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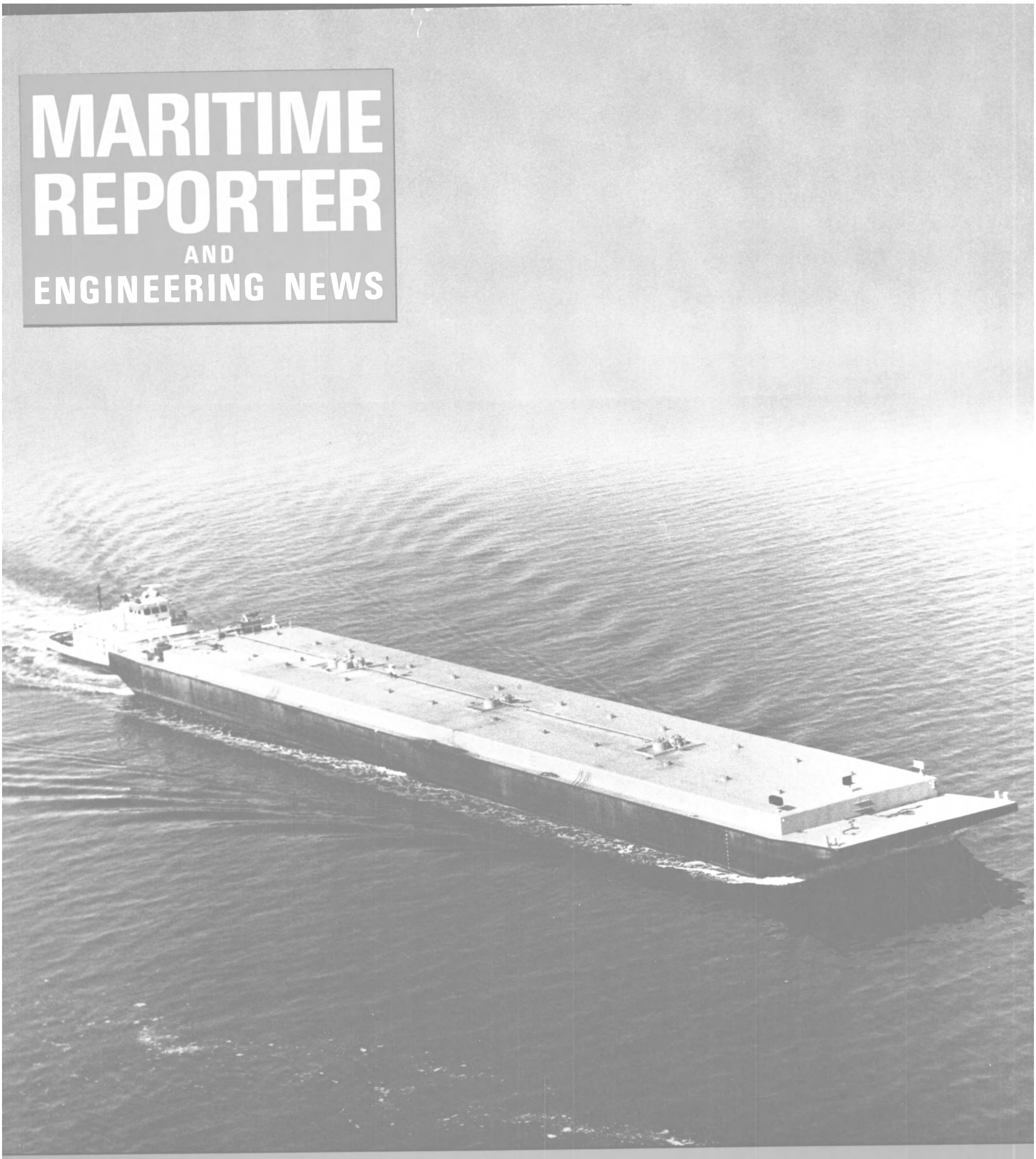

David B

Bergeron Delivers Giant Tank Barge To DBC

(SEE PAGE 10)

MARCH 15, 1981

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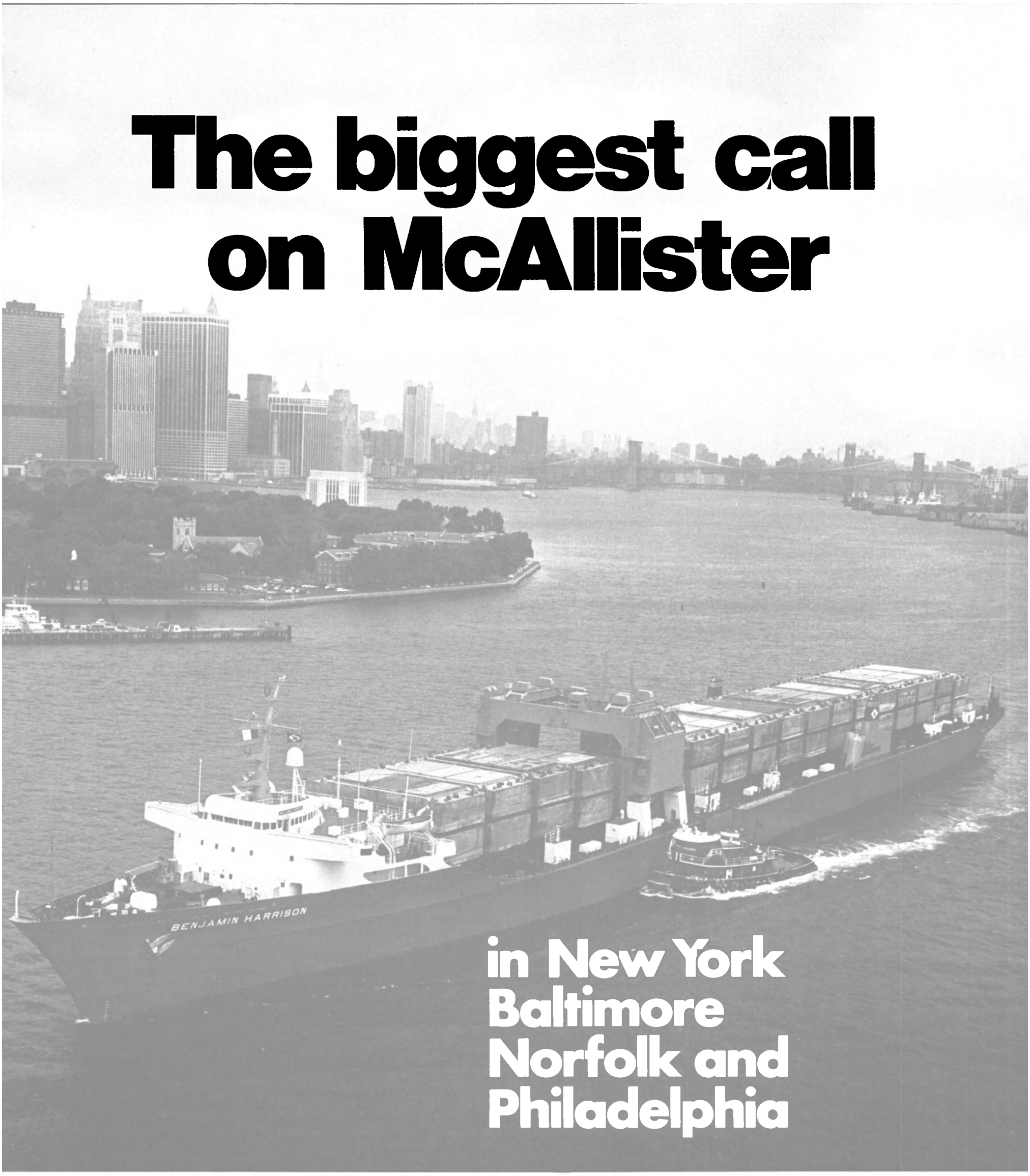

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Marinette Marine To Build EMD-Powered Tugboat For Beker Shipping

Marinette Marine Corporation has been awarded a contract by Beker Shipping Company of Greenwich, Conn., for the construction of a 7,200-bhp, twin-screw tugboat. The tug will be utilized by Beker in conjunction with a 610-foot self-unloading, notch type barge now under construction by Bay Shipbuilding. The tug/barge unit will transport phosphate rock between Taft, La., and Tampa, Fla.

The tug will have a 145-foot overall length, 42-foot beam, and an 18-foot design draft. The vessel will be powered with a pair of 20-cylinder EMD engines driving fixed propellers. Delivery is scheduled for April 1982. The vessel will be classed Full Ocean Service by the American Bureau of Shipping.

Latest Rig Order From Santa Fe Drilling Brings Total To $442 Million

Santa Fe Drilling Company has ordered a second $80-million all-weather, semisubmersible drilling unit, bringing to $442 million the value of new drilling equipment on order. **E.L. Shannon Jr.**, chairman of the parent Santa Fe International Corporation, said the new unit brings to 20 the number of drilling rigs under construction or on order. These include 13 land and seven marine units.

The two semisubmersibles, designated as Rigs 135 and 140, will be built by Daewoo Shipbuilding and Heavy Machinery, Ltd., Seoul, Korea, in Daewoo's Okpo shipyard. The first unit is scheduled for delivery in November 1982 and the second in March 1983. Each will cost about $80 million.

The semis are modified versions of the 9500 Enhanced Pacesetter series, designed by the marine architectural firm of Friede & Goldman, New Orleans. Both are designed for operations in severe environments such as the Gulf of Alaska or the North Sea north of the 62nd parallel. They will be capable of working in waters 1,500 feet deep and drilling to depths of 25,000 feet. Both vessels will be self-propelled.

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ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

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C.R. Kennaugh Named Vice President Of Johnson's Oil Division

Charles R. Kennaugh has been appointed a vice president of the Oil Division of A. Johnson & Co., Inc., according to **James J. Keating,** president of the division. Mr. **Kennaugh,** formerly manager of marine operations, is now responsible for the Oil Division's total marine operations. For 10 years prior to joining A. Johnson, in 1972, he held a variety of management positions with Humble Oil & Refining Company and Esso Standard Oil Company.

CAI Introduces New Keyboard-Operated SSB Transceiver Line

Communications Associates, Inc., Huntington Station, N.Y., has announced the Digiscan® family of microprocessor-based SSB transceivers for the international and U.S. Government markets. The first transceivers to offer total, simplified keyboard control, Digiscan is available in output powers of 150, 400, and 1,000 watts.

A number of special features are incorporated in the new design. Digiscan offers automated microprocessor frequency selection of 284,000 channels by keyboard, and the choice of 100 programmable channels. It scans the HF spectrum just like VHF; removes spurious signals at the touch of a button; incorporates an emergency alarm and channel; and stays on frequency with a 0.4 Hz/mHz stability. Remote control interface with telephone, teleprinter, facsimile, and manual telegraph is possible with a minimum of low-cost accessory equipment.

Available in a readily transportable, desk top unit (model 150-ZY), a rack-mounted version (model 1000-ZY), and a desk assembly with rack built in (model 1000-ZY-R), Digiscan is expected to find wide application as emergency or primary communications around the world.

For more information,

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Tifft Named Divisional Director Of Traffic For Lykes Bros.

Roland Tifft has been named director of traffic for the Central Atlantic Division of Lykes Bros. Steamship Co., Inc., a subsidiary of The LTV Corporation, Lykes executive vice president **Robert J. Brennan,** announced. Mr. **Tifft** is based in Washington, where he was formerly traffic manager for the division. He joined Lykes 17 years ago, has served as manager of container development in Houston, and manager of the agency department and manager of westbound marketing for Lykes's SEABEE Division.

Lykes, an American-flag ocean carrier, operates a fleet of ships on trade routes serving five continents and ports on the U.S. Gulf, West and South Atlantic Coasts and the Great Lakes and St. Lawrence Seaway.

New Synthetic Polymer Sheets Now Available From Anchor Packing

Clean Leaf™ compressed sheet packings from The Anchor Packing Company, Philadelphia, are made from a new synthetic polymer fiber combined with a choice of rubber compounds, depending upon the intended service conditions. The sheets are 100 percent asbestos-free yet compete with asbestos in price; gaskets cut from the new material are said to meet or exceed every performance characteristic of the best asbestos sheet packings, including fluid and temperature resistance, pressure rating, compressibility, recovery, sealability, and oil resistance.

For additional information on Clean Leaf packing,

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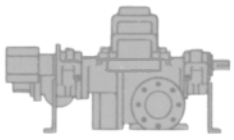
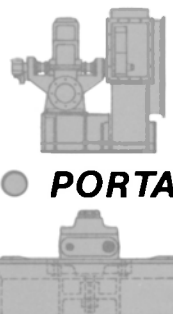


Horizontal and vertical configurations. Vertically-split casings for those requiring economical power; horizontally-split casings where specified. Standard equipment includes constant speed mechanical governor, emergency overspeed trip, metallic or carbon packing. Wheel diameters from 4" to 24" Optional accessories include Woodward governors, back pressure trips, forced-feed lube, pump governors, tachometers, couplings, insulation, special mounting flanges, gageboards, etc. Built to all regulatory requirements. For driving pumps, fans, compressors, generators.

AXIAL BLOWERS, TURBINE-DRIVEN—to 80,000 CFM

Axial and vane-axial designs. Fan impeller direct-mounted onto turbine shaft. Turbine can be run on steam, air, or other pressurized gases. Explosion resistant throughout. Can be mounted horizontally or vertically. For blowing, exhausting, or sucking. Flanged on either or both ends to meet your specific requirements. Ideal for pumproom ventilation, where electric motors are not allowed. Sizes from 9" to 60".

TURBINE-FAN PACKAGES—to 90,000 CFM



Centrifugal fans that are either directly mounted onto turbine shaft, or flexibly-coupled with separate bearings. Turbine and fan housing mounted on common bedplate. Fan impellers of aluminum alloy and other corrosion resistant materials. High speed design for efficient operation and minimum space requirements. Specifically designed for forced draft fan, gas-freeing fan, and inert gas fan applications. Sizes from 12" to 42".

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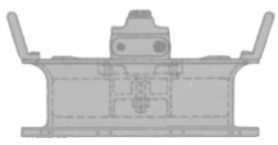

Closed-coupled, light weight, axial flow ventilators complete with turbine drivers to operate on air, steam, or other gases. Sparkproof construction for blowing or exhausting in hazardous areas. Size TB-12 designed for mounting directly onto standard Butterworth opening. Other sizes available with special transition pieces to fit onto standpipes and other openings.

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Complete with one or two permanently mounted centrifugal blowers, turbine or motor driven, with necessary valves, flanges, and controls. Optional: air heater or dehumidifier. Blower located on deck or at entrance to pumproom. Connected to droplines or cargo manifold. For sucking or blowing fresh air into tanks via cargo lines. Quickly and easily reduces tank atmospheres to safe levels.

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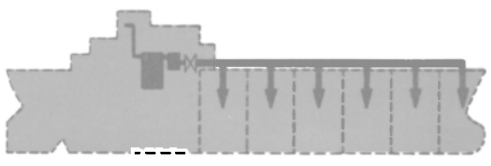

A complete system for new-buildings or retrofitting. All components designed and manufactured in the United States, consisting of flue gas valves, scrubber, motor or turbine fan packages, gas regulating valve, non-return valve, deck water seal, and main control panel. Optional: auxiliary control panels, fan isolation valves, deck valves, etc. Complete system designed for specific vessel's requirements.

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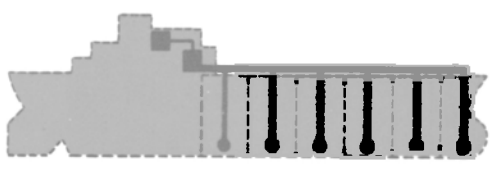

A complete system that automatically and continuously monitors and records hydrocarbon levels in tanks and cofferdams. Optionally, can additionally monitor oxygen levels. Sounds an alarm when any one compartment or tank reaches 50 percent of the lower explosive level (L.E.L.). A valuable means for ensuring safety at sea at minimum cost. Easily installed, operated, and maintained.

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J.J. Henry Company Opens West Coast Office In San Diego

A.C. **Brown,** senior vice president of the J.J. Henry Co., Inc. and general manager of the Moorestown Production Division, has announced the opening of a branch office in San Diego. The new facility will be fully coordinated with the firm's Production Division headquarters in Moorestown, N.J., and like the branch offices in Crystal City and Portsmouth, Va., will provide a complete range of engineering services to new construction yards, repair facilities, vessel owners and operators, and industrial firms throughout the West in both the governmental and commercial sectors.

A.L. Jenks has joined the Henry Company as manager of the San Diego operation following a career as an engineering duty officer in the United States Navy, from which he retired as a captain. Mr. **Jenks** will report to **Richard R. Hopkins,** vice president, in Moorestown. Marketing efforts for the West Coast operation will continue to be directed by **David F. McMullen,** vice president. The office is located at 3456 Camino Del Rio North, San Diego, Calif. 92108; (714) 283-2319.

Hampton Roads SNAME Section Hears Paper On Rudder Torque Prediction

The Hampton Roads Section of The Society of Naval Architects and Marine Engineers kicked off its first meeting of 1981 with a technical presentation at the Fort Monroe Officers Club in Hampton, Va. As expected, a large turnout of 121 members and guests was present to hear the evening's paper titled "Rudder Torque Prediction," by **Roy L. Harrington,** naval architect and technical manager of Newport News Shipbuilding.

Taking into consideration the large amount of study that has gone into the analysis of the flow around ships' hulls and the performance of controlled surfaces, it would appear that an accurate prediction of the torque required to exercise the rudder on a large ship would be a simple undertaking; however, such is far from the case. After studying the numerous factors that theoretically must be dealt with when predicting rudder torque, it is apparent that the achievement of precise rudder torque predictions will remain out of reach for many years. This being the case, the practicing naval architect must determine how to make the best use of the data and analysis techniques currently available.

Mr. **Harrington's** paper discussed the various considerations to be evaluated when establishing rudder torque design values, analyzed procedures for predicting rudder torque requirements, and gave examples for rudders of the spade and horn types. Rudder type calculations were made for six ships, and the results were compared with data recorded during sea trials.

Written discussions were prepared by: **H.G. Acker,** Bethlehem Steel-Sparrows Point; **Deborah Berman,** U.S. Merchant Marine Academy; **Charles F. Butler,** Newport News Shipbuilding; **Edwin T. Cangin,** MarAd; **Conway D. Davis,** Ingalls Shipbuilding; **A. Fairlie-Clarke,** Vickers Engineering Group Ltd.; **Everett C. Hunt,** U.S. Merchant Marine Academy; **J.R. Kane,** consultant; **H.T. McVey,** H.T. McVey & Associates; **Perry W. Nelson,** M. Rosenblatt & Son; **A. Rem,** Netherlands Ship Model Basin; **Stanley G. Stiansen,** American Bureau of Shipping; **Robert Taggart,** Robert Taggart Inc.; **A. Taplin,** consultant; **L. Vassiloupoulos,** Maritech Inc.; and **W.S. Vorus,** University of Michigan.

Both the paper and the written discussion are considered to be a significant contribution to the field of naval architecture. Copies of both the paper and the discussion are available from the Hampton Roads Section.

$9-Million Contract For Bulk Transfer Facility Won By Dravo Wellman

Dravo Wellman Company, a Cleveland-based subsidiary of Dravo Corporation, Pittsburgh, has received a contract in excess of $9 million from Seaboard Coastline Railroad Company for expansion of a rail-to-ocean vessel phosphate transfer terminal at Tampa, Fla. Designed to supplement existing facilities and give more flexibility to the 3,000-ton-per-hour terminal, the expansion will allow two trains to be unloaded instead of one. The project is scheduled for completion in December 1981.

The expansion will include engineering, supply and installation of a train positioner, car dumper, belt scale, dust collector system, and conveyor system. The existing dock and associated conveyor and shiploader runway will be lengthened by 815 feet. Dravo Wellman built the original transfer terminal for Seaboard Coastline in 1967-68.

Dravo Wellman's principal activities include engineering and development of bulk materials handling systems, railcar rotary unloader systems, shiploaders, stackers, and coal ash handlers.

Barge Contract Raises Bath Iron's Orderbook To About $767 Million

A construction contract expected to exceed $20 million has been awarded to Bath Iron Works by Sun Ship, Inc. to construct a 643-foot oceangoing barge for the California and Hawaiian Sugar Company. The vessel, the size of a major merchant ship but designed to be pushed by a tugboat, is intended to carry raw sugar and liquid fertilizer.

In announcing the award, BIW chairman **John F. Sullivan Jr.** said the project will require about 300 workers at its peak, with the barge planned for delivery in March 1982. He said the contract raises the backlog of the shipyard, which is a Congoleum company, to a peacetime record of approximately $767 million.

It is the second major project subcontracted to BIW by Sun Ship, Inc. of Chester, Pa., since last September. The first was a contract of approximately $30 million to construct a hopper dredge.

Kerr Steamship Appoints Two In Seattle Office

Kerr Steamship Company, Inc. announces the appointment of **David A. Ellithorpe** as sales manager, Pacific Northwest, located in the Seattle office. He previously served as an area manager for Seatrain Lines, Inc., and comes to Kerr with nine years of West Coast experience.

Kerr also announces the appointment of Capt. **John F. Blackie** as cargo superintendent, Pacific Northwest. He will be based in the Seattle office to oversee liner vessel stowage in the Pacific Northwest area. Captain **Blackie** is transferring from the Marine Department in San Francisco, where he joined Kerr in November 1979 as marine superintendent.

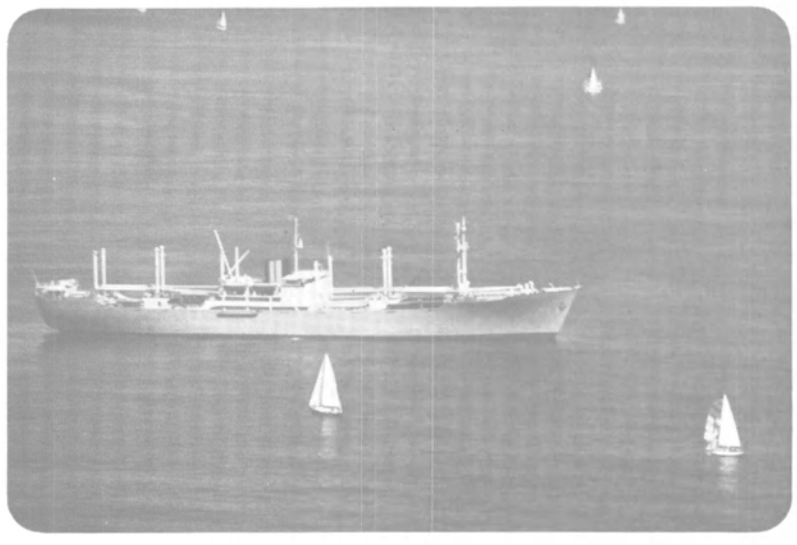
Kenneth Nash Named To Risk Management Position For Lykes

Kenneth H. Nash has been named director of risk management and claims for Lykes Bros. Steamship Co., Inc., a subsidiary of The LTV Corporation, Lykes executive vice president **Robert J. Brennan** announced.

