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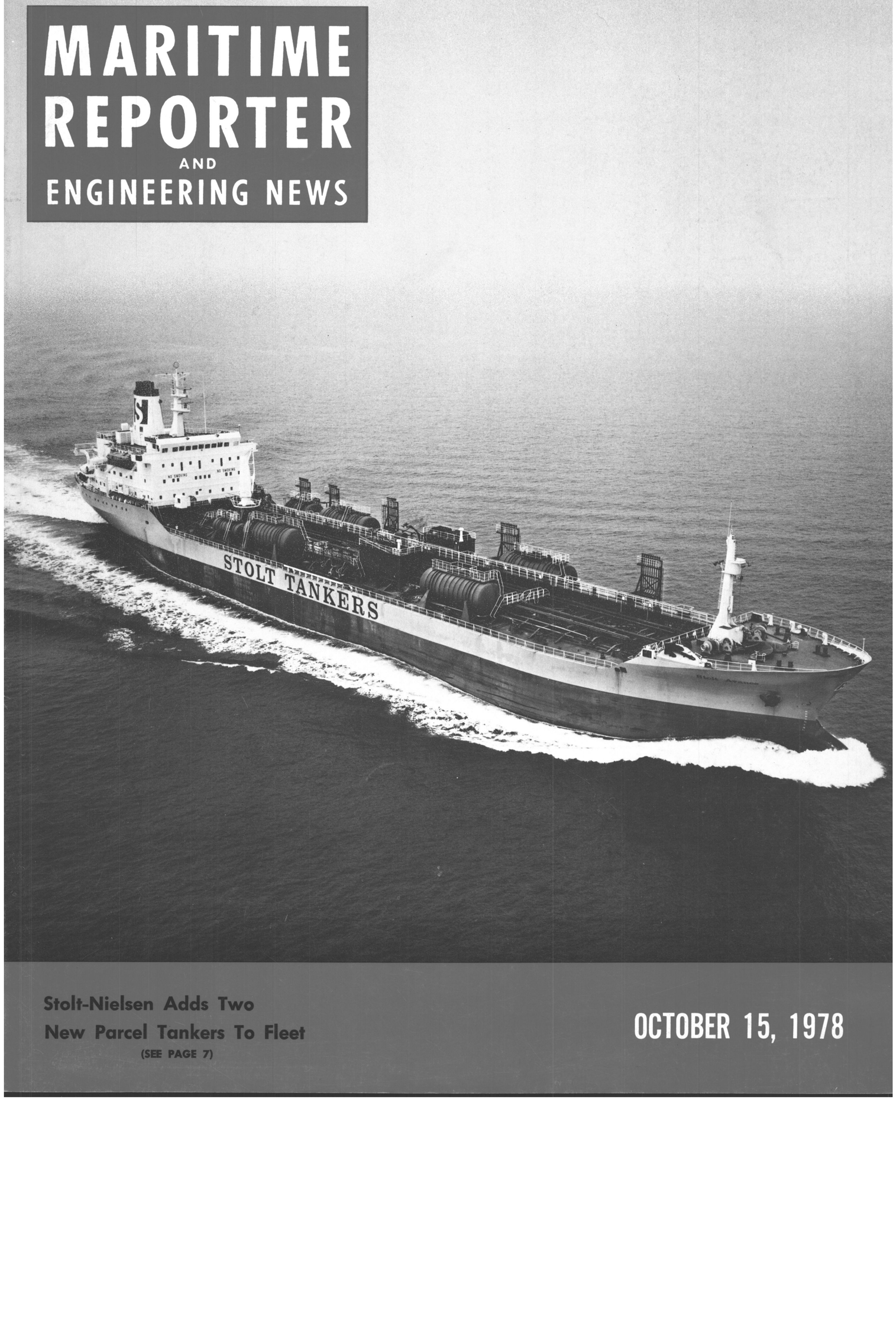

Stolt-Nielsen Adds Two New Parcel Tankers To Fleet

(SEE PAGE 7)

OCTOBER 15, 1978

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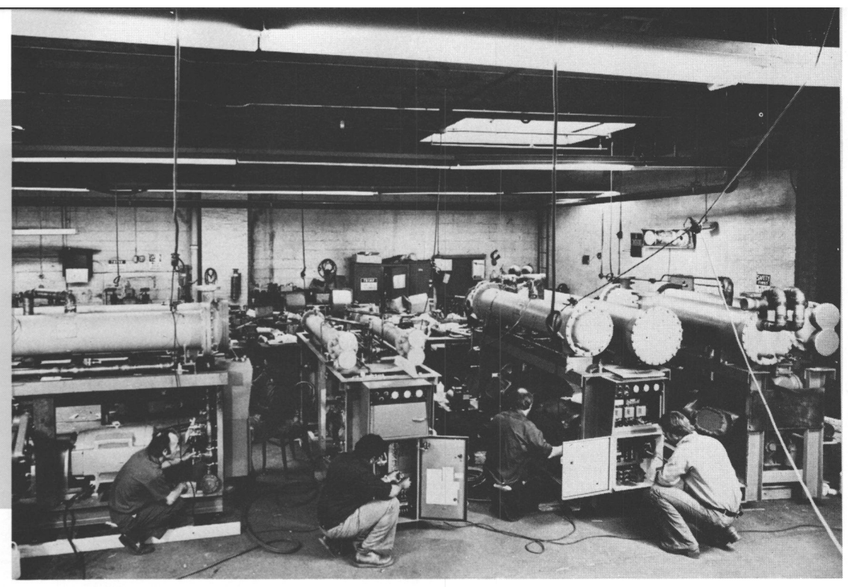

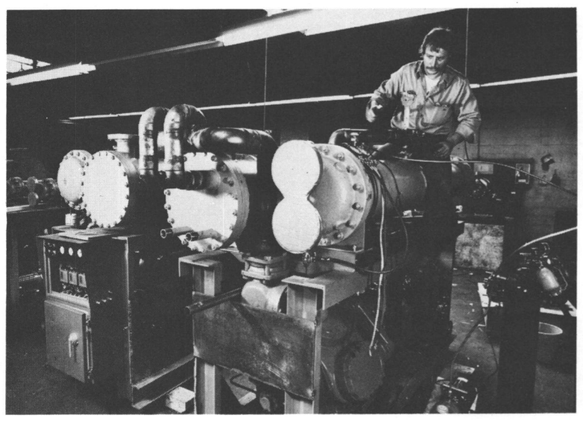

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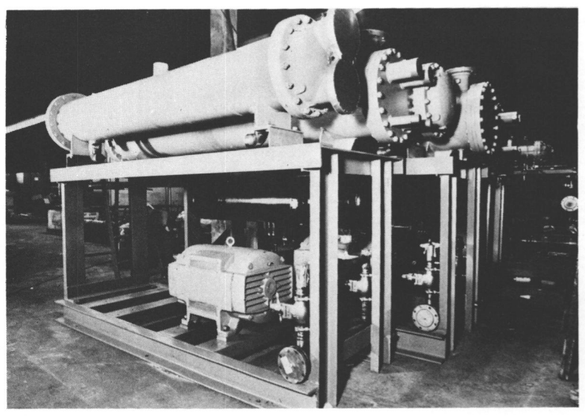

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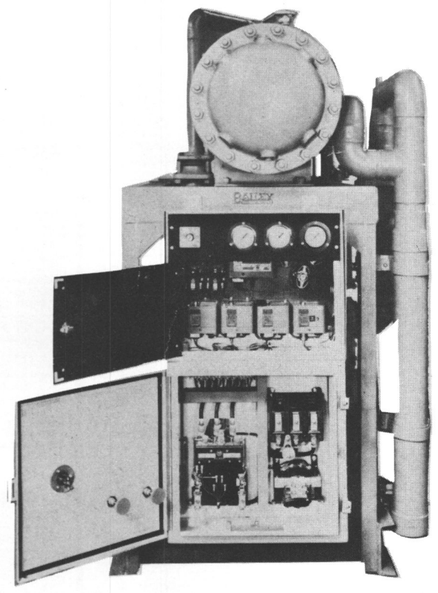

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Avondale To Build $67-Million Dredge For Army Engineers

Ogden Corporation announced that its subsidiary, Avondale Shipyards, Inc., was awarded a $67,500,400 fixed-price contract to construct a self-propelled, seagoing, trailing suction hopper dredge for the U.S. Army Corps of Engineers. The dredge is scheduled for delivery early in 1981. With this contract, Avondale has a backlog exceeding $800 million.

New Firm To Buy Five Vessels For Service Great Lakes To Europe

Great Lakes Atlantic Steamship Co., Suite 893, 1028 Connecticut Avenue, N.W., Washington, D.C. 20036, has filed an application with the Maritime Administration for an operating-differential subsidy contract for a proposed new U.S.-flag service. Following is the text of a news release issued by MarAd's Great Lakes Region Office:

The U.S. Department of Commerce, Maritime Administration, has received an application for operating-differential subsidy (ODS) from Great Lakes-Atlantic Steamship Co. (GLAS) for a new U.S.-flag service proposed for Trade Area I Great Lakes-UK/Continent.

Great Lakes Atlantic Steamship Co., incorporated in Michigan, July 20, 1978, intends to operate five vessels between Great Lakes ports of Chicago, Detroit, and Montreal and Grangemouth, UK, Rotterdam and Bremerhaven. The liner service is scheduled to offer weekly service with minimum of 48 sailings beginning April 1979.

The applicant intends to purchase five C-4 type vessels either fully or partially containerized. The GLAS service expects to compete successfully for a substantial share of the containerized cargo now moving on the Canadian land bridge. Alternate service during the winter months will be offered from Albany, N.Y.

Officers of the company are **John P. Fitzpatrick,** chairman of the board, director and president; **Joseph D. Donahue,** vice president; **James T. Reilly,** secretary and treasurer, and **Richard N. Sharood,** trustee.

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No. 20 Volume 40

C.Y. Tung Group Enlarges Fleet To 118 Vessels

The Hong Kong Trade Development Council reports that the C.Y. Tung Group has recently enlarged its fleet with the purchase of 20 secondhand vessels having a combined total tonnage amounting to over two million. These ships were acquired last year, mostly from Scandinavian owners, and are mainly tankers of handy size, OBOs (oil-bulk-ore carriers). All 20 ships, with an average age of two to three years, have been placed on charters with international companies, including among others U.S. Steel and Pertamina. With this new acquisition, the C.Y. Tung Group's total strength is put at 118 vessels and now becomes the second largest shipowning company in Hong Kong—trailing only Y.K. Pao's World-Wide Shipping, which owns 180 ships totaling 18 million tons.

In commenting on current market conditions in the shipping industry, Mr. **Tung** noted that there are signs of recovery in the tanker market as inquiries for VLCCs (very large crude carriers) and ULCCs (ultra large crude carriers) in the spot market are active. The reason for this interest is partly due to the storage program of Japan and partly because of the threat of an oil price increase. Japan's storage program revolves around the use of idle tankers as floating storage for oil, as well as other purposes. Mr. **Tung** estimates that it will eventually take about 10 million tons off the market this year. On the other hand, in anticipation of a price increase, oil transport out of the Arabian Gulf has stepped up since June to more than double the amount in the same month last year.

Bath Iron Works Names Allan G. Anderson

John F. Sullivan, president of Bath Iron Works Corporation, Bath, Maine, has announced the appointment of **Allan G. Anderson** to the newly created position of manager of market planning and development.

Allan G. Anderson

Mr. **Anderson** reports to **James Harvie,** marketing manager, and is responsible for developing and marketing non-shipbuilding products.

A veteran maritime executive, Mr. **Anderson** was president of Underseas Engineering, Inc., Riviera Beach, Fla., specializing in oceanography and research submarines, and assistant to the vice president of Bell Aerospace, New Orleans, La., responsible for research and development of a 2,000-ton Surface Effect Ship.

He joined Bath Iron Works from the Quincy, Mass., Shipbuilding Division of General Dynamics, where in his final management assignment he directed and internationally marketed a unique floating concept for storage and regasification of liquid natural gas.

His other management responsibilities with his immediate past company include ships' manager for constructing 10 LNG ships, program manager for design and construction of research submarines such as the Aluminaut and Asherah, and manager of development engineering for such programs as the Skip-1 Air Cushion Vehicle.

Mr. **Anderson** holds a Bachelor of Science degree in chemical engineering from Columbia University, and has taken postgraduate study at Massachusetts Institute of Technology, Trinity College, and Pennsylvania State University.

He is a member of The American Society of Mechanical Engineers, Marine Technology Society, and The Society of Naval Architects and Marine Engineers.

Two New Parcel Tankers Added To Stolt-Nielsen Fleet

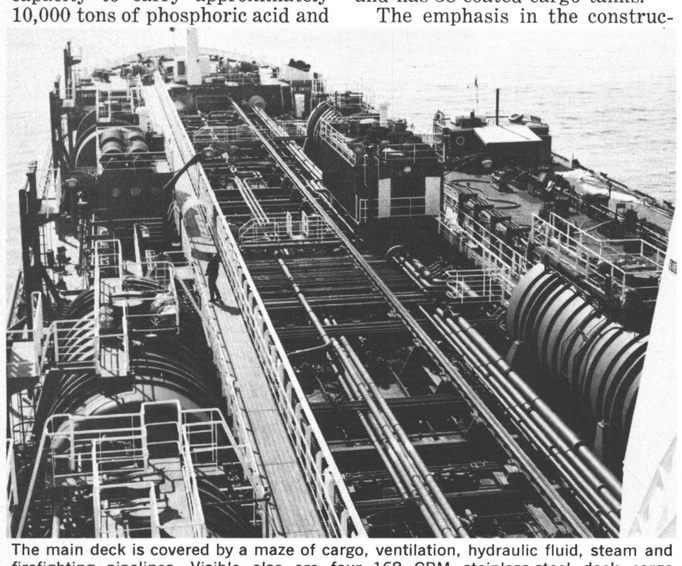
M/T Stolt Avance, sister ship of M/T Stolt Avenir. The vessel is 22,800 dwt, 560 feet loa, 32 feet 11 inches in draft, has 39 coated and stainless-steel cargo tanks, including four deck tanks, double bottom throughout, and individual hydraulically powered stainless-steel deep-well pumps and stainless-steel pipelines. These ships are certificated to carry IMCO-type I, II, and III products, and meet the highest standards of cargo, crew and environmental safety and protection.

Stolt Tankers, pioneers in the worldwide ocean transportation of specialty liquid products in bulk, has added two new parcel tankers to its growing fleet of modern IMCO certificated tonnage.

The M/T Stolt Avenir, the second of two 22,800-dwt vessels built by Estaleiros Navais de Viana do Castelo of Portugal, has just joined the Parcel Tankers, Inc. fleet. Named for one of the original vessels operated by Parcel Tankers, Inc., this vessel is certificated to carry IMCO-type I, II, and III products, and has capacity to carry approximately 10,000 tons of phosphoric acid and similar heavy products. The ship has 39 coated and stainless-steel cargo tanks, including four stainless-steel deck tanks.

The M/T Stolt Busan, the second of six 32,000-dwt vessels built by Korea Shipbuilding & Engineering Corporation of Busan, Republic of Korea, was delivered on June 30 to Far Eastern Marine Transport Company, Ltd. of Seoul, Republic of Korea, for 15-year time-charter to Parcel Tankers, Inc., the parcel chartering branch of the Stolt-Nielsen organization. This ship is certificated to carry IMCO-type II and III products, and has 38 coated cargo tanks.

The emphasis in the construction and operation of these new parcel tankers is on safety and compliance with the IMCO Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, which went into full effect April of this year. Both vessels have double bottom throughout, individual hydraulically powered stainless-steel deep-well pumps and stainless-steel pipelines, separate slop tanks, and a ballast system which is totally independent from cargo tanks and lines.



The main deck is covered by a maze of cargo, ventilation, hydraulic fluid, steam and firefighting pipelines. Visible also are four 168 CBM stainless-steel deck cargo tanks, vertical cargo tank vent pipes, catwalk and track for traveling deck crane. Modern parcel tankers can safely load and/or discharge many products at the same time. Ships can pump to shore terminals or to multi-grade barges as shown here. Barging reduces costs and speeds up the operation by reducing port calls, avoiding berth congestion, and permitting cargo handling from draft restricted terminals.

The Stolt Tankers have been engaged in a comprehensive newbuilding program since 1970 to provide the most modern, versatile parcel tankers to serve the worldwide parcel trade, and to comply fully with the IMCO Code. The M/T Stolt Avenir and M/T Stolt Busan join 11 parcel tankers built in Belgium and Sweden early in the 1970s, and 13 others recently delivered or under construction in France, Korea, and Portugal. When this program is completed late next year, Stolt-Nielsen will own and operate the largest, most modern parcel fleet in the world, totaling nearly 750,000 dwt of IMCO certificated tonnage.

Stolt Tankers are represented in the United States by Stolt-Nielsen Inc., One Greenwich Plaza, Greenwich, Conn. 06830.

Gibbs & Cox, Inc. Opens Newport News, Va. Office —R. Della Rocca Named

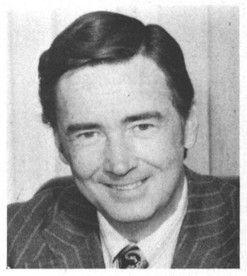
James J. Convy, executive vice president-Operations of Gibbs & Cox, Inc., one of the nation's leading independent naval architectural firms, has announced the opening of the Newport News Division, 6060 Jefferson Avenue, Newport News, Va. The Newport News Division will be staffed with experienced ship designers in hull, machinery, electrical, electronics and weapons fields. This division will provide detail design services, amplifying the capabilities of Gibbs & Cox's other divisions located in New York, N.Y., and Crystal City, Va.

Ralph Della Rocca has been appointed division head of the newly formed division. Mr. **Della Rocca** has been with Gibbs & Cox for more than 30 years, during which time he has served the company in various capacities. From 1971 through 1977, as assistant division head-Hull Division, he was intimately involved in the design of the successful FFG7-Class Program and the Lead Ship USS Oliver Hazard Perry.

During 1977, Gibbs & Cox, Inc. was awarded a contract to assist BAZAN, Spain, in the development of a Spanish carrier, and he was appointed senior project manager for the program.

Mr. **Della Rocca** is a graduate of Polytechnic Institute of Brooklyn, N.Y., having earned both a bachelor's and master's degree in civil engineering. He is a member of The Society of Naval Architects and Marine Engineers and the Society of Plastic Engineers, and has published numerous papers on reinforced plastics.

Abex Corporation Names Paul J. Powers President Of Denison Division



Paul J. Powers

Abex Corporation has announced the appointment of **Paul J. Powers** as president of the company's Denison Division, headquartered in Columbus, Ohio.

In his new position, **Mr. Powers** is responsible for the division's worldwide operations. These include the Research & Development Center, manufacturing plants in Ohio, overseas plants and sales offices in Canada, Denmark, England, France, India, Italy, Japan and West Germany, and an international network of independent distributor and sales and service affiliates.

Mr. **Powers's** most recent position was vice president and general manager of the Industrial Products Division of American Standard, Inc. He has also held other general management, manufacturing, and finance positions with American Standard, Inc., and Chrysler Corporation.

Mr. **Powers** earned a B.A. degree from Merrimack College and an MBA degree from George Washington University.

Abex Corporation is a subsidiary of IC Industries, Inc., Chicago, Ill. The Denison Division manufactures and markets worldwide a complete line of hydraulic pumps, motors, valves, transmissions, and hydraulic presses.

Stolt-Nielsen Inc. Publishes 1978 Brochure

Stolt-Nielsen Inc. has announced the publication of "1978 Who's Who at Stolt-Nielsen." This 48-page booklet describes the worldwide Stolt-Nielsen organization, together with information about the Stolt Tankers fleet and parcel tanker trade routes.

Copies of Who's Who can be obtained by writing to Who's Who Editor, Dept. MR, Stolt-Nielsen Inc., One Greenwich Plaza, Greenwich, Conn. 06830.

El Paso Announces Proposed Offerings

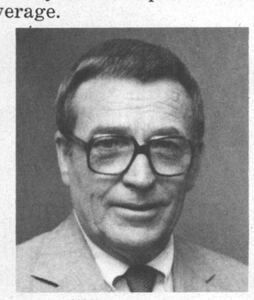
Five subsidiaries of The El Paso Company, Houston, Texas 77001, announce proposed offerings of an aggregate of $30,864,000 United States Government Guaranteed Ship Financing Bonds, Series P and Q, subject to approval of the Maritime Administration. The bonds will be offered publicly by Merrill Lynch White Weld Capital Markets Group.

The bonds will be fully guaranteed by the United States Government under Title XI of the Merchant Marine Act of 1936. The bonds are to be offered severally by the five companies to assist in the financing of five liquefied natural gas tanker vessels presently under construction at domestic shipyards. These vessels will be used for the transportation of liquefied natural gas from Algeria to terminal facilities on the East Coast of the United States.

The Series P bonds will be due on March 31, 2003, and the Series Q bonds will be due on October 15, 1983. Interest on the bonds will be payable semiannually, and the bonds are subject to semiannual redemption through the operation of mandatory sinking funds.

Savannah Machine And Shipyard Company Appoints William Seigh

James E. May, vice president Savannah Machine and Shipyard Co., recently announced the appointment of **William R. Seigh** to their New York Sales and Marketing Office. Mr. **Seigh** will assist Mr. **May** in an expanded market coverage.

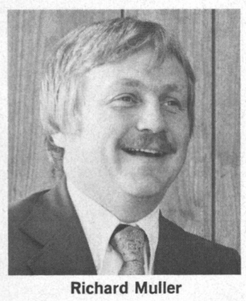


William R. Seigh

Mr. **Seigh** brings 37 years of ship repair and operations experience to his new position. Prior to joining Savannah Machine and Shipyard Co., Mr. **Seigh** held estimating/negotiating positions with both Jacksonville Shipyards, Inc., and Todd Shipyards Corp. Other areas of responsibility included turbine repair supervision, licensed marine engineering, and port engineering.

ITT Decca Marine Names Richard Muller

The appointment of **Richard (Dick) Muller** to manage the Northeast Region sales of all ITT Decca Marine electronic equipment has been announced by **Alan Thompson,** director of sales for IDM.



Richard Muller

Mr. **Muller,** headquartered in the IDM New York City office at 17 Battery Place, will also work out of his Toms River, N.J., location. He is eminently qualified in both small and large vessel requirements, having served in the U.S. Coast Guard at the operational and training levels as an instructor. His stations include Cape May and Sandy Hook, N.J.

He earned his bachelor's degree in business administration at Adelphi University, and did graduate work at Monmouth in business and marketing. His previous sales activity includes five years with Xerox.

He will be the area manager serving dealerships from New England to North Carolina on the Eastern Seaboard.

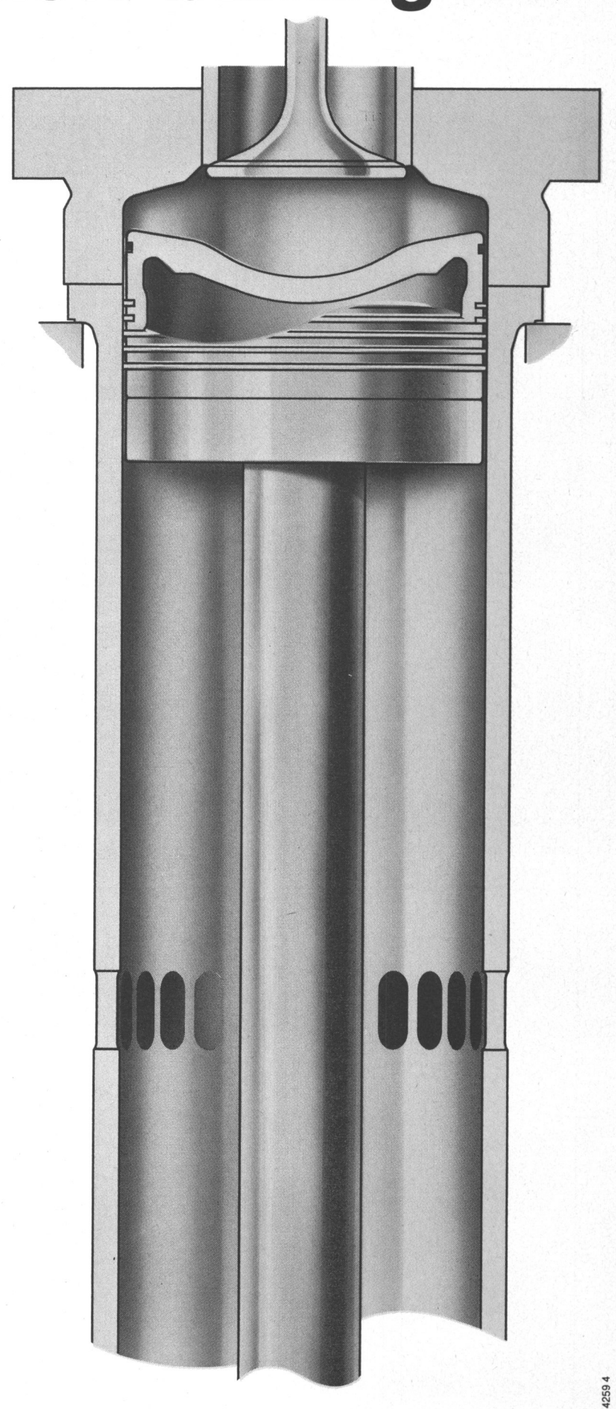
B&W Uniflow Scavenging System copes even with slow-burning fuel.

Uniflow Scavenging is simple: Only inlet ports in the cylinder liner and only one exhaust valve in the cover. It is efficient: Incoming air and displaced gases describe a straightforward flow pattern of low resistance, as in a tube.

Advantages include low, symmetrical thermal loads on cylinder walls, cylinder cover and piston, plus low fuel and lube oil consumption.

B&W's efficient scavenging means better combustion - further enhanced by the shape of the combustion space and optimum spray configuration. The scavenging and evenburning characteristics on the B&W GF-engines will be increasingly appreciated especially as fuel qualities available at reasonable prices decline.

B&W engines mean low specific fuel consumption at all loads.



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B&W

Foster Wheeler To Supply Inert Gas Systems For LNG Tankers At Quincy

Foster Wheeler Boiler Corporation, 110 South Orange Avenue, Livingston, N.J. 07039, has received a contract from the Quincy Shipbuilding Division of General Dynamics Corporation to supply inert gas generators and dry air plants for two liquefied natural gas (LNG) tankers under construction by the Massachusetts shipbuilder. Value of the contract is more than $1 million.

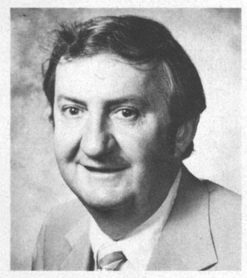
Each inert gas-dry air plant will produce 9,000 cubic meters per hour (5,600 cubic feet per minute) of gas to blanket the cargo areas of the ships. The tankers, hull numbers LNG 53 and 54, are 125,000-cubic-meter-capacity vessels being constructed for Lachmar, Lafayette, La.

Inert gas systems have drawn increasing attention from the maritime community as a means of protecting flammable cargoes from fire and explosion. Last year, Foster Wheeler Boiler Corporation was licensed by Moss Rosenberg Verft A.S. of Norway to manufacture and sell inert gas systems for marine and industrial applications. FWBC currently markets these units in the United States, Canada, Central and South America. A wholly owned subsidiary of Foster Wheeler Corporation, FWBC supplies marine steam generators to the world's fleets and industrial boilers for a wide range of stationary applications.

Foster Wheeler Corporation is a worldwide engineering, manufacturing and construction organization which operates through 26 subsidiaries. Its major U.S. operating subsidiary, Foster Wheeler Energy Corporation, designs, fabricates and constructs steam generating equipment, process plants and fired heaters for electric utilities, shipbuilders, petroleum refiners, and chemical producers. Both corporations are headquartered in Livingston, N.J.

C.F. Bean Corporation Names John Lescroart Executive Vice President

John E. Lescroart, former Federal Administrator of the Deep Water Port Act of 1974, has been named executive vice president and chief operating officer of C.F. Bean Corporation, New Orleans, La.



John E. Lescroart

Mr. **Lescroart,** promoted from vice president of Bean's Washington, D.C., office, will relocate to Bean's New Orleans office and will be responsible for the company's worldwide operations, according to Bean president **J.W. Bean.**

As Federal Administrator of the Deep Water Port Act, before joining Bean, Mr. **Lescroart** was responsible for overseeing issuance of a federal license to the Louisiana Offshore Oil Port (LOOP) and reported directly to Secretary of Transportation **William T. Coleman Jr.** LOOP will be the country's first deepwater offshore oil terminal capable of handling supertankers.

