodium comes from the turbine fuels and from salt in the atmosphere. The sulfur is found in varying amounts in all gas turbine fuels. Without TURBOGARD, the sodium sulfate adheres to turbine parts and can chemically react with the turbine parts to cause rapid sulfidation and deterioration.

The additive is part of a complete package of products and systems TPM is offering to protect its gas turbines from harsh operating environments. The other items include inlet air filters, salt monitoring units, and turbine water wash systems.

IMODCO Receives \$3.3-Million Order From Italian Company

IMODCO, Inc., Los Angeles, Calif., has announced the receipt of a \$3.3-million order to supply a Single Point Mooring (SPM) terminal system for installation offshore from Nigeria's Brass River area.

Chairman Robert C. Houser said confirmation of the contract award was received from AGIP, the Italian Government-owned oil company. The terminal will be delivered to AGIP's subsidiary, Nigeria AGIP Oil Company (NAOC), and is scheduled to be installed in approximately 12 months.

IMODCO is the pioneer developer of offshore Single Point Mooring terminal systems, with the first such system delivered to the Swedish Navy in 1958. Since then, IMODCO has designed and furnished many additional SPM systems now in use off the shores of 23 foreign countries.

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\$15 Million To Convert Albany To Drill Ship Ups Avondale Backlog To About \$500 Million

For six years now Ogden Marine has enjoyed steady service from what, at first glance, appears to be a rather commonplace 500-foot-long general cargo ship. Many vessels similar in appearance sail the oceans with a great variety of cargoes and materials. Not likely to be confused with some of the giant 400,000-ton vessels around today, the S/S Albany nonetheless boasts a history of some distinction and, more importantly, looks ahead to a strategic and valuable future.

Recently arrived at Ogden's Avondale Shipyards, the Albany will undergo a 12-month \$15-million metamorphosis and emerge in 1975 as the Mission Viking, a fully renovated, ready to go, deepwater drilling ship, which will contribute its services to America's search for new energy sources.

Ogden Transportation, through synergistic use of its resources, was able to find an excellent solution to the pressing needs of New Orleans-based Martin Industries for a deepwater drilling ship. Ogden Marine's C-4 Albany was scheduled for phasing-out of Ogden Marine's fleet of over one-million deadweight tons. The larger, more efficient bulk carriers joining the Ogden fleet are better suited to today's ocean transport needs. In turn, Ogden's Avondale Shipyards was ready to undertake the conversion work.

All three parties were pleased with the arrangements. Ogden Marine continued its efforts to upgrade and modernize its fleet of ships, which will have grown to a capacity in excess of two-million deadweight tons by 1977. Ogden's Avondale Shipyards picked up a \$15-million contract, pushing its current order backlog to around \$500 million, and Martin Industries will receive a valuable deepwater drilling capability on a much earlier delivery basis than would be possible with the construction of a new vessel.

Avondale will be giving the Albany a major face lift—for the conversion plan is extensive and thorough. All hatch covers will be removed and the ship will receive an all-new flush deck. To facilitate drilling, a moon-type well will be cut in the center of the ship. Two 100-ton cranes will

be installed, and the chain lockers will be revamped to carry eight 3,500-foot-long chains, creating an eight-point mooring system that will allow drilling at depths of up to 600 feet.

In addition, all living quarters will be revamped and modern communications systems, power equipment, and specialty items necessary for the ship's new life style will be added. Special diving hatches and underwater camera systems will be installed to create a modern and efficient vessel. The

energy needs of the '70s will have served as the catalyst to a fascinating bit of marine metamorphosis.

Historically, the Albany has enjoyed a multidimensional, seafaring existence, originally having been built by the United States Government as a troop transport during World War II. War ended shortly after the Albany entered service, and it was rescued from post World War II oblivion by the onset of the Korean War. However, a few short years later

the Albany found itself laid-up idle in the Navy Reserve fleet, seeing very little service for a decade. Then in 1968, Ogden Marine acquired the Albany from the Navy. The purchase was conditional on it being converted to a general cargo ship, and that it be made available exclusively to the Navy. In 1973, concurrent with the end of the United States involvement in Vietnam, the Navy released the ship for general cargo purposes, and its exciting new career will soon begin.

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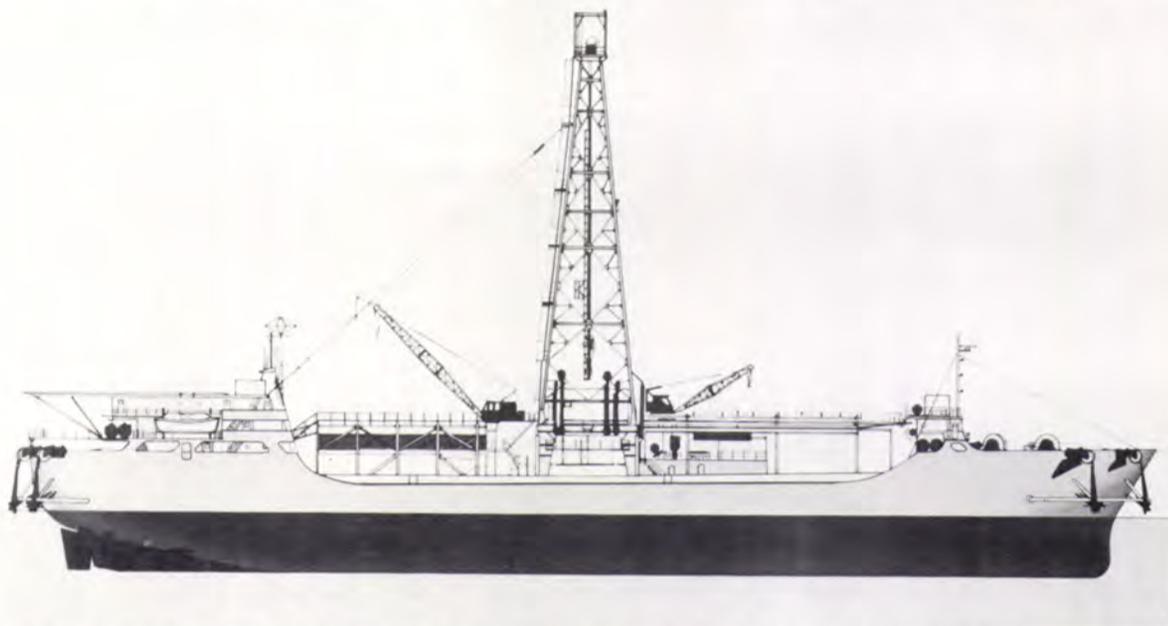
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Global Marine And Mitsui O.S.K. Lines Enter Joint Venture Based In Los Angeles — A \$40-Million Drilling Ship Is First Project



AMERICAN/JAPANESE JOINT VENTURE: This rendering shows the 450-foot drilling ship that will cost \$40 million and will be designed by Global Marine. In addition to twin-screw propulsion, the ship will be equipped with five thrusters for dynamic position keeping for deepwater operations.

Global Marine Inc. of Los Angeles, Calif., and Mitsui O.S.K. Lines, Ltd. of Tokyo, have signed a letter of intent to enter into a joint venture, based in Los Angeles, with the first project to be a \$40-million Global Marine-designed 450-foot drilling ship.

The joint venture, to be known as Global Marine Mitsui O.S.K., Ltd. (GMOL), was announced by **A.J. Field**, president, Global Marine, and **Yoshio Shinoda**, president, Mitsui O.S.K., Ltd.

"The general objective of this joint venture is to establish and promote a sound company which can benefit from the combined expertise and resources of the two parent organizations in providing equipment and services needed by the offshore petroleum industry," Mr. Field said. GMOL's first objective is to build a drilling ship of the Glomar 40 class.

In addition to twin-screw propulsion, the ship will be equipped with five thrusters for dynamic position keeping for deepwater operations, as well as a conventional mooring system for operating in more shallow waters. It will have a maximum loaded displacement of 14,500 long tons, a variable load of 7,200 long tons and will be equipped with the industry's most advanced drilling tools, Mr. Field said.



ON THE COVER: The Glomar Conception is part of the world's largest and most versatile fleet of drilling ships operated by Global Marine Inc.



A.J. Field

Yoshio Shinoda

He added, "Years of naval architectural analysis, hydrodynamics, computer simulations, model-testing and operational experience have resulted in this very latest design of a drilling ship."

As to long-range plans for GMOL, Mr. Field said, "We fully expect to announce further ventures as we progress in our activities, but it is too early to be more specific until we become operational."

Global Marine Inc. is a worldwide offshore oil and gas drilling contractor with offshore exploration interests in various parts of the world.

Global Marine is a unique combination of sophisticated equipment, experienced personnel and proven techniques. Pioneers in offshore drilling technology from floating



MITSUI SUPERTANKER: The Takakurasan Maru is just one of the many ships owned and operated by Mitsui O.S.K. Lines, Ltd.

vessels, many concepts developed by its engineers and naval architects have become industry standards and new ones continue to be developed.

Combining extensive seagoing knowledge with deep-drilling expertise has resulted in the world's largest and most versatile fleet of drilling ships. Global Marine currently operates 12 ships in various areas of the world. An active construction program calls for delivery of a new ship in June, with additional deliveries in 1975, 1976, and 1977.

Global Marine Inc. common shares are traded on the New York Stock Exchange.

Mitsui O.S.K. Lines, Ltd. is a major steamship company in Japan formed in 1964 as the result of a merger between Mitsui Line Ltd. and O.S.K. Line Ltd., the latter organized in 1884. One of the largest steamship companies in the world, Mitsui O.S.K. Lines has a worldwide network of liner services with various types of specialized ships, among them oil tankers, including the VLCC, LPG carrier, ore/oil carrier, bulk/oil carrier and bulk carrier, scrap-metal carrier and vehicle carrier.

Mitsui O.S.K. Lines currently operates 291 oceangoing vessels, amounting to 10 million deadweight tons, including its own fleet of 152 vessels with 6.6 million deadweight tons.

Mitsui O.S.K. Lines has its registered head office in Osaka, Japan, and operating headquarters in Tokyo. Mitsui O.S.K. Lines' shares are going to be listed on European stock exchanges (Frankfurt and Brussels) from September 1974 onward.

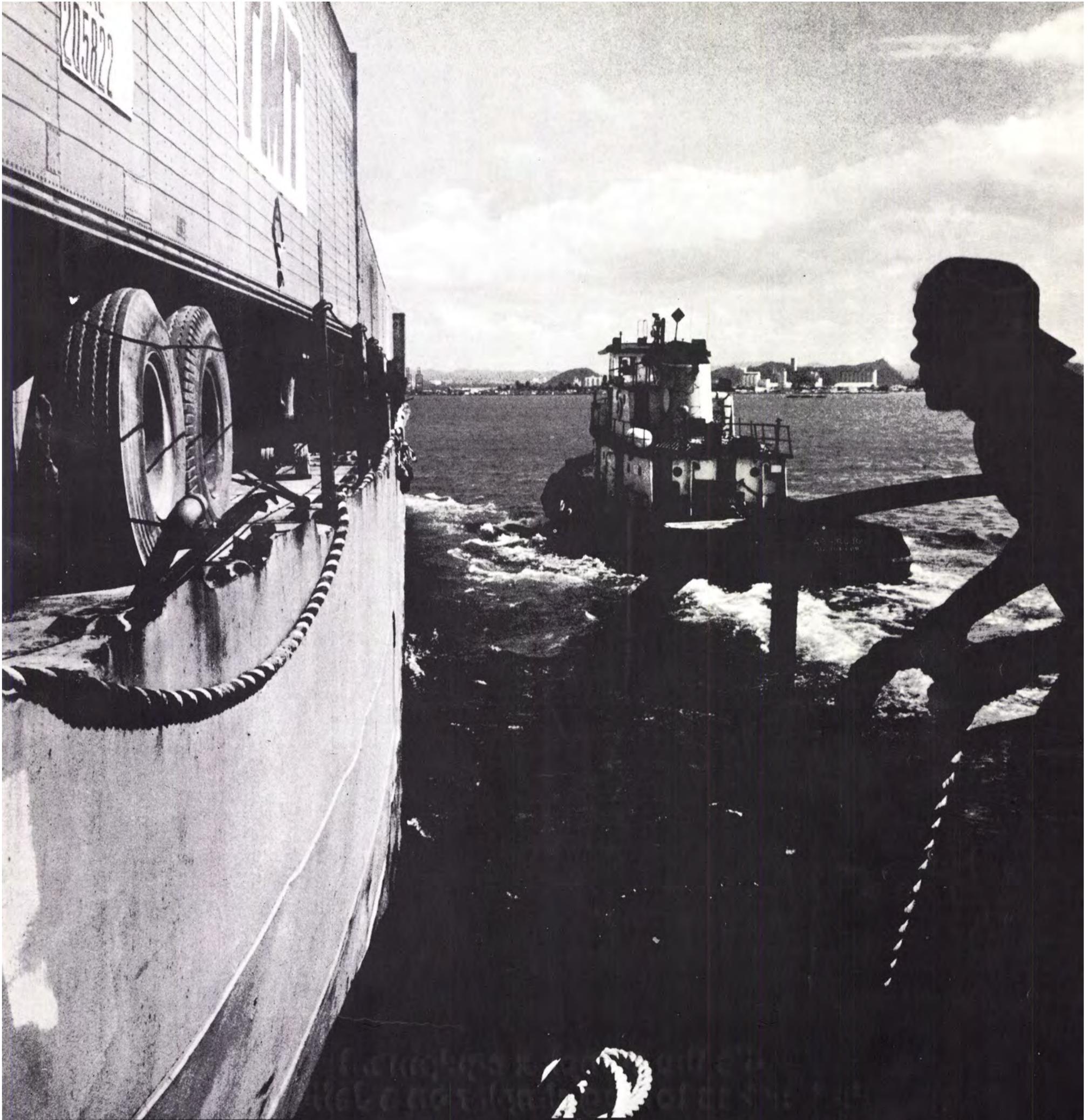
Graduating from Tokyo Commercial College in 1935, **Yoshio Shinoda** joined O.S.K. Line Ltd. to launch a career as a steamship businessman in the overseas liner service section. His major role in the corporation has mainly been in general administration during his 39-year career, but he has served many overseas appointments with O.S.K. Line, including Santos, Singapore, Hong Kong, Buenos Aires and London.

With the formation of Mitsui O.S.K. Lines, Ltd. in 1964, he became director. In 1967, he was elected managing director, senior vice president in 1972, and was named president in 1973.

One of the founders of Global Marine Inc., **A.J. Field** is a graduate of California Institute of Technology and was awarded his master's degree in civil engineering by Stanford University.

In 1947, he joined Union Oil Company of California as an engineer in the production department. A series of petroleum engineering and supervisory positions led to his appointment in 1953 as principal petroleum engineer in the Offshore Drilling Group, formed to operate on the California coast as a joint venture of four major oil companies.

With the founding of Global Marine Inc. in 1959, he was elected vice president and general manager. In 1961, he was named executive vice president and president in 1966.

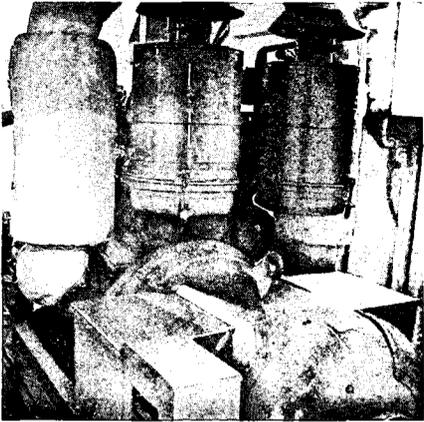


Numero Uno in San Juan

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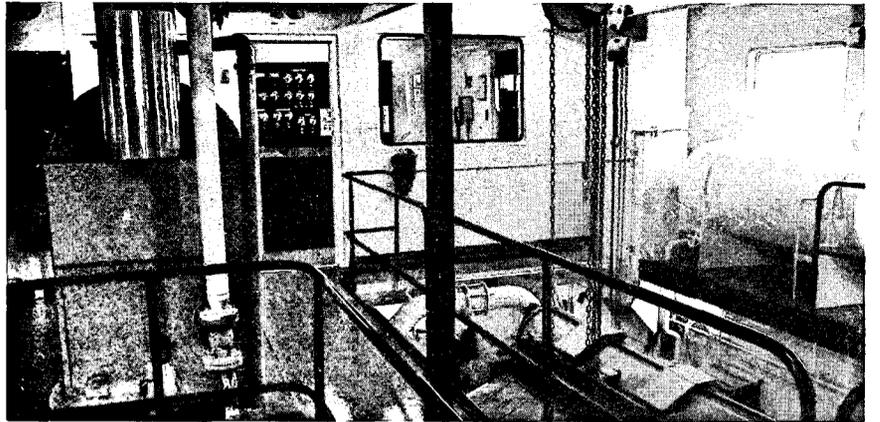
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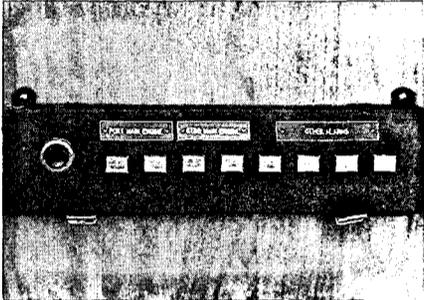
generator



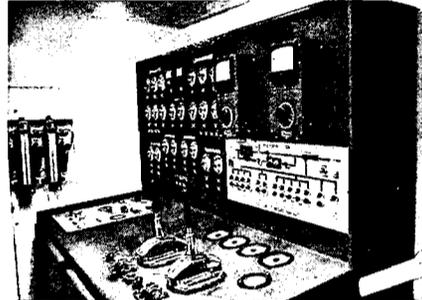
cool-box in control room



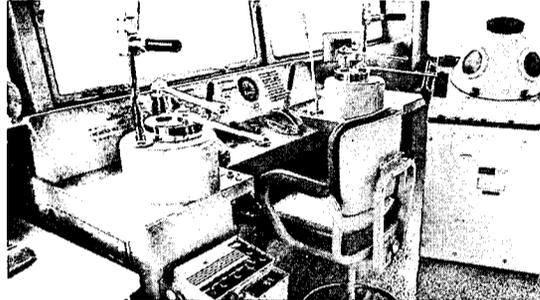
5,600 horse power



computerized warning system



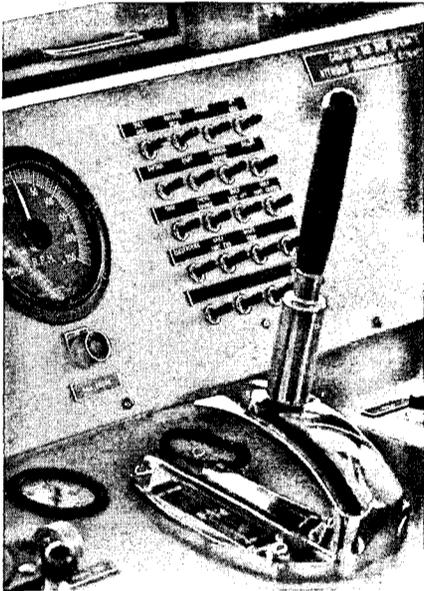
auxiliary controls



step-saving control panel



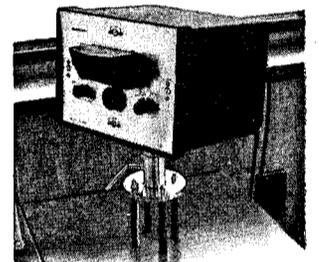
communications system



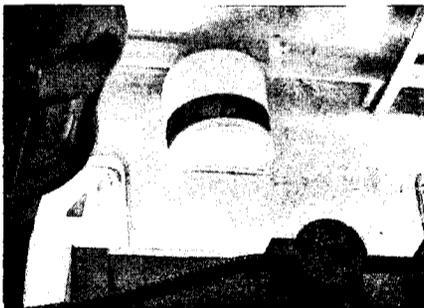
main control panel



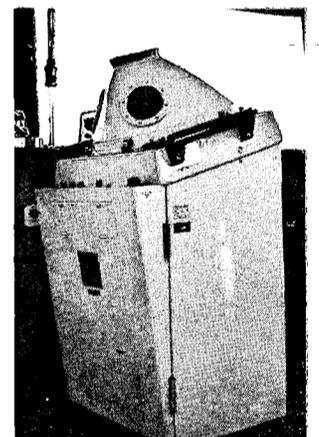
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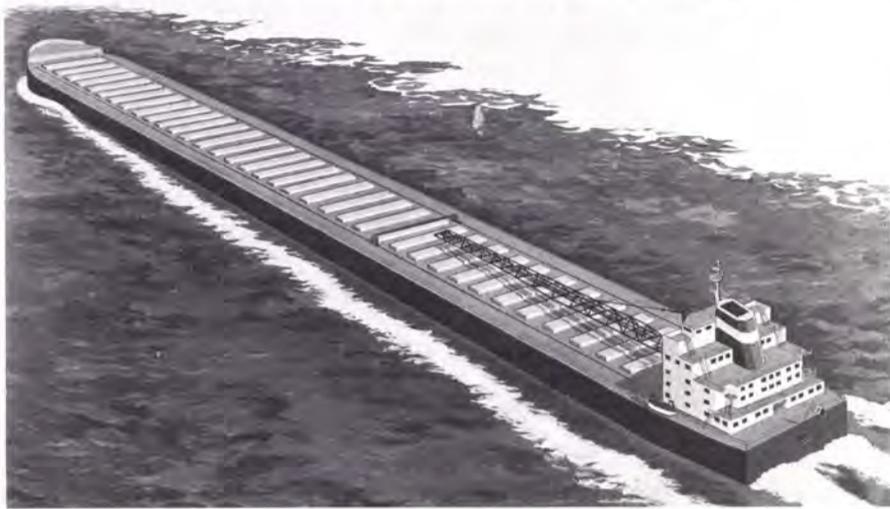
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Four Colt-Pielstick Engines To Power 1,000-Foot Great Lakes Ore Carriers



An artist's conception of the Pickands Mather bulk carriers which will have the largest cargo capacities on the Great Lakes.

Four Colt-Pielstick PC-2 marine diesel engines with associated gearing and performance monitoring systems have been ordered from Colt-Industries' Fairbanks Morse Engine Division in Beloit, Wis., by The American Ship Building Company of Lorain, Ohio. Announcement of the \$4.5-million order was made by E.L. Fay, vice president of marketing and sales, for the Colt Division. The 16-cylinder diesel engines will provide propulsion power for two large twin-screw self-unloading bulk carriers which Pickands Mather & Co.'s Interlake Steamship Company will operate on the Great Lakes.

Each of the vessels will be 1,000 feet long with a beam of 105 feet—the maximum size allowable for Great Lakes operation through the Sault Locks. Two diesel engines with ratings of 8,000 bhp at 520 rpm will power each ship. Each engine will turn a CP propeller through a Falk reduction gear specified and supplied by Colt. The ships will each have a capacity of 59,000 long tons of taconite pellets at maximum summer draft or 52,000 short tons of coal—the largest cargo capacities on the Great Lakes.

The two vessels will be built by American Ship Building at their Lorain yard for Pickands Mather & Co.

Pickands Mather, a Cleveland-based firm, besides operating The Interlake Steamship Company, also manages and operates iron ore mines in northern Minnesota, coal mines in Kentucky and West Virginia, and is noted as a major supplier of raw materials to the steel industry. Pickands Mather is a subsidiary of Moore McCormack Resources, Inc. of Stamford, Conn.

Moore McCormack Resources, Inc., besides being the parent firm to Pickands Mather, also operates Moore-McCormack Lines, which offers ocean shipping services from U.S. East Coast ports to the east coast of South America and to South and East Africa. Other subsidiaries of Moore McCormack Resources include Moore-McCormack Bulk Transport, Inc., which will operate oil tankers currently under construction, and Moore McCormack Energy, Inc., which develops participation in projects requiring transportation and related logistics of energy-oriented resources.

Engines for the first vessel will be shipped in May 1975, with the other two scheduled for March of 1976. The ships will be delivered one year from these dates, in 1976 and 1977, respectively.

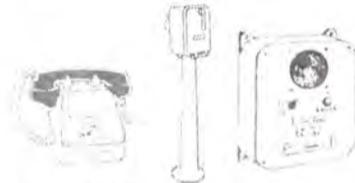
The 16-cylinder Colt-Pielstick engines are of V-configuration and will propel the ships, fully loaded, at about 16 mph. The engines are designed to burn heavy fuel up to 3,500 seconds viscosity at 100°F and have engine-driven jacket water, seawater and lube oil pumps. Colt-Pielstick PC-2 diesels are available in from 12 to 18 cylinders, have a 15.75-inch bore and 18.11-inch stroke, (400 mm by 460 mm). The engine is built by licensees worldwide and is the most widely used, high-horsepower, medium-speed marine diesel—furnishing power for more than 700 ships. The engines will be manufactured in Colt's Fairbanks Morse Engine Division plant in Beloit—one of the largest and most modern large engine facilities in the U.S. Marine diesels are tested on a 30,000-bhp dynamometer—the highest rating in the U.S.

R.D. Jacobs, manager of ma-

rine sales, pointed out that the Colt Division will also furnish the engine monitoring consoles, bridge and engine control room, to meet USCG NVIC 1-69 and ABS Sec. 41 (ACC requirements) for a one-man engine room watch. "The centralized engine room and bridge controls with the performance monitoring system will give reliable operation of the machinery and ship by reducing the number and complexity of operations performed by the engineer. The system provides an effective one-man watch capability during all operating conditions," he stated. Two control levers are on each console—one for each engine/gear/propeller system—to interface with the Colt-supplied machinery. Control lever positioning determines the engine speed and load as well as the pitch of the propeller for that engine. Three modes of control are possible through a control mode selector.

The first allows separate control of engine speed and propeller pitch by the engineer. The second gives combined engine room control where the engine speed and propeller pitch follow a predetermined program, and the third mode is the same combined program from the bridge.

Interlake now has 12 bulk freighters with a combined capacity of 235,600 tons of iron ore per trip, making it one of the largest U.S. fleets on the Lakes. The two new ships will add 118,000 tons to the combined capacity. They will have multiple one-piece hatches for loading and a system of belts running beneath the cargo hold for unloading. These belts will transfer cargo to another belt on a 250-foot boom that can be swung out from either side of the ship for unloading. Cargo discharge will be 10,000 long tons of pellets or 6,000 short tons of coal per hour.



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\$600-Million Loan From 18 Banks For Sohio Alaska Pipeline

A \$600-million revolving credit and term loan agreement has been entered into by Sohio Pipe Line Co., a wholly owned subsidiary of The Standard Oil Co. (Ohio), with The Chase Manhattan Bank, N.A., as agent, and 17 other U.S. banks. The funds will be used for financing, in part, Sohio's share of construction costs of the Trans-Alaska Pipeline System.

The two-part agreement makes \$200 million available immediately and the \$400-million balance available during the three-year period from April 1, 1975 through April 1, 1978. The revolving credit is con-

vertible into a term loan at April 1, 1978, or upon completion of TAPS, if earlier.

Sohio and bank officials say the financing represents one of the largest domestic oil transactions of this type ever entered into by commercial banks in the U.S.

Construction on the road necessary to laying the pipe began at the end of April. Completion of the 789-mile line is scheduled for mid-1977.

Banks participating in the agreement in addition to The Chase Manhattan Bank are First National City Bank, Bank of America National Trust and Savings Association, Chemical Bank, Manufacturers Hanover Trust Company, Morgan Guaranty Trust Company of New York, Bankers Trust Company, Security Pacific National Bank, Con-

tinental Illinois National Bank and Trust Company of Chicago, The First National Bank of Chicago, Irving Trust Company, Marine Midland Bank-New York, Seattle-First National Bank, and five Cleveland banks—The Cleveland Trust Company, National City Bank, Central National Bank of Cleveland, Society National Bank of Cleveland, and Union Commerce Bank.

Submerged Oil Spill Fence Can Surface When Needed To Contain Oil At Tanker Berth

Fast and effective containment of oil spills is now possible through a new "submersible" oil-fence technique. Exclusively sold in the U.S. by Lord Corporation, Erie, Pa., the fence was developed and built by Bridgestone Tire Co., Ltd., Japan. Lord will market the fence through Lord Kinematics marine systems sales offices located in major coastal areas. Lord Kinematics also markets Bridgestone fenders and marine hose.

The "floating-submerging" concept enables users to store the fence on the ocean bottom when not in use, then float it into position as needed around a tanker berth. The new approach to surface oil confinement involves a flexible rubber skirt supported by two air-filled hoses. The skirt extends above and below the surface, with rigidity supplied by fiberglass (FRP) at 10-inch intervals.

The fence is anchored to the bottom at fixed points of a parameter around a berthing facility. When not needed, the fence may be sunk in 10 to 30 minutes by bleeding off the air. Refloating takes 18 to 30 minutes, depending on depth of water and air-compressor output.

At one installation on Okinawa, Gulf Asian Terminal, Inc. employs a fence 4,350 feet (1,318 meters) in length. From an ocean floor depth of 116 feet (35 meters) they surface the entire length in 30 minutes.

Final design of the fence was accomplished after months of on-site testing of prototypes under various extremes of weather and sea conditions. Containing the surface oil without loss either over or under the fence during severe weather was a basic requirement. In addition, the fence design had to be extremely durable, easy to handle, and quickly raised or lowered. During testing, electronic sensors were used to monitor the external forces acting on the fence. Wave height, wind, current velocity and flexibility of the skirt were all factors in the ability of the fence to ride the waves smoothly without creating escape points for the oil. The flexibility of the skirt was gained by a 10 percent increase in skirt length beyond the hose length.