Mr. **Nash** was born and educated in England, and has spent 25 years in the marine insurance business in the United States and Europe. He is a non-lawyer member of the Maritime Law Association, and an associate member of the Average Adjustors Association of America.

Lykes, an American-flag ocean carrier, operates a fleet of ships that serve five continents and ports on the U.S. Gulf, West, and South Atlantic Coasts, and the Great Lakes and St. Lawrence Seaway.

Marine Auxiliary Steam

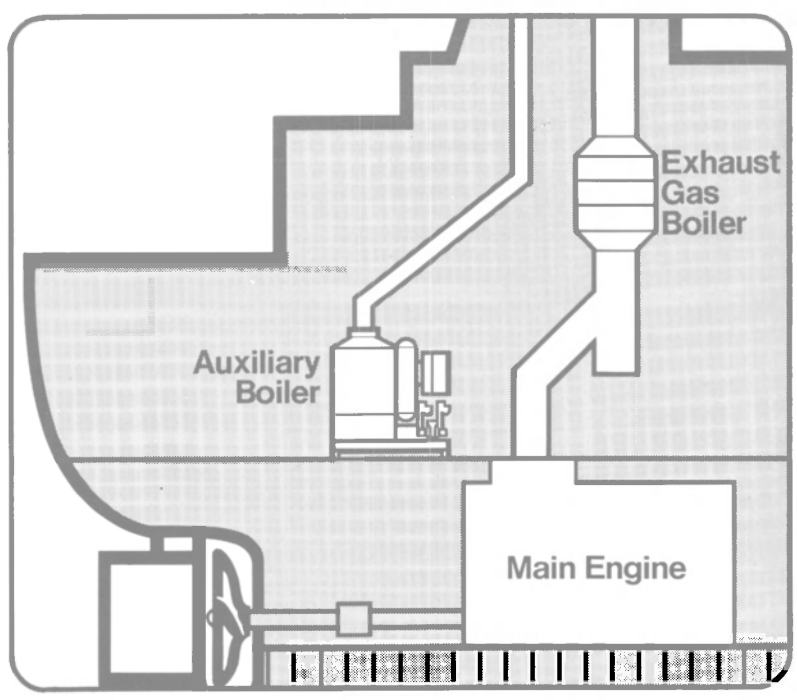


If fuel economy, dependability and compactness are among your requirements when you specify marine auxiliary boilers, you should investigate Clayton Steam Generators and Waste Heat Boilers.

Our units have gone to sea on more than 2,000 vessels and function efficiently to provide steam for heating, cooking and housekeeping. They occupy substantially less space and are lighter in weight than conventional boilers. And they are safer because shells, drums or headers are located outside the fire zone, thus eliminating steam explosion hazards.

The list of design features is highlighted by the fuel saving capabilities of our units. We deliver 80-85% efficiency within a range of 20-100% of rated load. In addition, our fast start-up response yields a full head of steam in just a few minutes from a cold start, saving more fuel.

Because of our many years of experience in the international market, Clayton is able to provide uniformly high quality equipment in addition to sales and service throughout the world. We welcome the opportunity to quote on your next maritime project.



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ON THE COVER

Bergeron Industries, Inc. has announced the delivery of the barge David B (shown above) to DBC Corporation of America, Houston. Constructed at Bergeron's Braithwaite, La., marine facility, the David B, reportedly the largest inland service tank barge ever built, measures 370 by 54 by 12 feet and is equipped with a dual cargo pumping system and steam coils.

It is a double-skin vessel, classed by the American Bureau of Shipping, and possesses a loadline for limited offshore service. The U.S. Coast Guard has certified the barge as a Type II hull under Subchapter 0 for carriage of chemicals and other Grade A and lower flammable cargoes. Its eight cargo tanks have a total capacity of 40,313 barrels, and it can carry about 4,300 tons of cargo at a 9-foot draft. The David B is now in service transporting petroleum products between Mobile, Ala., and Vulcan Asphalt Refinery in Cordova, Ala.

Bergeron Industries has diversified its production and design capabilities, and now produces a wide range of deck barges, tank barges, chemical barges, drilling barge hulls, crane barge hulls, and other specialized equipment. The company has general offices at St. Bernard, La., and marine facilities at Braithwaite on the Mississippi River, near the Port of New Orleans, and at Port Beinville, Miss.

Dravo Wellman Awarded $9-Million Navy Contract For Gantry Crane Work

Dravo Wellman Company, a Cleveland-based subsidiary of Dravo Corporation, Pittsburgh, has been awarded a contract in excess of $9 million by the U.S. Naval Shipyard, Portsmouth, Va. The rehabilitation work will include engineering, selection of subcontractor, procurement, and construction for four gantry cranes, each with 75-ton main hoists and 25-ton auxiliary hoists on boom extensions.

Structural and mechanical repairs will be included in the rehabilitation project. The cranes, which were built in 1942, also will be repainted and equipped with new electrical systems. The first phase of the project, restoration of one crane to its original operating condition, is scheduled for completion in mid-1981. Work on the other cranes will begin after completion of the first phase.

Dravo, a diversified company with operations throughout the world, is engaged in engineering, construction, manufacturing, natural resources, and transportation.

Gulfcoast Transit Names Flood Executive VP— Padgett VP-Administration

William H. Vaught, president of Gulfcoast Transit Company, has announced executive promotions for **Gene Flood** and **Wendell Padgett**. Mr. **Flood** has been appointed executive vice president. His previous position was vice president of operations, which followed a 20-year career in which he has been involved in every phase of Gulfcoast Transit and its related company's operations.

Mr. **Padgett** has been appointed vice president-administration. He joined Gulfcoast Transit in 1978 and was previously assistant secretary and treasurer of Gulfcoast Transit and its related companies.

A.J. Herrington Named Marketing/Sales Manager At Waukesha Bearings

Alfred J. Herrington

Alfred J. Herrington has been named manager of marketing/sales at Waukesha Bearings Corporation. The announcement was made by **Armour F. Swanson**, president of the Waukesha, Wis., manufacturer of fluid film marine and industrial bearings and seals.

Mr. **Herrington** joins Waukesha Bearings with 25 years' experience in various sales and marketing positions with FMC, Power Transmission Divisions. He last served as marketing manager, FMC Power Control Division, Milwaukee. Prior to that, he had many years' experience with FMC Bearing Division. He will direct marketing activities of both the Marine and Industrial Divisions at Waukesha. His duties include planning, forecasting, new market development, as well as sales.

Waukesha Bearings, a subsidiary of Dover Corporation, has plants in Waukesha, Butler, and Antigo, Wis., and subsidiaries in Tokyo, Japan, and Drunen, Holland.

McAdams And Perk Named Construction Supers At Conrad Industries

Conrad Industries' president and founder **Parker Conrad** announces appointments of **Michael J. McAdams** and **Dennis Perk Jr.** as new construction superintendents. Their areas of responsibility in the company, which was founded in 1948, include purchasing, coordinating customer projects, employee supervision, barge designing, engineering, lofting, material, and coordinating specifications required by the United States Coast Guard and the American Bureau of Shipping for certain projects.

Mr. **McAdams**, barge building number two superintendent, joined the marine construction indstry as a helper in 1966 and progressed through many marine construction trade areas. He holds a welding certificate, has studied basic and advanced blueprint reading, drafting, accounting, and has completed seminars in personal development and supervision. He has supervised construction crews on boats and barges as well as drilling rigs.

Mr. **Perk**, new construction superintendent for barge building number one, is a certified welder and burner, and holds certificates of completion in blueprint reading and drafting. He has several years' experience supervising crews on pile driving, dock construction and related concrete work, and surveying, and has barge construction experience.

Conrad Industries, located on the Atchafalaya River in Morgan City, recently tripled its barge production capacity through an expansion program.

In addition to steel deck barges up to 250 feet in length by 70 feet in width, Conrad Industries specializes in fuel, spud, and self-propelled barges. The company prefabricates modular sections utilizing semiautomatic and submerged arc welding techniques that cut production time.

Marine Port Engineers Fort Schuyler Forum Scheduled For March 21

The 29th Annual Fort Schuyler Forum, sponsored by The Society of Marine Port Engineers, New York, N.Y., Inc. and the State University of New York (SUNY) Maritime College will be held on Saturday, March 21 on the SUNY campus in The Bronx, N.Y. The theme of this year's all-dav meeting is Fuels—Present and Future.

Five papers will be presented, including "Problems with Existing Fuel Purification and Solutions," by **N.H. Chavasse** of Alfa-Laval, Inc., and "Alternate Fuels for the Maritime Industry," by **E.N. Cart Jr.** of Exxon Research and Engineering Company.

Registration will begin at 9 a.m. in the main lobby of the SUNY Science and Engineering Building. The fee is $20, which includes lunch at the SUNY mess and a social hour at the Officers Club. For further information, telephone (212) 269-4840.

New Brochure Describes Diverse Products To Simplify Maintenance

Twelve products for diversified marine and industrial applications — including repair compounds, protective coatings, seam sealants, non-skid coatings and epoxy-resin adhesives — are featured in a new illustrated brochure published by Philadelphia Resins Corporation. This new brochure combines concise general information with recommendations for specific uses.

Also included are applicable temperature and pressure limitations, applied-thickness restrictions, and other data. A convenient business-reply card, keyed to each of the 12 products, is included in this informative sales brochure.

For a free copy of the brochure,

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Some maritime cleaning no-how from Sea-Wash.

No cleaner like it.

Sea-Wash is a time-proven, job-tested cleaner capable of taking on the toughest heavy-duty maritime cleaning jobs without the hazards you usually face. There's no other cleaner available that gives you such positive results while eliminating the negative features of cleaners commonly used in the maritime industry. Here's just a brief summary of what you should know about Sea-Wash no-how:

No flash point.

Because Sea-Wash is a water-based liquid with no petroleum-based additives, it has no flash point. Your workers never have to worry about Sea-Wash burning under any circumstances.

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There are no smelly, noxious fumes, either. Workers can function in confined areas without fear of being overcome by fumes.

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Sea-Wash takes on the toughest grease, carbon or heavy oil cleaning jobs and cleans and degasses in one application without leaving any residue. So you can paint, weld or repair an area immediately.

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When petroleum-based cleaners or dispersants are combined with water the common result is an obvious milky white emulsion. Not so with Sea-Wash. Mixed with water it remains clear.

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Sea-Wash is biodegradable. So problems with environmental contamination are drastically reduced.

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Sea-Wash makes petroleum-based cleaners obsolete. It takes on the toughest, heavy-duty maritime cleaning jobs and really performs. We've got a file full of case histories to prove our point. Yet it's hazard-free. And, because it lets you work more efficiently, it makes incredible economic sense. It's available in 55 gallon drums and tank cars, and our handy 5 gallon pail can be a big help at sea.

Call us or write today and give us a chance to prove that there's no maritime cleaner like Sea-Wash. Environmental Chemicals, Inc., 487 Division Street, Boonton, N.J. 07005. (201) 335-2828, TWIX 710-987-8311.

ECI is now adding a few select companies to our distributor organization. If interested, contact the address above.

There's no maritime cleaner that beats Sea-Wash.

TBW Industries Names Manufacturing Licensee For United Kingdom

Elbar Engineering, Ltd., Moycroft, Elgin, Scotland, has been appointed an exclusive manufacturing licensee in the United Kingdom by TBW Industries Incorporated of Houma, La. In making the appointment, TBW president **Robert M. Thompson** said the agreement will cover the manufacture of the full line of Pnu-Tank pneumatic dry bulk conveying and storage equipment used for cement, barite, and bentonite used by the oil industry.

Included is the patented "Hi-Vol" pressure tank, which incorporates the micro-porous stainless-steel aeration system and holds up to 30 percent more material than conventional cone-bottom tanks without increasing the installation space required—features which have led to an 85-percent share of the U.S. market in supply vessel installations over the past five years.

Elbar Engineering becomes the sixth overseas licensee to be appointed by TBW— others being located in Australia, Brazil, Canada, Japan, and South Africa.

$4-Million Contract For SPM Terminal In Java Sea Awarded To IMODCO

A contract valued at approximately $4 million has been awarded IMODCO, a unit of AMCA International Corporation, by the Independent Indonesian American Petroleum Company for the design and construction of a Single Point Mooring terminal. To be sited in the Java Sea offshore Indonesia in 125 feet of water, the terminal will be capable of rapid integration and subsequent operation at either of two existing berths in the Cinta Field without requiring modification to the prevailing mooring chain, cargo hose, or hawser systems.

The Catenary Anchor Leg Mooring (CALM-type) SPM will include a four-grade MPDU to facilitate transference of produced crude oil. The buoy will measure 13.5 meters in diameter by 14 feet deep, and consist of two 12-inch and two 20-inch pipe-runs.

As designed by IMODCO, the SPM will accommodate the Cinta Natomas, a million-barrel-capacity tanker, under such maximum storm conditions as 33.5-foot waves, wind velocity of 68.4 knots, and current of 3 knots. Completion and installation is scheduled for summer 1981.

P.Y. Wang Joins Lexington Transport As Senior Marine Superintendent

Pei-Yen Wang

Pei-Yen Wang has joined Lexington Transport (New York), Inc. as senior marine superintendent, it was announced by **H. E. Engelbrecht,** president. From 1948 to 1966, Mr. **Wang** served in all engineering officer capacities from 3rd assistant engineer to chief engineer. He holds a USCG and Republic of China chief engineers' license, as well as a master's degree in naval architecture.

In 1966, Mr. **Wang** became assistant vice president, engineering at United Tanker Corporation. From 1973 to 1979 he was superintendent in charge of various vessel conversions and repairs. At Lexington Transport he will oversee the maintenance and repairs for a fleet of 10 specialized vessels.

Simrad designs and builds every piece of marine electronic equipment to meet the most stringent legal requirements not only of the U.S. Government but all over the world. Important? Yes. But not as important as the everyday safety of your boat and your crew. So Simrad goes beyond legal requirements to make sure that your electronics are accurate, reliable, tough and easy-to-use. Quality that you can depend on, and economical so that you can afford to have all the protection that you and your crew deserve.

Simrad can help you pass IMCO inspection...and much more!

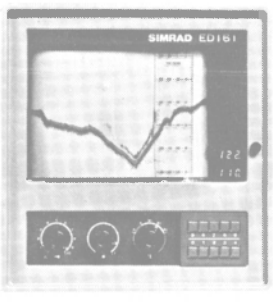
Simrad Loran C's are designed and manufactured to meet or exceed the U.S. Coast Guard endorsed RTCM Minimum Performance Standard (MPS).

TL-856 Loran C Navigator automatically computes and displays TD's, Lat/Long, course, ground speed, time and distance to any of ten waypoints, as well as cross-track error. It can acquire and track all Loran C masters and secondaries worldwide. Four tunable and two preset notch filters for professional performance even in high interference areas. *TL-856 makes it all simple.*

TL-838 Loran C Receiver simultaneously displays two lines of position from automatically acquired and tracked masters and all available Loran C secondaries. TL-838 has four tunable and two preset notch filters for outstanding performance, worldwide. It incorporates a three point memory, and *very fast acquisition and settling.*

2182 KHz Watch Alarm Receiver. Simrad's new, compact, FCC approved Watch Alarm Receiver, RW 105, fulfills all legal requirements of the new IMCO/SOLAS Regulations. The RW 105 also meets the specifications for most other maritime regulatory agencies. It can be set to receive all transmissions on the 2182 KHz distress frequency or automatically mute all but distress signals preceded by the two-tone alarm. An internal digital clock lifts the mute during radio silence periods. Connection for optional tape recorder or remote speaker, and built-in test generator are standard. *Easily fits into limited space.*

Loran C Coordinate Converter Model TC-28A adds total navigation functions to most Simrad Loran C Receivers. Converts TD's to Lat/Long, memorizes up to ten waypoints and calls up course and distance to any of them. Computes and displays on command time to destination and cross-track error. Installs directly on TL-838 or separately with other Simrad models. *Makes them all navigators.*



New Digital Recording Sounders. Simrad offers two economical navigation recording echosounders that meet IMCO recommendations for merchant vessels. In addition to showing a well defined bottom on recording paper, the systems have independent digital depth indicators and depth alarms. The Simrad ED-161 has four recording ranges from 0-25 to 0-550 fathoms. For navigating in shallower waters, the 200 KHz ED-162 has four ranges from 0-30 feet to 0-250 fathoms. The optional IR-201 Remote Digital Analog Indicator displays depth in feet, meters and fathoms. An optional transducer selector with alarm (TS-101) allows use of up to four transducers. Due to Simrad's special engineering, *some vessels can be retrofitted from inside the hull without having to drydock.* Contact Simrad for details.

Two IMCO approved automatic direction finders, the TD-A202B and the TD-C328HATS (shown), are now offered by Simrad. The TD-A202B has frequency ranges of 200-580 KHz beacon band and 1.5-2.8 MHz marine band. The TD-C328HATS has a range of 200 KHz to 13.5 MHz. Both are highly sensitive superheterodyne receivers. *They lock in fast.*

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Swiftships Delivers Aluminum MTU-Powered Service Vessel

A new general service boat, PBR/131 (shown above), has been designed and built by Swiftships, Inc. of Morgan City, La. The USCG-approved, all-aluminum vessel is owned by Mariner Equipment, Inc., and operated by PBR Offshore Marine Corporation, also of Morgan City.

According to Swiftships' technical director **Calvin LeLeux**, "This boat is an ideal multipurpose vessel. It was specially designed to be versatile in use, travel at a good rate of speed, and maintain smooth maneuverability."

Three MTU 8V396TC82 main engines combine with ZF BW 255 2:1 reduction gears turning 38-inch by 40-inch bronze, four-blade Columbian wheels to provide PBR/131 with speeds up to 25 knots. Power onboard the boat is provided by two International Electric 50-kw generators powered by Detroit Diesel 4-71 engines.

Bibbins & Rice supplied and installed all electronics. Instruments include a Furuno FR-711 radar; two radiotelephones, a Stephens SEA-122 SSB radio, and a Texas Instruments 2100 VHF radio; a TI 9000 A Loran by Texas Instruments; a Raytheon F 720 D Depth Sounder, and a Danforth compass.

The 120-foot craft has a 10-foot depth with a 9-foot appendage draft loaded, 6 feet when empty. Fuel tanks hold 10,050 gallons, which gives the vessel 90 hours endurance. It carries 800 gallons of potable water and 13,250 gallons of drill water. With a cargo deck area of 60 feet by 18 feet, PBR/131 can carry 100 tons of materials and supplies.

It is fully outfitted to house a six-man crew. This rugged boat also features complete firefighting capabilities, life-saving gear, and air-conditioning and heating throughout. PBR/131 will perform a variety of nautical functions for PBR Offshore Marine in the Gulf of Mexico.

New Drydock Installed At Todd Shipyards' New Orleans Division

A 3,500-ton-lift-capacity drydock for the repair and maintenance of small ocean craft, inland waterway tugs, and barges of up to about 6,000 dwt was dedicated recently at the New Orleans Division of Todd Shipyards Corporation. The new 306-foot by 65-foot drydock, combined with the addition of a 450-foot wharf and the reconstruction of another 525-foot wharf section, greatly enhances Todd's ability to service ships and barges operating in the New Orleans port area, **John Meghrian**, Todd vice president, said. The New Orleans Division has two other drydocks of 15,000 and 20,000 displacement tons for larger vessels, and is also equipped for new vessel construction, primarily river craft and barges.

The completion of the improvements will increase the Division's employment from 500 to approximately 625 when the new facilities become fully operational. The drydock required an investment by Todd of more than $3.5 million. The wharf reconstruction and addition, built by the Port of New Orleans and recently completed, represented an investment of approximately $8.4 million.

This investment is part of an overall program to improve Todd's Gulf Coast shipyard facilities in order to better serve the area's growing maritime traffic. In October last year, Todd announced the purchase of a $40-million drydock for its Galveston, Texas, Division, which will enable that facility to service ships of up to 225,000 deadweight tons, or 94 percent of the present world fleet. Todd also operates a shipyard in Houston with ship and barge construction and repair capabilities serving the petrochemical and offshore oil industries in the Gulf.

Armco Offers Bulletin On Nitronic 50 Stainless Steel

A new product data bulletin is now available on Armco Nitronic 50 stainless steel. According to Armco, its Nitronic 50 provides a combination of corrosion resistance and strength not found in any other commercial material available in its price range. A newly published 20-page product data bulletin on the alloy describes it in detail including applications, mechanical and physical properties, corrosion resistance, and fabrication.

For a free copy of the bulletin,

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J. Erik Hvide Named President And COO Of Hvide Shipping

J. Erik Hvide

J. Erik Hvide has been appointed president and chief operating officer of Hvide Shipping Incorporated and its affiliates. He joined the Fort Lauderdale-based company in 1973 after gaining experience in dry cargo and tanker ship operations, both in the U.S. and Norway.

In 1970 Mr. **Hvide** joined Seabulk Corporation, which became an affiliate of Hvide Shipping in 1973. One of his achievements is the innovative CATUG design, the most successful of integrated tug/barge (ITB) modes of marine transportation. He was instrumental in developing the design, negotiating the original shipbuilding contracts, supervising the construction, and negotiating the charters of the original CATUG units.

Hvide Shipping Incorporated, established in 1958, is involved in many facets of the marine transportation industry, including vessel ownership and operation, vessel design and construction, deepsea tug/barge transportation, liquid and dry bulk terminal design and management, and harbor towing.

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Hitachi Gets Order For Two More Drilling Rigs For Hunt Group

Hitachi Zosen recently received another order from Penrod Drilling Company, a member company of the Hunt Group, to build two cantilever type, jackup offshore drilling rigs. The rigs are Hitachi Zosen-developed, standard-type Drill Hope C-250s. Compact and lightweight, they offer excellent economy in both construction and operation.

Capable of operating at water depths up to 250 feet, the rigs can drill to a maximum depth of 20,000 feet. They can operate in wave heights of 40 feet and at wind speeds of 115 mph. The rigs are constructed of special steel so that they can withstand temperatures as low as −10 C. Therefore, they can operate under severe weather and sea conditions, such as those in the North Sea.