In all, Mr. **Lescroart** has 30 years' experience in the dredging industry and related businesses. He served as president of the Atlantic Gulf, and Pacific Company from 1971 until 1975, when he entered government service.

C.F. Bean Corporation is an international dredging and marine construction company with headquarters in New Orleans. It operates on the West, East, and Gulf Coasts of the United States and internationally has worked in South America, Central America, the Caribbean, the Middle East, Africa, and the Far East.

You can pay a little more now, or a lot more later.

Jeffboat refuses to compromise on quality. Because we don't, the initial cost of a Jeffboat barge may sometimes be slightly higher.

But the true cost of ownership is over the life of a vessel, not the initial investment. And no one can match the added service Jeffboat quality builds into our vessels.

A Jeffboat-built barge offers superior fitting, joining, sizing and plate preparation. No detail goes overlooked. After a weld, for example, we eliminate the slag residue to be sure the weld is true and strong.

When you build a barge this way it may cost you slightly more initially. But on the true bottom line—many extra years of dependable performance with minimal maintenance problems—it's actually going to cost a good deal less.

And we'd be happy to help you compare your barge specifications against ours so you can see for yourself the reason for these savings.

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America's Largest Inland Shipbuilder

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Diamond Shamrock To Charter Chemical Tanker Building At Avondale

Ogden Marine, Inc., an Ogden Corporation subsidiary, has announced that one of the two new tankers to be built at Ogden's Avondale Shipyards, Inc. has been chartered on a long-term basis to Diamond Shamrock Corporation of Cleveland, Ohio, to transport chemical cargoes between U.S. Gulf and East or West Coast ports, including Puerto Rico. These vessels are designed to carry chemicals, refined petroleum products, and Alaskan crude oil.

The 42,000-ton vessel is expected to be delivered in the fourth quarter of 1980 and will meet all present or anticipated U.S. Coast Guard and IMCO regulations.

"We expect to build a series of these modern tankers to serve as replacements for existing overage U.S.-flag coastwise ships, of which one-third were built during World War II," said **Michael Klebanoff**, president of Ogden Marine, Inc.

The new tankers will meet all present and anticipated international and U.S. safety and environmental requirements. They will have individual pumps in each cargo tank, and will be able to handle more than 10 different types of cargo at one time. The vessels' efficient and modern hull configuration—640-foot length and 105½-foot beam—allows entry into most U.S. ports and efficient service through the Panama Canal.

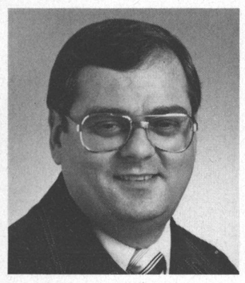
"This vessel will double Diamond Shamrock's current ocean transportation capabilities, and fulfills a need for replacement of a portion of overage U.S.-flag 'Jones Act' chemical ships," said **James S. Paterson**, director of transportation and distribution for Diamond Shamrock. He said, "All cargoes to be carried will be solicited from chemical and petroleum companies through a concentrated marketing program."

Mr. Paterson further stated the decision to time charter a second vessel was based in part on the successful operation of the Seabulk Magnachem. This unit, a 40,000-ton chemical integrated-tug-barge operated by Hvide Shipping, Inc. of Ft. Lauderdale, Fla., was built in 1977 and trades between U.S. Gulf and Atlantic Coast ports, carrying chemicals and petroleum products produced by Diamond Shamrock as well as outside charterers.

The new vessel will complement the present service of the Magnachem by offering Diamond Shamrock and other charterers additional reliability and increased flexibility in scheduling shipments.

Mr. Paterson said that both the Seabulk Magnachem and the new vessel will be available for spot or period charters, and all interested parties should contact **D. Michael Gandy**, Manager of Ocean Transportation, Diamond Shamrock Corporation, 1100 Superior Avenue, Cleveland, Ohio 44114.

Chotin Transportation Appoints Donald Snyder



Donald R. Snyder

Chotin Transportation, Inc., Cincinnati, Ohio, has announced the appointment of **Donald R. Snyder** as traffic manager.

Mr. Snyder, a graduate of Pennsylvania State University, brings to Chotin a broad background of knowledge in contracts, tariffs, fleet equipment and capabilities, and extensive experience in liquid cargo marine transportation management.

Chotin, a subsidiary of Midland Enterprises, Inc., provides barge transportation of chemical or petroleum cargoes anywhere along the inland waterway system, Gulf of Mexico or East Coast.

Build in top performance. Specify Contromatics marine valves.

Critical shipboard valve and actuator applications demand top performance. But if you're not specifying Contromatics, you're paying too much. Or settling for second best.

Because no other line of fluid control products gives you more performance for your dollar in so many marine applications.

Contromatics marine valves have earned a reputation for top performance in submarines, destroyers, carriers, and many other Navy and Coast Guard vessels. As well as in commercial cargo ships, tankers, hospital ships, dockside test facilities, and offshore drilling rigs.

Contromatics marine valves and actuators meet the required military and commercial specifications for shipboard service with fresh or salt water, oil, gas, air, low pressure steam, sewage, and various shipboard chemicals.

Here's a quick look at the Contromatics line of top performers.

CONTRO-SEAL BUTTERFLY VALVES

Contro-Seal is the high performance butterfly valve that combines superior design, easy installation, and smooth, economical operation in a single fluid control package.

Ideal for many ballast, hydrocarbon, and refrigeration system applications, Contro-Seal offers the economy and performance of a butterfly valve with the application flexibility of a ball valve.

The compact design and light weight of Contro-Seal valves reduce space requirements and make installation quick and easy. Seat replacement is simple, too, since no special tools are needed, and removal of the shaft and disc are not required.

Bubble-tight shut-off in both directions, a seat that's self-compensating for wear, and excellent flow and throttling characteristics are some of the other features that make Contro-Seal's sea-going performance superior to that of other wafer-type valves.

Contro-Seal valves are available from 3″ to 24″ (larger on application), for pressures to 720 psi and temperatures to 425°F. And they can be fabricated from a variety of materials to meet application requirements.

VALVE ACTUATORS

All Contromatics valves can be fully automated with Contromatics double-acting or spring return pneumatic actuators for reliable remote operation.

Available in aluminum, ductile iron, bronze, and stainless steel, Contromatics actuators offer a wide torque range (87 to 60,230 in. lbs.) and a complete accessory line so you can choose the right actuator for every application.

BALL VALVES

Contromatics ball valve line includes sizes from ½″ through 8″. Screwed, welded, and flanged ends. Standard and full port. Two-way and three-way. In all popular materials and body styles. For pressures to 4,000 psi and temperatures to 550°F.

The compact design, long life, and quick ¼-turn action of Contromatics ball valves make their performance superior to gate valves in many marine applications. Engine cooling and compressed air systems, for example.

Contromatics ball valves incorporate a pressure-seated, blow-out-proof stem arrangement that uses line fluid flow to ensure maximum sealing action. And a locked-in, one-piece seat and body seal that prevents cold flow. Features that make Contromatics better suited than most other ball valves for fuel oil and fresh water systems.

Plus, Contromatics three-piece design makes installation and in-line maintenance quick and easy.

For more information, fill out this coupon and mail to:

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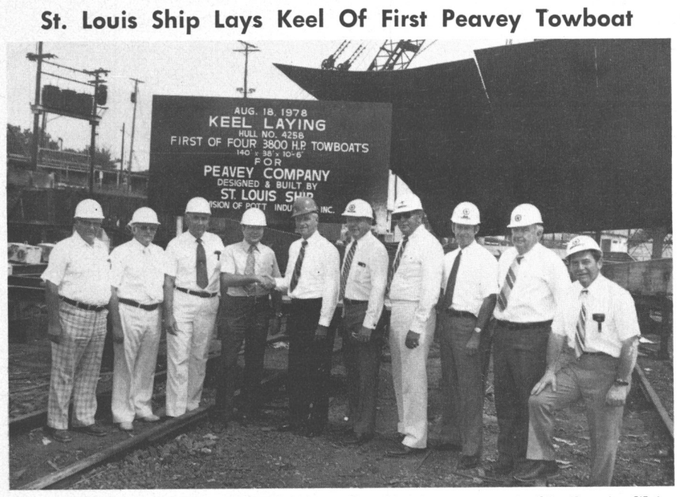
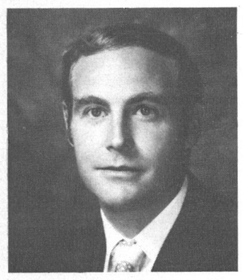
Litton **CONTROMATICS**

St. Louis Ship Lays Keel Of First Peavey Towboat



On August 18, 1978, with visiting dignitaries present, St. Louis Ship laid the keel for the first of four towboats for Peavey Company of Minneapolis, Minn. The 3,800-hp towboats, 140 feet by 38 feet by 10 feet 6 inches, will push grain barges between Minneapolis and Alton, Ill. Delivery of the final boat is scheduled for June 1979. Attending the ceremony were (from left): **Bill Wood,** retired director of Operations, Peavey Barge Division; **Kermit O. Bergie,** director of Administration, Peavey Barge Division; **Floyd R. Goodman,** director of Operations, Peavey Barge Division; **Robert M. Davis,** general manager, Peavey Barge Division; **Richard P. Conerly,** president and chief executive officer of Pott Industries Inc.; **Edward Renshaw,** president of St. Louis Ship; **Anthony G. Tobin,** executive vice president-Marketing of St. Louis Ship; **W. Edward Christiansen Jr.,** vice president-Production of St. Louis Ship; **Richard M. Johnston,** executive vice president-Engineering of St. Louis Ship, and **Veljko Zvolanek,** project engineer for the Peavey towboats.

Crowley Maritime Corp. Appoints Jay Brickman



Jay Brickman

Jay Brickman has been appointed director of Caribbean and Latin American services for Crowley Maritime Corporation's Caribbean Division, according to a recent announcement by **Robert G. Homan,** senior vice president of the division.

Mr. **Brickman** was formerly director of international development for the division and operated out of the Jacksonville, Fla., office. In his new responsibility, Mr. **Brickman** will relocate to Crowley's San Juan office, with responsibilities for management of Crowley subsidiaries CTMT, Inc., and Interisland Intermodal Line, which provide feeder services from San Juan to Venezuela, the Dominican Republic, the Virgin Islands, and the Leeward and Windward Islands.

Crowley's Caribbean operations have quadrupled in capacity since 1974. Mr. **Brickman,** who has been with Crowley since 1975, has played an active part in researching and negotiating new ports of call for the company.

Mr. **Brickman** holds an M.A. degree in international economics and Spanish from Johns Hopkins University.

Information Available On Voss Metric Steel Tubing And Fittings

With the U.S. slowly but surely "going metric," the difficulty of obtaining metric steel tubing and fittings is a matter for concern. In many industries, metric couplings and tubing are vital supplies needed to fulfill project completion promises. As an answer to this growing problem, Voss, Inc., Columbus, Ohio, has prepared information which gives tubing specifications, sizes 4-mm through 38-mm O.D., and details hundreds of standard metric fitting configurations, all readily available from stock for immediate delivery.

The Voss Standard Modular Metric Tube Fitting System features hard-to-find types such as welding bosses and nipples, gauge couplings and check valves, as well as banjos, bulkheads and elbows, plus many others. Most are also available in sizes 4 mm through 38 mm.

To receive free information, write **Les Stoller,** Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229.

Rear Adm. Westfall Addresses ASNE Charleston Section

On September 12, 1978, the Charleston Section of the American Society of Naval Engineers held its regular monthly meeting at the Naval Base Officers' Club. The meeting was well attended by 38 members and guests. After a social hour and dinner, a brief business session was conducted by chairman Lt. Comdr. **Charles Gnilka,** USN, during which the secretary introduced the new officers and committee chairmen.

Meeting of the Charleston Section of ASNE, September 12, 1978, (left to right): Lt. Comdr. **C.W. Gnilka,** USN, chairman; Rear Adm. **Elmer T. Westfall,** USN (ret.), guest speaker, and Capt. **Wilbur J. Mahony,** USN, Commander, Charleston Naval Shipyard, Section Advisor.

Following the business session, Rear Adm. **Elmer T. Westfall,** USN (ret.), the 1977 ASNE Gold Medal Award winner, gave a dynamic and interesting talk on the "Management of Change." Admiral **Westfall,** who makes his home on Sullivan's Island, S.C., had tours of duty in five Naval shipyards—Philadelphia, Pearl Harbor, Charleston, and as Commander of the Portsmouth and Norfolk Naval Shipyards. His talk dealt with management techniques for solving problems associated with the inevitable changes which are constantly occurring in Naval shipyards. Admiral **Westfall** discussed the nature of these changes, the various responses of people to the changes and his approach to managing change in order to insure the successful achievement of goals.

The Charleston, South Carolina, Section is looking forward to a year of field trips, outings, and interesting technical sessions. Its next regular meeting will be on October 16, 1978, at the Dorchester Motor Lodge, where a representative of the Trident Technical College will speak on the subject of "Women in Engineering." The November meeting will be held on November 21, 1978, at the Oaks Country Club, and will be a joint meeting with the local chapter of the American Society of Mechanical Engineers.

Continental Oil Announces Six Executive Promotions

The promotions of two new executive vice presidents and four new vice presidents of Continental Oil Company were announced by Conoco board chairman and chief executive officer **Howard W. Blauvelt** as part of moves "to further strengthen the company's petroleum operations and administrative functions."

Mr. **Blauvelt** also announced that **Samuel Schwartz,** former senior vice president, corporate planning, is named senior vice president, administrative, with a significant expansion of duties. He assumes responsibility for government affairs, public relations, personnel, and coordination management, in addition to corporate planning.

The other promotions are: **J.E. Barnes,** former vice president, supply and trading, is promoted to executive vice president, supply and transportation; **E.J. Grivetti,** former vice president, international exploration, is promoted to executive vice president, exploration; **C.H. Lee,** former general manager, coordinating and planning, is promoted to vice president, supply and trading; **H.K. Bowden,** former general manager, logistics, is promoted to the new position of vice president, logistics and downstream planning; **L.J. Ryman,** former managing director, exploration, of Continental Oil Company Ltd., a London-based subsidiary, is promoted to vice president, international exploration, and **C.R. Wilhite,** former manager, U.S. government affairs is promoted to vice president, U.S. Government affairs and U.S. coordination management.

Hillman Barge & Construction Elects R.E. Kenny And B.T. Kelley

Robert E. Kenny

Bernard T. Kelley

Robert E. Kenny has been elected president of Hillman Barge and Construction Company, Pittsburgh, Pa., an operating subsidiary of Hillman Manufacturing Company.

At the same time, **Bernard T. Kelley** was elected to the newly created position of chairman.

Mr. **Kenny** joined the Hillman Manufacturing Company in April 1977 as president of Hillman Transportation Company. Mr. **Kenny** was previously director of market developing and planning with Dravo Corporation and was a senior analyst in the Commercial Research Division of United States Steel Corporation.

Mr. **Kenny** is a native of Attleboro, Mass., and received his Bachelor of Arts degree with distinction from Brown University, and his master's degree in business from Harvard Graduate School of Business.

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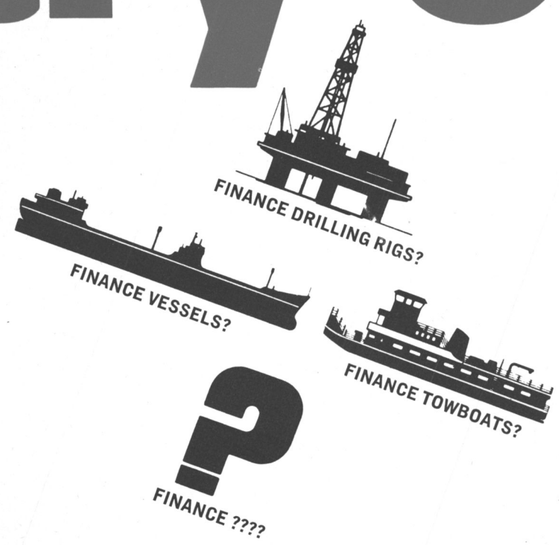

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October 15, 1978

Los Angeles-Long Beach Propeller Club Names Officers For 1978-79 Term

The Propeller Club of the United States, Port of Los Angeles-Long Beach No. 66, recently held their first board of governors meeting under new president **Lew Coppersmith.** Mr. **Coppersmith,** president of L.E. Coppersmith, Inc., had received the gavel from outgoing president **Robert D. Hudson** of the Port of Los Angeles, Calif., at the final meeting of the 1977-78 year.

Officers for the 1978-79 term are: **Lew Coppersmith,** president; **Richard J. Jacobsen,** J.A. Jacobsen & Associates, first vice president; **H. Lee Sellers Jr.,** Port of Long Beach, second vice president; **M.H.K. Aschemeyer,** Delta Steamship Lines, Inc., third vice president, and **Gordon A. Menendez,** Waterman Steamship Corp., secretary-treasurer.

Board of governors for 1978-79 are: **M.H.K. Aschemeyer,** Delta Steamship Lines, Inc.; **Richard Bliss,** Matson Navigation Co.; **Perry A. Clark,** Texaco Inc.; **Lew E. Coppersmith,** L.E. Coppersmith, Inc.; **Mitch G. Dwyer,** Port of Los Angeles; **Walter R. Gibbings Jr.,** Harbor Ship Electric Co.; **R.S. Hartwick,** Lillick McHose & Charles; **Robert D. Hudson,** Port of Los Angeles; **John L. Iamarino,** Crowley Environmental Services; **Richard J. Jacobsen,** J.A. Jacobsen & Associates, Inc.; **Bernie K. Johnson,** Jacobsen Pilot Service; **Gordon A. Menendez,** Waterman Steamship Corp.; **William D. Moore Jr.,** Moore Travel Service; **David E. Rietmann,** Security Pacific National Bank; **H. Lee Sellers Jr.,** Port of Long Beach; **Chuck Slocombe,** Crowley Maritime Corp.; **Hugo Slocombe,** Marine Terminals Corp.; **Anthony J. Stapleton,** Santa Fe Railway Co., and **Reed M. Williams,** Graham & James.

Robert Hudson (right), of the Port of Los Angeles Trade Development Section, hands the official belaying pin to **Lew Coppersmith,** president, L.E. Coppersmith, Inc.

Committee assignments for the coming year are: House (Programs) **Richard Jacobsen,** J.A. Jacobsen & Associates; Membership, **H. Lee Sellers Jr.,** Port of Long Beach; Golf Tournament, **William D. Moore Jr.,** Moore Travel Service; Legislative, **Ronald S. Hartwick,** Lillick McHose & Charles; Reception, **Walter R. Gibbings Jr.,** Harbor Ship Electric Co.; National Convention, **M.H.K. Aschemeyer,** Delta Steamship Lines, Inc.; California Maritime Academy, **David E. Rietmann,** Security Pacific National Bank; Student Activities, **Richard Bliss,** Matson Navigation Co.; National Maritime Day (World Trade Week) co-chairmen, **H. Lee Sellers Jr.,** Port of Long Beach, **Tony Stapleton,** Santa Fe Railway Co.; Ways & Means, **Hugo Slocombe,** Marine Terminals Corp.; Public Relations co-chairmen, **Elmar Baxter,** Port of Long Beach, **Lee Zitko,** Port of Los Angeles; Roster co-chairmen, **Francis Pard,** Port of Long Beach, and **Frank Coghlan,** Port of Los Angeles.

Lorentzen Shipping Names Captain Garber

Robert J. (Jack) Barker, executive vice president of Lorentzen Shipping Agency, general agents for Nopal Caribe Lines, has announced the appointment of Capt. **John Garber** to the position of director of marketing research.

Captain **Garber** has 29 years of shipping experience. He was with Harrington and Company as their stevedore manager, and safety director for the South Atlantic area. Prior to that, he was the cargo handling representative for Blue Sea Line, both in the South Atlantic and the Far East. Blue Sea Line, presently known as Barber-Blue Sea, was a joint venture of the two original partners, the Ocean Group of Liverpool, England, and the Brostrom Group of Goteborg, Sweden.

Captain **Garber** obtained his deepsea master's certificate in 1959 while serving with Elder Dempster Lines, one of the Ocean Group's companies.

U.S. Navy Awards Ingalls $287-Million Contract To Design And Build First Of A New Class Destroyer

Litton Industries has announced that its Ingalls Shipbuilding Division, Pascagoula, Miss., has received a U.S. Navy contract in the amount of $287,779,600 for design and construction of the first of a new class of guided missile destroyers to be armed with the advanced Aegis fleet defense weapons system.

The new ship, designated DDG-47, will be an adaptation of the 30 Spruance-class destroyers designed and presently being built by Ingalls for the Navy. She will be 563 feet long, 55 feet wide, and displace 8,900 tons. Powered by four General Electric gas turbine engines, DDG-47 is designed to achieve speeds in excess of 30 knots.

The contract is of a cost-plus-award-fee type. In excess of $100 million of design and construction costs are slated to be subcontracted to companies across the U.S. At peak of construction during 1980, approximately 2,600 Ingalls employees are expected to work on the program. Delivery is expected in late 1982 or early 1983.

The Aegis Weapons system, developed and being produced by RCA Corp. for the DDG-47, includes an array of highly sophisticated electronically scanned radars capable of detecting and tracking a large number of surface and airborne threats simultaneously. The Aegis radar also directs the fire of the ship's advanced surface-to-surface and surface-to-air missiles.

Aegis incorporates a new kind of radar to "see" in all directions using electronic scanning, a technological advancement over conventional rotating antenna radars which can detect only when the radar beam strikes the target during rotation. Aegis eliminates delay, providing extremely fast reaction time and multiple target handling capability. It's a matter of only seconds from target detection to weapon launch.

Once a target is detected and identified, characteristics such as range, altitude, speed and direction are processed by the Aegis computers, and appropriate weapone are selected for fire. Working as an integrated part of specially designed weapons control, fire control and missile launching systems, Aegis can rapid-fire and provide "flight guidance" to a number of missiles with great accuracy.

Artist's rendering of the new DDG-47.

During flight, missiles receive continuous guidance commands from the Aegis radars until actual contact with their target. Initially, the missiles are guided by information received prior to launch. But in flight, as the missiles approach their target, they receive commands from reflected signals bounced off the target by an illuminator positioned on the ship. By "homing" in on this reflected signal, destruction of the target is virtually guaranteed.

Bow-mounted sonar, antisubmarine rocket (ASROC) and torpedoes will provide the ship with antisubmarine capability. Antiship and antisubmarine warfare (ASW) helicopters and deck guns complete a ship the Navy has described as "the most broadly capable, heavily armed and best protected destroyer that the Navy has developed."

DDG-47 will adopt the hull, mechanical and electrical systems of the Spruance-class ships proven successful in three years of operations with the Atlantic and Pacific Fleets. Sixteen Spruance ships are in service with the Fleet, and ship 17 was delivered at the end of September. Seven more have been launched and are being outfitted for sea duty, and the remaining six are in various stages of construction.

Design and engineering work on the new ship, as well as procurement of materials and systems, will begin immediately. Start of hull fabrication is scheduled for September 1979.

Ingalls will produce the new class ship in its modern facility at Pascagoula, utilizing the same modular production techniques successfully applied in the building of the Spruance-class destroyers and a new fleet of LHA amphibious assault ships.

Manpower for the construction of DDG-47 will come from within Ingalls's existing work force, which faces reduction as work is completing on current programs.

During four decades of ship-

(Continued on next page)

SHIP ASSEMBLY LINE — The new DDG-47 will be built at Ingalls Shipbuilding, where modular construction is currently being applied in the production of DD-963 Class destroyers and LHA-1 Class amphibious assault ships for the U.S. Navy. At least 10 combat ships are visible in this recent photograph showing the subassembly, modular assembly and ship assembly area of the Ingalls West Bank facility in Pascagoula, Miss.

building on the Pascagoula River, Ingalls Shipbuilding Division of Litton Industries has produced more than 270 ships for the United States Navy and merchant marine fleets.

That experience has included the building of destroyers—first with the construction of DD-931 Forrest Sherman-class destroyers in 1958, and continuing today with the production of a new fleet of DD-963 Spruance-class destroyers.

Ingalls began operations in Pascagoula, Miss., in 1938 and has produced a wide variety of naval ships, including in addition to destroyers, amphibious assault ships, escort aircraft carriers, nuclear-powered submarines, submarine tenders, ammunition ships and other naval auxiliaries.

Litton Industries acquired Ingalls Shipbuilding in 1961, and in 1970 the shipyard expanded its facilities to include a new 611-acre facility that utilizes modular production techniques—a concept that achieves increased efficiency by allowing more equipment and systems to be installed aboard ship prior to the launching of the hull.

The modular concept is in full utilization today at Ingalls, where work is in process on the new fleet of Spruance destroyers and on a series of LHA amphibious assault ships. Eighteen ships in the 30-ship destroyer program will be delivered to the Navy before the end of 1978. The rest are either in outfitting in preparation for delivery or in hull construction. Three ships in the LHA program have been delivered.

In addition to DD-963 destroyers and LHAs, Ingalls is also building four destroyers for the Iranian Navy. Ingalls is also engaged in nuclear submarine overhaul work.

Electronic systems are extensive aboard both the LHAs and destroyers. For the testing of these systems, Ingalls built and operates a Land Based Test Facility (LBTF). The LBTF is used to assemble, pre-test, and integrate ship electronic and communication systems off ship. This off-ship assembly and testing greatly reduces the time involved in getting the systems fully operational once installed aboard ship. The LBTF is another application of the modular concept in building employed at the shipyard.

From a peak employment of 25,000 workers in July 1977, Ingalls's work force today is 19,500. In addition to its Regular Apprentice Program as a source of skilled manpower, Ingalls has the facilities and capability for the operation of one of the largest vocational training centers in the country. During peak manpower requirements, enrollment in the Ingalls training school reached more than 400.

Crowley Maritime Names Jim Grissom Manager San Juan Operations

Jim Grissom has been appointed San Juan, Puerto Rico, operations manager for Crowley Maritime Corporation's Caribbean Division, according to a recent announcement by **Robert G. Homan,** senior vice president of the division.

Formerly Jacksonville, Fla., terminal manager for Trailer Marine Transport Corporation, a Crowley subsidiary, Mr. **Grissom** will be responsible for all operational activities in San Juan and inter-island services throughout the Caribbean.

The Caribbean operations of Crowley have quadrupled in cargo capacity since 1974. Crowley's Isla Grande terminal in San Juan is undergoing modernization and expansion to keep pace with future growth expectations. Mr. **Grissom's** expertise in ro/ro operations will prove a vital asset in meeting growth demands.

In addition to Trailer Marine Transport's service between the U.S. mainland and Puerto Rico, Crowley operates feeder services between the Dominican Republic, Venezuela, the Virgin Islands and the Leeward and Windward Islands, out of its San Juan terminal.

Mobilization Ship Design To Be Unveiled November 6 At Conference In Arlington

Design of a multipurpose mobilization ship suitable for both rapid production in wartime and commercial needs in peacetime will be unveiled November 6 by the Maritime Administration (MarAd), an agency of the Department of Commerce.

The forum will be a Government/Industry Mobilization Ship Conference at the Crystal City Marriott Hotel, Arlington, Va. Other participants will include Defense Department officials, shipowners and operators, naval architects, and representatives of shipyards and major ship component manufacturers.

Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs, said: "One of the purposes of the conference is to inform interested parties of the versatile, efficient, and commercially attractive mobilization ship design developed by MarAd. Another is to encourage the marine industry to build, own, and operate ships suitable for both commercial and wartime mobilization purposes. Such a ship must be built to prove its adequacy, assure its rapid producibility, and provide for essential industrial preparedness planning."

MarAd has the responsibility for providing the shipping capability and military support needed during wartime mobilization. As part of its national defense planning effort, the agency established a "Ship Designs for Mobilization" project in 1974.

John J. Nachtsheim, MarAd Assistant Administrator for Operations, said: "Ideally, the ultimate design would be a multipurpose commercial vessel capable of competing effectively in world trade, but with all the cost-saving features of standardization and ease of production which the Liberty and Victory ships offered in World War II. With this initiative, we are turning things around—designing a ship for commerce that could be used equally as effectively during a national emergency."

The Office of the Chief of Naval Operations, the Naval Sea Systems Command, the Military Sealift Command, and the United States Army have provided guidance in developing the design. Each vessel could accept breakbulk, containerized, and roll-on/roll-off cargoes.

Other optional configurations provided for versatility would have certain common features, including hull form, midship sections, and machinery casing and spacing. Optional features include a 110-foot midbody for lengthening (or "jumboizing") the vessels, plus the choice of steam, medium-speed diesel, slow-speed diesel, or gas turbine machinery plants.

