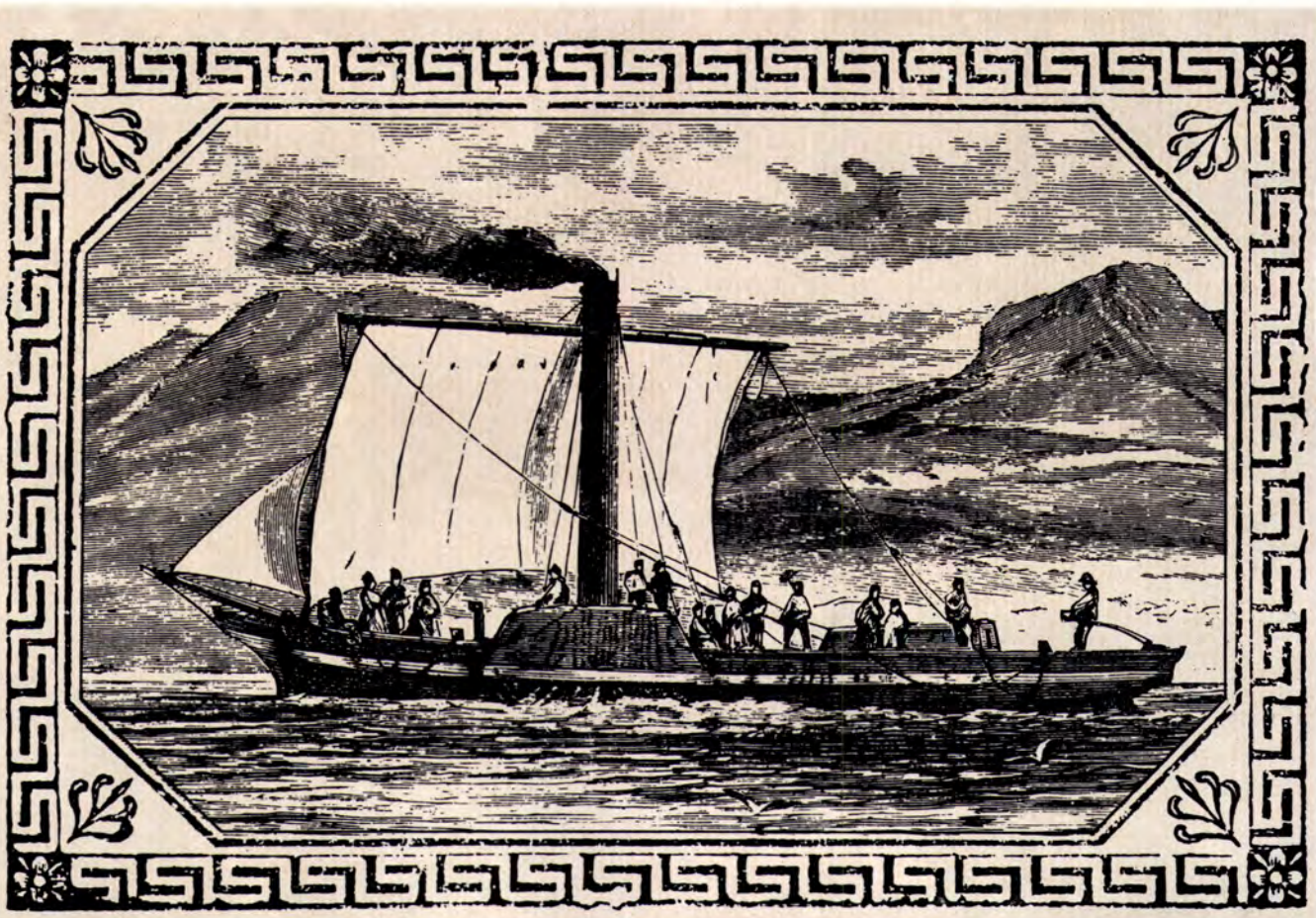
MARITIME
REPORTER
AND
ENGINEERING NEWS

Dravo Launches Most Powerful Towboat Ever Built For Use On World's Inland Waterways

(SEE PAGE 6)

MARCH 1, 1974



FIRST ON THE FIRTH OF FORTH. The *Comet* was built by *Henry Bell* at Port Glasgow in 1811 and placed in service on the River Clyde in 1812. It was the first steamship to run commercially in Europe.

The *Comet* was a public passenger steamer and, at first, this Scottish Steam Packet plied between Glasgow and Greenock on the peaceful Clyde.

But not for long. She soon headed out to sea and became the first steamer on the *Firth of Forth*, gateway to the North.

This called for a certain amount of confidence since the ship was only about 25 tons, with a length of keel of 40 ft., a breadth of 11.25 ft. and a depth of 5.6 ft.

But the *Comet* showed that steam was in Europe to stay.

Ships have come a long way since the *Comet*, whose engines probably used a single lubricant. Today's complex engines call for a diversity of precise, high-quality lubricants.

To meet this need, Gulf offers a number of superior marine diesel dual-purpose lubricating oils.

Gulf Veritas V9 is a non detergent lubricating oil used primarily in the crankcase systems of slow speed, crosshead diesel engines. It is manufactured from the highest quality solvent processed base oils and contains rust, oxidation and foam inhibitors for additional metal protection and long crankcase oil life.

Gulf Veritas Cyloils 500 and 700 are the latest developments in the outstanding Gulf Veritas line of high alkaline, acid neutralizing, detergent cylinder lubricating oils. They are specially formulated for use in the cylinders of slow speed, crosshead diesel engines using high sulfur residual fuels.

Gulf Marine Lubricants — unsurpassed for quality, performance and excellence.

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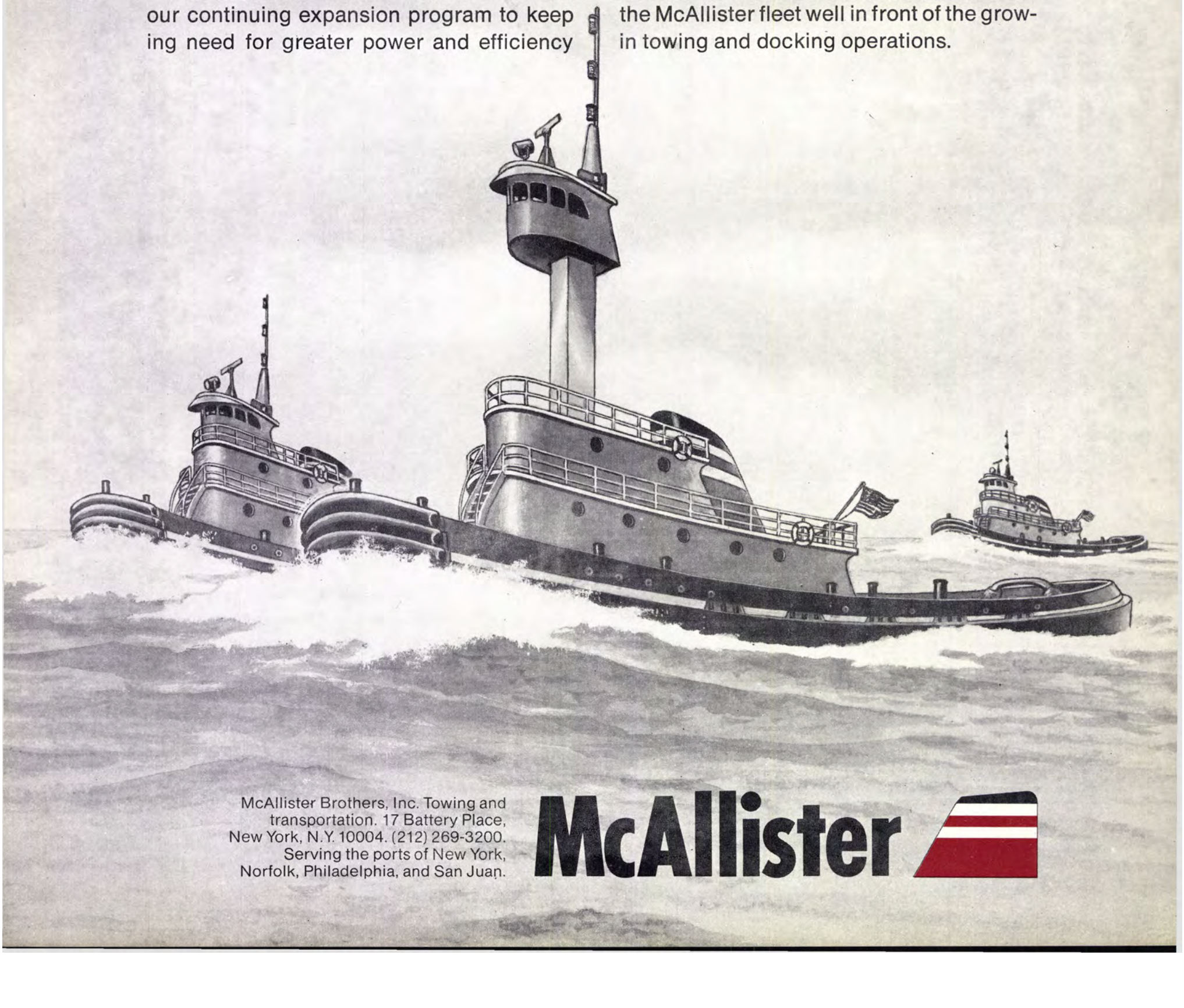
They'll feature, too, the superb maneuverability of the twin-screw Kort nozzle flanking rudder steering and propulsion system, already proved in other McAllister vessels and hailed by authorities as the optimum system for a docking tug.

Most powerful and maneuverable in New York Harbor, the three new vessels are part of our continuing expansion program to keep the McAllister fleet well in front of the growing need for greater power and efficiency in towing and docking operations.



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Shallow-Draft Bulk Carrier Study Award To M. Rosenblatt

The U.S. Department of Commerce, Maritime Administration, has awarded a $197,362 Research & Development contract to M. Rosenblatt & Son, Inc., naval architects and marine engineers of New York, Washington, D.C., and San Francisco, to assess future opportunities for large shallow-draft bulk carriers in U.S. trade.

The very limited ability of vessels 80,000 dwt or larger, which usually have drafts over 40 feet to enter most U.S. ports, which have a limiting depth of 40 to 45 feet, coupled with the cost and complexity of transshipping bulk commodities via offshore terminals, makes the development of very large shallow-draft vessels for liquid and dry bulk cargoes appear to be a possibly attractive alternate.

M. Rosenblatt & Son will assess existing technology for such vessels, analyze the economics and national requirements for such a shipping system and identify options concerning the development of shallow-draft bulk shipping systems. Consultation by the naval architect with Soros Associates, Det norske Veritas, Maritime Overseas Corporation, Robert Nathan Associates, and Robert W. and Robert C. Morrell is contemplated.

Naval Hydrodynamics Symposium To Be Held At M.I.T. June 24-28

The Tenth Naval Hydrodynamics Symposium will be held June 24-28, 1974 at the Massachusetts Institute of Technology in Cambridge, Mass. This internationally recognized symposium has been held biennially since 1956, alternately in this country and abroad. This year, the symposium is being sponsored by the U.S. Coast Guard and by M.I.T., in addition to the traditional sponsorship of the U.S. Navy Office of Naval Research. In keeping with the U.S. Coast Guard sponsorship, the dual theme of the symposium is (1) Hydrodynamics Problems Associated with Safety at Sea, and (2) Fundamental Problems in Naval Hydrodynamics.

An outstanding technical and social program has been planned for registrants and guests. Complete details of the symposium and reservation forms are available by writing to Prof. **Philip Mandel**, M.I.T., Room 5-325, 77 Massachusetts Avenue, Cambridge, Mass. 02139.

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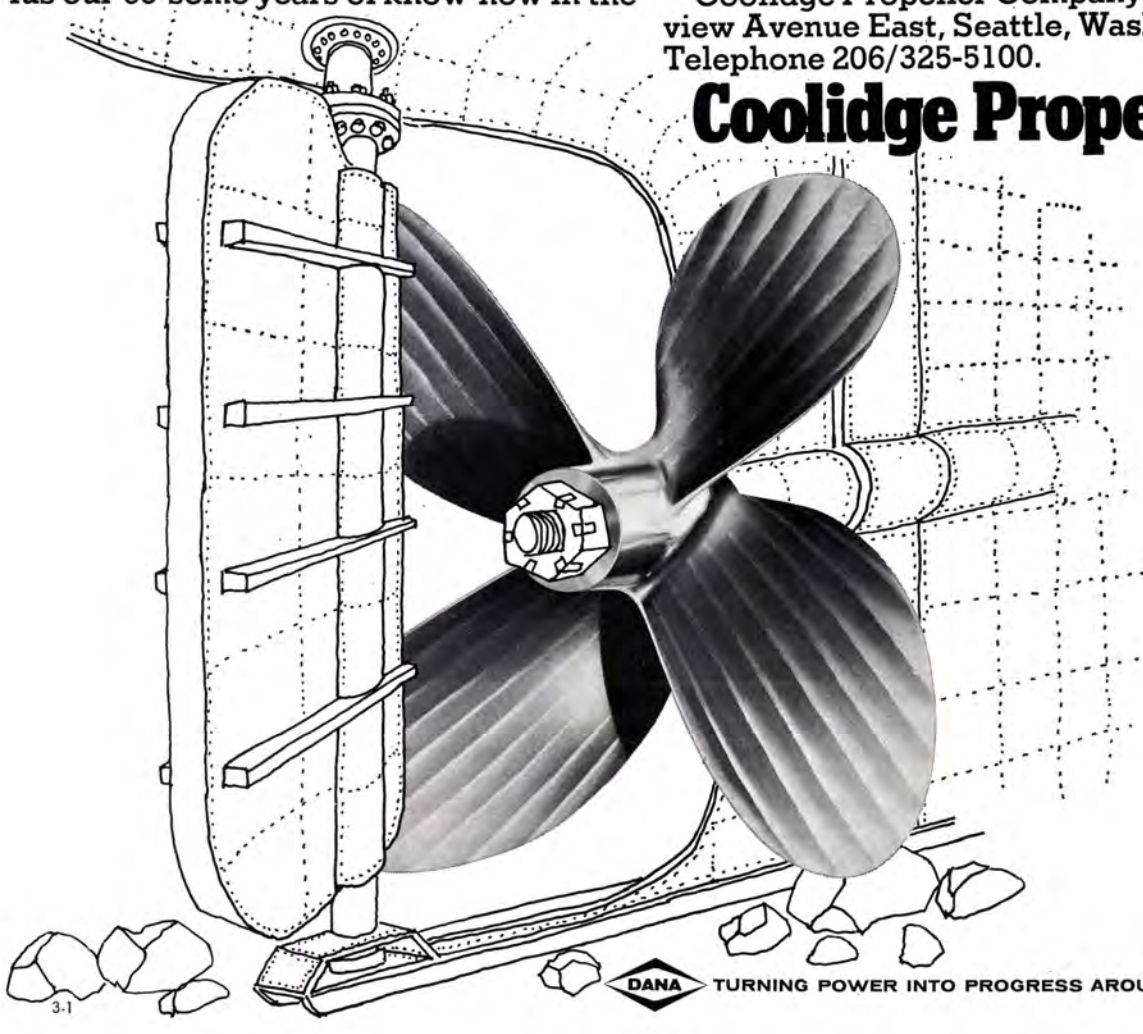


3-1

DANA TURNING POWER INTO PROGRESS AROUND THE WORLD

The 190-foot-long towboat will be operated by The Valley Line Company between St. Louis and New Orleans.

Dravo Corporation Launches Most Powerful Towboat For Use On World's Inland Waterways

Dravo Corporation recently launched the most powerful towboat ever built for use on the world's inland waterways.

Splashing into the Ohio River on January 31 at the company's Neville Island shipyard near Pittsburgh, Pa., the 10,100-horsepower vessel will join the fleet of The Valley Line Company, St. Louis, Mo., a subsidiary of Chromalloy American Corporation.

Thomas J. Barta, Valley Line president, said the towboat will begin operating early this spring, handling 40-barge tows of approximately 50,000 tons. Principal cargoes will include coal, steel, ores and grain.

The new boat will operate on the Mississippi River, between St. Louis and New Orleans, La.

With the addition of this first-of-its-power vessel, Valley Line's fleet totals 21 towboats and 750 barges. The company is one of the largest operating on the country's rivers and coastal waterways.

Powered by three General Motors marine diesel engines—each rated at 3,367 horsepower—the new boat measures 190 by 54 by 12½ feet. It will be driven by three 10-foot-diameter five-bladed stainless steel propellers, housed in Kort nozzles.

The vessel has the latest safety and pollution control equipment, including inboard fuel bunkers to protect against river contamination in the event of a side puncture.

Control features of the towboat will include devices for automatic transfer of generator load; remote-reading instruments and alarms for monitoring engine performance; and remote controls for fuel bunkering and transfer, and bilge pumping.

Propulsion and maneuvering will be completely controlled from the pilothouse, which is also equipped with radar, ship-to-shore telephone, depth finder, autopilot with standby steering system, other modern navigational aids, and remote deck winch controls.

Pilothouse, quarters and mess facilities will be air-conditioned.

The welded steel hull is compartmented into five watertight areas: forepeak ballast tank, fuel bunkers and wing ballast tanks, machinery space, shaft alley and aft void space.

Steel superstructure consists of a main deckhouse, an upper deckhouse, an electronics space and a pilothouse.

The remote-controlled operating equipment will include:

Modified VHF radio for use as a mobile telephone; another VHF radio for lock communication; and single-band radiotelephone for intra-company use.

Deck winch controls located in the pilothouse.

Radar, gyro and repeaters, Fathometer and automatic pilot steering.

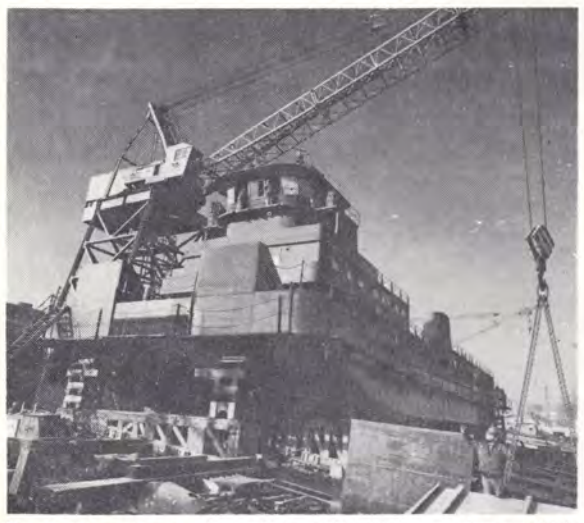
Diesel engine monitoring system with visual and audible alarms in push-button controlled air-conditioned engine control room, in the pilothouse and in the chief engineer's quarters.

Lighter schematic panels in engine control room to show condition of fuel oil, bilge pumping and ballast water systems. Remote pump and valve controls for fuel transfer and pumping bilges will be mounted in these panels.

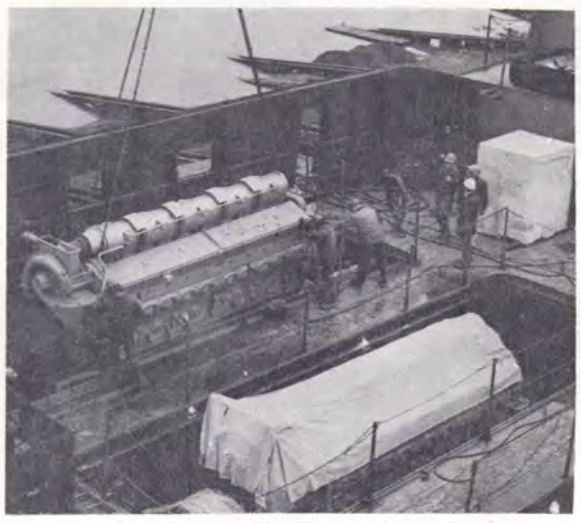
Automatic generator load transfer system and alarms.

General alarm system of bells in crew's quarters, officers' quarters hallway, aft upper engine room, forward lower engine room and galley.

The heating-cooling system for living quarters will employ water from a 500,000 BTU oil-fired boiler or cooling water from a liquid cooler. Air-conditioning and heating systems are designed to maintain optimum temperatures in living areas. A forced ventilation system will supply positive pressure in the engine room. Engine air will be supplied directly from the outside.



Final construction view of the 10,100-hp towboat which will handle 40-barge tows of approximately 50,000 tons. Cargoes will include coal, steel, ores and grain.