The rigs will be designed and constructed according to the regulations of the American Bureau of Shipping. The U.S. Coast Guard's regulations will also be adopted to further ensure safety at sea. Delivery is scheduled for June and September 1982.

Including the latest order, a total of five drilling rigs have been ordered from Hitachi by Hunt Group companies. The previous orders included one semi-submersible rig for Penrod and two jackup rigs for Offshore Investments, Limited. To date, a total of five Drill Hope standard rigs have been ordered.

DEBEG Watch Receiver Approved By FCC

DEBEG Marine, Inc., Salem, N.H., has announced FCC approval of its new model 2340 watch receiver. The receiver was designed to conform to SOLAS regulations and the requirement that all vessels over 300 gross tons will be equipped with a watch receiver by March 31, 1981. The unit has been proven on hundreds of oceangoing vessels, having already met all the required European standards.

The DEBEG 2340 RT watch receiver/auto alarm provides permanent watch keeping on the international distress frequency, 2182 kHz. Three operational modes are push button selectable. When in MUTE mode, the receiver is in operation but AF signals are inaudible. When in the 2-TONE Filter mode, only the 1300 Hz and/or 2200 Hz are audible. In the NORMAL mode, all AF signals are audible.

The DEBEG 2340 is designed for connection to the ship's main power, either 110/220-volt 50/60 Hz, and the 24-volt dc emergency battery. Automatic switchover to 24-volt dc is performed in case of ac power failure.

For more information,

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Hostelley To Supervise Republic's Non-Ocean Marine Transportation

Ronald R. Hostelley has been promoted to supervisor of marine transportation at Republic Steel Corporation's general office, **James F. Frankenberry,** director of raw materials purchases, announced recently. In his new position, Mr. **Hostelley** will be responsible for all non-ocean vessel transportation including Seaway and Great Lakes movement of iron ore and limestone, in addition to the Reserve Mining Coal Float. He will also supervise the coordination of Republic's iron ore movement through the new Lorain (Ohio) Pellet Terminal, which will be serviced by 1,000-foot, self-unloading iron ore vessels, and the new Lorain to Cleveland self-unloading shuttle.

Mr. **Hostelley** joined Republic in 1978 to coordinate the company's Great Lakes iron ore vessel transportation. His previous marine industry experience includes several years of service with Kinsman Lines and Columbia Transportation, where he served in various vessel operating positions.

Southwest Marine Gets $7-Million Navy Contract For LKA Overhaul

Southwest Marine Incorporated, San Diego, has been awarded a $6,950,000 firm fixed-price contract for the regularly scheduled overhaul of the amphibious cargo ship USS Durham (LKA-114). The Supervisor of Shipbuilding, Conversion and Repair, USN, San Diego, is the contracting activity. (N62791-77-C-0001)

Richard Hopkins Promoted To Vice President Of J.J. Henry In Moorestown

Richard R. Hopkins

Richard R. Hopkins has been promoted to vice president and director of government marketing and special projects at J.J. Henry Co., Inc., reporting to **Anthony C. Brown**, senior vice president and manager of the Moorestown Division (Moorestown, Portsmouth, Crystal City, and San Diego Offices).

Moving up from assistant vice president, Mr. **Hopkins's** responsibilities will include the overall management of the Portsmouth, Crystal City, and San Diego branch offices, in addition to managing the total government marketing, proposal, and contract efforts.

Mr. **Hopkins** joined the Henry firm in 1952, and has progressed through positions of increasing responsibility in all phases of shipbuilding design, construction, project management, proposals, company training programs, and marketing.

ALCO Power To Introduce New Model Diesel Engine —Literature Available

Drawing upon a joint total of three and a half centuries of diesel experience of the GEC Diesel Group offering a wide range of experience in applications spanning marine propulsion, marine auxiliaries, offshore power, rail traction, and power generation for industry and public service, ALCO Power Inc. of Auburn, N.Y., will display at this year's Offshore Technology Conference in Houston a soon-to-be-released, 12-cylinder model of a new ALCO 270 series of diesel engines. These engines eventually will be offered in the 6, 8, 12, 16, and 18 cylinder configurations.

The company states the range of power that ALCO offers is the result of being part of the GEC Diesel Group, evolving from years of diesel experience accumulated by such names as Ruston, Paxman, Dorman, Kelvin, Baudouin, and ALCO.

Utilizing computer-aided analytical methods developed within the Group, this new model ALCO 270 was built with computer-aided design techniques which provide instant information on tolerances and safety margins allowing quick assessment of the effect of changes in component dimensions and material specifications.

The new ALCO 270 incorporates the latest state-of-the-art, and was designed to complement ALCO's current and popular 251 series, thus giving ALCO the potential for supplying its customers not only a diesel, but dual-fuel and spark-fired versions as well. The 270 also has the capability of burning inferior quality fuels.

For full information and complete literature describing the new ALCO 270,

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Modernized Wharf In New Orleans Gives Todd Yard Expanded Capacity

The Board of Commissioners of the Port of New Orleans recently dedicated its new Hines Lane Wharf on the west bank of the Mississippi River. The $8.4-million reconstruction project, which includes $1.7 million received by the City of New Orleans in a Federal Urban Development Action Grant, will provide the Todd Shipyards Corporation with an expanded capacity for ship repair.

Hines Lane Wharf was originally a timber structure built in 1926 by the Dock Board in an agreement with Todd. In 1967, a 1,000-foot section was renovated at a cost of $2 million. In the current project the remaining 532 feet on the upstream end has been replaced with a modern facility, and a 450-foot section has been added to the downstream side. The addition creates berthing space for one more ship and also for a new floating drydock built by Todd.

The rebuilt section of the wharf joins the Navy upper ship repair wharf constructed during World War II, which the Dock Board purchased and leased to Todd in 1967. The 2,000 feet of the extended Hines Lane Wharf, together with the upper Navy wharf, now give Todd some 4,000 feet of continuous reinforced wharf for berthing and repairing ships.

Chevron's W.H. Banks Named Board Chairman Of AIMS

W.H. Banks, president of Chevron Shipping Company in San Francisco, has been elected chairman of the board of the American Institute of Merchant Shipping (AIMS) for the next 12 months. The change in leadership was announced by outgoing AIMS board chairman **J.J. Ervin**, president of Trinidad Corporation, Philadelphia, following the Association's recent annual meeting in Washington, D.C.

Mr. **Banks** has long experience in shipping, having been associated with Chevron Shipping Company since 1965. He assumes the leadership of a national association which represents American-flag shipowners and operators. AIMS's member companies, now numbering 29, own or operate over 12 million deadweight tons of tankers, dry bulk vessels, and liquefied natural gas carriers in U.S. domestic and foreign commerce.

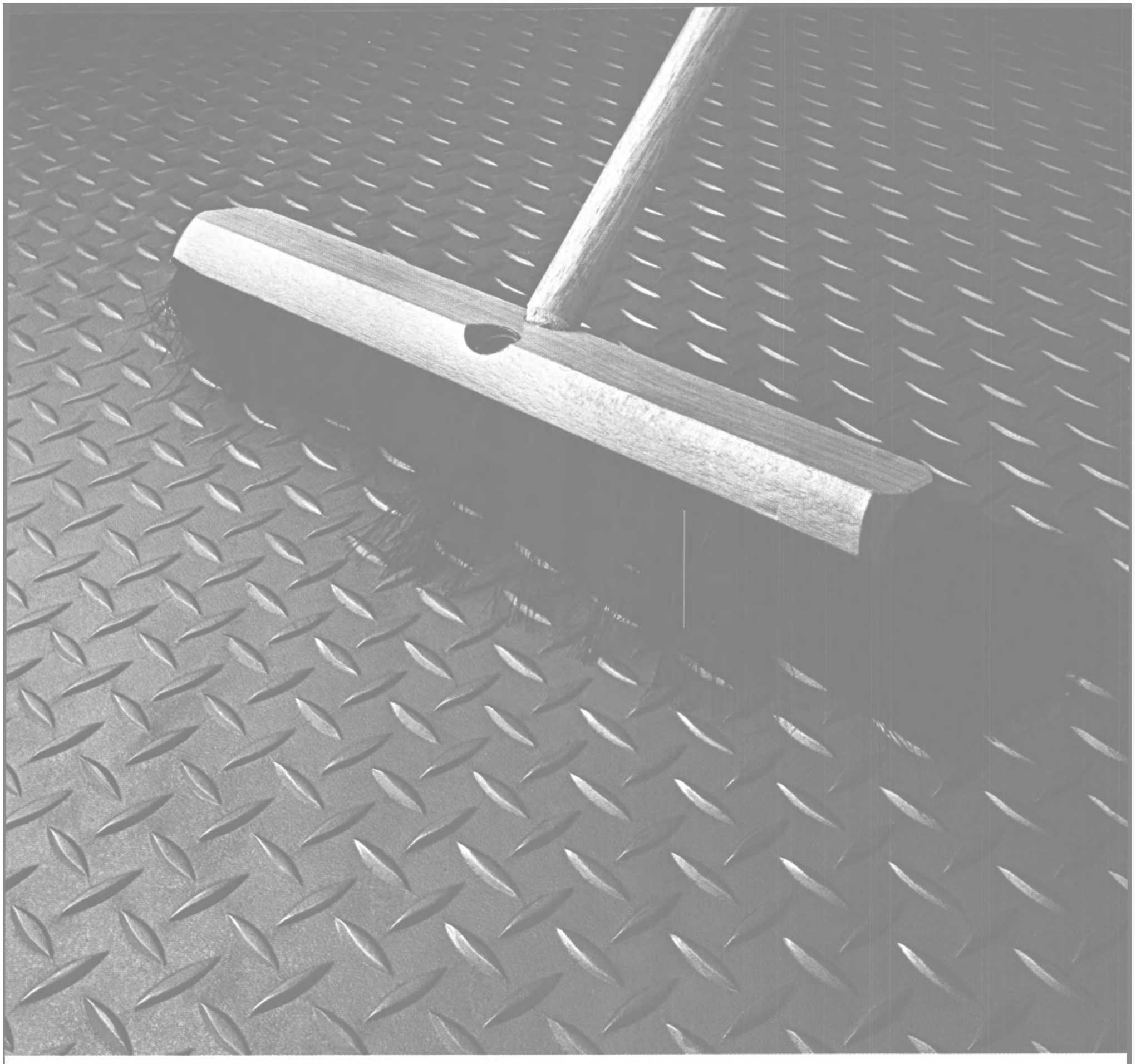
AIMS officers reelected by the board for the coming year are Rear Adm. **W.M. Benkert**, USCG (ret.), president; **Glenna Hartsock**, secretary; and **Roseann Pazak**, treasurer. AIMS has just completed its 12th year of service to the U.S.-flag merchant marine.

Breedlove And Berger Named To New Posts At Wall Rope Works

Wall Rope Works, a division of Wall Industries, Inc., Beverly, N.J., announces the recent promotion of **J.R. Breedlove** to vice president of manufacturing, and **G.A. Berger** to plant manager.

Mr. **Breedlove** has 15 years of experience in engineering, production, and management positions with Wall Rope. Mr. **Berger** was Wall Rope's engineer and production superintendent before his promotion. Prior to his employment at Wall Rope, he was a senior research technician for 19 years with FMC Corporation.

Wall Rope also announces the retirement of **J.J. Williams**, who was vice president of manufacturing. Mr. **Williams** held positions in every plant function during his 37 years with the company. Wall Industries is a diversified producer of synthetic and natural fiber ropes of all types and constructions.



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Avondale To Acquire New $50-Million Drydock For Ship Repair Work

Avondale Shipyards, a subsidiary of Ogden Corporation, announced that it will double its repair capacity through the construction and equipping of an additional floating drydock and support facility. The new $50-million drydock will enable Avondale to undertake an increased volume of repair work not possible with its existing facilities. Avondale's repair facilities have been operating substantially at maximum capacity for the past 10 years, and their current revenues exceed $60 million annually.

The new drydock will be capable of providing repair services for almost all vessels that call at the Port of New Orleans, and will be located at the Main Yard where it is expected to employ approximately 500 workers. It will be about 650 feet long and 150 feet wide, with a lifting capacity of 23,000 tons, and can be expanded if desired.

Albert A. Bossier Jr., Avondale's president, stated that there is substantial business for the new drydock, and that he expects it to be fully utilized as soon as it is available. Avondale also announced that it has received the preliminary approval of the Board of Commissioners of the Port of New Orleans to finance the new drydock with industrial revenue bonds.

Brochure On Peabody Inert Gas Systems Available From Atco Marine Corp.

A three-color, eight-page brochure describing marine inert gas systems designed and built by Peabody Holmes Ltd. is offered by Atco Marine Corporation, Peabody representative located in Brooklyn, N.Y. The brochure gives technical details and describes the operation of the Peabody flue gas system, and includes diagrams of the system and photographs of the components.

Peabody flue gas systems are available in capacities ranging from 5,000 to 30,000 cubic meters per hour. The company also manufactures an extensive range of oil-fired, inert gas generators having capacities from 100 to 20,000 cmph. These generators are self-contained and mounted on a bedplate for easy installation.

For a free copy of Peabody Holmes Publication 84,

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Uniflite Gets $690,000 Navy Contract For Five Utility Boats

The Naval Sea Systems Command has awarded a contract valued at $690,000 for five 50-foot utility boats to Uniflite, Inc., fiberglass boat manufacturer headquartered in Bellingham, Wash, according to **James J. Doud Jr.**, president.

These utility craft are used as support vessels on aircraft carriers, accommodating up to 146 personnel or 24,000 pounds of cargo, for runs between the carrier and other vessels or shore stations. They are 50 feet 2 inches LOA, 15-foot beam, and each is powered with a single Detroit Diesel 6-71N engine rated at 174 bhp. The fiberglass 50-footers will be built in the company's Bellingham yard. Delivery is to be made within 12 months with three going to Norfolk, Va., and two to San Diego.

Uniflite has been the largest supplier of fiberglass boats to the U.S. Navy over the past two decades, and is also a leading manufacturer of an extensive line of commercial vessels including special-purpose patrol boats, excursion boats, research boats, workboats, and commercial fishing craft up to 66 feet. The company also has an Eastern plant at Swansboro, N.C., on the Intracoastal Waterway.

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'Speed Sincher' Cuts Onboard Lashing Time —Literature Available

The Speed Sincher is a mechanical device which tensions open-bodied deck-cargo lashing turnbuckles, which are used extensively in the Pacific Northwest in shipments of logs and lumber. Powered by a gasoline engine and weighing 40 pounds, this unit is highly portable and can tension individual cargo lashings to a force load of 7,000 pounds, in 5 to 25 seconds, depending on the amount of take-up required.

The manufacturer reports Speed Sinchers have rapidly gained acceptance on the Pacific Coast because of: (1) ability to drastically shorten turnbuckle maintenance and onboard lashing time; (2) great improvement in cargo security; and (3) adaptability to existing ships gear at a very low cost.

It is reported three men using one Speed Sincher can tension a typical ships complement of 80-100 turnbuckles in under 40 minutes, substantially reducing man-hours per vessel lashing time.

Speed Sincher provides uniform and consistent tightness of cargo lashing chains. The load is pulled together, which helps to reduce the number of gaps. Turnbuckles with less than minimum take-up after tightening can be quickly unwound, the chain shortened, and retightened, leaving adequate allowance for at-sea relashings.

In conjunction with open bodied turnbuckles with cross-sectional dimensions not exceeding 3½ inches by 1½ inches, Speed Sincher is particularly fast and economical.

For more information,

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Navy Awards Norshipco $5.8-Million Contract For Overhaul Of LST-1194

Norfolk Shipbuilding and Dry Dock Corporation, Norfolk, Va., is being awarded a $5,798,521 firm fixed-price contract for the regularly scheduled overhaul of USS Lamoure County (LST-1194). The Supervisor of Shipbuilding, Conversion and Repair, USN, Portsmouth, Va., is the contracting activity. (N62678-76-C-0036)

Harold Smith Appointed General Manager Of Detroit Diesel Allison

Harold L. Smith Jr.

Harold L. Smith Jr. has been named general manager of the Detroit Diesel Allison Division, General Motors Corporation; he is also a GM vice president. Mr. **Smith** replaces **Donald J. Atwood,** who has been appointed group executive in charge of GM's Electrical Components Group.

Mr. **Smith** joined General Motors with the Electro-Motive Division in LaGrange, Ill., as a detail project engineer in 1946. Working his way up through the engineering ranks, he became assistant chief engineer in 1960, then chief engineer in 1965.

He was promoted to general manager of Electro-Motive Division and was elected a GM vice president in 1973. The following year he was appointed group executive in charge of the GM Power Products Group, the position he held until his latest assignment.

Detroit Diesel Allison was formed in 1970, when GM merged the former Detroit Diesel Engine and Allison Divisions. DDA has manufacturing operations in Redford Township and Romulus near Detroit; Indianapolis, Ind.; Wellingborough, Northamptonshire, England; and Peterhead, Scotland.

M.E. Kremer Appointed New Orleans Sales Manager For Federal Barge Lines

Michel E. Kremer

Michel E. Kremer has been appointed manager-New Orleans sales of Federal Barge Lines by Pott Industries Inc., it was announced by **Thomas F. Maloney**, senior vice president-sales of Federal Barge Lines, a wholly owned subsidiary of Pott Industries, Inland Waterways Division. Pott is a member of the Houston Natural Gas Corporation group of companies.

In his new position, Mr. **Kremer** will be responsible for company sales operations in the New Orleans, Morgan City, and Mobile areas. Previously he had been transportation manager of Triangle Fleeting, Inc., another subsidiary of Pott Industries, Inland Waterways Division.

New Brochures Describe Allied Water's Reverse Osmosis Desalinators

Allied Water Corporation has just published new brochures on their SweetWater Series III Reverse Osmosis (R/O) water makers. The units described employ the energy-efficient reverse osmosis (R/O) process to obtain pure, potable water from salt, brackish, and polluted feedwaters. Of simple, rugged construction, SweetWater desalinators are manufactured with output capacities from 100 to 4,000 gallons.

The firm is also offering guidelines for pre-filtration of the various feedwaters with which SweetWater desalinators may be used. To obtain both publications with complete specifications,

Write 23 on Reader Service Card

$2.6-Million Modernization Contracts Awarded To TTS By Vemar Yard

Total Transportation Systems, Inc. (TTS) of Newport News, Va., has recently received three contracts, totaling in excess of $2.6 million, from Vemar, Inc. of Channelview, Texas. These contracts are part of a major modernization program that should result in Vemar, Inc. becoming one of the most modern and efficient marine construction yards of its size in North America.

This modernization will include a complete shotblast and paint line for steel plates and structural shapes. An automated material-handling system will convey the processed materials into and out of the shotblast line. The entire system will be controlled by a single operator.

A TTS panel production line will be used to produce stiffened panels and sections. Based on an annual throughput in the range of 700 to 800 panels, a savings of more than 15 manhours per ton can be realized. The panel line will produce stiffened panels up to 60 feet wide. It will feature a one-side welding process station that will weld a series of plates together into a plate blanket.

The completed panels and sections will be removed from the end of the panel line and transported to storage areas or the launch ways using the TTS Lift-Loader. The Lift-Loader is a heavy-capacity, fork-lift truck operated semitrailer that has the capability to load and unload itself without the use of cranes.

Designed to be an integrated system, the facility will enable Vemar to be highly efficient in the construction of jackup rigs, posted drill barges, submersibles, and other marine structures.

Nippon Kokan's Experimental Ship Proves

Sail-Equipped Motorship Feasible

M. Ishihara, T. Watanabe, K. Shimizu, K. Yoshimi and H. Namura*

This article deals with the efforts of Nippon Kokan K.K. which, in collaboration with the Japan Marine Machinery Development Association, tried to develop, by fully utilizing modern techniques, sail-equipped motorships that can operate under present-day conditions. The research and development was started in 1978 and extended over a period of more than two years. It included wind-tunnel tests, the design and manufacturing of sails, sea trials of the experimental-ship Daioh, and feasibility study based on these test results.

Objectives

Among wind-propulsion equipment, including those used in the past, there are the Flettner rotor, wing mill, gull wing, wing sail, square sail, fore-and-aft sail, slotted sail, aerogenerator (electric propulsion), etc. Each wind-propulsion equipment has its own characteristics, and an optimum one should be selected applying the decision criteria in conjunction with the conditions under which the wind-propulsion equipment is utilized. Although there are many decision criteria, and it is very difficult to select the optimum equipment, the following items are considered as the prerequisites for the commercial application of the wind-propulsion equipment.

1. Its energy conservation effects must be high, utilizing a wide range of wind forces effectively.

2. It must be mechanized and a special crew should not be necessary. The equipment should not obstruct cargo handling.

3. It should maintain the safety of the crew and cargo on the same level as on conventional ships.

4. Its maintenance and repair work should be reduced as much as possible.

Various kinds of wind-propulsion equipments were assessed applying these criteria, and it came to the conclusion that using wind energy directly as a propulsive force by sails was the most effective and practical method for employing this natural power. From the viewpoint of aerodynamic performance, fore-and-aft sails including semirigid wing sails, and square sails, including slotted sails, were considered the most promising candidates for sailing equipment for commercial ships.

Also, in consideration of the general applicability of the sailing equipment, the following conditions were added:

1. It should be applicable to ordinary motorships without any special countermeasures.

2. It is used as auxiliary power, with the aim of reducing the fuel consumption of the engine, since modern commercial ships need a relatively high speed and punctuality.

Considering all of these items, the main goals of this study were decided as follows:

1. Type of ship, size and speed —10,000 to 35,000-dwt bulk carrier with a speed of 10 to 15 knots.

2. Energy conservation capability — Conservation of over 10 percent in fuel consumption.

3. Mechanization and automation of the equipment.

Development

At first, wind tunnel tests were conducted systematically to investigate the aerodynamic characteristics of various sails. Development of sailing equipment for the experimental-ship Daioh was based on these results and performance of the selected sail was repeatedly checked by the wind tunnel tests, on-shore tests, and sea trials.

The validity of the estimation method used to predict the power gained by use of sails onboard the ship was verified by comparing the data obtained during the sea trials with the estimated value.

The various parameters related to sail form were determined after considering both the construction costs and the various objectives and by referring to the results of the wind tunnel tests. As a result, three types of sail were selected for the experimental-ship Daioh: One set of rigid sail from the standpoint of the best sail performance, one set of soft sail from the standpoint of the low cost, and one set of triangular sail to manage the head wind.

Although all three types differ in certain respects, their operations were mechanized in preparation for adopting full automatic operation in the future.

At the same time, studies on maneuverability and stability were thoroughly conducted and rudder area and bilge keels enlarged.