Lord Kinematics is an operating unit of Lord Corporation, a technology-based firm with headquarters at 1635 West 12th Street, Erie, Pa. 16512.

In addition to marketing offices and distributors in over 40 countries around the world, Lord Corporation has manufacturing facilities in the United Kingdom, Mexico, Japan and Brazil.

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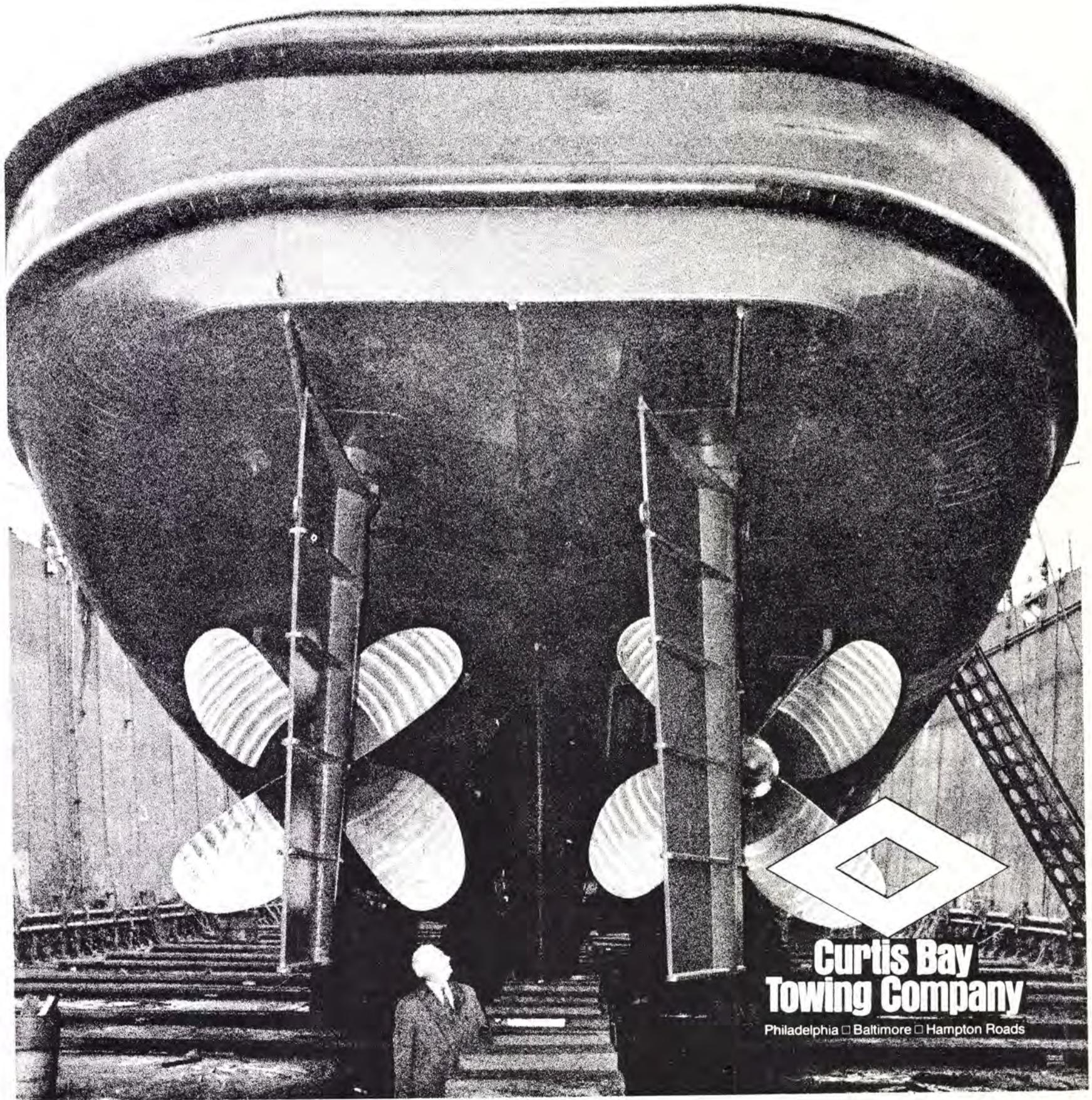
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Photo: TUG—CAPE HENLOPEN, 3300 horsepower—
built in 1973. One of eight tugs added to the Curtis Bay fleet during the past six years.



Todd Backlog Largest In Peacetime History

J.T. Gilbride, president of Todd Shipyards Corporation, was optimistic in addressing stockholders at the recent annual meeting held at One Chase Manhattan Plaza in New York City. He stated that the company now has the largest backlog in its peacetime history, and that it expects to resume payment of a moderate dividend

before the end of the fiscal year.

Mr. Gilbride pointed out that a considerable part of the backlog, now approaching the half-billion-dollar mark, consisted of contracts for the construction of 89,700-dwt tankers. He added that the dividend action was possible despite the uncertainty of the economy, and the necessary millions that must be spent to enlarge company facilities to build the new tankers.

Mr. Gilbride expressed his optimism about the prospects for future orders, basing his attitude on two specific favorable omens for American shipbuilding: (1) the pending legislation of the Energy Transportation Security Act of 1974, which would reserve a specified percentage of United States oil imports for transport by U.S.-flag tankers, and (2) the prospect for continuation of the requirement by Congress that 30

percent of Naval ship repair work be allocated to private rather than Naval shipyards.

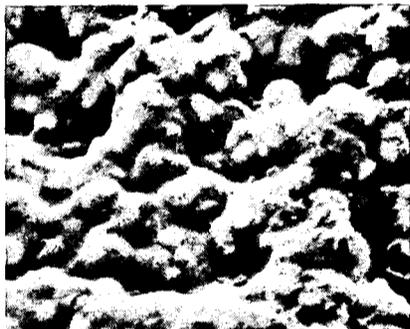


John T. Gilbride

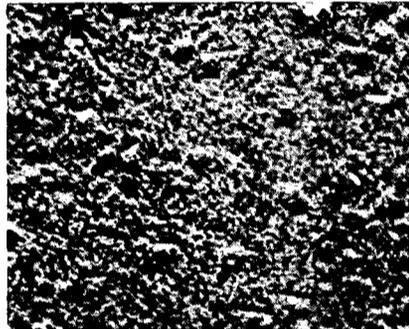
The Honorable Robert C. Hill, Ambassador to Argentina, rejoined the board after an absence of one year. Because of the possible conflict of interest, the Ambassador withdrew from the election last year while serving as Assistant Secretary of Defense. J.T. Gilbride, John D. Reilly Jr., and William B. Rand were re-elected to the board.

We have magnified your antifouling problem 8000 times

In order to reduce it



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*Hydron® is a registered trade mark of National Patent Development Corporation.

Hydron®* Dynamic reduces friction and prolongs the anti-fouling effect.

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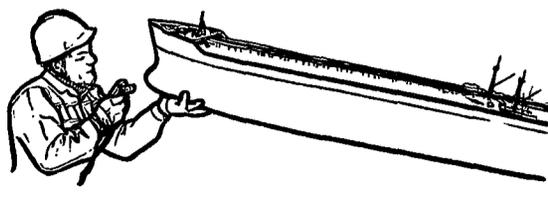
There are so many aspects to the Dynamic system:

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Barber Steamship Names Executives

Edward J. Barber, president, Barber Steamship Lines, Inc., 17 Battery Place, New York, N.Y. 10004, has announced the following organizational changes:

Edward J. Barber from president to chairman and chief executive officer; William J. Shields from executive vice president to president, and Carl F. Blom from vice president to executive vice president.

GE Heavy Duty Gas Turbines Ordered For Two More BHP Ships

Broken Hill Proprietary Company, Ltd. (BHP), owner-operator of the only heavy duty gas turbine-powered merchant vessels now in service outside the Soviet Union, has committed two additional ships to heavy duty gas turbine propulsion.

The newly committed vessels, twin 43,700-dwt bulk carriers, will be powered by General Electric 11,000-hp marine gas turbines manufactured in Schenectady, N.Y., by the Gas Turbine Products Division. GE-designed 20,000-hp gas turbines power BHP's Iron Monarch and Iron Duke, the free world's first heavy duty gas turbine-powered ships, with service dates of October 1973 and March 1974, respectively.

A.J. Travaly, manager-marine sales for the Gas Turbine Products Division, looks upon the repeat order from BHP as a "highly significant milestone" in the division's short marine history.

"Three years ago," said Mr. Travaly, "BHP broke with tradition opting for heavy duty gas turbine propulsion and establishing us in the marine field. Critics looked upon the company's choice of heavy duty gas turbines as 'chancy,' to say the least.

"The detractors are quiet now," he continued. "The success of the Iron Monarch and Iron Duke propulsion applications has made believers of the skeptics and, most importantly, confirmed all of BHP's expectations. The company's repeat order is proof positive of that."

The new 670-foot-long bulk carriers will be used to transport coal and iron ore to BHP's steel mills in Newcastle, Port Kembla, and Whyalla, on the Australian coast. The vessels, scheduled for delivery in July 1976 and May 1977, will be built by Whyalla Ship-

building & Engineering Works, a division of BHP that was also responsible for the Iron Monarch and Iron Duke.

The newly ordered gas turbine units, valued at approximately \$4 million, are scheduled for shipment in March and September 1975. Burning Gippsland waxy residual, the two-shaft, regenerative cycle units will develop 11,000 shp with a fuel-consump-

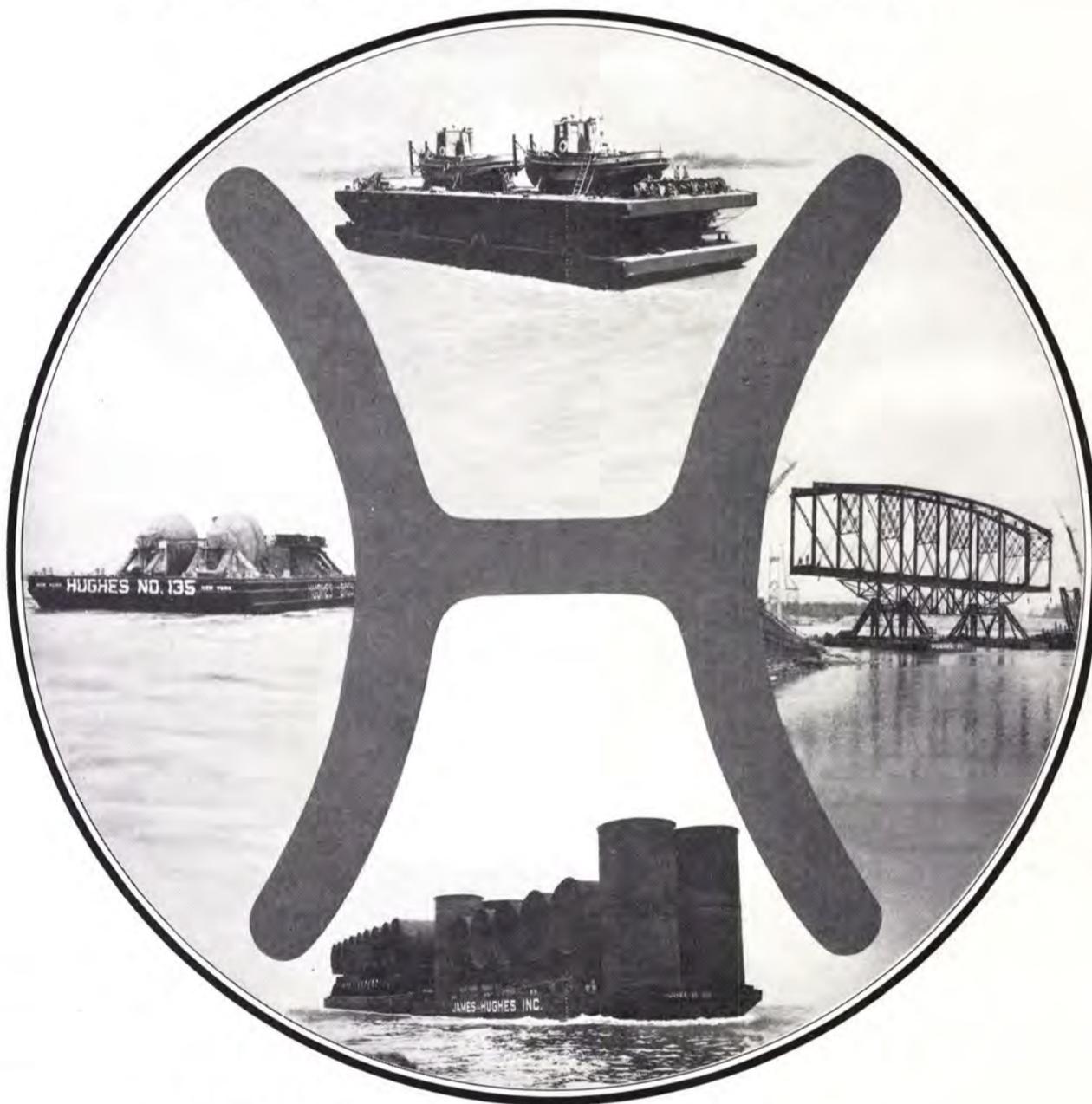
tion rate of approximately .435 lb/hp-hr.

In the BHP bulk carriers, gas turbine power will be transmitted to a single controllable pitch propeller through a two-stage epicycle reduction gear, giving the vessels a 15-knot-plus service speed. The reduction gear will also drive an alternator to provide ship service power under way.

According to Mr. Travaly, the marriage of gas turbine and epicycle reduction gear means a compact engine room, with resultant gains in cargo-carrying capacity and relatively simple installation. He points out that the engine room will be classified by Lloyd's for unmanned operation—ship's speed and direction will be controlled exclusively from the bridge.

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**Robert E. O'Brien
Elected President
Mooremack Lines**

Robert E. O'Brien has been elected president and chief operating officer of Moore-McCormack Lines, Incorporated, the ocean shipping subsidiary of Moore McCormack Resources, Inc. (listed NYSE, Pacific) it was announced by James R. Barker, chairman of both companies.

Mr. O'Brien is a director of both companies and is also a vice president and member of the finance and management committee of Moore McCormack Resources, Inc., the group which determines basic corporate policies.

Mr. Barker commented that as executive vice president-traffic and operations of Moore-McCormack Lines, a position he had held since 1971, Mr. O'Brien

"played a major role in stimulating the dramatic growth of Lines' volume." Last year, revenues from the cargoliner operations between the U.S. Atlantic Coast, the East Coast of South America and South and East Africa amounted to more than \$69 million, compared with \$56.9 million in 1972. In the first quarter of this year, Lines' revenues were \$20.2 million, compared with \$14.7

million in the first three months of 1973.

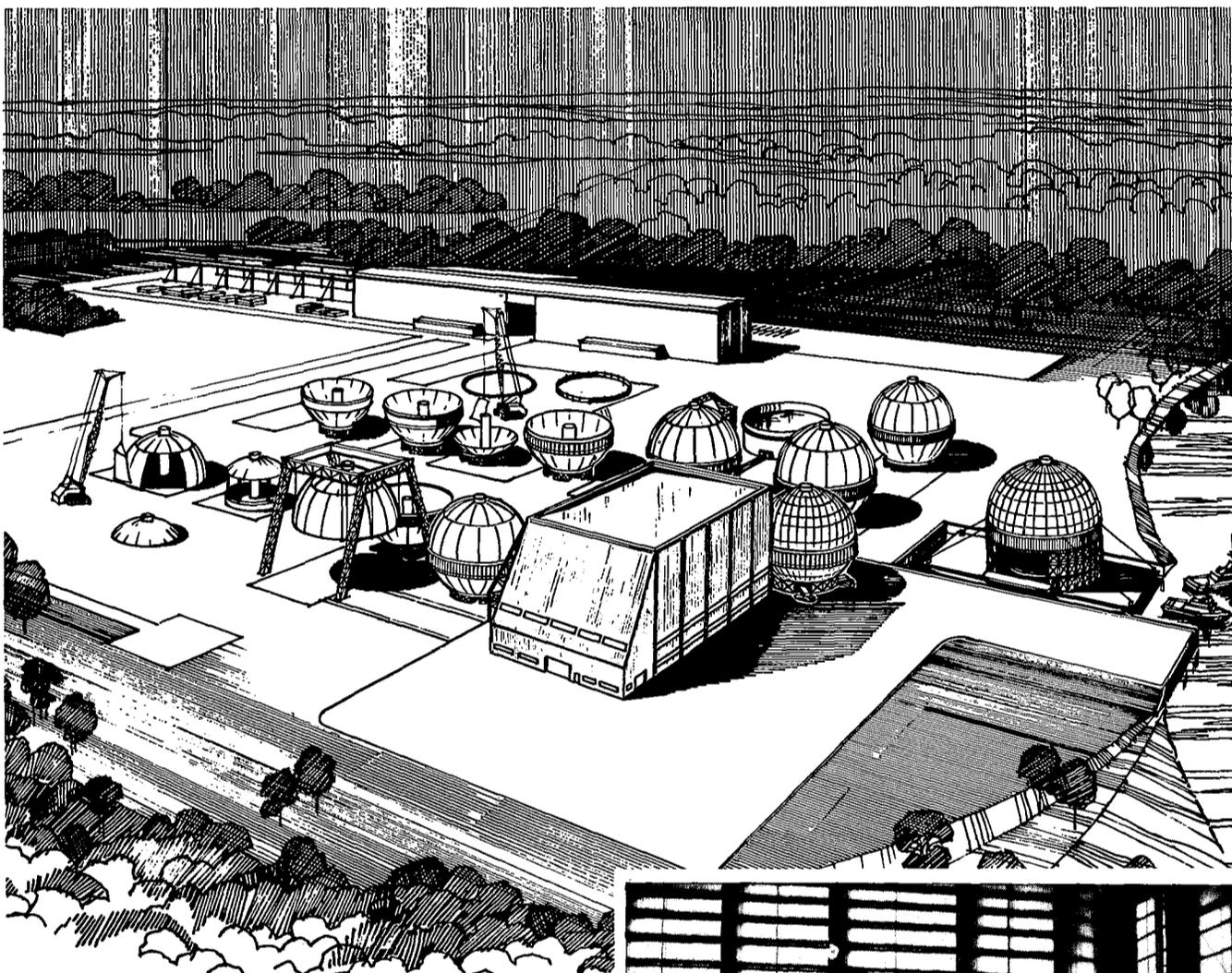


Robert E. O'Brien

A graduate of Villanova University, Mr. O'Brien joined Moore-McCormack Lines in 1940. He served as an officer in the U.S. Navy from 1942 to 1945. Returning to Moore-McCormack, he rose through the operating department to become its operating manager in 1956. In 1957, he was made vice president in charge of operations. In 1962, he was transferred to the post of vice president of sales, in 1967, he was elected to the board of directors of "Mooremack," and in 1968 was named a senior vice president.

Mr. O'Brien is married to the former Rosemary McGurn, and presently resides with his family at Smoke Rise in Kinnelon, N.J.

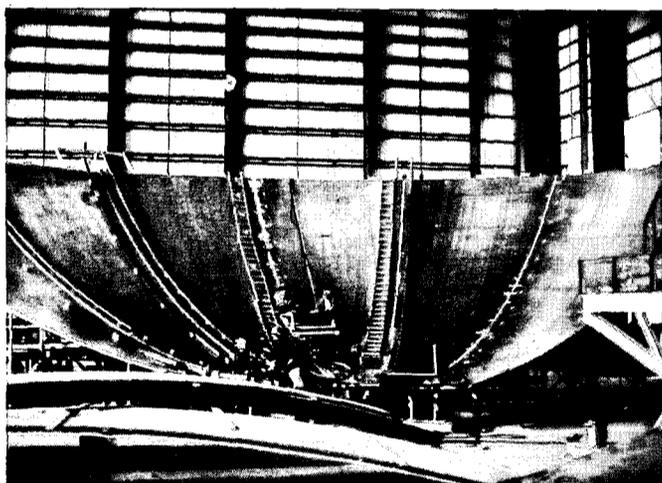
LNG SHIP TANKS



Liquefied Natural Gas ship tank fabricating facility located in Charleston, South Carolina, operated by World Southern Corporation, a subsidiary of PDM.

Insert shows aluminum sphere being fabricated for General Dynamics, Quincy Shipbuilding Division.

Pittsburgh-Des Moines Steel Company
Pittsburgh, Pa. 15225
(412) 331-3000—Telex: 086734



**Title XI Sought For
Vessels To Be Built
At Todd And Bludworth**

An application for Title XI mortgage and loan insurance has been filed with the Maritime Administration by Alamo Chemical Transportation Company, 900 Houston Natural Gas Building, Houston, Texas, in connection with the construction of eight tank vessels and two towboats.

The estimated cost for the construction of all 10 vessels, which will be used on the inland waterways, is \$6.6 million.

Bludworth Shipyard, Inc., Houston, will build one towboat, and Todd Shipyards has been awarded a contract to build the remaining vessels.

**John Herlihy Joins
John F. Dillon, Inc.**

John F. Dillon, Inc., Greenwich, Conn., has announced that John F. Herlihy will be joining the company's chartering staff as a shipbroker. For a number of years, Mr. Herlihy was associated with Tramp Chartering Corp., and most recently was a broker on the staff of Spacebrokers Inc., located in Babylon, Long Island, N.Y.



**PDM builds for the future
Pittsburgh-Des Moines Steel Company**

**Israel Ports Award
Multimillion-Dollar
Contract To Paceco**



The Paceco Portainers ordered by the Israel Ports Authority are similar to these at Rotterdam, Holland.

The Israel Ports Authority has recently awarded Paceco, a division of Fruehauf Corporation, Alameda, Calif., a multimillion-dollar contract for additional Paceco container-handling cranes for the Ports of Haifa and Ashdod.

The huge cranes are to be built at the Paceco facility in Gulfport, Miss., and shipped to Israel during the next two years, as completed.

Four Portainers (ship unloading cranes) and three Transtainers (terminal cranes) are involved in the new contract. All of the cranes will be Paceco's MACH (modular automated container handling) models, which have provisions for future automation of the cranes. One of the huge Portainers is planned for the Port of Haifa and three are planned for the Port of Ashdod.

The three large Transtainers are similar to those recently shipped from Gulfport on a previous contract. These were the world's first MACH Transtainers (designed with provisions for future automation).

Israel's greatest export is fruit. Plans are under way to containerize shipments of oranges, which necessitates the purchase of the advanced container-handling equipment.

**300 Ship Chandlers
To Meet Sept. 22-26
In Washington, D.C.**

The International Ship Suppliers Association (ISSA) will be holding its 19th General Assembly at the Mayflower Hotel, Washington, D.C., on September 22-26, 1974. This year, the National Association of Marine Services (NAMS), the U.S. member of ISSA, will be the host association.

This year's event will be the first year that ISSA has held its

General Assembly outside of Europe, and keen attention will be focused on the areas of credit information and collection of accounts, conditions of sale and deliveries under which the trade operates, containerization, storing of special equipment, codification of shipstores, and communication between ship suppliers and their customers.

There will be a "Sponsors Arena" at the assembly, where

display space will be available for manufacturers of American products. Advertising will also be available in the program for the meeting.

Two hundred fifty foreign delegates and their wives are expected to attend, in addition to the 50 American members of NAMS. The four-day affair will consist of business sessions, tours of Washington, social affairs, and addresses from guest speakers

from the Government and shipping industry.

The National Association of Marine Services is in its 25th year as the only American organization devoted solely to the area of commercial vessel supply. For further information concerning this year's meeting, contact the National Association of Marine Services, P.O. Box 1927, Wheaton Branch, Silver Spring, Md. 20902.

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Castle & Cooke Plans To Purchase \$36 Million Tuna Fleet

Plans for its purchase of the Gann fleet of tuna fishing boats from the Westgate-California Corporation, San Diego, for \$36 million have been announced by Castle & Cooke, Inc., in San Francisco.

The Gann fleet consists of 13 vessels. The purchase would include a refrigerated tuna-carrying vessel and a marine hardware company.

The purchase offer was accepted by C.J. Hytrone Jr., the trustee for Westgate-California, which is in reorganization.

D.J. Kirchhoff, president of Castle & Cooke, said the acquisition would be part of a previously announced program to increase supplies of raw tuna for Castle & Cooke's Bumble Bee brand. The company, which operates in 11 countries, is engaged in food production, including Dole bananas and pineapple and Bumble Bee seafood. It is also engaged in real estate development.

AlumaShip/SteelShip Corporations Name Douglas Oehrlein

Edward D. Fry, president of AlumaShip / SteelShip Corporations with shipyards in Jeanerette, La., and Pine Bluff, Ark., announced that **Douglas L. Oehrlein** of Honolulu, Hawaii, has been hired as marketing director of both corporations. Mr. Oehrlein's position became effective June 1, 1974.

Mr. Oehrlein obtained his Bachelor of Science degree in mechan-

ical engineering, with a marine specialty from the University of Hawaii. He has had several years of experience in the transportation industry, and has designed both boats and submersible vessels.



Douglas L. Oehrlein

Mr. Oehrlein will be responsible for all sales and contracts, as well as assisting customers with preliminary engineering studies and cost feasibility studies.

AlumaShip Corporation of Jeanerette, builds aluminum passenger vessels and workboats up to 125 feet in length. They have stock model designed crewboats in 65-foot, 90-foot and 100-foot sizes, and build catamaran vessels in 65-foot, 80-foot, and 100-foot sizes. SteelShip Corporation of Pine Bluff, specializes in river pushboats with stock models under construction in 50-foot, 60-foot and 80-foot sizes. Both corporations also build custom vessels to owners' specifications or designed by inhouse engineering staffs.

Inquiries concerning any of AlumaShip/SteelShip Corporations products or services should be directed to **Douglas L. Oehrlein**, Marketing Director, Rt. 4, Box 167, Pine Bluff, Ark. 71601.

Fairbanks Morse Pump Division Of Colt Appoints Steinmeyer

John W. Steinmeyer has been named manager of engineering, Industrial Pump Operation, for the Fairbanks Morse Pump Division of Colt Industries, according to **W. Jackson Letts**, vice president and general manager.

Mr. Steinmeyer will be responsible for the engineering department, quality assurance department, and the research laboratory. Before joining Fairbanks Morse, Mr. Steinmeyer was employed by Bechtel, Bell Telephone Laboratories and Denver Equipment Co. He has a BSME degree from the University of Illinois and a master's degree in engineering from Rutgers University.



Delaval Turbine Promotes Crawford



W. Dale Crawford

Delaval Turbine, Inc., has announced the promotion of **W. Dale Crawford**, who recently assumed the title and duties of district manager at the Delaval Components Group offices in Cleveland, Ohio.

His new responsibilities embrace all sales and related activities in the marketing area served by the Cleveland office.

Mr. Crawford's service with the corporation began in 1963, when he joined the Cleveland office in the capacity of office engineer, developing through sales engineer in 1966 to this latest appointment. Additional qualifications supporting his distinguished sales and administrative achievements include a degree in marketing management.

New York Firm Gets MarAd Approval For Oceangoing Barge

The Maritime Administration has given approval in principle to construction loan and mortgage insurance for a 100,000-barrel oceangoing barge intended to operate in and around the Port of New York and between New York and Albany.

The \$2.3-million barge is to be built by Todd Shipyards at Houston. The owner of the barge is given as Bilcon Associates, New York.

Argo Appoints Three Executives —Forte As President

John Calicchio, chairman of the board of Argo International Corporation, New York, N.Y., has announced the following executive appointments.

James F. Forte has been appointed president, succeeding Mr. Calicchio. Mr. Forte has been with Argo since September 1963, when Argo Associates, a subsidiary, was formed to handle the Worthington pump and compres-

sor line. He served as general manager until December 1969, when Argo Associates was merged into Argo International Corporation, where he served as marketing manager until his present promotion to president.

Mr. Forte holds an engineering degree from Newark College of Engineering. He was employed by Worthington Corp. for seven years and spent three years as branch manager for a New Jersey-based industrial distributor, prior to joining Argo.

Wilson Stackhouse is appointed executive vice president. Mr. Stackhouse joined Argo in 1964 as manager of the San Francisco branch, following a distinguished 15-year career with General Electric Company. He was largely responsible for establishing all five of the company's West Coast offices. In 1969, he was appointed vice president with full responsibility for the Western region. Mr. Stackhouse is a graduate of the U.S. Merchant Marine Academy at Kings Point, N.Y.

Henry N. Fowks is appointed vice president, international operations. Mr. Fowks spent 18 years at General Electric Company, progressing through several managerial positions before joining Argo in 1967 as manager-turbine sales. In 1969, he was appointed manager-New York operations. Mr. Fowks was instrumental in setting up Argo's interests abroad and developed several key franchises with Japanese manufacturers of ships equipment.

Avondale People and the problem of protection



At Avondale's Main Yard, you'll find our Rubber and Plastics Department—Avondale's protection experts. The Department specializes in the application of corrosion-preventive rubber and plastic linings to pipes, fittings, tanks, ducting, process systems and other marine and industrial equipment. These men have the facilities and the capabilities to cope with almost any protection problem, no matter how large or how complex. They can work to the most exacting commercial or military specifications. And they give 24-hour service when needed. Protection against corrosion. Protection against future breakdowns. Avondale's protection men deliver.

Avondale is people.



Avondale Shipyards, Inc.

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P. O. Box 50280, New Orleans, Louisiana 70150
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The answer to your bilge-water discharge problem: Keene Marine Discharge Control System™

Ready now—to meet the July 1 deadline.