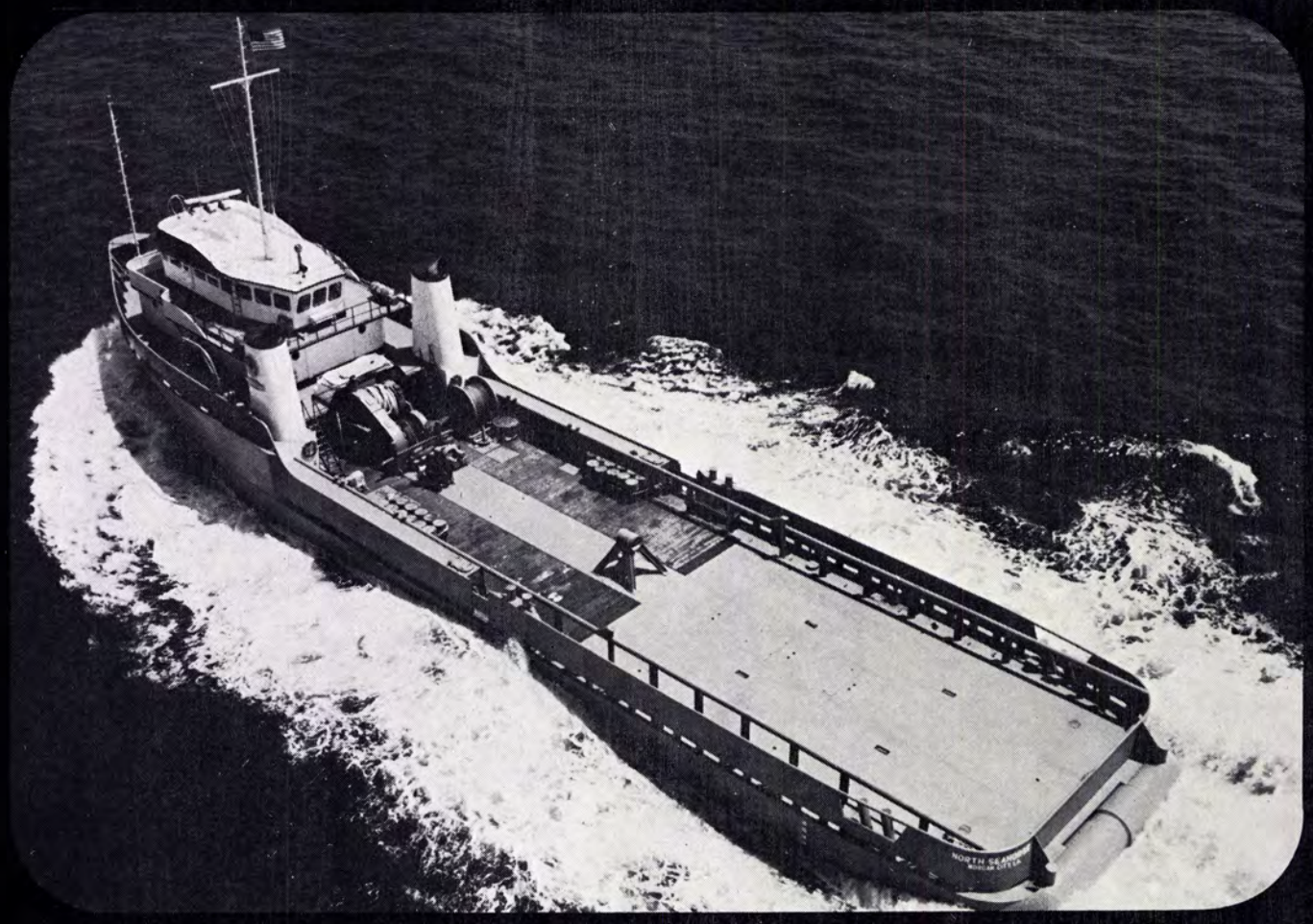


One of three 3,367-hp GM Electro-Motive Division marine diesel engines is lowered into position for the first-of-its-power towboat designed and built by Dravo.

PRINCIPAL EQUIPMENT SUPPLIERS

Main Engines	GM-Electro Motive Division
Clutches	Airflex
Reverse Reduction Gear	Falk
Propellers (stainless steel)	Coolidge
Shaft Bearings	SKF
Shaft Oil Seal	Syntron
Shaft Stuffing Box	Johnson
Skin Coolers	Fernstrum
Main Engine Mufflers	Universal
Jacket Water Thermostats	Amot
Lube Oil Transfer Pump	Roper
Lube Oil Pumps (Strut & Stern Tube Brg)	Roper
Pre-Lube Pump	Roper
Lube Oil Coolers	GM-EMD
Fuel Oil Service Pump	Roper
Fuel Oil Transfer Pumps	Weinman
Fuel Oil Hand Pumps	Blackmer
Main Engine Intake Air Filter	American Air Filter
Air Compressors (2)	Quincy
Air Horns	Kahlenberg
Diesel Generators (2)	Detroit Diesel-GM
Auxiliary Diesel Mufflers	Maxim
Alarm Panel (Main Engines)	Dravo
Electric Motor Controls	Furnas
Searchlights	Carlisle & Finch
Floodlights	Circle D
Navigation Lights	Carlisle & Finch
Transformer	Acme
Sound Powered Telephone	Lorain
Electrical Distribution Panel Boards	Square "D"
Teletalk System	Lorain
General Alarm	Edwards
Radar	Raytheon
Radio Telephone	Lorain
Autopilot	Sperry
Fathometer	Raytheon
Swing Indicator	Raytheon
Steering Pumps	Racine
Steering Control Valves	Racine and AA
Steering System (hydraulic)	Dravo
Hydraulic Cylinders	Lindberg
Pilothouse Controls	Wabco
Bilge Pump	Gorman Rupp
Raw Water Pump	Weinman
Sewage Pump	Gorman Rupp
Macerator Pump	Hydromatic
Potable Water Pump	Deming
Potable Water Heaters	Pennsylvania Bradford Appliance
Air-Conditioning Equipment	Trane
Heating & Cooling Circ. Water Pump	Weinman
Vent Air Supply Fans	Aerovent
Heating Boiler	Aldrich
Incinerator	Spronz
Unit Heaters	Trane
Ballast Pump	Berkeley
Fire Pump	Berkeley
Fire Fighting System	Kidde
Winches (Electric Powered)	Patterson
Boat Hoist	Coffin
Trash Compactor	Whirlpool
Pilothouse Windows	Kearfott
Plumbing Fixtures	American Standard

The Tougher The Going The More You Can Depend On New Bedford Rope



That's why the M/V North Seahorse, recently put into operation by the Levy Boat Service, Inc., is outfitted with 100% nylon stretch lines from New Bedford Cordage Company.

She'll be towing rigs in all kinds of weather in the North Sea, where you know it gets rough enough to test the stamina of men and equipment — hour after hour, day after day — straining every fiber of the tow lines or tie-up lines.

But, New Bedford Rope has met the grueling test of the sea and time since 1830 — around the world. So before the going gets tough, outfit your ships with the proven rope.

EST. 1830 WALL ROPE

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EST. 1842 NEW BEDFORD ROPE

U.S. Lines Names Pert Manager-Operations For Eastern Division

Leonard H. Pert has been named manager-operations for the United States Lines Eastern Division, it was announced by **William J. Keely,** Eastern Division vice president of the company.

In his new post, Mr. **Pert** will direct operations at all the company's Eastern Seaboard installations, including the port terminals at Port Elizabeth, Philadelphia, Baltimore, Norfolk and Savannah. He will have jurisdiction over all port managers, and will be responsible for all East Coast freight activities, with the exception of sales.

Mr. **Pert,** who will report to Mr. **Keely,** had been assistant marine superintendent for marine operations. Since joining United States Lines in 1956, he has held various managerial positions for company terminals in New York and London.

Born in England, he served with distinction with the British Royal Navy during World War II. He served aboard many military convoy vessels in the North Atlantic, Pacific and the Mediterranean, and was decorated at Buckingham Palace in 1943, as a Member of the Order of the British Empire.

Leonard H. Pert

United States Lines operates an all-modern fleet of 30 vessels serving various areas of the world. Sixteen high-speed high-capacity containerships maintain a 15,000-mile Tri-Continent Service between Europe, the East and West Coasts of the United States, Hawaii, Guam, and the Far East. 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.

San Diego Marine Awarded Contract For Navy Fuel Barges

San Diego Marine Construction Corp., a wholly owned subsidiary of Campbell Industries (AMSE), has announced a construction contract for four Navy fuel barges totaling approximately $800,000.

The announcement was made by **Robert M. Stander,** a Campbell vice president and general manager of San Diego Marine.

Under terms of the contract, the company will be construction subcontractor to Brown Minneapolis Tank and Fabricating Co. of St. Paul, Minn., for building the four multipurpose, non-self-propelled YON (Yard Oil Non-self-propelled) fuel barges. They will be delivered to the Commander, Long Beach Naval Shipyard, for harbor fuel transportation.

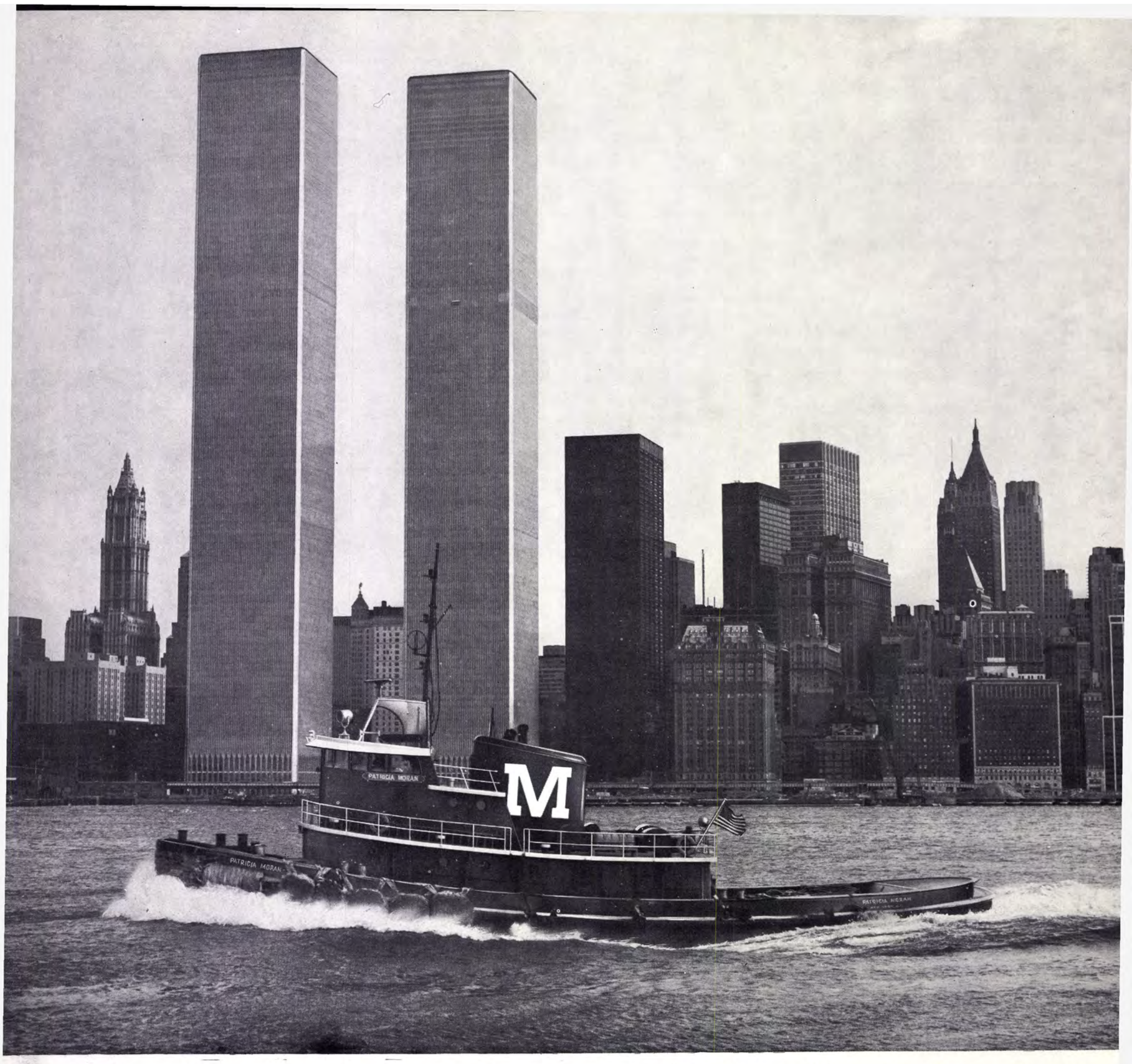
The barges are of a new design in the YON-245 class. Each will be capable of carrying any of five different varieties of fuel, with a capacity of up to 1,500 tons. The craft will be 165 feet long, 40 feet wide, and 11 feet high.

Deliveries of the first two barges are scheduled for September 1 and October 1, 1974. The third and fourth will be delivered by January and February 1975.

Henschel Corporation Names President And Chairman Of Board

George E. Coorssen has been appointed president and chief executive officer of the Henschel Corporation, of which he has been vice president and treasurer since 1949. He succeeds his brother **Norman H. Coorssen,** who has been named chairman of the board.

Henschel Corporation of Amesbury, Mass., is a unit of General Signal Corporation and a leading maker of shipboard intercommunications systems.



Two Famous Landmarks of New York Harbor

A continuously expanding Moran fleet has kept pace with the soaring skyline of New York for more than a century. By providing the power, experience, and versatility to efficiently and economically meet the full range of the port's transportation needs, Moran has helped make the Port of New York a leader in world commerce.

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$40-Million Contract To Nashville Bridge For Towboats, Barges

The American Ship Building Company has received a $40-million contract for the construction of barges and towboats, it was announced by **Jacob O. Kamm,** president.

"This is the largest single contract ever received by our Nashville Bridge Company, the division which will build the barges and towboats," Mr. **Kamm** said.

The contract calls for construction of 48 double-skinned barges and four 6,150 horsepower towboats. The barges will be used to haul fuel oil for the Commonwealth Edison Company of Chicago.

"We now have a backlog at Nashville in excess of $103,000,000 for barges and towboats," **William H. Barton Jr.,** president of the division, said.

The American Ship Building Company is involved in the construction of ships, barges and towboats used in serving energy oriented industries. The company has shipyards on the Great Lakes and in Tampa, Fla., as well as at Nashville, and is currently building a new plant at Ashland City, Tenn., to construct hopper barges. Its common shares are traded on the New York Stock Exchange.

Nathan Friedland Joins Santa Fe Engineering

Nathan Friedland

Nathan Friedland, well-known naval architect and an instructor in the design of offshore drilling units, has joined Santa Fe Engineering Services as manager of marine design.

Mr. **Friedland** will be in charge of the design and development of offshore vessels to be operated by the drilling and construction divisions of the parent company, Santa Fe International Corp., Orange, Calif. 92668.

During more than 30 years in naval architecture and ocean engineering, Mr. **Friedland** has contributed to a variety of advanced marine design programs, including the development of hydrofoils, wet and dry manned submersibles, surface vessels for offshore exploration and research, and underwater automation.

In 1967-68, Mr. **Friedland** was chairman of the Los Angeles Metropolitan Chapter of The Society of Naval Architects and Marine Engineers. He joined the faculty of UCLA in 1973 as a part-time lecturer for a course in the design of mobile offshore drilling units.

Mr. **Friedland** holds a B.S. degree in electrical engineering from Cooper Union Institute of Technology, New York, and a master's degree in mechanical engineering from Stevens Institute of Technology, Hoboken, N.J.

He will assist **Yoram Goren,** vice president of Santa Fe Engineering Services, who is in charge of Santa Fe's marine capital projects, including four drilling vessels and a pipelaying barge currently under construction.

Peru Buys Barges To Carry Crude From Amazon River To Brazil

Petroleos del Peru, Peru's state oil company, has purchased a tugboat and five barges to transport crude oil on the Amazon River to Brazil, according to an announcement by the company's Houston, Texas offices.

The tug and barges were purchased from Spanier Towing Co. of New Orleans, La., for about $2 million.

The company has a contract to sell 5,000 barrels of crude a day to Petrobras, Brazil's state oil company.

The oil will be produced from Petroperu wells in the Oriente area. It will be transported by barge from Trompeteros, Peru, to Manaos, Brazil.

Todd Shipyards Los Angeles Division To Build Four 89,700-Dwt Tankers At A Total Cost Of $136 Million

Todd Shipyards Corporation recently announced that it has signed contracts for the construction of four 89,700-dwt tankers at approximately $34 million per vessel. Two of the tankers will be built for subsidiaries of Overseas Shipholding Group, Inc., and the other two are to be constructed for affiliates of Seres Shipping, Inc. United States Government commitments for guarantees under Title XI of the Merchant Marine Act of 1936, as amended, have been issued for each of the four vessels.

The vessels, to be built at Todd's Los Angeles Division, will be 894 feet long, with a beam of 105 feet 9 inches, and a draft of 49 feet. They are of the San Clemente class powered by steam, with an shp of 24,500. Delivery of the first vessel will be in March 1977, with the balance at four-month intervals thereafter.

With the award of these contracts, and the prospect of substantial additional shipbuilding business, the Los Angeles Division of Todd promises a significant increase in employment and income for the San Pedro area. Todd Los Angeles is capable of employing 3,500 to 4,000 people, which would mean a payroll of $38 million or more annually.

The capital improvement program at Los Angeles, which is still under way, began over a year ago with the installation of a 975-foot craneway and a new 175-ton crane. Many additional improvements have been made in the intervening year, including the installation of new blasting and painting facilities, at a cost of just under $1 million, to comply with APCD requests for control of air pollution from industrial processes.

In all, a total of $12 million has been expended for facility expansion and improved production capability. The multiship construction programs now in hand are fruits of this modernization. Todd is spending $8 million more to extend and widen the existing shipways to accommodate the building of the 89,700-dwt tankers.

Two new cranes of 130-ton capacity each have been purchased to be used on the extreme sides of the two building ways. Both ways are being extended to handle the new, longer ships—their new dimensions will be 900 feet by 126 feet. The new crane capability will now make possible lifts onto the ways of 200 tons or more.

As a part of the company's overall plan for an integrated network of Autokon 71 at its four new-construction yards, the Los Angeles Division is planning to purchase a CM-100 numerical-control burning machine for automatic shape cutting.

The Autokon 71 program, sponsored by the Maritime Administration, is designed to reduce building costs and improve production methods. The system was first developed by the Central Institute for Industrial Research in Oslo, Norway, in conjunction with cooperating Norwegian shipyards. A computer is used for speed and precision, to provide lines fairing, steel plate development, plate nesting, numerically-controlled burning, and many other shipbuilding functions.

A training program for both the design staff and shipyard production men is already under way for this system. The Autokon process has some 10 years of operating application in numerically defining ships' hulls.

Additional expenditures contemplated at the Los Angeles Division will also increase heavy lift capabilities, outfitting, and other related ship production improvements. The semi-automated panel line, dust-controlled abrasive blast facility, assembly and fabricating installations have all been designed to suit construction of ships up to 100,000 dwt.

Todd Appoints Stuart Jones To Head New Tanker Planning

Stuart C. Jones

Stuart C. Jones has been appointed special assistant to general manager of Todd's Los Angeles Division to assume responsibility for development, planning, and construction scheduling of the new 89,700-dwt tankers now on order.

Mr. **Jones** has a master's degree from the Massachusetts Institute of Technology in naval architecture and marine engineering, and is a registered professional engineer, state of California. He has served in top management positions in both ship repair and new construction and for the past three years has been on the staff of the Commission on American Shipbuilding, established by the President, to study this country's maritime needs and capability in comparison with facilities and methods of major shipbuilding yards throughout the world.

This unique combination of proved engineering and managerial capability, together with first-hand knowledge of worldwide shipbuilding techniques, will contribute substantially to Todd's ability to meet the increasing demands on American shipbuilders.

Mr. **Jones** is a member of The Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, the American Society for Public Administration, and the Institute of Management Science.

Officers Named By Johnston Pump Company

Andrew W. Woodbury

Paul S. Chapman

Harry E. Madsen

Appointments to the position of president, vice president-controller, and vice president, sales and marketing, have recently been announced by the Johnston Pump Company. Johnston, headquartered in Glendora, Calif., is a leading manufacturer of vertical pumps for process, power, marine, agricultural and general industrial use.

Andrew W. Woodbury has been named as Johnston's president. He previously served as president for the Vertical Pump Division of Goulds Pumps, Inc., and as vice president of the parent company. Mr. **Woodbury** is a native of New York City and holds a Bachelor of Science degree in marine engineering from the New York Maritime College. He is presently chairing the vertical pump committee of the Hydraulic Institute. According to Mr. **Woodbury,** "The company has much enthusiasm for the future; the combination of the resources of Johnston with Aerojet General, our parent company, gives us more than the necessary ingredients for an even more expansive growth."

Also named was **Paul S. Chapman** as vice president, sales and marketing. Mr. **Chapman** has been with Johnston for 22 years, and has held various sales and managerial positions with the company before assuming the responsibilities of vice president, sales and marketing. Prior to his career with Johnston, he served in the U.S. Army Air Corps during World War II. He has studied engineering at North Carolina State University and the University of Maryland, and is also a graduate of the UCLA School of Business Management.

Harry E. Madsen is now serving as Johnston's vice president-controller. Mr. **Madsen** was formerly chief financial officer for the Vertical Pump Division of Goulds Pumps, Inc. Prior to that position, he served for 23 years in various capacities with The Continental Copper and Steel Company. He is an active member of The American Institute of Corporation Controllers. Mr. **Madsen** is a native of New Jersey and has studied financial analysis and corporation management at Rutgers University.

Arco Files CDS To Construct Two 380,000-Dwt Tankers

The Maritime Administration has received a construction differential subsidy to build two 380,000-deadweight-ton tankers. The application for the vessels—for which no builder has been named—was filed by Atlantic Richfield Co., Los Angeles, Calif. To be used to transport crude oil between the Persian Gulf and the United States East and Gulf Coasts, the tankers will cost about $114.5 million each.

Levingston To Build New-Type Offshore Rig For Rowan Companies

A new-type semisubmersible offshore drilling rig will be constructed by Levingston Shipbuilding Company, Orange, Texas, according to a company announcement. The vessel, to be built for the Rowan Companies, has been designed by Earl and Wright of San Francisco, Calif.

The drilling rig is scheduled for completion in late 1975, and will be able to drill to depths of 25,000 feet in 600 feet of water.

UNDER CONSTRUCTION IN SAN DIEGO: This 750-passenger 25-knot ferry is scheduled to be on the waters of San Francisco Bay this summer. The craft is one of three being built by the Golden Gate Bridge, Highway and Transportation District by Campbell Industries. To be propelled by Avco Lycoming gas turbines and Jacuzzi jets, the ferryboats were designed by Nickum & Spaulding Associates of Seattle, Wash. The 165-foot vessels are being built to provide commuter transportation between San Francisco and southern and central Marin County, and to alleviate rush-hour congestion on the Golden Gate Bridge. The two remaining vessels will go into service in 1975.

AML And APL Announce Changes Of Key Personnel

A realignment of functions and the appointment of key personnel, which affect traffic, and operations and stevedoring, were announced at American Mail Line, Seattle, Wash.-based division of American President Lines, Ltd. The changes, which became effective on February 1, followed the resignations of **Robert D. Bush,** president of Western Stevedoring and Terminal Corporation, an APL subsidiary which operates in the Puget Sound and Columbia River areas; and **Wayne Schiffner,** director of traffic services, American Mail Line Division. Announcement of the realignment was made by **Richard H. Beuthel,** AML general manager. According to Mr. **Beuthel,** the functions of stevedoring and operations which have operated separately in the past, will be placed under a single administrator. The change in function is expected to provide a closer liaison and integration of stevedoring, terminal and operational activities.