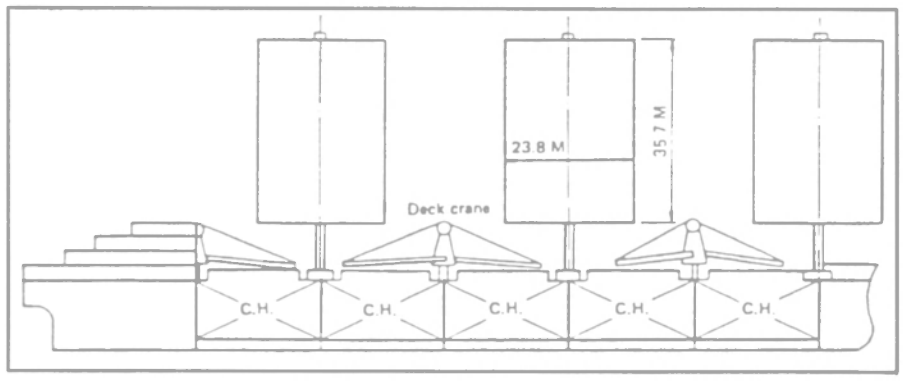

Figure 1 — Proposed profile of a sail-equipped motorship. This bulk carrier would have a capacity of 20,000 tons and a sail area of 850 square meters on each of three masts.

Tests On Daioh

Before carrying out the sea trials, tests were conducted onshore to check whether the data obtained from the wind tunnel tests could be utilized for estimating the performance of the sails on the Daioh. Strain gauges were installed at four points at the bottom of the mast for the rigid sail to measure the force on the sails through the strain on the mast.

Sea trials were conducted to determine whether the various estimated performance assumed from the results of the wind tunnel tests could be applied to the actual ship, that is, whether the three mechanized types of sails would operate as planned.

The average of the measured ship speed was about 95 percent of that estimated and conformed approximately to the estimated speed when the ship ran under both the engine and sails. On the other hand, when the ship ran under sails only, the average of the measured ship speed was about 85 percent of the estimated speed and the deviation between them was adjusted.

These deviations between the estimated ship speed and the measured ones in both cases were thought to be mainly caused by the assumed conditions utilized in estimating the ship speeds. Then the ship speeds were estimated again using actual data on the angle of attack of the sails, drift angle and the rudder angle that were obtained at the sea trials. Also, the wind force acting on the hull neglected before was taken into consideration and the data obtained at the wind tunnel tests were utilized.

When the ship ran under both the engine and sails, the measured ship speed conformed to the estimated speed accurately enough and it was proved that the sail performed well as the results at the wind tunnel tests.

On the other hand, when the ship ran under sails only, there were still approximately 10 percent deviation between the estimated ship speed and the measured speed. The reasons for this deviation were thought to be bad steerability due to stoppage of the engine, intensification of the effects of the waves, wind velocity and wind direction due to the slow speed. To analyze these effects quantitatively from only the data obtained is difficult, but the causes were made clear and more accurate estimation can be expected when the ship runs under the sails only.

Target Ship

In conducting studies on the possibility of producing a sail-equipped motorship that satisfies the conditions given and while simultaneously considering the popularization of sail-equipped motorships, outline specifications of sail equipment like those for conventional ships were determined.

Figure 1 shows a 20,000-dwt bulk carrier with a sail area of 850 square meters on each of three masts.

Developing a sail-equipped motorship was based on the following motto: "Main: Engine; Auxiliary: Sail." In regard to this, actual propulsion control offers two possibilities: (1) constant ship speed, and (2) constant engine output. In the former case, since ship speed is constant without being affected by wind direction or wind velocity, engine capacity should be identical to that for conventional ships, and the objective should therefore be economy of fuel consumption due to the horsepower gained from the sails. On the other hand, with the latter type, if engine output

(continued on page 26)

*Messrs. Ishihara, Watanabe, Shimizu Yoshimi and Namura of Nippon Kokan K.K., Tokyo, Japan, presented the paper abstracted here before the recent Shipboard Energy Conservation '80 Symposium presented by The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers in New York City.

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Sail-Equipped Motorship

(continued from page 24)

is constant, ship speed is not constant as it depends on wind utilization. However, if the average ship speed throughout the entire voyage is the same as in (1), it becomes possible to use a smaller main engine than is used on conventional ships.

After comparing the two possibilities and considering the implications of propulsion control concerning ship schedules, it can be seen that possibly (1), in which the ship speed remains constant, is far more practical.

In the case of the speed being kept constant, the relationship between the propulsive power of the sails and main engine output is as shown in Figure 2. The main engine is controlled in such a way that total output will be constant as much as possible.

In this system, when a fixed-pitch propeller is used, the number of revolutions is controlled. If a variable-pitch propeller is used, the blade angle and number of revolutions are controlled resulting in an engine load that achieves maximum fuel economy while keeping constant speed.

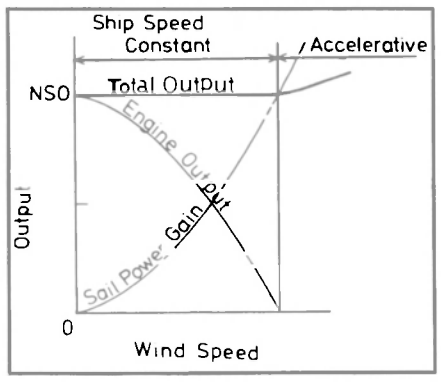

Figure 2 — Relationship between propulsion power of sails and main engine with ship's speed being kept constant.

Conclusions

Through these studies and tests, main results were obtained as follows:

1. The sail-equipped motorship in which sails are used as auxiliary (not as main) source of propulsion seems to be most feasible at the present stage.

2. Laminar flow type rigid sails which were mechanized fully were found to be one of the optimums for practical sail equipment.

3. Considering the increase of the fuel oil price in the future, sail-equipped motorships seem to be economically feasible at this time, by the effect of the cost-down of sailing equipment.

Ocean transportation is in a state of emergency due to recent rapid increases in the price of fuel for ships and to the growing uncertainty of fuel supply, both of which have made it imperative to take measures for the conservation of fuel. Under such conditions, the re-emergence of wind force as a natural source of energy for the propulsion of ships through modern techniques has become of great significance. Even during the period of two years while this research and development was being conducted, the petroleum situation has undergone drastic changes. These conditions indicate that the time is fast approaching when sail-equipped motorships will become feasible on a commercial basis.

As a result of feasibility studies made using a 10,000 to 35,000-dwt bulk carrier, the first stage of the development process, it was established that this type of ship can be operated profitably. However, when the actual equipping of the ship was considered, there were and still are many problems to be solved regarding maneuverability which must be studied in more detail; maneuverability in docking, mooring and when in harbor movement; the crew needed for this type of ship and their mastery of the operational techniques; the selection of the most suitable routes for specific voyages, etc. Solving these problems has thus become the task that will be undertaken

(continued on page 28)

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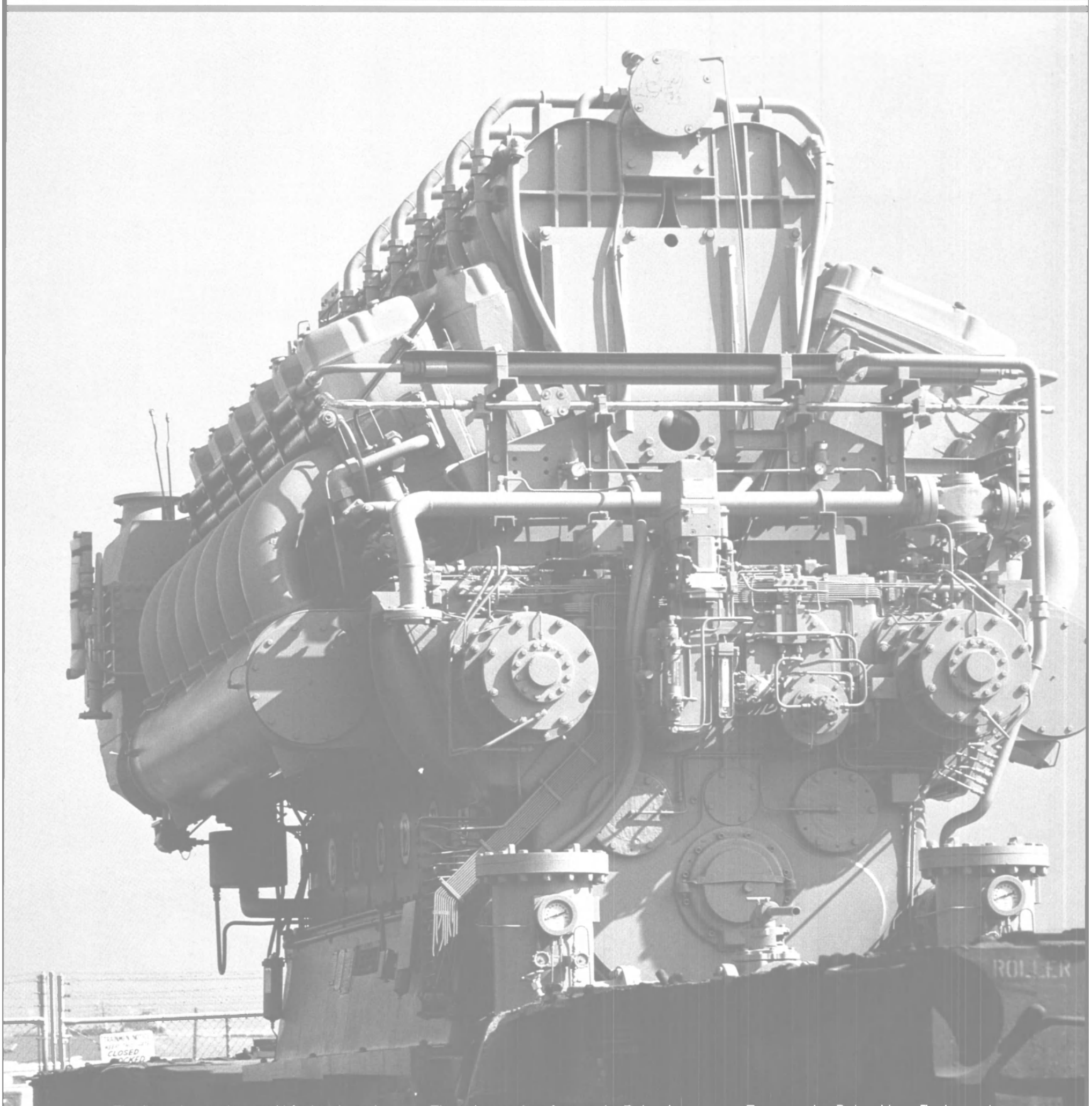

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Sail-Equipped Motorship

(continued from page 26)

during the second stage of the development process.

Fortunately, a prototype of a sail-equipped motorship for which various experiments are scheduled and on which high expectations are placed is planned for completion during 1980.

Gems Level Switches Meet Latest Self-Checking Capability Requirements

Many hazardous cargoes now require self-checking of loading and off-loading operations under closed-loading conditions for crude and fuel oil, chemical, and other product carriers. The Gems LS-55555 Series manual check level switches were designed to meet these requirements, specifically for high level control use in closed-loading tankers, but they are equally suitable for use in other types of level applications.

A unique safety feature of the LS-55555 switches is the hand simulation for pre-checking closed tank high level alarms. A simple handring atop the unit on deck raises float(s) inside the tank, just as liquid level would, to actuate the system. As normal operation is simulated, the check is a positive one.

Constructed of stainless steel, units up to 15 feet long have one or two level stations with switches either normally open or normally closed. Installation is through a flange in 5-inch, schedule 40 pipe. Electrical components are protected against moisture contamination by a silicone fluid reservoir within the unit's stem assembly. Rough service dependability is built-in throughout. Operating pressure is 50 psig, temperature is 180 F maximum. The magnetically actuated reed switch is hermetically sealed.

For more details,

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Larry Landry Named VP-Projects Traffic For Transoceanic Shipping

Basil J. Rusovich Jr., president of Transoceanic Shipping Company, Inc., announced recently the promotion of **Larry J. Landry** to the position of vice president, Projects Traffic. He has been associated with the company since 1973, and is experienced in all phases of international freight forwarding, traffic handling, and freight contracting. In addition, Mr. **Landry** has worked with the company's packing subsidiary, International Export Packers of Louisiana, Inc. (Interpack). In his new position, he will be responsible for traffic and transportation coordination as related to major worldwide projects being handled by Transoceanic Shipping.

The New Orleans company is one of the largest international freight forwarding and export freight contracting firms in the Southeast United States, with additional offices throughout the country.

Brochure Available On Unit Mariner Hydraulic 65-Ton Pedestal Crane

A four-color, 12-page brochure describing the Unit Mariner model 650-H hydraulic crane is now available from Unit Crane & Shovel Corporation. Designed for offshore drilling and production platforms, the 650-H is the heavyweight of the Unit Mariner line.

This crane has an API rated capacity of 75,000 pounds, and can be equipped with boom lengths up to 150 feet. It has full hydraulic drive, and is available with a diesel or electric power plant.

The 40-foot-tall A-frame design provides the capability for larger lift capacities at extended boom radii. The crane operator can reach across the platform with heavy loads, up and over obstructions. And during unloading, supply vessels can stand off at a safe distance from the platform.

For a free copy of the brochure, which gives detailed specifications on the model 650-H,

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Above: The MARIE TILTON, a 396-foot long tank barge owned by Turecamo Tankers, Inc. Designed with a 103,500-barrel capacity, the TILTON features a flexible cargo handling system which allows it to carry multiple cargoes and has an off-loading capacity of 18,000 barrels per hour.

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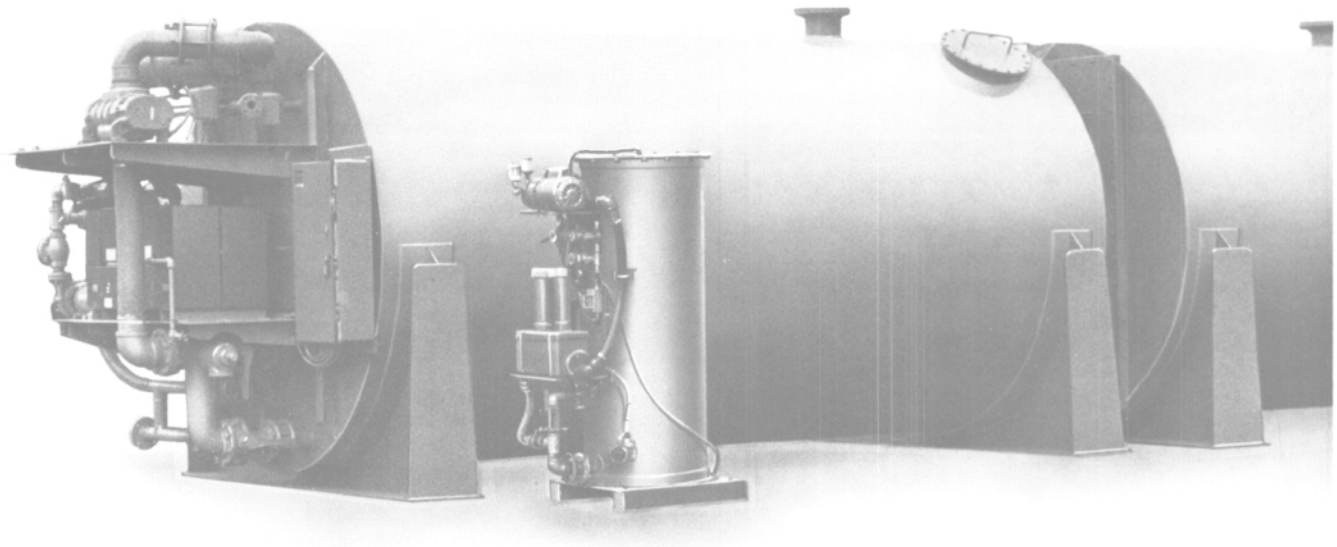

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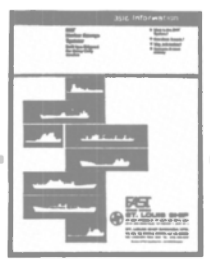

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JETFOIL FOR BELGIUM—The first of two Boeing Jetfoil hydrofoils for Regie voor Maritiem Transport (RMT), the state-owned ferry company of Belgium, was launched recently by Boeing Marine Systems in Seattle, Wash. The 316-seat hydrofoil, **Princesse Clementine,** will enter commercial service on May 31 between Dover, England, and Ostend, Belgium. Operating under the name "Sealink," RMT will provide up to six trips a day on the 62-nautical-mile route when the second Jetfoil, **Prinses Stafanie,** is added to the service this summer. Direct train connections will enable travelers to make the trip between Ostend and London in just three and one-half hours at approximately $43 one-way fare. RMT presently operates regular car-carrying vessels between Ostend and Dover/Folkestone.

Three Executive Promotions Made By Tidewater Marine— Allgood Named President

Sam S. Allgood

William E. Bright Sr.

Tidewater Inc. has announced a major realignment in the executive staff of Tidewater Marine Service, Inc., the oldest and largest of the company's enterprises serving the energy industry. **Sam S. Allgood** has been elected president of Tidewater Marine, with responsibility for worldwide marine operations. He replaces **William E. Bright Sr.,** who is retiring following the completion of 20 years' service.

Ray J. Hope

William R. Croyle

Ray J. Hope has been named a senior executive vice president of Tidewater Marine and president of Tidex International, a foreign vessel operating affiliate. He will have responsibility for all foreign Marine operations, except Canada, and marine joint venture activities. He will also continue supervision of Indonesian oil operations.

William R. Croyle has also been elected a senior executive vice president of Tidewater Marine and president of Tidewater Contractor Services, Inc. He will be responsible for the company's domestic marine and Canadian operations, in addition to the specialized domestic contracting services and demolition operations.

Announcement of the election of the three new officers was made by **John P. Laborde,** Tidewater Inc. chairman, president, and chief executive officer, who said that additional organization changes in the sales, engineering, and maintenance departments of Tidewater Marine will be announced as part of a reorganization plan.

Mr. **Allgood** joined Tidewater Marine as a vice president in 1968, following extensive service as vice president and manager of sales and operations with Twenty Grand Marine Service, Inc., which merged with Tidewater in 1968. Mr. **Hope** joined Tidewater in 1969 as manager of joint ventures following 22 years' service as marine manager with Ray Geophysical Co., Houston. He was elected vice president in charge of joint ventures for Tidewater in 1971, and later served as vice president in charge of Far East and Middle East operation. He was promoted to the position of senior vice president in 1976.

Mr. **Croyle** served first with Tidewater Marine's Pacific Coast operations, and later was transferred to Morgan City, La., where he was named president of Tidex, Inc., a domestic vessel operating affiliate of Tidewater Marine, and served as area manager for the U.S. Gulf and East Coasts. He later was named president of Tidex International, Inc., with responsibility for Europe and Africa marine operations in addition to domestic operations.

Bayou Black Shipyard Delivers 'Bengal Aggie' To Sundance Marine

Bayou Black Shipyard, Inc. of Gibson, La. (15 miles east of Morgan City), recently delivered the pushboat Bengal Aggie (shown above) to Sundance Marine of Houston. Turned over to her owners at Morgan City, the 60-foot vessel has a 25-foot beam and a depth of 9 feet. The hull is of steel construction, while the main cabin and pilothouse are of aluminum.

Main propulsion is provided by two Cummins KTA 1150 diesel engines, each rated 470 bhp at 1,800 rpm, driving through Twin Disc model 520 reverse/reduction gears. Electric power is supplied by two GM Detroit Diesel 30-kw generator sets. Electronic equipment includes an Epsco model 504 radar, two Drake MR-155 VHF radios, and one Raytheon Ray 350 loudhailer system.

PUMPS

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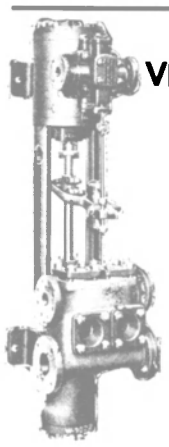

8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.
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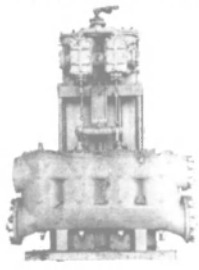

1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

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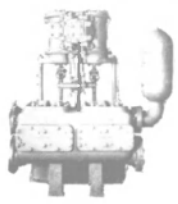

10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

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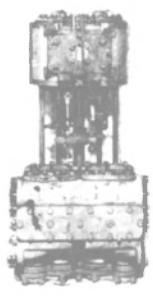

Hendy design Suction 8" — discharge 6" — 160 GPM @ 100 PSI.

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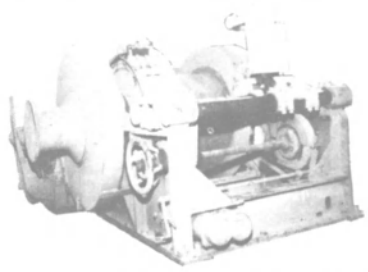

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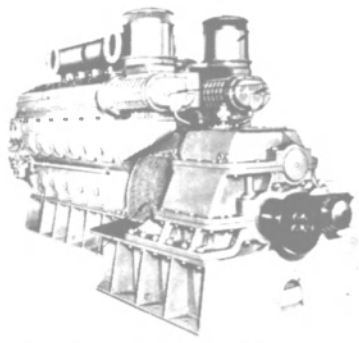
MATCHED PAIR GM 12-567A 900 HP DIESEL ENGINES

with Falk reverse & reduction gear



ENGINE: GM 12-567A—8½X10—VEE type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse & reduction—2.48:1 forward—2.52:1 reverse.

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Starboard — 7' diameter — pitch constant 4.699: Bore tapers from 6⅛" to 4$^{53}/_{64}$". 14½" taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

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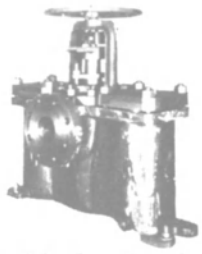

With hand wheel. Mfg. by Derbyshire. Flange to flange 14 3/8"—width 26"—center of hole to base 11". Fine steel mesh basket. Working pressure 300 lbs. 6 3/4" bolt circle with 8 bolt holes.