The Government/Industry Mobilization Ship Conference will be open to the public. All interested persons are invited to attend. Further information is available from Ms. **Linda M. Williams,** Office of Ship Construction, Maritime Administration, Room 4059, U.S. Department of Commerce, Washington, D.C. 20230, telephone (202) 377-4538.

Hongkong United Dockyards Signs HK$16.93-Million Contract To Expand Shipyard Facilities

Hongkong United Dockyards recently signed a HK$16.93-million contract with Nishimatsu Construction Co. for the second stage reclamation work on 4.4 hectares of seabed off the HUD Tsing Yi Yard.

Reclamation work will begin this month, and is expected to be completed late next year.

At the contract signing ceremony in Hong Kong are, seated from left to right, **T. Shibata,** director of Nishimatsu; **Y. Tachibana,** chairman of Nishimatsu; **J.D. Hall,** managing director of HUD, and **R. Smith,** development manager of HUD.

The Tsing Yi Yard, a multimillion-dollar ship repair complex covering approximately 2¼ million square feet of land and seabed on Kam Chuk Kok on the west end of Tsing Yi Island, is capable of taking vessels alongside with a displacement of over 110,000 dwt, and of drydocking vessels up to 65,000 dwt with its floating drydock Whampoa.

M/V Dennis Hendrix is 180 ft. long, has a 52-ft. beam and a 9-ft. draft. High-alkalinity CAPRINUS R Oil 40 is helping each of her three EMD16-645 E5's dependably deliver 2,800 hp at 900 rpm.

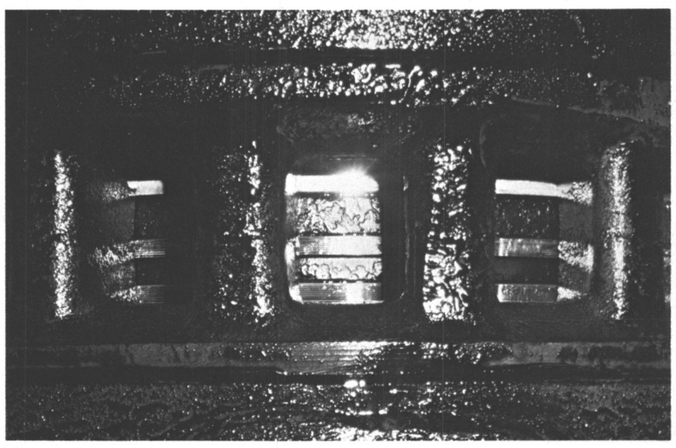
How Shell's CAPRINUS® R Oil 40 is helping keep EMD's clean with low wear in the 8,400-hp Dennis Hendrix

High dispersancy and anti-wear properties of Shell's high-alkalinity oil contribute to excellent condition of EMD16-645 E5's after ten months' service.

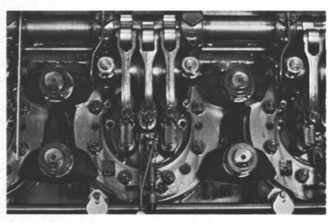
One of the most powerful towboats on the waterways, the *M/V Dennis Hendrix*, was built by Jeffboat, Inc. It has been in service since July, 1977 for the American Commercial Barge Line located in Jeffersonville, Indiana.

Under her three stacks are three EMD16-645 E5's on Shell CAPRINUS* R Oil 40, each rated at 2,800 hp to give the vessel her payload thrust of 8,400 hp.

CAPRINUS R has delivered trouble-free performance for over 5,560 hours in the port and starboard engines, and for slightly fewer hours in the center engine.



Ports are virtually 100 percent open for this cylinder after 5,564 hours on CAPRINUS R Oil 40. Average top ring side clearance .0096 inches. No chipping or scuffing of rings. CAPRINUS R Oil 40 fights deposit buildup and wear, helps lengthen the service life of critical engine parts.



After 5,564 hours on CAPRINUS R Oil 40, the top deck of the port engine is sparkling clean; cams polished; heads metal bright. This demonstrates the effectiveness of the high dispersant additive system in CAPRINUS R Oil 40.

Exceptional cleanliness; low wear

When the vessel docked for a minor mechanical repair, there was an opportunity to inspect her engines. Appearance: excellent. Top decks were clean, free of sludge and lacquer. There were only light carbonaceous deposits in the airbox.

Garland Bradley, Chief Engineer, summed up his impression in one word: "Beautiful!"

Wear levels were equally impressive. Top ring side clearance of port and starboard engine pistons averaged a low .0096 inches. No scuffing or chipping of rings.

Filter life up to 2,776 hours

Filter life is running longer than with the previously used oil — up to 2,776 hours on one of the engines. That's not surprising. CAPRINUS R Oil's dispersant additive system helps keep contaminants in suspension, prevents heavy deposit buildup on filters. That can mean important savings.

High alkalinity stays on guard

CAPRINUS R Oil *retains* its high alkalinity in extended high-stress service. It neutralizes combustion acids, combats piston and liner wear and the formation of deposits — all at a moderate ash level. Another benefit: CAPRINUS R Oil offers superior resistance to oxidation and viscosity increase over long periods.

Send for our new brochure. See why nearly 100 towboats have made the switch to CAPRINUS R Oil 40! Just write: Shell Oil Company, Manager, Commercial Communications, One Shell Plaza, Houston, Texas 77002.

**CAPRINUS *is a trademark and is used as such in this writing.*

Come to Shell for answers

27 New Members Elected To American Bureau Of Shipping

Twenty-seven maritime executives from six countries were elected Members of the American Bureau of Shipping (ABS) at the semiannual meeting of the international ship classification society held in New York City on September 19. This brings to 406 the number of ABS Members. The new Members are:

William H. Banks, president, Chevron Shipping Company, San Francisco, Calif.; Rear Adm. **William M. Benkert,** USCG (ret.), president, American Institute of Merchant Shipping, Washington, D.C.; **Howard C. Blanding,** assistant vice president, American Bureau of Shipping, New York, N.Y.; **J. Byrn,** president Genstar Marine Ltd., North Vancouver, British Columbia, Canada; **C. Chao,** president, China Union Lines Limited, Taipei, Taiwan, Republic of China; **Peter Constas,** vice president, Avon Steamship Co., Lake Success, N.Y.; **George S. Coumantaros,** president, Southern Star Shipping Co., Inc., New York, N.Y., and **Jean Coune,** assistant managing director, Chantiers de l'Atlantique, Saint Nazaire, France.

Also, Adm. **Ralph W. Cousins,** USN (ret.), president and chief operating officer, Newport News Shipbuilding and Dry Dock Co., Newport News, Va.; **N. Cosulich,** vice president, Rivtow Straits Ltd., Vancouver, British Columbia, Canada; Rear Adm. **Krishan Dev,** vice chairman and managing director, The Shipping Corporation of India, Ltd., Bombay, India; **J.R. Elder,** vice president and general manager, Collingwood Shipyards Ltd., Collingwood, Ontario, Canada; **A.M. Fowlis,** president, Seaspan International Ltd., North Vancouver, British Columbia, Canada; **John G. Goumas,** J.G. Goumas, (Shipping) Co. S.A., Piraeus, Greece; **G.R. Harrison,** president, Canadian Marine Drilling Ltd., Calgary, Alberta, Canada; Adm. **John B. Hayes,** Commandant, United States Coast Guard, Washington, D.C., and **R. Henderson,** general manager, Kingcome Navigation Co., Vancouver, British Columbia, Canada.

Also, **Peter S. Hepp,** president, Sun Shipbuilding and Dry Dock Co., Chester, Pa.; **Leslie Jones,** vice president, Marsh, McLennan Ltd., Toronto, Ontario, Canada; **Charles G. Kiskaddon Jr.,** president, Alcoa Steamship Co., Inc., New York, N.Y.; Dr. **N.V. Laskey,** president, Camat International Transportation Consultants, Ltd., Mississauga, Ontario, Canada; **Peter Lygnos,** president, Lygnos Bros. Shipping Inc., Englewood Cliffs, N.J.; **Scott Misener,** president, Scott Misener Steamships Ltd., St. Catharines, Ontario, Canada; Vice Adm. **Robert I. Price,** USCG, Commander, Atlantic Area and Third Coast Guard District, Governors Island, N.Y.; **J. Stitt,** general manager-Marine Division, Algoma Steel Corp., Sault Ste. Marie, Ontario, Canada; **Carl Stuber,** president, Cleveland Tankers, Cleveland, Ohio, and **Edwin S. Wenzel Jr.,** assistant vice president, American Bureau of Shipping.

The American Bureau of Shipping is an international ship classification society that establishes standards, called Rules, for the design, construction, and periodic survey of merchant vessels and other marine structures.

Guarneri Forms Global Marine Surveyors In La Place, Louisiana

Sal Guarneri has announced the formation of Global Marine Surveyors, which will provide marine surveying services for inland and offshore marine transportation and insurance companies. Hull and cargo, damage, on and off charters, draft and general marine consultation are some of the services that will be provided.

Mr. **Guarneri** graduated from the New York State Maritime College at Fort Schuyler with a B.S. degree in marine transportation.

Prior to this, Mr. **Guarneri** was the staff surveyor for the Home Insurance Company in New Orleans, La., a staff surveyor for Cairo Marine Service in Cairo, Ill., and most recently, maintenance manager with Radcliff Materials in New Orleans.

The mailing address is Global Marine Surveyors, P.O. Box 1084, La Place, La. 70068.

George Lowman Elected Farrell Lines Chairman

Thomas J. Smith, president of Farrell Lines Incorporated, announced the election of **George F. Lowman** to the office of chairman of the board of directors. **Mr. Lowman** succeeds the late **James A. Farrell Jr.,** who died on September 15, 1978.

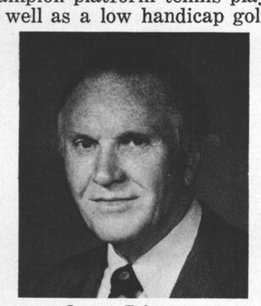
Mr. Lowman has been a director of Farrell Lines since 1966, and a chairman of the Executive Committee since 1971. He has also chaired Farrell Lines' Audit Committee since its formation this year.

He is a graduate of Harvard College, class of '38, and received his J.D. degree from Harvard Law School in 1942. He is presently a senior partner in Cummings and Lockwood, Stamford, Conn., the law firm with which he has been associated since 1946.

Mr. **Lowman** was president of the Connecticut Bar Association, 1976-77; president of the Stamford Bar Association, 1963-64; and chairman of the Federal Bench/Bar Committee, 1969-71. He is a member of many other law associations and committees.

During World War II, Mr. **Lowman** served in the United States 7th Army, rising from the rank of private to lieutenant colonel, eventually selected for the American General Staff Corps and receiving a Mobilization Designation to the Pentagon. He landed in southern France on D-Day, and served throughout the European Theater, receiving five major campaign stars, the Good Conduct Medal, the Army Commander's Commendation Ribbon, the Bronze Star, and the Legion of Merit.

Long a participant in athletics, Mr. **Lowman** was a nationally ranked tennis player, a national champion platform tennis player, as well as a low handicap golfer.



George F. Lowman

He captained his college basketball team, eventually playing professionally with the Boston Goodwins, later the Celtics.

Mr. **Smith** also announced the appointment of **James P. Horn** as a member of Farrell Lines' Executive Committee. Mr. **Horn,** former president of American Export Lines, Inc., joined Farrell Lines as senior vice president in the President's Office in March 1978, when Farrell Lines acquired American Export Lines. He is a graduate of Lehigh University, Bethlehem, Pa. Mr. **Horn** is a certified public accountant, formerly associated with Haskins & Sells.

Thomas J. Smith will continue as president and chief executive officer of the company.

Furuno U.S.A. Formed In South San Francisco

Furuno Electric Co., Ltd. of Nishinomiya, Japan, has announced the formation of their new corporation, Furuno U.S.A., Inc., to be located at 271 Harbor Way, South San Francisco, Calif. 94080.

Furuno is the manufacturer of a complete line of sophisticated marine electronics, including radar, navigational and fish-finding echosounders, sonar, radio direction finding equipment, Loran and marine communications equipment.

These products were previously distributed in the United States by Narco Konel, in whose hands the line became a leader in the commercial fishing and offshore support industries. Furuno U.S.A., Inc. will take over full distribution of all Furuno products in the United States. In addition, Furuno U.S.A., Inc. has agreed to distribute the Narco Konel VHF and single sideband radios.

William P. Dupre, formerly of Narco Konel, has been appointed president and a member of the board of directors of Furuno U.S.A., Inc. Other officers in the company are **Shigeru Kunitomo,** executive vice president and treasurer; **John L. Burkhill,** vice president-Sales and Operations, and **Yoshio Fujio Kitani,** secretary and liaison officer.

Gastech 78 To Focus On World Supply And Demand For LNG And LPG

Largest Ever Gastech Exhibition Will Feature New Technologies In Gas Carrier Design And Offshore Terminals —Speakers Include Middle East Producers And U.S. Importers

More than 1,000 delegates are now expected to attend Gastech 78 in Monaco on November 7-10, 1978. The high level of conference registrations reflects the worldwide interest in the immediate and long-term future of the LNG and LPG trades and their effect on gas carrier developments.

The conference will open with a keynote statement from OPEC on a pricing policy for LPG—a vital sector of the energy market, which will be discussed in depth on the second day when a panel of producers from Algeria, Iran, Kuwait, Qatar, Saudi Arabia and Venezuela will be followed by the views of the leading gas marketers, including **Sam Segnar,** president of Northern Natural Gas, USA; **Howard P. Dutemple,** president of Mundogas, Bermuda; **Shiu Aoki,** managing director of Ocean Chartering, Tokyo; **Mark Anton,** president, Suburban Propane Gas Corporation, New Jersey, and **John Emerson** of Chase Manhattan Bank, New York.

On the first day, **Rene Boudet,** president of Gazocean, Paris, will chair Session 1 on World Gas Supply and Demand, the latter being greatly dependent upon U.S. LNG trade potential, which is the subject of a presentation by **Philip J. Anderson** of the Institute of Gas Technology, Chicago. A detailed study of the global baseload LNG trade up to 1980 by **Edward Faridany** will accurately report the position at the time of the conference. Demand for new ship capacity could be heavy, depending upon the maturing of several ambitious projects, ranging from Australia's Northwest Shelf to the Canadian Arctic Pilot Scheme, and these will be the subjects of individual papers.

A major paper from the U.S. Coast Guard will investigate the impact of both the IMCO and USCG regulations on U.S. and foreign-flag vessels, particularly in the area of containment system concept approval and the Letter of Compliance program.

As the conference progresses, the focus will move on to plenary and workshop sessions, comprising 19 presentations on new technologies, safety procedures, and offshore developments. These include shipboard containment systems, and offshore fields, including a comprehensive evaluation of floating LNG terminals by **Ted Hillberg** of Fairchild Stratos, California.

With the hindsight of four days of discussion, the conference will go into its final session looking to the future, with contributions from an international panel of liquefied gas specialists, including **J.J. Cuneo** of Energy Transportation, **P. Bates,** Shell Natural Gas Co-ordination, and P & O's **Pat Mitchell.** The session will be chaired by **Alexis Pastuhov.**

Largest-Ever Exhibition

Some 114 companies are participating in the Gastech 78 Exhibition, making it the largest display of marine-related LNG/LPG technology ever assembled. Prominent among the exhibits are 23 shipyards taking part from Sweden, the Netherlands, Poland, Belgium, Finland, Denmark, Norway, U.K., West Germany, Spain, Japan, and France. The expertise of these gas tanker constructors will be complemented by 13 stands of containment and insulation methods, together with the various displays of shipboard systems for navigation, tank gauging, inert gas generation, mooring, cargo custody and transfer, and safety appliances.

The LNG terminals require vast plant costing millions of dollars, and the know-how of large international contractors such as Pullman Kellogg, Technip, Snamprogetti will be featured in the exhibition.

Many companies will be exhibiting for the first time and many new products will be unveiled.

CONFERENCE PRESENTATIONS

Tuesday, November 7, 1978

Official Opening Remarks, S.E.M. **Andre Saint-Mleux,** Minister of State, Principality of Monaco.

Session 1, "World Gas Supplies"—Chairman: **Rene Boudet,** president, Gazocean, Paris.

1. "A Pricing Policy for OPEC LNG," **A. Ferroukhi,** head, International Economics Unit, Organization of the Petroleum Exporting Countries (OPEC), Vienna.

2. "The International Baseload LNG Trade: 1978-90," **E.K. Faridany,** Ocean Phoenix Transport BV, London.

3A. "US LNG Import Policy," **William R. Connole,** Connole & O'Connell, Washington, D.C.

3B. "US LNG Trade Potential—1978," **Philip J. Anderson, Edward J. Daniels,** Institute of Gas Technology, Chicago.

4. "Canadian LNG Activities"—Panel Session, Discussion Papers.

4A. "Arctic Pilot Project," **D.M. Wolcott,** vice president, Petro-Canada, Calgary, Alberta.

4B. "Arctic Petro-Carriers Project," **Michael H. Bell,** president, Melville Shipping, Montreal, Quebec.

4C. "Arctic LNG Production and Transportation: How can the Canadian Shipbuilding Industry Respond?" **W.H. White,** senior vice president, Davie Shipbuilding Ltd., Levis, Quebec.

5. "Export LNG From Australia's Northwest Shelf," **R.J. Foster,** The Broken Hill Pty Co., Oil & Gas Division, Melbourne, Australia.

6. "Natural Gas Industry In Indonesia," Ir. **B. Bramono,** head of Gas Marketing, Pertamin, Jakarta, Indonesia; Ir. **R.A. Hutapea,** Ministry of Mining and Energy, Jakarta.

Wednesday, November 8, 1978

Session 2, "LP Gas"

1. LP Gas Producers' Panel—Chairman: **Michael D. Tusiani,** vice president, Poten & Partners, New York. Panelists: **M. Belguedj,** Director Gas Exports, Sonatrach, Algiers, Algeria; **Ebrahim Nooh Al-Mutawa,** Head of Sales, Marketing and Transportation, Qatar General Petroleum Company, Doha, Qatar; **Sohrab Boushehri,** Marketing Manager, Kharg Chemical Company, Tehran, Iran; **Gustavo Nieto,** LPG and Specialities Manager, Lagoven, Caracas, Venezuela.

2. LP Gas Marketers' Panel—Chairman: **Sam F. Segnar,** president and chief operating officer, Northern Natural Gas Co., Omaha, Neb.; Panelists: **Howard P. Dutemple,** president, Mundogas SA, Bermuda; **Mark J. Anton,** president and chief executive officer, Suburban Propane Gas Corporation, New Jersey; **John D. Emerson,** vice president, Corporate Banking, Chase Manhattan Bank, New York; and **Shiu Aoki,** Ocean Chartering Ltd., Japan.

Session 2A—Liquefied Gas Workshop.

1. "LNG Thermophysical Properties Data and Custody Transfer," **D.E. Diller,** Institute for Basic Standards, National Bureau of Standards, Boulder, Colo.

2. "An LNG Cargo System Simulator for Crew Training," **R.L. Blanchard, Arthur E. Sherburn, John L. Middleton,** Foxboro/Trans-Sonics Inc., Burlington, Mass.

3. "LNG Water Vapour Explosion—Estimate of Yields and Pressures," **F. Briscoe, G.J. Vaughan,** United Kingdom Atomic Energy Authority, Culcheth, Warrington, U.K.

4. "Experience with LNG Vaporisers," **M. Herve,** L'Air Liquide, Champigny-sur-Marne, France.

5. "Offshore Loading Systems," **W.A. Gill, M. Karpa, W. Van Hoof,** FMC Europe SA, Sens, France.

Thursday, November 9, 1978

Session 3, "Transportation Technology" — Chairman: **Roger C. Ffooks,** consultant naval architect, London.

1. "Ship Safety Considerations in the Design and Testing of a non-metallic secondary barrier," **J.L. Waisman,** McDonnell Douglas Astronautics Co., Huntington Beach, Calif.; **A. Gilles,** president, Gaz-Transport, Paris.

2. "Internal Insulation System 'METASTANO-20' for the Storage and Transportation of Liquefied Gases," Dr. **Manuel Domin-**

(Continued on page 28)

guez, ASTANO (Astilleros Y Talleres del Noroeste SA), Madrid.

3. "The General Electric-Technigaz Mark III Containment System," **J. Roni,** manager, Cryogenic Projects, General Electric Company, Thermal Systems Programs, Tacoma, Wash.; **J. Chauvin,** head of Research and Development, Technigaz, Maurepas, France.

4. "Pressurised LNG—and the Utilisation of Small Gas Fields," Prof. **E. Fluggen,** Dr. Ing. **H. Backhaus,** LGA Gastechnik GmbH, Remagen-Rolandseck, West Germany.

5. "French Gas Shipbuilding—Present and Future Prospects"—Panel Session. Panelists: **V. Audren,** Constructions Navales et Industrielles de la Mediterranee; **J. Lefol,** Chantiers de France-Dunkerque; **J.P. Christophe,** Chantiers de la Ciotat; **R. Regard,** Chantiers de l'Atlantique.

Discussion Papers

5A. "A Brief Review of LNG Carrier Construction as seen by the La Seyne Shipyard," **V. Audren,** Directeur General Adjoint, Constructions Navales et Industrielles de la Mediterranee.

5B. "Chantiers Navals de La Ciotat and the LPG and Ammonia Carriers," **J.P. Christophe,** Directeur, Chantiers Navals de La Ciotat.

5C. "Construction of Gas Carriers by the France-Dunkerque Shipyard," **J. Lefol,** Directeur General, Chantiers de France-Dunkerque.

6. "Series Production of Liquefied Natural Gas Carriers," **P. Takis Veliotis,** president, Quincy Shipbuilding Division, General Dynamics Corporation, Quincy, Mass.

Session 4, "Safety Considerations" — Chairman: **Robert J. Lakey,** Ringdal Marine Consultants, (Helge Ringdal Inc.), Houston, Texas.

1. "USCG Concept Approval and LOC: IMCO-related Procedural Changes," **P.J. Pluta, R.G. Williams,** Merchant Marine Technical Division, U.S. Coast Guard Headquarters, U.S. Department of Transportation, Washington, D.C.

2. "A Gas Shipping Safety Programme," **E.A. Destremps,** Essochem, Belgium, European Regional Distribution, Brussels.

3. "LNG Safety: Facts and Fiction," **S.E. Handman,** chief engineer, Pullman Kellogg Division of Pullman Inc., Houston, Texas.

4. "Construction Techniques for LNG Storage," **J. Mauger,** Gaz de France, Paris.

5. "Evaluation of Offshore LNG Terminals," **E.T. Hillberg,** Fairchild Stratos Division, Manhattan Beach, Calif.

6. "Safety and Reliability of Marine Gas Liquefaction and Storage Units," Dr. Ing. **H.R. Hansen,** Det norske Veritas, Oslo, Norway.

Session 5, "Offshore Gas Recovery"—Chairman: **M.C. (Bill) Terry,** Energy & Ecology Systems International, Palos Verdes Estates, Calif.

1. "Problems Associated with Transfer of LNG from Offshore Terminals to LNG Carriers," **E.M. Roger-Smith, H. Cawte, E. Jones, David Brown-Vosper** (Offshore) Ltd., Portchester, Hants, U.K.

2. "Offshore LNG Systems—Design Criteria, Test Results," **E. Berner,** Offshore LNG Systems, Blohm & Voss AG, Hamburg.

3. "Loading and Unloading LNG Carriers via an Offshore Terminal and Submarine Cryogenic Pipelines," Dr. **Van Tuyen Nguyen, J. Pigeyre,** Omnium Technique des Transports par Pipelines, Puteaux, France; **J. Jourdan,** Single Buoy Moorings, Monaco.

Session 6, "Future Developments"

1. "The Future of LNG Shipping," **P.R. Mitchell,** director, P & O Shipping Ltd., London.

2. "Future Developments in LNG Transportation"—Panel Session. Chairman: **A. Pastuhov,** Harvard, Mass. Panelists: **P. Bates,** Natural Gas Co-ordination, Shell International Gas, London; **J.J. Cuneo,** Energy Transportation Corp., New York; **G. Massac,** Gazocean, Paris; **K. Graham,** Pacific Indonesia, Los Angeles.

Red Star Towing Company, Port of New York, runs a fleet of 25 tugs up and down the East Coast.

A Mobil EM/PA program—Engine Maintenance through Progressive Analysis—helps keep these vessels running. And saves Red Star considerable amounts in operating costs.

Reports Red Star's Port Engineer, Jim Patterson, on Mobil's EM/PA with its systematic oil analysis: "EM/PA not only permits us to schedule required maintenance at convenient times, it actually saved the day on several occasions by alerting us to impending engine damage. The evidence showed up in the oil, thanks to laboratory analysis."

In the case of the Red Star tug *Huntington*, EM/PA helped spot leaky fuel injectors, a broken cylinder liner and leaky water seals. An estimated $75,000 saved in downtime and repairs.

In the case of the Red Star tug *Port Jefferson*, EM/PA helped show up a leaky fuel return line and faulty injectors. An estimated $78,000 saved in overhaul and downtime costs.

These are examples of results that have been obtained with EM/PA, Mobil's program that continuously monitors both oil and engine conditions.

There's big money to be saved when you cut down on engine problems by spotting them early. Money saved on man-hours. On repairs. On oil.

Mobil's EM/PA® saved Red Star's fleet operations $153,000 on two vessels alone.

That's why Mobil is Number One in marine lubrication. **Mobil®**

Atlantic Diving Forms SeaTec International, Ltd.

Atlantic Diving Company, Inc., one of New England's largest underwater contractors, recently announced the formation of SeaTec International, Ltd.

Based in Gloucester, Mass., with offices in Houston, Texas and London, England, SeaTec International, Ltd. will provide international offshore diving and underwater construction services.

SeaTec International has recently completed the anchoring of offshore pipelines in Africa, and has been contracted to perform deepwater cable inspections in the Caribbean.

Atlantic Diving Company performs specialized diving operations and subaqueous pipeline installations on the East Coast of the United States.

For a copy of a six-page illustrated brochure describing its services, write to **Earl K. Kishida,** Atlantic Diving Company, Inc. Parker Street, Gloucester, Mass. 01930.

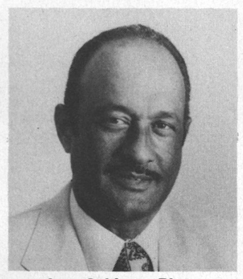
Ruddie E. Irizarry Named President Of PRMMI— Carr, Calderon Also Named

Ruddie E. Irizarry

The board of directors of Puerto Rico Marine Management, Inc., Elizabeth, N.J., has announced the appointment of **Ruddie E. Irizarry** as president of PRMMI. Mr. **Irizarry,** in turn, announced two other high-level PRMMI appointments in the U.S.

PRMMI, with 17 offices in the U.S. and four in Puerto Rico, serves as the cargo booking and operational arm of Navieras de Puerto Rico, the single largest ocean cargo carrier in the U.S./ Puerto Rico trade.

D. Bernard Carr



Jose Calderon Rivera

The two other PRMMI appointments announced by Mr. **Irizarry** are those of **D. Bernard Carr,** named senior vice president/marketing, and **Jose A. Calderon Rivera,** senior vice president/administration.

All three executives will operate from PRMMI's U.S. headquarters at Port Elizabeth, N.J. Both Mr. **Irizarry** and Mr. **Carr** have in-depth experience in both roll-on and containershipping, the two modes offered by the 12-vessel Navieras fleet.

Mr. **Irizarry,** PRMMI's new president, previously served as deputy director of the Puerto Rico Maritime Shipping Authority (PRMSA) in San Juan. In the steamship business for 13 years,

Mr. **Irizarry's** background includes service with Totem Ocean Trailer Express where he was vice president-operations. Prior to that, he was vice president-operations for Transamerican Trailer Transport in San Juan.

His shipping background also includes service as operations manager for Seatrain in Puerto Rico. Mr. **Irizarry** launched his maritime career upon retiring from the Army Corps of Engineers in 1965, following 21 years of service. A native of Toa Baja, Puerto Rico, he holds a Business Administration degree from George Washington University, Washington, D.C.

Mr. Carr, PRMMI's new senior vice president/marketing, has held important marketing positions in ocean shipping for 25 years. Mr. **Carr** has served with SeaSpeed and PFEL, Transamerican Trailer Transport, and Grace Lines.

With Transamerican Trailer Transport, which was in the Puerto Rican trade 1968-1974, **Mr. Carr** gained in-depth experience in selling roll-on cargo to Puerto Rico in his position as vice president/marketing. Previously, PRMMI's new marketing director served with Grace Lines for 15 years (1953-68) in the Midwest and New York City.