In addition to his present assignment as director of operations, AML Division, Capt. **Harry A. Greenwood** was appointed president of Western Stevedoring, and will continue to report to **Leslie A. Harlander,** APL vice president for operations in San Francisco, Calif. **J.F. Nicholson,** vice president for Western Stevedoring, will also serve as that organization's general manager.

Also announced were changes in the Traffic Division of AML which separate the C5 vessels from the containership fleet. Named to the two new traffic positions are **Thomas F. Martin,** director of traffic services, AML Division, who will be responsible for documentation and cargo booking of all vessels as well as the container control function, and **William F. Whalen,** line manager for the Pacific/Pacific-northwest/Southeast Asia Service, who will assume traffic responsibility for the C5 vessels.

In their new assignments, Mr. **Martin** and Mr. **Whalen** will report to their counterparts at American President Lines in San Francisco, including **Richard F. Andino,** vice president, traffic, and **Bruce J. Robeson**, director, fleet services, repectively.

Prior to this appointment, Mr. **Martin** served with AML as manager, container service and cargo coordination, and Mr. **Whalen** as AML's manager of Government cargoes.

C-E Elects Bemis Corporate Vice Pres.

F. Gregg Bemis Jr. has been elected vice president-corporate business development at Combustion Engineering, Inc., it was announced by **Arthur J. Santry Jr.,** C-E president. Mr. **Bemis** will direct and coordinate the effort to search for, evaluate and define major opportunities for broadening the corporation's earnings base. He will be located in C-E's Stamford, Conn., headquarters and will report to Mr. **Santry.**

Mr. **Bemis** joins C-E after having served as president and director of Rexham Corp., Charlotte, N.C. Previously, he served as vice president of Riegel Paper Corp., New York, and vice president and director of the Bemis Company, Inc.

Mr. **Bemis** received a B.A. degree in economics from Stanford University and an M.B.A. degree from Harvard Business School. He is presently a director of Logetronics, Inc., Washington, D.C., and the Boston Waterfront Development Corp., and also a trustee of the Hampton Institute, Hampton, Va.

Title XI Requested By United States Lines To Build Tanker

The Maritime Administration has received a Title XI request filed by United States Lines to assist in the construction of a tanker of either 89,700 deadweight tons or 78,000 deadweight tons, and costing about $38.2 million and $31.4 million, respectively. Negotiations are being discussed with National Steel and Shipbuilding Company to build the 89,700-dwt tanker and Newport News Shipbuilding to build the 78,000-dwt tanker, although no contracts have been signed.

Ingram Signs 10-Year $150-Million Contract To Transport Fuel Oil

Ingram Barge Company, a division of Ingram Corporation, New Orleans, La., has signed a 10-year contract valued at approximately $150 million with Commonwealth Edison Company of Chicago for the transporting of up to 20 million barrels annually of low sulphur #6 fuel oil from the New Orleans area to Commonwealth Edison's Collins electric generating station now under construction near Morris, on the Illinois River southwest of Chicago. The initial movement of oil will begin in late 1975. The contract may be extended beyond the original term.

To meet schedule deadlines, **John M. Donnelly,** president of Ingram Barge Company, said that Ingram has already awarded contracts for the construction of six high-horsepower towboats and 48 integrated tank barges for the transporting of the oil. The barges will be of double skin construction and equipped with self-contained pumping and heating capacity so that they can be immediately discharged upon arrival at the Collins station. All of the equipment will employ the very latest in shipbuilding technology. Final decisions on the choice of hull forms and power plants will be made after an extensive model testing program is conducted in Wageningen, the Netherlands.

Mr. **Donnelly** also stated that Ingram already has under construction five towboats and 23 barges for other customers as part of an ongoing expansion program.

Wendt Heads New Offshore Dept. For Getty Oil Company

George H. Truran, vice president and general manager of the Houston, Texas-based Mid-Continent Exploration and Production Division of Getty Oil Company, has announced the formation of a new offshore exploration and production department to operate its expanding offshore interests.

H. Edward Wendt, production manager for the division, has been named manager of the new department.

Edd R. Turner, Jr., manager of the former offshore department, is the assistant manager.

The new department is responsible for exploration and production activities in the Gulf of Mexico and the Atlantic Ocean.

For the past three years, Getty Oil has been operator of the U.S. Atlantic Ocean Offshore group's seismic exploration program on the Atlantic outer continental shelf.

The new department will also concentrate more on company participation as an operator in offshore ventures. For about 27 years, it has been a working interest member in the CAGC group in the Gulf of Mexico.

Three Appointments To Towing Industry Advisory Committee

The Commandant of the Coast Guard has announced the appointment of three additional members to the service's Towing Industry Advisory Committee (TIAC), including former astronaut and retired Navy Captain, **James A. Lovell.**

Captain **Lovell** is now senior executive vice president of Bay-Houston Towing Co., Houston, Texas. The other appointees are **Ed A. Smith** of Alamo Barge Lines, also of Houston, and **G.H. Chapman,** senior vice president, Upper Mississippi Towing Corp., Minneapolis, Minn.

Twenty-seven other members were appointed last November. All of the appointments run until June 30, 1975.

The committee, originally chartered as the Western Rivers Panel in 1943, provides advice and consultation to the Coast Guard's Marine Safety Council with respect to safe operation of towing vessels and barges on inland and coastal waterways.

The full committee meets twice a year. During the interim period, particular problems of the towing industry will be considered by smaller working groups.

Alaska Pipeline Background Information —Tankers Required To Cost $1.6 Billion

Alyeska Pipeline Service Company—The agent company formed to design, build, operate and maintain the Trans-Alaska Pipeline for the seven owners: Amerada Hess Corporation; ARCO Pipe Line Company; Exxon Pipe Line Company; Mobil Pipe Line Company; Phillips Petroleum Company; Sohio Pipe Line Company, and Union Oil Company of California.

The Trans-Alaska Pipeline—The pipeline to carry oil from Prudhoe Bay on the Arctic Coast to Valdez on Alaska's southcentral coast, where it will be transferred to tankers.

Alaska—Alaska is the largest of the 50 states, occupying 586,412 square miles. The next three largest states—Texas, California and Montana—put together do not equal it. The total pipeline will occupy only 12 square miles, or .002 of one percent of Alaska's square-mile area, with a temporary construction impact of an additional 50 to 60 square miles.

Prudhoe Bay—An inlet in the Arctic Ocean shoreline 165 miles east of Point Barrow and about one-fourth of the distance from the Canadian border to the west coast of Alaska. A major oil discovery was made at Prudhoe Bay in 1968.

Valdez—An ice-free port on the southern coast of Alaska, where the southern pipeline terminal and loading facilities will be located. Valdez harbor opens on Prince William Sound, which opens into the Gulf of Alaska. Valdez harbor is 12 miles long and 2½ miles wide and well protected from the open ocean. Wave heights and tidal currents are low. Fog does not persist for long periods. The channel depth is more than 100 fathoms, and its minimum width is 3,000 feet.

North Slope—Alaska is bordered on the north by the Arctic Ocean. The North Slope is that portion of Alaska's Arctic Plain sloping north from the Brooks Range to the ocean.

Prudhoe oil reserves—The American Petroleum Institute has conservatively estimated "proved recoverable oil reserves" at 9.6 billion barrels. "Proved reserves" are conservative estimates of oil available for recovery. They are not estimates of oil actually present in the formation nor of the amount that may ultimately be recovered, which have ranged to 40 billion barrels and more.

Pipeline capacity from the main field of Prudhoe Bay—Two million barrels-a-day. At startup, 1.2 million barrels-a-day. The most efficient rate is estimated at 1.5 million barrels-a-day. Present U.S. usage is about 17 million barrels-a-day, of which six million are imported.

Tankers—Full pipeline capacity will require 35, ranging from 45,000 deadweight tons to 150,000 deadweight tons. Destinations will be Puget Sound, San Francisco Bay and Los Angeles. An estimated 2½ tankers a day will be loaded at Valdez. The tankers will be U.S.-flag vessels, manned by U.S. crews and replacing most foreign-flag tankers currently delivering foreign oil to West Coast ports. The estimated cost of the 35-ship fleet is $1.6 billion.

Construction time, cost—It will take three years and cost $4 billion-plus to build the line, pumping stations and terminal facilities. Owner companies have invested more than $400 million in Alyeska already, and spent an additional $1.25 billion in leasing, exploration and development costs on the North Slope of Alaska.

Jobs created—Direct employment on the pipeline is expected to be about 8,600, with 2,300 more at the Prudhoe Bay fields. Secondary employment will mean a total of 25,000 to 30,000 jobs in the two peak years. In addition, the Maritime Administration has estimated that tanker construction would generate 73,480 man-years of labor in shipyards and supporting industries. Fleet maintenance would generate 770 man-years of employment annually, with 3,000 man-years of crew and support services for the fleet. After the line is fully operative, Prudhoe Bay operations and the pipeline will employ about 1,500.

Pipe—The pipe is made of high-stress steel and measures 48 inches in diameter and a half-inch thick. It has been tested by the University of California under stresses far exceeding those that would have been placed on it by Alaska's worst earthquake.

Heat—Oil will enter the line at 175 degrees (F). Friction will keep it at about 145 degrees. A cold line was considered, but present refrigeration methods are inadequate. If they were, cooling would present a wax formation problem and the danger that, if oil flow stopped, the oil would solidify, making it impossible to restart.

Pipeline route—The pipeline will originate in Prudhoe Bay, cross the Arctic Plain, and climb the Brooks Range to 4,800 feet. It will then cross the Yukon Tanana Uplands, pass 10 miles east of Fairbanks, and go over the Alaska Range at 3,500 feet. After descending into the Copper River Basin, it will pass over the Chugach Mountains at 2,500 feet and descend to near sea level at Valdez. The total distance is 789 miles.

Permafrost—Ground that has been subjected to freezing temperatures for at least two years. It may be "dry," as bedrock or gravel, or "wet," containing frozen water. The pipeline route crosses 525 miles of permafrost. Because the heat of the pipe could thaw ice-rich permafrost, the line will be elevated and insulated in such areas to prevent heat loss. More than half of the line, however, will be buried. Where buried, the line will be, if necessary, insulated or refrigerated.

Environment—Tests of pipe at 160 degrees indicate that vegetation will not be affected. Tundra, the delicate mosses, lichens and other plants that cover and shield permafrost, will be protected, replaced or substituted for until it returns. Construction will be scheduled around nesting, calving or spawning periods. Elevated sections of line will have ramps or underpasses for migrating animals. Research costing tens of millions of dollars has developed a wealth of new knowledge on Arctic conditions and wildlife.

Earthquakes—There are five major fault systems in the general vicinity of the pipeline route. Only three have experienced movement in recent geologic time. Only one is known to intersect the line. The pipeline design will permit the line to move 20 feet horizontally and three feet vertically without rupturing. Pipe has been tested at stresses far in excess of Alaska's worst quake.

Line protection—Two computers (one for backup) will monitor the line, as will 24-hour crews at pumping stations and the terminal. In earthquakes of severe magnitude, the pipeline is designed to remain in operation. In rare (once in several hundred years) contingency earthquakes of extreme magnitude, the computer system will instantly shut down the pipeline even though it is designed to remain tight with no leakage. In such quakes, the chances are three in one million that the line would develop a crack, and two in 10,000 that it would require any maintenance. In any case, the line will be constantly monitored for leaks, internally by a device traveling through the pipe and externally by air and ground surveillance and maintenance crews.

Port protection—At Valdez, storage tanks will be on bedrock that withstood the 1964 quake, and that is above the range of any quake-caused wave action. Tanks will be surrounded by diking. Docks are designed to withstand a 12-foot wave with a vessel alongside, and a 20-foot wave without a vessel. Loading will use steel mechanical arms rather than hoses. Tankers will have on-board controls to prevent overfilling tanks in loading or discharge. New oil cleanup equipment and methods will be on stand-by. Both water and foam fire-fighting equipment will be on hand. Ships will have separate ballast tanks and ballast water will be treated to remove any oil traces. Ships will have modern navigational devices and be governed by a system similar to airport traffic control.

Minneapolis Investors Acquire Grafton Boat

Nathaniel Robbins Jr.

Nathaniel Robbins Jr. has been named president of the Grafton Boat Co., a company which was recently acquired by a group of Minneapolis investors.

Grafton Boat Co. is a designer and builder of commercial and Government towboats and workboats. The company also repairs barges and manufactures barge components at its base of operations at Grafton, Ill.

The investors, headed by **Henry M. (Marty) Baskerville,** president of Upper Mississippi Towing Corp., Edina-based barge towing company, acquired the assets of the company from Continental Boiler and Sheet Iron Works which had purchased it in 1970.

Mr. **Robbins** was formerly director of engineering, Residential Division, Honeywell, Inc., Minneapolis. Mr. **Robbins** had been with Honeywell for more than 25 years.

Other officers include **William E. Evans**, vice president, **Evelyn Eickmeyer,** treasurer, and **Les Sutton,** secretary.

According to Mr. **Robbins,** Grafton Boat will concentrate primarily on the production of towboats for private industry.

Mr. **Robbins** said the company currently can manufacture as many as eight towboats per year, each costing between $300,000 and $500,000. Mr. **Robbins** said Grafton Boat is currently building a 65-foot towboat for Gulf River Services, New Orleans, and has accepted an order from the American Commercial Barge Lines of Jeffersonville, Ind., for building four 80-foot towboats to be delivered in 1974-75.

Mr. **Robbins** said the decision to unify production around the manufacture of towboats and barge components represents an attempt by Grafton Boat to stabilize and improve its growth potential and profits by focusing production in these high-demand market areas.

Stevedores Group Elects McCarren Pres.

John L. McCarren, Ryan Stevedoring Co., Mobile, Ala., has been named president of the National Association of Stevedores. He succeeds **James P. Lamb**, Palmetto Shipping Co., Charleston, S.C.

Other new officers include **James G. Costello,** vice president, and **Arthur E. Eorb,** secretary-treasurer. **Thomas D. Wilcox** continues as executive director.

First Phase Of New Keppel Subsidiary, Tuas Shipyard, To Cost $70 Million —A Number Of Key Appointments Made

Over the last three years, the volume of ship repair work handled by Keppel Shipyard (Private) Ltd., Singapore, has more than doubled, and the point has now been reached when investment in new facilities is essential if the company is to continue to grow.

Over the last two years, several comprehensive economic and technical studies regarding investment in a new drydock have been made. The present drydocking facilities are limited to 40,000 dwt and with the growth of ship size, even for a "middle-size" shipyard such as Keppel, this is now inadequate.

A new subsidiary, Tuas Shipyard, is to be started and in its first phase of development, a drydock of 150,000-dwt capacity will be built. For future expansion, the site area will provide space for another two drydocks. Preliminary engineering studies have been completed and work on the first phase, costing some $70 million, will begin this year. The new shipyard is expected to become operational in 1976.

1974 sees some reshuffling in the key people in the company. **C.N. Watson,** hitherto managing director on loan from the Swan Hunter Group, leaves Keppel to take over as managing director of the other Swan Hunter interest in Singapore, the ex-Naval Dockyard, Sembawang Shipyard. He will be succeeded by the present general manager, **C.T. Chua.** Mr. **Chua** started his career as an apprentice in the Naval Dockyard, and after joining the Singapore Harbour Board, he won a scholarship to Newcastle University, where he took his degree in naval architecture and was a Burrill Medallist. On his return to Keppel Shipyard in 1968, Mr. **Chua** held positions as ship repair manager, general manager of a Keppel subsidiary company, then for the last two years as general manager of the parent firm. Mr. **Chua** is also this year's president of the Singapore Association of Shipbuilders and Repairers.

W.S. Loh, works manager, will succeed Mr. **Chua** as general manager. With Keppel since 1960, he was awarded a three-year scholarship to study electrical engineering at Faraday House Engineering College, London. He graduated in 1966 and was winner of the college's gold medal. He was appointed electrical engineer on his return to Keppel, and he has been works manager since 1971.

Taking over as works manager will be **Y.F. Tham,** who is presently marine manager. With this move, Mr. **Tham** will now have handled all three of the key operational departments, because from 1970 to 1972 Mr. **Tham** served as commercial manager, and from 1972 to 1973 as marine manager. This is in line with company policy to develop managers with a broad background and experience. Mr. **Tham** studied marine engineering at the Singapore Polytechnic while undergoing his apprenticeship with Keppel. On completion of his apprenticeship, he spent two years with Blue Funnel, and Maersk Lines, rejoining Keppel in 1968. Then from foreman engineer, he rose through chief billing officer to deputy commercial manager and commercial manager.

Now promoted to marine manager, **Y.H. Kung,** presently assistant marine manager, is a man of vast and varied experience in marine engineering. He is a former dockyard department apprentice, and he studied marine engineering at the Singapore Polytechnic. He then went to sea for several years with the Blue Funnel and with Straits Steamship. He came ashore and worked for a while with a Malaysian tin mining company as a mechanical engineer. Mr. **Kung** returned to Keppel Shipyard in 1968, to rise from the ranks of foreman engineer, through the ship repair management, to his new position of marine manager.

Long-Term Charters Planned By Sohio

The Standard Oil Co. (Ohio) reported that the company will have spent $140 million by the end of this month as its share of engineering, research, design and equipment costs on the Trans-Alaska Pipeline.

"Sohio's share of the Alaskan pipeline expenditures this year might amount to $200 million to $250 million if construction starts as scheduled this spring since the right-of-way permit, applied for in June 1969, was issued January 23," said **Charles E. Spahr,** Sohio board chairman.

Total capital expenditures by Sohio are expected to be in the range of $2 billion to $2.5 billion over the next five years, primarily for the development of Alaskan oil and gas reserves and construction of the Trans-Alaska Pipeline.

In addition to the expenditures in Alaska, Sohio expects to spend about $200 million for completing an expansion and modernization of a refinery in Marcus Hook, Pa., and conversion of Sohio's Toledo, Ohio refinery to processing high sulfur crude oil. The Marcus Hook program will be completed late this year, and the Toledo project in late 1975.

Sohio plans to enter into long-term charters of tankers over the next few years to transport foreign oil for use in its refineries and to move Alaskan oil to the West Coast. The cost of these tankers to their owners will be in the area of $500 million to $750 million.

Mr. **Spahr** said the $140 million spent thus far on TAPS is the first part of Sohio's share of the estimated $4-billion project, the largest ever undertaken by private enterprise.

Finnish Passenger Ship To Be Powered By Turbo Power & Marine Systems Gas Turbines

Artist's rendering of Finnjet, a planned new, high-speed Finnish passenger liner, shows twin exhaust stacks for the ship's two Pratt & Whitney Aircraft FT4 marine gas turbines sold by Turbo Power & Marine Systems of Farmington, Conn., a subsidiary of United Aircraft Corporation.

A $5-million contract for a marine gas turbine propulsion system designed to speed a new Finnlines passenger ship between Helsinki, Finland, and West Germany in half the time it now takes, has been awarded to Turbo Power & Marine Systems, Farmington, Conn., a subsidiary of United Aircraft Corporation.

The contract was awarded by the Oy Wartsila Ab Shipyard in Helsinki, which will build the ship for Enso-Gutzeit Osakeyhtio, Finland's largest concern and parent company of Finnlines. The Finnjet will begin serving Baltic Sea traffic in 1977. Finnjet is designed to carry 1,500 passengers and up to 220 cars and 30 trucks; it is being built to operate year-round and through ice.

Turbo Power & Marine Systems will supply two Pratt & Whitney Aircraft FT4C-1D gas turbines, a spare gas generator and other associated equipment, with delivery scheduled for December 1975. The turbines will provide a total of 75,000-horsepower for a normal speed of 30.5 knots, and will reduce the 44-hour travel time to 22 hours between Helsinki and Travemunde, adjacent to Kiel, Germany.

This is TPM's first sale to a European passenger line. The company has gas turbines operational in 12 U.S. Coast Guard cutters, six Canadian and Danish Navies' destroyer escorts, and four commercial ships owned by Seatrain Lines, a New York shipping firm.

The 692-foot-long Finnjet will be able to transport 350,000 passengers annually between Finland and West Germany to expand Finland's rapidly increasing tourist trade. Goods shipped from either country will arrive at the destination port the following day.

The TPM contract was negotiated through United Aircraft International, also a subsidiary of United Aircraft Corporation. Pratt & Whitney Aircraft is a division of United Aircraft.

Universal Gas & Oil To Sell LPG Carrier For $32.5 Million

Universal Gas and Oil Company Inc. has announced that it has reached an agreement to sell its shipbuilding contract for a liquefied petroleum gas carrier to a major international shipping company. The agreement, subject to finalization of certain details and approval of French Government authorities, involves the 52,500-cubic-meter LPG carrier Dovertown.

This vessel, one of three the company has under construction at Construction Navales et Industrielles de la Mediterranee, La Seyne, France, is scheduled for delivery next month.

As a result of this transaction, Universal Gas and Oil expects to recognize cash receipts of approximately $16 million, of which approximately $10 million will represent profit. UGO anticipates utilizing the proceeds from this sale to pursue other projects currently under consideration.

Universal Gas has two other vessels under construction which are 35,000-cubic-meter liquefied natural gas carriers, and are currently undergoing modifications at the shipyard in order to qualify for registration under the U.S. flag. Both of these vessels are scheduled for delivery by the end of 1974.

The company also announced that in order to augment its executive management and to place UGO in a position to pursue the various opportunities which are presented to it, Messrs. **Haim Rafaeli, Jacob Sutton,** and **Gideon Ben-Aaron** have been elected to the UGO board of directors and were also elected members of the executive committee, with Mr. **Rafaeli** being appointed chairman of the executive committee. These three, all of whom are key executives in the Maritime Fruit Carriers complex of companies, are experienced in both general and vessel financing, and their experience and expertise should prove valuable to UGO. Maritime Fruit Carriers presently owns approximately 76 percent of Universal Gas and Oil.