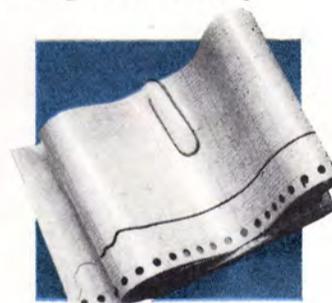
Keene has long been part of the marine industry—supplying Keene (Bowser) fuel and lube filters and other equipment for over 75 years. So to help you meet the July 1 deadline, we've developed a complete system that automatically assures that bilge discharge is within limits acceptable under the Federal Water Pollution Control Act and related Coast Guard regulations:

Automatic fail-safe control.

The Keene Marine Discharge Control System removes oil and other contaminants from bilge water and monitors the effluent stream. The fail-safe control permits only sheen-free water to be discharged.

Proof of compliance.

The system includes a real-time continuous recorder which prints a chart verifying the purity of all overboard discharge. This data becomes part of the captain's or master's log, providing permanent proof of compliance.



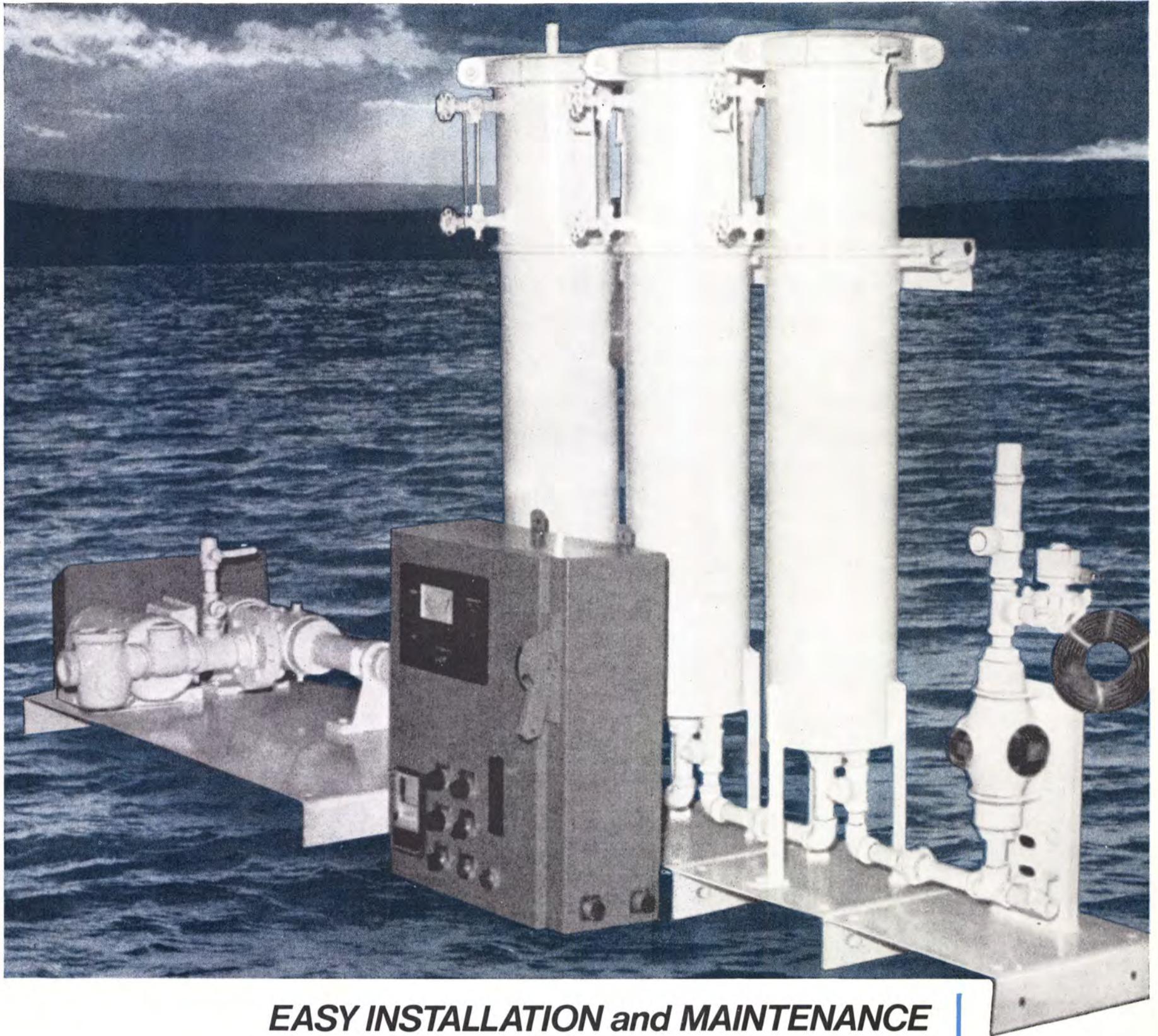
Passes Coast Guard and A.B.S. regulations

The Keene system has received a "satisfactory review" from the American Bureau of Shipping and "acceptance" by the U.S. Coast Guard under the provisions of 33 CFR 155.400 for the processing of oily bilge slops. Therefore, the retrofitting requirements of 33 CFR 155.340 through 155.360 do not apply to a vessel upon which the Keene system is properly operating.

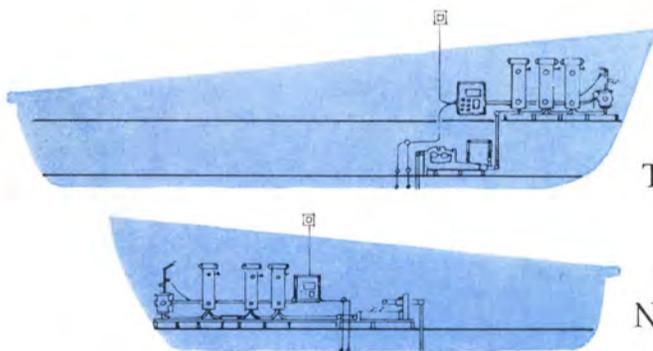
Pennant to identify installation.

Large reflective pennants are furnished for attachment to the exterior of vessels which have the Keene system installed. These pennants readily identify Keene-equipped vessels, and may eliminate these vessels as suspected polluters.





EASY INSTALLATION and MAINTENANCE



The system can be installed in one compact area, or modules can be separated to fit wherever you have available space.

The rotating shaft of the positive displacement pump is the only moving part in the system.

No steam cleaning, blow-down or backwashing required.

Modular design.

Only one moving part.

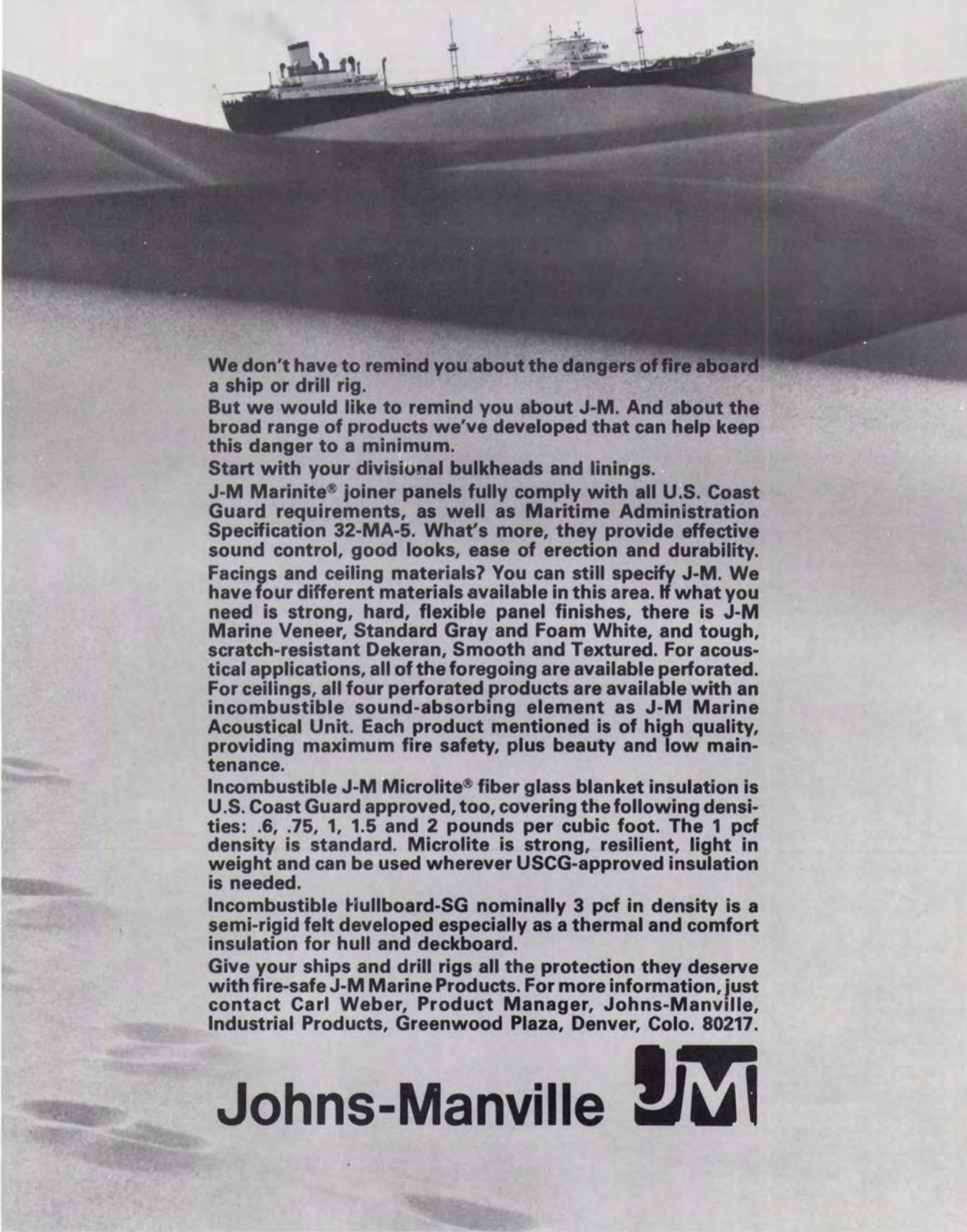
Disposable separation elements.

The system is ready now. Keene Marine Discharge Control Systems are installed and working today. They are available now through an authorized Keene marine distributor or shipyard. For further information, and the name of the distributor nearest you, call (615) 526-9571. Or write Keene Corporation, Fluid Handling Division, Dept. EW, Cookeville, Tenn. 38501. Time is short — act now!

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CORPORATION

FLUID HANDLING DIVISION

Ships without J-M Marine Products shouldn't go near the water.



We don't have to remind you about the dangers of fire aboard a ship or drill rig.

But we would like to remind you about J-M. And about the broad range of products we've developed that can help keep this danger to a minimum.

Start with your divisional bulkheads and linings.

J-M Marinite® joiner panels fully comply with all U.S. Coast Guard requirements, as well as Maritime Administration Specification 32-MA-5. What's more, they provide effective sound control, good looks, ease of erection and durability. Facings and ceiling materials? You can still specify J-M. We have four different materials available in this area. If what you need is strong, hard, flexible panel finishes, there is J-M Marine Veneer, Standard Gray and Foam White, and tough, scratch-resistant Dekeran, Smooth and Textured. For acoustical applications, all of the foregoing are available perforated. For ceilings, all four perforated products are available with an incombustible sound-absorbing element as J-M Marine Acoustical Unit. Each product mentioned is of high quality, providing maximum fire safety, plus beauty and low maintenance.

Incombustible J-M Microlite® fiber glass blanket insulation is U.S. Coast Guard approved, too, covering the following densities: .6, .75, 1, 1.5 and 2 pounds per cubic foot. The 1 pcf density is standard. Microlite is strong, resilient, light in weight and can be used wherever USCG-approved insulation is needed.

Incombustible Hullboard-SG nominally 3 pcf in density is a semi-rigid felt developed especially as a thermal and comfort insulation for hull and deckboard.

Give your ships and drill rigs all the protection they deserve with fire-safe J-M Marine Products. For more information, just contact Carl Weber, Product Manager, Johns-Manville, Industrial Products, Greenwood Plaza, Denver, Colo. 80217.

Johns-Manville 



A Moran tug tows the Floating Hospital from Blount Marine in Warren, R.I., to New York. This is the largest vessel ever built in Rhode Island since World War II, and the largest to date for Blount Marine.

Blount Marine Delivers

The Floating Hospital

The Floating Hospital, a 189-foot steel vessel, was recently delivered to Saint John's Guild of New York City from the builder's yard, Blount Marine Corporation, Warren, R.I.

The 900-passenger vessel was designed by George G. Sharp Co. Modifications, styling and detail engineering was done by the Blount engineering staff.

Inspection during construction was by the U.S. Coast Guard and the American Bureau of Shipping. Douglas C. MacMillan, naval architect of Summit, N.J., and Robert M. Cashman, naval architect of Hingham, Mass., represented the owners. The chairman of the shipbuilding committee was Townsend Horner, a trustee of the Guild.

Sponsored by Saint John's Guild, a non-sectarian philanthropy founded in 1866, the new \$2.5-million floating hospital is the fifth in the series of unique health facilities that has served more than four million of New York's disadvantaged for over a century.

The Floating Hospital has been designed to function as a primary health facility in a recreational setting. Built at the Blount Marine Corporation shipyard over a period of two and one-half years, it is an all-steel vessel, incorporating the most modern safety features and ecologically sound engineering equipment. This includes two 150-kw diesel electric generators and Colt Industries sewage disposal equipment. There are ramps to accommodate wheel chairs, gleaming stainless steel kitchen equipment, and the clinic area is planned for maximum flexibility and fitted with the most up-to-date equipment. The new ship is heated and air-conditioned in the hope that additional funding will be forthcoming to permit an expanded sailing season.

Like its predecessors, the new Floating

Hospital is towed by tug rather than propelled by its own engine. The absence of an engine is an additional space that would otherwise be occupied by the engine room.

The growth of the Floating Hospital project is closely linked with the development of health services in the New York community. In 1872, Saint John's Guild, founded "to afford relief to the deserving poor, especially children . . . without regard to creed, color or nationality," undertook the responsibility of continuing a project begun by The New York Times, namely a recreational day on the water for youngsters from the city slums. During the following decade, the program known as The Floating Hospital grew rapidly to provide medical care, in addition to recreation for thousands of underprivileged children, particularly infants suffering from virulent summer infections. Staffed by

SPECIFICATIONS

Length Overall	189' 0"
Beam	49' 4"
Depth	10' 4"
Staff and Crew	100
Passengers	900
Generators	Detroit Diesel by Hubbs Engine
Sewage Treatment	Colt Industries
Air-Conditioning	Carrier by ABCO Engineering
Heating	Way-Wolff
Switchboards and Panels	Smith-Meeker
Bilge, Fire, Freshwater Pumps	Gould
Fixed Fire-Fighting System	C-O-Two Sales
VHF Radio	RF Communications
Public Address Systems	Galbraith/Pilot Marine
Telephone Systems	Hose-McCann Telephone
X-Ray Equipment	Pickèr
Dental Equipment	Rhode Island Dental Supply
Paints and Coatings	Exxon
Interior Paneling and Ceilings	Johns-Manville
Deck Covering	Selby-Battersby
Furniture	Delta International
Galley and Mess Areas	Paramount Fountain & Restaurant
Joiner Doors	Pioneer
Anchor	Baldt
Accommodation Ladders and Ramps	W. & A. Engineering

doctors and nurses who volunteered their services, The Floating Hospital became the first purely pediatric service to be organized in the City of New York.

The first Floating Hospital was the rebuilt hulk of a burned out Hudson River steamer, rechristened the Emma Abbott. It served a generation of New Yorkers before being replaced by the Helen C. Juilliard, Helen C. Juilliard II, and the Lloyd I. Seaman, which was retired at the end of last season. Over the years, more than four million of New York's needy children, parents, the handicapped, and the elderly of every creed and color from New York's five boroughs, found aboard The Floating Hospital, medical, dental and psychological help in clinics staffed

(Continued on next page)



Play Deck with its high wide-span overhead will be used for a variety of recreational activities. One of the unique features of the Floating Hospital is the positive atmosphere provided in which to administer services and promote health education.



Special Care Room is used for programs of regular therapy and education for children and parents of children with all types of handicaps. Adjoining is a large room with cribs and other nursery equipment for programs with young children and parents.



Medical Examining Room is one of several. Other facilities include complete dental clinic, X-ray lab, and areas for screening and diagnostic work of all types.

The Floating Hospital —

(Continued from page 23)

by experienced professionals, guidance from a social service staff skilled in assisting families in need of counsel, a special therapeutic program for handicapped children, as well as educational and recreational activities for both parents and children.

Everything is free — health care, bus transportation from subway to ship, door-to-door transportation for the handicapped, lunch and snacks aboard ship, an extensive health education program which includes nutrition, drugs and child development, a nursery for infants, and nine days set aside for the city's senior citizens.

The Floating Hospital's passengers are referred through child health centers and many community and social service agencies. Tickets may be picked up at over 400 locations and families are welcome. The only restriction is that the youngsters must be no more than 5 feet tall. Toddlers and teenagers are not always an ideal combination. Over 800 passengers are accommodated every day (except Sundays) during the nine-week family sailing season which runs from July 1 through August 31. Preceding the regular season is a nine-day Senior Citizen's Health Fair from June 19 through June 28. The '74 summer season will close with a Family Health Fair from August 27 through August 31.

IHI Receives Order For Four Freedom Ships From Greece

IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.), Japan, has received an order for four 14,800-dwt Freedom-type multi-purpose cargoships from A.I. Alafouzos, Greece.

The contract was signed in Athens between Mr. Alafouzos and Y. Abe, chief of IHI's Ship Export Section. It includes a price-sliding clause. The estimated final price for the four ships amounts to approximately 10,000-million yen.

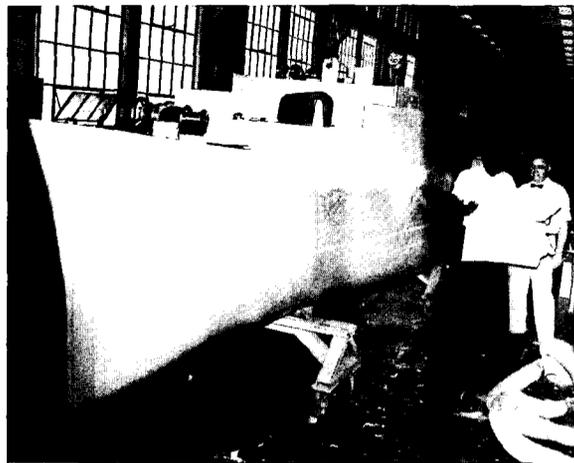
This brings the number of Freedom ships ordered to a total of 99 vessels (88 ordered from IHI and 11 from Jurong Shipbuilders Private Ltd., Singapore), 88 of which have already been delivered.

To be built at IHI's Tokyo Shipyard, the four Freedoms are due for delivery in November 1976, July and November 1977, and March 1978, respectively.

Aside from this new order, the shipowner has ordered a total of 13 ships from IHI to date — six Freedoms, two 22,000-dwt Fortunes, two 30,000-dwt bulk carriers, one 61,500-dwt bulk carrier, and two 138,000-dwt ore/oil carriers.

Principal particulars and approximate measurements of the Freedom vessels are: deadweight, 14,800 long tons; length, overall, 440 feet; breadth, 65 feet; depth, 40 feet, and a draft of 30 feet. Her main engine is an IHI-S.E.M.T. Pielstick 12PC2V-type diesel with a maximum continuous rating of 5,130 bhp delivering a service speed of 13.6 knots.

Navy Launches Miniature Ship Built For Training Officers



The two designers of the miniature LPD 4 (Amphibious Transport Dock) study the plans of the 35-foot two-man scale model. From left are Douglas Gregory and George Stuntz, naval architects, at the Naval Ship Research and Development Center.

The Naval Ship Research and Development Center, Bethesda, Md., has launched the Navy's first miniature ship built for training officers and ship handling personnel. The 1/16th scale model of an LPD 4 (Amphibious Transport Dock) was built for the Naval Amphibious School Little Creek under the sponsorship of the Chief of Naval Education and Training.

The 35-foot two-man craft is an exact duplicate of the 570-foot full-scale LPD. It is built of fiberglass with wooden superstructure housing instrumentation, including controls for steering, propulsion and anchoring.

Following manned experiments in the Center's David Taylor Model Basin, the craft will be transported to the Naval Amphibious School Little Creek, Va., where a training facility similar to that built by Standard Oil of New Jersey in Grenoble, France, is under evaluation.

The model will be used to simulate actual navigation problems through a scaled-down miniature harbor complete with channel buoys, anchorages and piers. It will be manned by two students—one acting as Conning Officer and the other operating the engine and rudder controls. The view from the Conning Officer's position will be almost identical to that of the full-scale ship. The eyes of the Conning Officer will be at the level they would be if he were standing on the bridge of the full-scale ship. If an object is blocked by the bow of his model he knows that the big ship will restrict his vision in the same way.

The miniature ships will be no threat to the ecology as they will operate noiselessly on electric batteries with no engine waste or pollution.

George Stuntz and Douglas Gregory, naval architects at the Naval Ship Research and Development Center, are designers of the miniature ship.

The new ship handling training program was developed by Capt. Robert A. Hogsed, USN, Commanding Officer of the Amphibious School, assisted by Comdr. Lawrence M. Patella, USN Project Director, who is a graduate of the training facility in France.

A pilot program of instruction in ship handling for prospective commanding officers and executive officers will be initiated, using the 16-acre Lake Chubb already set aside for training at the Naval Amphibious School. The lake is ideally suited for the project—its two-foot minimum depth representing 32 feet on the 1 to 16-foot scale. The facility will become operational with a minimum expenditure of funds for a boat-house and setting up of realistic channels and obstructions.

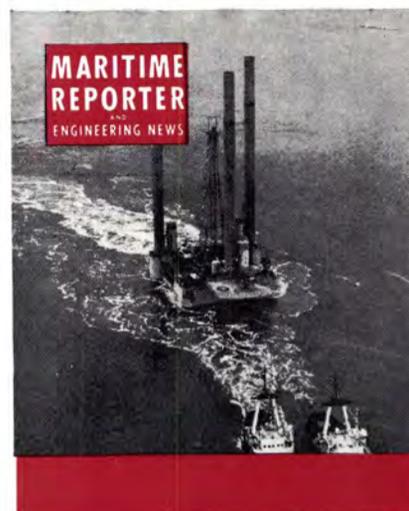
Experience gained and statistical data accumulated over the years has revealed that ship handling requires years of training and experience, and is presently gained only on the bridge of an operating ship. While this time-proven method has produced exceptionally well qualified ship handlers, it has the disadvantage of being costly, requiring the utilization of expensive warships manned by the entire crew for the training of a relatively few officers.

Besides poor ship utilization and costly fuel consumption, this method has often led to mishaps involving extensive ship and pier damages, and subsequent high repair bills. \$2.2 million were expended for ship and pier repairs resulting from accidents attributed directly to inexperienced ship handling during the period July 1, 1969 to November 1973.

For these and other operational considerations, ships which to date have proved the only realistic approach to ship handling training are becoming less and less available. Factors that limit the availability of ships for ship handling training are the shrinking defense dollar, fuel shortage, reduction of force levels (the Amphibious Force alone has been reduced from 61 ships in 1969 to 33 ships in 1974), and reduced at-sea-time, as resulted from increased time in home ports for ships of the active fleets.

It is anticipated that additional operating models of various ship types will be built, ultimately providing the capability for training 1,300 officers a year. Plans are also under way for a similar facility to be built in San Diego, subject to successful evaluation of the Little Creek pilot program.





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Let's face it... the offshore oil drilling market is a part of the marine industry. Drilling rigs, supply vessels, crew boats, research vessels, workboats, tugs, dredges, barges, etc.... are all designed by naval architects, constructed in shipyards and operated by vessel owners.

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MARITIME REPORTER/Engineering News has always covered the shoreside buyers of marine equipment in the offshore drilling market completely.

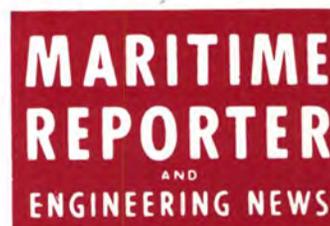
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Audit of Circulation, Inc.

July 15, 1974

25

**Overseas Enterprises
Announces New French
Tanker Service To U.S.**

The firm of Societe Navale Chargeurs Delmas-Vieljeux, Paris, the Delchim Department, through their U.S. general agents, Overseas Enterprises, Inc., has announced the commencement of a new service which will operate between the U.S. Atlantic/Gulf ports to the United Kingdom and the Continent in September.

Delchim Tankers will initiate the service with four new ships — the Delchim Alsace, Delchim Bearn, Delchim Cevennes, and Delchim Dauphine. These four vessels, built to comply with the latest IMCO recommendations and RINA rules, will offer monthly sailings from the U.S. to the United Kingdom and the Continent.

These 6,540-dwt vessels each have 20 stainless steel tanks coated with epoxy (Amercoat 64/66)

and zinc silicate (Dimetcote 4), with individual pumps and lines for each tank to provide complete segregation of cargoes. Each of these vessels is equipped for the carriage of chemicals, solvents, acids, edible oils, wines, vegetable oils, lubes, petroleum products, caustic soda, etc.

These four French-flag tankers are part of Societe Navale Chargeurs Delmas-Vieljeux's fleet of over 60 vessels which are mainly in the Continental and African

trades, in addition to three tankers which have been in the vegetable oil and wine trades between France and the West Coast of Africa.

Overseas Enterprises, Inc. is located at One World Trade Center, Suite 2841, New York, N.Y. 10048.

**Todd Galveston Yard
To Build Two Tugs For
Bay-Houston Towing**

Bay-Houston Towing Company, being mindful of the constant growth of commerce through the Texas ports, has contracted for two new tugs to be built by Todd Shipyards Corporation at Galveston. These tugs will be the most powerful and modern tugs ever to be used in harbor work on the Texas Gulf Coast, **W.D. Haden II**, chairman of the board, announced.

The twin-screw vessels will develop 3,200 horsepower, using matched 1,600-hp Nohab engines. Fitted with Kort nozzles, the new Bay-Houston tugs will have both the power and maneuverability to handle the largest of the super-tankers, LASH and container-ships, **Mr. Haden** said.

Bay-Houston Towing services oceangoing vessels in the ports of Houston, Galveston, Texas City, Freeport and Corpus Christi, and will be ready to safely handle vessels calling at any Texas superport.

The increasing commerce through the Texas ports necessitates a faster turnaround time on all ships, and the tugs handling these ships must operate at a greater efficiency.

It is anticipated that these tugs will be in service about August 1, 1975.

**Serck Group Offers
Brochure On Heat
Exchange Equipment**

Serck Heat Transfer, the leading suppliers of heat transfer equipment to ship and marine engine builders throughout Europe, has announced the availability of the company's new brochure.