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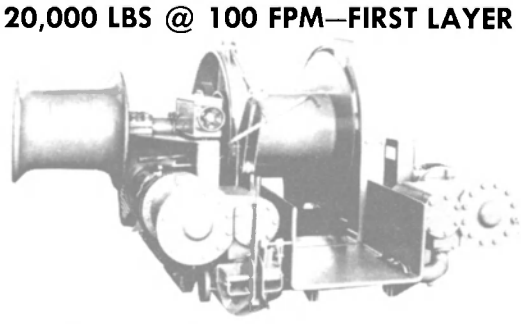

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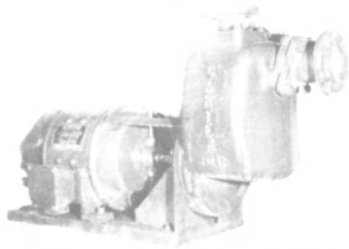

85 GPM @ 50 lbs. — 3500 RPM — 2" X 2". 5 HP — 115 VDC — 1750 RPM motor.

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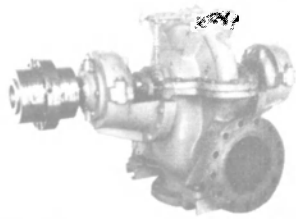
300 GPM—100 LBS

Ex-T2 Tanker. 150 Lbs steam—10 in exhaust — 100 lb discharge. 6" suction — 4" discharge — 1½" steam — 2" exhaust. Overall ht 4'7½" — OAW 3' — Depth 2' 9".

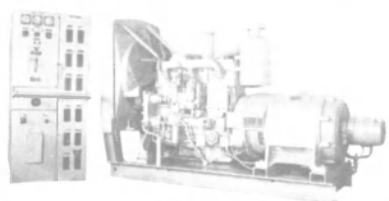
2000 GPM @ 337' HEAD BRONZE FIRE SERVICE PUMP



1900 RPM—8" Suction—8" discharge—steel frame base. Bottom or side suction. Mfg by Frederick Iron & Steel Co.—Model 8" D.S.V.—SPL—tapped for plumbisg connection. Base & coupling for motor included.

$3750 EACH

STANDBY GENERATOR CUMMINS 75KW 93.8 KVA DIESEL GENERATOR SET



440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

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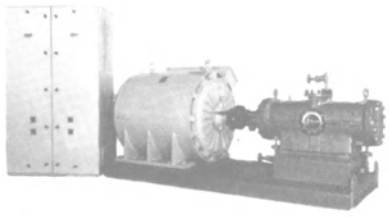
MOTOR DRIVEN ROTARY HORIZONTAL PUMPS

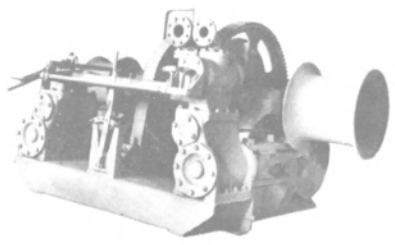
WITH 4-SPEED 440/3/60 MOTOR



Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

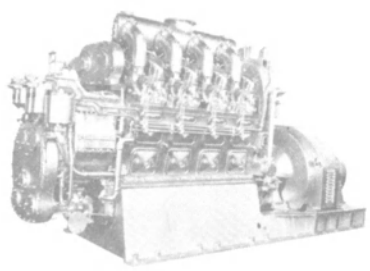
9X12 2-SPEED ALL-STEEL STEAM & AIR DRIVEN WINCHES for use as General Service or MOORING WINCHES

20,000 LBS @ 110 FPM—7,450 @ 250 FPM



DRUM CAPACITY: 1250' of 1" wire in 9 layers or 2200' of ¾" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. DRUM BRAKE: Contracting band type — asbestos lining — foot operated. WINCH DIMENSIONS: 12' long—8' wide — 5' 10" high. Reconditioned by U.S. Navy. Equal to new.

GM 8-278A 350KW 440/3/60 DIESEL GENERATOR SET



GM 8-cyl. engine — 8½X10 — 2-cycle — Vee type driving 350 KW G.E. generator—440/3/60—600 RPM—430 KW 2 hours. 3 Units available. Your inspection invited.

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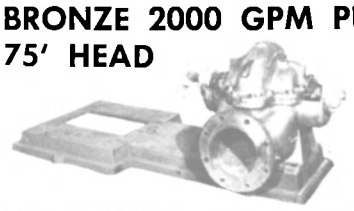
BRONZE 2000 GPM PUMP 75' HEAD



75' Head — 1750 RPM — mfg by American Well Works. Horizontally split case size 8X8. (50 HP motor required for pump capacity.) Frame 445. Supplied with 5'8"X 2'5" base.

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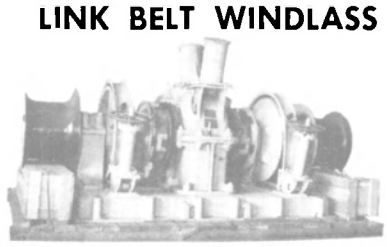
NEW — UNUSED NIJUIS FIRE PUMP

550 GPM @ 323' head @ 1800 RPM

$1975

NEW — UNUSED LINK BELT WINDLASS



Handles 7000 lb anchors — 1⅝" windlass — 56" centers — 50 HP — 230 VDC — with controls and spares.

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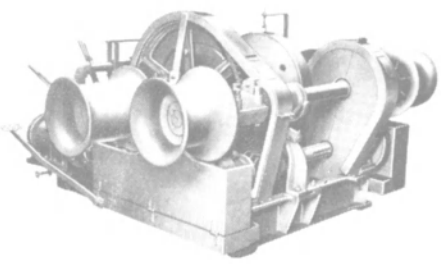
800 HP PROPULSION MOTORS AND CONTROLS

2 Available. 2-Bearing—800 HP—450 volts 3 phase 60 cycle — 1775 RPM — 1282 amps. Frame 2315S — mfg by Electric Machinery Co. — class B Insulation — with controls. Inquire for drawing.

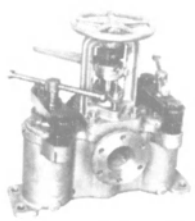
7x12 10,000 LB AH&D CARGO WINCH



2-Speed — single drum — reverse throttle operation. LINE PULL: low gear 10,000 lbs — high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7/8" diam. rope — high gear 250 FPM based on 1st layer of 5/8" diam. rope. DRUM: 26" diam. — 20" long — 26" flange diam. Rope capacity of drum: 7/8" diam. rope in 6 layers — 650'; 5/8" diam: rope in 8 layers 1200'. Steam preassure at throttle 115 lbs. Operating weight 6450 lbs.

DUPLEX STRAINERS

4" and 6"



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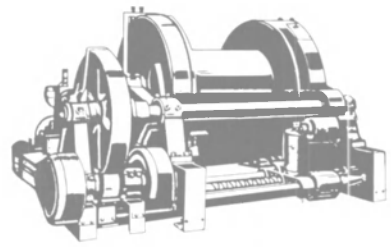
LARGE STEAM TOWING ENGINE

9 X 10 TWIN ENGINE DRIVE
Air or Steam — 125/250 PSI



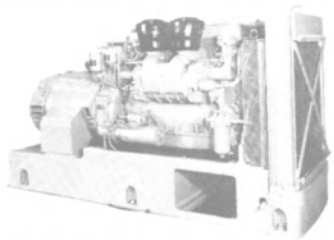
Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12'6" wide—6'6" high. Write for details.

ALSO AVAILABLE

Large towing ring — 36" I.D.

60KW DIESEL GEN. SET

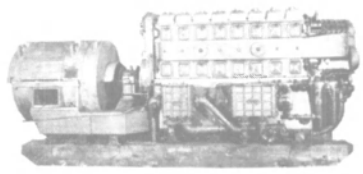
DELCO GEN. — GM 6-71 DIESEL



Delco 120 volt DC 500 amp stab. shunt 1200 RPM generator. Engine is GM 6-71 — heat exchanger cooled. Radiator shown is not included.

Reconditioned — Ready To Go.

300KW GM 8-268A 120/240 DC DIESEL GEN. SET



ENGINE: GM 8-268A — 6½ X 7 — 1200 RPM. Heat exchanger cooled. GENERATOR: Westinghouse 300 KW — 120/240 DC — shunt wound.

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FACTORY NEW NIJUIS 10" X 8" SPLIT CASE HORIZONTAL PUMPS

Best efficiency 3400 GPM @ 160 PSI — 1500 RPM or 5220 GPM @ 30 PSI — 1500 RPM maximum capacity. 4500 GPM @ 125 PSI — 1800 RPM. Requires 500 HP. 2000 GPM @ 110 PSI — 1450 RPM (using 6-V-71 engine reducing 8" to 6" suction).

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40KW EMERGENCY GEN. PANEL

Provides necessary device for automatic startup, control & protection of emergency generator. Provides power for essential circuits in case of failure of primary source. Also automatic shutdown of generator on restoration of primary source of power.

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Marine Sales managers agree...management, engineering and purchasing personnel...shoreside...in vessel operations, shipbuilding and naval architecture have the authority to specify and buy all types of marine products, equipment and services. These are buying power readers. Men aboard ship, shipyard laborers, students, advertisers, attorneys, etc., do not specify or buy...these are non-buying readers.

MARINE ENGINEERING/LOG

TOTAL WORLD WIDE BUYING POWER

(Non-buyers Removed)

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Companies, Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers, Purchasing Agents, Works Managers, Superintendents, Naval Architects, Marine Engineers & Chief Draftsmen **4,562** DOWN 20% LESS THAN '78 ↓

VESSEL OPERATING COMPANIES, OCEAN INLAND/OFFSHORE, PORT AUTHORITIES, OWNERS, AGENTS & BROKERS:

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PROFESSIONAL MEN:

Naval Architects & Marine Engineers **4,838**

TOTAL WORLD WIDE BUYING POWER 15,232

DOWN 18% LESS THAN '78 ↓

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Free copies (including thousands mailed to directory names). The No. 2 magazine, ME/Log circulation statement shows thousands of free copies to names taken from directories of people who have not requested the magazine (only free copies to buyers are shown here...ME/Log has a total free circulation of over 12,000 every issue, almost half their total circulation).

10,214 FREE COPIES

TOTAL 15,232

Warning: Demand to see official circulation statements, your only source for reliable data on circulation quality. Separate buyers from non buyers. Check for recently requested copies...copies requested in writing...number of paid buyers...unrequested copies (No. 2 mails thousands of free copies to names taken from lists).

Source MR - June 1980 Report
ME/Log - September 1980 Report

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This comparison shows the total circulation of both magazines to all shoreside buyers reached throughout the entire world...in all market areas... deep draft, inland waterways, coastal and offshore oil drilling. Copies to non-buyers, manufacturers, advertising prospects, insurance agents, schools, libraries, sailors, miscellaneous, etc. have been removed. You be the judge...which magazine is most wanted... requested by thousands more marine men who have the authority to give business to you.

TOTAL WORLDWIDE BUYERS (U.S. & Foreign Combined)

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18,234

OVER 99% REQUESTED BY INDIVIDUALS IN WRITING

TOTAL 18.234

MARITIME REPORTER/ Engineering News

WORLD WIDE BUYING POWER TOTAL
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(Commercial, U.S. Navy and U.S. Coast Guard): Companies, directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers and purchasing agents, naval architects, engineers and chief draftsman **5,652**

VESSEL OPERATING COMPANIES, OCEAN, INLAND, HARBORS, OFFSHORE OIL DRILLING, PORT AUTHORITIES: (Includes oil companies involved in offshore drilling, offshore drilling contractors and crew/supply boat companies).

(Owners, Agencies and brokers) Companies, directors, owners, agents, presidents, vice-presidents, managers, secretaries and treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside **10,150**

PROFESSIONAL MEN:

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WORLD WIDE BUYING POWER TOTAL 18,234

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William Black Appointed President Of Moran Transportation Industries

F. Robert Black, chairman of the board and chief executive officer of Moran Transportation Industries, Inc., announces the relocation of his office to Houston, where he will be directing the majority of his attention to strategic affairs and corporate expansion to Los Angeles and New Orleans. Mr. **Black** and the directors of Moran Transportation recently announced the appointment of **William P. Black** as president and chief operating officer.

William Black most recently served as general manager of an ITT subsidiary company servicing markets throughout the world. He brings to the company extensive experience in utilizing all modes of domestic and international traffic.

F. Robert Black

William P. Black

Moran Transportation Industries, Inc., whose principal operating subsidiaries are Moran Shipping Agencies, Inc., and J.F. Moran Company, Inc., includes 16 domestic locations from Maine to Texas, as well as an overseas agency in Greece. In addition to serving the import and export needs of New England and Northeast industries, company objectives will continue to be geographic expansion and diversification. Moran's corporate office and staff will remain in Providence, R.I.

Custom Marine Galley Fabricator Expands To National Coverage

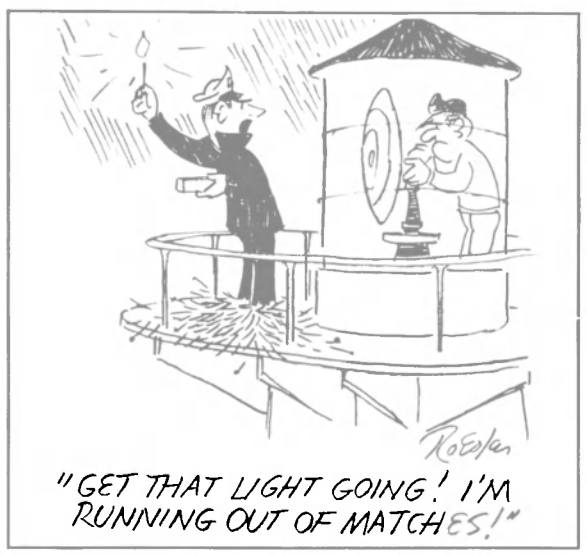
Kiefer Corporation of Milwaukee, a supplier of custom stainless-steel marine galley fabrications and equipment, announces the expansion of its Galley Division from a Midwest to nationwide market concentration. Since World War I, Kiefer has distinguished itself as a qualified supplier, outfitting Navy and Coast Guard vessels, merchant ships, ferries, and tugs to meet the most stringent government and industry specifications.

In its new brochure, Kiefer outlines its consulting service, manufacturing facilities, experience and sanitary credentials for new construction, retrofit and repair projects.

For a copy of the brochure,

Write 21 on Reader Service Card

FOUR AT A TIME—The Puerto Real Shipyard of Astilleros Espanoles S.A. in Spain recently floated out four newbuildings from its huge building dock, which is 525 meters long, 100 meters wide, and 15.5 meters deep (1,722.42 by 328 by 50.85 feet). The four vessels, shown in the dock prior to floatout, are two 31,000-dwt grain carriers, Alianza G-3 and Alianza G-4, building for Alianza Naviera Argentina S.A. of Buenos Aires; and the tankers Castillo De Ricote and Castillo De San Marcos, under construction for Empresa Nacional Elcano of Madrid.



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Halter Marine builds more supply vessels than anybody else in the world.

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We can build any boat you need. Ask us. Halter Marine, Inc., Dept. A-4, Box 29266 New Orleans, LA 70189 U.S.A., (504) 246-8900, Telex —58-4200, Cable HALMAR

HALTER MARINE INC.

The Total Shipbuilding Group

Spanish Ferry Company Adds Second Jetfoil In Canary Islands Service

Compania Trasmediterranea of Madrid, Spain, has purchased a second Boeing Jetfoil hydrofoil for passenger service on their route between Las Palmas and Tenerife in the Canary Islands. The Jetfoil will be delivered in October of this year. Trasmed began Jetfoil service in August 1980, and in the first six months of operation carried more than 100,000 passengers on the 52-mile route.

"The Jetfoil has proven very successful for us in the rough water of the Canaries," Trasmed president Don **Federico Esteve,** said. "When the service started, we knew it would be a challenge for both our company and Boeing Marine Systems," he said, adding that "performance has been excellent and we are buying a second Jetfoil."

Value of the 294-seat Jetfoil sale is approximately $13.1 million. The state-owned ferry company also holds an option on a third Jetfoil. Trasmed provides passenger, auto, and freight service in Spain with a fleet of 34 larger ferries.

The Trasmed sale brings the number of announced Boeing Jetfoil sales to 21. These vessels have logged more than 450 million passenger miles in worldwide operations since beginning service in April 1975. The Belgian state ferry company RMT (Sealink) will begin English Channel Jetfoil service on May 31 this year between Ostend, Belgium, and Dover, England.

Walter Gregorek Joins New York Sales Staff Of Midland Marine

Walter J. Gregorek

James A. McQuilling, president of Midland Marine Corporation, has announced the appointment of **Walter J. Gregorek** to its New York sales staff. Mr. **Gregorek** is a 1966 graduate of the United States Merchant Marine Academy, and has a master's degree in business from Fairleigh Dickinson University. His experience includes ship operation, engineering management, and ship repair marketing. His last position prior to joining Midland Marine was assistant vice president for marketing in the New York office of Curacao Drydock Company.

ASNE Section Meeting Held At Naval Submarine Base In New London

More than 90 people attended a recent meeting of the Southern New England Section of The American Society of Naval Engineers held at the Submarine Base Officer's Club, Naval Submarine Base, New London/Groton, Conn. **Ronald Provencher** from Naval Sea Systems Command gave a presentation describing the design, material, fabrication, and test of a titanium personnel sphere for the Navy's Deep Submergence Vehicle (DSV) Sea Cliff. This new sphere will replace Sea Cliff's original steel sphere installed during construction approximately 12 years ago. With the new sphere, Sea Cliff will be capable of operating to depths of 20,000 feet.

The acquisition of the sphere is managed by the Naval Sea Systems Command, construction by Mare Island Naval Shipyard, material procurement and testing by David Taylor Research and Development Center. The DSV is operated by Submarine Development Group-San Diego.

How will you be rewarded when you save your company millions of dollars with Intersmooth SPC® ?

Nothing will be too good for the man who can cut your fuel bills by 12 to 15% - just by changing the paint on the bottom of your ships.

Imagine savings of about:

$2,000,000* a year in fuel for passenger liners.

$650,000* a year for VLCC's.

$700,000* a year for high speed container ships.

And you can look for these savings to go up right along with the cost of fuel. (By 1985 the cost of fuel is expected to double.)

Here's how the system works.

Intersmooth SPC is an anti-fouling coating system that chemically releases a biocide - it wears away slowly and actually smoothes the bottom of the ship while keeping it fouling free between drydockings.

This smoothing action, plus the efficient anti-fouling qualities of Intersmooth SPC means less drag on the hull.

Less drag means less fuel.

12-15% less fuel.

You're on solid ground with Intersmooth SPC.

There have been over 400 applications of Intersmooth SPC. Many ships for the second and third time.

Fuel savings reports have been received on virtually all of these ships.

12%.

15%.

Even as much as 22% depending on the type of ship.

Intersmooth SPC produces more revenue days.

A clean hull can mean longer periods between drydockings.

There's even an increased ability to maintain speed. And because of the smoothing action on the hull there have been many reports of speed actually increasing.

Less maintenance and repair.

Reduced drag means less wear and tear on the entire drive train of the ship.

Subsequent drydockings are less expensive. Intersmooth SPC leaves the hull smooth and fouling free so there's far less surface preparation required.

Get in touch with your International Paint Representative now.

He has all the technical data. Case history studies. Brochures. Cost benefit analyses. Even a slide show to help you learn more about Intersmooth SPC. So call now before somebody else does.

Remember, a lot of other guys in your company are reading this ad too.

*Fuel at $160. per ton.

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Chick And Davie Named Regional Sales Managers For Gdynia America Line

As part of its continuing expansion of services related to arrival of new 22,000-dwt container-RO/RO vessels, **Gerald W. Chick** has joined Gdynia America Line, Inc., New York, general agents for Polish Ocean Lines (POL), as manager of sales in the metropolitan New York region. **Ronald G. Davie**, who joined Gdynia a year ago, has been appointed regional sales manager for New Jersey. Both men will report to **William T. Pierce**, vice president, sales and marketing.

The announcements were made by **Donald D'Agostino**, Gdynia's executive vice president, who also reported that the first of POL's four new ships is scheduled to enter the Atlantic-Eastern Canada service to Continental Europe in May. On March 3, POL inaugurated direct regular service from Halifax, Nova Scotia, to Rotterdam, Antwerp, Bremen, Bremerhaven, Hamburg, and Gdynia, and will place two additional container/breakbulk ships in this service.

For five years prior to joining Gdynia, Mr. **Chick** had been in sales management with ITT Ship Agencies, Inc., New York, general agents for Y.S. Line. Previously he had been a sales representative for American President Lines, and was for 16 years a representative for United States Lines, including six years as sales manager for southern Japan. Most recently he had served as consultant to ORFAC Trucking Co., Port Newark, N.J.

Todd's San Pedro Yard Gets $12.6-Million Navy LST Overhaul Contract

Todd Pacific Shipyards Corporation, San Pedro, Calif., has been awarded a $12,625,444 firm fixed-price contract for the regularly scheduled overhaul of the tank landing ship USS Racine (LST-1191). The Supervisor of Shipbuilding, Conversion and Repair, USN, Long Beach, Calif., is the contracting activity. (N65870-70-C-0010)

R.H. Cooper Appointed Marketing VP For Seaspan International

Allen M. Fowlis, president of Seaspan International Ltd., has announced the appointment of **R. Harold Cooper** as vice president, marketing. Mr. **Cooper** has held various senior positions with the company and its affiliates.

Seaspan International, a Genstar Company, provides diversified tug and barge transportation to industry on the Pacific and Arctic Coasts of North America.

Non-Slip Deck Coating Helps Prevent Falls Aboard Rigs And Ships

Epoxo, a non-slip safety coating that helps prevent hazardous slips and falls on offshore rigs and aboard ship is now available from American Abrasive Metals Company. Designed for a high-profile, heavy-duty traction, Epoxo was originally developed for use by the United States Navy. The coating has been used on the flight decks of all aircraft carriers since 1962, and has been effective in protecting aircraft, personnel, and rolling equipment even during the most rigorous operations.

The unique combination of resins utilized in Epoxo form a bond when cured, which is said to result in a superior slip-resistant surface impervious to water, oil, grease, and most chemicals. A tough resin binder locks in the granules, which cannot be loosened or kicked out. Epoxo is a liquid that applies like paint to any type of surface. But it is a coating, not a paint. The coating is recommended for use on exposed weather decks, storage areas, passageways, work areas, and the wet, slippery decks of offshore oil rigs. The coating also helps prevent injury to personnel and damage to aircraft on helicopter landing pads.

For a free sample chip, literature, and price list,

Write 17 on Reader Service Card

Officers and guest speaker at SNAME San Diego Section's January meeting are (L to R): **Larry Russon,** public relations; **Don MacDonough,** vice chairman; **Michael Steine,** author; **Steve Donley,** papers chairman; and **Kurt Schmidt,** secretary-treasurer.