Universal Gas and Oil will engage primarily in the transportation of liquefied gases. In addition, the company owns various oil, gas and hard mineral exploration rights.

A.C. Hoyle Company Appoints Donald Sailo VP-Chief Engineer

Donald W. Sailo

Charles F. Veselik, president of A.C. Hoyle Company, Iron Mountain, Mich., has announced the appointment of **Donald W. Sailo** as vice president-chief engineer of design and products.

Mr. **Sailo** has had many years of experience in the marine equipment design field.

The A.C. Hoyle Company markets a complete line of marine deck equipment, mooring winches, capstans, cranes, fairleads, and other marine auxiliaries.

Mr. **Sailo** will headquarter in the home offices located at 103 East "A" Street, Iron Mountain, Mich. 49801.

Northwest Instrument Acquires Kodiak Firm

Northwest Instrument purchased and now operates North Pacific Electronics, Inc. of Kodiak, Alaska. **Jack Rottler,** N.W.I. president, reported "the Kodiak facility will greatly improve Northwest Instrument's ability to service marine electronic equipment sold by our Kodiak, Seattle and Portland offices."

Roger Schenk of Kodiak will continue as manager of North Pacific Electronics. The shop is located on Shelikof Street, adjacent to the Kodiak boat harbor.

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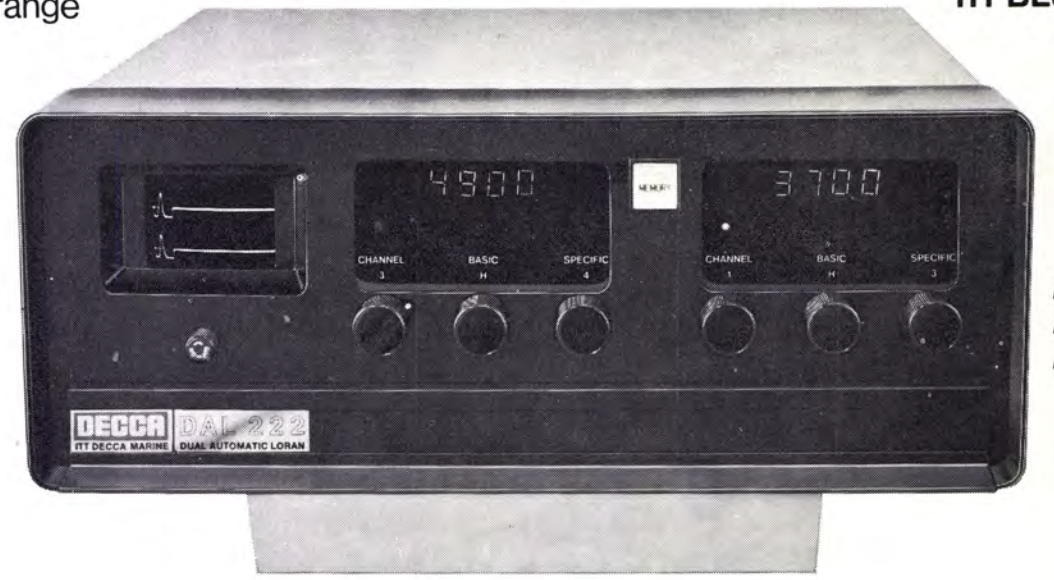

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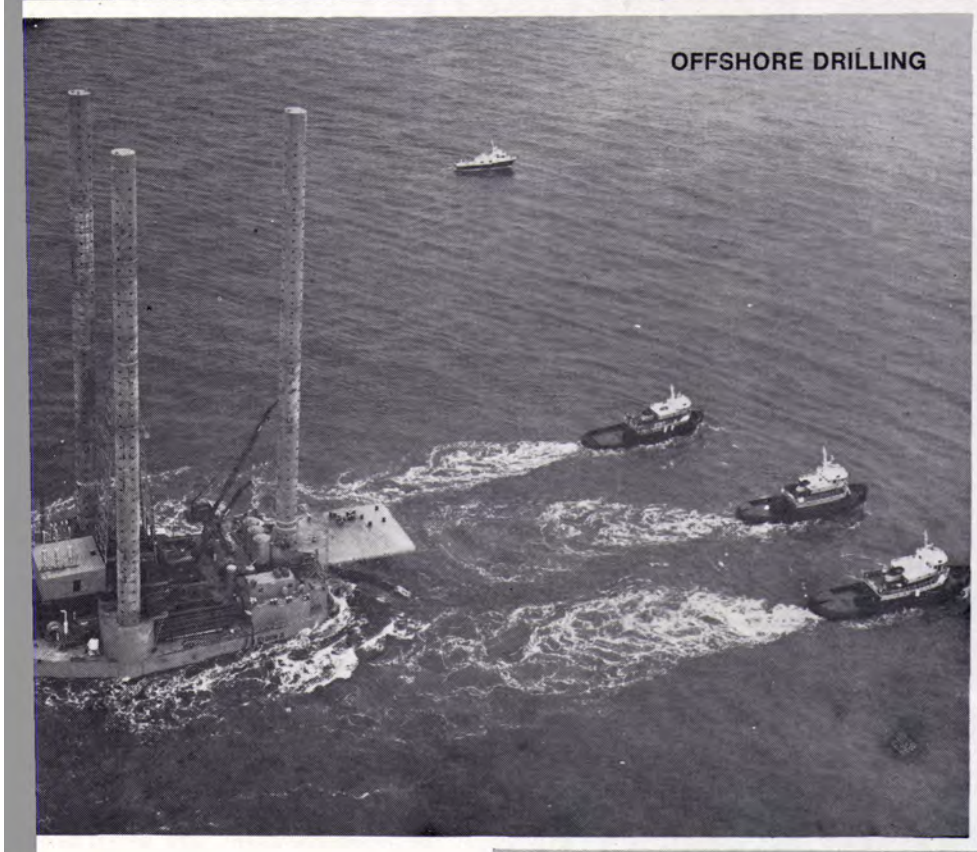

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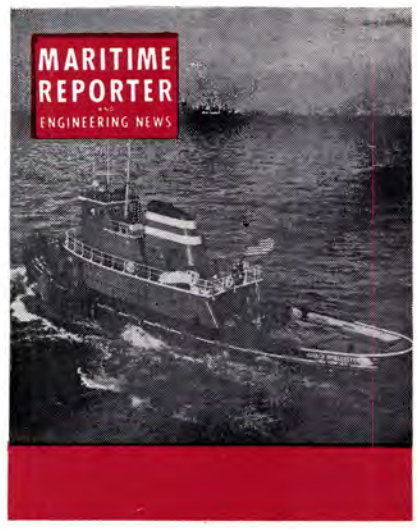

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Harold Reinauer Named Vice President AWO Region Five

At the annual meeting of the American Waterways Operators, Inc., **Harold A. Reinauer** (Reinauer Transportation Companies, Inc.) was elected to replace **James P. McAllister** as regional vice president for 1974.

Two new directors were elected. **Robert M. Loftus,** assistant vice president of Moran Towing Corporation will replace **Thomas E. Moran,** who declined reelection because of pressing business commitments, and Capt. **Ivan Ashby,** manager, Inland Waterways Operations, Mobil Oil Corporation, was elected to replace **Jack Aguero,** whose corporate responsibilities are outside the inland marine industry.

Reelected to the board were **Francis B. Bushey,** president of Spentonbush Transport Service, Inc., **Ralph W. Hooper,** vice president of Interstate Oil Transport Co., and **Harold A. Reinauer.** After the regional business meeting, which included a wide-ranging discussion of industry problems, more than 75 members, AWO friends and representatives of a number of Federal agencies were hosted at a reception and luncheon. In addition to informal remarks by AWO officials, informal remarks were given by Adm. **B.F. Engel,** Commander, Eastern and Atlantic Area, United States Coast Guard and Major Gen. **Richard H. Groves,** North Atlantic Division Engineer, Army Corps of Engineers.

Brewer-Titchener Corp. Promotes G.W. Ackley

G.W. Ackley

G.W. Ackley has been promoted to product manager of the Industrial Products Division at the Brewer-Titchener Corporation, according to **J. Ward Abbott,** vice president for marketing and sales.

Mr. **Abbott** said Mr. **Ackley** will have various responsibilities for industrial products hardware and custom forgings in a staff capacity. He will report to **John Malin,** Industrial Products Division sales manager, and coordinate his activities with other departments.

Mr. **Ackley** has been associated with Brewer-Titchener since 1959 as a customer service representative and sales engineer.

Brewer-Titchener is a major manufacturer of tackle blocks and wire rope and chain hardware for the marine and industrial markets. The firm also has a top reputation as a manufacturer of quality electrical transmission hardware, and is a subsidiary of the Joslyn Mfg. & Supply Co., Chicago, Ill.

Marine Society To Hold 204th Annual Dinner

The oldest maritime society in the United States, The Marine Society of the City of New York, will hold its 204th Annual Dinner on April 8, 1974, at the Plaza Hotel in New York City.

Capt. **Harry G. Newak Jr.,** 1st vice president and chairman of the dinner, announces that the reception will be held from 6:30 to 7:30 p.m., followed by dinner in the Grand Ballroom at 7:30 p.m. Reservations may be made by calling the Marine Society, 80 Broad Street, New York, N.Y., (212) 944-9196. The guest of honor will be announced at a later date, well in advance of the dinner. The speaker will cover topics of interest to modern-day maritime problems. Assisting Captain **Newak** as vice chairmen will be Capt. **F.W. Lunenburg,** Capt. **S.M. Seledee,** and Capt. **David Conwell.** Proceeds from the dinner are presented annually to the Mariners Family Home on Staten Island, N.Y.

Adm. Healey, USN (Ret.) Joins EDO Corporation

RAdm. Vincent P. Healey

A veteran of many strategic Navy assignments at sea and at home since his graduation from the U.S. Navy Academy in 1940, Rear Adm. **Vincent P. Healey** (ret.) has joined EDO Corporation as general manager of the company's Washington office. EDO, with headquarters in College Point, N.Y., is a leading producer of ship sonar systems, aircraft structures, avionics and pollution control instrumentation.

In making the announcement, **William R. Ryan,** president of EDO, stated that the company has made an excellent choice in naming the recently retired admiral, with his varied background and top-flight experience in Navy systems, to this important company post.

A native New Yorker, who attended Fordham University prior to his appointment to Annapolis, Admiral **Healey** has been a consultant to EDO and other companies on research and development projects since his retirement from the Navy in 1972. He holds a Master of Science degree in electrical engineering from M.I.T., a Bachelor of Science degree in EE from the Naval Academy and is a graduate of the Industrial College of the Armed Forces. Prior to his retirement, he was Director, Undersea and Strategic Warfare Development on the staff of Chief of Naval Operations in Washington, D.C., where he has spent considerable time when not assigned to sea duty.

During World War II, as a young naval officer, Admiral **Healey** was decorated for bravery after his ship, the cruiser Astoria, was sunk during the first battle of Savo Island. He later saw more action in the Pacific aboard several destroyers, and in 1945 he assumed command of the USS Dyson. From 1955 to 1958, he played a key role in the introduction of missile systems to the fleet, and in 1963, as Commander, Destroyer Squadron Three, he saw action off the coast of Vietnam.

EDO Corporation (Amex), with annual sales of $40 million, was founded by **Earl D. Osborn** in 1925. The company is the world's largest producer of seaplane floats, as well as long-range navigation equipment (loran). Through a subsidiary, EDO Western in Salt Lake City, the company produces a wide range of oceanographic instruments and devices and specialized plastic items.

Marathon LeTourneau Launches Four In '73

32,000 TONS: Approximately 32,000 tons of offshore drilling platforms have been launched from four Marathon LeTourneau Offshore Company yards during the latter part of 1973. Top row, left to right: Vicksburg, Miss., Key West, jackup, 230 feet by 200 feet by 467 feet; Republic of Singapore, Margie, twin-hull semisubmersible, 202 feet by 182 feet by 110 feet. Bottom row, left to right: Pentagone 82, five-column semisubmersible, 325 feet long by 338 feet wide by 317 feet high; Clydebank, Scotland, Penrod 64, jackup, 230 feet by 200 feet. Marathon will have an exhibit at the 1974 Offshore Technology Conference in Houston, Texas, May 5 through May 8. The firm will feature two scale-size models, one of a self-elevating jackup drilling platform and a second of a twin-hull semisubmersible platform. Illustrations of Marathon's five shipyards and various drilling platforms will be featured. The Marathon booth will be manned by sales and technical personnel, and literature on its products will be available. Marathon LeTourneau Offshore Company is a subsidiary of Marathon Manufacturing Company, a leading producer of offshore drilling platforms, associated marine and industrial products.

DIESELS

DELAVAL

AMERICA'S MOST POWERFUL DIESELS, BY DELAVAL, DRIVE THIS NEW ALASKA FERRY

Two 9,200 horsepower DELAVAL Enterprise diesel engines power the 418-foot, ocean-going M/V *Columbia*, launched this year. That's something of a checkpoint in maritime history, because *these are the most powerful diesels designed and built by an American company to be installed in an American-built ship.*

And now, the producer of M/V *Columbia's* 16-cylinder RV Series engine offers a new achievement in this line of great diesels. It's the DELAVAL 20-cylinder RV20, delivering up to 12,500 bhp to ships of all types, from tugs to modern 100,000 dwt tankers.

The sleek M/V *Columbia* is being built by Lockheed Shipbuilding and Construction Company of Seattle, and designed by Nickum & Spaulding Marine Architects, whose other proud ships negotiate the challenging Alaska seas and inlets under DELAVAL diesel power.

For more information on how DELAVAL's Enterprise engines can bring your shipbuilding project important new economies in construction and during each year of the vessel's life, phone or write to us soon. DELAVAL Turbine Inc., Engine and Compressor Division, 550 85th Ave., Oakland, California 94621. (415) 638-0130.

DELAVAL

Study Indicates U.S. Waterborne Trade To Triple By Year 2000

The domestic waterborne commerce of the United States is projected to triple by the year 2000, according to a study recently released by the Maritime Administration.

The study, which was carried out for the U.S. Department of Commerce agency by the international management consulting firm of A.T. Kearney, Inc., reflects a detailed examination of current traffic flow patterns of each of the domestic marine transportation segments—inland waterways, domestic ocean and Great Lakes carriers. It also assesses the economic and competitive forces that are expected to influence their operations during the remainder of this century.

Tonnage handled by these three segments, which aggregated 892 million tons in 1969, is expected to rise to 2.7 billion tons by the year 2000. Currently, the water carriers account for 17.6 percent of the domestic tonnage movement, 26.9 percent of the total freight ton-miles, but only 2.3 percent of the freight revenues.

Tonnage handled annually by the inland waterways segment is expected to more than double, reaching 869 million tons in the year 2000. The domestic ocean segment, encompassing the coastwise and intercoastal movements, as well as the noncontiguous trades (Puerto Rico, Hawaii and Alaska), is projected to show a 326 percent increase to 1.5 billion tons. The Great Lakes marine tonnage is forecast to double by 2000, reaching 325 million tons.

It is predicted that by the year 2000, fossil fuels will account for 1.7 billion of the 2.7 billion tons handled by the marine mode, with crude and refined petroleum accounting for 1.4 billion tons of this.

INLAND WATERWAYS

The inland waterways system generally is a very efficient mode for transporting bulk commodities and semifinished goods, having experienced a 40-fold man-hour productivity increase over the past four decades.

However, the points of interface at ports between modes of transportation were found in the study to be far behind the level of available technology.

The need for concentrating attention and resources on this problem over the coming years is documented in the study. At present, it is not unusual for cargo handling costs at terminals to equal or exceed direct transportation costs of a typical domestic marine shipment.

A second area for concentration cited by the study is relief of capacity restraints on main thoroughfares.

Beyond that — and depending on the nature of any shifts in the sources of energy—developments appear favorable for the Inland Waterways Trade Area during the 25-year timeframe of the study.

To realize the potential, though, the industry will also have to be successful in obtaining reasonable support to assure practical water resource development and pollution abatement policies, the report concludes, along with adequate waterways project funding.

DOMESTIC OCEAN

The Domestic Ocean Trade Area is expected to experience the greatest increase in traffic among the three areas, more than quadrupling present tonnage to 2.22 billion by 2000.

The domestic ocean coastwise traffic is dominated by petroleum and chemical bulk commodities movements. Thus, the trade depends on the direction of energy-related policy.

Trade to and from Puerto Rico is afforded the best service levels of any similar traffic lane in the world, with more than 400 sailings per year. Containerization has made the trade profitable for carriers since the mid-1950s. However, the study indicated that this custom may have been eroded, and rate relief may be necessary during the coming years if the service level on which the Puerto Rican economy depends is to be maintained.

Trade to and from Hawaii principally is consumption-oriented, with some back-haul of agricultural commodities. Future trade is expected to involve Alaskan oil shipments; in fact North Slope development is expected

(Continued next page)

to determine the future direction and growth of trade to and from Alaska.

GREAT LAKES

The marine mode now carries more than 72 percent of all tonnage among the industry and population centers on the Great Lakes. This is the largest percentage penetration among the three trade areas. In terms of volume, it is the smallest and is expected to grow at the slowest rate. Present tonnage is projected to slightly more than double by the year 2000, according to the study, at which time it will represent about 10 percent of the total domestic marine market.

The dominance of the marine mode in Great Lakes traffic is expected to continue. Growth, however, depends on future steel industry plant expansion near the Lakes.

Most of the Great Lakes tonnage represents iron ore, limestone and coal for the steel industry, with some coal shipments for power generation as well. A potential opportunity for the marine industry to expand its markets through movement of Western coal via Duluth-Superior to Great Lakes users is noted in the study.

It also notes that the only general cargo now handled by the marine mode in the Great Lakes Trade Area is via cross-lakes ferries.

The overall study is notable in that it assembled for the first time a computerized data base containing the region-to-region transportation flows of all commodities by surface transportation modes.

The result is a true determination of modal market shares for individual traffic lanes. From this were compiled the analyses of the three trade areas: Inland Waterways (principally river barges and towboats); Domestic Ocean (coastal, intercoastal and noncontiguous-possessions service), and Great Lakes (interstate commerce).

Single copies of an executive summary of the study, entitled "Domestic Waterborne Shipping Market Analysis," are available without charge from the Public Relations Department, A.T. Kearney, Inc., 100 South Wacker Drive, Chicago, Ill. 60606.

In addition, detailed Trade Area Reports for each of the three shipping segments, as well as other backup data, will be available for purchase from the National Technical Information Service, Springfield, Va. 22151.

Jackson Rope Expands Chicago Operations

Jackson Rope Corporation of Reading, Pa., has announced expansion of its Chicago operations and its move to new and larger facilities at 2692 American Lane, Elk Grove Village, Ill. 60007. The expanded operations will allow Jackson to better serve Midwestern customers from larger stocks with faster service.

Les Townsend, Midwest manager, is responsible for all regional sales and service. Jackson Rope Corporation, a subsidiary of ASPRO, Inc., produces a complete line of cordage for the maritime industry and a wide range of markets.

Lufkin Announces Three Appointments

Lufkin Industries, Inc. has named **John Finney** to be Eastern regional manager of Lufkin's Gear Division. The Eastern region includes the Pittsburgh office, where Mr. **Finney** is located, and the Baltimore, Cleveland, and New York offices.

Previously, Mr. **Finney** had been division manager for the Pittsburgh-Cleveland Division.

Lufkin also announced the relocation of **R.W. (Bob) Nicholas** from the New York City area office to the Chicago Division office in Chrystal Lake, Ill.

Mr. **Nicholas** is a sales representative for Lufkin's Gear Division.

Lufkin manufactures its marine and industrial gears at the home plant in Lufkin, Texas, and markets them worldwide.

The company also named **Ed Patterson** to the position of Gulf Coast Division manager, Houston, replacing **Jim Roe,** who resigned earlier this year.

Mr. **Patterson** has been a sales representative for Lufkin's oil field pumping equipment. He will now also be involved in commercial and marine gear sales of the area.

New Pacific Coast Shipping Association Invites Membership

The newly formed Pacific Merchant Shipping Association in San Francisco, Calif., is launching a move to bring into its ranks a broad range of West Coast shipping and commercial interests, including foreign-flag steamship companies.

At the start of the year, PMSA replaced the Pacific Coast Regional Office of the American Institute of Merchant Shipping, taking the same headquarters space on Sacramento Street in San Francisco, as well as the same staff. **Philip Steinberg,** who had been head of the AIMS regional office, is president of the new organization.

Mr. **Steinberg** said that while PMSA is focusing on the Pacific shipping industry, its membership expects to maintain a "cordial" and "cooperative" relationship with AIMS. The latter organization has headquarters in Washington, and represents only American shipping companies.

PMSA and AIMS will often be working together for the same objectives in such areas as Federal rules and legislation, Mr. **Steinberg** predicted.

Last fall, it appeared that AIMS was about to lose its West Coast American-flag members—American President Lines and its American Mail Line Division, States Steamship Co., and Pacific Far East Lines. However, all but PFEL are within the AIMS organization..

Members of the Pacific Merchant Shipping Association include American President Lines and American Mail, States Steamship, Pacific Far East Lines, Matson Navigation Co., and Alaska Hydro-Train. The group is inviting as members all lines "without regard to size of vessels or nationality of vessel registry."

Various grades of membership will be established and it is also planned to open the association to such firms as steamship agencies and business organizations with maritime interests.

Neither rates nor labor negotiations will be dealt with by PMSA, said Mr. **Steinberg.** But it will be active in such fields as traffic control, environmental problems, taxation affecting the shipping industry, and the like.

COMSAT General Corp. Names David W. King

David W. King

COMSAT General Corporation, Washington, D.C., has announced the appointment of **David W. King** as manager, maritime satellite sales.

Prior to joining COMSAT General, Mr. **King** was coordinator, maritime telecommunication systems for EXXON International.

Mr. **King** is well-known in the marine electronic industry and has wide international experience in the design, production, and implementation of marine communications systems.