Mr. Calderon, PRMMI's new senior vice president/administration, moves from San Juan where he was PRMSA's deputy executive director/finance for the past 14 months. Prior to that, he was a consultant on aviation and maritime rates for the Puerto Rico Ports Authority, an agency which he previously served as comptroller for 14 years.

In the financial field for 28 years, **Mr. Calderon** was also auditor for Puerto Rico's Income Tax Bureau and assistant accounting supervisor for the U.S. Navy in Puerto Rico for four years. **Mr. Calderon,** a certified public accountant since 1961, is a graduate of the University of Puerto Rico where he received a bachelor's degree in business administration.

Evergreen Handt Corp. Names Three Executives

Three executive appointments in business, operations and traffic have been announced by Evergreen Handt Corp., general agents for Evergreen Line's East Coast/Far East container service.

The announcement of the appointments was made by **Svend Hansen Jr.,** president of Evergreen Handt.

Richard Huang has been appointed vice president business department; **J. Ernst Celosse** was promoted to vice president, operations, and **Tony Yue** has been named assistant traffic manager.

Mr. Huang joined Evergreen Marine Corp. in Taiwan in 1972, and served as line manager of the company's Caribbean Service before joining Evergreen Handt in New York. He is a native of Taiwan, and a graduate of the College of Chinese Culture in Taiwan.

Mr. Celosse, who previously served as operations manager, has been in the steamship business for 11 years. He has been with Evergreen Handt since its inception in 1974. A native of Indonesia, Mr. **Celosse** attended the Netherlands Maritime Academy.

Mr. Yue, assistant traffic manager, will be responsible in his new position for inbound and outbound traffic. He has been with Evergreen Handt since 1976. **Mr. Yue's** background includes owning an import/export business and prior to that, employment with the airlines. He is a graduate of Yuda Commercial Institute, Taiwan, and has an engineering certificate from Airline Training Inc., New York.

Evergreen Line operates three separate full container services from the East, West, and Gulf Coasts in the Far East Trade. Evergreen Handt are agents for the East Coast Service; Evergreen United Corp. are general agents for the West Coast Service, and Evergreen Marine Corp. (Calif.) are general agents for the Gulf Coast Service. Hansen and Tidemann, Inc. are Gulf agents.

Crowley To Provide Maintenance Services Worldwide For Navy

Crowley Maritime Salvage, Inc., San Francisco, Calif., was recently contracted by the United States Navy to provide equipment maintenance and environmental protection services, according to an announcement by **Leo L. Collar,** executive vice president of Crowley Maritime Corporation, CMS parent company.

The contract calls for CMS to manage the Navy's salvage and pollution-abatement-equipment warehousing system, and to provide salvage-related and offshore oil-pollution-abatement services on a worldwide basis.

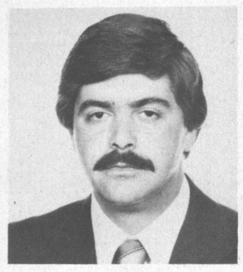
To handle the contract's domestic warehousing and equipment maintenance requirements, CMS has fully staffed warehouses in Stockton, Calif., and Williamsburg, Va. Equipment warehoused in U.S. military facilities at two overseas locations, Livirno, Italy, and Singapore, will receive regularly scheduled maintenance as well, but full-time manning is not anticipated.

Crowley Environmental Services Corporation, a CMS affiliate, will provide the contract's pollution cleanup and prevention services. When services are required, CES will mobilize personnel to deal with salvage-related offshore oil and hazardous materials spills anywhere in the world, and operate the Navy's equipment to combat the spills. The firm will also provide a variety of contingency planning and related consultation services.

Crowley's extensive international facilities and personnel will be utilized to provide additional support as required.

Crowley Maritime Corporation is an international marine transportation firm headquartered in San Francisco.

Rutland Maritime Names Peter Gallagher



Peter R. Gallagher

Peter R. Gallagher has been appointed director of marketing for Rutland Maritime Management Corporation, 15 East 26th Street, New York, N.Y. 10010, a through transportation consulting and project company which has been involved in solving transportation programs in Latin America, Nigeria, Turkey, and Egypt.

Rutland president **Peter A. Holzer** said that Mr. **Gallagher's** extensive international maritime experience in transportation management and international sales will help to increase his company's sales in the U.S. and abroad.

As Rutland's marketing director, Mr. **Gallagher** will work to generate sales for both Rutland's Contracting, Project and Consulting Divisions. He will also be involved in marketing assignments for the Charter Division of American Union Transport Forwarding, Inc., a sister corporation.

Mr. **Gallagher** previously served as both operations manager and marketing manager of Industrial Opportunity, Inc., an affiliate of Sea-Land Service, Inc., where he was primarily involved in the contracting and transportation of project-type cargoes.

Reynolds Announces $580-Million Upgrading For Sea-Land Service

R.J. Reynolds Industries, Inc., Winston-Salem, N.C., has announced a fleet modernization and globe-circling shipping program of approximately $580 million to strengthen the leadership position of its subsidiary, Sea-Land Service, Inc.

containerships to comprise the nucleus of a modern fleet circumnavigating the Northern Hemisphere (north of the equator).

The plan also includes expenditures for ship support equipment and upgrading shoreside facilities. Port and manpower resources currently exist to support the new service.

The program was announced by **J. Paul Sticht,** president and chief

Mr. Sticht said: "This program enables Sea-Land to replace some of its older vessels which are uneconomical to operate because of their age, speed and relatively low container capacity.

"At the same time," he added, "this new weekly round-the-world service gives Sea-Land the capability to maintain existing business along profitable trade routes, while providing growth opportuni-

new ships will be assigned to routes taking each of them around the Northern Hemisphere. The vessels are totally compatible with principal major trade lane needs.

The program announced emphasizes a commitment by Reynolds Industries to continually assess the deployment of Sea-Land's fleet, and to take positive action to maximize profitability.

Mr. **Irizarry's** background includes service with Totem Ocean Trailer Express where he was vice president-operations. Prior to that, he was vice president-operations for Transamerican Trailer Transport in San Juan.

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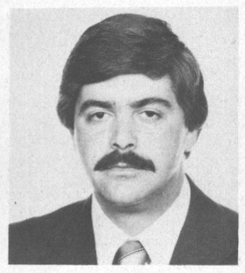


Peter R. Gallagher

Peter R. Gallagher has been appointed director of marketing for Rutland Maritime Management Corporation, 15 East 26th Street, New York, N.Y. 10010, a through transportation consulting and project company which has been involved in solving transportation programs in Latin America, Nigeria, Turkey, and Egypt.

Rutland president **Peter A. Holzer** said that Mr. **Gallagher's** extensive international maritime experience in transportation management and international sales will help to increase his company's sales in the U.S. and abroad.

As Rutland's marketing director, Mr. **Gallagher** will work to generate sales for both Rutland's Contracting, Project and Consulting Divisions. He will also be involved in marketing assignments for the Charter Division of American Union Transport Forwarding, Inc., a sister corporation.

Mr. **Gallagher** previously served as both operations manager and marketing manager of Industrial Opportunity, Inc., an affiliate of Sea-Land Service, Inc., where he was primarily involved in the contracting and transportation of project-type cargoes.

A graduate of the U.S. Merchant Marine Academy, Mr. **Gallagher** subsequently served as a deck officer in the U.S. merchant marine. He also has held management positions abroad with Island Navigation Co., Ltd., and TransPacific Lines. Mr. **Gallagher** is a past president of The Propeller Club of Guam.

9 REASONS WHY

you should consider this monitor for any size vessel.

We're talking about TUGMONITOR® Series 70 safety watch and control systems.

1. Earlier warning. Engine sensors are reliably accurate, detecting **real** trouble promptly to prevent damage and downtime.

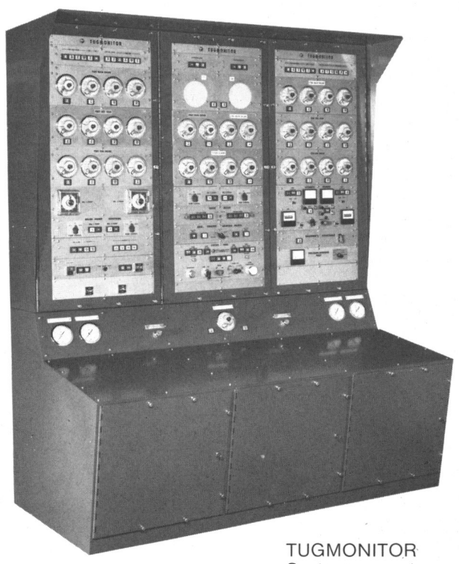
2. No false alarms. Here's why:

- Normal variations are discarded by Time Average Monitoring which looks only at the operating average.
- Normal conditions such as engine start-stop do not cause false alarms because alarm circuits have delayed speed-actuated arming.

3. No "lost" alarms. Any alarmed condition is locked on the control panel until manually reset, even though other conditions change. (Engine shutdown, for example.)

4. One location for all monitoring. One glance at the Central Information Control Panel tells where a problem is. Optional remote alarm or control stations may be placed where desired.

5. Engine protection at all speeds. That's because oil pressures and other criteria that regulate speed are monitored at different levels for high and low speeds—not just one level that provides low speed protection only.



TUGMONITOR System

6. Easy crew maintenance. A complete operational test of all electronics can be done from a single front panel switch. If a fault is detected, the panel is opened from the front and, in most cases, the repair is made by replacing a plug-in printed circuit board.

7. The system is self-policing. It continually checks itself for broken wires, P.C.B. failures and improper alarm arming.

8. Extended component life. This is assured by closely regulated power supply with a built-in, stand-by battery charger.

9. Fleet proven reliability. National Marine's fifty years of operating experience with engine functions goes into the TUGMONITOR system. Over 300 TUGMONITOR systems are operating now.

For lower cost than a custom-built system you get a superior quality, modular design system tailored to your vessel. As part of the modular concept you have a choice of several options ranging from automatic generator transfer to an engine room event logger. TUGMONITOR system offers proven protection for your crew, vessel and investment. Get more facts. Write us, or...we're just a phone call away. (314) 968-4770.

Reduced manning levels permitted with options of automatic and remote controls.
CERTIFIED MANNING LEVELS. Vessels subject to U. S. Coast Guard, American Bureau of Shipping and/or Canadian Board of Steamship Inspection manning regulations require specific monitoring and control functions to permit reduction of engine room manning levels. The TUGMONITOR building block design has been utilized to meet these requirements, even for unattended machinery spaces.

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Please send us more information about TUGMONITOR system.

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Firm _____
Address _____
City _____ State ____ Zip ____

Reynolds Announces $580-Million Upgrading For Sea-Land Service

R.J. Reynolds Industries, Inc., Winston-Salem, N.C., has announced a fleet modernization and globe-circling shipping program of approximately $580 million to strengthen the leadership position of its subsidiary, Sea-Land Service, Inc.

The two-year capital program calls for the construction of 12 energy-efficient, high-technology containerships to comprise the nucleus of a modern fleet circumnavigating the Northern Hemisphere (north of the equator).

The plan also includes expenditures for ship support equipment and upgrading shoreside facilities. Port and manpower resources currently exist to support the new service.

The program was announced by **J. Paul Sticht**, president and chief executive officer of Reynolds Industries, following a meeting of the corporation's board of directors.

Mr. Sticht said: "This program enables Sea-Land to replace some of its older vessels which are uneconomical to operate because of their age, speed and relatively low container capacity.

"At the same time," he added, "this new weekly round-the-world service gives Sea-Land the capability to maintain existing business along profitable trade routes, while providing growth opportunities in both existing and new markets."

The 12 containerships will have capacities of 838 forty-foot containers each, and will be powered by fuel-saving Sulzer diesel engines.

The new D-9-class vessels will have an overall length of 745 feet and service speeds of 22 knots. They will fly the U.S. flag and be manned by U.S. crews.

When placed in operation beginning in 1980, the new containerships will be second only in size to Sea-Land's 1,096-container SL-7s.

The new vessels will strengthen the competitive and financial positions of Sea-Land, which already is the world's largest privately owned, nonsubsidized containership operator. Sea-Land serves 138 ports in 52 countries and territories.

Sea-Land's prominence in international shipping will be extended further with the inauguration of the new round-the-world service, concurrent with the introduction of the new ships.

Although Sea-Land now provides worldwide services through its extensive network of shipping routes, transfers of containerized cargoes from ship-to-ship are required to complete the global chain.

It is currently planned that the new ships will be assigned to routes taking each of them around the Northern Hemisphere. The vessels are totally compatible with principal major trade lane needs.

The program announced emphasizes a commitment by Reynolds Industries to continually assess the deployment of Sea-Land's fleet, and to take positive action to maximize profitability.

After an evaluation of the company's services last year, Sea-Land solicited bids from several shipyards for construction of the new containerships. These bids still are being evaluated. The contracts are to be awarded soon.

The bid solicitations followed a series of moves by Sea-Land to achieve better utilization of its equipment and to improve its return on assets.

This emphasis on market expansion enabled Sea-Land to establish itself as the largest containership line operating in the Middle East. Services to this market recently were enhanced with the introduction of four 595-container-capacity, diesel-powered vessels specifically designed for this area.

Mr. **Sticht** said the company will continue to assess Sea-Land's operations to insure that maximum returns are realized.

"We believe that this new modernization program, coupled with the new round-the-world containership service, will go a long way in helping us attain our goals," Mr. **Sticht** said.

R.J. Reynolds Industries, a diversified worldwide corporation, is the parent company of R.J. Reynolds Tobacco Co.; Aminoil International, Inc. (energy); Sea-Land Service, Inc.; RJR Foods, Inc. (foods and beverages); and RJR Archer, Inc. (aluminum products and packaging); as well as R.J. Reynolds Tobacco International.

Canadian Port Group Names Allard President

Henri Allard, manager of the Port of Quebec, is the new president of the Canadian Port and Harbour Association.

Mr. Allard was elected at the association's annual meeting held September 10-13, 1978, in Ottawa, Ontario. He succeeds **Mowbray Alway** of the Hamilton Harbour Commissioners.

Gordon Mouland, Saint John, New Brunswick, was elected first vice president, and **Don Rawlins**, Nanaimo, British Columbia, second vice president.

Other members of the new board of directors are: **Ian C.R. Brown**, Toronto, Ontario; **Joseph Scott**, Prince Rupert, British Columbia; **Fred Lawton**, Transport Canada, Ottawa, Ontario; **Bill Selby**, Oshawa, Ontario; **Gerald Simmonds**, Halifax, Nova Scotia; **Lucien Morin**, Sept-Iles, Quebec, and Mr. **Alway**, past president.

Gary F. Reid, Port of Toronto, was reappointed as secretary-treasurer.

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Simple
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Clogproof
Minimum Maintenance
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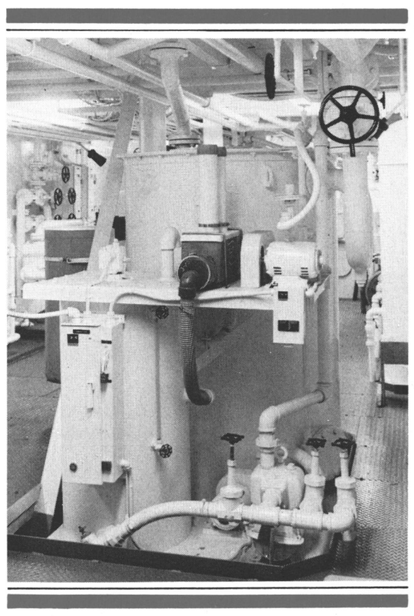
It Works.

FAST Marine Sewage Systems are built exclusively by St. Louis Ship, America's Largest Inland Shipbuilding and Repair Firm. FAST® stands for Fixed Activated Sludge Treatment, which is a patented biological process for removing impurities from sewage as required by law. FAST Systems are certified by the U.S. Coast Guard as Type II flow-through devices. They also meet U.S. Public Health Service and A.B.S. Requirements, and all known or anticipated marine standards worldwide. This unique system is extremely reliable and consistent in operation. It has been proven by continuous marine service since 1970. It cannot be clogged and operates without foul odors. Simple but rugged in design, there are no adjustments. It operates with minimum maintenance, low operating costs and produces superior effluent quality. Available three ways: modular, completely assembled or built into vessel tankage. Accommodates 3 to 3000 persons. The FAST System is also convertible to Type III No Discharge operation if desired.



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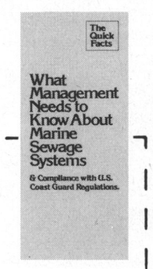
Write or call today for your copy of "What Management Needs to Know About Marine Sewage Systems, & Compliance with U.S. Coast Guard Regulations." Telephone (314) 638-4000. Telex 44-7224 ST L SHIP STL.



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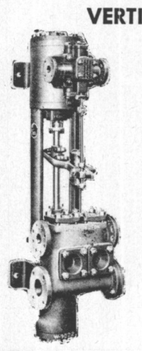
PUMPS

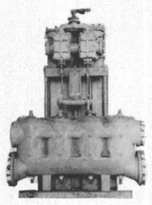
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



7½x4x10—3" suction—2" discharge—1¼" steam—1½" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

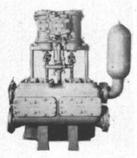
$795

WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



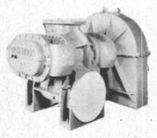
1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



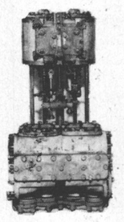
10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

WATEROUS CARGO PUMP



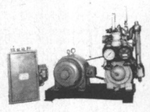
Model P1118 — 600 GPM @ 100 PSI @ 222 RPM — 8" suction — 8" discharge. Complete with input gear box. For diesel motor drive. Ex Y.O. & Y.W. vessels.

8" X 8" X 10" VERTICAL DUPLEX PUMP



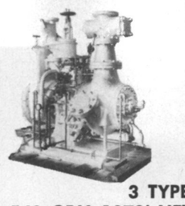
Hendy design Suction 8" — discharge 6" — 160 GPM @ 100 PSI.

100 C.F.M. @ 600 LB. DIESEL STARTING I.R. AIR COMPRESSOR



Ingersoll-Rand—bronze Navy air starting compressor and motor—4½x1½x3½ type 30—class T—600 lb. discharge pressure. For GM and O.P. Fairbanks engines. CAPACITY: 10 CFM @ 600 lbs.—with intercooler, aftercooler and relief valves. MOTOR: 7½ HP—440/3/60 — 1760 RPM — with magnetic starter. Total weight about 700 lbs. AOL 3' 6"—OAW 20"—OAH 3' 2". Completely overhauled. Can be demonstrated running.

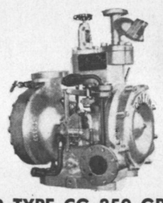
COFFIN FEED PUMPS — ALL SIZES —



TYPE DE

3 TYPE DE-2
540 GPM 1870' NET HEAD
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

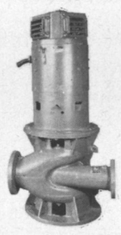
2 TYPE DE-B 214 GPM 2070' NET HEAD
7040 RPM — 241 HP. Steam pressure 597 PSI — superheat 100°-300°F. Typical serial No. DEB 1-25-37



TYPE CG

2 TYPE CG 350 GPM 1880' NET HEAD
7220 RPM—311 HP. Steam pressure 580 PSIG—0°-100° superheat. Exhaust 15 lbs—typical serial #5437-CG-8-8-33

• BALLAST PUMPS



Gardner-Denver — bronze — vertical — total suction lift 15' — 8" suction — 6" discharge — 1500 GPM @ 25 lbs — 1750 RPM. MOTOR: 30 HP — 230 VDC — 112 amps — made by Century.

• ANCHOR WINDLASS MOTORS

Vertical — 20 HP — 230 volts D.C.

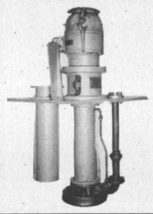
• RAMP WINCH MOTOR

20 H.P. gearhead deck ramp winch motor.

• MISCELLANEOUS

- Bronze Triplex Strainers
- Pneumatic Control Stands
- Combination Lube Oil & Fresh Water Pump for Reduction Gear
- 35000 CFM Fans

4 NEW UNUSED SUMP OR LOW PRESSURE DRAIN PUMPS



Bronze—40 GPM @ 40 PSI. 2" discharge—single impeller—CW rotation—32" from deck plate to base. Complete with flotation equipment. Totally enclosed 5HP 440/3/60 1725 RPM motor. Repair parts for motor & pump included.

$2750 EACH

500 GPM BRONZE BUFFALO PUMP

500 GPM @ 100 lb head. Mfg by Buffalo Pump. 5" Suction—4" discharge. MOTOR: 30 HP—240 volts DC—105 amps—1750 RPM. Equal-to-new condition.

LIDGERWOOD STEAM CAPSTAN

8 X 8—125 lb. working pressure. Reversible.

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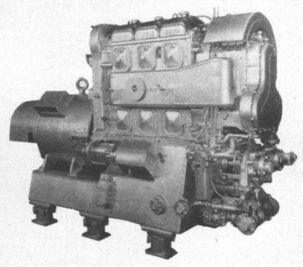
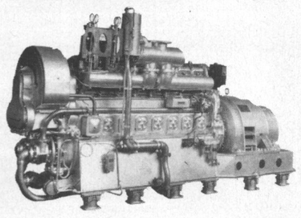
Our Marine Dept. & Warehouse is n
250 Scott St. at McHenry — Baltimo

G. M. 3-268A 100 KW A.C. DIESEL GENERATOR SETS



ENGINE: GM 3-268A—6½x7—1200 RPM—80% power factor—electric starting. GENERATOR: 100 KW—440/3/60/1200 RPM—161 amps. Dripproof—open—self-ventilated. (Class "A" insulation stator—Class "B" insulation on field). EXCITATION: 2 KW DC unit—9' 1¾" long—37" wide.

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



ENGINE: 8-268A—6½" bore—7" stroke—1200 RPM—driving Westinghouse generator—200 KW—440 volts—3-phase—60 cycle—321 amps—80% power factor at 1200 RPM. Switchgear available.

NEW MARINE HATCHES

Steel galvanized — 30" X 48" — test pressure 5 PSI — 8" coaming — closure is bolt & lug type.

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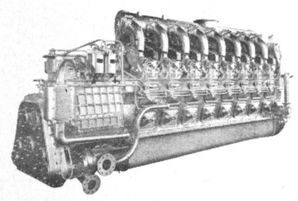
G.M. 16-278A 1700 H.P. DIESEL ENGINES

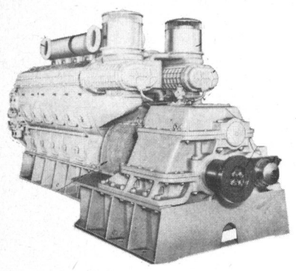


Limited supply remaining

Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

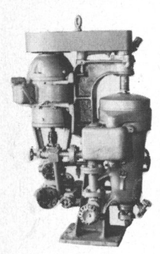
MATCHED PAIR 900 H.P. G.M. 12-567A DIESEL ENGINES

with Falk reverse and reduction gears



ENGINE: 12-567A — 8½x10 — VEE type — 2-cycle — 747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse and reduction—2.48:1 forward—2.52:1 reverse.

SHARPLES OIL PURIFIER



Ex U.S.N.—reconditioned—ready to go. Complete with motor starter & pump. For lube or fuel oil. 225 GPH — viscosity 45, SSU @ 100°F fuel oil. 225 GPH—viscosity 180-200 SSU—130° lube oil. For lube oil models M-85-34-5-23BM-44 — for fuel oil M-85-35-5-8CA-13. Bowl speed 17,000 RPM—1" oil inlet & outlet. Vertical 2 HP 440/4/3400 RPM motor. Many units with stainless steel bowls.

$1650 EACH

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T-2 EQUIPMENT

Selected Items Listed

UNUSED G.E. MAIN PROPULSION STATOR

Type ATB-2 — serial No. 6978272. 2300/2370 volts — 60/62 cycles — 3 phase — 3600/3720 RPM — amps armature 1237/1315 — 4925/5400 KW — 1.0 P.F.

T-2 UNUSED G.E. MAIN PROPULSION STEAM TURBINE WITH ROTOR

10 Stage — 435# — 720°T.T.
Turbine complete with rotor — serial No. 109166 — 4925/5400 KW — 3600/3720 RPM — 10-stage — 435# — 720°TT — 28.5" VAC.

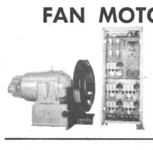
WESTINGHOUSE MAIN PROPULSION STEAM TURBINES

1 unit shrouded
WILL SELL ROTOR SEPARATELY

WESTINGHOUSE MAIN PROPULSION GENERATOR STATOR

From Ex-Pecos — in like-new condition. With A.B.S.

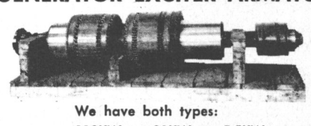
5-SPEED FORCED DRAFT FAN MOTOR WITH IMPELLER



For T-2 Tanker. MOTOR: Totally enclosed—frame 505-S—440/3/60—1770 RPM—typical serial #673-1807. CONTROLLER: 50 HP—CR-5333-820 — Cat. 932-1485. Max. amps 60.

WESTINGHOUSE 538KW TURBINE ROTORS

WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE



We have both types:
110KW — 32KW — 5.5KW
110KW — 28KW — 5.5KW

SPECIAL OFFER

T-2 AUXILIARY GENERATOR ROTORS

G.E. AUX. TURBINE ROTORS DORV-325M — 5645 RPM

For G.E. 525 KW TURBO GENERATOR SETS

Very little use. In like-new condition. Balanced, and with A.B.S. Certificate.

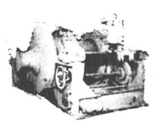
STATIONARY BLADING AVAILABLE

COMPLETE WESTINGHOUSE 538 KW TURBO GENERATORS

Complete steam end, reduction gear, electrical end. Some units recently overhauled for U.S. Government.

NEW STYLE AMPLIDYNES

100,000 lb. Almon Johnson Constant Tension Mooring Winches

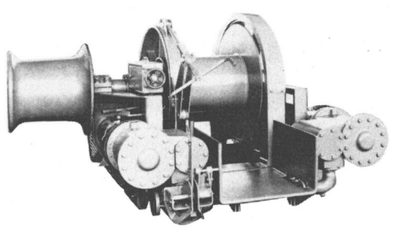


1 Available. In very good condition. Series 232 mooring & anchoring winches — automatic self-tensioning. Wide range from 100,000 lb line pull at 10 FPM to 26,000 lbs at 400 FPM. Gypsy line pull 12,000 lbs at 125 FPM. Drum declutchable through spiral jaw clutch for free spooling.

Driven by 50 HP — 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab. shunt — 181 amps — max. RPM 1900. Cutler-Hammer brake — 18" — type NM.

STEAM MOORING WINCHES

12" x 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head



CAPACITY: 20,000 lbs at 100 F.P.M. — first layer; 16,000 lbs at 150 F.P.M. Drum will show 1500 feet of 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg. by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger"

ALSO IN STOCK
12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

2-POLE MOORING BITTS

Large fabricated size 20" poles—57" centers. Base 80" long X 24" high X 25½" high. ALSO 14" — 12" — 10" bitts.

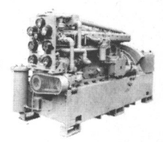
BULKWORK CHOCKS

2 Roller and 3 roller closed chocks

VERTICAL DEEP WELL PUMP

750 GPM. All bronze. 333' Total dynamic head radial flow — 6-stage — single suction — CCW rotation. Mfg. by Peerless—model 12LA—84.4 HP. Without motor, but with control panel.

100 KW GBD-8 DIESEL GENS.



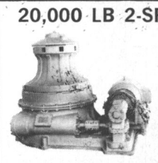
From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM —Delco gen.—self-excited. ENGINE: Superior GBD-8 — 8 cyl — 5½x7 — 150 HP — 30 volt electric starting. Reconditioned to ABS. Dry wt 10,000 lbs — DAL 124" — 65-11/16" high — 42" wide. Ht necessary to pull piston 68". Fuel consumption 0.620 lbs/hr

IMMEDIATE DELIVERY

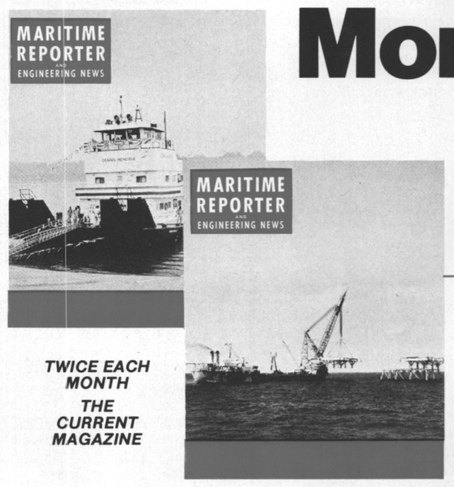
2 3/4" STUD LINK CHAIN

10 Shots — with connecting links. ABS certificate. Practically New

20,000 LB 2-SPEED ELECTRIC CAPSTAN



20 H.P. 440/3/60 motor — magnetic brake and controller. 20,000 lbs at 40 F.P.M. Diameter center of barrel 20" — OAH 54" — OAL 70" OAW 70".