San Diego SNAME Hears Paper On Ship Machinery Automation

The San Diego Section of The Society of Naval Architects and Marine Engineers held its January meeting at the Sheridan Harbor Island Hotel in San Diego. **Michael L. Steine,** manager of marine marketing for the Tano Corporation, presented a timely paper titled "An Approach to Plant Automation for American Ships of the 1980's—The Ingram Class System."

The current energy and economic realities that have affected the typical ship designs have also impacted the design of the machinery plant automation system. This paper described the Ingram Class ships, with emphasis on why this ship design reflects some of the current and anticipated plant automation trends for the United States. Data was offered to correlate ship system and automation system requirements. Trends addressed included the apparent demise of steam propulsion, the ascent of the slow-speed diesel, the use of periodically unattended engine rooms, and the fitting of simpler and more reliable plant automation systems.

The paper concluded by emphasizing that simpler, leaner, more economical, and more maintainable automation systems like the system being provided for the Ingram Class ships should become the most prevalent type of system for new U.S. ships throughout most of the decade of the 1980s. Some 60 members and guests in attendance concluded the meeting with a question and discussion period.

Diamond M Announces Corporate Promotions And One Staff Change

Diamond M Company, offshore drilling subsidiary of Houston-based Kaneb Services, Inc., has made three corporate promotions and one staff change, according to **Ned E. Simes,** president and chief executive officer. **Robert E. Rose,** formerly vice president contracts and marketing, has been named executive vice president. He joined Diamond M in 1979, and has an extensive background in both drilling operations and marketing.

Mr. **Simes** also announced the promotion of **Roger F. Wise** to senior vice president-operations, and **R.C. (Chuck) Johnson** to director-contracts and marketing. Formerly, Mr. **Wise** was vice president, worldwide operations, and Mr. **Johnson** was manager, contracts and marketing. Simultaneously, Mr. **Simes** announced a staff change involving the appointment of **Richard H. Mueller** to be director of technical services. Mr. **Mueller** formerly was director of foreign operations.

Diamond M, the largest energy-related subsidiary within Kaneb Services, currently operates a large fleet of drilling rigs, including semisubmersibles, jackups, platforms, and barge rigs. Three rigs currently under construction, including two semisubmersibles and a posted barge rig, will bring the company's rig fleet to 32 units.

Literature Available On Ports Serving 357-Mile Columbia/Snake Rivers

The Port of Portland, Ore., is offering information on the Columbia/Snake River container barge system and the six ports serving this 357-mile waterway. Entitled "Rediscover The River," the folder shows the cost efficiencies of shipping containers by barge from five river ports, terminating at the Port of Portland for transoceanic movement.

Traffic on this clear, 14-foot channel has increased twentyfold in just three years. The six cooperating ports are: Port of Lewiston (Idaho); Port of Whitman County, Port of Clarkston and Port of Pasco (Wash.); Port of Umatilla and Port of Portland (Ore.). Current rates, facilities and services of all these ports are included.

For a free copy of this folder, with pertinent and up-to-date information sheets,

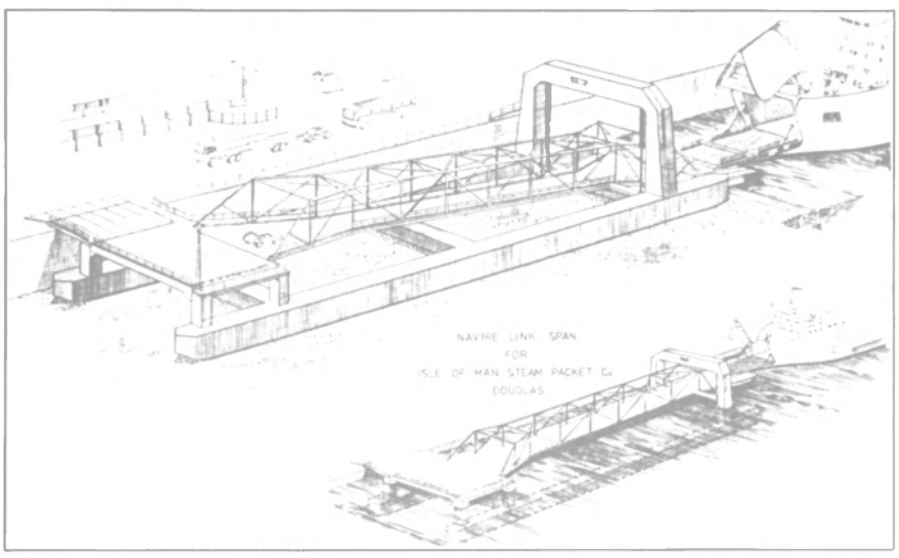
Write 30 on Reader Service Card

COMSAT To Sponsor Maritime Satellite Seminar On April 29

COMSAT (Communications Satellite Corporation) of Washington, D.C., will conduct a one-day informational seminar for maritime communications equipment suppliers and telecommunications carriers on planning for the transition of the MARISAT system to the international INMARSAT system in suburban Virginia on April 29.

The seminar will begin at 9 a.m. in the Marriott Twin Bridges Hotel in Arlington, Va., and continue until approximately 4 p.m. There will be no charge for attendance. Companies who wish to send representatives to the seminar should notify in writing **Hale Montgomery,** COMSAT Maritime Services Division, 950 L'Enfant Plaza, S.W., Washington, D.C. 20024. Reservations should be received by April 15. Participants should arrange their own travel and personal accommodations.

The purpose of the seminar is to provide status information on the emerging INMARSAT system to all interested maritime equipment suppliers and those telecommunications carriers who have an interest in serving the maritime market.



Navire Linkspan To Serve Isle Of Man RO/RO Operation

Navire Cargo Gear has released an artist's impression (shown above) of the roll-on/roll-off linkspan that will revolutionize transport between the Isle of Man and the U.K. mainland. The innovative design developed by Navire Cargo Gear, working closely with consultants Burness, Corlett & Partners, provides a roll-on/roll-off facility for Douglas harbor able to handle ships at all states of the tide. It is also able to withstand the severe weather conditions that frequently produce wave heights of considerable magnitude, even within the harbor confines.

Being built to the requirements of the Isle of Man Steam Packet Company, which is to start a freight RO/RO service between Liverpool and Douglas, the linkspan is fully portable, and can be moved from location to location with the minimum of difficulty. Initially, it is to be positioned alongside the Red Pier at Douglas, but at a later date it may be moved to the northside of King Edward VIII pier.

The Navire shipyard in Finland is now fabricating the linkspan, which will be ready for towage to the Isle of Man in May. The Isle of Man Steam Packet Company has chartered a freight-only, roll-on roll-off ferry from P&W and has announced that this operation will commence in mid-1981, complementing its existing ferry service that already caters for passengers, cars, and light vans using vessels that do not require a specialist RO/RO berth.

The Navire Cargo Gear linkspan consists of a 70-meter-long roadway supported on twin pontoons. In normal service, these pontoons are ballasted, allowing the whole structure to rest firmly on the specially prepared and leveled seabed. At most states of the tide, these pontoons are submerged although, during periods of very low tide, they will be exposed. However, RO/RO vessels should still be able to work cargo as the prepared area is at a higher level than the harbor bed at the seaward end of the ramp.

Should it be necessary to move the linkspan then the pontoons are easily de-ballasted, allowing the unit to be towed to a new location. This facility also eases the problem of maintenance, routine or otherwise. Navire Cargo Gear sees the possibility of further linkspans being constructed to designs similar to that of the Douglas unit, especially for applications where weather conditions make it difficult for simpler or more traditional designs to be employed. Douglas will be the sixth location to receive a Navire Cargo Gear linkspan. Others are in service in Scotland, Norway, Finland, Rumania, and the USSR.

$2-Million Federal Grant Awarded To Massport For Pier Renovation

Congressman **J. Joseph Moakley** (D-Boston) has announced a federal grant of $2 million from the U.S. Department of Commerce's Economic Development Administration to Massport to complete renovation of Boston's historic Fish Pier. At a reception at the Capitol, Congressman **Moakley**, who has championed the project since its start, described the Massport project as "a catalyst for revitalizing the New England fishing industry with substantial economic impact on the Massachusetts economy."

Under the three-year modernization program, the 65-year-old waterfront landmark property will undergo a major facelift that will lead, according to Congressman **Moakley**, "to a 50 percent increase in jobs at the Fish Pier." **David W. Davis**, Massport executive director, called the $12.5-million Massport Fish Pier Project "the anchor in Boston's resurgent fish processing industry. This project will make the Boston Fish Pier the number one fish processing center on the East Coast," he added.

Phase One of the restoration project, completed in the fall of 1980, provided for exterior rehabilitation of the three buildings on the pier, while Phase Two, which will begin this year, will finance improvements to the pier itself, a new utilities and road surface as well as interior improvements to the buildings. The overall three-year $12.5-million project will be completed by April 1982.

R.B. Bittner Named VP And Chief Engineer For Riedel International

Robert B. Bittner has been named vice president and chief engineer for Riedel International, Inc., according to **Robert E. Westermann**, executive vice president-construction/dredging group. In his new post, Mr. **Bittner** will supervise all engineering for the parent company and all construction-related Operating Divisions, including those involved in heavy marine construction, steel erection, drilling, subsurface foundation work, and installation of marine pipelines. His experience includes serving as project engineer for major construction jobs in Australia and the U.S.

In addition to its construction-related capabilities, Riedel International maintains Operating Divisions involved in production and sales of sand, gravel, concrete, and asphalt products; marine services, including towing, barging and launch services; environmental services, including oil and hazardous materials spill control and cleanup; and independent guard and security services.

Raytheon Building $1.4-Million Magnetic Measuring System For USN

Work is under way at Raytheon Company on a U.S. Navy system that will measure magnetic fields of ships before and after their hulls have been treated for defense against magnetically influenced mines. The automated system, which includes underwater magnetic sensors and data processing and display equipment, has been designed and will be built by Raytheon's Submarine Signal Division, Portsmouth, R.I., for installation at the U.S. Navy Deperming Facility in San Diego. The facility will accommodate vessels up to 30 feet in draft.

The $1.4-million contract with the Naval Sea Systems Command follows recent delivery by the Raytheon division of computer-controlled systems for both the measurement and treatment ranges at the Navy's Magnetic Silencing Facility in Bangor, Wash. As systems prime contractor, the division is also responsible for the current installation of sensors and shore-based instruments for these ranges, which will greatly reduce the processing time for a ship's treatment.

$61-Million Navy Award To Tacoma Boat For T-AGOS Construction

Tacoma Boat Building Company, Inc., Tacoma, Wash., has been awarded a $61,195,450 modification to a previously awarded contract for construction of T-AGOS vessels for the second program year (FY 81). The Naval Sea Systems Command is the contracting activity (N00024-80-C-2046)

Designer's Handbook From National Marine Service Describes Firm's Products

National Marine Service has made available a Designer's Handbook for naval architects, vessel operators, and shipyards. The new handbook includes technical literature and specification data for National Marine lines of marine instrumentation, bilge management systems, alarm systems, and safety watch and control systems that are customized to each vessel.

The new master clock, automatic bell logger, scanning temperature pyrometer, analog tachometer, and clutch slip panel are fully described. A chapter of the handbook covers American Bureau of Shipping (ACC and ACCU) and USCG regulations (NVC 1-78 and NVC 1-69) as they pertain to reduced manning and National Marine's instrumentation.

For a free copy of the handbook,

Write 29 on Reader Service Card

$1.9-Million Navy Contract Awarded To Nationwide Boiler Rentals

Nationwide Boiler Rentals, Inc., Mountain View, Calif., has been awarded a $1.9-million contract by the U.S. Navy to design and construct seven mobile boiler rooms. The systems, each consisting of two 5,000-pound-per-hour, 200-psi boilers, contain complete water-softening equipment, chemical feed systems, and fully automatic controls. Primary use of the systems will be to provide steam for electrical generators as well as hotel and other ships comfort services during extended, in-port stays and during scheduled boiler maintenance periods.

According to **Richard Bliss**, president of Nationwide, "The concept of using smaller mobile boilers to provide ships services while in port for extended stays is far more energy-efficient than keeping the large onboard boilers operating." The contract calls for acceptance and delivery of the first unit within 12 months, with the remaining six units to be delivered during the following year. The firm produced two similar systems for the Navy in 1978.

Some of the principals at recent meeting of SNAME New York Section were (L to R): **Harold Matherne**, contributor; **Eric Lithen**, Section chairman; **Kenneth Charboneau**, contributor; **John Higginbotham**, Papers Committee chairman; **Dieter Popoff**, author; and **Robert J. Tapscott**, honored guest.

Shipboard Electrical Cable Discussed At New York SNAME

The title of the paper presented at a recent meeting of the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers was "Electrical Cable for Ships — Past, Present and Future." The author was **Dieter Popoff**, and some information for the paper was contributed by **Kenneth Charboneau** and **Lloyd F. Gaubert Sr.**, the latter represented at the meeting by **Harold Matherne**. All are associated with Marine Industrial Cable Corporation of New Orleans.

Among the aspects of marine electrical cable discussed in the paper were: a history of its inception for use onboard ship to its current posture; regulatory bodies and their impact on shipboard cable; development of marine electrical cable specifications and problems encountered in the process; fire and safety at sea; impact of the space age in marine electric cable; and where we are going in the future with marine cable.

The author concluded his paper with this statement: the cable manufacturing companies, regulatory bodies, and cable users are now starting to make changes that are dictated by economics and safety; these changes, strictly from a technical standpoint, could have been accomplished years ago; and they will impact the entire industry for years to come.

At this meeting the New York Section honored **Robert J. Tapscott**, formerly executive vice president of George G. Sharp, Inc. Now retired, Mr. **Tapscott** has been a member of SNAME for 40 years.

Transamerica Delaval Licensed To Build Stork-Werkspoor Diesel

Transamerica Delaval Inc. has announced the signing of an agreement with Stork-Werkspoor Diesel B.V., Amsterdam, Netherlands, to market and manufacture SWD's TM620 diesel engines in the U.S. and Canada. The "Enterprise-SWD" TM620 will be manufactured exclusively at Transamerica Delaval's Engine and Compressor Division located in Oakland, Calif. Producing up to 2,000 horsepower per cylinder, the Enterprise-SWD TM620 is the largest medium-speed diesel in the world.

In making the joint announcement with the Dutch firm, Transamerica Delaval Engine and Compressor Division general manager **Clinton S. Mathews** said, "This diesel's excellent fuel economy and the capability of burning degraded heavy fuels are key credentials in today's energy-conscious world."

Addition of the Enterprise-SWD TM620 broadens Transamerica Delaval's technology base and extends the product line capability to 24,000 horsepower, providing the company the most extensive medium-speed diesel engine range available in North America from one manufacturer. Marketing of the Enterprise-SWD will be handled through Transamerica Delaval's Energy Products Sales organization with offices in 23 U.S. cities and four Canadian locations.

Both Transamerica Delaval and Stork-Werkspoor were founded at the turn of the century and have extensive experience in heavy machinery and marine fields. The U.S. firm has long worked with Dutch companies and participates in a joint venture called Delaval-Stork.

Sigety Named Manager-Maintenance & Repair For American President Lines

Joe C. Sigety has joined American President Lines (APL) as manager, maintenance and repair, for the Midwest Region, according to **Glenn J. Spargo**, managing director of the region. Mr. **Sigety's** responsibilities will include maintenance and repair operations for APL-owned and leased containers, chassis, terminal handling equipment, and support equipment.

He joins APL with 10 years of experience in the maintenance and repair field, having worked for American Trailer Service, ContainerBase, and other equipment and carrier-related firms in the Midwest. He will be based at the company's regional office in Chicago, 444 North Michigan Avenue, Suite 400, Chicago, Ill. 60611.

Nespoli Named Houston District Manager For Magnus Maritec

Frank E. Nespoli was promoted by Economics Laboratory, Inc. to district manager for the company's Magnus Maritec Division in Houston. He was previously a national accounts executive for that division. Mr. **Nespoli** received a B.S. degree from the U.S. Merchant Marine Academy in 1969.

Economics Laboratory develops, manufactures, and markets products and systems for cleaning, sanitation, and pollution control worldwide.

Lockheed Shipbuilding Gets $338.6-Million Navy Award To Build LSD-41

Lockheed Shipbuilding and Construction Company, Seattle, Wash., has been awarded a $338,600,103 modification to a previously awarded contract for detail design and construction of the Dock Landing Ship (LSD-41) (lead ship). The Naval Sea Systems Command is the contracting activity. (N00024-80-C-2080)

Newport News Yard Gets $66.9-Million Navy Contract For Work On Submarine

Newport News Shipbuilding, a Tenneco Company, has been awarded a $66.9-million Navy contract to repair, overhaul, and refuel the nuclear-powered, ballistic missile submarine USS Lafayette (SSBN-616). The Naval Sea Systems Command is the contracting activity.

Racal Electronics Plans To Acquire Full Ownership Of ITT Decca Marine

A new organization was announced recently for the marketing and servicing of all Racal-Decca Marine products in the United States. A joint Racal Electronics-ITT statement said that Racal, the international electronics group that acquired the Decca companies last year, is in the final stages of securing total ownership of ITT Decca Marine, Inc., based in Palm Coast, Fla. The deal is expected to be completed shortly, pending certain formal governmental approvals.

David Paculabo, marine director of Racal-Decca, stated: "The setting up of the new organization shows our determination to increase and broaden our marine business throughout the United States. Racal-Decca will remain strong in radar, particularly deep-sea and small boat radar. We have already started a development program for a completely new range of products to be launched within two years. Meanwhile, we will intensify the marketing of our current marine products."

The new organization, to be renamed Racal-Decca Marine, Inc., will take over the complete business operations carried out by ITT-Decca Marine, jointly owned by Racal-Decca ITT under a 50/50 partnership agreement. Racal-Decca is now acquiring the ITT half share to give it 100 percent ownership of ITT Decca Marine.

The new organization will have close liaison with Racal-Decca Survey, Inc. of Houston, which provides a full range of products for the offshore oil industry.

J.M. Culbert To Head Gulf Coast Operations For Line Fast Corp.

Line Fast Corporation, Holbrook, N.Y., designers and manufacturers of container securing and handling equipment, has announced the appointment of Capt. **Joseph M. Culbert Jr.** as manager of its Gulf Coast operations. He will be responsible for the coordination of all sales in the Gulf Coast area. Captain **Culbert** will be located c/o J.S. Sareussen Marine Supply, 870 South Peters Street, New Orleans, La. 70130.

Waste Heat Recovery Handbook Available From American-Standard

A newly published heat recovery handbook gives comprehensive information on using heat exchangers to recover waste heat for re-use. The handbook, published by American Standard Heat Transfer Division, gives details of a series of case histories with schematics of actual installations where industrial companies have used fan-type, shell-and-tube or plate-type heat transfer to collect "waste" heat for re-use.

The case histories, which include applications from process heat re-use to facility space heating, describe operating parameters, heat exchanger installation information, and payback periods.

The handbook also includes a glossary of heat transfer/heat recover terminology, and details of American-Standard shell-and-tube, fan-type, and plate-type heat exchangers, and has information about selecting the correct type of unit for a specific heat recovery application.

For a free copy of the heat recovery handbook,

Write 33 on Reader Service Card

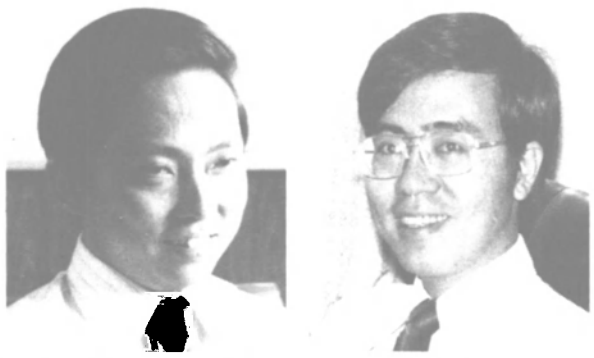
Foss Seattle Shipyard Named Cummins Dealer For Parts And Service

Foss Shipyard, Seattle, has been named a marine dealer for Cummins Northwest Industrial (CNI) and will provide service and spare parts throughout the Northwest. The agreement between Foss Launch & Tug Company and Cummins Northwest Industrial was recently announced by **Ross Bishop**, Commercial Marine sales manager for Cummins Northwest Industrial.

Operating from the Seattle yard, Foss personnel will be able to maintain and repair Cummins marine diesel engines for commercial vessels operating in the Northwest and Alaska. According to Mr. **Bishop**, "Foss Shipyard was selected because it offers the facilities and capabilities to handle large commercial vessels that would utilize the latest engine line produced by Cummins."

Cummins diesel marine engines are offered in several models ranging from 170 to 1,385 bhp and are used for both main engines and auxiliary applications. Spare parts for Cummins engines will be stocked in Seattle by Foss Shipyard and are available through the firm's existing distribution system.

Chen Named General Manager, Tan Sales And Commercial Manager, Of Sembawang Yard



David Chen Tou Sin A.C. Tan

David Chen Tou Sin has been appointed General manager of Sembawang Shipyard, Singapore, to succeed **E.S. Ware**, who returned to the United Kingdom recently on completion of his contract with the shipyard.

Mr. **Chen**, who is a graduate in both marine engineering and shipbuilding, brings to the position a wide experience in all areas of shipyard management. He joined Sembawang in 1971 as a graduate management trainee, after an overseas training period with Smiths Dock, North Shields, England. He served in several management positions from assistant ship repair manager to ship repair manager and then works manager in 1976. Thereafter, he spent periods as marine manager, yard manager and most recently as sales and commercial manager.

A.C. Tan has been appointed sales and commercial manager to succeed Mr. **Chen**. Mr. **Tan**, a mechanical engineer by profession, brings to the job a thorough experience of the ship repair business. On his return from Germany in 1969, where he did a two-year postgraduate course in shipbuilding and repairing on a Government scholarship, he joined Sembawang as a graduate management trainee. During his 11 years with the Sembawang Group he has held various positions in production management, including department manager, ship repair manager, and commercial manager. For the past three years, Mr. **Tan** has served on assignment with Sembawang Towing Company, where he was the general manager.

Calendar Of Coming Events

4th Latin American Dredging Congress **Apr. 6-10**
Sponsored by the Latin American Dredging Association.
Camino Real Hotel, Mexico City, Mexico. Contact **John Huston**, P.O. Box 6372, Corpus Christi, TX 78411; (512) 853-6512.

International Shipboard Habitability Design Conference **Apr. 7-9**
Sponsored by The Society of Naval Architects and Marine Engineers.
Howard Johnson Motor Lodge, Arlington, Va. Contact **Joseph E. Castle**, chairman, SNAME Habitability Conference, P.O. Box 2194, Arlington, Va.; (202) 692-1591.