He served as immediate past chairman of the American Institute of Merchant Shipping Satellite Committee, and represented AIMS at the International Chamber of Shipping Coordinating Ad Hoc Committee on Marine Satellites.

COMSAT General Corporation, a subsidiary of the Communications Satellite Corporation (COMSAT), is the major participant in the establishment of the world's first commercial maritime satellite system with service planned for early 1975. The MARISAT program will provide the international maritime industry with a full complement of reliable two-way services, including voice, teletype, facsimile and high-speed data.

COMSAT General's maritime sales office is located at 950 L'Enfant Plaza, S.W., in Washington, D.C.

SUMITOMO...
SHIPBUILDER TO THE WORLD

Sumitomo ships ply the sea lanes of the world carrying the cargoes that keep the wheels of industry turning.

For over 70 years now Sumitomo has been building vessels of every type for every purpose. And whether they are mammoth tankers, bulk carriers, combination carriers or special kinds of ships, such as LASH and liquefied gas carriers they are all built with the same attention to detail and the high technical standards that mark all Sumitomo products. And with future requirements of its customers in mind Sumitomo has recently completed the Oppama Shipyard which includes some of the most sophisticated shipbuilding equipment and machinery in the world. In this way Sumitomo is confident that it can offer even better service to its clients.

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Telex: 886450 Cable: SUMIJUKI LONDON EC2M 1NH

New York Office: Suite 4949, One World Trade Center, New York, N.Y. 10048, U.S.A.
Telex: 232699, 422145 Cable: SUMIJUKI NEWYORK

DIESEL GENERATOR SETS

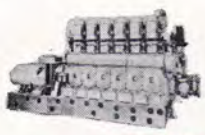
1

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—10½x12—reconditioned to ABS.

2

250 KW DIESEL GENERATOR SET



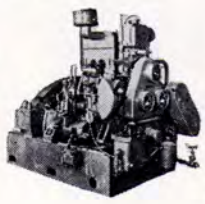
ENGINE: Enterprise 12 x 15 DSG-6 — 6 cyl. — 450 RPM crank No. 50J. GENERATOR: Westinghouse 250 KW—120/240 DC—1040 amps—450 RPM. Typical serial No. 3S-10P-913. Complete with switch gear.

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.

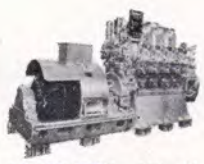
4



UNUSED 10 KW SUPERIOR DIESEL GENERATOR SET

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

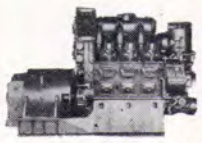
5



500 KW—120/240 VOLT DC DIESEL GENERATOR SET EQUAL TO NEW

GENERATOR: Allis Chalmers—Compound wound. Has Class "A" insulation. Output 500 KW—120/240 volts DC—2080 amperes—720 RPM—drip-proof—self-cooling. Ambient 50°C—temperature rise 40°C. ENGINE: Model GM 8-278—2-cycle—Vee type—8½"x10½"—air starting—720 RPM. Complete with switchgear. Condition very good. Still aboard naval vessel. Has Ross shell & tube type lube oil & raw coolers—temp. control valve—shock mounts.

6



300 KW DIESEL GENERATOR SET

ENGINE: G.M. 6-278—6-cylinder—2 cycle—8¾"x10½"—750 RPM—with oil and water Ross Shell and Tube Heat Exchangers, instrument panel, pyrometer, etc. Vibro Isolators.

GENERATOR: G.E. 300 KW—120/240 volts DC—1250 amps—shunt wound—continuous overload rating 375 KW—2 hours—55° Weight of unit approximately 26,000 pounds. Complete with shock mounts. Unit 13' 2" long, 64" wide, 8' high.

TURBO GENERATOR SETS

7

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

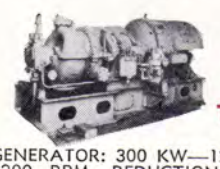
400 KW (500 KVA)—80% PF—1200 RPM—450/3/60. TURBINE: 585 lbs—840°TT—28½" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA—400 KW—450 volts—641 amps—80%PF—3 phase 60 cycle—1200 RPM—CR 40°—excitation amps 41—excitation voltage 120. Instruction book 5442. Switchgear available.

8

UNUSED 300 KW—240 VOLT DC WESTINGHOUSE LOW-PRESSURE TURBO-GENERATOR SET

GENERATOR: 300 KW—240 VDC—1250 amps—1200 RPM. GEAR: 5286/1200—frame 6x15—serial 10A-2612-4. TURBINE: Frame C-325—225 PSI—397° TF—5286 RPM—Serial 10-A-2611-4. Wt. 16,700 lbs. —complete in original factory crate.

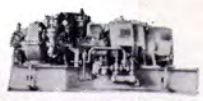
9



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.

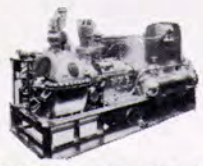
10



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.

11



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.

6 EQUAL-TO-NEW LATE TYPE 500 KW SHIPS SERVICE TURBO GENERATORS

12

1962—DeLaval. Very little use. Completely preserved with rotors and diaphragms crated separately. TURBINE: DeLaval —585 PSI — 840°TT—6-stage—6391 RPM—class CD — Also suitable 440 lbs.—740°TT—25" vac. GEAR: 6391/1200 RPM. GENERATOR: Allis-Chalmers—450/3/60. Totally enclosed, with static exciter and voltage regulator system. Weight 17,665 lbs. Complete with latest dead front switch gear. Also available are the condensers, circulating and condenser pumps. All very up-to-date, compact construction. Turbines will easily handle 600 KW if up-grading is desired.

13

AP2 VICTORY WORTHINGTON-MOORE CROCKER-WHEELER 300 KW UNIT

TURBINE: 440 PSI—740°TT—28½" 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 8½"; B.C. 7"—12 holes. ALSO NEW ARMATURES IN STOCK & 300 KW SHUNT ARMATURES.

UNUSED C-4 CROCKER-WHEELER 500 KW GENERATOR ENDS ONLY

120/240 VOLTS D.C.—1200 R.P.M.

14

FORMERLY USED WITH WORTHINGTON-MOORE TURBINES & GEARS

Upgraded by U.S. Navy—rewound in glass. Generator Frame and Armature—Marine 500 KW type 3-1200—dripproof enclosure—base mount. Modified from Crocker-Wheeler generator frame 152HD — 240/120 volts DC — 2083/521 amps — 1200 RPM. Ambient temperatures 50°C. APPLICATION: For C-4-SA1; C4-SA-3; T-AP-134 vessels, using Worthington-Moore Turbine—Form S-6 and generator Form 14 x 10. No pedestal bearing.

15

WESTINGHOUSE 400 KW TURBO-GEN 835 LBS — 840°TT

Newport News Hulls 480—541 Esso ships. TURBINE: Westinghouse 835 lbs/840°TT—9018 RPM—6-stage —instruction book 1430-C1—serial 5A-7090-7 & 8. GEAR: 9018/1200 RPM. GENERATOR: Westinghouse 400 KW—440/3/60/1200 RPM—rewound field—instruction book 5442. EXCITER: 5.5 KW.

TWO 538 KW WESTINGHOUSE T-2 AUX. GENERATORS

(COMPLETE)

16

TURBINE: 538 KW @ 5010 RPM—438 PSIG—750°TT—28½" 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

17

BETH. CLASS—13,600 H.P.

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

KNOWN 'ROUND THE WORLD

THE BOS

313 E. BALT

Main Office: (3

18

H.P. & L.P. COUPLINGS

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

19

G.E. 6690 HP @ 7062 RPM HIGH PRESSURE 8-STAGE TURBINE

835 lbs—840°TT—#83341—originally built for Esso Christobol—Newport News.

T-2 TURBINES & ROTORS

20

COMPLETE WESTINGHOUSE T-2 MAIN TURBINE—UNSHROUDED 6600 HP—435 PSI—750°F 28" VACUUM—3720 RPM

Instruction book IB-8345—type D—serial No. 5A-2124-6—unshrouded. Unit complete with all packing, stationary blading, linkage, governors, diaphragms, nozzles, etc. WILL SELL ROTOR SEPARATELY OR COMPLETE TURBINE CASING & ROTOR. Always well maintained by major oil company.

21

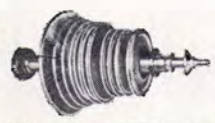
2 COMPLETE T-2 G.E. TURBINES

#61818 and #61834—large Lynn—all stages magnafluxed.

ROTOR WILL INTERCHANGE WITH ELLIOTT MAIN TURBINE

Will Sell Rotors Separately

22



T2-SE-A1 MAIN PROPULSION ROTOR — G.E.

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

23

T-2 TANKER UNUSED—4 UNITS AVAILABLE

AUX. G.E. TURBO GEN. ROTORS

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

VICTORY SHIP TURBINES & ROTORS

24

8500 H.P. 8-STAGE TURBINES FOR LARGE VICTORY SHIPS

L. P. – 3509 RPM
H.P. – 6159 RPM

LP Serial #77943—HP Serial #77942—Interchanges Ingalls C-3—Class 442 & Sun C-4 vessels—U.S. Navy Victory "Liberty".

LP Serial #72272—HP Serial #72271—Interchanges Ingalls C-3—10 boxes of spares.

LP Serial #62042—HP Serial #62043—GEI 16263—Ridgeway Victory.

WRITE OR PHONE FOR DETAILED INFORMATION AND PRICES

TON METALS CO.

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

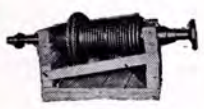
25 **VICTORY SHIP AP2 H.P. & L.P. TURBINES NEW — UNUSED — 6000 H.P. SETS**

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

26 **6000 H.P. G.E. — NORTH CAROLINA C-2**

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

27



19 STAGE WESTINGHOUSE H.P. ROTOR FOR AP2 VICTORY

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

28

G.E. 8500 H.P. REDUCTON GEAR FOR LARGE AP3 VICTORY & C3

MD-48A—8500 HP—6159/3509/763/85 RPM.

29 **ALSO 6000 H.P. VICTORY AP2 REDUCTION GEAR**

Westinghouse 4A-1640.

PUMPS

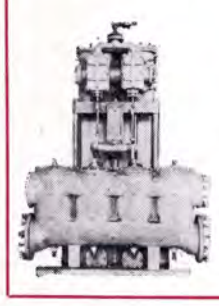
30

CARGO STRIPPING PUMPS

BRONZE T2 TANKER STRIPPING PUMPS

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

31



WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

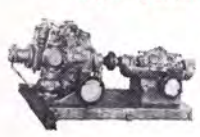
1400 GPM @ 110 PSI—suction lift 11.5 ft.—steam back pressure 15 lbs. Suction 14" — discharge 10"—steam 2½" — exhaust 4". Overall width 6'8"—overall height 9'1½" — depth 3'9½"—wt. approx. 10,000 lbs.

32

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.

33 **NEW TURBINE DRIVEN FIRE AND GENERAL SERVICE PUMP**



Allis-Chalmers 6 x 5 pump, type SKH—1200 GPM—125 PSI—3500 RPM. Coppos turbine type TF-22-2½ — 3500 RPM. 273#—50° superheat.

34

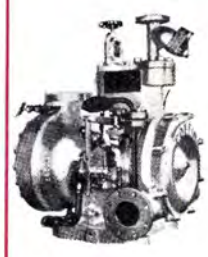
DAYTON-DAWD 2-STAGE FIRE AND BILGE PUMP

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

BOILER FEED PUMPS

Suitable for Navy and Merchant Vessels

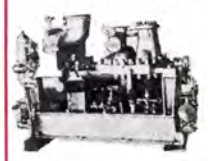
35



COFFIN TYPE CG-4A FEED PUMP

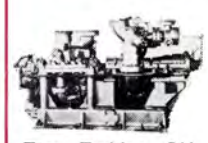
2 Available—very little use. Maximum 325 GPM—1760' head or 750 lbs Steam inlet 575 lbs. — 540°TT — exhaust 20 lbs. — speed 760 RPM.

36 **UNUSED DD445 CLASS WORTHINGTON TURBINE-DRIVEN FEED PUMP**



Worthington — drawing SL5043—425 GPM—1675' total dynamic head—5000 RPM 3-stage — double suction. Flanged 4½" inlet—4" outlet. Powered by Sturtevant steam turbine—282 HP—590 PSI. For Fletcher DD-445 Class Destroyers.

37



BUFFALO SIZE 4 FEED PUMPS

Terry Turbine—BM—273 HP—550 RPM—exhaust 15 lbs—590 PSI—superheat 0°—425 GPM Buffalo Pump—discharge pressure 750 lbs—5"x4"—built for USN DD destroyers. DD 445 Class Fletcher.

38

WORTHINGTON 3-STAGE UNUSED BOILER FEED PUMP

PUMP: 5" Worthington—460 GPM @ 750 PSI—5000 RPM—305 HP—steam flow 8052/hr—26.4 lbs HP hr. TURBINE: Sturtevant C-22—type 21—575# dry saturated steam—15 lb. back pressure—259°F water temperature—15 lbs/inch suction pressure.

39 **INGERSOLL-RAND BRONZE CARGO PUMP**

10GT—4500 GPM at 125 lbs.—2-stage—size 14x12.

40

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

41

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 38D8-⅛ engine.

42 **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 38D8-⅛ FM diesels. Has Fawick clutch.

43 **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.

44 **SINGLE ENGINE REDUCTION GEAR**

Farrell-Birmingham — non-reversing—1600 HP at 2.4909:1. With hydraulic couplings.

45 **ANCHOR WINDLASS**

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

46

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.

47

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

20" Ex. inlet—⅝" CU-NI tubes—with or without air ejector.

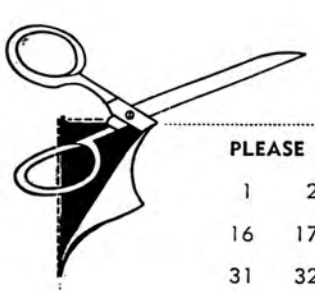
48

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. Wildcat 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) 3/1/74

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46	47	48												

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

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

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

Moore And McCormack Changes Firm Name—Earnings Increased

Stockholders overwhelmingly approved changing the name of Moore and McCormack Co., Inc. (listed NYSE, Pacific Coast) to Moore McCormack Resources, Inc. at a special meeting held at the company's new headquarters, One Landmark Square, Stamford, Conn. 06901.

James R. Barker, chairman and chief executive officer, told the meeting that "the broadened scope of the company's activities in transportation and natural resources, the reason for this name change, is evident in results for 1973."

Mr. **Barker** then disclosed that revenues for the year ended December 31, 1973, which included operations of Pickands Mather & Co. acquired April 3 last year, totaled $141,545,000 compared with $56,933,000 the year before when the company's principal activity was its ocean shipping subsidiary, Moore-McCormack Lines, Incorporated. Pickands Mather's activities include operation of iron ore and coal mining properties, management and ownership of limestone and coke facilities, operation of Interlake Steamship, a Great Lakes bulk carrier fleet, and acting as a sales agent for various materials.

After-tax earnings before extraordinary items in 1973 amounted to $10,059,000, or $4.21 a share, up from $3,699,000, or $1.55 a share in 1972. Per share results are based on 2,391,354 average shares outstanding in both years.

Extraordinary items in 1973 amounted to $834,000, or $.35 per share, compared with $2,757,000, or $1.15 per share the year before.

In reporting results for the final 1973 quarter, Mr. **Barker** said that revenues amounted to $43,649,000, up from $16,432,000 in the same 1972 period. At the same time, earnings for the quarter ended December 31, 1973, were $3,128,000, or $1.31 a share, compared with $1,448,000, or $.61 a share.

In commenting on the year as a whole, Mr. **Barker** noted that per share earnings of $4.21 were substantially higher than the 1972 pro forma $2.24 representing profits of Moore McCormack and PM combined, and that 1973 results of Moore-McCormack Lines and PM were each ahead of the year before. He added that "this increase reflects the strong uptrend in the steel industry, which is served by PM, and in trade on our ocean shipping routes linking Atlantic Coast U.S. ports with the East Coast of South America, and South Africa."

B&W Names Charles Orem Manager Of Division Operations

Charles A. Orem has been named manager of division operations for the Industrial and Marine Division of The Babcock & Wilcox Company's power generation group.

A native of Bryn Mawr, Pa., Mr. **Orem** joined B&W in August 1970 as manager of operations in the company's group operations services department, after previous service with the U.S. Navy. Mr. **Orem** entered the Navy in 1950 as an ensign and retired in 1970 as a commander.

From 1965 to 1968, he served as the commander of a nuclear-powered submarine, and from 1968 until his retirement, he was a systems analyst for the Chief of Naval Operations in Washington, D.C.

Mr. **Orem** is a 1950 graduate of the U.S. Naval Academy and the U.S. Naval Postgraduate School, where he received a B.S. degree and an M.S. degree in electrical engineering. He is a charter member of the Institute of Electrical and Electronics Engineers and the American Institute of Aeronautics and Astronautics, and a member of the U.S. Navy Institute.

Djakarta Lloyd Line Appoints Weisdorffer

Louis E. Weisdorffer has been appointed Gulf Line manager for P.N. Djakarta Lloyd Services, it was announced by Roberts Steamship Agency, Inc., recently appointed general agents for the Indonesian-flag line.

Mr. **Weisdorffer** will make his headquarters in New Orleans, La.

Vincent Maxwell Joins Marine Moisture

Vincent Maxwell

Marine Moisture Control Co., Inc., Inwood, N.Y. 11696, has announced that **Vincent Maxwell** has joined MMC in the capacity of special sales representative-national accounts.

Mr. **Maxwell** entered the marine field in 1938, after graduation from the New York State Merchant Marine Academy at Fort Schuyler. He served aboard Socony Vacuum oil tankers from 1938 to 1947. He left Socony Vacuum with the rank of chief engineer to become associated with the L.O. Arringdale organization.

In his new affiliation, Mr. **Maxwell** will use his years of marine experience calling on fleet-owner operators.

He is a member of The Society of Naval Architects and Marine Engineers, The Society of Marine Port Engineers New York, The Propeller Club, and the Downtown Athletic Club.

American Export Lines Agrees To Sell Two Passenger Vessels

American Export Lines, Inc. has announced that it had entered into agreements for the sale of its passenger vessels Constitution and Independence to Atlantic Far East Lines, Inc.

The sales price for the Constitution is $2,500,000, and the net proceeds remaining after satisfaction of outstanding obligations on the vessel will be approximately $1,360,000. These net proceeds are required by laws governing sales to foreign persons to be invested by American Export Lines, Inc. in further shipping activities. The sale of the Constitution is subject to the approval of the Maritime Administration.

The agreement for the sale of the Independence provides for a purchase price of $2,900,000 if legislation is passed permitting the sale of this vessel for operations under foreign registry, or $2,500,000 if such legislation is not passed and the vessel must be sold for scrap. This sale is also subject to the approval of the Maritime Administration. The net proceeds remaining after satisfaction of outstanding obligations on the vessel will be approximately $2,100,000 or $1,700,000, respectively. If the vessel is sold for foreign operation, the disposition of the net proceeds may be governed by the legislation enacted by Congress.

Stork-Werkspoor Receive Orders For 32 Engines

Stork-Werkspoor Diesel, a division of the Dutch VMF Group of Companies, have received orders for the delivery of 32 engines. Of these, 10 are intended for Smit & Co.'s Internationale Sleepdienst, Netherlands, to power two of their new seagoing tugs, which will be among the most powerful in the world. Each tug will have two TM 410 medium-speed diesel engines, and the auxiliary power on board each tug will be generated by three SWD DR 210 diesel engines. The tugs, which are to be built by Merwede v/h Van Vliet & Co., will be twin screw.

At the same time, SWD received an order from the German yard of Schichau Unter-Weser A.G. on behalf of the British shipping company Townsend Thorensen for the supply of four 9-cylinder TM 410 medium-speed diesel engines to power two new roll-on/roll-off vessels. This brings the total number of SWD-powered ships owned by Townsend Thorensen to nine, with a total of 25 engines.

The Dutch shipping company Smit-Lloyd also ordered engines for their three new supply ships from Stork-Werkspoor Diesel. Each of these ships will be powered by six 6-cylinder TM 410 engines. Auxiliary power supply will be by four SWD 6-cylinder R 150-type diesel engines.

ASME Marine Committee To Present Thirteen Papers At Zurich Gas Turbine Conference

The Marine Committee of The American Society of Mechanical Engineers Gas Turbine Division is presenting a program at the Gas Turbine Conference in Zurich between March 30 and April 4, 1974. This program consists of 13 interesting and timely papers as well as a Forum on Marine Gas Turbines.

The marine program is as follows:

April 1, Morning Session—Subject: "Installation, Application and Maintenance of Marine Gas Turbines"; chairman, **P.E. Speicher Jr.,** U.S. Department of Commerce, Maritime Administration, Washington, D.C.; vice chairman, **R. DuPont,** ACEC, Division de Gand, Gand, Belgium.

"Gas Turbines in Ships—The Installation Problem," **J. Neumann,** Yard Ltd., Glasgow, Scotland.

"Noise Control of Marine Gas Turbines in Propulsion and Auxiliary Power Applications," **M.I. Schiff,** Special Products Department, International Acoustics Company, Inc., Bronx, N.Y.

"Controllable Pitch Propellers in the DD-963; A Status Report," **D.E. Ridley** and **R.C. Case,** Bird-Johnson Co., Walpole, Mass.

"Operating Experience of Kongsberg Gas Turbines and Marine Systems on Board Merchant Ships," **T.H. Westrum,** Gas Turbine Division, Kongsberg Vapenfabrik, Kongsberg, Norway.

"Water Jet Propulsion Systems—Design Studies Using a Computer," **D.A. Frith,** Aeronautical Research Laboratories, Melbourne, Australia.

April 1, Afternoon Session—Subject: "Marine Gas Turbine Fuels, Lubrication, Protective Coatings and Economic Comparisons"; chairman, **R.J. Bradford Jr.,** National Steel and Shipbuilding Co., San Diego, Calif.; vice chairman, Dr. **H.N. Sharan,** Gebr Sulzer, Winterhur, Switzerland.