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MARITIME REPORTER AND ENGINEERING NEWS

CONVERSION FOR THE CONVERTED AT HUD—Converted livestock carrier Al-Khaleej, formerly the reefer vessel White Ocean, arrived recently for a second conversion at the Whampoa Yard of Hongkong United Dockyards Ltd. (HUD). During the conversion, the 8,883-dwt carrier will be lengthened considerably from 142 meters (approximately 466 feet) to 160 meters (about 525 feet), to accommodate more livestock onboard. The Al-Khaleej shown above went through its first conversion at HUD in 1975, when additional steel decks were introduced and sheep pens were fabricated and installed. In addition, a whole new freshwater piping system for the livestock was built, and the drainage system enlarged. A high-capacity ventilation system was also supplied and installed. The Al-Khaleej will be docked at Kowloon Yard until early next month, by which time the second conversion will be completed.

Hitachi Zosen Asaka Works (Sakai) Delivers Ro/Ro Carrier Dana Maxima

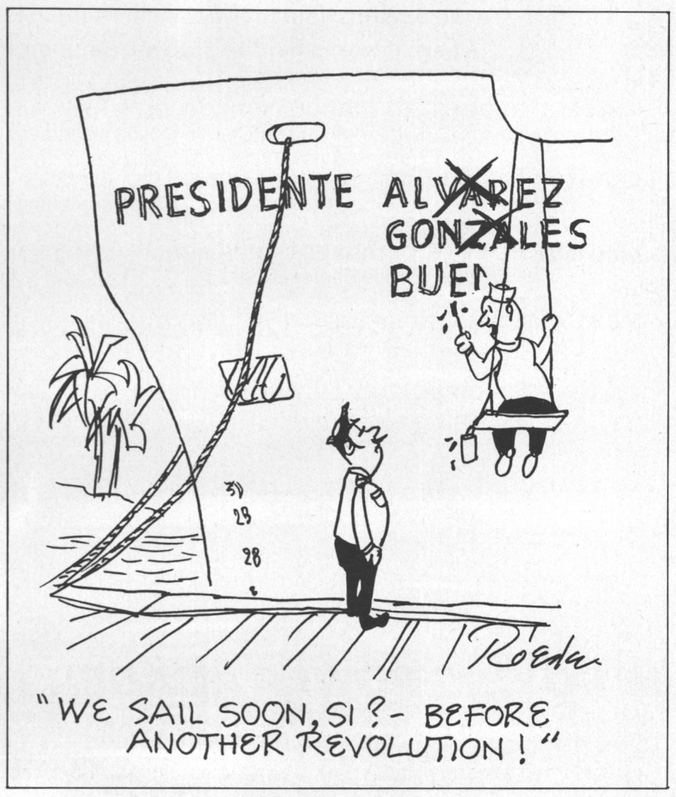
The twin-screw Dana Maxima, powered by a pair of Niigata-S.E.M.T. Pielstick diesel engines, had a trial speed of 20.154 knots.

The 6,552-dwt roll-on/roll-off type cargo carrier Dana Maxima was delivered to her owner, DFDS A/S of Denmark, on August 18, 1978. It was constructed at the Osaka Works (Sakai) of Hitachi Zosen.

The ship has four trailer decks as well as a rampway at the stern to allow trailers and automobiles to drive into the ship. For stowing purposes, 50- and 70-ton lifts are utilized. Also, a lift-on/lift-off system is available which utilizes a 10-ton self-traveling gantry crane to move containers to the upper deck areas.

It is a twin-shaft, twin-screw motor-driven ship with controllable-pitch propellers and with bow thrusters to improve propulsion efficiency and maneuverability. Also, it has fin stabilizers to prevent rolling. It was placed in service between Denmark and the United Kingdom.

The specifications of the Dana Maxima are: length overall, 141.50 meters (about 464 feet); molded breadth, 20.40 meters (about 67 feet); molded depth, 6.80 meters (lower trailer deck) (approximately 22 feet); gross tonnage, 4,927.75 (13,959.63 cubic meters). She is powered by a pair of Niigata-S.E.M.T. Pielstick 14PC2-5V type diesel engines with a maximum output of 7,800 hp x 2 (5,737 kw x 2), producing a trial speed (maximum) of 20.154 knots. Classification is LR.

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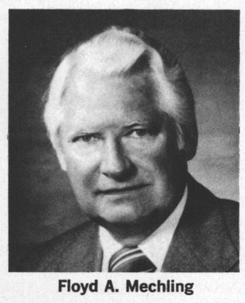
Floyd Mechling Retires From Union Mechling

Floyd A. (Bud) Mechling has retired as chairman of the board of Union Mechling Corp. He will continue to serve as a director of the Pittsburgh, Pa.-based barge line until May of next year, and will serve as a transportation consultant to Dravo Corporation, Union Mechling's parent company.

Prior to being named chairman in 1977, Mr. **Mechling** served as president of the Dravo subsidiary for three years. Union Mechling, the nation's third largest common carrier barge line, was formed in 1973 when Dravo acquired A.L. Mechling Barge Lines, Inc. and merged the organization with Union Barge Line, already a Dravo subsidiary.

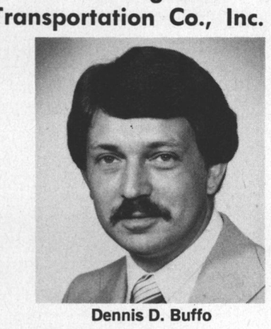
The executive's retirement concludes an active career of more than 40 years. Beginning as a deckhand in his father's business, he became one of the barge industry's most respected executives and leaders. A frequent speaker at transportation forums, he has held various offices for every major industry or industry-related association. He was a founding member of the American Waterways Operators, Inc., and served as a member of the board of directors and was chairman of the organization for one year.



Floyd A. Mechling

Beginning his career in 1937 as a deckhand, Mr. **Mechling** was familiar with all aspects of waterways commerce. His contributions to increasing the capacity and improving the efficiency of river transportation are numerous. He also is a leader in association activities involving the industry. He was instrumental in the establishment of the National River Academy in Helena, Ark., and served as chairman of the institution for the first five years of its existence. He is also a frequent representative of the industry in its relations with Congress and various regulatory agencies. He was active in the development of a study that led to the 1973 change in the barge mixing rule by the Interstate Commerce Commission. Mr. **Mechling's** affiliations with leading transportation industry organizations will continue during his retirement.

Dennis Buffo Joins Sabine Towing And Transportation Co., Inc.



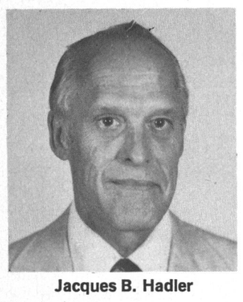
Dennis D. Buffo

Dennis D. Buffo has joined Sabine Towing & Transportation Co., Inc. as assistant marine supperintendent. In this capacity, he will assist **O.J. Hartman Jr.,** vice president-Tanker Operation, charged with the responsibility of maintenance and repair of the company's nine tankers and new construction.

Mr. **Buffo** is a graduate of the Merchant Marine Academy, Kings Point, N.Y., holds a 3rd assistant engineer's license and a commission as lieutenant (jg) in the U.S. Naval Reserve.

He has worked for Bethlehem Steel Shipyard in Baltimore, Md., as ship superintendent, and with Texaco as marine representative.

Jacques B. Hadler To Direct Research Activities At Webb



Jacques B. Hadler

Webb Institute of Naval Architecture has announced the appointment of **Jacques B. Hadler** as director of Webb's Center for Maritime Studies. In this capacity, he will direct the research activities of Webb Institute. He will join the staff immediately on a part-time basis and assume full responsibilities upon retirement of Prof. **Edward V. Lewis** on December 31.

A graduate of the U.S. Naval Academy, with his Master of Science degree from Massachusetts Institute of Technology, Mr. **Hadler** has had 31 years' experience at the David W. Taylor Naval Ship Research and Development Center in Carderock, Md. There, he conducted and directed research in the fields of ship resistance, propulsion, marine propellers, vibrations, seakeeping, maneuvering and conceptual ship design. He is the author of numerous technical reports and papers published by The Society of Naval Architects and Marine Engineers, Naval Hydrodynamics Proceedings, International Towing Tank Conference, American Towing Tank Conference, and the Royal Institution of Naval Architects. In addition to memberships and committee activities with those groups, he is also a member of The Society of Naval Architects of Japan, the honorary research society Sigma Xi, and is a registered professional engineer.

The Center for Maritime Studies has recently announced improved research capabilities in the Robinson Model Basin. A PDP-11/05 computer with ancillary equipment has been installed in a new instrument room to record variable tank test data expeditiously and accurately in digital form, and in the case of tests in irregular waves, to make spectral analyses of wave and response records. The wavemaker, of the oscillating plunger type with hydraulic drive, has controls that permit any desired wave spectrum to be simulated. Hence, the facility is ideal for quick, inexpensive studies of loads, motions, forces, accelerations, etc., acting on small models of ships, floating objects or fixed structures. Other facilities include a circulating flow channel, a small structures laboratory, and both in-house and time-shared computer facilities. An oscillating table for tank sloshing tests is under construction.

Members of the Webb faculty assisting Mr. **Hadler** in the Center for Maritime Studies are: **Norman A. Hamlin,** Professor of Naval Architecture; **Lawrence W. Ward,** Professor of Engineering (Hydrodynamics); **Martin Goldberg,** Professor of Engineering (Structures); **Jens T. Holm,** Professor of Marine Engineering; **Alan Rowen,** Associate Professor of Marine Engineering; and **Bruce H. Stephan,** Professor of Mathematics. **Robert B. Zubaly,** Professor of Naval Architecture at SUNY Maritime College, is a regular part-time Research Associate. **Robert B. Marshall** is a part-time Research Associate in Shipping Economics, and **D.M. Mack-Forlist** is a consultant in Shipbuilding Management.

Prof. **Edward V. Lewis,** who has served as director of research since 1961, has accepted a nine-month appointment at the U.S. Naval Academy as the NAVSEA Research Professor, Naval Systems Engineering Department. It is planned that Professor **Lewis** will continue to participate in the research activities as a consultant to the Center for Maritime Studies.

AWO Elects James Potter —Industry Issues Examined At Board Meeting In Tulsa

The AWO board of directors, at their fall quarterly meeting in Tulsa, Okla., on September 13-14, elected **James B. Potter Jr.** as the Association's fourth president in its 34-year history. Mr. **Potter,** prior to his election as AWO's chief executive, was a self-employed businessman in Leesburg, Va.

The new president comes to AWO with broad experience in association management, having served as president of the Motorcycle Industry Council, Inc., and membership participation in various Washington, D.C.-based associations. Mr. **Potter** also served as a two-term member of the Los Angeles, Calif., City Council from 1963 to 1971.

A native of Buffalo, Mo., Mr. **Potter** graduated from the University of Missouri with a degree in personnel and industrial management, following service with the U.S. Air Force in Korea.

Board chairman **Ralph W. Hooper** said: "Mr. **Potter's** breadth of experience in association management and as an elected official will add new dimensions to the service programs of AWO as well as to its effectiveness in addressing the many complex issues now facing the industry."

Other meeting highlights included a report on the "State of the Association," by board chairman **Ralph W. Hooper.** Shipyard Committee chairman **John F. McKay** made a report on membership growth, and efforts made to amend the Longshoremen's Act and the dangers of S.3060, the National Workers' Compensation Standards Act, which is modeled after the Longshoremen's Act. Mr. **McKay** also expressed the hope that the Shipyard Committee would receive a planning grant from OSHA to explore the establishment of an industry-wide training program for shipyard employees.

Thomas L. Gladders, chairman of a Special Operations Task Force, made a report on his committee's preliminary recommendations with respect to proposed operational and structural modifications to the current AWO organization. Budget and Finance Committee chairman **Peter J. Brix** reported that the budget was generally on target and that his committee would soon begin preparations for the 1979 budget. Membership Committee chairman **Harold A. Reinauer** advised that recent activity in the area of membership development had produced significant results. He said AWO's membership programs were being used effectively in most AWO Regions and appealed to the board for additional support in this area. Coast Guard Liaison Committee chairman **Charles F. Lehman** commented on the meeting of his committee in Arlington, Va., on August 22, 1978, and reported that five subcommittees had been established to assist in addressing the growing list of committee and industry concerns. Corps of Engineers Liaison Committee chairman **Thomas L. Gladders** noted that the AWO Corps of Engineers Liaison Committee met in Jackson, Miss., on August 11, 1978, and that in his absence, vice chairman **George L. Grunthaner** chaired the meeting. Of particular interest at the meeting was Section 404(T) of the 1977 Clean Water Act, identifying separable costs and benefits in navigation projects and a three-year com-

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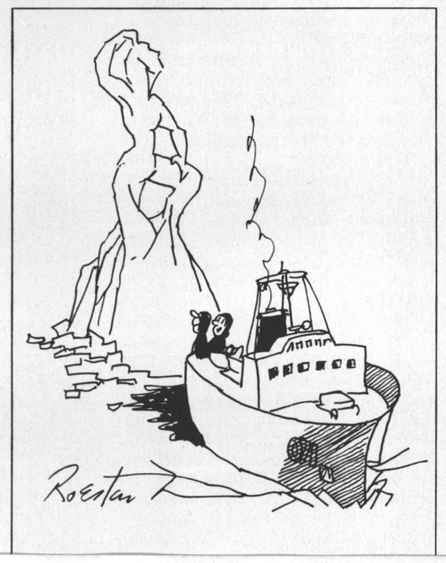
In the absence of IMCO Committee chairman Capt. **Ivan Ashby,** board chairman **Ralph Hooper** gave a report on the International Conference on the Training and Certification of Seafarers, held in London, June 14 through July 7, 1978. Safety Committee chairman **Jack S. Thornhill** reported on the meeting of his committee held in St. Louis, Mo., on August 25. He said the committee considered reflective material for use on barges, problems associated with pleasure boaters operating in close proximity to tows, and a draft of a towing safety guide. Public Affairs Committee chairman Capt. **Robert Gardner** reported that a slide presentation was in the final editing stage for a premier showing at the December board meeting, reviewed the outcome of the New Orleans media tour and discussed plans for an upcoming media tour in Philadelphia, Pa., reported on the speakers training seminar held in Memphis, Tenn., on September 27 and 28, and sought input from the board and members for the 1979 AWO public affairs program.

Reports on special committee activities included comments from **Robert Scatterday** in connection with a new office in the Department of Transportation, responsible for maritime affairs. Also, **W.A. Creelman** reported that a research committee is now being formed and that candidates to serve on the committee had been identified. Following reports from the regional vice chairmen, board chairman **Ralph Hooper** expressed the appreciation of the board to Col. **Harley W. Ladd,** USA (ret.), Port Director, Port of Catoosa, for hosting a tour of that port's facilities and to the Bank of Oklahoma for hosting an evening reception.



Shipping Executives To Review Maritime Policy At Oakland Conference

Shipping industry leaders will gather at the rim of the Pacific

land International Transportation Conference Oct. 25 and 26.

The dialogue will involve analysis from a broad range of perspectives of market opportunities in world commerce, practical

alogue sessions will include California Congressman **Robert L. Leggett** (Dem.-4th District), an outspoken member of the House Committee on Merchant Marine & Fisheries; **Charles I. Hiltz-**

House, Boston, Mass., noted consultant on international transportation and trade. A fourth major speaker is still to be announced.

Panelists outlining market opportunities during the first day's

An oscillating table for tank sloshing tests is under construction.

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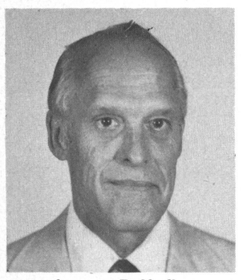

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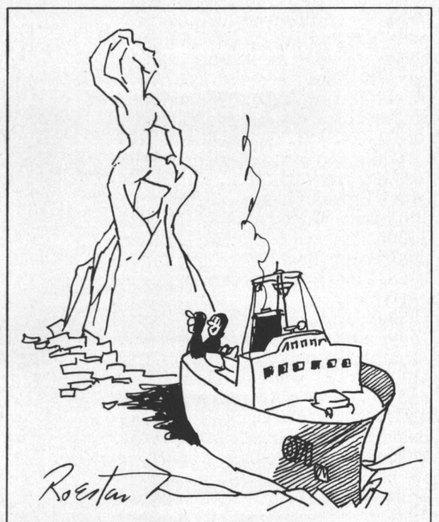
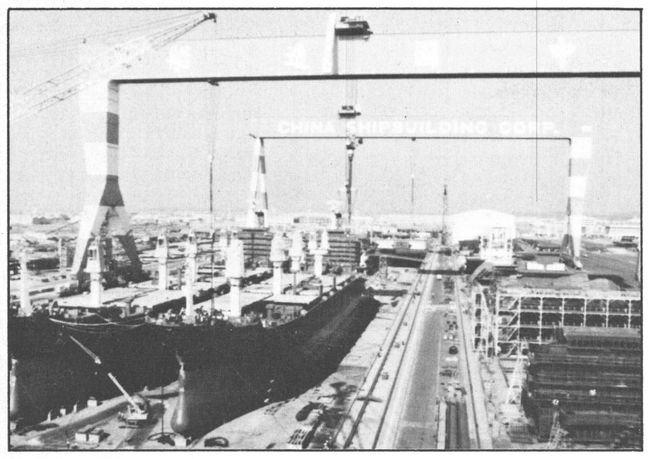
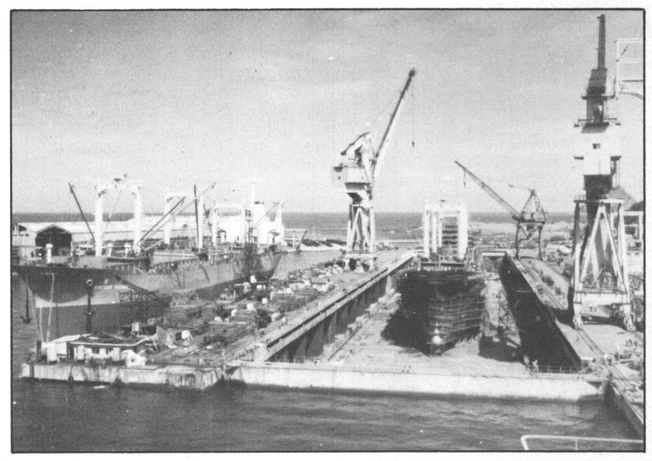
In the absence of IMCO Committee chairman Capt. **Ivan Ashby,** board chairman **Ralph Hooper** gave a report on the International Conference on the Training and Certification of Seafarers, held in London, June 14 through July 7, 1978. Safety Committee chairman **Jack S. Thornhill** reported on the meeting of his committee held in St. Louis, Mo., on August 25. He said the committee considered reflective material for use on barges, problems associated with pleasure boaters operating in close proximity to tows, and a draft of a towing safety guide. Public Affairs Committee chairman Capt. **Robert Gardner** reported that a slide presentation was in the final editing stage for a premier showing at the December board meeting, reviewed the outcome of the New Orleans media tour and discussed plans for an upcoming media tour in Philadelphia, Pa., reported on the speakers training seminar held in Memphis, Tenn., on September 27 and 28, and sought input from the board and members for the 1979 AWO public affairs program.

Reports on special committee activities included comments from **Robert Scatterday** in connection with a new office in the Department of Transportation, responsible for maritime affairs. Also, **W.A. Creelman** reported that a research committee is now being formed and that candidates to serve on the committee had been identified. Following reports from the regional vice chairmen, board chairman **Ralph Hooper** expressed the appreciation of the board to Col. **Harley W. Ladd,** USA (ret.), Port Director, Port of Catoosa, for hosting a tour of that port's facilities and to the Bank of Oklahoma for hosting an evening reception.







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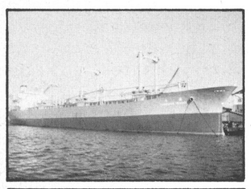

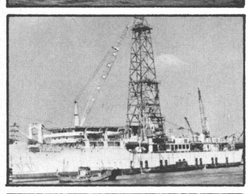

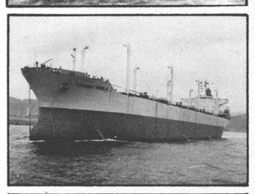

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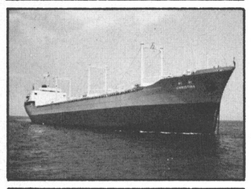

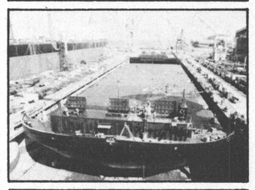

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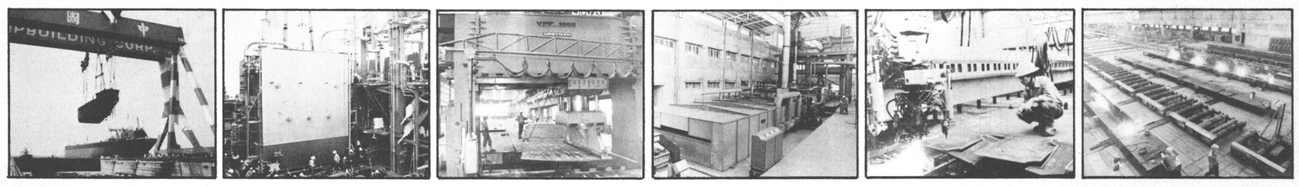

Shipping Executives To Review Maritime Policy At Oakland Conference

Shipping industry leaders will gather at the rim of the Pacific Basin late this month to outline their views on the shape of a progressive national maritime policy at the 3rd Annual Port of Oakland International Transportation Conference Oct. 25 and 26.

The dialogue will involve analysis from a broad range of perspectives of market opportunities in world commerce, practical problems in international cargo movement, and needed changes in U.S. shipping policy.

Keynote speakers during the two-day panel and participant dialogue sessions will include California Congressman **Robert L. Leggett** (Dem.-4th District), an outspoken member of the House Committee on Merchant Marine & Fisheries; **Charles I. Hiltzheimer,** board chairman of Sea-Land Service, Inc., operator of the world's largest intermodal containership fleet; and **Charles D. Baker,** president of Harbridge House, Boston, Mass., noted consultant on international transportation and trade. A fourth major speaker is still to be announced.

Panelists outlining market opportunities during the first day's afternoon session—with emphasis on trans-Pacific trade, now America's most important overseas crossroads—will be **Richard C. King,** director, Office of International Trade, State of California, Los Angeles; **Paul O'Leary,** vice president, Connell Bros., San Francisco; **Hugo Steensma,** group vice president, Bank of America, San Francisco; **Robert Gomperts,** president, Nordisk, Andelforbund Calif., Inc., San Francisco, will act as moderator.

Discussing the problems faced by shippers and carriers in actual movement of commerce during the second day's activities will be **Milan V. Fabry,** traffic manager, Sears Roebuck & Company, Chicago, Ill.; **Jack Scally,** traffic manager, General Electric Int'l, New York, N.Y.; **Lawrence Cena,** president, Santa Fe Railway, Chicago; **William B. Hubbard,** vice president, American President Lines, Oakland, Calif., in a panel moderated by **Ray Velez,** chairman, Pacific Coast European Conference, San Francisco.

The afternoon session will include a panel discussion entitled "Necessary Changes in National Shipping Policy." Panel participants are the Chairman of the Federal Maritime Commission, **Richard J. Daschbach; Ernest J. Corrado,** Chief Counsel of the Committee on Merchant Marine & Fisheries of the U.S. House of Representatives; **Frank S. Merwin,** vice president, American Smelting and Refining; **Y. Yamanaka,** managing director of N.Y.K. Line in Tokyo, Japan. Moderator of this panel will be **Richard K. Bank,** Director, Office of Maritime Affairs, U.S. Department of State, Washington, D.C.

The 1978 Port of Oakland International Transportation Conference is co-sponsored by the Oakland Chamber of Commerce, the Oakland World Trade Association, The Propeller Club of the Golden Gate, the San Francisco Customs Brokers and Freight Forwarders Association, the Marine Exchange of the San Francisco Bay Region, the National Defense Transportation Association, and the Pacific Traffic Association.

Assisting the chairman, **Robert W. Crandall,** as vice chairmen of the conference are **William Wagstaffe,** general traffic manager, Del Monte Corporation; **Raymond Velez,** chairman of the Pacific Coast European Conference; **Stanley P. Hebert,** attorney for the Port of Oakland, **Richard K. Bank,** Director, Office of Maritime Affairs, United States Department of State, and **Marvin B. Garrett,** Port of Oakland.

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Kubota To Stockpile Anti-Corrosive Pipe In Texas Facility

Kubota, Ltd. is initiating the first stage of its U.S. marketing program for KCP cargo oil pipe with the establishment of stockpiles at Coastal Marine Service, Port Arthur, Texas.

Initial inventory of the corrosive resistant centrifugally cast pipe was delivered in late September and included four sizes of straight pipe, all based on ASTM standards. Dresser couplings developed by Kubota will also be stocked. Coastal Marine will provide all welding and installation services.

While initial sizes will be limited to 6-inch, 8-inch, 10-inch and 12-inch-diameter pipe, additional sizes and shapes will be added, "depending on demand," according to a company spokesman. The company intends to add fittings, such as elbows, based on ISO and JIS standards, "if the market requires it."

In making the announcement, Kubota America Corp., New York, N.Y., also disclosed that The Jover Corporation, Park Ridge, N.J., was retained as a consulting representative in connection with marketing KCP and other marine pipe.

The Texas facility, the first such stockpiling program for the KCP pipe outside Japan, was initiated as a result of "substantial interest from various American oil companies," according to a Kubota America spokesman.

The KCP series has been installed in almost 500 Japanese-built tankers in the past 20 years—95 percent of those built by Japanese shipowners. Since 1975, Kubota has marketed the product as a replacement for conventional pipe. More than 30 vessels thus far have had KCP installed at various facilities in Europe, Africa and Asia. To date, however, no replacement work had been done in the U.S., a Kubota spokesman noted.

Kubota sees the primary market as U.S. flagships owned by American companies. Other markets include international vessels, offshore installations by Coastal Marine, and direct sales to vessels for installation performed by the crew or inventory.

Kubota developed the Dresser couplings with the same material as the piping in order to eliminate corrosion from galvanic action. "One of the biggest problems in cargo oil lines has been galvanic action, and we believe we solved the problem through this development," a spokesman added.

The Idemitsu Maru, a 210,000-dwt, used KCP-3L as original piping in 1966, and no replacement has thus far been required.

Kubota, one of Japan's largest metalworking enterprises with annual sales at almost $2 billion, maintains major offices in Tokyo and Osaka.

Kubota America Corp.'s offices are located at 375 Park Avenue, New York, N.Y. 10022, and at 523 West Sixth Street, Los Angeles, Calif. 90014.

Coastal Marine is located at 11th & Houston Avenue, Port Arthur, Texas 77640, and The Jover Corporation's address is P.O. Box 386, Park Ridge, N.J. 07656.

Frank Tencza Joins Soros Associates

Frank J. Tencza has joined Soros Associates, consulting engineers, as a vice president.

Mr. **Tencza** has over 30 years' experience in the engineering and management of bulk materials handling projects for the steel, power, mining and other major industries. Starting as a designer, he became project manager, chief engineer and eventually manager of operations of Robins Engineers, a division of Litton Industries.

Since 1975, Mr. **Tencza** has been with Stone and Webster Engineering Corporation, Process Industries Group, New York. As manager, Projects Division, he was responsible for the project management of all major contracts and the start-up/operating section through a staff of project directors and managers.

Soros Associates, 575 Lexington Avenue, New York, N.Y. 10022, is an international engineering firm specializing in the planning, design and construction management of port developments, offshore terminals and bulk handling systems.