A complete range of heat transfer equipment is fully illustrated and described for use in both Naval and commercial marine applications, and the brochure can be obtained by contacting Serck's marine offices in the U.S., located at 91 Winding River

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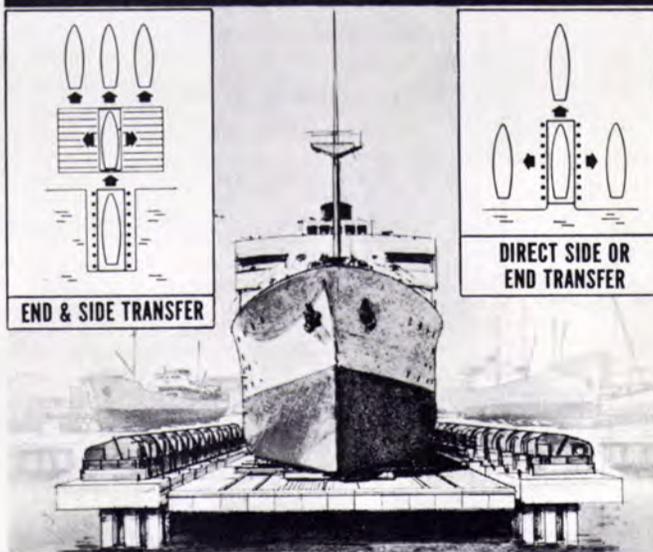
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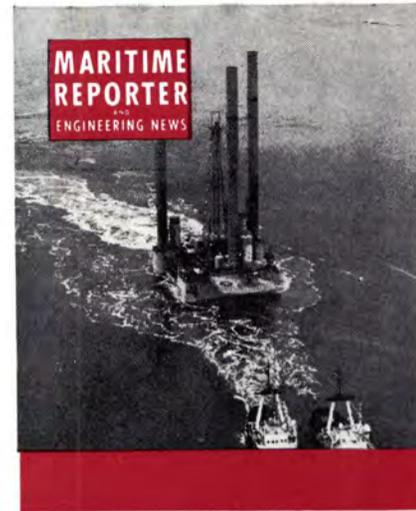
**Defoe To Convert
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son, at a cost exceeding \$5 million. The 690-foot vessel will be delivered by January 1, 1975 to the Defoe Shipbuilding Company located at Bay City, Mich. Work

will run the length of the vessel, a 250-foot unloading boom mounted aft, and deckhouse alterations to suit the loop belt elevator and

slightly decrease the per trip capacity, the flexibility and speed of unloading (6,000 gross tons per hour) will permit the vessel



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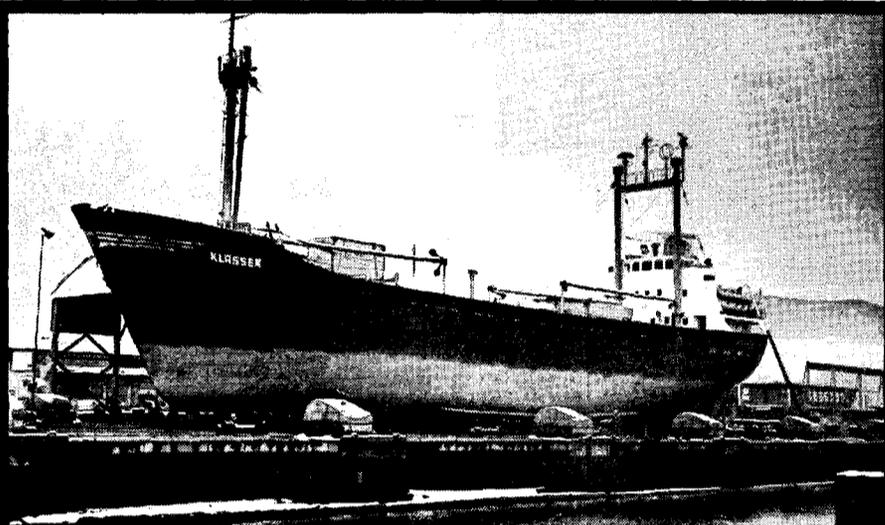
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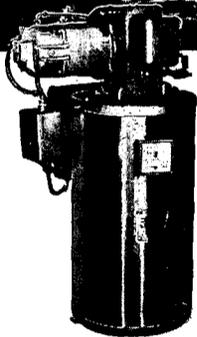
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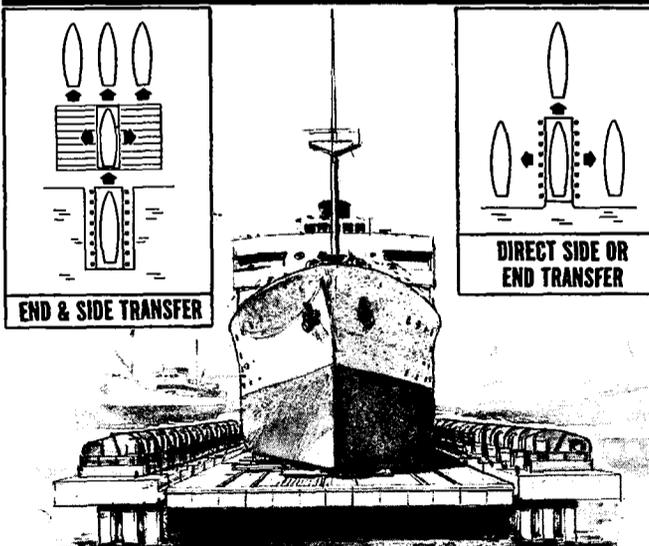
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COMSAT Gen'l. Orders Shipboard Terminals For Satellite System

COMSAT General Corporation, Washington, D.C., has awarded a contract to Scientific-Atlanta, Inc., for 100 shipboard antennas and associated terminal equipment as part of a major program to provide improved communications via satellites to commercial ships at sea. The amount of the contract is expected to exceed \$2 million.

Two multifrequency satellites are scheduled to be in operation early next year to form the space segment of a two-ocean MARISAT System. The satellites, stationed in geostationary orbits at 22,300 miles altitude over the Atlantic and Pacific Oceans, will be capable of providing ship-to-shore voice, teletypewriter and data communications with vessels equipped with complete shipboard terminals. The U.S. Navy will use capacity in the system, utilizing its own ship and shore stations, for communications with its Atlantic and Pacific fleets at separate frequencies.

The contract calls for delivery of 100 shipboard terminals to COMSAT General, with options to purchase up to 300 additional terminals. A separate contract will be awarded later for communications equipment for interconnection with the Scientific-Atlanta terminal units.

The complete facilities will be capable of providing reliable, full-time communications services via satellites at assigned L-band frequencies. Once installed aboard commercial vessels, they will permit 24-hour-a-day operation for high-quality voice and data communications.

In addition to solid-state receivers and transmitters, the terminals being purchased under this initial contract include a four-foot-diameter antenna, protected by a radome, which is mounted on a stabilized platform to keep the antenna pointed at all times toward the satellite despite movement of the ship. Continuous communications can be maintained in heavy seas and under extreme environment conditions.

John A. Johnson, president of COMSAT General, said the shipboard terminal contract with Scientific-Atlanta (headquartered in Atlanta, Ga.) is "a major step toward providing greatly im-

proved and expanded communications services to the maritime industry. This program represents a promising new application of satellite technology. It will totally change maritime communications by offering for the first time modern, dependable and continuous communications throughout entire ocean areas."

The space segment for the MARISAT System, together with

communications earth stations on the U.S. East and West Coasts—as distinct from the shipboard terminals—are to be owned and operated under a consortium arrangement currently being negotiated among four carrier companies. COMSAT General would have an interest of approximately 80 percent in the consortium; RCA Global Communications, ITT World Communications, and West-

ern Union International would participate as joint owners with a total interest of about 20 percent.

The satellites for the system are under construction. The launch of the first spacecraft is scheduled for early 1975. The U.S. earth stations which will serve the MARISAT System are being built at Southbury, Conn., and Santa Paula, Calif.

When we put three different swage fittings through a tug of war, ESCO's stainless steel never gave up.



We put three different swaged sleeves through the toughest torture test we could devise: a side-pull test designed to tear wire rope slings apart at the sleeves. This is what happened: In a tug of war between two 52-ton tanks, the 1/2" aluminum and carbon sleeves ripped apart, but the ESCO 1/2" stainless duplex sleeve wouldn't give up.

When these tests were duplicated in an independent laboratory using a certified pull test machine, the aluminum duplex sleeve ripped apart at 8,100 lbs. The carbon steel single sleeve ripped at 22,500 lbs. ESCO's stainless steel duplex sleeve was still going strong when the rope broke at 30,000 lbs.* That should prove to you that ESCO's stainless steel swaged sleeve is the

strongest wire rope connection made—tough enough to take almost any kind of abuse.

They're available for rope sizes through 2 1/2". And we'll even send you a certificate for a free stainless steel fitting that your ESCO dealer will swage for you. Just send in the coupon. Then you can start putting our stainless steel swaged sleeve through your own tug of war.

*Tests conducted and certified by Northwest Testing Laboratories, Portland. Copies of the test certification are available by writing ESCO Corp.



Aluminum Duplex Sleeve

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ESCO Stainless Steel Duplex Sleeve

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Defoe To Convert Pickands Mather Laker To Self-Unloader

Pickands Mather & Co., Cleveland, Ohio, a subsidiary of Moore McCormack Resources, Inc., has announced that The Interlake Steamship Company's steamer Herbert C. Jackson will be converted to a self-unloader during the upcoming winter layup sea-

son, at a cost exceeding \$5 million. The 690-foot vessel will be delivered by January 1, 1975 to the Defoe Shipbuilding Company located at Bay City, Mich. Work is expected to be completed and the vessel ready for unloading tests by June 1975.

The conversion work involves altering the cargo holds to a free-running, hopper configuration, addition of an unloading belt which

will run the length of the vessel, a 250-foot unloading boom mounted aft, and deckhouse alterations to suit the loop belt elevator and house generators. Diesel generators totaling 1,600 kw will be installed to power the unloading equipment.

The Jackson, built in 1959, currently carries 24,400 gross tons per trip. Although the addition of self-unloading equipment will

slightly decrease the per trip capacity, the flexibility and speed of unloading (6,000 gross tons per hour) will permit the vessel to have a quicker turnaround time, allowing it to complete more trips annually.

Conversion of the Jackson marks the fourth step since 1971 that Interlake has taken to further increase the efficiency of its fleet of 12 bulk vessels. In 1971, the company lengthened the steamer Charles M. Beeghly. This was followed by the lengthening of the Beeghly's sister ship, the steamer John Sherwin, in 1972. In November 1973, the company announced the construction of two 1,000-foot self-unloading bulk freighters. According to David A. Groh, vice president-marine for Pickands Mather, "The conversion of the Jackson is another step to best serve our customer needs."

Pickands Mather, in addition to operating Interlake, manages and participates in the ownership of iron ore mines in Minnesota, Canada, and Tasmania; coal mines in West Virginia and Kentucky; a limestone quarry in southeastern Ohio; acts as sales agent for pig iron, coal and ferroalloys, and operates a coking facility.

Moore McCormack Resources, Inc., Stamford, Conn., is a water transportation and natural resources company. Other subsidiaries of Moore McCormack include Moore-McCormack Lines, Incorporated, Moore-McCormack Bulk Transport, Inc., and Moore-McCormack Energy, Inc.

Rudman & Scofield Appoints Petersen Exec. Vice President

Edwin J. Petersen Jr. has been appointed executive vice president of Rudman & Scofield, a division of Frigitemp Corp., manufacturers of marine refrigeration and galley equipment.

Since joining the Frigitemp family in June 1972, Mr. Petersen has held the position of director of engineering in their Marine Division, and in only one year was appointed vice president of operations. Today, as executive vice president, he is responsible for coordinated planning, layout and design, engineering/manufacturing and installations, which encompasses the total marine package of interiors for both Navy and commercial ships.



JacuzziJet has it when you need it.

When it comes down to the power package specifications for a fire rescue boat, you just don't take anything that comes along.

The demands this boat must meet include just about every factor a work boat owner could consider: speed, performance, economy, reliability, maneuverability, versatility, shallow water operation, simplicity and probably several more.

We can sum it all up with one word: JacuzziJet.

That's why John W. Gilbert and Associates of Boston designed this fire rescue boat around a JacuzziJet power package for a buyer in Sweden.

At 23 feet 10 inches length, it displaces 5,600 pounds, which is a trim package with all of the advantages we listed . . . and it is trailerable. Speeds up to 36 mph are possible with its 455-

cubic-inch engine, yet it can operate in as little as 15 inches of water.

Maybe you don't need *everything* in your next work boat that was required in this fire rescue boat. But it is good to know JacuzziJet has it when you need it.



Jacuzzi Bros. Inc. • Marine Jet Department
11511 New Benton Hwy.
Little Rock, Arkansas 72203 • (501) 562-1234

Kawasaki Builds Highest Capacity CP Propeller

Kawasaki Heavy Industries, Ltd., Kobe, Japan, recently developed the highest capacity controllable-pitch propeller in the world.

The 45,300-shp propeller exceeds the previous record of 34,700 shp.

The propeller is driven by a multi-gear main diesel power unit of three medium-speed large-capacity engines for the shaft. An electric governor is used for overall control, including the propeller. The control functions include automatic load control by pitch angle and automatic load balancing of engines.

The propeller utilizes both the technologies of the technical partner company Escher Wyss GmbH of West Germany and unique technologies developed by Kawasaki.

It will be used in an Australian National Line's 22,760-dwt roll-on/roll-off 1,400-units-capacity containership scheduled for launching next month and completion in December this year.

Kawasaki is now manufacturing a second propeller for a containership of Australian Flinders Shipping Co., Ltd.

Specifications of the propeller are: Kawasaki-Escher Wyss Type B-2400/Sf-700, four-blade, nickel-aluminum-bronze, 45,300 shp 122.8 rotations/minute, electric-hydraulic control system, diameter—7.3 meters, Hub diameter—2.4 meters, and weight, about 170 tons.

Ocean Industries Association Elects Frankel To Board

Bernard Frankel, president of IMODCO International, Inc., Los Angeles, Calif., has been elected to the National Ocean Industries Association's board of directors for a three-year term, it was announced by chairman G.B. Grafton.

NOIA represents over 210 companies in 20 states and the District of Columbia as the legislative and administrative spokesman at the Federal level for all facets of the nation's offshore and ocean-oriented industries.

Mr. Grafton said Mr. Frankel, who has made frequent appearances before Congressional committees in Washington on behalf

of the association, has been singled out to serve on its Congressional Action and Industry and Government Liaison Committees.

A native of Philadelphia, Pa., Mr. Frankel completed 21 years of service in the United States Navy, retiring with the rank of commander. During his Naval career, he commanded the destroyer Watts and the large auxiliary Pollux. He also had exten-

sive experience in Naval logistics, antisubmarine warfare and in hydrographic survey work.

Commander Frankel has been with IMODCO since 1962, first as U.S. representative for AB IMODCO, then as general manager and vice president. He was subsequently elected president of IMODCO, Inc. in October 1967. With company reorganization in 1973, he became vice president of

IMODCO, Inc. and president of IMODCO International, Inc.

Commander Frankel was educated at the Pennsylvania Maritime Academy and the United States Naval Postgraduate School at Monterey, Calif. He is also a licensed master mariner, is a member of the American Council of Master Mariners and many other professional maritime organizations.

31,200 tons launched from 4 yards

BROWNSVILLE, TEXAS *Pentagone 82*, five-column semisubmersible, 325' long, 338' wide, overall height, 317', 10,200 tons. Each column is 31' in diameter. Crew of 74. Drilling in North Sea.



CLYDEBANK, SCOTLAND *Penrod 64*, jackup, hull dimensions of 230' x 200' x 26'; 6,000 tons. Designed for TD of 30,000'. Crew of 78. Scheduled to operate in North Sea.



REPUBLIC OF SINGAPORE *Margie*, semisubmersible, twin hull, measures 202' long x 182' wide x 110' high; 9,000 tons. Designed to drill in 600' of water. Crew of 90. Scheduled to drill off the coast of Northern Australia.



VICKSBURG, MISSISSIPPI *Key West*, jackup, 230' long, 200' wide, legs 467' high; 6,000 tons. Designed to drill in 300' of water. Crew of 97. Notice the three 45-ton marine cranes, usually on almost all rigs Marathon constructs. Scheduled to drill in waters off Belem, Brazil.



When you need help
in the water, call the
guys who've been there.

DIESEL GENERATOR SETS

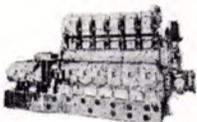
1



350 KW DIESEL GENERATOR SET

350 KW—120/240 volts DC—600 RPM—compound wound G.E. generator with switchgear. ENGINE: Ingersoll-Rand—heavy-duty type S—505 HP—10 1/2 x 12—reconditioned to ABS.

2



250 KW DIESEL GENERATOR SET

ENGINE: Enterprise 12 x 15 DSG-6—6 cyl.—450 RPM crank No. 50J. GENERATOR: Westinghouse 250 KW—120/240 DC—1040 amps—450 RPM. Typical serial No. 35-10P-913. Complete with switch gear.

3



EMERGENCY GENERATOR SUPERIOR 75KW 120/240 VOLT D.C. DIESEL GENERATOR SET

With switchgear. ENGINE: Radiator cooled Superior GBD—8—6-cylinder—1200 RPM. GENERATOR: Electric Machinery Co.—120/240 volts DC—316 amps—1200 RPM—stab. shunt.

4



415 KW 250 VOLT DC GM 6-278 DIESEL GENERATOR SETS

ENGINE: GM Model 6-278—6-cylinder—8 1/2 x 10 1/2—2-cycle—800 RPM—complete with heat exchanger. GENERATOR: Allis-Chalmers—415 KW—250 volts DC—800 RPM—1660 amps—shunt wound. Top mounted exciter—800/1600 RPM—208 amps—type EB5-123. Pilot exciter 2 1/2 KW—120 volts DC—shunt wound—20.8 amps. Both exciters belt-driven from main generator shaft.

5

ELECTRIC PROPULSION MOTOR

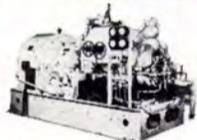
1 Available. 515 HP—230 volts DC—shunt wound—1040/1400 RPM—1660 amps—120 volts DC exciter.

6

ALSO SUITABLE FOR COMPANIES OPERATING AN NET TENDERS

TURBO GENERATOR SETS

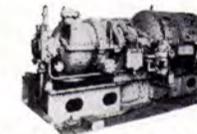
7



400 KW WESTINGHOUSE TURBO GEN SETS FOR BETH. SPARROWS PT. HULLS 400 TO 4500; QUINCY HULLS 1600

400 KW (500 KVA)—80% PF—1200 RPM—450/3/60. TURBINE: 585 lbs—840°TT—28 1/2" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA—400 KW—450 volts—641 amps—80%PF—3 phase 60 cycle—1200 RPM—CR 40°—excitation amps 41—excitation voltage 120. Instruction book 5442. Switchgear available.

8



LOW-PRESSURE UNUSED 300 KW G.E. 120/240 VOLT DC TURBO-GENERATOR SET

GENERATOR: 300 KW—120/240 VDC—1250 amps—1200 RPM. REDUCTION GEAR: 8.344:1—10012/1200 RPM—type S-182. TURBINE: DOR418N—449 H.P.—10012 RPM—working pressure 180/220 PSIG.

9



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 operate 615 PSI—850°TT.

10



1250 KW G.E. 10-STAGE TURBO GENERATOR SET

TURBINE: 525—615 PSI—850°TT—7938 RPM—10-stage—type FSN. GEAR: Single helix—7938/3600. GENERATOR: 1250 KW—450/3/60/3600—80 PF—type ATB with surface air cooler. Overload 25%—2 hours—1563 KW.

11



AP2 VICTORY WORTHINGTON-MOORE CROCKER-WHEELER 300 KW UNIT

TURBINE: 440 PSI—740°TT—28 1/2" vacuum—type S4—5-stage—6097 RPM—serial 7547 & 7548. GEAR: 6097/1200. GENERATOR: 300 KW—120/240 volts DC—1250 amps—compound wound—973643—999759. Armature flange 8 1/2"; B.C. 7"—12 holes. ALSO NEW ARMATURES IN STOCK & 300 KW SHUNT ARMATURES.

12

TWO 538 KW WESTINGHOUSE T-2 AUX. GENERATORS (COMPLETE)

TURBINE: 538 KW @ 5010 RPM—438 PSIG—750°TT—28 1/2" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW 450/3/60/1200—0.8 PF. DC EXCITER: 32.5 KW—120 volts (variable voltage)—shunt—4-pole—DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

TURBINES & ROTORS

MAIN PROPULSION

13

BETH. CLASS—13,600 H.P.

Sparrows Point & Quincy 1600 hulls. H.P. turbine casing only. Excellent blading & labyrinth packing.

14

H.P. & L.P. COUPLINGS

1 Set—for Beth Class 13,600 HP 4400 hulls and Quincy 1600 hulls.

T-2 TURBINES & ROTORS

15

UNUSED GENERAL ELECTRIC 750 KW TURBINE ROTORS

2 Available

General Electric Instruction Book 16846 for type FN3-FN24—seven stage 10033 RPM. TURBINE: 525 lbs. per sq. inch—825°TT. Originally built for CL68-122-CUL 48 class cruisers and now used on many merchant, tankers and cargo ships. G.E. drawing No. 6665729AA-1—FSN2825-373-0489.

16

1250 KW WESTINGHOUSE 8050 RPM

2 Available

One Curtis Stage and 8 Rateau Stages—mfg drawing 25T-556—BuShip Plan No. BB61-561-061. Rebuilt and rebladed by Westinghouse. Factory boxed. LIKE NEW.

17



T2-SE-A1 MAIN PROPULSION ROTOR—G.E.

Large Schenectady—serial 77418—reconditioned Bethlehem Steel 1970—all stages magnafluxed.

18

T-2 TANKER UNUSED—4 UNITS AVAILABLE AUX. G.E. TURBO GEN. ROTORS



DORV — 325M — 5645 RPM—for 525 KW G.E.

KNOWN 'ROUND THE WORLD

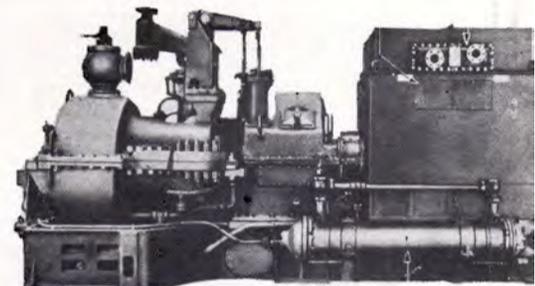
THE BOSTON

313 E. BALTIMORE

Main Office: (301) 424-1111

TURBO GEN

19



TURBINE: 11 Stage type FN4—8145 RPM—3 1/2" absolute back pressure—complete steam with seal regu

GEAR: Type S-195A—reduction 8145 RPM to 1200

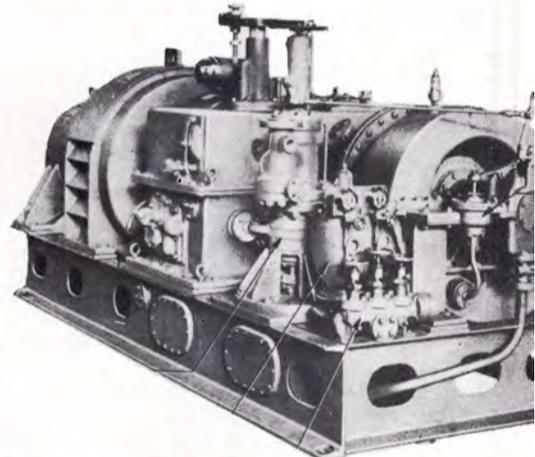
GENERATOR: 1500 KW—450 volts—2405 amps—enclosed. Insulation: Class B stator and rotor. Temperature thermometer. Mfg type AT1—form HL. Oil lubricated sump in turbo generator set base. Generator cooling—120 volts—110 amps—40°C rise—frame 654—

GENERAL INFORMATION: Overload rating 2 hours—weight 36,000 lbs. Guaranteed steam flows & cond flange. The set will carry 1500 KW with steam cond flange. The set will withstand 644 PSI and 850°F. at exhaust flange:

50% Load	—	750 KW	—
75% Load	—	1125 KW	—
100% Load	—	1500 KW	—

Exhaust flange size: 18" x 38" rectangular.

20



GENERATOR: 400 KW 450 volts 3-phase 1200 RPM sulation—natural self-ventilated cooling. Exciter: 5C

GEAR: Single helix—single reduction—10059/1200

TURBINE: Six stage—10059 RPM—525 PSI—825° tors. OVERLOAD CONDITIONS AT NORMAL STEAM overload for 2 hours at normal conditions; overload turbine generator will deliver full load output 400 K capable of withstanding 634 lbs PSIG 850°TT.

STEAM FLOWS

100% Load	—	400 KW AC
75% Load	—	300 KW AC
50% Load	—	200 KW AC

When operating at 575 PSIG & 0° Superheat and 1

125% Load	—	500 KW AC
100% Load	—	400 KW AC
75% Load	—	300 KW AC

UNIT DESIGNED FOR NAVY FOR DD692 CLASS HOUSE 8316.

Since Westinghouse and G.E. built them for the same able.

DIMENSIONS: OAL 10' 10 1/8"—OAW 4' 10 1/2"—OAF

TOTAL WEIGHT: 14,855 lbs.

2" steam inlet—17" Round exhaust—20 1/2" bolt

UNIT DIMENSIONS OAL 16' 3 3/8"—OAW 6' 6"—

ON METALS CO.

DRE ST. • BALTIMORE, MD. 21202

539-1900 Marine Dept.: (301) 355-5050

ERATOR SETS

4 G.E. 1500 KW AC SHIPS SERVICE SETS

G.E.I. BOOK 19320

am inlet. Normal steam conditions 525 PSI 825°TT—1 lb or.

00 RPM—P.F. 0.8—60 cycles—3-phase—6-pole—totally ure rise normal—stator 60°C by thermometer—rotor 70°C by y positive displacement pump for gears and bearings from air stream and circulating water. Amplidyne Exciter: 13.2 KW fg type 5AM654A1.

25% load; Overload rating 5 minutes—150% load. Total ns: normal 525 PSIG—825°TT and 1 PSI absolute at exhaust ons 420 PSIG and 825°TT and 1 PSI absolute at exhaust aranteed steam flows—525°F & 825°TT at 1 PSI absolute

.C. Exciter 5.9 — Steam Flow 8190 lbs/hr
.C. Exciter 8.0 — Steam Flow 11385 lbs/hr
.C. Exciter 10 — Steam Flow 14790 lbs/hr

400 KW

WESTINGHOUSE/GE DESIGN

MFG. BY
WESTINGHOUSE

.8 PF 641 amps alternating current generator—class B in- W—120 VDC—1200 RPM.

ormal. Type G.E. 618N—equipped with synchronizing mo- **25 LBS/825°TT**: Sets 500 KW AC and 62.5 KW DC— apacity 50%—600 KW & 75 KW DC for five minutes. The AC & 50 KW DC at 420 lbs and 825°TT. The turbine is

	STEAM RATE
— 50 KW DC	5100 lbs/hour
— 37½ KW DC	3999 lbs/hour
— 25 KW DC	2885 lbs/hour

square inch absolute back pressure at flange:

— 62½ KW DC	— 8720 lbs/hour
— 50 KW DC	— 6980 lbs/hour
— 37½ KW DC	— 5450 lbs/hour

STROYER—G.E. INSTRUCTION BOOK 17716—WESTING-

class destroyer, G.E. and Westinghouse parts are interchange-

5'5¼".

le.
AH 7'5¼" over steam strainer.

PUMPS

21

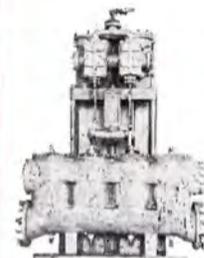


CARGO STRIPPING PUMPS

BRONZE T2 TANKER STRIPPING PUMPS

14x14x12—700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.

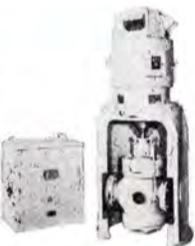
22



WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

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

23



UNUSED DELAVAL IMO ROTARY PUMP

175 GPM—35 PSIG—10 HP—120 volts DC—1750 RPM—serial E-8619—frame 324 VY—76 amps—mfg. by Electro Dynamics. With magnetic control. Excellent condition.

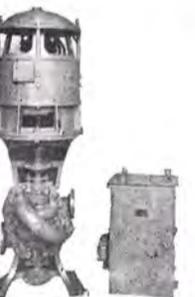
24



NEW TURBINE DRIVEN FIRE AND GENERAL SERVICE PUMP

Allis-Chalmers 6x5 pump, type SKH—1200 GPM—125 PSI—3500 RPM. Coppas turbine type TF-22-2½—3500 RPM. 273#—50° superheat.

25



DAYTON-DAWD 2-STAGE FIRE AND BILGE PUMP

Vertical 2-stage type TDV-10—20 HP—200 GPM @ 184'—3" discharge—4" suction—1775 RPM—Mau-mee Sun. Motor: 120 volts DC—20 HP—1775 RPM.

26

C-25 CARGO PUMP TURBINE SPARE GEARS

One set of gears available for Westinghouse C-25 Cargo Pump Turbine.

MISCELLANEOUS

DOUBLE REDUCTION GEARS for Diesel Drive

27



3200 HP DOUBLE INPUT SINGLE OUTPUT DIESEL REDUCTION GEARS 20 DEGREE OFFSET

Farrell-Birmingham—3200 SHP. REDUCTION GEAR: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard. Gear output 400 RPM. Suitable for dredge pumps. Non-reversing. OK for 38D8-½ engine.

28

2:67:1 RATIO DOUBLE IN-LINE GEARS

Farrell-Birmingham 3200 HP non-reversing— from seaplane tenders. Ratio 1.867:1. Complete with hydraulic couplings, etc. Will handle two 38D8-½ FM diesels. Has Fawick clutch.

29

2100 HP DOUBLE INPUT SINGLE OUTPUT GEARS—3:435:1 RATIO

Farrell-Birmingham—heavy duty—originally built for 2 heavy-duty direct-reversing engines—300 RPM—1050 HP each. Ratio 3.435:1.

30

SINGLE ENGINE REDUCTION GEAR

Farrell-Birmingham—non-reversing—1600 HP at 2,490:1. With hydraulic couplings.

31

DOUBLE INPUT SINGLE OUTPUT GEAR—7.9:1 RATIO

Final output 175 RPM. Mfg by Farrell-Birmingham—for use with two 515 HP—230 volts DC shunt wound motors—1040/1400 RPM.

32

ANCHOR WINDLASS

Hyde 2-11/16"—12x14—100 PSI—steam—54,100 lbs.

33



SHARPLES LUBE & DIESEL OIL PURIFIERS

Type M-34-W22-UM—15,000 RPM. BOWL MOTOR: 2 HP—230 volts DC—8.5 amps—3450 RPM—250 to 300 GPH. Originally built for C-1-A diesel vessels.

34



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

20" Ex. inlet—5/8" CU-NI tubes—with or without air ejector.

35



UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

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. Weight centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

INQUIRE FOR ALL OTHER ITEMS

Forced draft blowers, reduction gear parts, bilge and ballast pumps, main circulators, general service pumps, F.O. transfer pumps, lube oil service, standby feed pumps, condensate pumps, aux. circulating pumps, feed water heaters, wash water pumps, etc.

PLEASE SEND INFORMATION ON THE FOLLOWING:

(Please circle items)

7/15/74

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35										

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

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

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

**Brown & Root Elects
Eight New Officers
—Promotes Four VPs**

Brown & Root, Inc., has promoted four officers from vice president to senior vice president and elected seven new vice presidents and a new controller, it was announced by **Herbert J. Frensley**, president and chief executive officer.