211th Annual Dinner **Apr. 13**
Sponsored by The Marine Society of the City of New York.
Hotel Plaza, New York City. Contact **Mrs. Charlotte Mills** at the Society, 80 Broad Street, New York, N.Y. 10004; (212) 425-0448.

1981 RTCM Assembly Meeting **Apr. 27-29**
Sponsored by Radio Technical Commission for Marine Services.
Rivermont Holiday Inn, Memphis, Tenn. Contact **R.E. Mickley**, RTCM, P.O. Box 19087, Washington, D.C. 20036. (Preview in April 15 issue of MR/EN)

Conference on Coal Transportation **May 4-5**
Sponsored by The Energy Bureau and Coal Week magazine.
Stouffer's National Center, Arlington, Va. Contact **Robert W. Nash**, The Energy Bureau, 41 East 42nd Street, New York, N.Y. 10017; (212) 687-3178.

Offshore Technology Conference **May 4-7**
Sponsored by The Society of Naval Architects and Marine Engineers and 11 other technical societies.
Astrodomain, Houston. Contact OTC, 6200 North Central Expressway, Dallas, TX 75206; (214) 361-6604. (Preview in April 1 issue of MR/EN)

Nor-Shipping '81: The 8th International Shipping Exhibition **May 11-16**
Organized by Norges Varemesse (The Norwegian Fair Organization).
The Sjolyst Centre, Oslo, Norway. Contact **Mrs. Else-Marie Gehrken**, Norges Varemesse, P.O. Box 130 Skoyen, Oslo 2, Norway; telex 18748. (Preview in the April 1 issue of MR/EN)

Propellers '81 Symposium **May 26-27**
Sponsored by SNAME under the auspices of the Hampton Roads Section.
Cavalier Hotel, Virginia Beach, Va. Contact **Andrew Szypula**, CTD, Bethlehem Steel, Sparrows Point, MD 21219; (301) 477-6832. (Preview in May 15 issue of MR/EN)

Portex '81: International Port Exhibition and Conference **May 26-30**
Organized by Hamburg Messe und Congress GmbH, and sponsored by the Senate of the Free and Hanseatic City of Hamburg.
Exhibition Grounds, Hamburg, West Germany. Contact **Hans J. Rathje**, The Hamburg Group, 545 Madison Avenue, New York, N.Y. 10022; (212) 758-4651. (Preview in May 1 issue of MR/EN)

MARSIM '81: Second International Conference on Marine Simulation **June 1-5**
Cosponsored by the National Maritime Research Center, and others.
U.S. Merchant Marine Academy, Kings Point, N.Y. Contact MARSIM '81, National Maritime Research Center, Kings Point, N.Y. 11024; (516) 482-8200.

8th Ocean Energy Conference **June 7-11**
Sponsored by the U.S. Department of Energy, and organized by The Marine Technology Society.
Capital Hilton Hotel, Washington, D.C. Contact MTS, 1730 M Street N.W., Washington, D.C. 20036; (202) 659-3251.

XV Biennial Conference **June 7-12**
Sponsored by the International Cargo Handling Coordination Association.
Edmonton Plaza Hotel, Edmonton, Alberta, Canada. Contact **Peter J. Elias**, conference administrator, 418 Legislative Building, Edmonton, Alberta, Canada; (403) 427-2080.

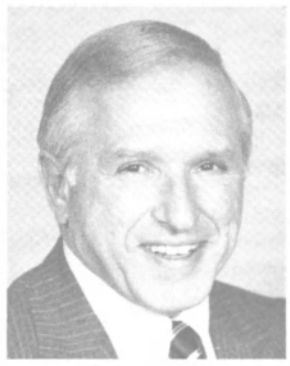
ICE TECH '81: SNAME Spring Meeting/STAR Symposium **June 16-19**
Sponsored by The Society of Naval Architects and Marine Engineers, and hosted by the Eastern Canadian Section.
Chateau Laurier Hotel, Ottawa, Ontario, Canada. Contact SNAME, One World Trade Center, Suite 1369, New York, N.Y. 10048; (212) 432-0310. (Preview in May 1 issue of MR/EN)

W.E. Haggett Appointed President And COO Of Bath Iron Works

John F. Sullivan Jr., chairman and chief executive officer of Bath Iron Works Corporation (BIW), and vice president of Congoleum Corporation, has announced a major reorganization of his senior management staff at BIW. **William E. Haggett** has been promoted to president and chief operating officer, reporting to Mr. **Sullivan**. In that capacity, he will have responsibility for the operations end of the shipyard, including marketing, production, engineering, materials management, production planning and control, and program management.

Mr. **Haggett** joined BIW in 1963, and has held various positions with the company including management functions as assistant to the president, vice president of marketing, and for the past 5½ years has been executive vice president and chief operating officer.

William E. Haggett



Robert M. Smith

L. James Gardner

Edward F. Burke

In addition to Mr. **Haggett**, the following corporate officers will continue to report to Mr. **Sullivan**: **Robert M. Smith**, promoted to vice president of human resources and communications, which includes community and public relations programs; **L. James Gardner**, who as vice president and general counsel has responsibility for all company legal services; and **Edward F. Burke**, who recently joined BIW as vice president and chief financial officer.

McFadden And Klose Appointed Assistant Vice Presidents At J.J. Henry

Robert B. McFadden has been promoted to assistant vice president and director of the Mechanical Design Division, and **John H. Klose** was named an assistant vice president and director of the Hull Design Division at J.J. Henry Co., Inc. Both men will report to **Anthony C. Brown**, senior vice president and manager of the firm's Moorestown, N.J., Division.

Previously chief engineer, Mr. **McFadden**, is now responsible for all mechanical and electrical engineering/design efforts. His responsibilities also include overall management, as program manager, of the company's current LSD-41 construction engineering/design program for Lockheed Shipbuilding. He joined J.J. Henry Co. in 1965.

Robert B. McFadden

John H. Klose

Mr. **Klose**, formerly project manager and director of hull design, is now responsible for all structural and hull design, including naval architectural design efforts. His responsibilities also include overall management, as program manager, of Henry's current PGG Patrol Gunboat construction engineering/design program for Peterson Builders. He joined the firm in 1966.

New Portfolio Presents Advanced Marine's Designs And Services

A new 21-page portfolio is now available from Advanced Marine Enterprises, Inc., describing its expertise in naval architecture, marine engineering, and related capabilities in the design of small working vessels. The portfolio includes 11 by 15-inch study prints of fishing boats, tugs, and patrol boats, including sample design drawings of structural, piping, and electrical systems for both commercial and military applications.

Advanced Marine is experienced in the design of all types of Navy and commercial craft from concept development to detailed design, and has expanded its services into the small working vessel area, including marine survey and field engineering.

To obtain a free copy of the portfolio,

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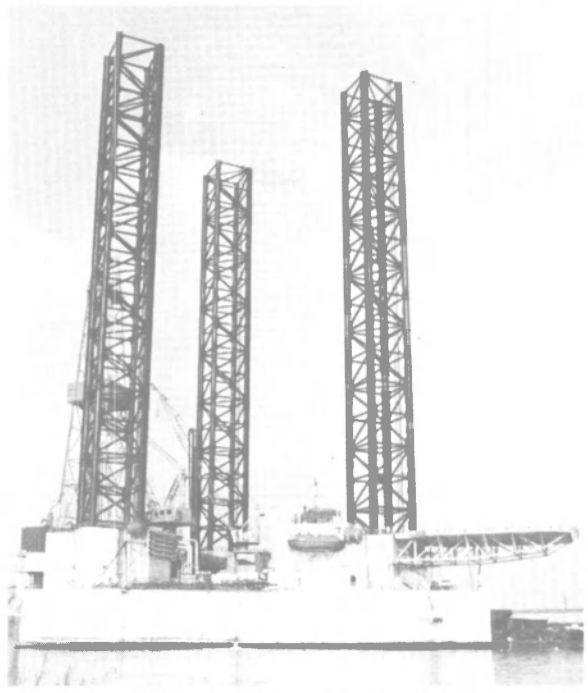

JACKUP RIG FOR ARGENTINA—Levingston Shipbuilding Company recently delivered the offshore drilling rig Rio Colorado I to Bridas S.A.P.I.C. of Buenos Aires. This is the first of the Class 111-C jackups to be built at the Orange, Texas, yard. It will be followed by one for Dixilyn-Field, two for Noble Drilling, and one for Compania Perforadora Mexico, S.A.

Shown at recent Northern California Section SNAME meeting are (L to R): **Henry Olson**, Papers chairman; **James C. Stokesberry**, secretary-treasurer; **Keith Michel** author; and **Thomas B. Cole**, Section chairman.

Northern California SNAME Hears Paper On RO/RO Ships

A paper titled "The 'Skaugran' Class 42,400-dwt RO/ROs," was presented by **R. Keith Michel** of the Herbert Engineering Corporation, San Francisco, at a recent meeting of the Northern California Section of The Society of Naval Architects and Marine Engineers in San Francisco.

The Skaugran and her sistership, the Skaubord, are roll-on/roll-off ships specially designed to carry forest products from the West Coast of Canada to Japan, and return with a cargo of automobiles. Basic design of the ships was developed by Herbert Engineering for the charters, Seaboard Shipping Company, Ltd. of Vancouver, B.C., Canada. The vessels are owned by I.M. Skaugen Company of Oslo, Norway, and were built by the Fredriksstad Mek. Verksted of Fredrikstad, Norway.

Each ship can carry approximately 20-million board feet of packaged lumber at three deck levels, and each is equipped with hoistable cardecks that permit approximately 3,500 passenger cars and small trucks to be carried at nine deck levels. The ships are notable for their full hull form, large clear deck areas, and wide stern ramps that promote fast cargo handling and efficient stowage.

Development of the vessels was discussed by the author in detail with special emphasis on cargo stowage and handling and unconventional vessel features. An extensive discussion period followed the presentation of the paper.

J.M. Blenkhorn Appointed President And CEO Of Equitable Shipyards

James M. Blenkhorn

W. Ray Wallace, president and chief executive officer of Trinity Industries, Inc., announces the appointment of **James M. Blenkhorn** as president and chief executive officer of Equitable Shipyards, Inc. Mr. **Blenkhorn** has responsibility for all operations of the shipyards located in New Orleans and Madisonville, La. Prior to joining Equitable, he held various management positions at Sun Ship, Inc., including his most recent position as vice president of operations.

Mr. **Blenkhorn** is a graduate of the Maine Maritime Academy with a Bachelor of Science degree in marine engineering, and a graduate of the U.S. Navy Post Graduate School with an advance degree in business administration. He was employed by the American Export Lines as a licensed engineer, and he served as an officer in the U.S. Navy from 1957-69. During that period he held positions in engineering operations and shipyard management. He is presently a captain in the U.S. Naval Reserve. Upon completion of the Naval service he joined Bath Iron Works Corporation, and held several planning and program management positions.

Equitable is a wholly owned subsidiary of Trinity Industries, Inc., Dallas, a manufacturer of industrial, marine, and structural products.

Boeing Sells $13.7-Million Jetfoil To Indonesia

The Indonesian Government has ordered a high-speed Boeing Jetfoil hydrofoil for delivery in 1982. Value of the sale is approximately $13.7 million. The Jetfoil will be operated by the Agency for the Study and Application of Technology, which is headed by the Minister of Research and Technology. The computer-controlled craft will be evaluated for several roles in Indonesian waters. These will include applications for the Customs and Navy, as well as offshore oil operations, ocean resource control and commercial passenger transportation.

Initial plans call for the Jetfoil to be used for customs enforcement in the South China Sea. The water jet-propelled Jetfoil is capable of speeds over 50 miles per hour, and provides a smooth ride even in rough water. Equipped with 255 passenger seats, the Jetfoil will have galleys on both the upper and lower decks. It will also be evaluated for passenger service between Jakarta and the east end of Sumatra through the Java Sea and the Sundra Strait.

Other Boeing Jetfoils currently operate on commercial routes in Hong Kong, Japan, Europe, and South America. The United Kingdom Royal Navy is presently evaluating a Jetfoil derivative for patrol missions in the North Sea.

Barnett And Hulcher Elected Vice Presidents Of Lykes Lines Agency

The board of directors of Lykes Lines Agency Inc., the overseas subsidiary of Lykes Bros. Steamship Co., Inc., has elected two new vice presidents, **Joseph F. Barnett** and **J.R. Hulcher**.

Mr. **Barnett**, who joined Lykes in 1940, has been Lykes Lines Agency director for South and East Africa since 1971. He previously served in New Orleans, Liverpool, and London.

Mr. **Hulcher** has been based since 1974 in Genoa as Mediterranean director. His earlier assignments included duty as special representative in Tokyo, traffic manager in Genoa, and posts in New Orleans and Barcelona.

IHI Delivers VLCC 'Nissho Maru' To Idemitsu Tanker Company

Ishikawajima-Harima Heavy Industries Company (IHI) recently completed the 257,882-dwt tanker Nissho Maru (shown above) for Idemitsu Tanker Company of Tokyo. The new ship is the first vessel delivered by IHI's Kure Shipyard this year, and the first tanker of over 200,000 dwt built by IHI since April 1977 when the 274,348-dwt Texaco Caribbean was completed.

Among the outstanding features of the Nissho Maru are the cargo control room and the engine control room, which are normally located on the boat deck and in the engine room, respectively, arranged in the same compartment near the living quarters. This makes central control possible during cargo handling, and helps to rationalize the communication and operation between the deck and engine departments. A data logger, which displays machinery and equipment operating data on its character display and can also record them automatically, is provided in the engine control room.

The IHI/Sulzer type 9RLA90 main engine is a slow-speed diesel with a maximum continuous rating of 32,400 bhp at 98 rpm and with low fuel consumption. While under way the waste heat of the main engine exhaust is recovered to drive the turbogenerator. Service speed at full load is 14.5 knots. A MARISAT system provides telephone communication with anyplace in the world.

Windlasses and mooring winches are driven by a centralized electro-hydraulic power supply that provides ease of operation and lower maintenance. Eight dedicated ballast tanks with a total capacity of 83,700 cubic meters meet the SBT (Segregated Ballast Tanks) provisions under international marine pollution prevention regulations.

Nissho Maru has an overall length of 340.60 meters, beam of 54.50 meters, depth of 28.00 meters, and draft of 19.70 meters (1,117.44 by 178.8 by 91.86 by 64.63 feet). The big vessel is operated with a complement of only 24 persons.

$3.7-Million Navy Contract For Inflatable Lifeboats Awarded To Goodrich

The BF Goodrich Company, Akron, Ohio, has been awarded a $3,744,224 firm fixed-price contract for 968 MK6 inflatable lifeboats. Work will be performed in Union, W. Va. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity. (N00104-81-C-2639)

John Murray Appointed Purchasing Agent For Lexington Transport

John J. Murray

Lexington Transport (New York), Inc. has announced the addition of **John J. Murray**, as purchasing agent, to its staff. Mr. **Murray** started his career in shipping with Seiling and Jarvis. In 1954, he joined United Maritime Corporation and handled the purchasing for 12 vessels until 1979. He now supervises the purchasing for 10 vessels at Lexington Transport.

New HITCO Brochure Covers High-Temperature Insulation Textiles

The right textile to meet nearly any industrial insulation need can be found in a new brochure from HITCO, high-temperature materials specialists. The brochure covers a family of textiles for asbestos replacement, energy savings, and personnel and equipment protection to over 2,300 F. Fifteen color photos show a range of applications and demonstrate versatility of the insulating textiles.

Text describes capabilities and advantages and lists typical applications for three basic textile materials in the HITCO family: fiberglass for economical insulation needs to 1,000 F, a blend of fiberglass and aramid fibers for superior strength and wear resistance to 650 F, and a refractory silica material for service from 1,000 F to over 2,300 F. All are available in a variety of forms—cloth, tape sleeving, rope, yarn, cordage, batt, and bulk fiber — to meet specific customer needs, states the brochure. HITCO is a subsidiary of Armco, leading steelmaker and diversified manufacturer.

For a free copy of brochure LHM-8780,

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Avondale Will Build Barge For Atlantic Cement At Cost Of About $16 Million

Avondale Shipyards, Inc., a subsidiary of Ogden Corporation, announced that it has signed a contract to build a self-discharging cement barge at a price of approximately $16 million for the Atlantic Cement Company, Inc. of Stamford, Conn. The barge, 420 feet long by 80 feet wide, will be used by Atlantic in the coastwise movement of bulk cement. Construction will begin in the third quarter of 1981, and the barge will be delivered during the third quarter of 1982. The price is subject to full escalation as to labor and materials cost.

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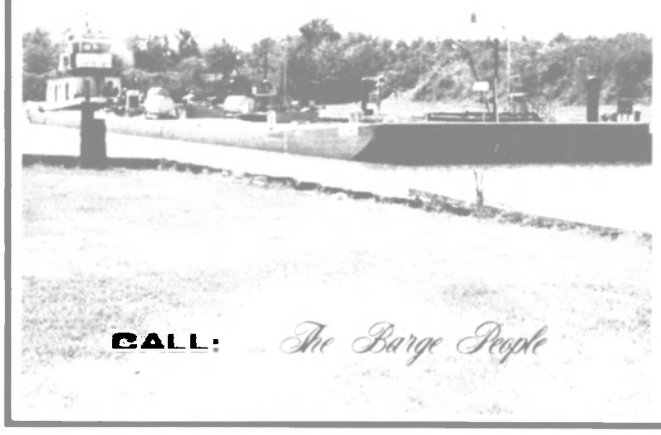

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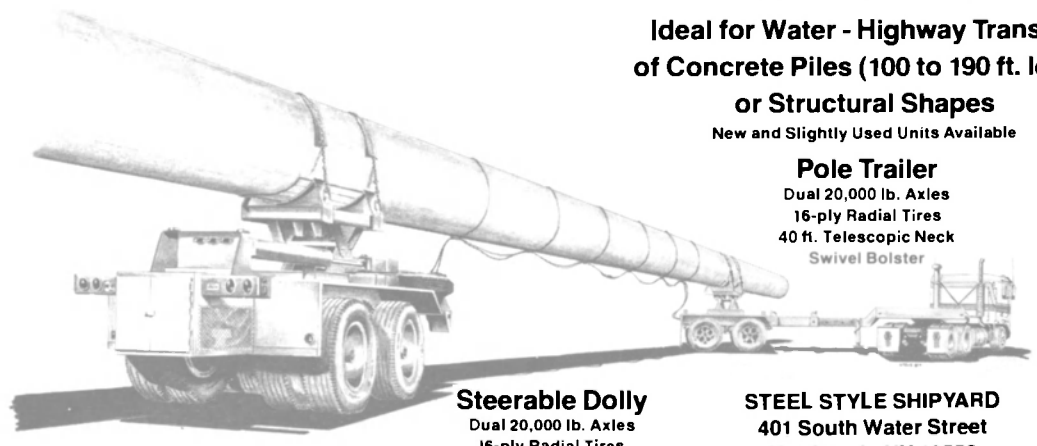

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LARGE STOCKS

ANCHORS--CHAINCABLES

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CUNNINGHAM MARINE HYDRAULICS CO., INC.
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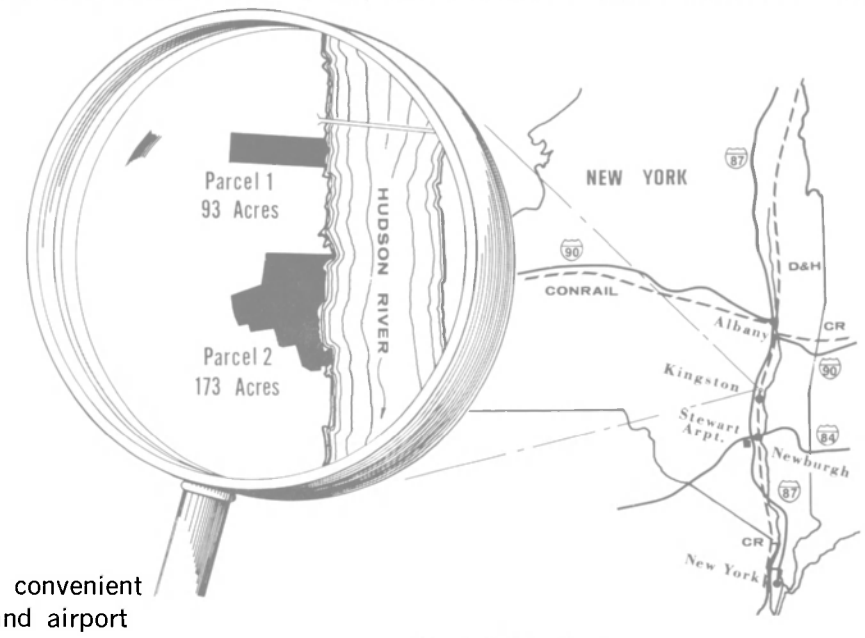
FOR SALE

Deep Water Site on the Hudson River near Kingston, NY

Suitable for Coal Export



Rail access available, convenient to major highways and airport

Parcel 1 - 93 acres - $1.4 million
Parcel 2 - 173 acres - $2.35 million

Steel Style Marine
401 South Water Street
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7700 TON PRESS BRAKE, mfg. Tubular Legs for OFF SHORE OIL DRILLING RIGS in 24' to 32' Lengths Alloy Steel. SIEMPELKAMP, NEW 1960, In Perfect Condition. 40'x2½" Cold Capacity, 40'x10" Hot. Can be used as Plate Bending Rolls. OUR PRICE PRIOR TO MOVING $1,500,000
(Replacement Price $15,000,000)

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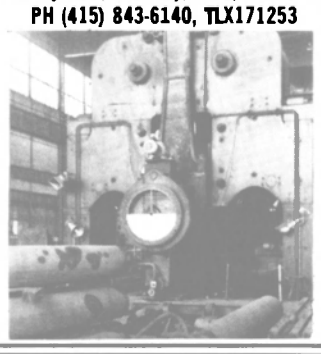

"TOP SIDE REPAIRS"

Use our dock — Your labor — our labor
Crane—440 V 3 ph. 800 amp +, Fire protection
Call for Ship size & draft
Tensaw River Docks, Mobile, Al.
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WARPING CAPSTAN

8500 Lbs @ 90 FPM or 4250 lbs @ 180 FPM. Below-deck mounted motor—30 HP—440/3/60—with control.

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LIFEBOAT DAVITS

Type 24-40 MK 11. 6000 Lbs/arm or 12,000 lbs/davit set. Will accept manila or wire rope falls. USCG approved.