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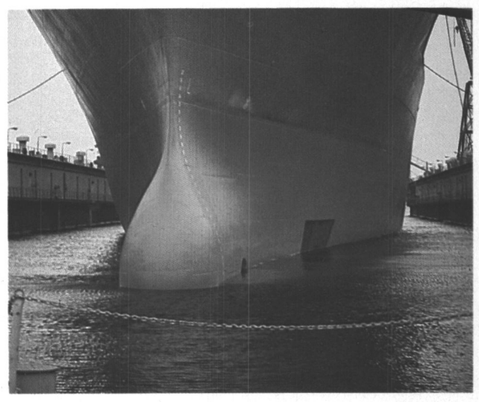
MAUI: dark area – Cathodic Protection Dielectric shield; green – first coat of SPC; blue – second coat of SPC.



MAUI: ready for sea with 4 coats of SPC.

Matson's new 720′, 38,700 ton maximum displacement container vessel, MAUI, has been coated with SPC self-polishing copolymer by Maryland Shipbuilding and Drydock. Built by Bath Iron Works, MAUI went through fitting out period with only an anti-corrosive coating below the waterline. Prior to receiving 4 coats of SPC the only surface preparation required was a high pressure water wash.

SPC self-polishing copolymer antifouling bottom paint is a revolutionary coating patented by International Paint Company. The unique chemical combination of biocide and vehicle allows the water turbulence to polish SPC's surface as the ship passes through the water. Not only does the hull remain clean but the progressive smoothing of the underwater hull results in significant operational savings.

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Investment In Tankers: The Case For Optimism

Lloyd's List for September 12, 1978, reported that two 1971-72, 255,000-dwt VLCCs had recently changed hands for some $7 million each. This was somewhat lower than the price level ruling during the first half of 1978, when the average secondhand price for a VLCC was about $38.5 per dwt or, say, about $9.5 million for a 250,000-dwt ship (which compares with an estimated scrap value of some $3.4 million and a 1974 newbuilding price in the $40-45 million range). Indeed, it appears that ships traded in the sale and purchase market during 1978 have tended to change hands for significantly less than their ex-yard prices when new. Beyond doubt, the capital values of both new and secondhand tankers are presently very depressed both in relation to historical price levels and, in the case of secondhand tonnage, to the underlying real costs of ship construction. This observation prompts the following questions:

(1) Why is the market so low (what are the determinants of tanker prices)?

(2) Are tankers a good investment at present price levels?

(3) How long is the market likely to remain depressed?

(4) Are there any differences between the investment potential of the various types and sizes of tanker?

"INVESTMENT IN TANKERS: THE CASE FOR OPTIMISM," the most recent survey by the Research Division of H.P. Drewry (Shipping Consultants) Limited sets out to answer these questions.

A detailed analysis of the determinants of tanker prices leads to the conclusion that three factors are contributing to low tanker prices.

(1) The very low levels of freight rates, particularly for large ships, that have prevailed since late 1973.

(2) Remarkably gloomy expectations regarding future earnings from tankers.

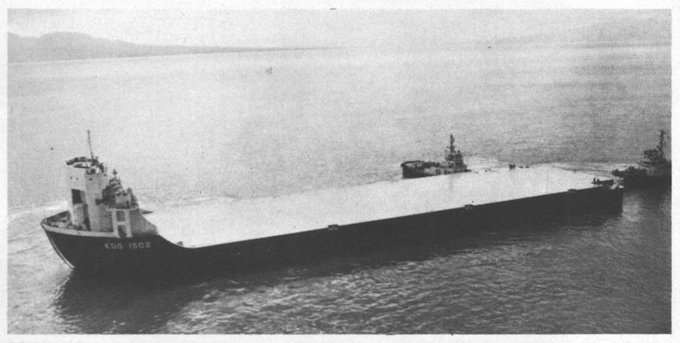
(3) A general lack of finance for the purchase of tankers.

Examination of the behavior of tanker prices over past tanker market cycles leads to the conclusion that, in broad terms, the trading of ships on capital account appears to have been more profitable than the long-term operation of tonnage and that, given judicious timing, large tankers have tended to provide the greatest scope for absolute capital gains. However, it now appears that the tenuous link between past and future secondhand price trends has been severed, and forecasts based on a mere repetition of the increases in prices (expressed in percentage terms) witnessed in the past would seem based on an invalid methodology.

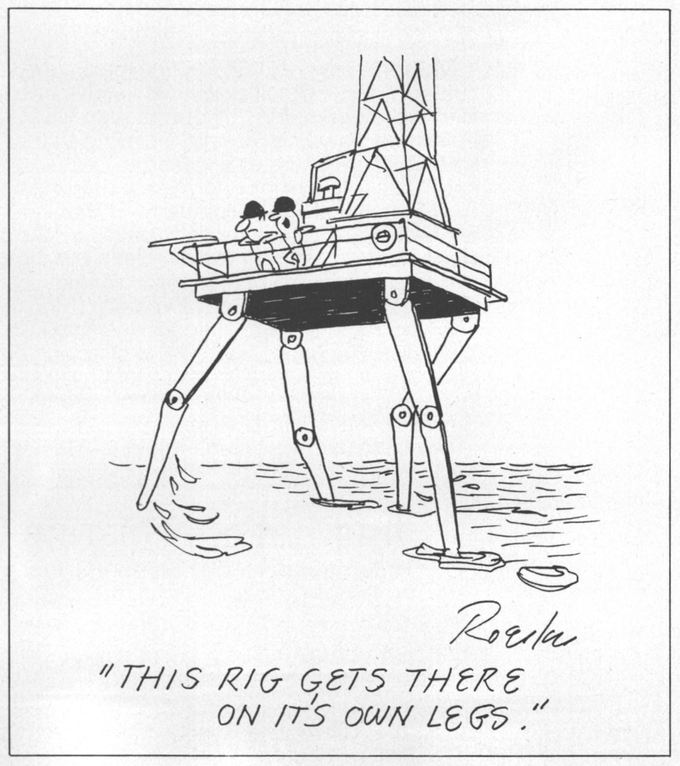
From the example then of potential capital gains developed in the report, it appears that supply and demand in the tanker market regain an approximate balance, there will be a demand for newbuilding tonnage, and that this tonnage will cost the shipowner more than an equivalent ship bought at the depressed capital values prevailing during mid-1978. It follows that when the newbuilding once again becomes the marginal ship which sets the level of tanker rates, the NPV of earnings from a ship bought today will be considerably greater than the purchase price of this ship, i.e., that a capital gain will have been made. From the examples given, it appears that the potential for profit arising from buying tankers today for resale when the market recovers is considerable. However, the timing of the market recovery is critically important in determining the magnitude of any likely gain (even to whether a gain can be made at all).

An in-depth investigation of the likely date of tanker market recovery (by size category) suggests that overall equilibrium should be seen early in 1984, and leads to the overall conclusion of the report—that secondhand tankers at the prices ruling during mid-1978 are a sound investment, with ships in the VLCC and ULCC categories seeming to offer particularly attractive investment opportunities, with spectacular profitability being indicated for cheap VLCC tonnage. Newbuildings are not generally attractive—the risk of loss if market recovery is delayed is too great. As shown by the examples, the profits made by an investment in tankers are related directly to the timing of market recovery—the earlier the better. With a delayed market recovery, the profits arising from tanker investment tend to fall, but the sizes of tanker offering the best potential do not alter. Thus, small ships, except in the case of newbuildings, do not appear likely to offer good investment prospects; the range 40-175,000 dwt offers particular analytical problems, but the ships taken to be representative of this size range do not come out of the comparisons particularly well. However, it may be that this size range, especially the smaller ships in the range, up to perhaps 85,000 dwt, may enjoy particular advantages in the market place prior to 1982, the year at which the calculations used in the report commence—the capital values of these ships may benefit from this trend and enjoy a minor upsurge in prices. More than any other sector of the market, the details of the specific ships in question are fundamental to any investment in this intermediate size range. This leaves large ships, typified here by 250,000-dwt and 370,000-dwt tonnage. On the basis of the assumptions used, there is no doubt that these large tankers are the most attractive investment at the levels of price prevailing during mid-1978. Even if market recovery is delayed until 1987, provided the purchaser can continue to finance the maintenance of his ship, he will still make a profit of, at a minimum, some 30 percent of the present value of the total cash he puts at risk in buying a VLCC/ULCC.

"INVESTMENT IN TANKERS: THE CASE FOR OPTIMISM," priced at U.S. $160 for all overseas orders of £75 for U.K. orders, is available from HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England.



HITACHI DELIVERY: The 14,500-dwt deck barge KDG-1502 shown above was delivered recently to her owner, Kyodogumi Co., Ltd. of Japan. It was built at the Ariake Shipyard of Hitachi Zosen. The KDG-1502 is a submersible non-self-propelling deck barge. The barge will be used for the transport of heavy-weight cargoes such as industrial plants, large structures and drilling rigs. The barge submerges to the seabed when its ballast tanks are filled with seawater and rises beneath the cargo on discharging water from its ballast tanks. The KDG-1502 is consequently capable of loading and unloading heavy-weight cargoes in shallow water at places where no handling equipment is provided for. Her specifications are: length overall, about 369 feet; breadth (molded), 100 feet; depth (molded), 25 feet; maximum submersible depth (from upper deck to water surface), 21 feet; and classification, NK and LR.



Hawaii Site Selected For Testing Nodules Gathered From Ocean Floor

Governor **George Ariyoshi** of Hawaii, and Ocean Minerals Co. of Mountain View, Calif., have jointly announced that a facility to study and test the processing of manganese nodules gathered by the ocean mining vessel Glomar Explorer will be built at Campbell Industrial Park on Oahu, and begin operations next spring.

The new facility will represent an initial investment of about $4 million. It will be built on 10 acres of land adjacent to the Pacific Resources, Inc. oil refinery and substitute synthetic natural gas plant in the industrial park near Ewa. It will be one of only a few such plants anywhere in the world.

Manganese nodules are potato-shaped "rocks" lying on the floor of the world's oceans. Vast deposits, formed slowly over centuries, have been found 1,500 miles southeast of Hawaii. They contain approximately 25-percent manganese, and 3-percent nickel, copper and cobalt combined. Recent actions by the U.S. Congress relating to international "law of the sea" developments have been considered favorable to future manganese nodule mining.

Governor **Ariyoshi** called the plans of Ocean Minerals Co. and others involved in the project "an important milestone in our continuing effort to diversify Hawaii's economy. I am very pleased with this decision, and all in Hawaii will be watching this pilot operation for its potential for Hawaii's—and the world's—economic future."

An environmental assessment has been prepared and submitted to the State Government for review.

It is expected that up to 80 workers will be employed in the facility's construction. It is expected to be in operation for three to five years and, during the processing phase, will handle about 50 dry weight metric tons of nodules per day.

When in full operation, the plant is not expected to require more than a dozen employees. It is anticipated that operational costs will be about $1 million a year.

Governor **Ariyoshi** said he was informed Hawaii was chosen because "the islands are the closest land areas to large volumes of nodules, and Hawaii has shown a welcoming and supportive attitude toward such a facility, both from Governmental agencies and private industries in the islands. It also has excellent scientific and technical support facilities," he said.

"Hawaii may have an image in some minds of being antibusiness and antidevelopment, but this is one example that the reality is the opposite of the image," the Governor said. "Hawaii welcomes all industrial enterprises which are environmentally sound and which support the goals found in our Hawaii State Plan."

The Governor said the facility "should tell us everything we need to know about the potential for larger plants and how they might be regulated and managed for the good of Hawaii's people as well as investor profitability."

The manganese nodules will probably be mined in an area of the deep ocean floor located between the Clarion and Clipperton Fracture Zones. A research vessel, the Governor Ray, is being used to pinpoint the nodule beds. The Glomar Explorer will mine them by a suction-type method using an ocean floor collecting device. The nodules will be broken up into small pieces which will be transported in bulk by barge to Oahu's Barbers Point Harbor. They will then be transported to storage areas near the test facility.

The first phase of the facility operation will be concerned with testing equipment necessary for processing nodules. If successful, the facility may then be developed into a complete processing demonstration plant.

The project has been titled the Manganese Nodule Equipment Testing and Demonstration Processing Facility by Ocean Minerals Co.

Assisting in locating the facility in Hawaii are the State Government, County of Hawaii officials who have expressed the hope that a full-size processing plant will eventually be located on the Island of Hawaii, Pacific Resources, Inc., which will supply utilities for the plant; and the Dillingham Corp., which holds the lease for the Campbell Industrial Park site, and which may become involved in the barge hauling of nodules.

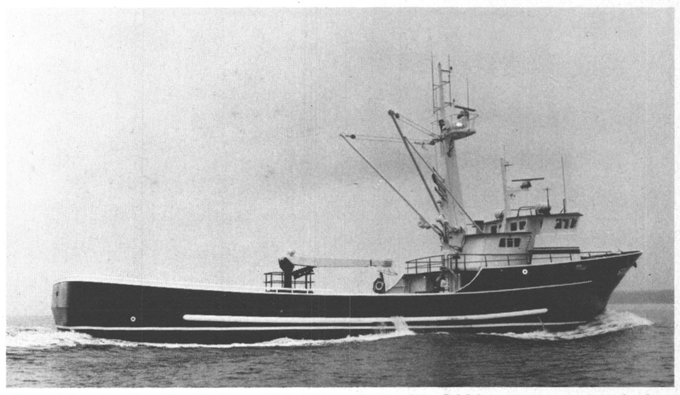
The Ralph M. Parsons Co. is acting as engineering consultant for the building project.

In 1977, Billiton B.V. and BKW Ocean Minerals B.V., both of the Netherlands, and Lockheed Missiles & Space Co., Sunnyvale, Calif., formed Ocean Minerals Incorporated, which in turn formed Ocean Minerals Co. as a partnership with Amoco Ocean Minerals Company, Chicago, Ill.

Lockheed has been developing ocean mining technology since 1964, and has been engaged as prime contractor for the company.

Other small pilot facilities for processing manganese nodules have been established in Canada, Boston, Mass., and Gloucester Point, Va. The Colorado School of Mines in Golden, Colo., also has been involved in the process development program for Ocean Minerals Co.

New Starlite Is Second 122-Foot Combination Boat From MARCO Yard



Propulsion for the Starlite is provided by a Caterpillar D399 turbocharged and after-cooled diesel engine developing 1,125 bhp, coupled to a Caterpillar 7261 hydraulic reverse/reduction gear. The vessel uses a Coolidge 86-inch three-blade stainless-steel propeller.

The Starlite, second of a new series of 122-foot combination vessels built by Marine Construction and Design Co. (MARCO), was christened August 26, in ceremonies at Shilshole Bay Marina, by **Mrs. Aase Mannes,** the wife of the vessel's captain, **Borge Mannes.**

The other principal owners of the Starlite, well-known in Pacific Northwest fishing circles are **Henry Swasand** and his son **Cory Swasand.**

Henry Swasand is also part owner of three other MARCO boats—the 94-foot Aleutian Spray purchased in 1969, the 108-foot Starfish purchased in 1974, and the 108-foot Nordic Star purchased in 1977, all engaged in crabbing.

All of Mr. **Swasand's** boats, including the Starlite, are fishing for Trident Seafoods and delivering catches to Dutch Harbor, Alaska.

The Starlite is designed for efficient crab fishing in Alaskan waters and is equipped with two fishing stations, port and starboard, to haul crab pots and handle pot lines with a minimum of maneuvering.

To better utilize the twin fishing stations, deck machinery includes two MARCO "King-Haulers" for crab pot handling, two MARCO "KingCoilers" to coil the line, and two MARCO single-action crab pot hydraulic dumping racks. An 11-ton Rowe telescoping hydraulic crane is used for positioning the crab pots on the fishing deck.

The Starlite has three fish holds totaling 9,500 cubic feet, space for 220,000 pounds of live crab.

Propulsion is provided by a Caterpillar D399 turbocharged and after-cooled diesel engine developing 1,125 bhp, coupled to a Caterpillar 7261 hydraulic reverse/reduction gear. The vessel uses a Coolidge 86-inch three-blade stainless-steel propeller.

The Starlite has three auxiliary diesel engines. A Caterpillar 3304 TA is turbocharged for a 55-kw generator. There are also two larger Caterpillar 3306 TA auxiliaries coupled to two 155-kw generators and two MARCO DP26 HPD hydraulic pump drives.

A central fueling station for the Starlite, located at the forward end of the fo'c'sle overhang, permits the vessel to be fueled while fully loaded with crab pots.

The Starlite features a number of design changes from the traditional MARCO crabber. A single box mast encloses the exhaust pipes. The pilothouse has been stepped up half a deck for a 360-degree view of all fishing operations. Galley and mess areas are reversed so that the mess now faces the afterdeck.

Navigation and communication equipment includes two Lorans, two radars, recording depth sounder, depth indicator, autopilot, gyrocompass, two single-sideband radios, and a radiotelephone. A Wagner hydraulic steering system includes a wheel, plus two jog stations.

The Starlite is the 37th steel combination vessel of this type MARCO has delivered for Alaska fisheries. MARCO is currently delivering two models of fishing vessels similar to the Starlite at a rate of one every 45 days.

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With a sense of accomplishment, Representative **Murphy** declared: "This moment is particularly satisfying for me because of the diligent efforts of the Ad Hoc Select Committee on the Outer Continental Shelf over the past three and one-half years to update the outmoded 1953 Act. For the first time in the history of Congress, the House set up a special Ad Hoc Select Committee to handle a piece of major legislation. And the special procedure worked! The culmination of this effort embodied in the newly signed OCS law comes at an especially meaningful time with the recent announcement by Texaco of the discovery of natural gas in the Baltimore Canyon. The need for this law is clearly illustrated as we move into new areas of oil and gas production.

"When the OCS Committee began its work in 1975, the nation was importing approximately 35 percent of its crude oil. That percentage has risen quickly and steadily. Our imports of foreign crude oil now periodically exceed 50 percent of our domestic consumption," Chairman **Murphy** stated. "The oil and gas reserves on the U.S. outer continental shelf will be our nation's largest new domestic sources of energy between now and the 1990s."

Summarizing the important provisions of the 1978 OCS Amendments, Chairman **Murphy** concluded that "the new law will provide for the expeditious but orderly development of our OCS resources; protect the environment by requiring an environmental impact statement before development; enhance competition by instituting new alternate bidding systems; and increase OCS safety by requiring the use of the best available and safest technology. It provides that OCS vessels and rigs will be crewed and manned by U.S. citizens which will bring increased employment; requires due diligence on leases to expedite development and dramatically increases state, local government and citizen input into the OCS decision-making process. In addition, the legislation provides for special funds for OCS oil-spill pollution; for damage to fishing vessels and gear from OCS activities; and to coastal states to ameliorate adverse OCS impacts."

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Hawaii Site Selected For Testing Nodules Gathered From Ocean Floor

Governor **George Ariyoshi** of Hawaii, and Ocean Minerals Co. of Mountain View, Calif., have jointly announced that a facility to study and test the processing of manganese nodules gathered by the ocean mining vessel Glomar Explorer will be built at Campbell Industrial Park on Oahu, and begin operations next spring.

The new facility will represent an initial investment of about $4 million. It will be built on 10 acres of land adjacent to the Pacific Resources, Inc. oil refinery and substitute synthetic natural gas plant in the industrial park near Ewa. It will be one of only a few such plants anywhere in the world.

Manganese nodules are potato-shaped "rocks" lying on the floor of the world's oceans. Vast deposits, formed slowly over centuries, have been found 1,500 miles southeast of Hawaii. They contain approximately 25-percent manganese, and 3-percent nickel, copper and cobalt combined. Recent actions by the U.S. Congress relating to international "law of the sea" developments have been considered favorable to future manganese nodule mining.

Governor **Ariyoshi** called the plans of Ocean Minerals Co. and others involved in the project "an important milestone in our continuing effort to diversify Hawaii's economy. I am very pleased with this decision, and all in Hawaii will be watching this pilot operation for its potential for Hawaii's—and the world's—economic future."

An environmental assessment has been prepared and submitted to the State Government for review.

It is expected that up to 80 workers will be employed in the facility's construction. It is expected to be in operation for three to five years and, during the processing phase, will handle about 50 dry weight metric tons of nodules per day.

When in full operation, the plant is not expected to require more than a dozen employees. It is anticipated that operational costs will be about $1 million a year.

Governor **Ariyoshi** said he was informed Hawaii was chosen because "the islands are the closest land areas to large volumes of nodules, and Hawaii has shown a welcoming and supportive attitude toward such a facility, both from Governmental agencies and private industries in the islands. It also has excellent scientific and technical support facilities," he said.

"Hawaii may have an image in some minds of being antibusiness and antidevelopment, but this is one example that the reality is the opposite of the image," the Governor said. "Hawaii welcomes all industrial enterprises which are environmentally sound and which support the goals found in our Hawaii State Plan."

The Governor said the facility "should tell us everything we need to know about the potential for larger plants and how they might be regulated and managed for the good of Hawaii's people as well as investor profitability."

The manganese nodules will probably be mined in an area of the deep ocean floor located between the Clarion and Clipperton Fracture Zones. A research vessel, the Governor Ray, is being used to pinpoint the nodule beds. The Glomar Explorer will mine them by a suction-type method using an ocean floor collecting device. The nodules will be broken up into small pieces which will be transported in bulk by barge to Oahu's Barbers Point Harbor. They will then be transported to storage areas near the test facility.

The first phase of the facility operation will be concerned with testing equipment necessary for processing nodules. If successful, the facility may then be developed into a complete processing demonstration plant.

The project has been titled the Manganese Nodule Equipment Testing and Demonstration Processing Facility by Ocean Minerals Co.

Assisting in locating the facility in Hawaii are the State Government, County of Hawaii officials who have expressed the hope that a full-size processing plant will eventually be located on the Island of Hawaii, Pacific Resources, Inc., which will supply utilities for the plant; and the Dillingham Corp., which holds the lease for the Campbell Industrial Park site, and which may become involved in the barge hauling of nodules.

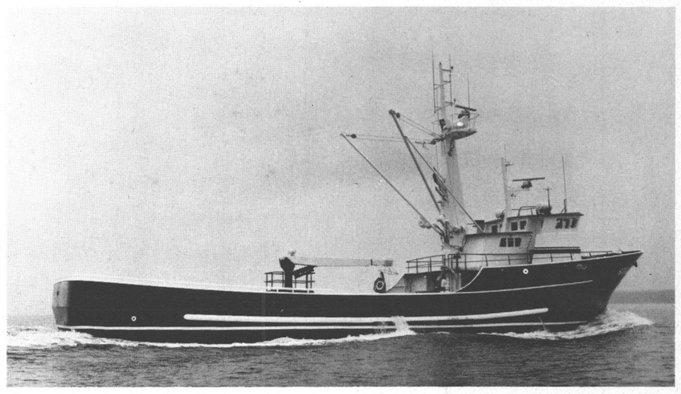
The Ralph M. Parsons Co. is acting as engineering consultant for the building project.

In 1977, Billiton B.V. and BKW Ocean Minerals B.V., both of the Netherlands, and Lockheed Missiles & Space Co., Sunnyvale, Calif., formed Ocean Minerals Incorporated, which in turn formed Ocean Minerals Co. as a partnership with Amoco Ocean Minerals Company, Chicago, Ill.

Lockheed has been developing ocean mining technology since 1964, and has been engaged as prime contractor for the company.

Other small pilot facilities for processing manganese nodules have been established in Canada, Boston, Mass., and Gloucester Point, Va. The Colorado School of Mines in Golden, Colo., also has been involved in the process development program for Ocean Minerals Co.

New Starlite Is Second 122-Foot Combination Boat From MARCO Yard



Propulsion for the Starlite is provided by a Caterpillar D399 turbocharged and after-cooled diesel engine developing 1,125 bhp, coupled to a Caterpillar 7261 hydraulic reverse/reduction gear. The vessel uses a Coolidge 86-inch three-blade stainless-steel propeller.

The Starlite, second of a new series of 122-foot combination vessels built by Marine Construction and Design Co. (MARCO), was christened August 26, in ceremonies at Shilshole Bay Marina, by **Mrs. Aase Mannes,** the wife of the vessel's captain, **Borge Mannes.**

The other principal owners of the Starlite, well-known in Pacific Northwest fishing circles are **Henry Swasand** and his son **Cory Swasand.**

Henry Swasand is also part owner of three other MARCO boats—the 94-foot Aleutian Spray purchased in 1969, the 108-foot Starfish purchased in 1974, and the 108-foot Nordic Star purchased in 1977, all engaged in crabbing.

All of Mr. **Swasand's** boats, including the Starlite, are fishing for Trident Seafoods and delivering catches to Dutch Harbor, Alaska.

The Starlite is designed for efficient crab fishing in Alaskan waters and is equipped with two fishing stations, port and starboard, to haul crab pots and handle pot lines with a minimum of maneuvering.

To better utilize the twin fishing stations, deck machinery includes two MARCO "King-Haulers" for crab pot handling, two MARCO "KingCoilers" to coil the line, and two MARCO single-action crab pot hydraulic dumping racks. An 11-ton Rowe telescoping hydraulic crane is used for positioning the crab pots on the fishing deck.

The Starlite has three fish holds totaling 9,500 cubic feet, space for 220,000 pounds of live crab.

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The Starlite has three auxiliary diesel engines. A Caterpillar 3304 TA is turbocharged for a 55-kw generator. There are also two larger Caterpillar 3306 TA auxiliaries coupled to two 155-kw generators and two MARCO DP26 HPD hydraulic pump drives.

A central fueling station for the Starlite, located at the forward end of the fo'c'sle overhang, permits the vessel to be fueled while fully loaded with crab pots.

The Starlite features a number of design changes from the traditional MARCO crabber. A single box mast encloses the exhaust pipes. The pilothouse has been stepped up half a deck for a 360-degree view of all fishing operations. Galley and mess areas are reversed so that the mess now faces the afterdeck.

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Oceanology International For Offshore Industry Set For March 3-7, 1980

"Advanced technology" is a dominant theme for the next in the world series of Oceanology International (OI) offshore exhibitions which takes place at Brighton, England, March 3-7, 1980.

Many of the exhibiting firms report that new developments in equipment, hardware, instruments and services will be featured—ranging from advanced platform design and subsea completion systems to the use of micro-electronics and computer-based on-line data systems.

The OI offshore exhibition—fifth in this series—will embrace oil, gas and mineral engineering; marine engineering; deep diving systems, submersibles and services; communications and navigational aids, and offshore supply, support and rescue craft.

The event will be staged at the Metropole Exhibition Halls and the new Conference Centre in Brighton. Waterborne displays, including visits by operational ships from the offshore industry, will also be held in nearby harbors.

The exhibition and various outdoor displays are being organized concurrently with the five-day OI World Conference at Brighton, with speakers from over 20 countries. As in previous years, the entire OI complex is supported by the British Government. It has an International Advisory Council from 12 nations.

OI's chosen theme of "advanced technology" reflects important North Sea developments applicable to offshore industries worldwide. A significant aspect has been improved technology in communications and navigation techniques. Examples seen at OI 78 included position-fixing systems operating from satellite fixes that permit all-weather, round-the-clock operation, and acoustic navigation systems that will lay a manned or unmanned submersible alongside a wellhead with 1-meter accuracy.

While communications and navigation are, of course, one of the key features of OI, there is no facet of offshore work that is not represented. Applied oceanographics interests, for example, will find the OI audience tailor-made for a business where nearly every leading British manufacturer exports over 70 percent of production.

Fundamental changes in diving, particularly with regard to gas mixtures and a wider physiological understanding, will be marketed in the 1980s to ensure that the service companies are equipped to cope with the demands of that decade. OI presents a complete range of equipment used in deep-diving operations—from saturation life-support systems to hyperbaric welding equipment.

The oil and gas industries, particularly, are well served for exploration, field development, production and structural maintenance. The range of services extends to offshore surveying and sampling, mining and prospecting, underwater pipeline and cable routing, the design, engineering and operation of dredging systems, as well as oceanography and hydrography.

Also on show will be the latest developments in pollution control, anticorrosion techniques, and fire-fighting and fire prevention. Commercial fishing technology will be represented by satellite navigation, sonars, and a range of equipment for fish detection.

OI has an unmatched international reputation, and occupies a special place in the history of offshore development. It was a British "world first" in 1969, when there was virtually no offshore industry at all.

Offshore oil and gas technology has since provided the impetus for the growth in status of the exhibition and its accompanying international conferences. The OI series—now held biennially—has stood for international collaboration in offshore development.

Its worldwide influence was marked in 1978 by a record attendance of over 25,000 key people from 144 countries. The conferences, sponsored by 13 leading U.K. institutions, attracted 1,348 delegates from the oil, gas, minerals and marine industries. Papers were presented by 147 speakers.

Further details about OI 80 and the OI World Conference can be obtained from the organizers, BPS Exhibitions Ltd., 4 Seaford Court, 220-222 Great Portland Street, London W1N 5HH, England.