Directors of the Houston-based firm, a Halliburton Company, elevated to senior vice president are **Ben J. Brookman**, Allied Industries; **Jack Gossett**, Petro-Chemical Division; **B.E. Stallworth**, North Sea Marine Operations, and **E.L. Tallichet**, Western Hemisphere Pipeline Operations. Mr. Stallworth is in London, the other three in Houston.

Newly elected vice presidents

are **O.M. Bakken**, Industrial-Civil Division; **Elmer H. Bomke**, Power Engineering; **John Bonner**, Allied Industries; **Marshall P. Cloyd**, Far East Marine Operations; **Walter E. Hesson**, Petro-Chemical Division; **Horace S. Hunt Jr.**, Chicago Engineering, and **J.M. Rainey**, North Sea Marine Operations.

Mr. Cloyd is stationed in Singapore, Mr. Hunt in Chicago, Mr.

Rainey in London, and the others in Houston.

Donald H. Harbour was elected controller, succeeding **R.E. (Bob) Plack** who continues as secretary of the company. The positions were split because of increased responsibilities in each area.

D.E. Newton succeeds Mr. Harbour as director of purchasing.

**Moore-McCormack
Names Hubert Carr**

Hubert F. Carr, vice president and secretary of Moore-McCormack Lines, Incorporated, the ocean shipping subsidiary of Moore McCormack Resources, Inc. (NYSE, Pacific) has been appointed to the additional role of general counsel, it was announced by **James R. Barker**, chairman of both companies.

Mr. Carr is also secretary of Moore McCormack Resources, and has been a vice president of "Mooremack" since 1971, and secretary since 1961.

Mr. Carr, who attended New York University and received his LL.B. degree from Brooklyn Law School, joined Moore-McCormack Lines in 1941. He became assistant insurance manager in 1946, an attorney in the legal department in 1953, and was made assistant secretary in 1955.

Mr. Carr is chairman of the Marine Index Bureau Advisory Board, the depository for illness and injury data relating to personnel in the U.S. merchant marine and related industries; a director of The New York Propeller Club; a member of the Maritime Law Association; the New York County Lawyers' Association, and the American Society of Corporate Secretaries.

**AMP Elects Haas
Corporate Vice Pres.**

Herman C. Haas, who for 25 years has been in various marketing capacities with AMP Incorporated, Harrisburg, Pa., was elected a corporate vice president at the company's recent shareholders meeting.

He will assume the duties of director of marketing, after serving most recently as vice president of the Telecom Division. He succeeds **W.C. Lange** as AMP's senior marketing officer. Mr. Lange, who retired on July 1, 1974, after 23 years of excellent service with AMP, will continue on a less active basis in a consulting and advisory capacity.

Johnson
DURAMAX PRODUCTS

**Serving the Marine Industries
WORLDWIDE**

In the seas and waterways of the world, Johnson-equipped vessels earn profits for their owners—with bearings, stuffing-boxes, fendering and cooling systems engineered for heavy duty—and

served by thirty factory-trained Johnson representatives around the globe. From New Orleans to Tokyo—from Oslo to Rio—you can depend of the reliability of Johnson Marine products.

OIL EXPLORATION

FISHING

OFFSHORE SUPPLY

DREDGING

CARGO

TOWAGE

**WORLD LEADERS
IN RUBBER PRODUCTS
FOR MARINE USE**

DEMOUNTABLE RUBBER STAVE BEARINGS

SLEEVE AND FLANGE BEARINGS

"AIR-SEAL" STUFFING BOXES

RUBBER FENDERING SYSTEMS

DEMOUNTABLE KEEL COOLERS

Write for Literature



**JOHNSON RUBBER COMPANY
MARINE DIVISION**

DURAMAX PRODUCTS

MIDDLEFIELD, OHIO 44062 U.S.A. Area Code 216-632-1611

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©JOHNSON Reg. Tradename, Trademark Applied For.

World Leader In Water Lubricated Rubber Bearings

Expanded Duties To Kienitz At ACBL—Darnell Joins Staff



Richard A. Kienitz

Richard A. Kienitz, Southern region manager in New Orleans, La., for American Commercial Barge Line Company, has been given expanded duties that include responsibility for the company's distribution services department operations in the Southern region.

The announcement of Mr. Kienitz's new responsibility was made jointly by **L.H. Meece**, sales vice president for American Commercial Barge Line Company (ACBL), and **D. Ray Miller**, distribution services vice president, at the company's general offices in Jeffersonville, Ind.



Gene Darnell

At the same time, Mr. Meece announced that **Gene Darnell** has joined ACBL as sales representative in its New Orleans offices.

Mr. Kienitz has been ACBL's Southern region manager since July 1972, and was formerly assistant manager in the Great Lakes region. He is a graduate of Ferris State College, and the College of Advanced Traffic, Chicago.

Mr. Darnell has been a student of transportation at Houston Community College and, prior to joining American Commercial Barge Line Company, had been a traffic representative with Tennessee Gas Pipeline Company for seven years.

American Commercial Barge Line Company is a part of the Inland Waterways Services Division of Texas Gas Transmission Corporation.

Atlantic Richfield Moves To New Philadelphia Location

Atlantic Richfield Company began moving its Philadelphia, Pa., business offices to the city's new ultramodern office complex at Centre Square, 1500 Market Street, on June 24. The company has been located at 260 South Broad Street since 1923.

Some 1,400 company employees

will occupy 23 floors in the Atlantic Richfield Tower at Centre Square. Approximately 500 employees are scheduled for the initial move.

Among those organizations relocating to Atlantic Richfield Tower will be the headquarters of the ARCO Chemical Company division of Atlantic Richfield, and ARCO Polymers, Inc., a Pittsburgh-based subsidiary of the company.

Installation of Bell System Centrex telephone equipment will permit direct dialing of calls to company employees at the new Centre Square location, a spokesman said. The telephone number is (215) 557-2000.

The 21-story landmark building at 260 South Broad Street will be acquired by the Philadelphia College of Art through a gift-sale arrangement. It will be converted into classrooms and studios.

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a crane that can fit the big pieces into place, like this 200-ton capacity Clyde Whirley used by FMC Corporation, you can get it from Clyde, with the capacities and features that give greater productivity than any other equipment.

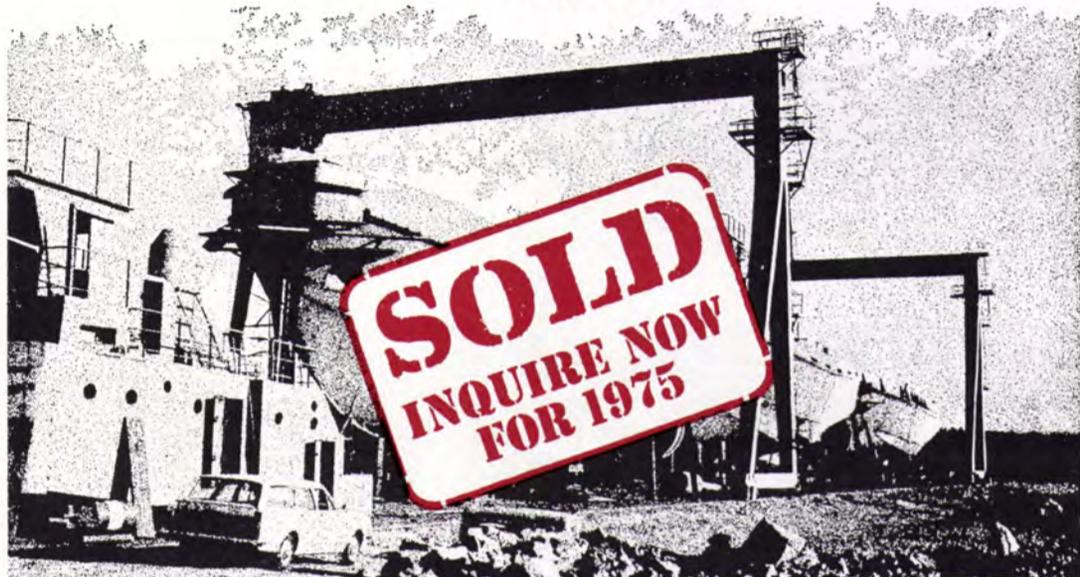
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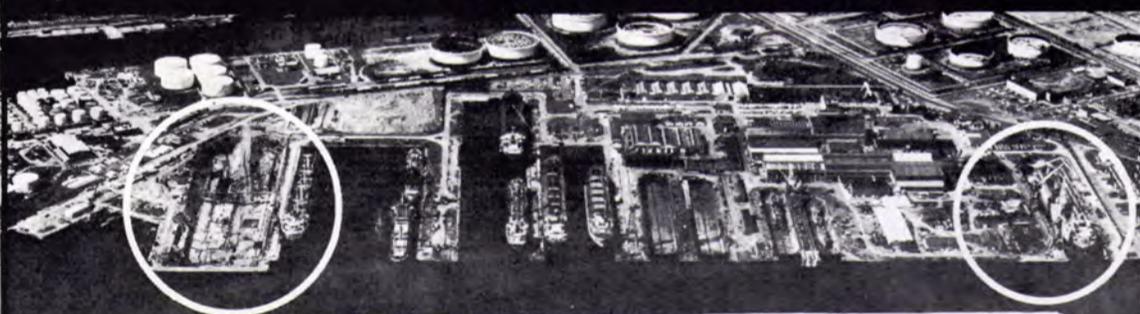
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Offshore Drilling Platform —Largest Sea Structure Ever Installed From Barge

The Ocean Engineering Department of Lloyd's Register has just completed a check on structural analysis, fatigue calculations, piling analysis and launch analysis for the drilling/production platform "A" ordered by Occidental of Britain Inc. for installation at their North Sea Piper Field.

In addition, Lloyd's Register Industrial Services is inspecting steelwork for the platform during manufacture in Japan, Federal Germany and France and surveying site fabrication and assembly at two main sites in Scotland and France.

The platform jacket is of tubular steel lattice construction with four main legs. It measures 500 feet in height by 200 feet square at the base. When the platform is floated out to the Piper Field on a flat-bottomed barge, it will be the largest sea structure ever installed in this manner.

The construction of this platform is an international operation.

The key role of assembling the parts for the platform is being carried out at the Ardersier, Scotland, site of McDermott (Scotland) who are fabricating and erecting the lower 220 feet of the platform, including sections shipped from Japan. They will also complete the attachment of the upper 280-foot section of the platform when this is received from France, and will load out the completed 12,500-ton platform jacket later this year for installation in 474 feet of water.

Dr. Potter Named Navy Under Secretary

President Nixon has named Dr. David S. Potter to the post of Navy Under Secretary, succeeding J. William Middendorf II who has been installed as Navy Secretary.

Dr. Potter has been serving as Assistant Navy Secretary (Research and Development) since September 1973. Previously, he was director of research, General Motors Detroit Diesel Allison Division, Indianapolis, Ind.

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Maritime Transportation Research Board Meets At Webb Institute

The Maritime Transportation Research Board of the National Academy of Sciences held its spring meeting at the Webb Institute of Naval Architecture in Glen Cove, N.Y. The board, under the chairmanship of **Edgar F. Luckenbach Jr.**, president of the Luckenbach Steamship Company, reviewed its on-going research projects on Nuclear Merchant Ships, Metrication, Human Error in Merchant Marine Safety, National Port Requirements and Sealift Readiness.

In addition to reviewing on-going projects, the board considered new research in the broad areas of maritime trade policies and practices and bulk import capabilities.

In ceremonies held at Webb, Mr. Luckenbach, retiring this year as chairman of the board, was presented with a certificate of appreciation from the board members by Dr. **Ernst Weber**, chairman of the National Research Council—Division of Engineering.

The board operates under the Division of Engineering of the National Research Council, National Academy of Sciences, which is chartered by Congress to provide advice to the Government in areas of science and technology. The board's operations are jointly funded by the Departments of Transportation, Commerce and Defense. The chairman and members of the board serve without compensation in the national interest.

The current membership of the board is as follows: **Edgar F. Luckenbach Jr.**, chairman, president and chairman of the board, Luckenbach Steamship Company, Inc.; **Robert J. Ables**, attorney at law; **Richard B. Couch**, Professor, Naval Architecture Research Office, University of Michigan; **Louis E. Davis**, Professor of organizational sciences, director, Quality of Working Life Program, Graduate School of Management, University of California at Los Angeles; **James A. Fay**, Professor of civil engineering, Massachusetts Institute of Technology; **John T. Gilbride**, president, Todd Shipyards Corp.; **John E. Goldberg**, Professor, School of Civil Engineering, Purdue University; **Bertram Gottlieb**, director of research, Transportation

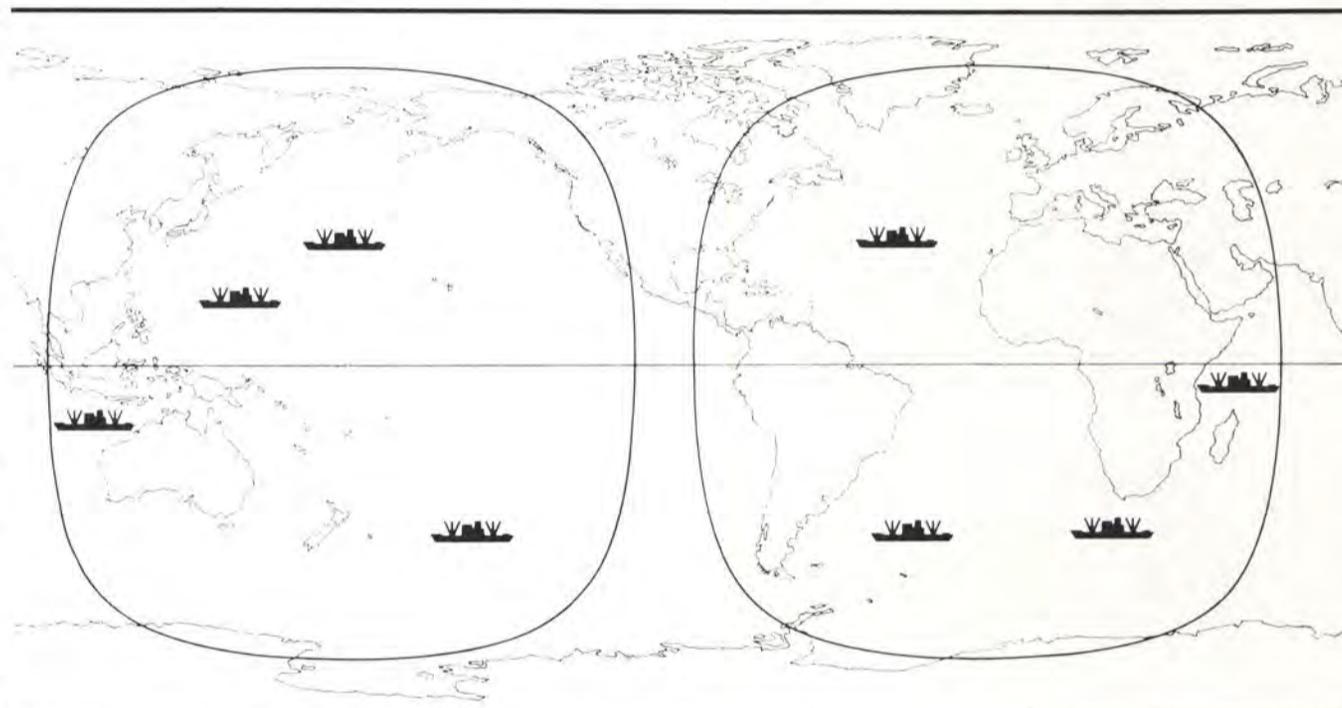
Institute; **Edwin T. Haefele**, director, regional and urban studies, Resources for the Future, Inc.; **John L. Hazard**, Professor of Transportation, department of marketing and transportation administration, Michigan State University; **James J. Henry**, president, J.J. Henry Co., Inc.; **Ran Hettena**, vice president, operations, Maritime Overseas Corpo-

ration; **David C.G. Kerr**, partner, Macfarlane, Ferguson, Allison & Kelly; **Harold M. Mayer**, University Professor of Geography, department of geography, Kent State University; **Ben E. Nutter**, executive director and chief engineer, Port of Oakland; **Paul E. Parfrey**, manager, international purchasing and transportation, AMF, Inc.; **Robert J. Pfeiffer**,

president, Matson Navigation Company; **Richard F. Pollard**, senior vice president, The Chase Manhattan Bank; **John B. Ricker Jr.**, chairman of the board and president, Marine Office-Appleton & Cox Corp.; **Nathan S. Simat**, president, Simat, Helliesen & Eichner, Inc., and **Robert T. Young**, president, American Bureau of Shipping.

COMSAT GENERAL INTRODUCES The World's First Maritime Communications Satellite System

Commercial service begins next year



Reliable and immediate telex, teletype, data, facsimile, and voice communications of superior quality will be available in the ocean areas shown.

COMSAT GENERAL, a subsidiary of the Communications Satellite Corporation (COMSAT), is the major participant in the establishment of MARISAT, the world's first satellite communications system for use by the international shipping industry.

Small antennas located aboard ships will communicate to shore stations through our maritime satellites to be launched in early 1975. These stations, in turn, will be connected via existing terrestrial or satellite communications facilities to a shipowner's office anywhere in the world.

The MARISAT system will provide a full range of telex, teletype, data, facsimile, and voice service on a 24-hour per day basis between ships at sea and shore of a quality and reliability not before possible and at reasonable rates.

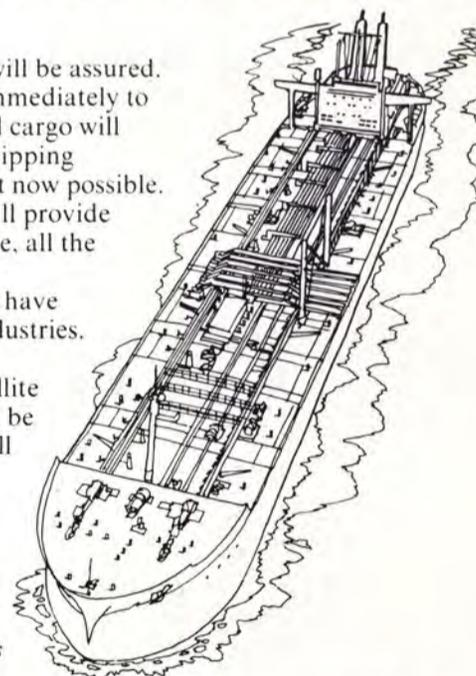
Scheduling and routing will be improved as continuous contact between a ship at sea

and its shore management will be assured. The ability to direct ships immediately to new ports to load or off-load cargo will reduce costs and improve shipping management to a degree not now possible.

The MARISAT system will provide fleet owners, for the first time, all the advantages that modern communications techniques have already brought to shore industries.

In early 1975, COMSAT GENERAL's maritime satellite communications service will be a reality, and shipowners will enjoy the benefits of the world's first satellite communications system designed exclusively for maritime use.

For additional information, write one of the sales offices listed below.

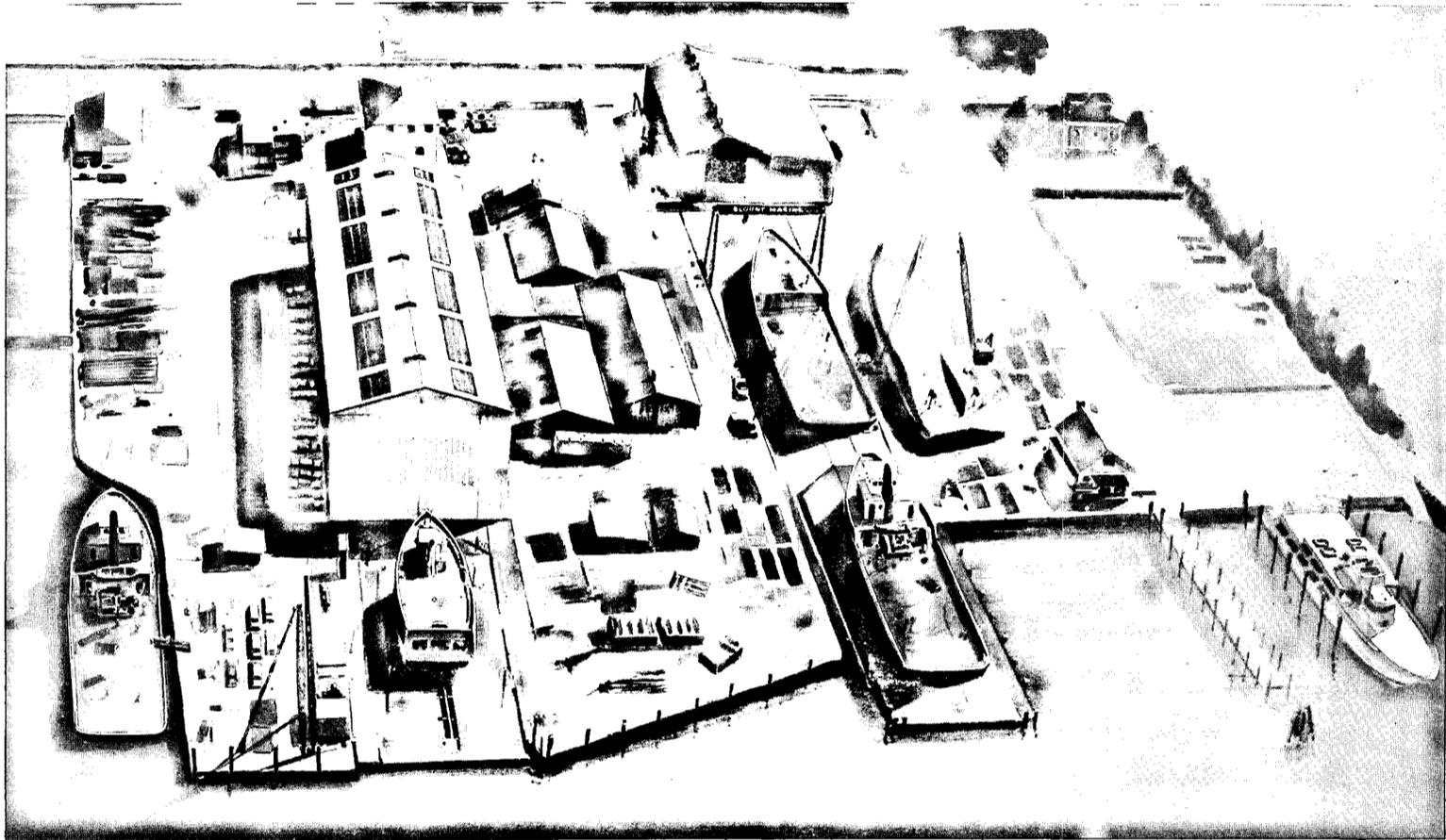


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**Buffalo Forge Co.
Names David Tuttle**

J. David Tuttle has been appointed district sales manager of the marine department Gulf Coast region for the Buffalo Forge Co., it was announced by Charles W. Lockhart, vice president of sales. He will be located in New Orleans, La.

Mr. Tuttle joined Buffalo Forge in 1950, and has served in design, engineering and sales capacities. Most recently, he has represented Buffalo Forge in the Dallas area.

A graduate of Purdue University and a registered professional engineer in the state of Texas, Mr. Tuttle will represent Buffalo's Air Handling and Pump Division to the marine trade in the Gulf Coast region. This is a new arrangement for Buffalo Forge, this area having previously been serviced from their Washington, D.C., office.

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255,600-Dwt Tanker
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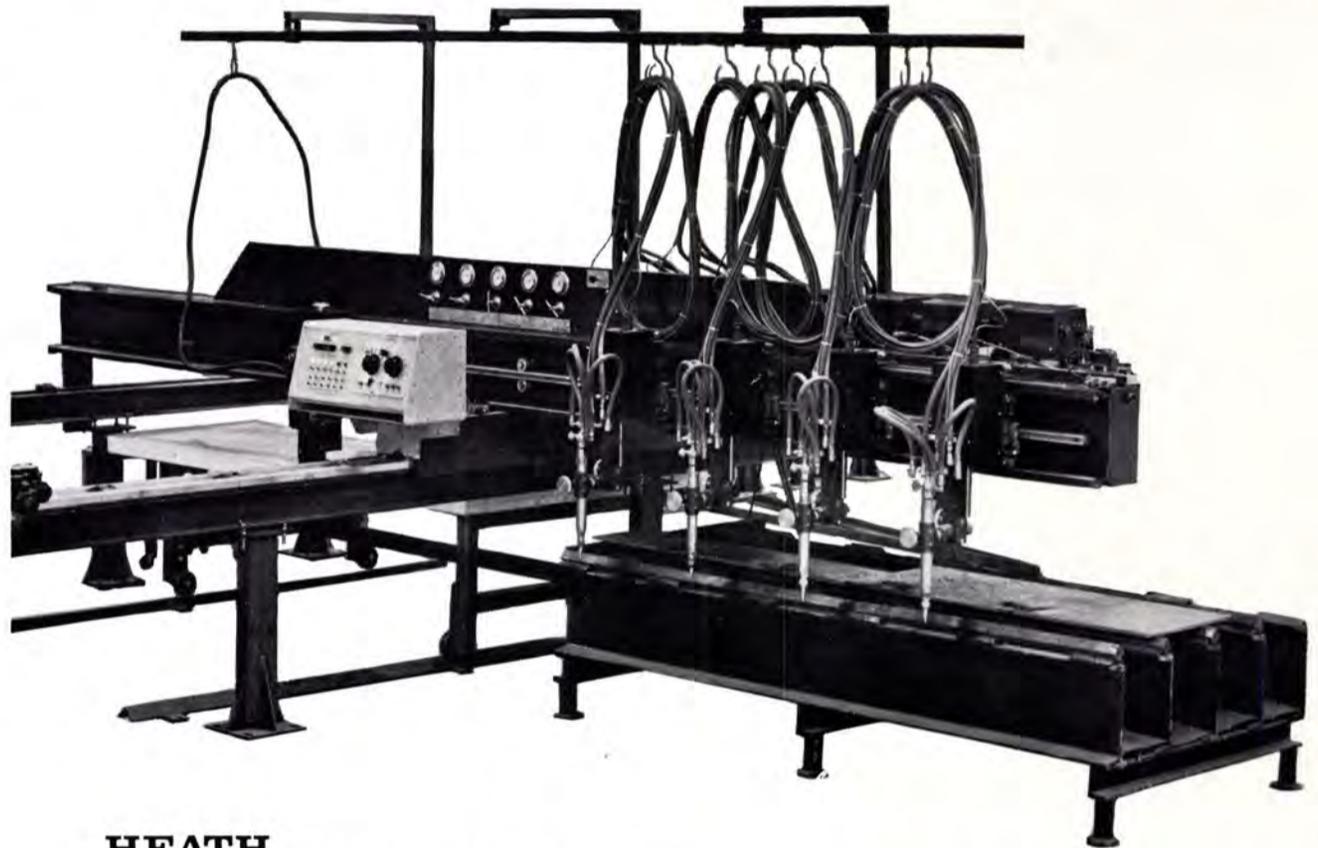
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Naturally, your end costs hit rock-bottom piece after piece. Our big LCD flame cutter gives you all that. And more. It's made for high production.

Our other coordinate drive flame cutting machines will also give you mighty impressive performances. ECD and MCD cutters fit smaller budgets and medium to light production schedules. Heath/Liquid offers powerful coordinate drive equipment to suit any production need. Plus cutting know-how and follow-up to assure complete satisfaction. You'll like our prices, too. Mail the coupon to start things moving your way.



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Ship Salvage Group Holds 22nd Biannual Meeting In Denmark

The International Salvage Union held their 22nd biannual general meeting on June 12-13, 1974, at Nyborg, Denmark. Members were confident in their ability to continue and develop their salvage fleets and equipment to meet the

changing and demanding needs of the shipping industry.