"Supplementary Analytical Procedures for Evaluation Fuel Handling Characteristics of Heavy Distillate Gas Turbine Fuels," **E.G. Barry,** Mobil Oil Corporation, Paulsboro, N.J., and **S.P. Cauley,** Mobil Oil Corporation, New York, N.Y.

"A General Review of Lubrication Systems for Marine Gas Turbines," **A.S. Morrow,** Shell Oil Company, Chicago, Ill.

"Initial Work on the Application of Protective Coatings to Marine Gas Turbine Components by High Rate Sputtering," **E.D. McClanahan** and **R. Busch,** Battelle Pacific Northwest, Richland, Wash., **J. Fairbanks,** Naval Ships Engineering Center, Hyattsville, Md., and **J.W. Patten,** Battelle Pacific Northwest, Richland, Wash.

"Gas Turbine Propulsion—An Engineering and Economic Comparison of Mechanical Versus Electrical Drive," **E. Gott,** ASEA, Goteborg, Sweden, and **S.O. Svensson,** Stal-Laval Turbine AB, Finspong, Sweden.

April 2, Morning Session—Subject: "Military Applications of Marine Gas Turbines"; chairman, **J. Siemietkowski,** Naval Ship Engineering Center, Philadelphia, Pa.; vice chairman, **H.B. Wiken,** A/S Norsk Elecktrisk & Brown Boveri, Oslo, Norway.

"A Cruise Gas Turbine Naval Ships," **H.E. Johnson,** Rolls-Royce Ltd., Coventry, England.

"Planning and Development for a New Generation of Gas Turbine Ships in the U.S. Navy," **R.E. Goldman** and **R.R. Peterson,** Naval Ship Systems Command, Washington, D.C.

"Gas Turbines in the Royal Navy, 1970-1973," **R.T. Shaw,** Ministry of Defence, Bath, United Kingdom.

"Test and Sea Experience of the GE LM2500 Propulsion Gas Turbine Module," **R.W. Brisken** and **W.R. Bobo,** General Electric Company, Cincinnati, Ohio.

April 3, Afternoon Session—Marine Gas Turbine Forum—chairman, **C.E.M. Preston,** Rolls-Royce Ltd., Warwickshire, England; vice chairman, **P. Zenker,** Energieversorgung Oberhausen AG, Postfach, Germany; moderator, **J. Herdlevaer,** Kvaerner Brug A/S, Oslo, Norway.

This forum will be conducted by the moderator, who will field questions from the audience. The answers to these questions will come from experts on marine gas turbines, who will also be in the audience.

FROM HALIFAX: Ready for oil exploration in the North Sea, this Halifax-built semisubmersible, Sedneth 701, is shown undergoing tests for its thrusters in Halifax Harbor. The unit is one of six semisubmersibles for the oil industry, either built by or on order with the Halifax Shipyards. Sedneth 701 will be delivered to its owners, Nederlandse Zeebormaatschappij B.V. (Sea Drilling Netherlands).

ITT Mackay Marine Introduces Marine Radio Console For Shipboard Or Fixed-Station Use

A marine radio communications console was recently announced in Raleigh, N.C., by ITT Mackay Marine, a division of International Telephone and Telegraph Corporation.

The MRU-35A SSB/CW console provides a complete high-frequency radiotelephone and radiotelegraph communication facility suitable for shipboard or fixed-station use.

The equipment features synthesized frequency control which provides 220,000 highly stable transmitting frequencies between 2.0 MHz and 24.0 MHz. On all authorized frequencies in this range, it meets F.C.C. requirements for shipboard or land-maritime applications.

The MRU-35A transmitter combines an advanced solid-state synthesized exciter with a modern, manually tuned linear amplifier.

PHILADELPHIA SECTION ASNE MEETING: The Philadelphia Section of the American Society of Naval Engineers met recently at the Officers Club of the Philadelphia Naval Shipyard. Approximately 50 people heard a very interesting presentation by Capt. **J.A. Smith,** NavShip Project Manager, on the Navy's 1200 PSIG Propulsion Plant Improvement Program. Attending the meeting were, left to right: **R.B. McFaden,** chief of marine engineering, J.J. Henry Company, coordinator; Captain **Smith,** presenter; **A.C. Brown,** vice president, J.J. Henry Company, Section chairman, and **G.A. Carlton,** NAVSEC (Philadelphia Division), vice chairman.

Dearborn-Storm To Concentrate On Offshore Drilling Industry —Computer Leasing To Be Sold

Dearborn-Storm Corporation has announced that an agreement in principle has been reached with a group of private investors in Chicago for the sale of Dearborn's portfolio of IBM System 360 computers for $17 million in cash payable at the closing.

This transaction, to be reflected in fiscal 1973, will result in a loss on disposal of the computer portfolio, including phase-out costs, of approximately $9.0 million ($3.15 per share), net of applicable tax benefits of approximately $4.2 million.

Arthur Weiss, chairman of the board of directors, stated that "divestiture of our interests in the computer leasing business now allows us to concentrate all of our management efforts and financial resources on our primary business, which is servicing the worldwide needs of the offshore petroleum industry."

Reflecting this concentration of Dearborn's interests in servicing the offshore petroleum industry, Dearborn's board of directors approved a change of the corporate name to Storm Drilling & Marine, Inc., subject to approval by the stockholders at the annual meeting to be held in Houston, Texas, on April 9, 1974. The chairman also stated that proceeds from the sale of the computer portfolio would be used to further expand the company's offshore service capabilities.

Dearborn currently has under construction drilling rigs and marine service vessels with an aggregate cost of approximately $75 million.

B&W To Supply Six Marine Boilers For Three Merchant Ships

National Steel & Shipbuilding Company (NASSCO) of San Diego, Calif., has ordered six two-drum Babcock & Wilcox marine boilers valued at approximately $1.4 million.

According to a NASSCO spokesman, the boilers will be installed aboard three 38,000-ton oil/gasoline/kerosene tankers being built at a cost of over $65 million for the Moore & McCormack Co.

Each of the boilers is designed to generate 57,030 pounds of steam per hour, with a superheater outlet pressure of 615 pounds per square inch, and temperature of 905 degrees Fahrenheit when firing at the normal load rate of 4,035 pounds of No. 6 oil per hour.

All of the units will be equipped with a superheater, extended surface economizer, steam air heater and two B&W Saratoga-type oil burners with racer steam atomizers.

The vessels, scheduled for delivery in October 1975, June 1976 and January 1977, will have a shallow draft of 35 feet, a service speed of 16 knots, automated engine rooms, and semi-automated cargo control systems.

B&W's Bailey Meter Company of Wickliffe, Ohio, will provide bridge-controlled combustion and turbine throttle controls. The combustion controls feature fluidic burner management for reduced manning requirements. The Bailey systems will be designed for future unmanned engine room use. B&W's Diamond Power Specialty Corporation of Lancaster, Ohio, will provide boiler cleaning equipment.

The boilers will be designed at B&W's Coventry, Ohio, detail engineering offices near Akron, Ohio. Component manufacturing has been assigned to B&W Power Generation Group facilities located in Paris, Texas, West Point, Miss., and Wilmington, N.C.

Boiler shipsets are scheduled for shipment in September, November and December 1974.

C.J. Hendry Co. Appoints John Iamarino

John Iamarino

Fred Barg, vice president of C.J. Hendry Co., San Francisco, Calif.-based ship chandlery firm since 1865, has announced the appointment of **John Iamarino** as manager of their San Pedro branch. He replaces **Dan Baldwin,** who has retired after serving C.J. Hendry for 38 years in the southern California area.

For the past 10 years, Mr. **Iamarino** has worked very closely with and around the maritime industry. From 1963 to 1967, he worked at Litton Industries while attending San Diego College, graduating in 1967 with a business management degree. For the next six years, he was northern California sales representative for the Macwhyte Wire Rope Co., a division of Amsted.

The San Pedro branch services accounts in the marine industry from San Diego to Santa Barbara, from their stock warehoused in their facility at 761 Channel Street. C.J. Hendry Co. is considered to be one of the finest, if not the oldest, complete chandlery firms on the West Coast. They are one of the few firms operating today who manufacture their own line of products. Among the most well-known are the Sea Jay Elliot USCG approved life raft, the Raftgo® Hydrostatic Release used on most USCG approved life rafts, the Sea Jay YFC life raft, the Sea Jay Anti-Exposure Covers to USCG specifications and custom canvas/synthetic hatch and boat covers, nets, ladders and slings.

Manufacturers represented include Cleco Air Tools, MSA (Mine Safety Appliances), Samson Cordage, Baltimore Copper Paint, Columbian Rope, Kilgore Safety Equipment, Dupont Freon and General Electric lamps.

Avondale Selects Vacu*Blast For New Blasting Facility

Avondale Shipyards, Incorporated, New Orleans, La., has placed an order with Vacu*Blast Corporation, Belmont, Calif., for an enclosed blast-cleaning system.

The order for $215,000 features the Vacu*Blast "All-Pneumatic Floor" Blastroom. The room measures 65 feet wide, 135 feet long, by 30 feet high and will handle eight blast operators working simultaneously or independently of each other.

Avondale Shipyards had been using the conventional outdoor sandblasting equipment which made it economically impractical to blast during adverse weather conditions. "We can now blast in any weather and also reduce our abrasive costs considerably." (as stated by Avondale personnel)

Vacu*Blast Corporation is a leading manufacturer of metal-preparation and dust-collecting equipment, with a strong background in the maritime industry. Vacu*Blast will manufacture the equipment on order for Avondale at its Abilene, Kan., operation.

Waterways Attract 87 Plant Facilities In Last Quarter '73

Waterside sites attracted 87 plant facilities in the fourth quarter of 1973, **James R. Smith**, president of The American Waterways Operators, Inc. has reported. Chemical facilities led the field.

The AWO survey shows that production industries constructed, expanded, or announced plans to construct 23 chemical facilities in the quarter.

The 23 chemical facilities built during the fourth quarter of 1973 represented 26 percent of all new waterside plant facilities reported in the Association's survey for the period.

Fifty-seven of the 91 industries which constructed or expanded, or announced plans to construct or expand plant facilities along or adjacent to navigable waterways during the third quarter, reported investment expenditures totaling $1,236,150,000.

The list of new industry facilities or expansions does not represent the total number of such developments along navigable channels in the fourth quarter. However, AWO seeks to make the listing as comprehensive as possible.

The AWO president said that the fourth quarter figures indicate sustained interest on the part of the management to take advantage of low-cost barge transportation for handling bulk-loading commodities. He pointed out that while all of these industries may not use water transportation, the availability of commercial barge service and the effect this service has on the general freight rate structure is a factor in plant locations. Additionally, he said, the availability of stable water supplies provided by navigation improvements attract industrial plant locations.

March 1, 1974

Analysis of the 87 waterside plants that were developed in the fourth quarter of 1973 shows that in addition to the 23 chemical facilities, 17 were metal producing units; 14 were terminals, docks and wharves; 12 were paper and wood products installations; 10 were petroleum installations; three were grain installations; two were shipyard-related units; two were general manufacturing installations; two were rubber manufacturing installations; one was a cement producing facility, and one was a miscellaneous facility.

The waterways where the greatest activity took place in new plant starts and expansions in the fourth quarter of 1973 were the Mississippi River with 13; Houston Ship Channel with nine; Black Warrior, Warrior and Tombigbee River System with seven; McClellan-Kerr Arkansas River Navigation System with five; Gulf Intracoastal Waterway with five; Tennessee River with five; James River with three; Lake Superior with three, and Savannah River with three.

The American Waterways Operators, Inc. first began keeping waterside plant construction and expansion records in 1952. Since then, 8,942 waterside plant developments have been reported.

U.S. Lines Names Kleinhenz Port Mgr. For Savannah, Ga.

United States Lines has named **Harold E. Kleinhenz** as its port manager for Savannah, Ga., and has set up a new office in that city, it was announced by **William J. Keely,** vice president/Eastern Division for the company.

Mr. **Keely** said the action was taken in light of the company's continuing expansion of its containerized freight service via Savannah to and from the Far East and Europe.

Mr. **Kleinhenz** joined the company in 1971 and has held managerial positions in the Midwest and in California. Previously, he was with American Export.

The new office will be located at 126 West Bay Street, Savannah, Ga., and will have a staff of 20.

Mr. **Kleinhenz** is a graduate of Northwestern University, where he studied transportation.

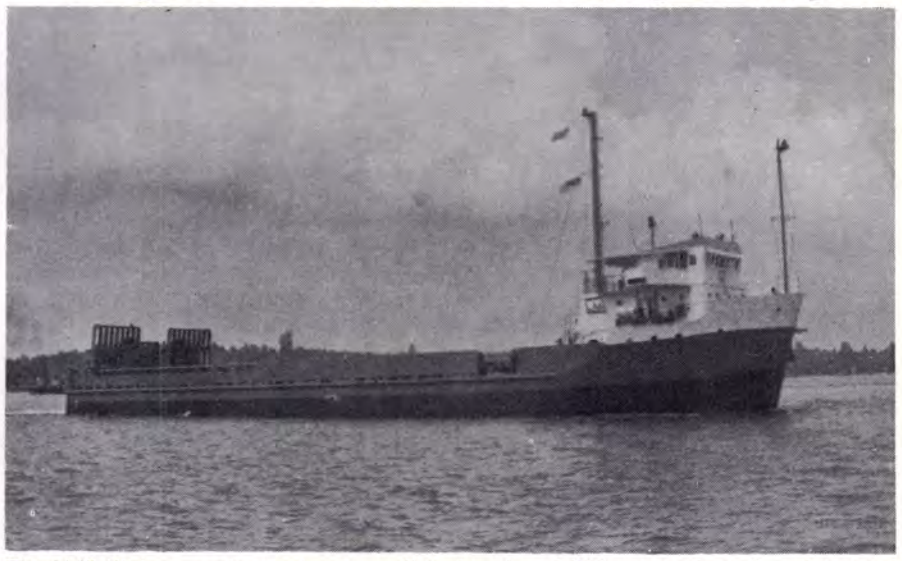
United States Lines operates an all-modern fleet of 30 vessels serving various areas of the world. Sixteen high-speed high-capacity containerships maintain a 15,000-mile Tri-Continent Service between Europe, the East and West Coasts of the United States, Hawaii, Guam, and the Far East. The company also has 14 fast Challenger-class general cargo vessels engaged in commercial and chartered services in the trans-Atlantic and trans-Pacific areas.

Benmar Division Promotes Bracken

The Benmar Division/Computer Equipment Corporation, 3000 W. Warner, Santa Ana, Calif. 92704, has announced the promotion of **Tim Bracken** to head its newly expanded spare parts department.

Mr. **Bracken** has had 21 years' experience in the marine electronics field serving the commercial boat owner and has spent 17 of these years with Benmar.

Liffey Marine Operating New Supply Vessel Designed To Carry A Wide Variety Of Cargo



The M/S Kildare can be used as a small tanker, has 6,800 square feet of unobstructed desk space for transporting logs, and can be beached astern to unload vehicles via a stern ramp.

Liffey Marine, Inc., a unit of the Stolt Group, located in Southeast Asia, has recently placed into service a 190-foot self-propelled multipurpose seagoing barge, the M/S Kildare. The unusual design of the vessel permits extremely economical transportation of a wide variety of cargo. With a deadweight of 2,550 tons on summer draft of 13 feet 6 inches, she is capable of shallow draft operation and is designed for beaching astern using a stern ramp for vehicles. Side openings facilitate fork-lift cargo handling. As a tanker, the vessel can lift 1,600 tons of palm oil, coconut oil, or petroleum products. She has a capacity of 2,200 cubic meters of logs on her 6,800 square feet of unobstructed deck space. The Kildare is presently employed transporting oil industry supplies and equipment from Singapore to Indonesia, primarily for the Baroil Corporation.

The Kildare was recently delivered from her Hong Kong builders, the Elling Engineering Co., Ltd. She is class Lloyd's 100 A-1. She is propelled by twin-screw Yawmar diesels giving a service speed of 7.0 knots loaded on a consumption of only 4 tons of fuel per day.

Liffey Marine, Inc., is located at Room 527, I.C.B. Building, 2 Shenton Way, Singapore 1, Republic of Singapore.

AAPA Committee Names John Finnegan

Charles S. Devoy, president of the American Association of Port Authorities (AAPA), recently announced the appointment of **John F. Finnegan Jr.,** manager of marine operations for the Niagra Frontier Transportation Authority (NFTA), to membership on Committee IV-Construction and Maintenance. for 1974.

AAPA is a national association whose membership is comprised of most major ports in the country. Management personnel serve on various AAPA committees which decide policy and planning valuable to member ports. Committee IV, one of the most prestigious committees of AAPA, has the responsibility of preparing a handbook covering construction, maintenance and general operational procedures of a port.

Since its inception seven years ago, the Niagra Frontier Transportation Authority has been administering the Port of Buffalo (which includes the Buffalo Port Terminal and Seaway Piers) located on Fuhrmann Boulevard. During this time, the property has been renovated, improved and developed into a first-rate facility. A fair share of the credit for this effort should be given to Mr. **Finnegan.**

A veteran marine construction diver and contractor, as well as a licensed Coast Guard captain, Mr. **Finnegan** has brought a wealth of waterfront knowledge to the operational aspects of the Port of Buffalo.

Soviet Trading Firm Takes Space In N.Y.'s World Trade Center

Amtorg Trading Corporation, which represents Soviet foreign trade organizations in the United States, will open a new office at the World Trade Center, New York, N.Y., this summer, it was announced by **Viktor I. Bessmertniy,** president and chairman of Amtorg, and Commissioner **Andrew C. Axtell** of The Port Authority of New York and New Jersey.

Amtorg's new space at the Trade Center will be used as an information office to provide U.S. businessmen with full information on Soviet goods for export, particularly machinery, industrial instruments and equipment, and raw materials.

At a lease signing ceremony held at the World Trade Center, Mr. **Bessmertniy** said: "The signing of this contract for setting up an information service for Amtorg will contribute to the promotion and strengthening trade relations between U.S.A. companies and Soviet foreign trade organizations, and involving a great number of American companies in trade contacts with Soviet trade organizations."

Commissioner **Axtell** said: "I am convinced on the basis of my participation in the Port Authority's trade mission to Moscow and Leningrad last year, that a greater flow of trade between our respective nations will be of lasting benefit to our two peoples. Now that regular steamship service is available between the Port of New York-New Jersey and the Soviet Union, we can look forward to ever-increasing commerce between the U.S. and the USSR. In this exchange of goods, which I hope will flourish for years to come, Amtorg and the World Trade Center will naturally play a leading part."

Also participating in the lease signing ceremony were **Konstantin T. Lvov,** general representative of Amtorg Trading Corporation in the USSR, and **John B. McAvey,** deputy director of world trade for the Port Authority.

Amtorg's occupancy represents the first participation in the Trade Center of an agency of the Union of Soviet Socialist Republics. There are more than 50 nations represented in the World Trade Center, either through private firms or official Government agencies. In all, over 400 international firms and Government organizations are now doing business at the Trade Center.

Amtorg Trading Corporation was established in New York in May 1924, to consolidate the representation of Soviet agencies handling trade between the United States and USSR. Amtorg also maintains an office at 355 Lexington Avenue in New York City.

A.L. Burbank Forms Shipcentral, Limited —Tsao Named To Board

Peter Burbank, president of A.L. Burbank & Company, Ltd., New York, N.Y., has announced the election of **Franklin W.L. Tsao** as a director to its board and the formation of an affiliated company, Shipcentral, Limited, New York, of which Mr. **Tsao** is the president. The board of directors of Shipcentral includes **George Y.Y. Tsao, Peter Burbank, John R. Sheffield,** and **Franklin W.L. Tsao.**

Mr. **Tsao,** who is also a director of the International Maritime Carriers group of shipping companies with offices in Hong Kong, Tokyo, and Kuala Lumpur, graduated from McGill University as an electrical engineer, received a degree in naval architecture and marine engineering from the University of Michigan, and earned a master's degree in business administration (finance) from Columbia University. In 1968, he joined A.L. Burbank & Company, Ltd., specializing in new construction projects and has since effectively applied his knowledge to the technical, economical and financial aspects of each project for his clients. Involving arrangements with owners, builders, charterers, and bankers, Mr. **Tsao's** efforts have resulted in the conclusion of a considerable number of projects for leading shipowners in the United States and Europe. Included, have been numerous types of specialized bulkcarriers, super, very large (VLCC) and ultra large (ULCC) tankers, large liquefied gas carriers, and products carriers for which, in most cases, customized charters were arranged. Shipcentral will further emphasize the above services, together with expansion into other related services for shipowners.

Alden Appoints Armand D. Bouchard Marine Sales Manager

Armand D. Bouchard

Lawrence A. Farrington, general sales manager for Alden Electronic & Impulse Recording Equipment Co., Inc., Westboro, Mass., has announced the appointment of **Armand D. Bouchard** to the position of manager of marine sales.

Mr. **Bouchard** will be responsible for coordinating Alden's sales and marketing programs for the Alden 519 Radiofacsimile System to the marine market throughout the United States.

The 519 Radiofacsimile System is designed to be used by ships at sea and offshore drilling platforms to receive various weather charts depicting data on atmospheric and wind conditions, sea conditions, storm movements, ice flows, etc. via radiofacsimile transmitters located around the world.

In making this announcement, Mr. **Farrington** pointed out that the marine industry is forecasted for significant growth in all areas, especially those related to the energy crisis, such as oil tankers and offshore oil drilling platforms.

Diamond M Drilling Names H.E. Whalen Operations Manager

Don E. McMahon, president and chief executive officer of Diamond M Drilling Company, Houston, Texas, has announced that **H.E. Whalen** has joined the firm as manager of operations and will make his headquarters at the company's offices in Morgan City, La.