Newfoundland Makes Bid For $.75-Billion Investment In Fishery

Meeting the opportunities opened up by the 200-mile fishing limit will require a three-quarters of a billion-dollar investment in the Newfoundland fishery over the next 10 years.

This was the bottom-line assessment made by the Newfoundland Department of Industrial Development, St. John's, Newfoundland, Canada, which noted that the provincial fishery, which is expected to increase its total fish landings to 568,000 metric tons with a landed catch value of $130 million by 1982, would need substantial private investments to fully implement the major modernization program it has launched. The program is geared toward increasing both the volume of annual catch and the number of secondary processing plants, such as canning, breading, smoking and vacuum-packaging operations in the province.

The provincial agency also said that the fishery has already attracted $70 million worth of new investment proposals from the private sector in Newfoundland, but added that many more investment dollars would be needed to reach the province's target goal of increasing on an annual basis, utilization of plant processing capacity from its present level of 40 percent to 75 percent within the next five years.

With expansion of the existing offshore fleet and construction of bulk cold-storage facilities and marine service centers combining to provide additional sources of fish, all seasonally operated groundfish plants with year-round potential will be in production on a year-round basis by 1982.

One major program proposal under consideration is the establishment of a strategically located landing and distribution center. The center would serve to remedy the under-utilization of capacity in many seasonal fish processing plants which, at present, are dependent on inshore fishing fleets for their raw material. The central landing and distribution center would thus enable the supply of raw material to seasonal processors who have the capability to operate on a year-round basis.

The offshore trawler fleet is expected to increase from 80 vessels at present to over 100 by 1982. The longliner fleet will increase from approximately 700 in 1977 to 850 vessels in the next five years.

Last year, the Provincial Government announced a five-year program under which 100 multipurpose longliner vessels would be constructed at a cost of $35 million. Twenty of these longliners are under construction, and another 20 will be started later this year.

Under a special Department of Regional Economic Expansion (DREE) program, a total of 15 marine service centers have been constructed at a cost of $13 million during the past three years. There is currently a second proposal before DREE calling for the improvement and expansion of the existing centers and the construction of two new centers at an estimated cost of $6 million.

In reference to the DREE financing programs, the Newfoundland Department of Industrial Development emphasized that it believed the government should play a "prime pumping" role in the fisheries to stimulate the industry.

There should not be a massive infusion of public funding in the fishery but rather government should help provide the right climate for the private sector to invest in the industry, according to a department spokesman.

An example of this principle at work is the provision of interest-free loans to small businesses who want to become involved in secondary processing.

Further information on seafood processing opportunities in Newfoundland can be obtained by writing DCI-Newfoundland Fishery, Suite 2100, 733 Third Avenue, New York, N.Y. 10017.

New York Metropolitan Section Begins New Season With Past Chairman's Night And Third Generation Ro/Ro Paper

Front row, left to right: Prof. **M. Hirschkowitz,** Membership chairman, USMMA at Kings Point; **S. Namba,** author, Mitsubishi Heavy Industries, Ltd.; **C. Westman,** owner's representative, TransAtlantic Redeeri AB; **D. O'Neil,** Section chairman, Seaworthy Engine Systems, Inc.; **N. Pergola,** past chairman, Energy Transportation Corp.; **E. Lithen,** secretary-treasurer, J.J. McMullen Assoc., Inc., and **J. Daidola,** Executive Committee, M. Rosenblatt & Son, Inc. Back row, left to right: **A. Chin,** Executive Committee, George G. Sharp, Inc.; **J. Higginbotham,** Meetings chairman, J.J. McMullen Assoc., Inc.; Dr. **W. Maclean,** Section vice chairman, National Maritime Research Center; **J. Connors,** Papers chairman, Seatrain Shipbuilding Corp.; **Y. Tokuda,** builder's representative, Mitsubishi Heavy Industries, Ltd.; **W. Garzke,** Section librarian, Gibbs & Cox, Inc., and **N. Reddy,** Executive Committee, American Bureau of Shipping.

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers opened the 1978-79 season with Past Chairman's Night on September 19, 1978, at the Whitehall Club in New York City. The Section chairman, **David A. O'Neil,** introduced all the past chairmen present. **Robert T. Young,** national SNAME president, expressed the Society's appreciation to **Nicola Pergola,** last year's chairman, with a lapel pin. Mr. **O'Neil** presented Mr. **Pergola** with a plaque on behalf of the Metropolitan Section.

Joseph Connors, the Papers Committee chairman, introduced **Sohachi Namba,** Mitsubishi Heavy Industries, Ltd., who presented the paper "The Third Generation Deep Sea Ro/Ro."

This paper describes the ro/ro vessel Boogabilla, completed in August 1978 by Mitsubishi Heavy Industries, Ltd. for Scan Carriers, to be put into service between Northern Europe and Australia and New Zealand. This vessel has an overall length of 750 feet, a deadweight of 31,500 tons, with the capacity of 1,707 FEUs.

Some of the features of this ship presented include a large bore, slow-speed diesel engine, three parallel trafficways, and a jumbo angled stern ramp. Special consideration had to be taken in laying out the trafficways, as the access required for the slow-speed diesel was quite high.

Items covered in the paper are structural configuration, outfittings, hydrodynamic design, safety measures for accidents, noise control and the actual construction of the vessel.

Past chairmen, front row (sitting) left to right: **E. Catlin,** Babcock & Wilcox Company; **J. Livingston,** retired: **R. Young,** SNAME national president, American Bureau of Shipping; **L. Rosenblatt,** L. Rosenblatt & Son, Inc., and **R. Giblon,** George G. Sharp, Inc. Back row (standing) left to right: **R. Mende,** SNAME national secretary; **R. Schoen,** Babcock & Wilcox Company; **W. Freeman,** consultant; **M. Macpherson,** J.J. McMullen Assoc., Inc.; **A. Stein,** M. Rosenblatt & Son, Inc.; **T. Sartor,** Farrell Lines Incorporated; **N. Pergola,** Energy Transportation Corp.; **C. Wilson,** Babcock & Wilcox Company; **W. Signell,** H.M. Tiedemann & Co. Inc.; **N. Farmer,** George G. Sharp, Inc., and **E. Story,** Marine Management Systems Inc.

MONARK HIGH-SPEED UNIT—MonArk's high-speed all-aluminum cargo transport barge (shown above), powered by twin 175-hp OMC gasoline inboard/outboard engines, was recently delivered to the Pennsylvania Corps of Engineers at Raytown Lake in Hesston to serve in transporting vehicles and equipment during a park construction and maintenance project. Features include an electric ramp, a walk-in storage compartment, safety rails and push knees (optional). Power options include inboard, outboard, inboard/outboard or jet. The barge has a length of 30 feet, beam of 12 feet and depth of 42 feet. The load capacity is 6,000 pounds and person accommodations for four. For further information and a free brochure, contact **Anne Robirds,** MonArk Boat Company, P.O. Box 210, Monticello, Ark. 71655.

Shipbuilding Experts Meet To Discuss Ways To Increase Automation And Productivity

Shipbuilding experts from the Navy, Maritime Administration and private industry met in Brunswick, Maine, on September 13-14 as guests of Bath Iron Works to propose and evaluate methods of improving technological capabilities of U.S. shipbuilding.

The 25 representatives, from as far as San Diego, Calif., concentrated on techniques to increase computerized automation in shipbuilding during their conference at the Holiday Inn in Brunswick.

They are members of the technical society REAPS, an acronym for Research and Engineering for Automation and Productivity in Shipbuilding.

Their host, Bath Iron Works, is a recognized leader in utilizing advanced technology such as numerical control cutting equipment, and sophisticated computerized systems.

The shipyard's management representative at the meeting was **James Greenlaw,** director of Systems and Data Processing, with automation experts **Steve Endris** and **George Peck** attending as the technical representatives.

Texas Gas Transmission Inland Waterways Division Announces Personnel Changes

The following organizational changes have been announced by the Inland Waterways Services Division of Texas Gas Transmission Corporation.

D. Ray Miller, vice president of American Commercial Barge Line (ACBL), with previous responsibilities in the area of distribution services, has been named manager of terminal operations. His new responsibilities include the operation of Transfer Terminal Corporation, the coordination of activities involving the Overland Coal Transportation, Inc., and ACBL Western, Inc., facilities, and the development of new terminal sites and opportunities. These functions previously were the responsibility of **R.W. Greene III,** who recently was appointed executive vice president and general manager of Jeffboat, Inc., the division's inland shipyard.

Carl L. Olson, former manager of sales for ACBL, has been named manager of distribution services, and will have responsibility for the operation of that department.

Richard A. Kienitz, in addition to his continuing responsibilities as vice president of ACBL Western, has been assigned the responsibility for sales for Transfer Terminal Corporation. In his new position, Mr. **Kienitz** will report directly to **Tom Frazier III,** who is vice president of sales for ACBL.

New Orleans Propeller Club Presents Scholarship Check

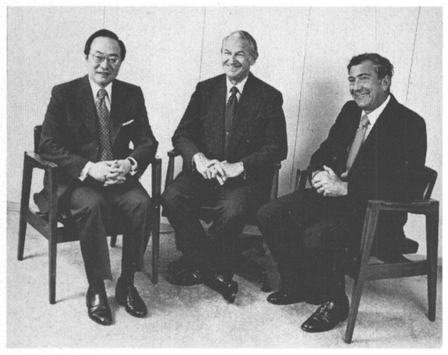
Capt. **Dan R. Meyers Jr.,** representing The Propeller Club-Port of New Orleans, Scholarship Fund Committee, is shown presenting a check for $500 to **Kenneth Scarbrough,** 5810 Fleur de Lis Drive, New Orleans, La. Mr. **Scarbrough,** 20 years old, is a sophomore law student at the University of Notre Dame. He worked during the past summer as a seaman aboard the Port of New Orleans fireboat Deluge, under the helpful guidance of veteran Capt. **Robert H. Barnum** (right).

The Propeller Club-Port of New Orleans established the Scarbrough Scholarship Fund in honor and recognition of Capt. **K.H. Scarbrough,** a veteran river ship pilot who heroically gave his life in the fateful disaster between the M/V Union Faith and an oil barge on the Mississippi River just a few years ago.

A.L. Burbank & Company, Ltd. Announces Election Of Officers —Celebrates 50th Anniversary

A.L. Burbank & Company, Ltd., New York, N.Y., well-known steamship owners, agents, brokers and consultants to the maritime industry, has announced the election of **Peter Burbank** to the office of chairman of the board and chief executive officer of the company. Mr. **Burbank,** who since 1955 has been president of the company, will be succeeded as president by **Franklin W.L. Tsao,** at present executive vice president.

The corporation also announced the election of **Paul Caramella** to the position of executive vice president, **Eugene F. Whitehorne** to that of vice president, and **Andrew Russnok** to that of controller. Mr. **Caramella** will continue his duties as treasurer of the corporation and joins Mr. **Burbank** and Mr. **Tsao** as a member of the executive committee.



Newly elected A.L. Burbank & Company officers shown above are, left to right: **Franklin W.L. Tsao,** president; **Peter Burbank,** chairman of the board and chief executive officer, and **Paul Caramella,** executive vice president and treasurer.

Mr. **Burbank,** whose father **Abram L. Burbank** founded the company in 1928, joined A.L. Burbank & Company, Ltd. in 1945 after distinguished military service, and experience gaining employment with a number of industrial corporations. He was active in the Ship Purchase and Sale Department until his election as president in 1955. Since that time, he has been active in all phases of the company's business.

Mr. **Tsao** has been with the company since 1968, and he has specialized in marine transportation projects involving new constructions and customized long-term charters. He became a director of the corporation in 1973 and executive vice president in 1976. Previous to joining the company, Mr. **Tsao** completed his education at McGill University, Columbia University, and the University of Michigan, with degrees in engineering, finance and naval architecture.

Mr. Caramella, who began his service with the company in 1951, was elected treasurer and director in 1962 and is a former president of the Association of Water Transportation & Accounting Officers.

Mr. **Whitehorne,** who joined the company in 1975, earned his law degree at St. John's University, School of Law. After service with the U.S. Department of Justice, he was employed by major oil companies in exploration, production and transportation activities of their oil and gas subsidiaries. He was assistant to Mr. **Burbank,** having responsibility for long-term Chemical Parcel Tanker, LPG and LNG Ship Departments and for Special Project Development.

Mr. **Russnok,** a graduate of Pace College, joined A.L. Burbank & Company, Ltd. in 1972 and formerly served as auditor of the company.

Sperry Computerized Positioning System Permits Pipelaying In 2,000-Ft. Waters

Equipped with a unique computerized positioning system, the Saipem Castoro Sei, the world's largest pipelaying barge, began its sea trials in August off the Italian coast. The column-stabilized, semisubmersible barge, which measures 470 by 212 by 98 feet is designed to lay pipe on the floor of the Sicilian Channel in depths to 2,000 feet—almost four times deeper than previous technology permitted. The pipeline will extend for 100 miles between Tunisia and Sicily, and will be used to supply annually 12,000 million cubic meters of Algerian gas to Italian customers.

To provide the extremely accurate control necessary to lay and weld the pipe, particularly where the sea bottom is irregular and where adverse weather conditions prevail, the barge is equipped with a unique positioning system from Sperry's product line of seAncor systems called the Basic Integrated Navigation, Instrumentation and Positioning System (BINIPS) designed by the Sperry Division of Sperry Rand Corporation, specifically for Saipem, S.p.A., Milan

Sperry's seAncor systems rely on digital computers to integrate information from sensors and to provide command and control for the precise navigation and positioning required for offshore operations.

The BINIPS system designed for Saipem includes a special computer program and other elements particularly suited to Saipem's deepwater pipelaying requirements. All sensor information is interpreted by the computer, which automatically issues commands to thrusters and anchor winches to control the vessel's position and forward motion along a precisely defined route. The control system issues force commands to compensate for environmental factors that could throw the ship off its pre-surveyed route, make the pipe-welding operation extremely difficult, and possibly damage the pipe. One feature of the system is automatic adjustment of ballast tanks to allow for desired draft, trim, and heel under diverse operating conditions.

Jerold F. Mann, manager of the Sperry program, said that traditionally, anchor winches and thrusters have been controlled manually in pipelaying operations, but that manual control has been virtually impossible to achieve in great depths and in adverse weather. He said the Sperry system will enable accurate pipelaying to be conducted in water depths to 2,000 feet despite 59-knot winds, 2-knot currents, and 17-foot waves.

The positioning system was designed and built by Sperry at its Great Neck, Long Island, N.Y., headquarters under a $6-million contract. The Saipem Castoro Sei was built to American Bureau of Shipping and Registro Italiano classification by Italcantieri S.p.A., Arsenale Triestino San Marco, Trieste, and was delivered to Saipem S.p.A. on July 22.

Mr. **Mann** said the barge is expected to begin laying pipe in the Strait of Messina by the end of the year.

American Bureau Of Shipping Classes 53 Vessels In August

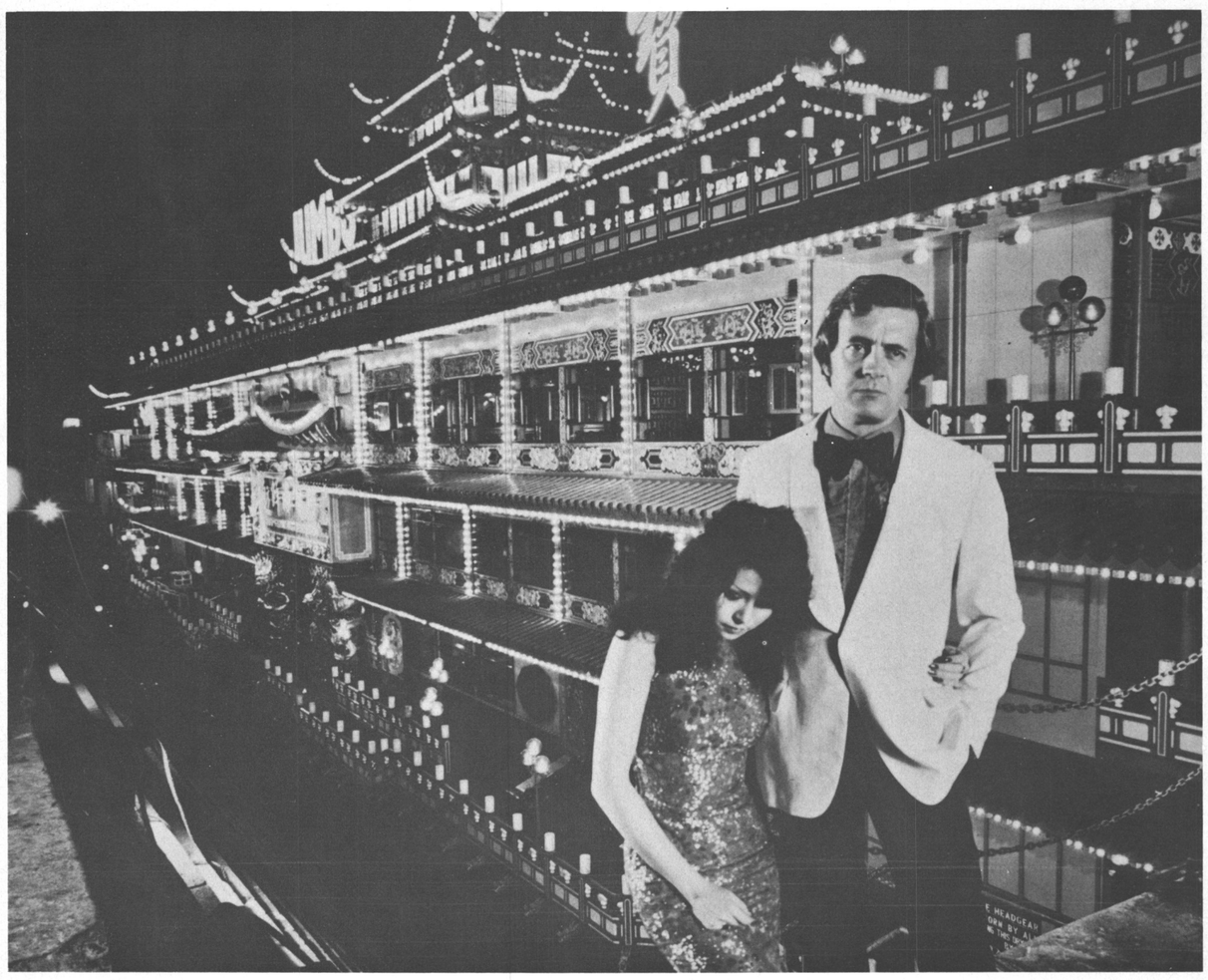
The American Bureau of Shipping (ABS) classed 53 vessels worldwide in August, totaling 381,892 deadweight tons or 273,309 gross tons.

The vessels classed during the month included one French-built 125,188-cubic-meter liquefied natural gas carrier, one Canadian-built drilling vessel, one U.S.-built self-elevating drilling unit, and one U.S.-built self-setting production and storage platform. Also classed were general cargo and bulk cargo vessels, supply vessels, tugs, trawlers, and deck, tank, and hopper barges.

The LNG carrier El Paso Consolidated was constructed by Ateliers & Chantiers de Dunkerque et Bordeaux (France Gironde) for El Paso Consolidated Tanker Co., Monrovia, Liberia. The vessel has six holds, each of which is fitted with an insulated membrane-type cargo tank.

The drilling vessel Sedco/BP471 was constructed in Canada by the Halifax Shipyards Division of Hawker Industries, Ltd., Halifax, Nova Scotia, for Overseas Drilling Limited, Monrovia, Liberia.

In the U.S., Bethlehem Steel Corporation's Shipbuilding Division, Beaumont, Texas, built the self-elevating drilling unit Teledyne Rig 18 for Teledyne Movible Offshore Inc., Lafayette, La., and also the self-setting production and storage platform PH-H1-158-A for Phillips Petroleum Company, Lafayette, La. The Teledyne Rig 18 was designed and constructed to operate at a depth of 250 feet. The PH-H1-158-A has been approved by ABS to operate in the elevated position in 54 feet of water in the Gulf of Mexico.



I promised her an exotic dinner in Hong Kong and got myself dry-docked instead.

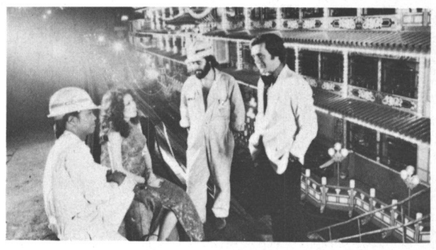
The water-taxi was right, but I got it wrong. The jumbo floating restaurant was in one of HUD's dry docks. The two fellows I met there proved most informative and interesting. The jumbo is one of the many extremely varied types of craft that HUD repair within their excellent facilities.

For over a hundred years HUD have developed a depth of experience, and proficiency that makes them unique in the shipping industry in Asia.

Repair and conversion, largely depends on a combination of modern facilities, experienced management and a highly trained work force — usually based on a tradition handed down from father to son. This is further backed up by a long established apprentice training scheme. The old and the new, a formidable combination that should make the shipowner of today sit up and think.

The facilities, equipment and Panamax floating dock at the new Tsing Yi complex right beside the new container terminal really amazed me.

Suzy wasn't particularly taken by the evening; but at least I now have first hand experience of Asia's most experienced ship repair and conversion complex.



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Hatch & Kirk Inc. Acquires Cleveland Diesel Engine Assets

Marshall Hatch, president (standing), and **Jack Kirk,** executive vice president of Hatch & Kirk Inc., Seattle, Wash., has announced the purchase of the assets of the Cleveland Diesel Engine Division from the Electro-Motive Division of General Motors Corporation. Hatch & Kirk Inc. is in the process of moving the Cleveland Diesel Engine assets, including all engineering, tooling, prints, and parts inventories to their extensive Seattle facility.

The firm has specialized in the sales and service of Cleveland Diesel Engines and parts since 1948. Among the staff are supervisory diesel service engineers who have had extensive General Motors training, and are recognized by the U.S. Navy and domestic shipyards as specialists in the rebuilding and servicing of Cleveland Diesel Engines. In addition, the company's Cleveland Diesel Engine parts technicians have over 20 years of individual experience in servicing domestic and international customers.

With the purchase of the assets of the Cleveland Diesel Engine Division, Hatch & Kirk Inc. has initiated a comprehensive, long-term parts support program assuring domestic and international accounts of a continuous, efficient and expedient source of supply.

Hatch & Kirk Inc. are located at 5111 Leary Avenue, N.W., Seattle, Wash. 98107.

96 Plants Locate On Inland Waterways In First Quarter

The American Waterways Operators, Inc., Washington, D.C., have announced that 96 industrial facilities have located or substantially expanded along the navigable waterways of the United States during the first quarter of 1978, creating 7,375 permanent job opportunities.

Of the total, 69 facilities reported capital investments of $1,511,750,000, an average investment of $21.9 million per plantsite. Twenty-six of the facilities reported a total of 7,375 new jobs for an average 284 jobs per plantsite.

AWO records show that 36 of the facilities are chemical and petroleum refining operations, 30 are metal-producing facilities, nine are paper and wood-producing plants, nine are terminals, docks and wharves, and the remainder are general manufacturing and miscellaneous installations.

The Mississippi River accounted for 16 of the plantsites, the Ohio River accounted for 13, and the Atlantic Intracoastal Waterway and Gulf Intracoastal Waterway had eight each.

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We are a prominent company in the River Transportation Industry located in Pittsburgh, Pennsylvania seeking an individual who is a specialist in boat maintenance. This management level position reports to the manager of boat maintenance. The individual we want should possess a minimum of ten years experience in our industry and have "hands' on" experience in electrical, mechanical, hydraulic, engine, structural areas. A degree in one of these areas is desirable but not mandatory.

We invite responses from those who can meet our requirements . . . and feel the need for greater responsibility in an expanding management atmosphere.

We offer an excellent fringe benefit package in addition to a salary commensurate with ability and experience.

Please send resumes, including salary history to:

Box 1005 Maritime Reporter/Engineering News
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MARINE SALES PERSONNEL

1) **Director of Sales** — Function as General Manager of division specializing in sales of marine equipment, particularly pumps, tank cleaning apparatus, etc. Minimum 10 years experience with increasing responsibilities in marine sales, good engineering background.
2) **Marine Sales Engineer** — Minimum 5 years marine sales of pumps, tank cleaning equipment, or similar items.

Please reply to:

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We are a highly reputable marine surveying consultant firm in New York and have an immediate opening for a marine surveyor preferably in his thirties with a valid chief engineers license. Salary commensurate with experience. Send resume and salary requirements in confidence to:

Box 915 Maritime Reporter/Engineering News
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— POSITION WANTED — PROJECT MANAGER

With 16 years overall experience in the Marine field in both new ship construction and repair work. Totally responsible in all phases of construction including the preparation of working drawings, specifications and the scheduling of materials. Ability to coordinate all crafts, including the monitoring of material and periodical on the job inspection to confirm work schedules. Seeking a responsible position where present talents can be used or very adaptable to your needs.

Box 1016 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

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Through our coast-to-coast contacts within the marine industry, we will find the specialists you are searching for. We work with senior and middle management, sales, estimators, engineers, dockmasters, planners, ship's superintendents etc.

Our fees are competitive and we are only paid when we are successful. For more information, call Larry Victor at (713) 682-8217.

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GENERAL MANAGER

Naval Ship Repair Facility

This position will provide exceptional challenge and the opportunity to direct ship repair/overhaul operations in support of the rapidly expanding Iranian Navy. You will be responsible for all phases of repair planning and production, supervision of the approximately 120 men, hands-on repair team, training of host-country nationals and interface with Iranian naval officers at all levels.

EX-U.S.N. Officer Preferred

To qualify you will need a broad background in U.S. naval shipyard overhaul & repair facility or repair ship. An engineering degree is mandatory.

Compensation includes salary range of $45,000 - $50,000, free housing, plus other substantial benefits.

For prompt consideration please send your resume to:

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MARINE ENGINEER

BP North America Trading Inc. has an immediate career opportunity for a qualified Marine Engineer. Candidates should have an engineering degree and knowledge of lubrication and ship machinery. Applicants should have sea experience and possibly possess or have accomplished maximum hours towards a First Engineer's license. Our organization offers interesting challenges, attractive starting salaries and a full range of Company benefits. For immediate, confidential consideration, send your resume, including required salary, to BP North America Trading Inc., 620 Fifth Avenue, N.Y., NY 10020 — Attn: Administration Department.

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Immediate opening for a Certificated Marine Chemist. $22,000/per year starting salary plus bonus with option to purchase stock. All replies held in strict confidence.

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MARINE ENGINEER — Liason: Must be fluent in Korean, and English with minimum five years sea-going experience as Chief Engineer on foreign flag vessel. Must also have had working business/Shipyards experience in Korea and Japan. Familiarity with maintenance and operation of Japanese and American manufactured marine equipment, particularly Sulzer diesel engines, required. Please send resume to: P.O. Box 10047, Portland, Oregon 97210.

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V.P., Engineering Administration
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POSITION WANTED

SHIP MASTER. Experienced. Dry cargo, bulk carriers, containers. Requires position with international company of good repute. Excellent references available. Licenses held. British (FG) master. Liberian, Panamanian, Canadian. Resume on request.

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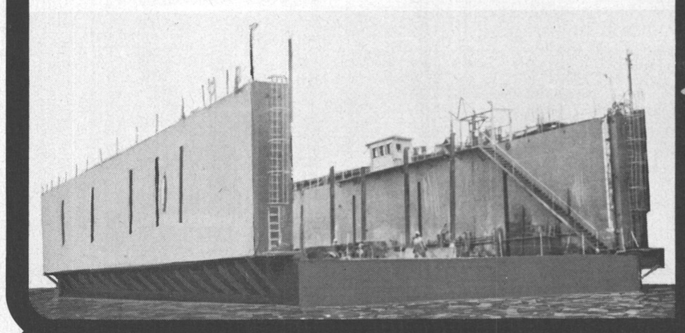
Floating Drydock

Presently in Use

Length over-all — 160′
Breadth — 66′
Total depth — 30′6″
Breadth between wing walls — 56′
Capacity — 1,000 tons

Three longitudinal bulkheads; four transverse bulkheads; ten watertight ballast tanks. Ten 8" centrifugal pumps (20 HP motors). Ten electric flood valves; ten manual flood valves. Ten cross-over valves. Total weight — 375 tons. Two ventilation blowers for voids. 4′ void full length of each wing wall. Four positioning bilge blocks, electrically operated from control house. Heavy tow pads. Two positioning winches at forward end of port and starboard wing walls. Currently in operation and in use. 4′ keel blocks full length included.



NEW MODEL,32 CLYDE

Whirley Crane

As Shore Mounted Gantry

Main block lift 175 Tons, auxiliary 50 Ton lift and jib 15 Ton lift, height of crane from track to top of "A" frame 138′8". Track gauge 32′0". Broken down at present time for shipment.