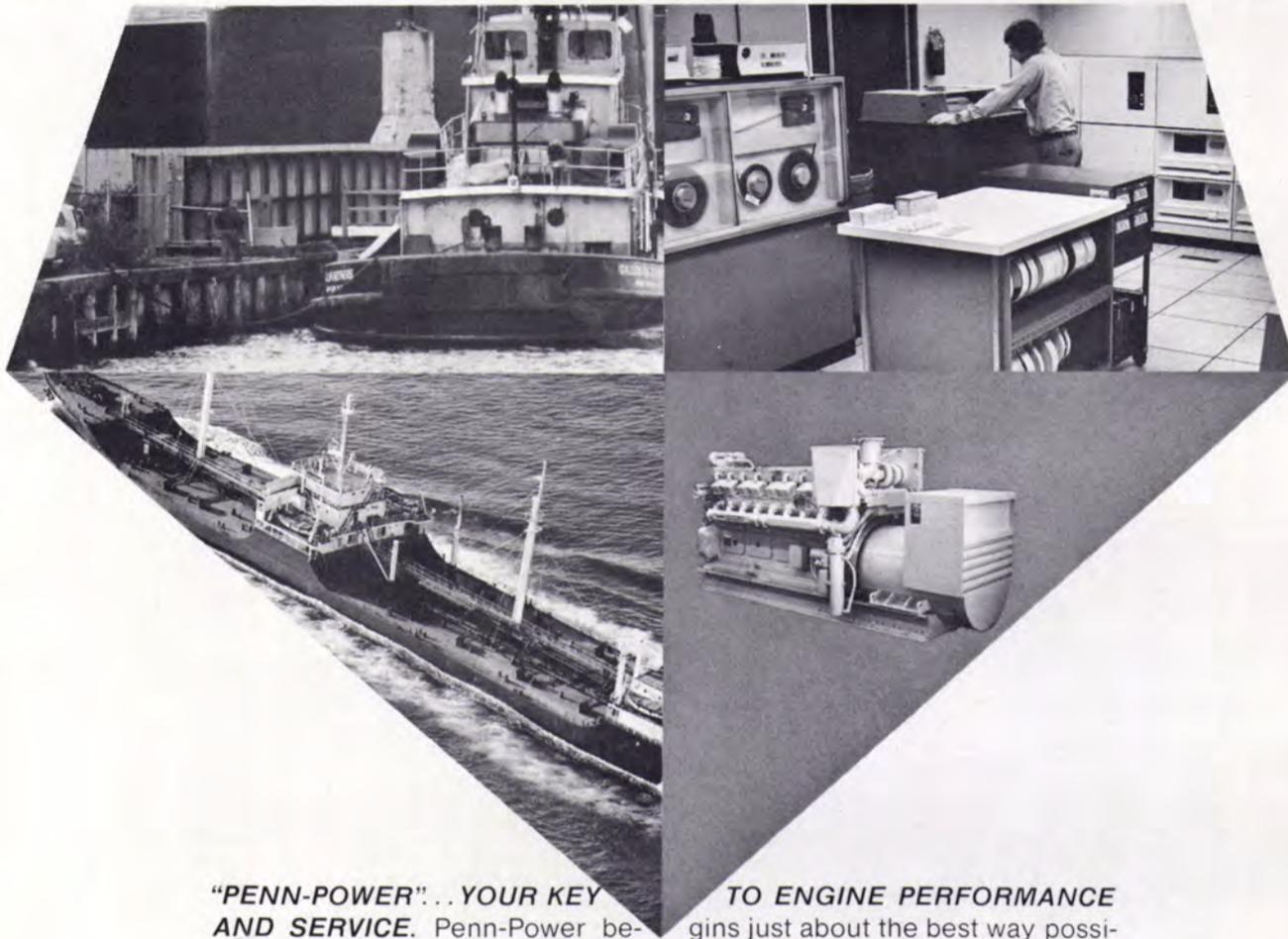
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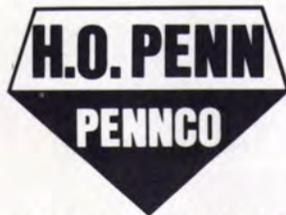
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Mooremack Lines Elects Edward Hahn Assistant Treasurer

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Mr. Begg, regional sales and traffic manager for Central Gulf Lines, Inc., will head the world trade organization for the 1974-75 year.

Tacoma Firm To Construct

for a floating LPG terminal to be anchored 50 miles off the coast of Java. The terminal

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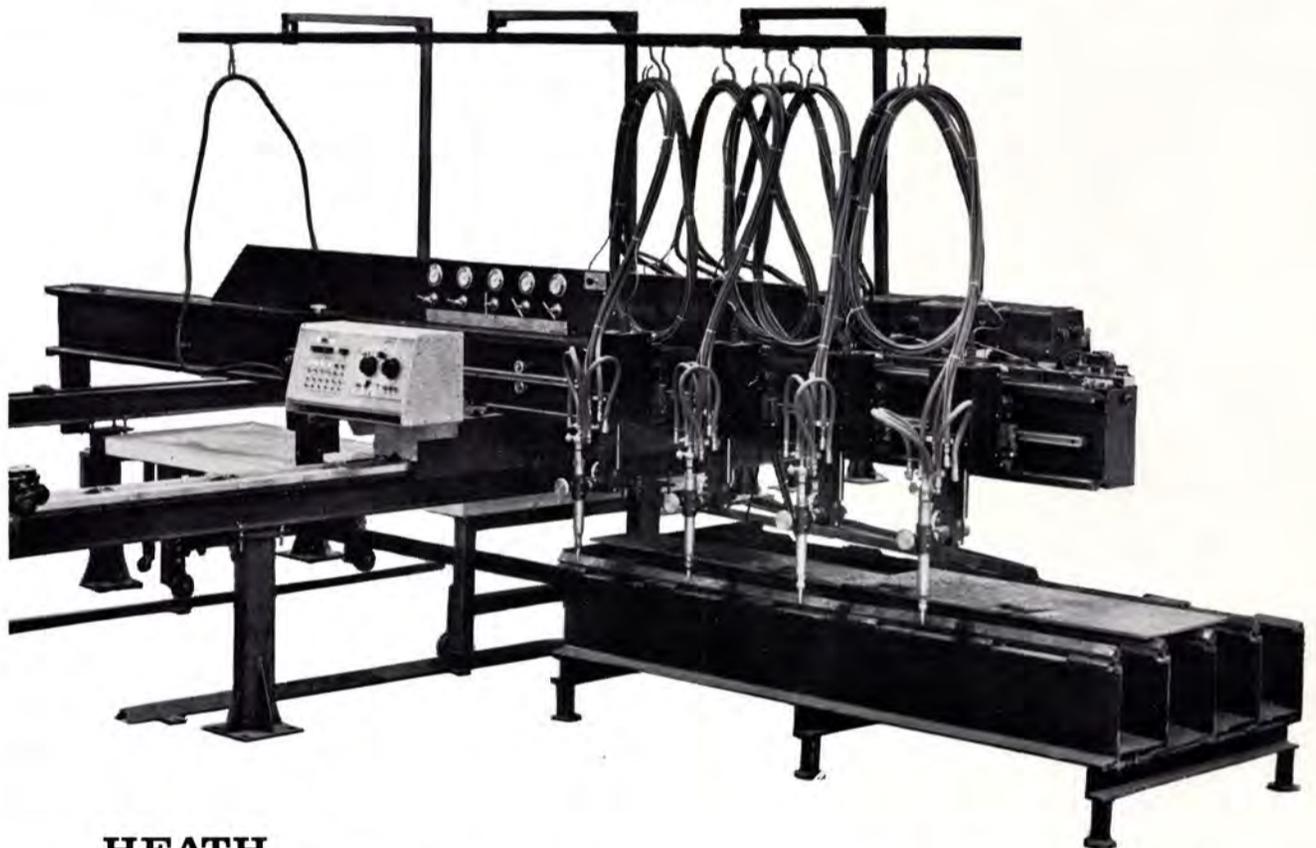
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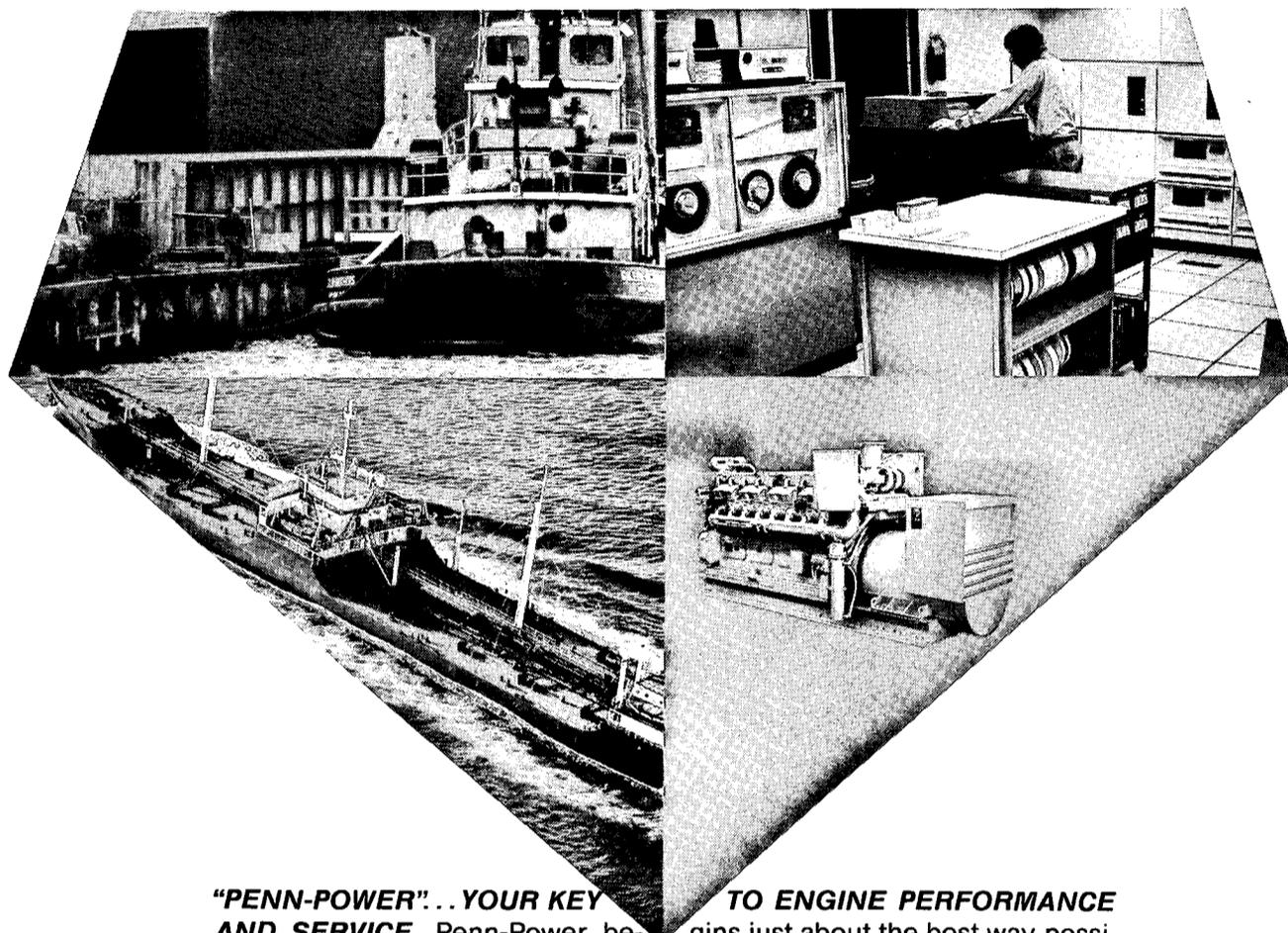
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Two Vice Presidents Appointed By Colt's Fairbanks Morse Div.



Robert H. Beadle

An announcement was made by **John F. Morgan**, president of Colt Industries' Fairbanks Morse Engine Division, of the appointment of two vice presidents at the division's Beloit, Wis., plant. **Robert H. Beadle** was appointed vice president of engineering, and **Garry L. Davis** was appointed vice president of manufacturing.



Garry L. Davis

Mr. Beadle has been with the company for 35 years, having started in 1939 as an erection and test apprentice after attending the University of Wisconsin. He has held a number of increasingly responsible positions in engineering management including superintendent of the experimental department, chief engineer for opposed piston engines, and most recently as manager of engineering. He has been active in a number of engineering groups such as The Society of Naval Architects and Marine Engineers, and American Society of Mechanical Engineers.

Mr. Beadle is a registered professional engineer and holds a number of U.S. patents in the internal combustion engine field. In his new position, he will be responsible for all of the division's product engineering, quality control and engine testing.

Mr. Davis comes to Fairbanks Morse from Delaval's Enterprise Engine Division in Oakland, Calif., where he has been manager of operations. He was previously employed by Fairbanks Morse in

Beloit as manager of shop operations, medium engines.

Mr. Davis graduated from the General Electric apprentice program in 1955, and their factory management program in 1959. He held a number of manufacturing management positions, including general foreman, superintendent and manager of manufacturing with G.E. at Erie, Pa.

In his new post, he will be responsible for all engine manufacturing activities, as well as the foundry operation and AEC manufacturing.

Colt's Fairbanks Morse Engine Division builds medium and large diesel engines including generator systems for standby, peaking and base load power generation, and marine propulsion systems for a wide variety of ship applications. The division is also engaged in specialty machining for nuclear power plant components and offers a broad capability in foundry services.

Va-Power Division Appoints Three

Albert Lemos Jr., vice president and general manager of the Va-Power Division of Chicago-based Vapor Corporation, recently announced a restructuring of the division's sales and marketing activities.

Fred J. Kelly will assume the responsibilities of assistant general manager and manager of marketing for the Va-Power Division. Mr. Kelly has been associated with Vapor Corporation for 16 years, serving as manager of sales and product application until his recent appointment. Previously, he held positions as chief engineer and project engineer.

Mr. Kelly will be responsible for all marketing functions and product planning.

Stanley J. LeMieux has been promoted to sales manager, with **John Palatine** assuming the position of assistant sales manager for the Va-Power Division of Vapor Corporation.

Mr. LeMieux began at Vapor in 1965 after graduating with a BSME degree as an application engineer. In 1971, he became assistant sales manager for the Va-Power Division, serving in that capacity until his recent appointment as sales manager.

Mr. Palatine brings 19 years of experience with Vapor Corporation to his new assignment as

assistant sales manager for the Va-Power Division. His background includes positions in design engineering and application engineering, as well as sales.

The Va-Power Division of Vapor Corporation, based in Niles, Ill., is a major supplier to the marine industry of thermal fluid (hot oil) cargo heaters and auxiliary steam generators. Va-Power products have a wide range of

application in the marine field for ship heating and as a source of steam for seawater evaporators.

Vapor Corporation also supplies steam generators for use in diesel passenger locomotives; temperature control systems for metropolitan rapid transit cars, commercial and military aircraft and buses; and electrical and electronic equipment for the broad transportation industry.

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Tacoma Firm To Construct \$32-Million Concrete Hull For Offshore LPG Storage

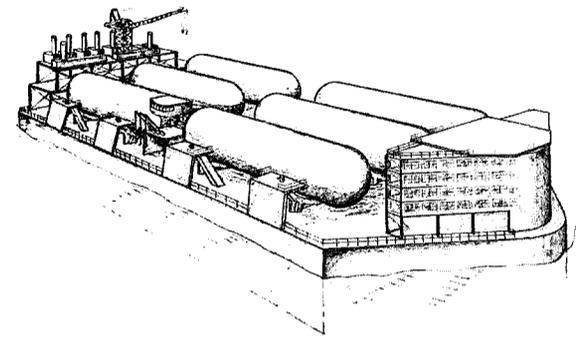
Concrete Technology Corporation has expanded its operations in association with Trans-Energy International, Inc. of Hamilton, Bermuda. The two companies have jointly formed Concrete Energy Systems, Inc. for the purpose of constructing and marketing transportation and storage facilities for LPG, utilizing steel tanks mounted on a prestressed concrete hull.

The first project to be constructed by Concrete Energy Systems, Inc. will be under a \$32-million contract which has been executed with Atlantic Richfield Indonesia, Inc.,

for a floating LPG terminal to be anchored 50 miles off the coast of Java. The terminal will be used in conjunction with the ARCO-Indonesia Ardjuna Field in the Java Sea.

The structural design of the concrete hull will be done in Tacoma by ABAM Engineers, Inc. The design will feature a prestressed concrete hull 461 feet long, 136 feet wide, and 56 feet deep, which will support twelve 38-foot-diameter by 168-foot-long cylindrical LPG storage tanks. Below-deck compartments will house six of the pressure vessels, and the remaining six will be mounted on the top deck. The total storage capacity of the steel tanks will accommodate 375,000 barrels of LPG at a temperature of minus 50 degrees Fahrenheit. The concrete float

will serve as a storage and distribution facility for gas from the Indonesia wells, and will include housing for 50 personnel needed to serve the operations aboard.



375,000 barrels of LPG at minus 50 degrees Fahrenheit will be stored in 12 steel cylindrical tanks — six below deck and six mounted on the top deck of the concrete hull.

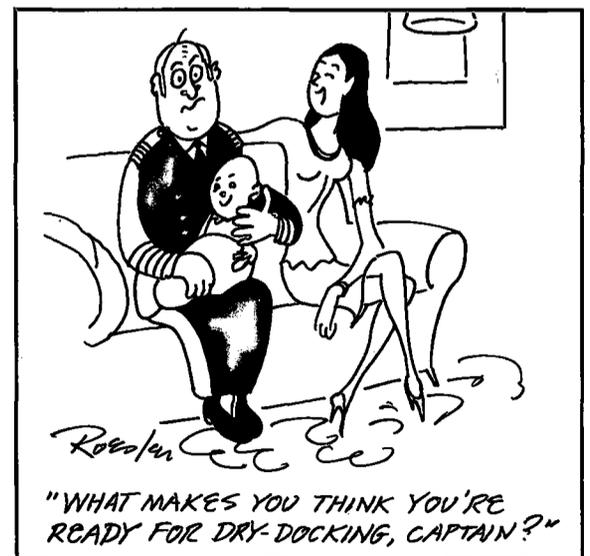
The prestressed concrete hull will be fabricated by Concrete Technology Corporation at its Blair Waterway plant in Tacoma, Wash. A combination of precast and cast-in-place construction will be used, with lateral and transverse post-tensioning employed throughout the multicelled hull.

In conjunction with this project, Concrete Technology Corporation, under permit from the U.S. Army Corps of Engineers, is building a 150-foot by 600-foot graving dock on its property in Tacoma. The graving dock is an important step in the long-range growth plans of Concrete Tech, and the expansion is expected to find use for a variety of projects in the future.

Major subcontractors on the project are the American Bridge Division of the U.S. Steel Corporation, which will fabricate and install the LPG tanks, and Lewis Refrigeration Company of Woodinville, Wash., which will design and build the main refrigeration plant to cool the incoming hot propane liquid from 115 degrees Fahrenheit to minus 50 degrees Fahrenheit.

Upon completion of the facility in Tacoma, it will be towed to Indonesia under a towing arrangement to be made by Concrete Energy Systems, Inc.

Company officials expect the project to take about 18 months to complete.



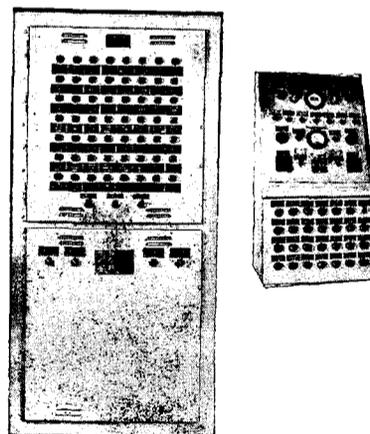
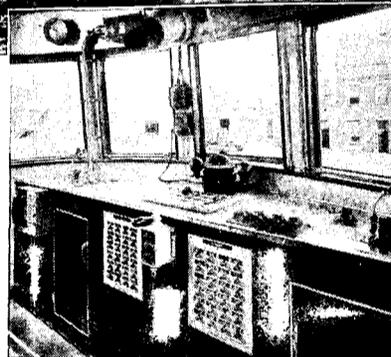
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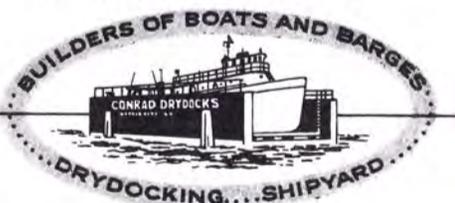
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SNAME No. California Section Hears Paper On Final Design Of The Golden Gate Ferries



Shown at the Northern California Section meeting in San Francisco, left to right: **Philip F. Spaulding**, author, Nickum & Spaulding, naval architects, Seattle, Wash.; **Joseph Busch**, outgoing Section chairman; **Phillip Eisenberg**, national Society president, Hydro-nautics Inc., Washington, D.C., and **Robert Herbert**, incoming Section chairman, naval architect.

An overflow crowd of members of the Northern California Section of The Society of Naval Architects and Marine Engineers at the Engineers Club in San Francisco recently heard a presentation by **Philip F. Spaulding** of Nickum & Spaulding Associates, Inc., Seattle, Wash., on the "Considerations Affecting the Final Design of the Golden Gate Ferries." Mr. Spaulding, the author, reviewed the detailed studies of traffic and growth patterns in the Bay Area, and provided the audience a comprehensive picture of the practical as well as theoretical, economic and engineering considerations resulting in the design as currently under construction.

Unique features that were discussed in detail were the increase in U.S. Coast Guard acceptance of aluminum in fireproof construction, and the gas turbine water jet propulsion system. These unusual features were required to minimize weight due to the shallow draft in some of the areas served.

Subsequent discussion brought out that the alternative of a Hovercraft was dismissed due to the absence of sufficient U.S. development of the necessary technology. It was explained that an unusual degree of passenger comfort was required in this design due to the direct competition with freeway automobile transportation. It was indicated that this is the only effort ever made to compete directly for ferry passengers in this manner.

Discussors at the meeting were: Stan Koleski, Golden Gate Bridge Authority; Zack Reynolds, Merritt Ship Repair; Alan Winkley, naval architect; James Sweeney, Mare Island Naval Shipyard; Marshall Silverthorn, T.T. Lunde; James Brown, Matson Navigation; Bruce Bishop, Chevron, and Roger Potash, Litton Industries.

Additionally featured at the meeting was an address by **Phillip Eisenberg** of Washington, D.C., national Society president. He presented a certificate of appreciation to **Joseph Busch**, outgoing Northern California Section chairman.

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Shepard Niles Cranes Ordered For Offshore Nuclear Power Plants

Shepard Niles cranes ranging from 10 to 40 tons in capacity will be utilized for building the nation's first floating nuclear power plant construction facilities. The crane order was awarded to Shepard Niles Crane & Hoist

Corporation, subsidiary of Vulcan, Inc. of Montour Falls, N.Y., by Offshore Power Systems, a joint venture of Westinghouse Electric Corp. and Tenneco, Inc.

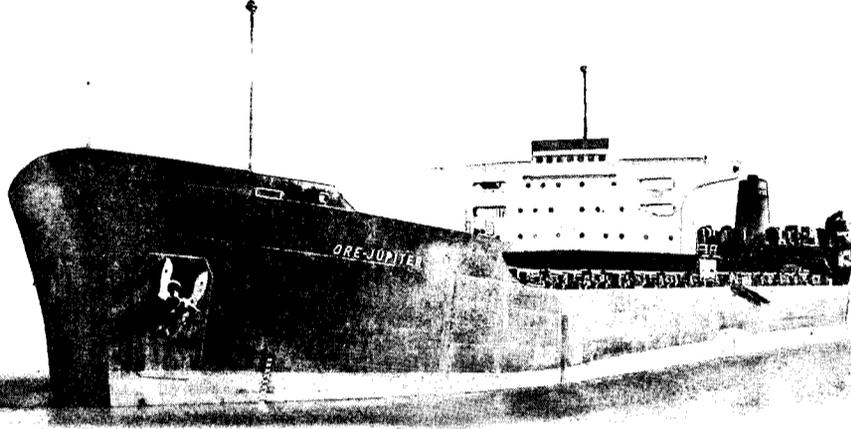
Spans for the Shepard Niles cranes range from 26 feet to 102 feet. Seven of the cranes are floor operated, two are cab/floor operated, and one is radio controlled for Class D high-performance service.

All 10 cranes will be installed at Offshore Power Systems' giant shipyard-like manufacturing facility in Jacksonville, Fla., where the PMNPPs (Platform Mounted Nuclear Power-Plants) will be constructed on a unique "assembly-line" basis. The 140,000-ton plants will be completed at a proposed rate of four per year, with production expected to begin in mid-1975. Upon completion, the

units will be towed to predetermined ocean sites about three miles offshore from major U.S. cities. Electric power produced by the nuclear plants will be transmitted to shore by underwater cables.

Sale of the cranes to Offshore Power Systems was handled by Shepard Niles's Florida agent, Southern Overhead Systems. The total order exceeds \$700,000.

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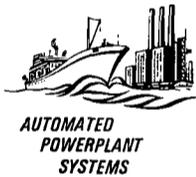
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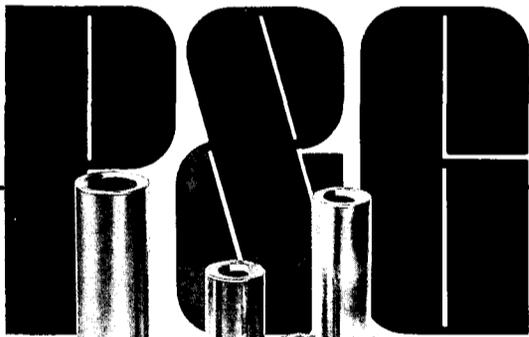
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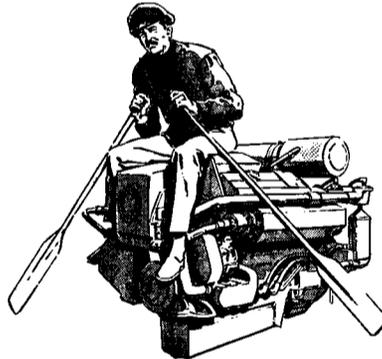
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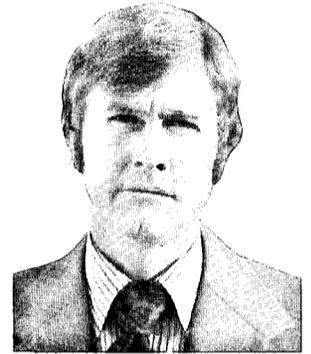
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United States Lines Names Robert Splan To West Coast Post



Robert H. Splan

Robert H. Splan has been named West Coast Division sales manager for United States Lines, it was announced by James J. Carey, vice president-West Coast Division.

Mr. Splan was manager of special accounts for Sea-Land Service, Inc. and had a number of previous assignments for that company, including California sales manager for the Far East Division and sales management positions in Denver and Charleston areas, serving European routes.

He is a graduate of San Jose State University with a Bachelor of Science degree in industrial management. He has lived with his family in Berkeley Heights, N.J., but will be relocating to the West Coast. The division headquarters is in Oakland, Calif.

United States Lines operates an all-modern fleet of 37 vessels serving various areas of the world. Sixteen high-speed high-capacity containerships maintain the 15,000-mile Tri-Continent Service between Europe, the East and West Coasts of the United States, Hawaii, Guam and the Far East, and seven feeder vessels transport cargoes to ports which are not on the primary trade routes. The company also has 14 fast Challenger-class general cargo vessels engaged in commercial and chartered services in the trans-Atlantic and trans-Pacific areas.

Norwegian Firm Orders Four Offshore Supply Vessels From Mangone Of Texas

Fred Olsen and Company, one of the world's largest drilling and shipping firms, has selected Mangone Shipbuilding of Houston, Texas, to build four new tug-supply vessels for its rugged North Sea operations. Olsen is headquartered in Oslo and becomes the third Norwegian firm to contract for the tug-supply ships from Mangone.

The four vessels are already under construction, Mangone vice president and general manager **Don Godeau** reports. They include two 185-foot ships to be delivered in October and December, and two 213-foot vessels to be delivered in May and September of 1975.

Olsen's two 185-foot ships will have an approximate 10,000-mile range, 15-knot cruising speed, and 30-day working capacity. The ships sleep 26 people. They will be powered by two 2,875-hp General Motors EMD 16-645 E-5 diesel engines, with auxiliary power supplied by two Detroit Diesel generator sets rated at 125-kw each, and an additional 150-kw generator. They will have a 38-foot beam, 16-foot depth, and 13-foot draft.

The trend in tug-supply vessels is toward larger, more versatile ships. Mr. Godeau predicted several years ago that tug-supply vessels would go over 200 feet. The two 213-foot ships for Olsen and Company will have additional deck cargo capacity, extra cement-carrying capacity, expanded range and working capacity, 7,000 horsepower, maintaining the high Mangone standards of ruggedness and maneuverability. The new 213-foot vessels will meet both NSC and SOLAS requirements.

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July 15, 1974

\$34-Million Malta Drydock To Handle 300,000-Ton VLCCs

Malta Drydock officials and representatives of the Chinese Government have signed an agreement for the construction of a jumbo-sized dock at the yard capable of taking VLCCs of up to 300,000 deadweight tons. The project, which is expected to cost around \$34 million will include a drydock about 1,148 feet long and 203 feet wide. In addition, an approximately 1,247-foot wharf will be constructed alongside, while the project also includes cranes which will be built in the drydocks themselves.

Financed through the \$41 million loaned to Malta by China two years ago, the new

dock is expected to be inaugurated by 1976. About 100 Chinese technicians will be working on the project.

This year, Malta Drydocks is expecting to achieve record sales, and the latest hopes of a new contract with Esso tankers are reported to have been encouraging. During April and May, ship repair and engineering sales topped the \$4.2-million mark—an unprecedented figure.

During the course of the year, the Labor Government of Dom Mintoff has promised to introduce legislation reverting the yard's ownership to the 4,500 workers as their reward for cooperating with the Government in rescuing the ex-Royal Navy dockyard from virtual bankruptcy.

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Japanese Shipyards Competitive Position Hit By Inflation

Japan's shipbuilding industry, the largest in the world, is losing its competitive power because of the inflation that has hit the country.

Japanese shipyards say overseas and even domestic ship-owners are turning to foreign shipyards—particularly in Western Europe, because of the soaring costs of materials and labor in Japan.

On the domestic market, a Japanese shipping company, the Oyama Shipping Company, Ltd., has ordered three 13,000-deadweight-ton container carriers from a West German yard.

Shipping sources say this is the first shipbuilding order placed overseas by a Japanese company.

"Lower ship costs and earlier deliveries—that used to be sell-

ing points for Japanese yards—are attracting us overseas," a spokesman for Oyama said.

A major Japanese shipbuilder also notes there have been few orders for giant tankers exceeding 200,000 deadweight tons in recent months, especially from overseas owners.

The Hitachi Shipbuilding & Engineering Company, Ltd., said that shipbuilding costs have doubled during the last five years to between \$180 and \$200 per ton for a supertanker of more than 200,000 deadweight tons, and between \$350 and \$400 for "clean" tankers carrying petroleum products.