Mr. **Whalen** received his B.S. degree in petroleum and geological engineering from Texas A&M University. For the past two years, he was Southeast Asia operations manager for Teledyne Mobile Offshore in Singapore. Previously, Mr. **Whalen** was an engineer with Tenneco Oil Company and supervised the drilling of offshore wells.

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Colt Industries To Build Fairbanks Morse Diesels To Power ODECO's Ocean Ranger

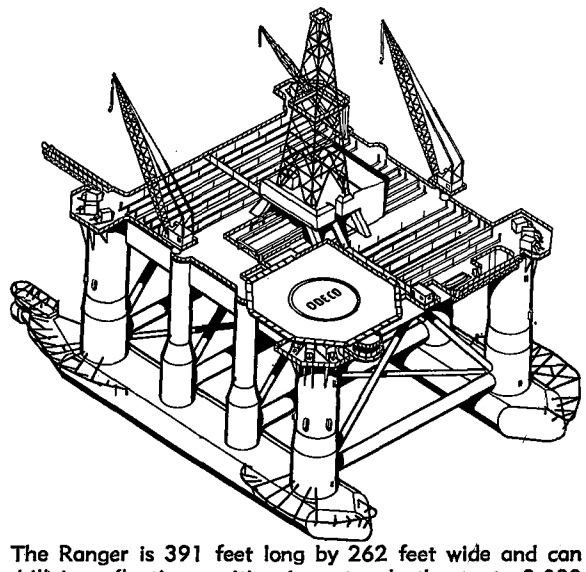
Colt Industries' Fairbanks Morse Engine Division of Beloit, Wis., has received an order for four diesel engines that will supply all of the electrical power for a huge offshore drilling rig—the Ocean Ranger. The engines will be built for Ocean Drilling and Exploration Co. of New Orleans, La., a major company involved in drilling for oil and gas around the world.

The four Fairbanks Morse Model 38TD8-⅛ opposed piston engines will each be 12 cylinders, 3,600 horsepower and turbocharged. A unique feature will be a double rpm rating depending on the service required. At 720 rpm the engines will generate alternating current for drilling, work power and personnel accommodations. At 900 rpm, direct current will be generated which will be used for propelling the giant craft.

Each of the four engines will be skid mounted and direct connected with electric generators. Two of these skids will be 35 feet long to accommodate an engine, one AC generator and two DC generators. The other two engines will be mounted with two DC generators alone. The AC equipment will be rated at 1,400 kw, the DC machines at 600 kw.

The Ranger is a semisubmersible super rig, 391 feet long by 262 feet wide. Twin lower hulls will house electric motors which will produce a total of 14,000 horsepower to propel the rig by a twin Kort nozzle system. It will have the capability to drill from a floating position in water depths up to 3,000 feet.

More than 40 Fairbanks Morse diesel engines are supplying power for ODECO drilling rigs around the world. The Ocean Ranger has been designed to operate in any drilling environment worldwide. It has the capability of operating for extended periods without the need for being tended by supply boats because of enlarged material storage capacities.



The Ranger is 391 feet long by 262 feet wide and can drill in a floating position in water depths up to 3,000 feet.

The mooring system will consist of twelve 45,000-pound anchors with a combination 3¼-inch chain and cable with a breaking strength of nearly a million and a quarter pounds. There will be living quarters for 100 men. A heliport on deck will support a helicopter for transporting personnel and equipment. The rig is scheduled for completion in the spring of 1976.

Insley Yard Delivers Tug To Great Lakes Dredge & Dock

Powered by a pair of GM Detroit Diesel engines, the Sunshine State has a free speed in excess of 11 knots.

The Sunshine State, a new twin-screw tug designed by S.L. Petchul, Inc. of Fort Lauderdale, Fla., was recently delivered to Great Lakes Dredge & Dock Company by the builder, N.E. Insley, Inc. of Crisfield, Md.

Built to American Bureau of Shipping standards, the new tug, with dimensions of 46 feet by 16 feet and a 5-foot draft, has been placed in operation as a dredge tender on the Florida Coast. The Sunshine State's ample beam and deep V hull configuration will provide increased stability in rough seas.

The hull, framed on 18-inch centers, is heavily built using ½-inch plate for the sheer strake and 5/16-inch for sides and bottom. There are four transverse bulkheads and four fuel tanks with a total capacity of 2,800 gallons.

Twin Detroit Diesel Model 6-71 engines with 3.85 to 1 reduction gear turn 44-inch-diameter stainless steel propellers. Free speeds in excess of 11 knots were recorded during trial runs.

The Sunshine State is equipped with hydraulic steering, two 3.5-kw diesel generators, air starting for main engines, keel cooling, radar, radiotelephone, monitor receiver, depth finder, and both hand and electric bilge pumps.

The tugs forecastle offers full-day boat accommodations and seats six men. The pilothouse is large with good visibility. A full-length bunk/seat provides additional seating required during crew deployment.

The Insley shipyard is presently engaged in the construction of a 1,200-hp towboat, as well as the repair and construction of various smaller steel vessels. Additional information may be obtained by writing **Jack Hoyle**, N.E. Insley, Inc., P.O. Box 11, Crisfield, Md. 21817.

British Ocean Group Forms New Shipbroking Company

W.H. Hughes

L. Greenacre

Ocean Transport & Trading Limited, London, England, has announced the formation of a new shipbroking company, Ocean McGregor Limited. The company has been formed from the shipbroking departments of the Ocean subsidiaries, McGregor, Gow and Holland Limited, and Cory Mann George (Chartering) Limited.

The executives of the new company are as follows: chairman, **R.J.F. Taylor** (a director of Ocean Transport and Trading, and managing director of Ocean Titan Limited); executive directors, **W.H. Hughes,** FICS, and **L. Greenacre,** FICS; directors, **K. Wright** and **W.H. Falconer** (directors of Ocean Titan Ltd.).

Ocean McGregor's activities cover shipbroking, chartering, sale and purchase and newbuilding contracts.

Mr. **Hughes** is an executive director of Ocean McGregor Ltd. He was formerly manager of the chartering, sale and purchase department of McGregor, Gow and Holland Ltd. He is a Fellow of the Institute of Chartered Shipbrokers.

Mr. **Hughes** was educated at Foster's Grammar School, Sherborne, Dorset, and served in the RAF from 1941 to 1948.

Mr. **Greenacre** is an executive director of Ocean McGregor Ltd. He was previously marine superintendent and then general manager of Cory Maritime Ltd. Prior to that, he was a technical superintendent with Shell International Petroleum Company.

Mr. **Greenacre** holds an extra first class certificate (marine engineers) and is a Fellow of the Institute of Chartered Shipbrokers. He was educated at Tynemouth Grammar School.

In commenting on the formation of the new company, Mr. **Hughes** stated: "We are fortunate in having an experienced staff working for us, and although we will continue to act for Group divisions such as Ocean Titan, Ocean Liners and Straits Steamship, associated companies such as China Navigation, and for other long-established connections such as Compagnie Maritime Belge (Antwerp), and John Swire and Sons (London), we anticipated an expansion of our activities in the North American, and Japanese and other Far Eastern Markets."

Kings Point Alumni Opposes Committee Dismemberment

Milton G. Nottingham, spokesman for the 14,000-member Alumni Association of the U.S. Merchant Marine Academy at Kings Point, N.Y., has expressed his organization's opposition to the proposed dismemberment of the House Merchant Marine and Fisheries Committee.

A House Select Committee on Committees has recently considered a recommendation for combining the functions of three standing committees of the House of Representatives for purposes of obtaining maximum efficiency and participation. One of the three is the Merchant Marine and Fisheries Committee. which bears prime responsibility for maritime training and ocean transportation, as well as for a number of other vital areas.

Two of the nation's five Federal academies fall within the cognizance of the Committee on Merchant Marine and Fisheries, the U.S. Merchant Marine Academy, and the U.S. Coast Guard Academy. Additionally, five state maritime academies and various maritime union training programs command the attention of the members of the Committee.

In a formal letter to Missouri Congressman **Richard Bolling,** Chairman of the Select Committee on Committees, Mr. **Nottingham** stated: "It has been said that the future of a nation depends upon its young. Granted that this is so, then the role of the Merchant Marine Committee is of tremendous importance in the education of the nation's future leadership in maritime affairs. On behalf of the 14,000 graduates of Kings Point, we ask that you as Chairman exert your influence to ensure that maritime matters are not relegated to functions of a subcommittee of another less specialized House Committee."

Mr. **Nottingham** further expressed the Kings Point Alumni Association's desire to restore the American flag's paramount position in ocean commerce. "The responsibility for developing appropriate legislation toward that goal, Mr. **Nottingham** said, is too great to be placed in fragmented form in other standing committees of the House of Representatives.

"The maritime affairs of the United States should be properly treated by one committee whose members develop expertise in this area. Based upon the record, the Committee on Merchant Marine and Fisheries has performed creditably in the past and given the opportunity to continue, the Kings Point Alumni Association is sure that it will perform equally well in the future."

Engelhard To Provide Cathodic Protection For 16 Navy Destroyers

The Ingalls Shipbuilding Division of Litton Industries has signed a contract with Engelhard Industries, Murray Hill, N.J., for its Systems Department to provide Capac® cathodic protection systems for installation on 16 new U.S. Navy multimission destroyers. The first of the new destroyers, the USS Spruance (DD-963), has already been launched and six more are now in production. Ingalls is building the Spruance destroyers under a multiyear contract awarded to the company in 1970.

The Engelhard Capac automatically controlled cathodic protection systems being installed consist of platinized anodes along with the standard Capac reference electrode, internal power supply and control equipment.

The 563-foot Spruance is primarily an antisubmarine vessel, but will have other missions as well. It can be assigned to bombard shore positions, support amphibious assaults, escort military and merchant ship convoys, perform surveillance and trailing of hostile surface ships, establish blockades and undertake search and rescue operations.

The Capac-protected destroyer is 150 feet longer than the latest class of destroyer now in the Navy fleet. With a speed in excess of 30 knots, it will be among the fastest Navy ships.

Northen Of ACT/PACE Elected CI President

Michael B. Northen

Michael B. Northen, president of Associated Container Transportation/PACE Line, has been elected president of The Containerization Institute, the international trade organization of the multibillion-dollar intermodal industry.

Mr. **Northen,** who is also on the board of directors of ACT (Australia), the London-based group which operates the worldwide container service to Australia and New Zealand, was chosen for the CI post at the 14th annual meeting held at the Biltmore Hotel in New York City.

Mr. **Northen** joined ACT in 1969 at its inception, after more than a decade with Blue Star Line, one of the partner companies, and shared the responsibility of developing the service.

Also at the meeting, **Warren L. Serenbetz,** president of Interpool Ltd., was reelected board chairman; **Clifford B. O'Hara,** director of commerce for the Port Authority of New York and New Jersey, elected executive vice president; and **Joseph P. O'Donnell,** international traffic manager of Eastman Kodak Co., and **George McManis,** vice president of Trailmobile, elected vice presidents.

Reappointed were **William J. Marquette** as executive director, and **John T. Cassidy,** senior vice president of Dart Containerline Inc., coordinator and steering committee chairman.

Dravo Names MacNab Marketing Manager For Engineering Works Div.

Bruce E. MacNab has been appointed manager of marketing for Dravo Corporation's Engineering Works Division.

Mr. **MacNab,** a former director of corporate marketing for Jeffrey Galion Inc. of Columbus, Ohio, will handle marketing and sales management of the division's materials handling, systems and equipment product lines.

His previous experience includes positions as marketing director for Buckeye International's Steel Division and manager of research and engineering for North American Aviation Inc. A graduate of Denison University and Ohio State University, where he received a master's degree in business administration and a doctoral degree in industrial marketing, Mr. **MacNab** is a member of the Licensing Executives Society Inc., International Executives Assn., American Economic Assn., Newcomen Society and American Marketing Assn.

Offshore Logistics Reports Earnings

Offshore Logistics, Inc., Lafayette, La., has announced that net income for the six-month period ended December 31, 1973, was $1,535,000 as compared to $755,000 for the same period of the previous year. Gross revenue was $10,797,000 as compared to $7,452,000 for the same period a year ago. Earnings per share were 88 cents on 1,742,000 shares outstanding for the first six months of the fiscal year as compared to 49 cents on 1,545,000 shares last year.

In making the announcement, **Burt H. Keenan,** president and chairman of the board, stated that the increased earnings during the period resulted not only from the addition of new equipment and expansion of operations in the North Sea, but from positive results of budgetary controls instituted earlier in the year. Offshore Logistics operates vessels and helicopters in support of the worldwide oil and gas industry.

Campbell Launches 18th In Series Of Tuna Superseiners

The Marjorie R., 18th in a series of high-seas tuna superseiners built by Campbell Industries, was recently launched at the company's San Diego, Calif., yard.

The new clipper, valued at approximately $3 million, is a sister ship to the recently delivered Sandra C. The owners, J.W. Uhlein & Associates of New York, say that the ships represent the beginning of a new tuna fleet that will fish on behalf of the Van Camp Sea Food Company, a division of Ralston-Purina Company.

Designed and built by the Campbell Marine Division of Campbell Industries, the vessel will now undergo outfitting at the company's facilities on San Diego Bay.

Principal speaker for the event was **Robert A. Barley,** president of the United California Bank, Los Angeles. **Jack G. Allen,** Campbell vice president, officiated as master of ceremonies.

Performing the champagne christening honors for the ship named for her was **Mrs. Marjorie R. Reimers,** wife of **A.J. Reimers,** assistant treasurer of Ralston-Purina Co., headquartered in St. Louis, Mo. She was attended by **Mrs. Clarisse daGraca,** wife of the new ship's captain. Monsignor **Anthony A. Giesing** of St. Joseph's Cathedral, San Diego, performed the blessing.

According to **George J. Soares,** Campbell president, the Marjorie R. will carry a full complement of fishing equipment, including a Marco seine winch and Campbell's proprietary design anchor winch. Other major on-board equipment will include Vilter refrigeration, a Brunvoll 250-hp hydraulic bow thruster, and an anti-roll stabilization system.

The new ship is 218 feet long, has a 40-foot beam, and will carry a frozen fish payload of approximately 1,200 tons. Her speed will be approximately 17 knots.

The main propulsion engine for the Marjorie R. is a 3,600-horsepower 20-cylinder General Motors marine diesel, driving a five-blade Coolidge stainless steel propeller through a Falk reduction gear. Auxiliary power will be supplied through three Caterpillar 300-kw generator sets.

Navigation aids and other electronic gear will include a Taiyo ADF, an Omega Micro navigation system, two Kelvin-Hughes long-range radars, two single side-band radios, three emergency radios, two VHF-FM radios, a Simrad depth sounder, a Decca depth recorder, and a PA/intercom system.

In other construction, Campbell's San Diego Marine Construction Corp. subsidiary currently has two bulbous-bow seiners of its own design under construction. Three more superseiners and a harbor tug are also being built in the Campbell Marine Division shipyard. The company's aluminum facility is constructing three all-aluminum high-speed ferryboats under a $12.6-million contract with the Golden Gate Bridge, Highway and Transportation District, San Francisco. The first of the ferryboats is scheduled for delivery this June.

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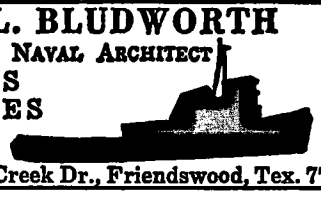
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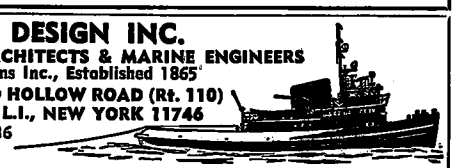
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Robert J. Davie

Dargan Sidgwick

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Don **Tomás Galán Arguello,** executive vice chairman of Astilleros Espanoles, S.A., previewed some of the essential points from the report he will submit at the regular stockholders' meeting in May, the most significant being:

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Carrington Slipways Builds Fleet Of Eight Supply Vessels For Australian Offshore

Lady Sarah, a sister ship to the Lady Cynthia, is now operating on the North West Shelf.

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The Lady Cynthia is the sixth vessel in the fleet of modern and versatile ocean tug/offshore oil rig supply ships operated by A.O.S., a division of P.&O. Australia Ltd. All of these vessels have been built by Carrington.

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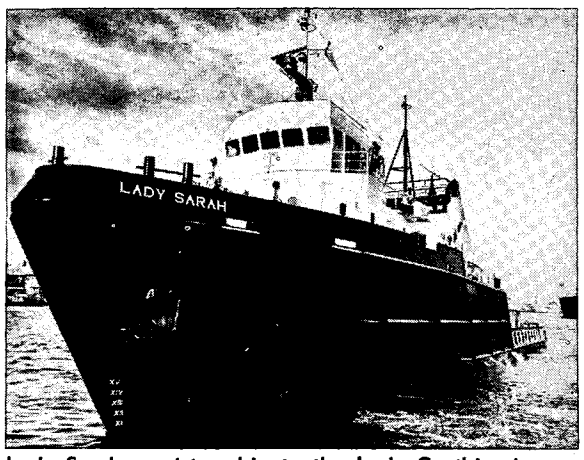

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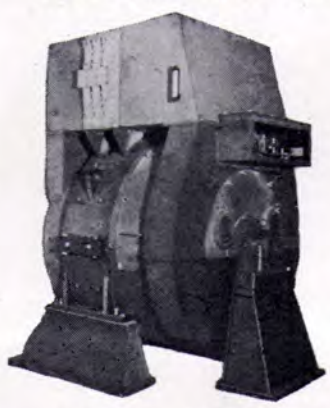

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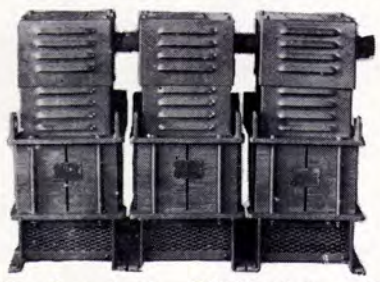

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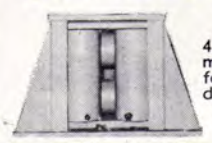

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A partial listing of our stock from EX-NAVY and MARITIME VESSELS

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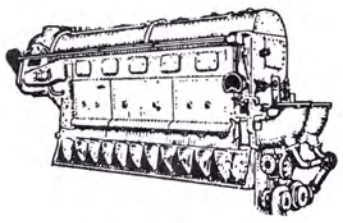
MARINE DIESEL ENGINES



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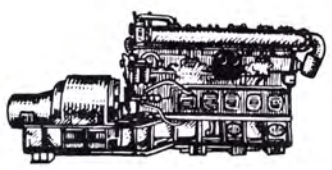

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.

3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

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A.C.

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

2—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.

D.C.

1—WORTHINGTON, 225 PSI, 397°F, 6510 RPM, with Westinghouse Generator, 150 KW, 120 DC, 1250 Amperes.

1—GENERAL ELECTRIC, with G.E. Generator, 350 KW, 440/3/60.

1—GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 440/3/60.

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

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

6—WESTINGHOUSE, 200 PSI, with Westinghouse Generators, 60 KW, 120 D.C.

JOSHUA HENDY, 300 PSI, 550°F, with Westinghouse Generator, 300 KW, 120/240 DC.

WORTHINGTON, Form S4, 440 PSI, 740°F to a Westinghouse Generator, 250 KW, 440/3/60, and to a 90 KW, 120 DC.

DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.

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1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).

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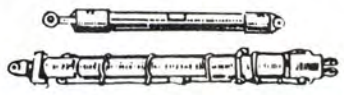

Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	double
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	15½"	double
6"	8Ft.	4"	144"	double

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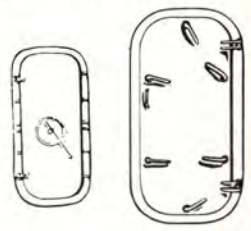

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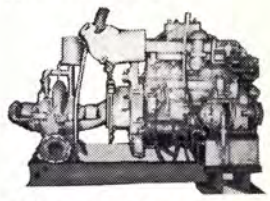
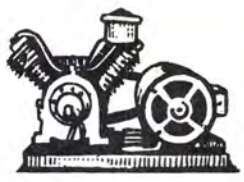


2—BUDA, Model 6-LD-468, Diesel Engines 6 cylinders, 100 BHP, Marine, Gardner Denver, centrifugal Pumps, Bronze, horizontally split case, 1000 GPM, 280' head, 6 suction and 5" discharge.



AIR COMPRESSORS

1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5¾x5, with Diehl Motors, 45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

3—INGERSOLL - RAND, Size 5x5x4x4, 50 CFM, 150 PSI, with G.E. Motor, 20 HP, 440/3/60.

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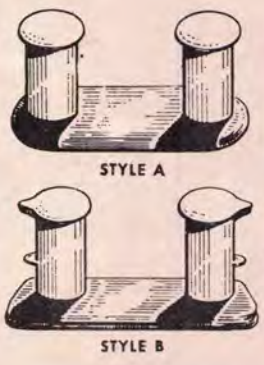

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1⅛" Size	2¼" Size
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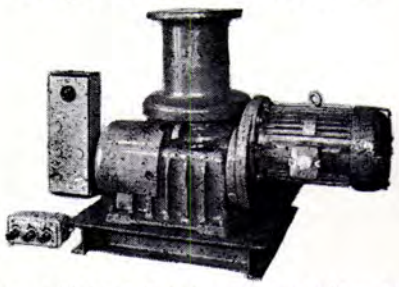
10 H.P. REVERSING CAPSTANS

SHIPBOARD USE

Duty 10,000 lbs. @ 60 FPM



10 H.P.—220/440/3/60—1750 R.P.M.—Marine type reversing controller. Barrel diameter—10"—2½" Flange. Height between flanges 12".

$2750

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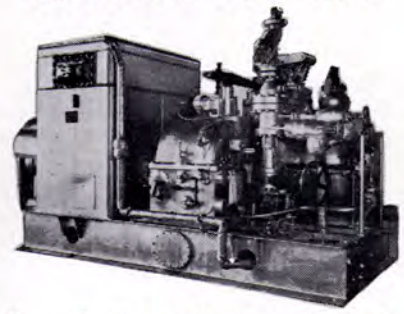
AVAILABLE IMMEDIATELY

G.E. 600 KW 440/3/60 A.C. GEARED TURBO GENERATOR SET

Type FN3-FN20—565#—850°G



We offer with ABS or Lloyd's certificate. Our reconditioning of this unit is fully guaranteed on a money-back basis. Has been through G.E. Engineering and the last stage has been rebladed with new style blading. All diaphragms re-machined.