Four propulsion trucks, six 20" diameter wheels per truck with four 30 H.P. travel motors at a travel speed of 120 F.P.M. Main hoist motors two 250 H.P. motors, Boom hoist motors two 125 H.P. motors, Swing motors two 75 H.P. motors, Boom length — 140′0". Prime mover Cummins V 12 Model V.T.-17510-P 635 H.P. at 2100 R.P.M. turning five generators.

As Barge Mounted Crane

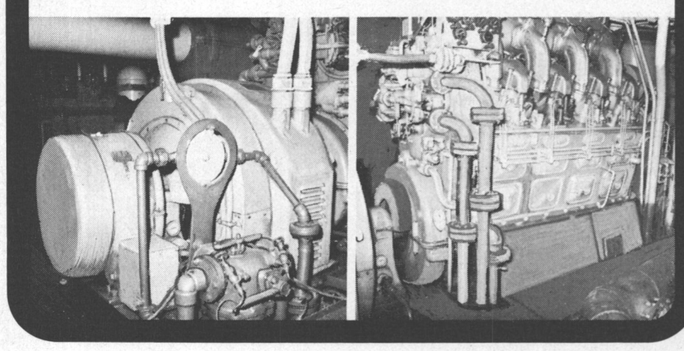
Same general specifications as Shore Mounted. (Lift capacity 160 Tons, full revolving, 230 Tons lifting capacity over stern.)

Specific details pertaining to this crane available upon request.

Diesel Generators

5–350 KW units in parallel with a 1750 KW capacity. To be used as power package for dredge, drilling rig, repair facility, etc. or as 5 individual units.

General Motors Model 8-278A, typical serial 45004, air start — 600 RPM, driving a G.E. alternating current Generator Type AT1, Model 12G732, 350 KW continuous, or 438 KW for 2 hrs., 440V-3-60, complete with all attached auxiliaries. Other available components include generator control panels, oil coolers, air compressors, air tanks. 5 units available.

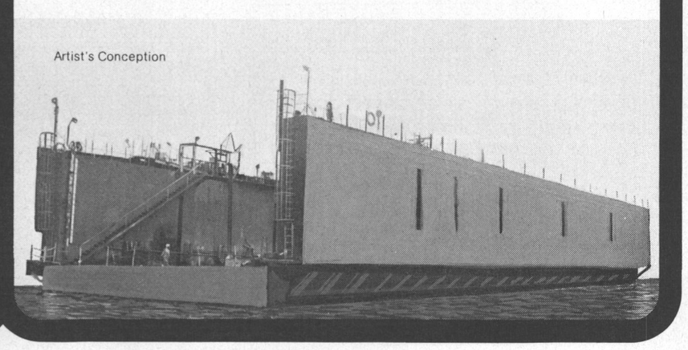


Floating Drydock

Under Construction

Length over-all — 200′
Breadth — 84′
Total depth — 30′6″
Breadth between wing walls — 74′
Capacity — 2,400 tons

Three longitudinal bulkheads; four transverse bulkheads; fifteen watertight ballast tanks. Six 8" centrifugal pumps (40 HP motors). Fifteen air operated flood valves. Total weight — 900 tons. Two ventilation blowers — one for starboard pump room and one for port pump room. 4′ keel blocks full length included.



For additional information and quotations please contact: Stan Rosenfeld or Andy Canulette Marine and Industrial Sales Division of:

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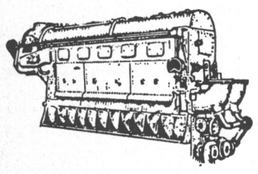
MARINE DIESEL ENGINES



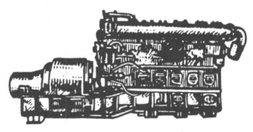
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-⅛ — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8½″ bore, 10″ stroke, Air Start.. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

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

TURBINE GENERATORS—AC and DC Voltage

A. C.

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

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

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 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

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

FAST REPLIES ON YOUR INQUIRIES!

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AXIAL FLOW FANS

LaDel, Sturtevant, etc.

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

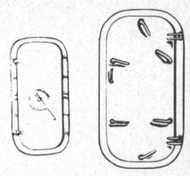
EXAMPLE LISTING:

Size A¼	Size A3	Size A8
Size A½	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

Electro-Mechanical STEERING GEAR

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).

STEEL WATERTIGHT DOORS

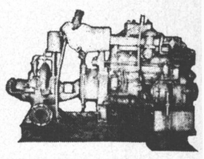


Used, Good Condition, Trimmed Frames.

Many sizes available, priced reasonabl Some Typical Prices shown below. Pleas Inquire for other sizes.

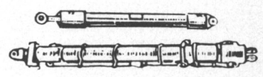
26″x48″-4 Dogs
26″x57″-6 Dogs
26″x60″-4 Dogs, 6 Dogs
26″x66″-6 Dogs, 8 Dogs
26″x66″-Q.A. Type

FIRE PUMPS



2—BUDA, Model 6-LD-468, Diesel Engine 6 cylinders, 100 BHP, Marine, Gardne Denver, centrifugal Pumps, Bronze, hor zontally split case, 1000 GPM, 280′ head, 6 suction and 5″ discharge.

HYDRAULIC CYLINDERS



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″	8″	4″	144″	double

AIR COMPRESSORS

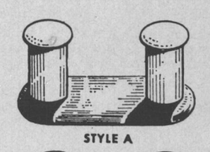
1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5¾x5, with Diehl Motors, 45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

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

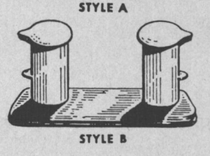
1—INGERSOLL - RAND, Model 40B, 155 CFM, 110 PSI, 870 RPM, with 40 HP Motor, 230 DC.

2—WORTHINGTON, 20 CFH, 3000 PSI, 4 stage, 585 RPM, with Worthington Steam Turbine, 47 HP, 5502 RPM.

DOUBLE BITS



STYLE A



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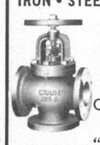

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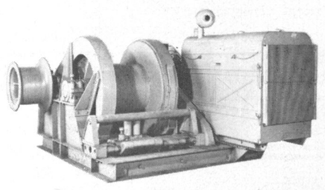

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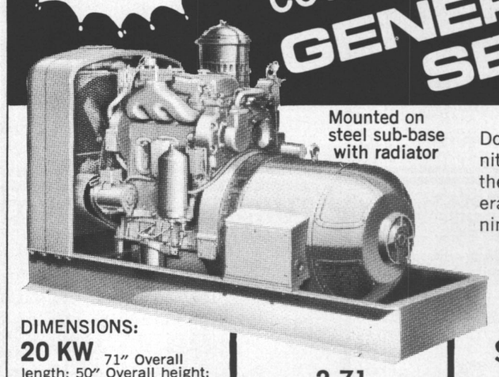

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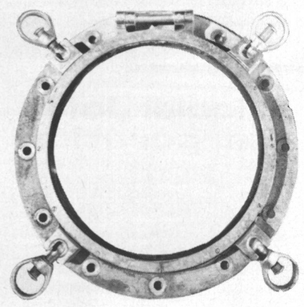

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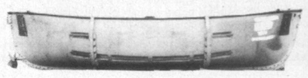

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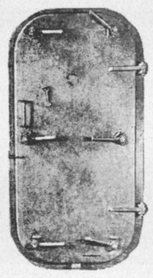

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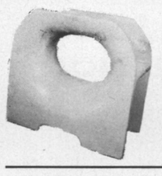

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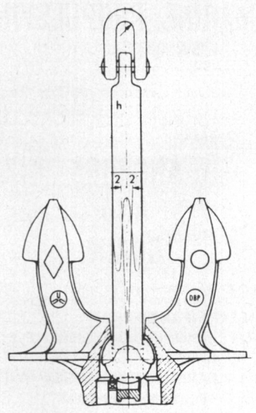

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General Thermodynamics Corporation, 150 Ballardvale St., Wilmington, Mass. 01887

DIESEL ENGINES
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Burmeister & Wain, One State Street Plaza, New York, N.Y. 10004
Caterpillar Tractor Co., Industrial Division, Peoria, Ill. 61629
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Electro-Motive Division General Motors, La Grange, Illinois 60525
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Indeck Power Equipment Co., 1075 Noel Ave., Wheeling, Ill. 60090
M.A.N. AG Werke Augsburg Postfach 10 00 80 D-8900 Augsburg 1 Germany
Mitsui Engineering & Shipbuilding Co. Ltd., 6-4 Tsukiji, 5-chome, Chuo Ku, Tokyo, Japan
MTU/Motoren-und Turbinen-Union, Friedrichshafen GmbH, P.O. Box 2040, D-7990 Friedrichshafen, W. Germany
Oosterhuis Industries Inc., 1800 Engineers Road, Belle Chasse, La. 70037
Power & Propulsion Systems, Inc., 9821 Katy Freeway, Houston, Texas 77024

DIVERS
International Underwater Contractors Inc., 222 Fordham Street, City Island, New York 10464
RMP Marine Services, Inc., Pier D, Berth 34, Long Beach, Calif. 90802 — Norfolk, VA, Houston, TX, Honolulu, HA

DOCK BUILDERS
DeLong Corporation, 29 Broadway, New York, N.Y. 10006
GHH Sterkrade, Ferrostaal Overseas Corp., 17 Battery Place, New York, N.Y. 10004

DOORS—Watertight—Joiner
Walz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

EDUCTORS
Vita Motivator Co., 200 West 20th Street, New York, N.Y. 10011

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N. Y. 10013
Marine Industrial Products Co., 1275 Bloomfield Ave., Fairfield, N.J. 07006
Merrin Electric, 1120 Clinton Street, Hoboken, N. J. 07030
Midland Ross Corp., Electrical Products Div., P.O. Box 1548, Pittsburgh, Pa. 15230
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EQUIPMENT—Marine
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N. Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Peck Equipment Co., 3500 Elm Avenue, Portsmouth, Va. 23704
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

EVAPORATORS
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS
Niles Expanded Metals Inc., 700 North Pleasant Ave., Niles, Ohio 44446

EXPANSION JOINTS
H.S. White Co., 2056 Dixie Highway, Ft. Lauderdale, Fla. 33305

FANS—VENTILATORS
Dasic International Corp., 1035 Southeast Ninth Street, Portland, OR 97214
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div), 16025 Johnson St., Middlefield, Ohio 44062
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850

FINANCING—Leasing
General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Lehman Brothers Inc., One Williams Street, New York, N.Y. 10004
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231

GANGWAYS
Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

GAUGES—Pressure
General Instrument Corp., 3811 University Blvd. W. #26, Jacksonville, Fla. 32217

HULL CLEANING
Phosmarin Equipement (Phoceenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France
RMP Marine Services, Inc., Pier D, Berth 34, Long Beach, Calif. 90802 — Norfolk, VA, Houston, TX, Honolulu, HA

HYDRAULICS
Abex Corp., Denison Div., 1160 Dublin Rd., Columbus, Ohio 43216
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
Gaulin Corporation, Garden Street, Everett, Mass. 02149
Smit Nymegen Corporation, 1511 K Street, N.W., Washington, D.C. 20005

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
R.B. Jones Insurance, 911 Main St., Kansas City, MO 64199
R.B. Jones Insurance, 120 S. Central Ave., St. Louis, MO 63105
R.B. Jones Insurance, 160 Water St., New York, N.Y. 10038
Marsh & McLennan Inc., 1221 Ave. of the Americas, New York, N.Y. 10020

KEEL COOLERS
Johnson Rubber Co. (Marine Div), 16025 Johnson St., Middlefield, Ohio 44062

LADDERS
Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
Automatic Power Inc., 213 Hutchinson Street, Houston, Texas 77003
Midland Ross Corp., Electrical Prod. Div., P.O. Box 1548, Pittsburgh, Pa. 15230
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014
Tideland Signal Corp., P.O. Box 52430, Houston, Texas 77052

MACHINE TOOLS
Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MARINE MACHINERY REPAIR
Worthington Service Corp., 233 Mount Airy Road, Basking Ridge, N.J. 07920

MARINE VALVES—Manhole Covers Gauge Hatches
J.M. Huber Corp., P.O. Box 2831, Borger, Texas 79007

MOORING SYSTEMS
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
Alpha Engineers, 7215 N.E. 13th Ave., Vancouver, Wash. 98665
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
J.L. Bludworth, 8207 Glen Loch, Houston, Texas 77061
Breit & Garcia, Naval Architects, 441 Gravier St., New Orleans, La. 70130
CADCOM Inc., 2024 West St., Suite B, Annapolis, Md. 21401
R.A.CADY-Marine Survey Practice, 2301 Leroy Stevens Road, Mobile, Ala. 36609
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Daniel Yacht & Ship Brokerage Ltd., 1861 S.E. 17th St., Suite 206, Ft. Lauderdale, Fla. 33316
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners Inc., One State Street Plaza, New York, N.Y. 10004
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
Arthur A. Grant & Son, Inc., 1745 First National Bank of Commerce Bldg., New Orleans, La. 70112
Phillip Gresser & Associates (PTE) Ltd., 122 Eng Neo Ave., Singapore 11
Morris Guralnick Associates, Inc., 550 Kearny Street, San Francisco, Calif. 94108
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
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
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Nelson & Associates, Inc., 2001 N.W. 7th Street, Miami, Florida 33125
Nickum & Spaulding Associates, Inc., 811 First Ave., Seattle, Wash. 98104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seaworthy Engine Systems, 73 Main Street, Essex, Conn. 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
SRS Shipping Research Services Inc., 205 S. Whiting St., Alexandria, VA 22304
The Stanwick Company Maritime Systems Department, 3661 E. Virginia Beach Blvd., Norfolk, VA 23502
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
H.M. Tiedemann & Co., Inc., 295 Greenwich Ave., Greenwich, Conn. 06830
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 951 Government St., Suite 2161, Mobile, Alabama 36604
Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706
Wesley D. Wheeler Associates, Ltd., 104 East 40 St., Suite 207, New York, N. Y. 10016

NAVIGATION & COMMUNICATIONS EQUIPMENT
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Anschuetz of America, 444 5th Ave., New York, N.Y. 10018
Automated Marine Systems Division, Litton Systems Canada Limited, 21101 Oxnard St., Woodland Hills, CA 91364
Calvert Electronics, Inc., 220 East 23rd Street, New York, N.Y. 10010
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, Mass. 01730
ITT Decca Marine Inc., P.O. Box G, Palm Coast, Fla. 32037
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Konel Corporation, 271 Harbor Way, So. San Francisco, Calif. 94080
Krupp Atlas—Elektronik, A Div. of Krupp Intl. Inc., P.O. Box 58218, Houston, Texas 77058
Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal 90503
Maritel Inc., 2510 Riva Road, Annapolis, Md. 21401
Mieco, Inc., 109 Beaver Court, Cockeysville, Md. 21030
Nav-Com, Inc., 2 Hicks Street, North Lindenhurst, N.Y. 11757
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

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BUYERS DIRECTORY (continued)

OIL PURIFIERS—Separators
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
OILS—Marine—Additives
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine) 135 East 42nd St., N.Y., N.Y. 10017
PAINT—Coatings, Protective
Carboline Co., Marine Div., 350 Hanley Industrial Court, St. Louis, Mo. 63144
Devoe & Raynolds Co., Inc., P.O. Box 7600, Louisville, Ky. 40207
Hanline Bros., Inc. (Consol Paint), 1400 Warner St., Baltimore, Md. 21230
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Patterson Sargent Co., 1471 Jersey Ave., New Brunswick, N.J. 08901
Products Research & Chemical Corp., (PRC Coating and Sealants Div.) 5430 San Fernando Road, Glendale, California 91203
PETROLEUM SUPPLIES
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
PILOT LADDERS—Wood Products
A.L. Don Co., 58 Grant Avenue, Carteret, N.J. 07008
PIPE—HOSE—Cargo Transfer, Clamps, Couplings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
PLATENS
Welding Wholesale Co., Div. J.A. Cunningham Eqpt., Inc., 2151 Dreer St., Philadelphia, Pa. 19125
PROPELLERS: NEW AND RECONDITIONED—SYSTEMS
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
The Columbian Bronze Corp., 216 North Main Street, Freeport, N.Y. 11520
Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
Escher Wyss Gmbh, P.O. Box 798, Ravensburg, Germany
Lips BV, Lipsstraat 52, Drumen, Netherlands
LIPS Propeller Works Inc., 420 Lexington Ave., New York, N.Y. 10017
Voith Schneider — U.S. Agent: Krupp International, Inc., 550 Mamaroneck Ave., Harrison, N.Y. 10528
PROPULSION—Marine
Combustion Engineering, Inc., Windsor, Connecticut 06095
Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
In-Place Machining Co., 1929 N. Buffman St., Milwaukee, WI 53212
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
PUMPS—Repairs—Drives
Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Worthington Pump Inc., P.O. Box 1250, Mountainside, N.J. 07092
RATCHETS
CM American, Division Columbus McKinnon Corp., P.O. Box 74, McKees Rocks, Pa. 15136
REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19523
RIGGING & BLOCKS
D. Van Beest En Zn.B.V., P.O. Box 57, Merwestraat 1-5, Sliedrecht, The Netherlands
ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
The Cordage Group, Columbian Drive, Auburn, N.Y. 13021
Wall Rope Works, Inc., Beverly, N. J. 08010
RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
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.
SCAFFOLDING EQUIPMENT—Work Platforms
Chamberlain Manufacturing Corp., 845 Larch Ave., Elmhurst, Ill. 60126
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055
Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707
SEWAGE—Pollution Control
Argo Marine, Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Clear Water, Inc., N. Main Street, Walworth, WI 53184
Colt Industries, Water & Waste Management Operation, Beloit, Wisc. 53511
Demco, Inc., P.O. Box 94700, Oklahoma City, Oklahoma 73109
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, La. 70560
Research Products/Blankenship, 2639 Andjon, Dallas, Texas 75220
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
SHAFTS, SHAFT REVOLUTION INDICATOR EQUIP.
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
SHIPBREAKING—Salvage
American Ship Dismantlers, Inc., Division of Schnitzer Industries. 3300 N.W. Yeon Avenue, Portland, Ore. 97210
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Levin Metals Corp., 1310 Canal Blvd., Richmond, CA 94807
National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201
SHIPBUILDING STEEL
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
SHIPBUILDING—Repairs, Maintenance, Drydocking
Arab Shipbuilding & Repair Yard Co., P.O. Box 5110, Bab-Al-Bahrain Building, Bahrain, Arabian Gulf
Astilleros Espanoles, S.A., 17, Padilla, Madrid 6, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blohm + Voss AG, D-2000 Hamburg 1, P.O.B. 10 07 20
Blohm + Voss Co., 55 Morris Ave., Springfield, N.J. 07081
Blount Marine Corp., P.O. Box 368, Warren, RI 02885
Boston Marine Industrial Park, Public Drydock No. 3, 60 Congress St., Boston, Mass. 02109
Bremer Vulkan Schiffbau und Maschinenfabrik, P.O. Box 70023/24, 2820 Bremen 70, W. Germany
Camden Ship Repair Co., Inc., Point & Erie Streets, Camden, N.J. 08102
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
CCL Shipcare Limited, Easton Lane Winnall Estate, Winchester Hampshire, England SO237QU
Centramor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., 393 Seventh Ave., Room 234, New York, N.Y. 10001
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004
Delmar Systems, Inc., 160 Industrial Parkway, Lafayette, La. 70501
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
General Dynamics, Quincy Division, Quincy, Mass. 02169
Granges Repair Service GMBH, P.O. Box 3166, Gutenbergring 64, D-2000 Hamburg-Norderstedt Germany
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., P.O. Box 510, Brownsville, Pa. 15417
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong
Hyundai Shipbuilding & Heavy Industries Co., Ltd., 5 World Trade Center, Suite 679, New York, N.Y. 10048
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Heavy Industries, Ltd., Kawasaki Kisen Kaisha, Ltd., 8 Kaigan-dori, Kuta-ku, Kobe, Japan
Kockums Shipyard, S-201, 10 Malmo 1, Sweden
Lisnave Estaleiros, Navais de Lisboa, Apartado 2138, Lisbon 3 Portugal
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 Dunbartonshire, G81-1YB, Scotland
Marinette Marine, Ely Street, Marinette, WI 54143
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Maxon Marine Industries, Inc., P.O. Box 349, Tell City, Ind. 47586
J. Ray McDermott & Co., Inc., P.O. Box 60035, New Orleans, LA 70160
Mercantile Marine Engineering & Graving Docks Co., N.V., Antwerp, Belgium
Misener Industries, Inc., 5353 Tyson Avenue, P. O. Box 13625, Tampa, Fla. 33681
Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Murray & Stewart (Marine) (PTY) Ltd., Ocean Road-Table Bay Harbour, P.O. Box 1909, Cape Town 8000, South Africa
Nashville Bridge Co., Box 239, Nashville, Tenn. 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
Northwest Marine Iron Works, P. O. Box 3109, Portland, Oregon 97208
O.A.R.N. (Officine Allestimento-Riparazioni Navi), P.O. Box 1395, Genoa, Italy 16100
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
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga. 31402
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Sumitomo Heavy Industries, Ltd., 2-1 Ohtemachi, 2-Chome, Chiyoda-Ku, Tokyo, Japan
Sun Shipbuilding, Foot of Morton Ave., Chester, Pa. 19013
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tampa Ship Repair & Dry Dock Co., P.O. Box 1277, Hookers Point, Tampa, Fla. 33601
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Tracor Marine, 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
Wall Shipyard, P.O. Box 419, Harvey, La. 70058
Wiley Mfg., a unit of AMCA International Corp., Suite 200/ Stockton Bldg., University Office Plaza, Newark, Del. 19702
Zigler Shipyards, P.O. Box 2607, Morgan City, La. 70380
SHIP STABILIZERS
Pacific Marine Products, Inc., P.O. Box 11, Kenmore, Wa. 98028
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
SURVEYORS AND CONSULTANTS
Hull & Cargo Surveyors Inc., 59 John St., New York, N.Y. 10038
TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
TANK LEVELING INDICATORS
Gems Sensors Div., Delaval Turbine Inc., Spring Lane, Farmington, Conn. 06032
TERMINALS—Oil-Transfer
DeLong Corporation, 29 Broadway, New York, N.Y. 10006
Transportation Concepts & Techniques, Inc., 551 Fifth Avenue, New York, N.Y. 10017
TOWING—Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Gulf Mississippi Marine Corp., 225 Baronne St., New Orleans, La. 70112
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
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305
B.V. Bureau Wijsmuller, Postbus 510, Ijmuiden, Holland
TURBINES
Nicolai Joffe Corp., P.O. Box 2445, South San Francisco, CA 94080
UNDERWATER SERVICES
International Underwater Contractors Inc., 222 Fordham Street, City Island, New York, N.Y. 10464
VACUUM RECOVERY SYSTEMS
Key Houston Division, Jacksonville Shipyards, Inc., 13911 Atlantic Boulevard, Jacksonville, Fla. 32225
VALVES AND FITTINGS
Contromatics Div., Litton Industrial Products, Inc., 222 Roberts St., East Hartford, CT 06108
Demco, Inc., P.O. Box 94700, Oklahoma City, Okla. 73109
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027
Stow Manufacturing Co., 86 Bump Road, Binghamton, N.Y. 13902
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
VIDEO EQUIPMENT
Video Library Systems, 185 Oser Avenue, Hauppauge, N.Y. 11787
WATER PURIFIERS
Everpure Inc., 600 North Blackhawk Drive, Westmond, Ill. 60559
WEATHER FORECASTS
Fleetweather, Orbit Lane, Hopewell Junction, N.Y. 12533
WINCHES
Clyde Iron, a unit of AMCA International Corp., Suite 200/ Stockton Bldg., University Office Plaza, Newark, Del. 19702
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Victoria Machine Works, P.O. Box 1939, Victoria, TX 77901
WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550
WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Elkan Electric Cable Co., 248 Third St., Elizabeth, N.J. 07206
WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18016
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Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

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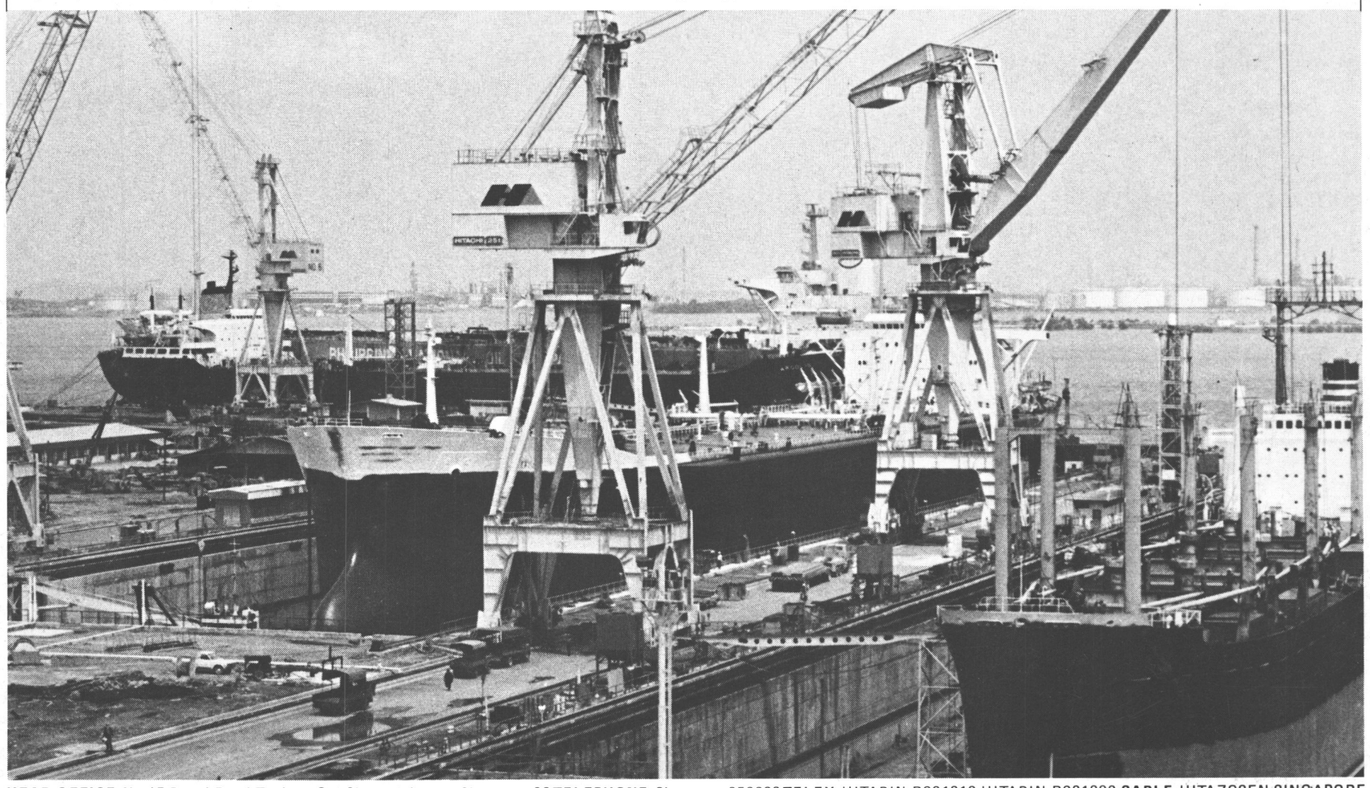

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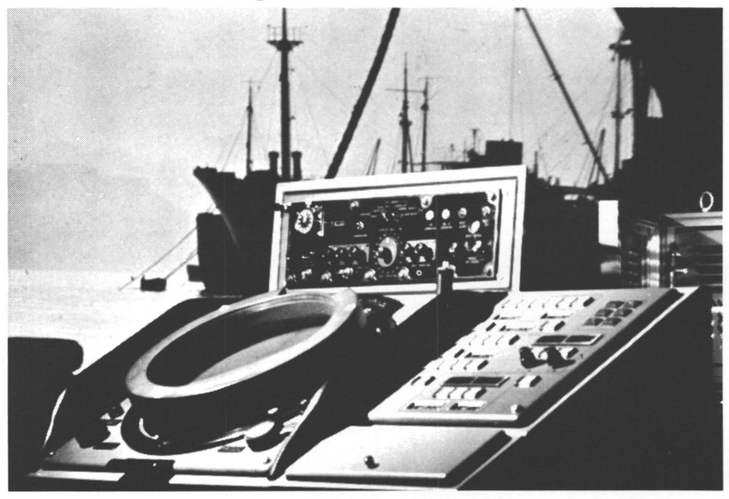

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