The cost is even higher for dry cargo and container carriers, or special-purpose tankers such as liquefied natural gas carriers, Hitachi said.

A vice president of Hitachi, Nobuo Inoue, said at a news conference recently that his company

would not accept for the time being any orders for vessels exceeding 200,000 deadweight tons.

He said it would be dangerous to accept such orders from either overseas or domestic owners for long-range delivery because of inflation and a slump in the shipping market.

Other local shipyards also say that higher building costs have now offset the old advantages held by Japanese yards, fast construction, easy terms and advanced techniques.

To cover inflation, many Japanese yards are also attaching escalation or slide clauses to shipbuilding contracts, another factor leading to a decrease in their competitiveness on world markets.

Ishikawajima-Harima Heavy Industries, another major shipbuilder, said it won a 60,000-ton order for an oil tanker from Yugoslavia with a slide clause attached to the contract terms.

Mitsubishi Heavy Industries, Ltd., a third major shipyard, won a similar contract from a Japanese owner for a 58,000-ton high-speed container vessel.

Ishikawajima-Harima said, however, that major Japanese shipyards are remaining calm despite their loss of competitive power. They still hold a large backlog of orders for 630 ships totaling 50-million gross tons, more than 80 percent of which are for tankers.

This is enough to keep the Japanese yards operating for another three to 3½ years at least, Ishikawajima-Harima said.

During the last fiscal year ended March 31, Japanese shipyards won orders for a record total of 718 vessels amounting to 33,800,000 tons, of which 574 ships amounting to 27,700,000 tons were for export, according to the Transport Ministry. This accounted for about 40 percent of the world's annual shipping demand.

The Transport Ministry said a record 223 new ships totaling 13,800,000 tons were also launched during the 1973 fiscal year.

The biggest vessels now afloat are two 483,000-deadweight-ton oil tankers built in Japan and owned by the London-based Globtik Tankers, Ltd.

There are a total of 15 building docks in Japan that can construct vessels of more than 200,000 tons. Of these, three are capable

of building mammoth tankers of more than 500,000 deadweight tons.

Some major shipyards are building or planning their own "mega-ton" building docks. But the Transport Ministry has asked the yards to defer their capital outlays for some time, in line with Government efforts to combat inflation.

Some shipyards say they have decided to postpone construction of giant docks for about a year.

In fact, costs have risen to such an extent in Japan that shipbuilders are even purchasing marine equipment from overseas to put in export vessels. Some makers note that the price of Japanese-made equipment has risen by more than 50 percent.

Basic costs are likely to continue to rise, with Japanese steel mills seeking Government permission for a steep increase in the price of steel products.

A number of major shipyards are also considering technical linkups with, or the sale of advanced techniques to overseas yards, particularly in the developing countries.

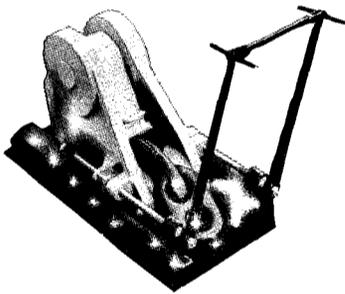
Nippon Kokan Kaisha is planning a financial lineup with a Colombian shipyard to help it expand and to build up a foothold in the Latin American market. It also said that it has been asked by Saudi Arabia to provide financial and technological assistance in building a shipyard capable of constructing vessels of up to 500,000 tons.

No. Atlantic Ports Assn. Elects New Officers

James R. Kelly, director, World Trade Division, Delaware River Port Authority, has been elected as president of the North Atlantic Ports Association at a recent meeting held in New York.

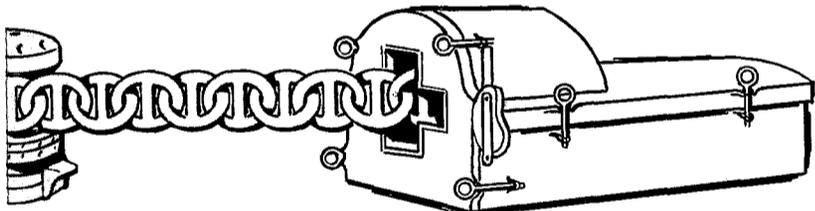
The other new officers include Marvin V. Craft Jr., deputy executive director for port operations and trade development, Virginia Port Authority, 1st vice president; Robert J. Nolan Sr., vice president, International Terminal Operating Co., New York, 2nd vice president; Capt. C.V. Storer, general manager-operations, marine terminals department, Port Authority of New York and New Jersey, secretary, and Joseph J. Connolly, general superintendent marine terminals, Massachusetts Port Authority, treasurer.

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Astilleros Espanoles Delivers Second Of Two Tankers For National Oil Corp. Of Libya



The Marsa El Hariga, powered by an AESA/Sulzer main engine, has a cargo capacity of approximately 1,984,171 cubic feet.

The 47,000-dwt tanker Marsa El Hariga, hull 174 of the Astilleros Espanoles, S.A. Matagorda Yard, for National Oil Corporation of Libya, has undergone her sea trials in the Bay of Cadiz.

The tanker has been designed for carrying crudes and is the second in a series of two, which were awarded to Astilleros Espanoles, S.A. by the National Oil Corporation of Libya.

The ship's shapes have been developed by the El Pardo Towing Tank and incorporate a hull of modern design. Special attention has been paid to the bulb's shapes.

The approximate measurements and principal characteristics are: length overall, 678 feet; breadth,

95 feet, and depth, 52 feet.

The propulsion equipment is composed of an AESA-Sulzer 7R-ND76 main engine, capable of developing a maximum continuous output of 14,000 bhp at 122 rpm to provide a speed of 15.3 knots.

The finish is of high standard and proper equipment, and facilities covering the latest international requirements are provided.

The delivery ceremony was attended by Libyan diplomatic representatives, authorities of the Maritime Department and top executives both from the owner and Classification Society, who were all assisted by directors and the technical staff of Astilleros Espanoles, S.A.

Argo International Forms Subsidiary For Drill Rig Parts

Argo International Corporation, New York, N.Y., has announced the formation of a new wholly owned subsidiary, Argo International Services Ltd., specifically geared to serving the burgeoning offshore drill rig industry. A.B. Austen has been appointed manager of operations and planning and will direct the efforts of the new subsidiary based in New Orleans, La., with branches in Houston, Texas, Carson, Calif., and New York, N.Y.

Mr. Austen has been with Argo since 1966 in the capacity of general manager of the New Orleans Branch. Prior to 1966, he was employed by General Electric Company in its installation and service engineering department as a drill rig electrical service engineer.

Argo has been providing replacement parts, traction motors, mud pump consoles, rig panels, and electrical components to rig builders, owners, and operators

for the past five years, in line with its existing marine and industrial business. The new subsidiary will focus exclusively on the rig business, with a large inventory and the expertise geared to this unique industry. Future plans call for an additional facility in Northern Europe, serving offshore rigs in the North Sea.

Baltek Corporation's Contourkore Material Certified By Lloyd's

Baltek Corporation, 10 Fairway Court, Northvale, N.J. 07647, has announced that its structural sandwich core material, Contourkore®, has been certified by Lloyd's Register of Shipping.

Contourkore is a structural core blanket formed of end-grain blocks attached to a fiberglass scrim.

Contourkore/fiberglass structural sandwiches have been utilized for more than 20 years by leading boat manufacturers (both pleasure and commercial) worldwide for hulls, decks, canopies, cabin walls and bulkheads. Qualities contributed by the material

are high impact strength, rigidity stiffness, thermal and sound insulation, vibration, dampening, higher speed with the same horsepower (for power boats), structural flotation, and improved distribution of weight (for racing yachts).

"We are extremely gratified that Lloyd's has seen fit to certify Contourkore," Norman G. Boyer,

vice president-marketing for Baltek Corporation, said. "We believe it significant that Contourkore has been certified exclusively among end-grain core materials. Contourkore is manufactured under the tightest specifications and quality control supervision, thereby meeting the rigid standards demanded by Lloyd's for certification."

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Ex-L.S.T. 1093

L.O.A. 328 feet	TWIN SCREW — 1800 S.H.P. . . .
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Draft (Max. Nav.) 14 feet	Motors 900 HP Diesel Engines,
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— NO OPERATIONAL RESTRICTIONS —

Could be used for Drill Ship, Crane Ship, Supply or Quarters Ship, Cargo Ship, Etc.



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Contact
Ralph E. Ingram

3121 S.W. Moody, Portland, Ore. 97201

PHONE: 503/228-8691

Telex: 36-0503

**Western Gear Winch
Aids Pipeline Handling
During Stormy Seas**

Development of an advanced-concept winch package which will allow pipelaying barge operators to manipulate tensioned pipelines during stormy periods at sea has

been announced by Western Gear Corporation.

The highly responsive and sensitive control mechanism is designed to increase safety of crew and equipment in hostile ocean environments.

Self-sensing and functioning integrally with Western Gear's widely used Pipemaster pipe ten-

sioners, the new abandonment and recovery (A & R) winch will be initially installed late this year aboard a new-generation pipelay barge.

The barge, one of the largest in the world, is designed for operation in the offshore petroleum production fields of the unpredictable North Sea.

Designed to function despite heaving and pitching conditions, the A & R winch is used whenever a lay barge is forced to interrupt the process of laying pipe on the sea bottom, a practice followed only during dangerous sea storms.

Under the unique Western Gear system, the winch operator gently transfers the highly tensioned pipeline from the pipe tensioner to the A & R winch. Then, the operator lowers the pipeline to the sea floor while the computerized control system maintains a closely regulated tension range throughout the operation.

The massive winch, with drum flanges 10 feet in diameter, is capable of spooling 4,200 feet of three-inch-diameter wire rope, and of producing a nominal full drum line pull of more than 300,000 pounds.

The A & R winch is being manufactured at Western Gear's plant at Everett, Wash., where the proprietary pipe tensioners and other products specially designed for the offshore and subsea mining industries are produced.

Among the other specialized equipment for petroleum production are motion compensation systems for drilling rigs, riser and guideline tensioners, pipe rackers, and constant tension winches.

Western Gear, with executive offices at Lynwood, Calif., is in the business of developing unique capital equipment and designs which will significantly improve productivity for major basic industries.

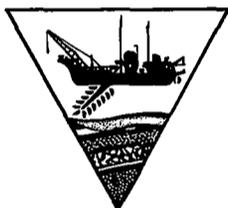
**Coffin Pump Expands
Plant Facilities**

FMC Corporation has announced the addition of approximately 21,000 square feet to their Coffin Pump Division Plant, adjacent to the present plant at 326 South Dean Street, Englewood, N.J. 07631.

According to Raymond A. Bocksel, general sales manager, the new addition will keep the Coffin Pump Division abreast of the rigid quality and delivery demands of the marine industry. The additional plant will include expanded tooling and tool facilities, pump assembly areas, plus larger spare parts inventories.

Coffin has been a leading supplier of high-performance boiler feed pumps for the marine industry for over half a century.

**ADVANCEMENT
OF DREDGING
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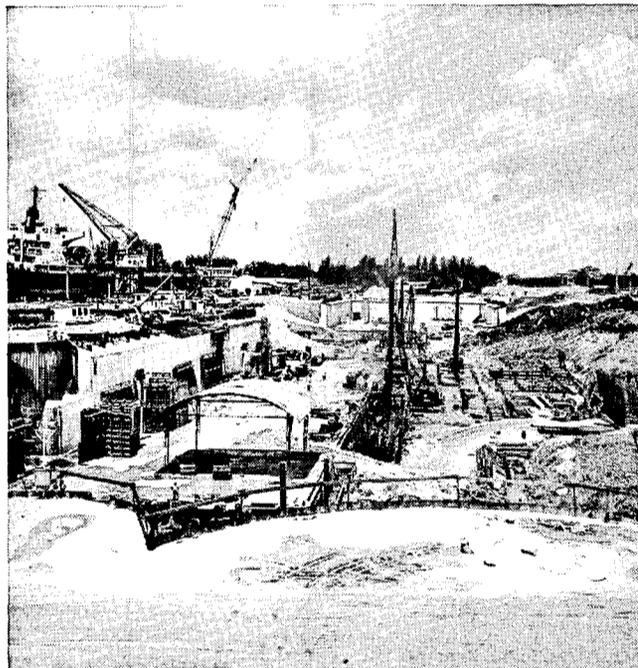
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Cable WODCON
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**SINGAPORE'S
400,000 DWT DRYDOCK
TAKING SHAPE
AND STILL
ON SCHEDULE**



Sembawang's new 400,000 dwt super dry dock is taking shape on schedule! The dock will be operational by the end of December 1974. When we say Total Service we mean just that! We shall be ready to provide the full range of repairs to the new generation VLCC's at exactly the right time!

NEW DOCK CHARACTERISTICS

Docking capacity 400,000 dwt, nominal (Capable of docking the 477,000 dwt. Globtik Tankers).
Length between gate and dock head: 1260 ft (384M)
Width of entrance: 210 ft (64M)
Docking draught (depth over sill): 30 ft (9M)
Filling Time (empty dock): 1 3/4 hours
Emptying Time (empty dock): 3 hours

EXISTING SERVICES Check this list of repair, maintenance and marine engineering back-up facilities. Couple the list with the expertise of a 3,500 strong highly-skilled work-force and you are on the way to speedier, less costly service. Call Sembawang for

more facts. DOCKS

Graving dock of 100,000 tons. 5 Floating docks from 1,000 to 30,000 tons lifting capacity. **BERTHS** 1,524 metres of sheltered repair berths with 12.2 metres of water. **CRANAGE** 24 Docks & berths cranes of up to 30 tons lift. Floating crane of 152.4 metric tons. **WORKSHOPS** 22 Hectares of workshops offering complete engineering facilities within the Shipyard. **SLOP RECEPTION** Slop reception facilities, 18" dia. discharge line & 7500 tons reception tank. **MANPOWER** 3500 skilled workmen and an experienced management team of 400. Round the clock working. **REPRESENTATION** Agents throughout the world.



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Agent in U.S.A.: Midland Marine Brok. Inc., One Penn Plaza, New York, N.Y. 10001 Tlx 232081 — Cable Midmarbork New York
Telephone (212) 738-2686

ASNE Flagship Section Election Of Officers

Capt. Dick Goode, USCG, has announced the results of the 1974-75 election of the Flagship Section of the American Society of Naval Engineers at the Section's annual spring dinner-dance held at the University of Maryland. The affair was well attended by 150 members and guests who enjoyed the fine meal and danced to the music of John Steele and his Melodians.

Officers elected were as follows: chairman, Don L. Stevens Jr., NAVSEC, Washington, D.C.; vice chairman, Capt. Payson Sierer, USN, NSRDC, Annapolis, Md.; secretary, Wayne Adamson, NSRDC, Annapolis, Md., and treasurer, John R. Germain, M. Rosenblatt & Son, Washington, D.C.

Elected as members of the council were Capt. Robert B. Simms, USCG, USCG Yard, Curtis Bay, Md., and James Kleinheinz, NAVSEC, Washington, D.C.

Tacoma Boatbuilders Form Association To Publicize Facilities

In 1973, a small group of enterprising Tacoma, Wash., businessmen connected with the ship and boatbuilding industries put their ideas together and formed a nucleus that was to become known as Associated Maritime Industries of Tacoma.

The Association was first presented publicly in the Com/Fish Mart Show in Seattle last fall. Members manned the attractive booth, which told the maritime story of Tacoma today.

The Association will maintain a direction in spotlighting Tacoma as a major center of progressive ship and boatbuilding and suppliers of marine equipment and gear.

The Tacoma maritime industries have always been known as a community of cooperation between businesses, and the new association furthers this concept and has given it a sense of direction.

Presentations are being made to leading naval architects and persons connected with the maritime trade throughout the world interested in ship and boatbuilding, conversion, repair, and equipment. These presentations will offer the skills and abilities of

maritime builders and suppliers for virtually all styles and types of vessels up to as large as the new super tuna seiners.

With the advent of the Alaska oil pipeline construction and need for tugboat and barge new construction and repair, Tacoma yards offer facilities, experience and an advantageous location. Some of the Association members are already completing contracts

resulting from needs of the Alaska area.

Members of the Association include builders of pleasure craft of all sizes in fiberglass, aluminum, steel and wood in either custom or standard designs; builders of work boats and commercial fishing vessels also in standard or custom designs, including sport-fisherman, gilnetters, trollers, salmon seiners, king crab boats and

processing ships, and tuna seiners; and suppliers of the material and equipment necessary to build the quality vessels for which Tacoma has long been noted.

Replies and inquiries received at the Association's mailing address, P.O. Box 518, Tacoma, Wash. 98401, will be sorted and answered. All correspondence and bid requests will be made public to the members for their review.

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Offshore Power Systems, a Westinghouse-Tenneco enterprise, will produce the world's first floating nuclear power plants in Jacksonville, Florida. We offer more than an exciting position in a unique and progressive industry. We offer the future . . . your future.

Immediate positions are now available.

ENGINEERS

ENGINEERS-HEAVY LIFTS & RIGGING

To develop original concepts and perform engineering analyses and calculations for heavy lifts, lifting fixtures and rigging up to 800 tons.

ENGINEERS-TEMPORARY POWER & LIGHTS

To establish requirements for temporary power and lights used during manufacturing process. Will develop original concepts, perform engineering analyses and calculations, and follow through.

ENGINEERS-STRUCTURAL

To perform stress analysis of structural elements required in the manufacturing process. Experience in heavy steel or shipbuilding industry preferable.

PROCESS ENGINEERS-PIPING

To be responsible for planning fabrication and erection of piping systems for floating nuclear plant. Power plant experience preferred.

PROCESS ENGINEERS-ELECTRICAL

To be responsible for planning installation of power and/or I & C systems and components on board floating nuclear plant. Power plant construction experience preferred.

PROCESS ENGINEERS-STRUCTURAL STEEL

To be responsible for planning erection of floating nuclear plant structural steel. Power plant or shipbuilding steel erection experience preferred.

ULTRASONICS

To develop ultrasonic, magnetic particle and penetrant examination techniques and instructions in accordance with ASME code requirements. Will have responsibility for production UT, MT/PT operations and NDT technician training. BS Engineering or equivalent plus 5 years' production and supervisory experience and certifiable as Level III in UT.

RADIOGRAPHY

To develop radiographic examination techniques and instructions in accordance with ASME codes. Responsibility for production radiography and job training of trainee radiographic technicians. BS Engineering or equivalent plus 5 years' production and supervisory experience in accordance with ASME Section III and be certifiable as Level III in radiography.

WELDING ENGINEERS

To provide technical support to manufacturing operation in selection of optimum welding processes and to conduct procedure qualification tests for code compliance. BS degree or equivalent plus knowledge of ASME Sections III and IX, and nuclear power plant or shipyard welding engineering experience.

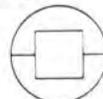
FACILITY ENGINEERS

To be responsible for design of industrial facilities including custom equipment in support of manufacturing process. BSME plus 5 years' heavy industrial facility design experience. For immediate consideration, send your resume and salary history in complete confidence to Mr. George Norton, Employment.

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☆ AC GENERATORS
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2 - COMPLETE UNITS IN STOCK, as removed from ex-Navy Cruiser "Worcester." Units were standby auxiliaries, and are very clean and in good condition.

TURBINE GENERATORS —AC VOLTAGES—

2 - 1500 GENERAL ELECTRIC Turbines: Type FN4-FN30, Steam 525 PSIG, 8145 RPM, with G.E. Generators, 1500 KW, 450/3/60.

4 - 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 - 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, .525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

4 - 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, Steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.



For prompt quotation
Contact: Ralph E. Ingram

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Star Offshore Orders Two Pipecarriers From Teesside Yard

Star Offshore Services, the new all-British supply vessel and tug company, have placed an order worth approximately \$9.6 million for two 3,000-dwt pipecarrying supply vessels with Swan Hunter subsidiary Smiths Dock Company.

Commenting on the order, Star Offshore's managing director Brigadier (Teddy) Parker said, "We are very pleased that we have been able to order these ships from a British yard, as it is the policy of this company to buy in Britain wherever possible."

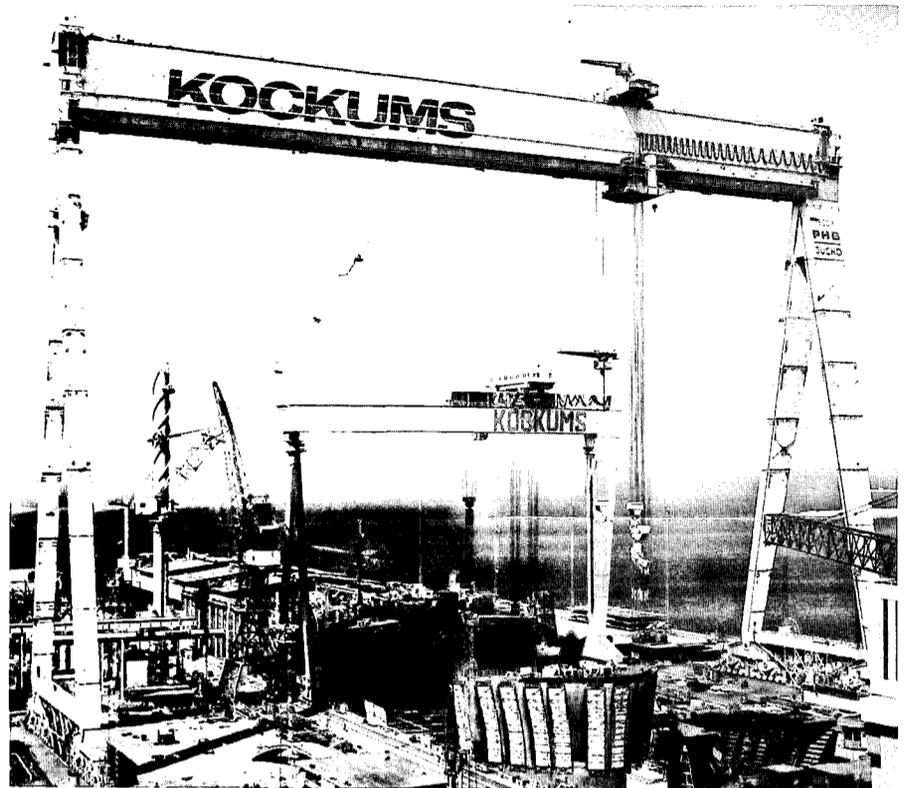
The order was particularly welcomed by Smiths Dock Company, who have not previously built any vessels for offshore operations, although they have a series of

contracts from Blue Star Line who, with United Towing, back Star Offshore.

The vessels which are the largest British-built supply vessels ordered to date by any operator, have been designed specifically for supply of pipelaying barges in Northern waters, and particular emphasis has been put on good seakeeping and high maneuverability. They are 265 feet in overall length, with a beam of 57 feet and a depth of 23 feet, and will be powered by British Polar diesels developing 4,600 bhp. Delivery of the vessels is scheduled for November 1975 and March 1976.

With their capacity for a deck load approximately five times that of a conventional supply vessel, these new ships will enable Star Offshore Services to offer substantial savings to charterers.

Kockums Shipyard Begins Operation Of World's Largest Gantry Crane



Kockums goliath gantry crane with lift capacity of 1,500 tons (foreground), 800-ton lift crane in background.

Kockums Shipyard, Malmo, Sweden, has begun operation of the world's largest gantry crane.

The goliath machine, which can lift loads of 1,500 tons, is the key element in a heavy materials handling system created to facilitate production of Kockums' next supertanker series of 355,000-tonners.

The mammoth lift will help Europe's biggest shipyard produce the 355,000-ton ULCC (ultra large crude carrier) in the same number of hours required for construction of a 260,000-tonner. Kockums completed a series of 20 of the smaller supertankers earlier this year.

Kockums, which has been building ships for over 100 years, is introducing the new \$29.5-million crane as a major advance in its continuing shipyard modernization program, a process which has led to complete yard transformation every 10 years.

The innovative system includes a novel panel-line; a 500-ton-load-capacity self-propelled truck, Europe's largest; a newly developed computerized control system; a chain of new facilities; and a unique management-labor concept which recognizes people as the most important link in Kockums high level of productivity.

The new champion crane will work in tandem with Kockums 800-ton gantry to transport the

massive slabs of steel plate on the first lap of the journey from the plate-yard to the building dock. Big goliath will then be used to lift the heavy main sections, up to 1,500 tons, and to position them in the building dock, where the huge ship sections will be welded together to form the completed hull of the 355,000-ton ultratanker.

The Kockums colossus towers 374 feet above ground, some 40 stories high, and weighs 7,200 tons. Its lift height is 345 feet, and its lift capacity can attain 1,600 tons under special circumstances.

The new Kockums crane will cover an area which includes the building dock, assembly shed and ship-section storage lot, a total of 26 acres, astride tracks 571 feet wide and 2,329 feet long. One driver will operate this steel monster by means of closed circuit TV, computer control, VHF radio and sophisticated telecommunications system.

Cities Service And Grand Bassa Tankers Move To New Headquarters

Cities Service Tankers Corp., and Grand Bassa Tankers have relocated to 70 Pine Street, New York City. Both firms were previously headquartered in 60 Wall Street. Arthur J. Elias is manager of chartering.

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Career opportunities in the Tanker Department
of Exxon International!

Exxon International, a special purpose organization servicing Exxon's international marine operations has openings in New York that are opportunities any way you look at them. They offer excellent compensation and benefits... the chance to work both for and with the best... some interesting travel (perhaps 20% of the time)... relocation assistance, if necessary... and a sense that everything's solid and secure in a company that's a leader today and intends to be tomorrow. The openings are for:

REPAIR SUPERINTENDENT. Marine engineering degree desired, plus qualification for Marine Engineer's license. Also, 5 years seagoing experience as engineering officer and some shore-based repair supervisory work. Will supervise senior vessel officers regarding repair activities... be responsible for ship repairs to ensure safe operation of international fleet... make inspection sea voyages... prepare repair specifications. Can move up to position of Operations Superintendent.

TECHNICAL ASSISTANT (similar to Assistant Port Engineer). B.S. in engineering, preferably marine or mechanical. Ideal candidate will hold Third Assistant Engineer license, and will have sailed aboard ocean-going vessels or have experience in utility type power plants. Will work with seagoing personnel on field trips aboard vessels for trouble-shooting and equipment tests... gather and analyze basic data on vessel's performance... investigate poor performance... prepare control studies for checks on fuel consumption, cargo handling, other engineering efforts for optimum vessel operation. Promotion potential to position of Repair Superintendent.

SR. MARINE DESIGNER. B.S. in engineering (M.S. desirable). Minimum 5 years experience in ship or associated systems design with emphasis in one of the engineering disciplines described below. Knowledge of foreign shipbuilding industry helpful. Will determine characteristics of and check designs of new construction and conversion of tankers... carry out engineering studies and plans approval, ship inspections etc... serve as technical specialist and consultant. Promotion opportunities in technical management.

Rotating Machinery

B.S. in marine or mechanical engineering with experience in pump, turbine or compressor technology as applied to ship machinery systems.

Electrical

B.S. in marine or electrical engineering with experience in electrical power generation and distribution in ship systems.

Instrumentation and Controls

B.S. in marine, mechanical or electrical engineering with experience in the design and application of instrumentation and control systems in ship power plants.

To be considered for any of the above positions, please submit a detailed resume, including salary history and requirements, in confidence to: DEPT. MR

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**Bynum And Barker
Join Houston-Based ETA
In Managerial Posts**



Ted R. Barker II

Douglas Bynum Jr.

Engineering Technology Analysts, Inc. continues to expand its staff and capabilities with the announcement that **Ted R. Barker II** and **Douglas Bynum Jr.** have joined the Houston-based firm. Mr. **Barker** was named vice president and general manager and Mr. **Bynum** manager of research engineering.

Mr. **Barker** was formerly the marketing division manager, Oilfield Products Division, for Gray Tool Company in Houston, where he supervised the marketing of the subsea well completion product line.

With ETA, he is primarily responsible for the coordination of engineering design and analysis projects and the supervision of all project managers. ETA is a Houston-based engineering design and consulting firm. The firm specializes in the design and analysis of offshore structures, marine pipelaying, and pipe stress analysis. Additionally, ETA has designed a new generation of offshore drilling units for operation in 200 to 600-foot water depths.

Mr. **Barker** has had corporate responsibility for program management, engineering, production, and supervision of all product lines for an offshore systems firm. He was also responsible for the identification and penetration of the subsea market for an offshore tool company and has worked with the development of power supplies, control systems (mechanical, electronic, and acoustical), wellhead equipment, blowout preventers, riser systems, and others.

With ETA, Mr. **Bynum** is responsible for technical studies and operational problems with marine pipelay. He is also responsible for the design and evaluation of advanced types of offshore mobile exploratory drilling vessels and new designs of production platforms for deepwater operations. Mr. **Bynum** is additionally involved in economic analyses and corporate planning for rig owners. He has an instrumental role in environmental studies concerned with precluding or containing oil spills, and in various patent studies for ETA's clients.

Before joining ETA, Mr. **Bynum** was manager of the research and development department of The Offshore Company in Houston, where he was responsible for advanced rig design, patent studies, and special hardware developments.

ETA is an engineering design and consulting firm now in its fifth year of business,

with the home office at 4140 S.W. Freeway, Houston, Texas 77027, and representative offices in Edinburgh, Scotland; Oslo, Norway, and Rio de Janeiro, Brazil. ETA specializes in the complete design and analysis of mobile and fixed offshore structures, marine pipelaying, and piping system analysis and design.