IN OUR OPINION, THESE UNITS ARE EQUAL TO NEW

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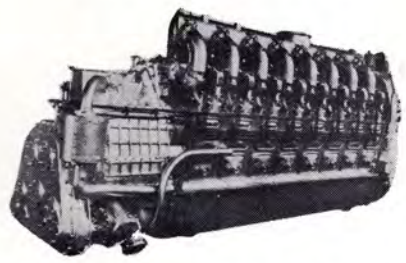
G.M. 16-278A 1700 H.P. DIESEL ENGINES



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FUEL OIL OR LUBE OIL

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225 GPM—viscosity 180-200 SSU @ 130°F

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MODELS

Lube Oil: M-85-34-5-23BM-44
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SPECIFICATIONS

Bowl speed 17,000 RPM — 1" oil inlet & outlet. 2 HP vertical GE motor—440/3/60/3400—complete with starter. Plans available.

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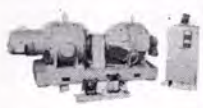
M.G. SETS

UNUSED—10 KW—120/1/60 M.G. SET



INPUT: Motor 25 HP — 120 VDC — 156 amps — 1800 RPM —flange-coupled to output generator.

OUTPUT: 10 KW generator — 120 volts 60 cycle single phase —108 amps — 0.80 PF — with direct-connected 125 volt 8 amp exciter. Motor starter by Cutler-Hammer. AC generator has voltmeter and ammeter. Bassler voltage regulator.

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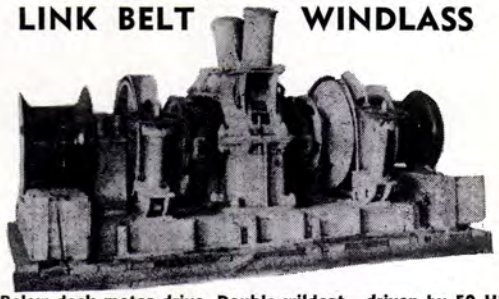
UNUSED 1⅝" HEAVY DUTY LINK BELT WINDLASS



Below deck motor drive. Double wildcat—driven by 50 HP 230 VDC motor with vertical shaft and worm drive. Single speed—handles 7000 lb anchors and 60 fathoms of 1⅜" chain at 7 fathoms per minute. Wildcat centers 56". Complete with all controls and warping features. Total weight 27,500 lbs. With spares.

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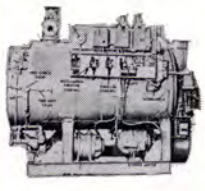
SELF-CONTAINED—ALL CONTROLS

CYCLOTHERM STEAM BOILERS

MODEL MC-90

OUTPUT

2600 LBS/HOUR



Design pressure 100 PSI—2-Pass—1 burner (pressure atomizing) — burner capacity 26 gal./hr. Electric ignition. Equipped with fuel pump — 1½ 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 2½" x 0.110 wall and 22 at 2" x 0.095 wall. Furnace 16" OD x ⅜" thick. Head ½" thick. Steel plate 5/16". **$1395**

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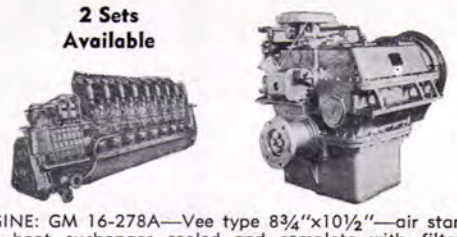
ATTENTION! TUG OWNERS

GM 1700 HP Geared Diesel Sets

2 Sets Available



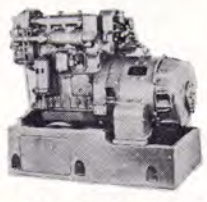
ENGINE: GM 16-278A—Vee type 8¾"x10½"—air starting—heat exchanger cooled and complete with filters, strainers, engine operating panel board and all accessories. GEAR: Falk—3.05:1 ratio—vertically offset in line.

Will sell engines & gears separately

THE BOSTON METALS COMPANY

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

DIESEL GENERATOR SETS



30 KW GM 3-71 DIESEL SET

GENERATOR: Delco 30 KW—120 Volts DC—250 amps—1200 RPM—Type I-3563. ENGINE: GM 3-71—45 HP—electric starting—shock mounted. In Navy crate. New Navy rebuilt.

20 KW GM 2-71 DIESEL SET

GENERATOR: Delco I-3665—20 KW—120 volts DC—167 amps. ENGINE: GM 2-71—reconditioned—in very good condition.

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UNUSED 2" BRONZE STRAINERS (DUPLEX)

Flanged—mfg by Derbyshire Machine & Tool Co. Flange has 6 holes 9/16".

$299.00

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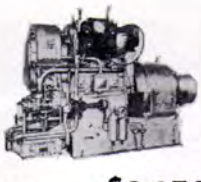

G.M. 3-268A 100 KW A.C. Diesel GENERATOR SET

Like new, ENGINE: G.M. 3-268A —3 cylinder—6½"x7" bore & stroke. GENERATOR: Century — 100 KW—440 volts—3-phase—60 cycle.

AIR STARTING $2450 **ELECTRIC STARTING $2775**

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REVOLVING FIELDS

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For T2SE—A-1 tankers—with A.B.S.—ex-Caltex J.H. MacGaregill.

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BJ Marine Bearings, a Borg-Warner Industry, P.O. Box 2709, Terminal Annex, Los Angeles, Calif. 90054
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186
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Pouch Terminal Inc., Edgewater Street, Staten Island, N.Y. 10305
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Combustion Engineering, Inc., Windsor, Connecticut 06095
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Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
The West Indies Oil Co., Ltd., St. John's Antigua, W. I.
CARGO HANDLING EQUIPMENT
MacGregor International Organization, 49 Gray's Inn Road, London W.C.I., England
CLUTCHES, GEARS & BRAKES
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Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 350 Hanley Industrial Court, St. Louis, Mo. 63144
The Farboil Company, 8200 Fischer Road, Baltimore, Md. 21222
International Paint Co., Inc., 21 West Street, New York, N.Y. 10006
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Philadelphia Resins Corp., 20 Commerce Dr., Montgomery, Pa. 18936
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Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
RPC Division, Midland-Ross Corp., P.O. Box 490, Roxboro, N.C. 27573
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Washington Chain & Supply Co., P.O. Box 3645, Seattle, Wash. 98124
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Galbraith-Pilot Marine Corp., 600 Fourth Ave., Brooklyn, N.Y. 11215
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
WABCO Fluid Power Division, 1953 Mercer Road, Lexington, Kentucky 40505
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Carboline Co., 350 Hanley Industrial Court, St. Louis, Mo. 63144
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M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
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Trans-Sonics, Inc., P.O. Box 326, Lexington, Mass. 02173
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Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027
DECK MACHINERY
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Bruce GM Diesel, Inc., 180 Route #17 S. at Interstate 80, Lodi, N.J. 07644
Colt Industries Inc., Power Systems Div., Beloit, Wisc. 53511
De Laval Turbine Inc., Engine & Compressor Div., 550 85th Ave., Oakland, Calif. 94621
Electro-Motive Division General Motors, La Grange, Illinois 60525
George Engine Co., Inc., P.O. Box 8, Harvey, La. 70038
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany.
H.O. Penn Machinery Co., Inc., 1561 Stewart Ave., Westbury, N.Y. 11590
Waukesha Motor Co., 1000 W. St. Paul Ave., Waukesha, Wis. 53186
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GHH Sterkrade Ferrostaal Overseas Corp., 17 Battery Place, New York, N.Y. 10004
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Overbeke-Kain Co., 20905 Aurora Rd., Cleveland, Ohio 44146
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ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Brown and Ross of New Jersey Incorporated, 370 Paterson Plank Road, Carlstadt, N.J. 07072
Galbraith-Pilot Marine Corp., 166 National Rd., Edison, N.J. 08817
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Thrige-Titan, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201
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Sifco Metachemical Div/Sifco Industries, Inc., 5708 Schaaf Road, Independence, Ohio 44131
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Riley-Beaird, Inc., Maxim Evaporator Profit Center, P.O. Box 1115, Shreveport, Louisiana 71130
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Crosby Group, Box 3128, Tulsa, Okla. 74101
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Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
FITTINGS & HARDWARE
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Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207
GANGWAYS
Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311
GAS ALARM SYSTEMS
Lisnave, P.O. Box 2138, Lisboa 3, Portugal
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MacGregor-Comarain, Inc., 135 Dermody St., Cranford, Md. 07016
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HULL CLEANING
Butterworth Systems, Inc., P.O. Box 9, Bayonne, N.J. 07002
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INSULATION—Marine
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
LIGHTS—Emergency, Search & Navigation
Phoenix Products Co., Inc., 4721 North St., Milwaukee, Wisconsin 53209
Snelson Oilfield Lighting Co., P.O. Box 1284, Fort Worth, Texas 76101
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PDM/GAZ Transport, 919 Third Ave., New York, N.Y. 10022
LNG TANKAGE
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LGA—Liquid Gas Anlagen Union GmbH, c/o Ferrostaal Overseas Corp., 17 Battery Place, New York, N.Y. 10004
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Carboline Co., 350 Hanley Industrial Court, St. Louis, Mo. 63144
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MARINE DRIVES—GEARS
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Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa. 19406
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Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Homelite Corporation, 70 Riverdale Ave., Port Chester, N.Y. 10573
ITT Henze Service, P.O. Box 1745, Mobile, Ala. 36610
Kearfott Marine Products, 780 South 3rd Ave., Mt. Vernon, N.Y. 10550
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186
MARINE FURNITURE
Bailey Joiner Co., 115 King Street, Brooklyn, N.Y. 11231
MARINE INSURANCE
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Midland Insurance Co., One State St. Plaza, New York, N.Y. 10004
R.B. Jones Corp., 301 West 11th St., Kansas City, Mo. 64105
UK P&I Club (Bermuda): Thos. R. Miller & Son, Mercury House, Front St., Hamilton, Bermuda (P.O. Box 665)
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Combustion Engineering, Inc., Windsor, Connecticut 06095
Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
Jacuzzi Bros., Inc., 11511 New Benton Highway, Little Rock, Ark. 72204
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
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Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Fla. 33316
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J. L. Bludworth, 4030 Wynne St., Houston, Texas
Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130
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Childs Engineering Corp., Box 333, Medfield, Mass. 02052
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Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
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J. J. Henry Co., Inc., 90 West St., New York, 10006
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C.T. Ilariucci & Associates, Tourism Pier #3, San Juan, P.R. 00902
Jantzen Engineering Co., 15 Charles Plaza, Baltimore, Md. 21201
James S. Krogen, 2500 S. Dixie Hwy., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
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Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Design Associates, P.O. Box 2674, Palm Beach, Florida
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
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Nickum & Spaulding Associates, Inc., 71 Columbia St., Seattle, Wash. 98104
Ocean-Oil International Engrg. Corp., P.O. Box 6173, New Orleans, La. 70114
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 8-D So. New River Drive East, Ft. Lauderdale, Fla. 33301
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M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
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Edo Corporation, 13-10 111th Street, College Point, N.Y. 11356
Edo Western Corporation, 2645 South 2nd West, Salt Lake City, Utah 84115
Electro-Nav, Inc., 501 Fifth Ave., New York, N.Y. 10017
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Lorain Electronics Corp., 2307 Leavitt Road, Lorain, Ohio 44052
Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Standard Communications Corp., 639 N. Marine Ave., Wilmington, Calif. 90744
Teledyne Hastings Raydist, P.O. Box 1275, Hampton, Va. 23361
Tracor, Inc., 6500 Tracor Lane, Austin, Texas 78721
The Waterways Co., 3512 Metairie Hts. Rd., New Orleans, La. 70002

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Exxon International Company, 1251 Avenue of the Americas, New York, N.Y. 10020
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

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Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 350 Hanley Industrial Court, St. Louis, Mo. 63144
International Paint Co., 21 West St., New York, N.Y. 10006
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Transocean Marine Paint Association, P.O. Box 456, Delftseplain 37, Rotterdam, Holland

PETROLEUM SUPPLIES
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
The West Indies Oil Co., Ltd., St. John's, Antigua, W. I.

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Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936

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Jacksonville Port Authority, 2701 Tallyrand Ave., Jacksonville, Fla.

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Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
Escher Wyss Gmbh, P.O. Box 798, Ravensburg, Germany
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502

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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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REFRIGERATION
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Atlantic Cordage & Supply Corp., 60 Grant Ave., Carteret, N.J. 07008
Du Pont Co., Room 31H1, Wilmington, Delaware 19898
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Wall Rope Works, Inc., Beverly, N. J. 08010

RUBBER BEARINGS
Johnson Rubber Co. (Marine Div.), 111 Vine Street, Middlefield, Ohio 44062

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

SANDBLASTING EQUIPMENT
Pauli & Griffin Co., 826 Folsom St., San Francisco, Calif. 94107

SCAFFOLDING EQUIPMENT
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
Western Gear Corp./Sky Climber Inc., 17311 S. Main St., Gardena, Calif. 90248

SEALS
Syntron Co., Parts & Material Handling Div., FMC Corp., Homer City, Pa. 15748

SEWAGE DISPOSAL
Babcock & Wilcox Co., 161 East 42nd Street, New York, N.Y. 10017
Koehler-Dayton, Inc., P.O. Box 309, New Britain, Conn. 06050

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Ultra Products, Inc., 805 Central Ave., New Orleans, La. 70121

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Coppus Engineering Corp., P.O. Box 457, Worcester, Mass. 01613

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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

SHIP BROKERS
Agemar, P.O. Box 1465, Maracaibo, Venezuela
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006
Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119

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Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
United States Steel Corp., P.O. Box 86, Pittsburgh, Pa. 15230

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Albina Engine & Machine Works, 2100 N. Albina Ave., Portland, Oregon 97208
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard, Crighton & Cie, P.O. Box 2074, Route des Docks, 59, Dunkirk, France
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bell Aerospace Company, Div. of Textron, P.O. Box 1, Buffalo, N.Y. 14240
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bludworth Shipyard, Inc., Box 5426, Cypress St., Brady Island, Houston, Texas 77012
Carrington Slipways Pty. Ltd., Tomago, N.S.W. 2322, Australia
C.M.R. (Compagnie Marseillaise de Reparations), 274 Chemin du Littoral, 13 Marseille (15E) France
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock, Inc., P.O. Box 153, Willemstad, Curacao, N.A.
Dillingham Shipyard, Pier 41, P.O. Box 3288, Honolulu, Hawaii 96801
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Empresa Nacional Bazon, 65 Castellana, Madrid 1, Spain
Equipment Systems, Inc., A Microdot Co., P.O. Box 95, Port Deposit, Md. 21904
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigon-dori, Ikuta-ku, Kobe, Japan
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Keppel Shipyard (Private) Ltd., P.O. Box 2169, Singapore
Kockums Mekaniska Verkstads AB, Malmo 1, Sweden
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Marathon Manufacturing Company
Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002
Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520
Marathon LeTourneau Marine Division, LeTourneau Rural Station, Vicksburg, Mississippi 39180
Marathon LeTourneau Offshore Pte., Ltd., P.O. Box 83, Taman Jurong Post Office, Singapore 22, Singapore
Marathon Shipbuilding Company, P.O. Box 870, Vicksburg, Miss. 39180
Marathon Shipbuilding Company (U.K.) Ltd., Clydebank Bunbartonshire, G81-1YB, Scotland
Marine & Rail Equipment Division/FMC Corp., 4700 N.W. Front Ave., Portland, Oregon 97208
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mercantile Marine Engineering & Graving Docks Co., N.V., Antwerp, Belgium
Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newport Ship Yard, Inc., 379 Thames St., Newport, R.I. 02840.
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
Odense Steel Shipyard Ltd., P.O. Box 176, DK-5100 Odense, Denmark
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga. 31402
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Service Machine & Shipbuilding Corp., Box 1578, Morgan City, La. 70380
Slocum Iron Works, Inc., P.O. Box 2506, 1752 Telegraph Road, Mobile, Ala. 36601
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Tracor/Mas, Inc., P.O. Box 13107, Port Everglades, Fla. 33316
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Vancouver Shipyards Co., Ltd., 50 Pemberton Ave., North Vancouver, B. C., Canada

SHIP MODEL BASIN
Hydronautics, Incorporated, Laurel, Maryland 20810

SHIP STABILIZERS
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SHOCK CORD
Wm. B. Bliss, Jr. & Co., Inc., 381 Park Avenue So., New York, N.Y. 10016

STEAM GENERATING EQUIPMENT
Babcock & Wilcox Co., 161 East 42nd Street, New York, N.Y. 10017
Combustion Engineering, Inc., Windsor, Connecticut 06095

STEERING SYSTEMS
Wm. E. Hough Co., 1125 P N.W. 45th St.. Seattle, Wash. 98107

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

TOWING—Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, West End Ave., Oyster Bay, N.Y. 11771
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Puerto Rico Lighterage Co., P.O. Box 1072, San Juan, P.R. 00902
Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y. 11214

VALVES AND FITTINGS—Hydraulic—Safety Flanges
Dover Corp. / Norris Division, P.O. Box 1739, Tulsa, Okla. 74101.
Fabri-Valve Co., 2100 N. Albina Ave., Portland, Oregon 97208
Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn, N.Y. 11231
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

WEATHER ROUTING
Weather Routing Inc., 1415 Boston Post Road, Larchmont, N.Y. 10583

WIRE ROPE
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18016

ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

Hoboken dry docks 62,700-dwt tanker

With her 106-ft beam and 775-ft length, the 62,700-dwt Panamanian vessel, ASOPOS, was successfully lifted at Bethlehem's Hoboken, N.J., repair yard late last year. She is the largest ship ever placed in a floating dry dock in New York Harbor.

Scheduled for a quick hull painting and voyage repairs, the ship was docked stern in, leaving the relatively light-weight bow overhanging the river by 114 ft. More critical, however, was the beam width, which allowed the ship only two feet of clearance between wingwalls. But with the help of five tugs and seven lines to land-based winches, the dock master brought the big tanker in without incident. The ASOPOS departed on schedule a few days later.

Bethlehem's Hoboken Yard is the largest in the harbor. With four dry docks and 6,400 ft of berthing space, it can accommodate more than 20 vessels simultaneously. It also maintains a fleet of work boats and derrick barges, a shore-based tank-cleaning plant, and a large complex of shops, tools, and other repair facilities. The yard can handle all kinds of ship repair, reconditioning, and maintenance work, and has performed numerous large-scale vessel conversions.

If you're looking for quick turnarounds, let us show you what we can do at Hoboken.

BETHLEHEM STEEL

Shipbuilding

Executive Offices:
Bethlehem, PA 18016
Telephone: (215) 694-2424
Sales Offices: 25 Broadway,
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Telephone: (212) 344-3300; Cables: BETHSHIP

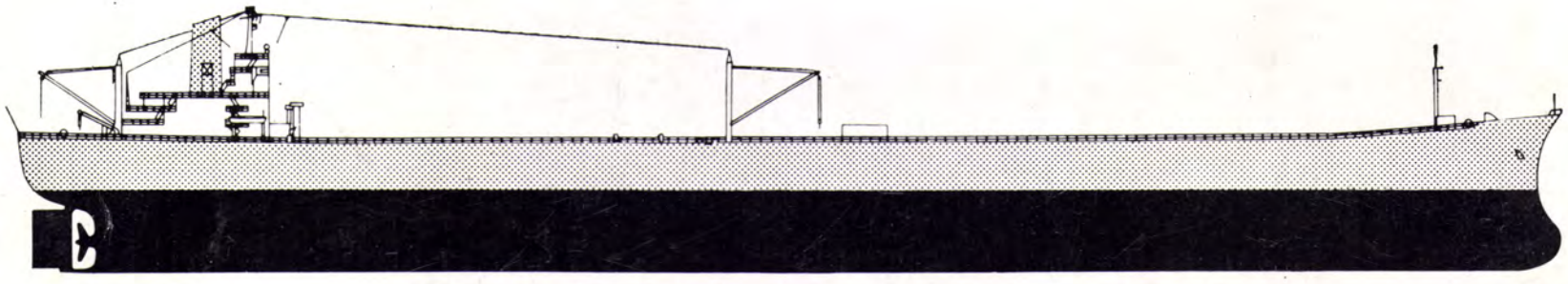
Bethlehem Shipyards:

Dry Docks in Baltimore, New York, Boston, Los Angeles, and San Francisco Harbors, and at Beaumont, Texas.

Building Ways at Sparrows Point, Md.; Beaumont, Texas; San Francisco, Calif.; and Singapore.

The VLCC Olympic Bond

It isn't just the largest ship we've ever made. It's probably the largest ship you'll ever want to buy.



The Olympic Bond is a 260,000 DWT Oil Tanker. And while there are larger ones, we can give you a very good reason for buying this "smaller" one.

The maximum draft of the Olympic Bond is just 21 meters. So it can pass through shallow waters like the Malacca Straits and the Euro-Port. Larger tankers can't.

Even so, if you need an even larger tanker than the Olympic Bond, Hitachi Zosen can build it for you. Same place we built the Olympic Bond, Sakai Shipyard.

Sakai Shipyard is in Osaka, on an 822,000 square meter plot of land. Sakai was designed to manufacture large-scale vessels. So it can turn out six VLCCs every year.

The main dock at Sakai is equipped with two 200-ton cranes for constructing 300,000 DWT ships.

And the repair dock can handle 400,000 DWT ships.

At Sakai, we use the "Three Partition Building System." This results in complete rationalization of manufacture and true efficiency.

HITACHI ZOSEN

HITACHI SHIPBUILDING & ENGINEERING CO., LTD.

Head Office: Nishi-ku, Osaka, Japan Telex: J63376 Cable Address: SHIPYARD OSAKA
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