**New Orleans Propeller Club,
Largest In U.S., Elects Officers
—Larry Guerin Named President**

Larry Guerin, director of public relations and advertising for Lykes Bros. Steamship Co., Inc., has been elected president of The Propeller Club of New Orleans, the nation's largest, with a membership of more than 800. It marked the second time Mr. **Guerin** was named to head the maritime industry group, having served as president during 1959-60.

Other top officers elected were **Roy J. Dupre**, Southern regional sales manager of Federal Barge Lines, named vice president; Capt. **Dan Kirby**, vice president of Delta Steamship Lines, chosen as second vice president; **Wilson F. Beavers III**, senior average adjuster for the C.A. Spurl Division of Frank B. Hall & Co., secretary, and **Sam Giallanza**, senior vice president of the New Orleans Steamship Association, elected treasurer.

Elected to the board of governors were **J. Clarke Berry**, vice president of Canal Barge Lines; **David M. Brown Jr.**, Regional Ports and Intermodal Systems Officer of the U.S. Maritime Administration; **Gregory Ecuyer**, assistant vice president, T. Smith and Sons; **Edwin Hartzman**, president of Avondale Shipyards; **William Jackson**, LNG project engineer, of Avondale Shipyards, **Robert C. Leininger**, president George M. Leininger & Co.; **John Meghrian**, general manager of the New Orleans Division of Todd Shipyards Corp.; Capt. **Danny Meyers Jr.**, president of the Associated Branch Pilots, and **E.J. Pic Jr.**, damage claims manager of T. Smith and Sons.



NEW ESSO TANKER: The Esso Honolulu, a 278,922-dwt tanker built at Hitachi Zosen's Sakai Shipyard, was recently delivered to her owner, Esso Tankers, Inc. This is the second of these 280,000-dwt tankers Hitachi Zosen has developed as a standard economical vessel. The approximate measurements and principal particulars are: length between perpendiculars, 1,066 feet; breadth (molded) 174 feet; depth (molded) 93 feet, and cargo oil tank capacity, 341,012.1 cubic meters. The main engine is a Hitachi UA-360 type steam turbine with a maximum output of 36,000 horsepower, providing a maximum trial speed of 16.081 knots. The tanker has an ABS classification.

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Decades of shipbuilding experience have made SUN SHIP one of the most successful and innovative privately operated shipyards in the country. Our current expansion will enable SUN SHIP to not only meet both the short and long term demands of the industry, but also to offer qualified engineers the following opportunities:

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Degreed individual with 2-3 years Marine, Industrial or Utility experience. Facilities and design positions.

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Naval Architect or Structural Engineering degree with a minimum of 2 years experience in Computer Programming to support a large Ship Design Program. Candidates should be familiar with FORTRAN, Assembly Language and Programming in numerical control.

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Senior welding engineer with BS in metallurgical engineering. Minimum of 6 years experience in production control, metallurgy, and equipment development, preferably in shipbuilding or heavy fabrication. Candidate should have supervisory experience.

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BS Degree, minimum of 7 years experience in shipbuilding or heavy fabrication. Welding experience desired. Candidate should have a knowledge of incentive programs and an ability to set up performance standards. Supervisory experience required.

GUARANTEE

Merchant Marine graduate or equivalent. Minimum of 2 years Seetime as operating engineer. Must have assistant engineer's license or chief engineer's license. Should have a basic knowledge of ship layout and machinery plant operation.

ESTIMATORS

Engineering degree minimum 5 years experience in new ship and/or repair estimating. Candidates should have broad range of experience in Machinery, Piping, Structural and Electrical estimating.

We offer an excellent starting salary, as well as comprehensive benefits. Qualified candidates are invited to forward their resumes in complete confidence to Personnel Manager.

SUN SHIP

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NAVAL ARCHITECT

Small East Coast shipyard has opening for naval architect to design and supervise construction of small steel commercial vessels.

Please send resume and salary required in first letter to:

Box 716 Maritime Reporter/Engineering News
107 East 31 Street New York, N. Y. 10016

ENGINEERS !!

Due to expansion, international offshore drilling contractor has openings in the following areas:

STRUCTURAL ENGINEER

BS in C.E. required, MS preferable. Experience in the design of offshore structures desired but not required.

STRUCTURAL DESIGNER

BS in Naval Architecture or C.E. required. Must have experience in detailed designing and drafting of heavy marine structures. It is essential that experience includes the checking of shipyard shop drawings.

NAVAL ARCHITECT

BS in Naval Architecture required. Experience in Stability Calculation for offshore mobile drilling units desirable. All positions require relocation to New Orleans area. Salary commensurate with qualifications and experience. Excellent benefits program.

Qualified parties mail resume' and salary expectations in confidence to G. L. Gilreath, Jr.:

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CIMAVI'S For Sale



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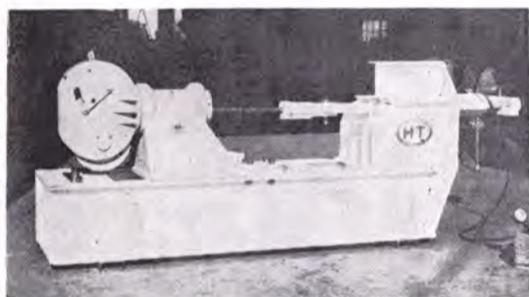
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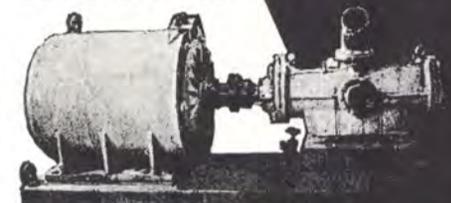
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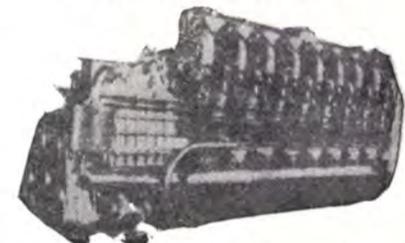
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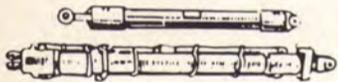
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2—WARREN, 1½ SED-8, 90 GPM, 44.8 PSI, 2" suction, 1½" discharge, with Electro Dynamic Motors, 6.5 HP, 440/3/60.

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3—WARREN, 600 GPM, 12 PSI, w/Electro Dynamic Motors, 16/4 HP, 440/3/60.

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2—BUFFALO, Class CCS, 250 GPM, 100 PSI, 4x3½, w/Westinghouse Motors, 25 HP, 440/3/60.

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1—GARDNER-DENVER, 5x3, 350 GPM, 336' hd, 50 HP, 440/3/60.

1—WORTHINGTON, 400 GPM, 150 PSI, 6x5, w/Electro Dynamic Motor, 70 HP, 440/3/60.

1—WORTHINGTON, 500 GPM, 150 PSI, 6x5, w/Allis-Chalmers Motor, 80 HP, 440/3/60.

1—GARDNER-DENVER, 750 GPM, 336' hd, 6x5, w/GE Motor, 81.2 HP, 440/3/60.

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AC VERTICAL CENTRIFUGAL

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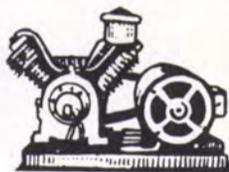
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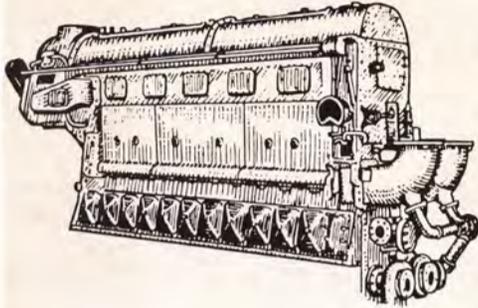
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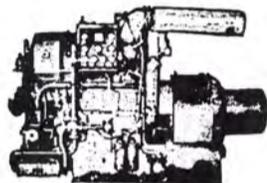
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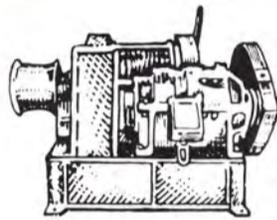
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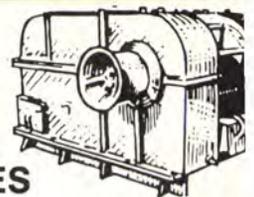
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AMERICAN ENGINEERING, horizontal, double 2 1/2" Chain, 65 HP, 230 DC, complete.

2—AMERICAN HOIST AND DERRICK COMPANY, horizontal, double wildcat for 2 1/4" chain, double gypsy, 70 HP, 230 Volts DC with electric controls.

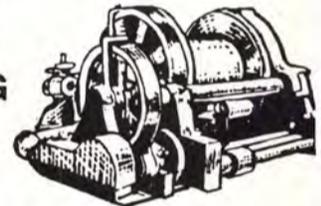
2—HESSE-ERSTED, horizontal, double wildcat, 2 1/2" chain, 60 HP, 230 DC.

1—HYDE HORIZONTAL ANCHOR WINDLASS, double wildcat for use with 2 1/2" Anchor Chain, and with General Motors Electric Motor, 60 HP, 230 volts DC, 560/1700 RPM Type CDM 18831 AE, Complete with Contactor Panel, Resistors, and Master Switch.

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1—JAEGER, single drum capacity approximately 900' of 1 1/2" wire rope, double gypsy with 35 HP Motors, 230 Volts DC, complete with electricals.

STEAM TOWING WINCH



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

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Used — good

1 3/8" size 2 1/16" size 3 3/8" size
1 1/2" size 2 1/4" size

Hundreds of other items in stock from Carriers, Cruisers, Destroyers, Submarines, Landing Vessels, Troop Ships and Cargo Ships

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**FOR SALE
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FERRY BOAT "CHESTER"**

STEEL DIESEL ELECTRIC DOUBLE-ENDED
BUILT: 1942 185' x 55' DRAFT LOADED 8.9'
Coast Guard Approved for 42 Vehicles
500 Passengers
ASKING PRICE: \$125,000.00



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Fairbanks-Morse, Model 38D8-1/8x10
Opposed Piston, Reversible, 1700 H.P., 750 RPM

TURBO GENERATORS

500 KW, 625 KVA, 450 VAC, 60 Cycle, 3 Phase
1200 RPM (Generator Only)
400 KW Westinghouse, 500 KVA, 1200 RPM,
450 VAC, 60 Cycle, 3 Phase; Turbine 10,059
RPM 580 P.S.I.
100 KW, 167 KVA, 1200 RPM, 450 VAC, 60
Cycle, 3 Phase, Diesel: GM Model 3-268A
1200 RPM

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Allis Chalmers 40 GPM; Motor 3 H.P., 440 VAC,
3 Ph. 60 Cyc.
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Ph. 60 Cyc.
I-R 200 GPM; Motor 20 H.P., 440 VAC, 3 Ph.
60 Cyc.
Gardner-Denver 750 GPM; Motor GE 50 H.P.,
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Blackmer 28/52 GPM, 50 PSI; Motor BM5/2.2
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Blackmer 100 GPM, 100 PSI; Motor GE 15
HP AC
Blackmer 400/200 GPM, 50 PSI; Motor
25/12.5 HP AC
DeLaval 600 GPM, 50 PSI; Turbine 5244 RPM,
575 PSI

STEAM GENERATORS

Cyclotherm, Model MC90, 125 PSI

BLOWERS

Forced Draft, Westinghouse Elect. 24 600 CFM;
Turbine 6350 RPM

DIESEL GENERATORS

100 KW Century Elect. Co. 125 KVA, 450 VAC,
60 Cycle, 3 Phase, 1200 RPM Diesel: G.M.
3-268A, 3 Cyl., 2 cycle
200 KW Westinghouse 250 KVA, 1200 RPM,
450 VAC, 60 Cycle, 3 Ph., Diesel: G.M. Model
8-268A, 7 cyl., 2 Cycle, 1200 RPM 350 H.P.

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**SHARPLES OIL PURIFIERS
Complete with motor, starter and pump
FOR FUEL OR LUBE OIL**



DIESEL LUBE OIL: 225 GPM
—viscosity 180-220 SSU @ 130°F.
DIESEL OIL: 225 GPM
—viscosity 45 SSU @ 100°F.
MODELS: Lube Oil M-85-34-5-23BM-44; Fuel Oil M-85-35-5-8CA-13. SPECIFICATIONS: Bowl speed 17,000 RPM—1" oil inlet & outlet. 2 HP verticle GE motor—440/3/60/3400—complete with starter. Plans available.

\$1850

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2-STAGE 5x4x4 50 CFM @ 150 LBS

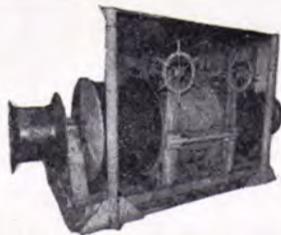


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RAND
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COMPRESSOR**

Class R—type 30—5x4x4—750 RPM 3-cylinder air cooled 2-stage compressor with air intake filter. 20 HP Vee-belt drive motor—440 volts—3-phase—60 cycle—27 amps—1800 RPM continuous duty—class A insulation—ball bearing drip-proof squirrel cage—low starting current. Motor weight 500 lbs. Complete with GE magnetic starter size 2—27.2 amps—weight 75 lbs. Copper finned inter-cooler between stages. Total weight motor, compressor and base 1505 lbs. OAL: 4' 1 1/2"; OAW: 2' 6 1/2"; OAH 3' 2 1/2".

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**2 LIDGERWOOD
DOUBLE DRUM
TOWING
WINCHES**

CAPACITY: Each drum stows 1800' of 1 1/4" wire. Each drum independently 30,000 lbs. on 2nd layer at from 10 to 50 feet per minute. Both drums simultaneously 15,000 lbs. each. Drums equipped with clutch shift levers. 24" Winch heads for 8" circumference manila rope. Static load 52,000 lbs. applied at mid-length. Base 10' 6" wide with 2 outboard winch heads 20 1/4" each. Drum diameter 22 1/2"—flange 50"—28" between flanges. Equipped with level wind spooling devices and compressor hand brake. MOTOR: 75 HP—under deck with horizontal drive through worm gear. Drip-proof—fully protected. Mfg by Allis-Chalmers—type EB-127-DC—compound wound—125/250 volts—254 amps—reversible—575/1150 RPM. CONTROLLER: Allis-Chalmers drum type—with 1 off position and 5 heave in positions and five payout conditions in opposite directions. Control cabinet also located below deck. Worm gear reduction 62T at 1 1/2 CP worm wheel 31:1 reduction. Drum shaft beveled bull gear 61T. Drive shaft beveled pinion gear 14T—ratio 4.857:1.

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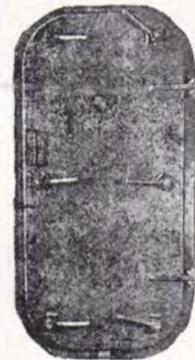


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PANAMA CHOCKS**
(MEET PANAMA REGULATIONS)
With extended legs for welding to deck. IMMEDIATE DELIVERY FROM STOCK.

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NEW WATERTIGHT DOORS



6-Dog right and left hand hinged steel doors—with frames. Built and tested to A.B.S. specifications.

SIZE	NET WT.
26"x48"	250 lbs.
26"x60"	300 lbs.
26"x66"	320 lbs.

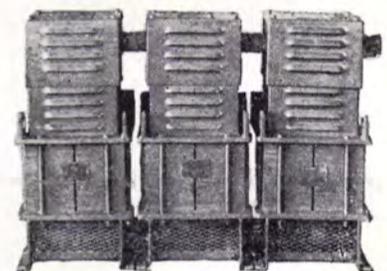
EACH DOOR

IMMEDIATE DELIVERY

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TRANSFORMERS



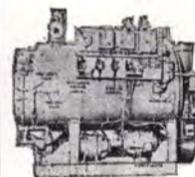
15 KVA—3 per bank—450 V primary—177 volt secondary. \$295.00 PER BANK

Also inquire about other sizes: 10 KVA/20 KVA/25 KVA/37 KVA

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**SELF-CONTAINED—ALL CONTROLS
CYCLOTHERM MODEL MC-90
STEAM OUTPUT
BOILERS 2600 LBS/HOUR**



Design pressure 100 PSI—2-Pass—1 burner (pressure atomizing)—burner capacity 26 gal./hr. Electric ignition. Equipped with fuel pump—1 1/2 HP (Feed pump 10 GPM @ 300 ft. head—3 HP—440/3/60) Blower 5 HP—440/3/60—pressure 20" water—3400 RPM. TUBES: 22 at 2 1/2" x 0.110 wall and 22 at 2" x 0.095 wall. Furnace 16" OD x 3/8" thick. Head 1/2" thick. Steel plate 5/16". **\$1395**

**SMALL CYCLOTHERM
STEAM BOILER—800 LBS/HOUR**

Made by American Iron Works, Oswego, N.Y. 100 pound working pressure—A.S.M.E.—complete with all accessories. Dimensions: 5'7" overall length—36" overall width—60" high.

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MANY OTHER ITEMS NOT LISTED • ALL ITEMS FURNISHED WITH A.B.S. OR LLOYDS'

TURBOGENERATORS

525 KW GENERAL ELECTRIC AUXILIARY TURBOGENERATOR UNIT

Complete with L.O. Cooler. Turbine: General Electric 525 KW, Type DORV-325M, 5645 RPM. Reduction Gear: General Electric Type S-162-D, 5645/1200 RPM, single helical. Generators: General Electric. (1) Type ABT, 3 phase, 400 KW, 450 VAC, 1200 RPM. (2) Type MPC, 75 KW, 110 VDC, 1200 RPM, Exciter. (3) Type MPLI, 55 KW, 120 VDC, 1200 RPM, Generator. (4) Auxiliary DC generators.

538 KW WESTINGHOUSE TURBOGENERATOR UNIT

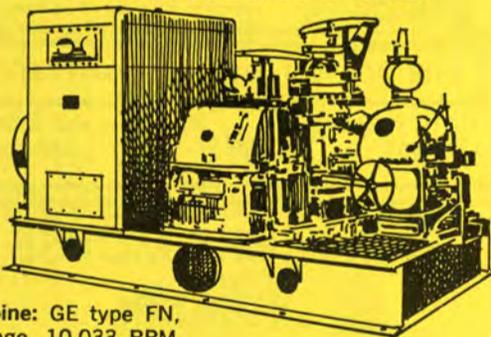
Complete with L.O. Coolers and exciters. Turbine: Westinghouse 538 KW, 5010 RPM. Inlet pressure 435 psi. Temp. 750 degrees F.TT. Exhaust pressure 28 1/2 hg vac. Generators: (1) 400 KW, 450 VAC, 3 pole, 60 cycle, PF 80%, 1200 RPM, ship's service. (2) 32.5 KW, 125 VDC, 1200 RPM, variable voltage exciter. (3) 110 KW, 125 VDC, 1200 RPM, constant voltage generator. (4) 5 KW, 125 VDC, 1200 RPM, ship's service Generator-Exciter. Reduction Gear: Ratio 5010/1200 RPM.

535 KW GENERAL ELECTRIC TURBOGENERATOR UNIT

Complete with L.O. Coolers and exciters. Turbine: General Electric Mfg. drawing P-8453535, 3 stages, type DORV-325, 5645 RPM, rating 535 KW, inlet pressure 590 lbs., Superheat 325 degrees F., exhaust pressure 1 3/4 ABS. Reduction Gear: General Electric, type S-162-D, Class, 535 KW, Mfg. dwg. T-8453535, 5645/1250 RPM. Generator: General Electric, Dwg. T-8453535, type ATB-976, KNA 500, 450 volts AC, 3 phase, 60 cycle, 400 KW, 642 amps, 1200 RPM, PF .8, Frame 976, Exciter 120 volts DC. Control panel: General Electric, Dwg. 6367270, Type XF-100492, 6 circuits, 450 volts AC.

★★ ALSO AVAILABLE!! ★★

600 KW GENERAL ELECTRIC TURBOGENERATOR UNIT



Turbine: GE type FN, 6-stage, 10,033 RPM.

Reduction gear: GE triple-helix, triple reduction, 10033/1200 RPM. Generator: GE type ATI, 600 KW, 6-pole, 0.8 pf, 450 VAC, 3 phase, 60 cycle, 1200 RPM. Exciter: GE type MPLI, 7.5 KW, 120 VDC, direct connected. Air cooler: Surface type, for generator, complete with control panel.

MAIN MOTOR FOR T2

Gen. Elect. #5690714 Type TSM-80, 6000 HP, 90 RPM, form H.L., 2300 Volts, Amps. arm. 1160, P.F. 1.0, KVA 4625 Phase 3 cycle 60, Exciter volts 120, amps field 390 contin. @ 60°C. rise.

5400 KW MAIN GENERATOR

General Electric, S/N 79938, Marks 6937958 G-4, 5F-1690-2, 164-M.

PUMP UNITS

CARGO STRIPPING PUMP

(Steam) Worthington, vertical duplex, double acting, size 14" x 14" x 12", speed 46 ft./min., 700 GPM, 150 psi operating pressure.

MAIN FEED PUMP

Pump: Coffin Turbo Pump Co., single stage, centrifugal, size CG-12A, 6980/7030 RPM, 240/280 GPM, 254/280 HP, 6" x 3", 750 psi @ 1760 ft. head, complete with turbine.

MAIN FEED PUMP

Coffin, turbine drive, Type F, 7200 RPM, 200 GPM, 150 HP, 150 psi w 1329 ft. head.

MAIN CIRCULATING PUMP

Pump: Ingersoll Rand, type 24 VCM, single stage; double suction centrifugal, 585 RPM, 16,500 GPM against TDH 25 ft. @ 30 psi, 26" x 24". Motor: General Electric, Model 5K633AP1, Frame N-6336-B, 585 RPM, 440 volts AC, 191 amps, 3 phase, 60 cycle, complete with controller.

MAIN CIRCULATING PUMP

Pump: Ingersoll Rand, type 24 VCM, size 24", 585 RPM, 14,000 GPM @ 25 ft. TDH, 26" x 24", operating pressure 15 psi. Motor: Westinghouse, Model CS, Frame 876C, 125 HP, 585 RPM, 440 volts AC, 159 amps, 3 phase, 60 cycle, complete with controller.

MAIN CARGO PUMP UNIT

Pump: Ingersoll Rand, type 2 stage horizontal, size 6-GTM, 1750 RPM, 2000 GPM, 12" x 12", 100 psi @ 280 ft. head. With motor.

FUEL AND LUBE OIL PUMP

Pump: Quimby, size 2 1/2 head screw, 1200/600 RPM, 15 GPM @ 325 psi disch. press. Motor: General Electric, Model 5KF364PP1, Frame 364, 7.5/3.75 HP, 1160/580 RPM, 440 volts AC, 10/9.7 amps, 3 phase, 60 cycle, complete with controller.

LUBE OIL SERVICE PUMP

Pump: Quimby, Type vertical rotex, size 4-B, 1150 RPM, 175 GPM @ 60 psi with 20 ft. head, 6" x 5". Motor: General Electric, Model 5KF365AJX1, Frame 365, 5 HP, 1170 RPM, 440 volts AC, 20 amps, 3 phase, 60 cycle, complete with controller.

MAIN CONDENSATE PUMP

Pump: Ingersoll Rand, size 2VHM, 1760 RPM, 180 GPM @ TDH 165 ft., 5" x 2", disch. press. 67 psi. Motor: General Electric, Model 5KF365AJN-1, Frame 365V, 20 HP, 1765 RPM, 440 volts AC, 3 phase, 60 cycle, 25.5 amps, with controller.

AIR COMPRESSORS

COMBUSTION CONTROL AIR COMPRESSOR UNIT

Compressor: Ingersoll Rand, type 30, Model 253 x 5, 20 CFM at 100 psi, 600 RPM. Motor: General Electric, Model 5KG254B2782, Frame 254, Type K, 440 volts, AC, 7.5 amps, 3 phase, 60 cycles, 5 HP, 1723 RPM, complete with controller and switch.

SHIP SERVICE AIR COMPRESSOR UNIT

Compressor: Ingersoll Rand, Type 30, Model 5 x 5 x 4, 545 CFM at 100 psi, 750 RPM. With motor and base.

VALVES

Gate: 10", 12", 14", 16", 20" and 24"
Angle: 12", 14" and 18" Crossover: 16"
High suction: 26" Low suction: 26"

TURBINE ROTORS

5400 KW GENERAL ELECTRIC TURBINE ROTOR

ABS, 6275-31, AB-142-WD-8-10-44, 1701461
T8604259, 6275-31 67-KU-102032, A853BY 21 Jan. 1967.

525 KW GENERAL ELECTRIC TURBINE ROTOR

S/N 60137, ABS 71-LA-12430-624 A624 B, Reconditioned April 21, 1971.

5400 KW WESTINGHOUSE TURBINE ROTOR

ABS report 66KU11942 A853B, 6 Sept., 1966,
Marks: 6275-45. AB-142 WD9-30-44, 170-1467,
8604259-1, 6275-45.

5400 KW WESTINGHOUSE MAIN TURBINE (Profile type):

5400 KW ELLIOTT TURBINE ROTOR

ABS, 67-LA9644-830, AB-JCB-3-31-67, 9013039-9230P1, 66-KU-11895, A853 1071941, AB142 WDG-4-45.

MISCELLANEOUS T-2 EQUIPMENT

MAIN AIR EJECTOR

Main air ejector, Graham Mfg. Co., type 2 stage twin, size 163B, capacity, 65 PPH of air (220 GPM cont. @ 79°F.), oper. press. 150 PPH.

MAIN CONDENSER END Graham (waterbox).

MAIN CONDENSER END Westinghouse (waterbox).

MAIN CONDENSER END Westinghouse (return head).

AUXILIARY CONDENSER END

Graham (waterbox and return head), surface condenser, size 1500 sq. ft., S/N 2915, Design press Shell 15-Tubes 25, Test press Shell 30-Tubes 50.

TAIL SHAFTS

ABS 59-S1768-AB810
Reconditioned, ABS 70-LA-11901-946

RUDDER WITH STOCK (complete)

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Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
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ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
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Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871
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Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502

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Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City, Kansas 66110
Crisafulli Pump Co., Box 1051, Glendive, Montana 59330
Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602
Houttuin-Pompen N. V. Sophialaan 4, Utrecht, Holland
Jacuzzi Bros., Inc., 11511 New Benton Highway, Little Rock, Arkansas 72204
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The Cordage Group, 309 Genesee St., Auburn, N.Y. 13022
Du Pont Co., Room 31H1, Wilmington, Delaware 19898
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
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SHAFT REVOLUTION INDICATOR EQUIP.
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

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The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

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Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y. 10006
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Marathon Manufacturing Company
Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002
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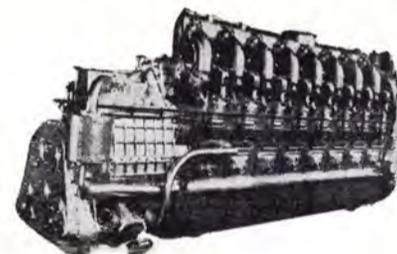
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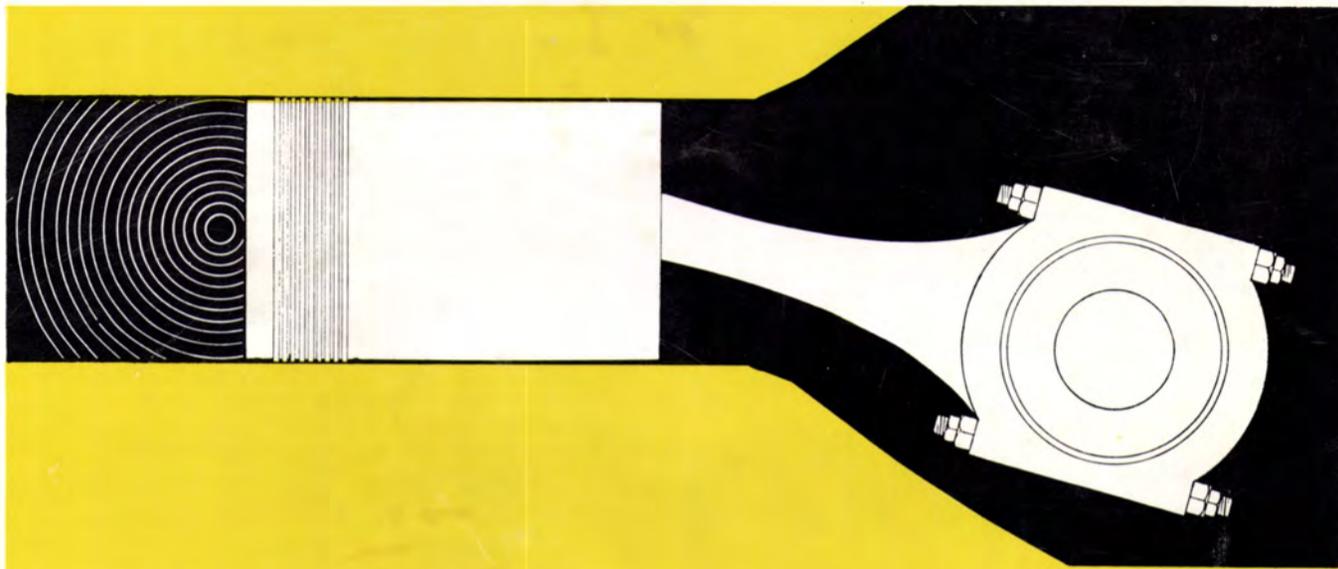
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