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FOR SALE
WHIRLEY CRANE

(60/100 TON)
GANTRY MOUNTED
BARGAIN PRICE—
EXCELLENT CONDITION

Clyde — 32' track gage, New Gantry installed 1974. Crane can be seen in operation. Presently rated 60 Ton can be converted to 75 Ton or 100 Ton. Also to self contained. Complete specifications available.

CALL COLLECT

NICOLAI JOFFE CORPORATION
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

FOR SALE
NEW — UNUSED

4—**BUTTERWORTH HEATERS** 850 Sq. Ft. 90/10 cuni tubes 180psi steam 75/210° sea water

3—**FW/SW HEAT EXCHANGER** 1686 Sq. Ft. 90/10 cuni tubes 113/90° fresh water

8—**FUEL OIL HEATERS** 90 Sq. Ft. 125psi steam 400psi design pressure

8—**CONTAMINATED DRAIN COOLERS** 83 Sq. Ft. 150 psi design 250/95° out

All above ABS and Coast Guard approved manufactured by American Standard 1974 for San Clemente T8-S-100B Class Tankers. Complete specifications & drawings available.

NICOLAI JOFFE CORPORATION
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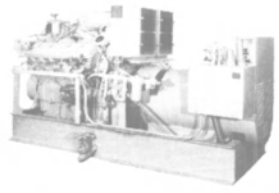
250KW GM 12-V-71
DIESEL GENERATOR SETS
AIR START



440/3/60/1800 — with free-standing switchgear. Generators manufactured by Electric Machinery Co. — E.M. Bemac — brushless — synchronized — keel cooled.

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INSTRUMENT CABLE WINCH FOR HYDROGRAPHIC SERVICE

Swann Series OH-9642 is a hydraulically operated unit. Drum capacity: 20,000 feet of 1⅜" cable or full drum rating 20,000 lbs at 240 FPM. Fabricated steel frame fitted with automatic spooling device—manual brake—weight 15,000 lbs. Dimensions: 13'1" wide x 10' deep —8'10' high. Drum 3'6" diameter—flange 8'. Powered by 20 HP hydraulic motor. Crossover relief valve protects motor on overload. Type B-30 hydraulic motor mfg by Staffa.

INQUIRE FOR PRINT AND ADDITIONAL INFORMATION

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For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes — 70-foot Track Span

(CAN BE WIDENED TO 100 FEET)

Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4–150 HP–240 Volt DC Hoist Motors
4–150 HP–240 Volt DC Gantry Motors
2–265 KW–500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:
1) Moving heavy equipment
2) Dam Sites
3) Concrete Prefab plants
4) Railroad yards
5) Steel plants

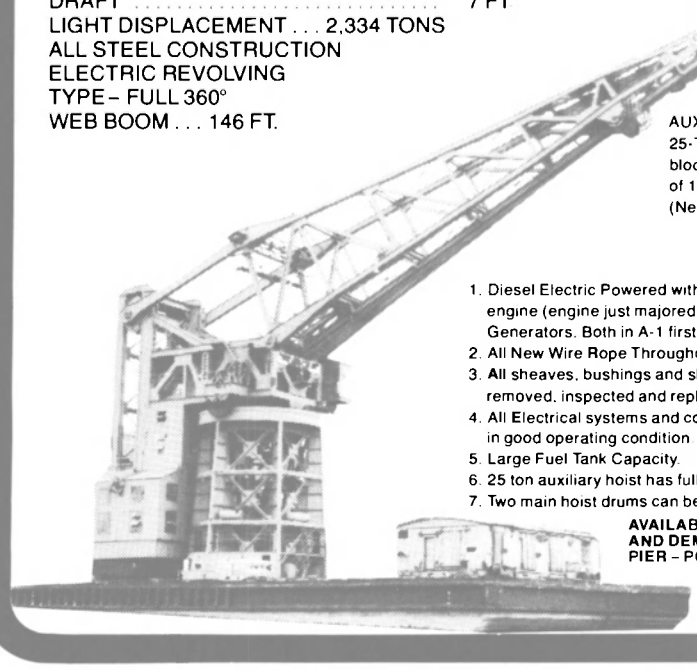
Geared Track is also available at extra cost

200 TON/DIESEL ELECTRIC
Floating Crane

FOR SALE – RENT– CHARTER

LENGTH OVERALL ..... 140 FT.
BEAM ..... 84 FT.
DRAFT ..... 7 FT.
LIGHT DISPLACEMENT . . . 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING
TYPE – FULL 360°
WEB BOOM . . . 146 FT.

MAIN HOIST
200-Ton – By 2 only. 8 part blocks. Each block carries 2,050 ft. of 1½". 6 x 37 I.P.S. wire rope (New).



AUX. HOIST:
25-Ton – By 1 only 4 part block. Block carries 1,110 ft. of 1⅜". 6 x 37 I.P.S. wire rope (New).

1. Diesel Electric Powered with G.M. 8-278A diesel engine (engine just majored) and 300 KW, 230 volt Generators. Both in A-1 first class condition.
2. All New Wire Rope Throughout.
3. All sheaves, bushings and sheave pins have been removed, inspected and replaced in Good Condition.
4. All Electrical systems and controls have been placed in good operating condition.
5. Large Fuel Tank Capacity.
6. 25 ton auxiliary hoist has full 140 ft. of boom travel.
7. Two main hoist drums can be operated independently.

AVAILABLE FOR INSPECTION AND DEMONSTRATION AT OUR PIER – PORTLAND, OREGON

FOUR 30-TON
Container Cranes

70-foot Track Span

NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACEO. Suitable for Ship, Barge or Land Use. Manufactured to ABS and MARAD requirements.

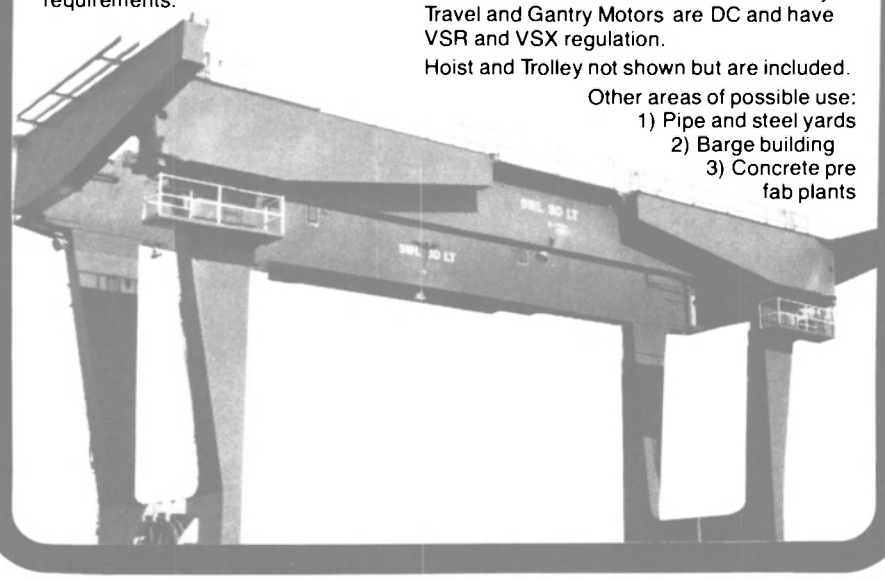
AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:
1) Pipe and steel yards
2) Barge building
3) Concrete pre fab plants



For additional information, brochures or inspection, contact: Hugh Sturdivant, Sales Manager, or A.D. Canulette, Jr.

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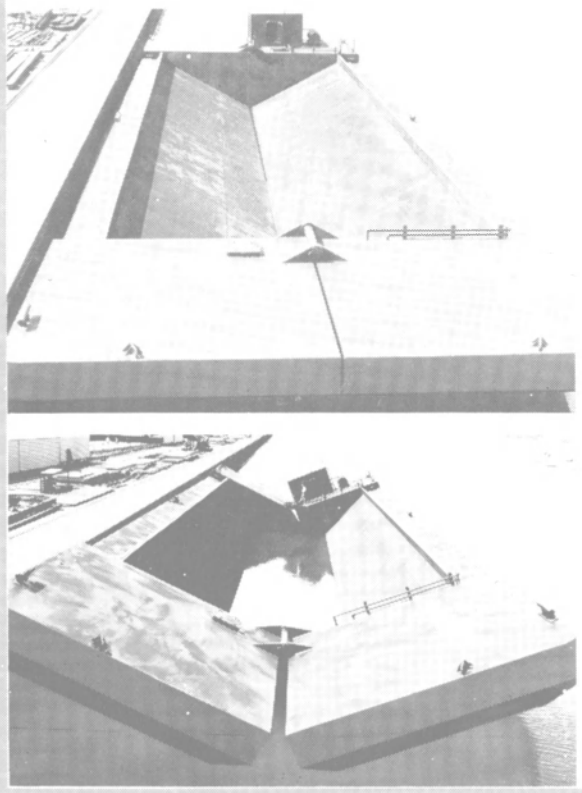
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

For Sale or Charter at Zidell

AVAILABLE FOR IMMEDIATE DELIVERY

Split Type Self Dumping Scows



Built 1979. For sale, long or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (ML'D)	180'- 0"
Beam (ML'D)	50'- 0"
Depth of Mid-Body (ML'D)	14'- 0"
Hopper Length (ML'D)	128'- 0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft	1615 L.T.
Rake Lengths F. & A	26'- 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped Up	2'- 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120" Stroke
Plating	
Side	9/16"
Bottom	5/8"
Hopper	5/8"

American Crane Barge

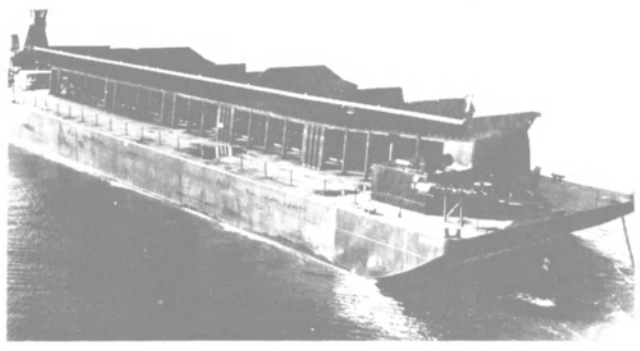
BARGE DATA

Displacement Light	1,200T.
Gross Tonnage	911
Net Tonnage	911
Length	151'- 6"
Beam	60'- 0"
Hull Depth	12'- 0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft
Office & Eating Area	136 Sq. Ft
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length. 160' available)	
20 part rigging	2,200 ft , 7/8"ç – 6 x 36 I.P.S
4 part standing standing bail	2-186 ft., 1¾'ç – 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigg.)	
20 part rigging	3,250 ft., 1"ç – 6 x 36 I.P.S
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., 7/8"ç – 6 x 66 I.P.S.

Self Unloading Aggregate Barge



ZAG-501

Length (O.A.)	248'- 0"
Beam	63'- 0"
Depth	16'- 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'- 7½"
Draft Loaded (F.W.)	11'- 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd.

Hopper Unloading Gates: 27-36"x 36" Horiz. sliding gates w/individual hydr. controls.

Main Unloading Conveyer: 48" wide belt, 30 H.P. elect. motor, 250 ft./min. Max. disch. rate – 667 cu yd./hr.

Transfer Conveyer: 42" wide belt, 10 H.P. elect. motor, 350 ft./min. off loading location – Stbd. side fwd. at 9 ft. above deck

Hull Plating: Deck, side shell & bott. 9/16"

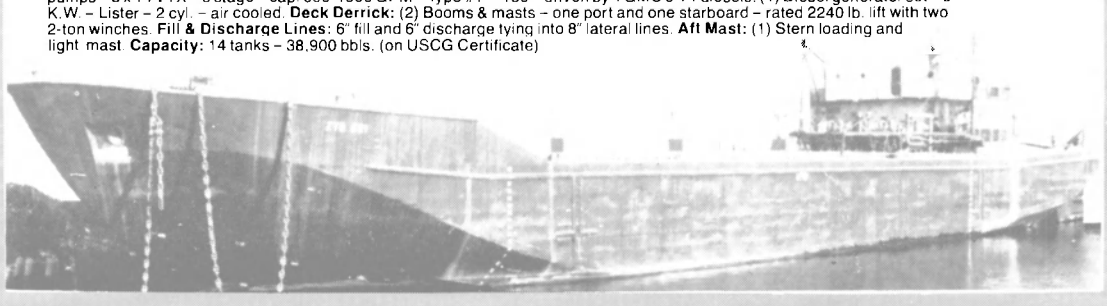
Bulk Petroleum Barge

ZTB-601

Type: · Ocean unmanned service · Grade "B" bulk cargo

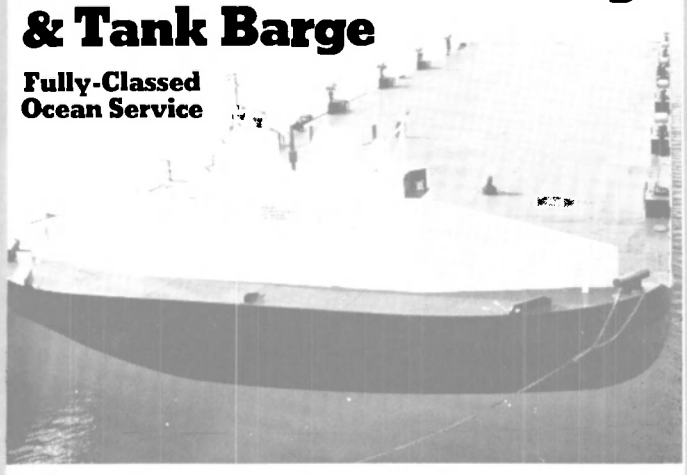
USCG: · Documented with "Consolidated Certificate of Enrollment and License" · Operating – "oceans" · Official No.: 280356 · Net: 2286 · Gross: 2286 · Length: 257.5' · Breadth: 55.1' · Depth: 20.3'

ABS: International Load Line (valid until 6 December 1984) Cert. No. 61-24, 479-2. **Aux. Machinery & Pumps:** (4) Bingham pumps – 8 x 14 VTX – 5 stage – cap. 600-1500 GPM – Type #F – 150 – driven by 4 GMC 6-71 diesels. (1) Diesel generator set – 5 K.W. – Lister – 2 cyl. – air cooled. **Deck Derrick:** (2) Booms & masts – one port and one starboard – rated 2240 lb. lift with two 2-ton winches. **Fill & Discharge Lines:** 6" fill and 6" discharge tying into 8" lateral lines. **Aft Mast:** (1) Stern loading and light mast. **Capacity:** 14 tanks – 38,900 bbls. (on USCG Certificate)



Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



ZPC-402 **230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge**

Length O.A.	230'- 0"
Beam	60'- 0"
Depth	15'- 6"
Deadrise	6°
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8" ANSI 150# FLG P/S
Heating Coils	2" Sch. 80 Pipe For Shore Steam
Hull Plating	Deck ½", Side Shell ⅜", Bott. ⅜", Shear Strake ½"
Deck Cargo Dwl. at Loadline	3900 S.T

For additional information or to make an appointment to inspect, call or write:

Thomas A. Sherwood or
Andy Canulette, Jr.

ZIDELL

ZIDELL EXPLORATIONS, INC.

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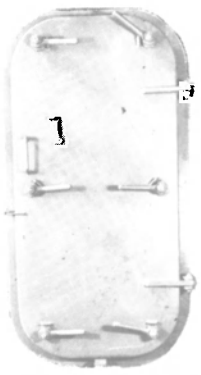
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

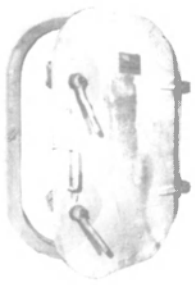
SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY

NEW SMALL STEEL WATERTIGHT DOORS



24" X 36"

2-DOGS

5 Right Hand
2 Left Hand

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12"X6½" PANAMA CHOCKS FOR SMALL VESSELS

Closed chocks — 12" X 6½" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

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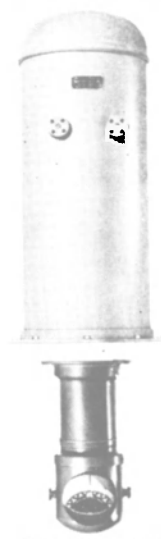
"THE OFFSHORE" MODEL Reflector/Projection BINNACLE



Projector Unit is Heavy Gauge Naval Aluminum—Hard Coated Spring Mounted

Suitable for workboats & fish boats. Circular magnet in card for steadiness. Navy type metal compass rose — 0-360 — adjustable mirror for Steersmans eye. Anti-vibration mount. Complete with internal correctors including heavy duty heeling corrector for steadiness in rolling sea.

INQUIRE FOR PRICE & FURTHER DETAILS

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TWX: 710-234-1637

15½" & 16" CLEAN BRASS 4-DOG MARINE PORTLIGHTS

15½" CLEAR OPENING
16" CLEAR OPENING

Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

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WORTHINGTON HIGH PRESSURE AIR COMPRESSORS

10 CFM — 600 lbs. 7½ HP
440/3/60 A.C. Motors

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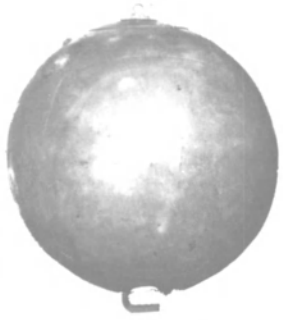
NEW — UNUSED SPHERICAL MOORING BUOYS



About 58" diam. With tieplates top & bottom. Est. wt 680 lbs each. 120 lbs submergence

CYLINDRICAL BUOYS

3 Available — 5 ft X 9 ft — with wood bumpers

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KEARFOTT PENDULUM WINDOW WIPERS

1/30 HP 110 volt AC/DC universal series wound motor—ball bearing—5000 RPM—with 40:1 single worm reduction Clear opening 27½"—14" arm—10" blade—with rheostat & shutoff switch. 4 available.

$197.50 EACH

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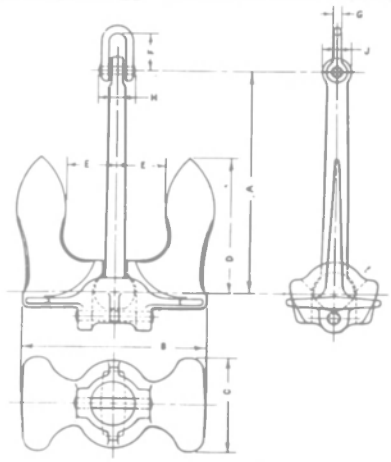
ANCHORS -- CHAIN

DETACHABLE LINKS
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
3 EA. R.P. ANCHOR SHAX 3⅞ STK, 3⅞ PIN

NEW CHAIN

9 X 90 Ft. 2" DILOK CHAIN — ABS

NEW SWIVELS

3 EA. 2 5/16 — 3" E&E SWIVELS
13 EA. 3⅛ DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS

25 EA. #7 — 17 EA. #5

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HEAVY STEEL DOOR FOR LOADING CARGO THRU SIDE OF SHIP

Complete with heavy frame. Clear opening 72" wide 90" high. Outside frame size 103" high — 86" wide. While under way, door is secured with 18 heavy bolts & steel blocks around frame — 6 heavy bolts & steel blocks in middle.

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LOUIS-ALLIS M.G. SETS

2.5 KW 120 Volt Single Phase 60 Cycle Output
120 Volt D.C. Input — 1800 RPM

2½ KW—115 volts single phase A.C. output. GENERATOR: Type GNA—class 1G— Frame 28A—Form A—1800 RPM—5 KVA—2.5 KW 115 volts AC— 60 cycle —50% PF—43.4 amps. MOTOR: Louis Allis—Type GNA—Class E—Frame 25A—Form A—1800 RPM—115 volts DC—32 amps—shunt wound (with attached Ward-Leonard frequency regulator). Some control panels available.

CAN FURNISH WITH 230 VOLT DC INPUT

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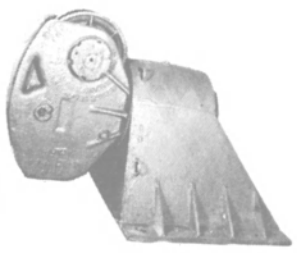
SURPLUS

BERGER FAIRLEADS



2 Model 620—for 1⅝" wire—20" sheave. Located San Francisco, Ca.

$3950 EACH

3 Model 614—for 1¼" wire—14" sheave. Located Panama City, Fla.

$2495 EACH

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HATCHES

NEW UNUSED FLUSH HATCHES

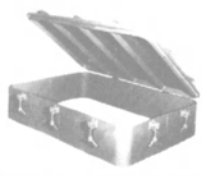
54' X 77"

14-Dog — operated from top side by T-key, with dogs marked to show open & closed positions.

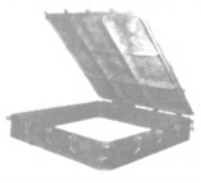
24" X 30"

30" X 30"

4 Dogs on underside—topside flush, with T-Key openers.



60" X 42" X 12"
10-DOG



72" X 72" X 12"
16-DOG

36" X 26" 7-DOG TANKER EXPANSION TRUNK

42" X 42" X 9"
7-DOG SPRING LOADED

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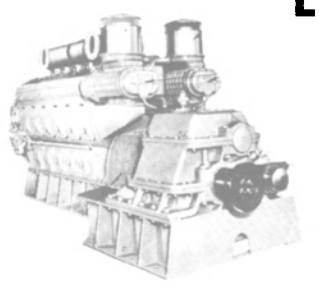
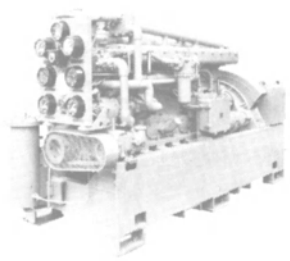
TWX: 710-234-1637

LST MACHINERY



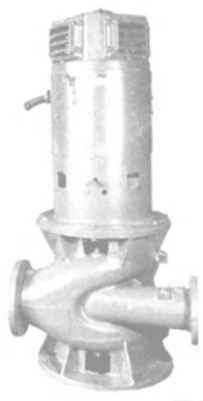
PORT & STARBOARD GM 12-567A 900 HP DIESEL ENGINES with Falk reverse & reduction gears

ENGINE: GM 12-567A—8½X10—V-type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk AirFlex—reverse & reduction—2.48:1 forward—2.52:1 reverse.



100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—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. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

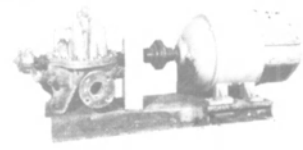


GARDNER-DENVER BALLAST PUMP

Bronze — 1500 GPM — 56' head or 25 bs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40°T rise — stab. shunt — ballbearing — dripproof. Controls available.

TAILSHAFTS

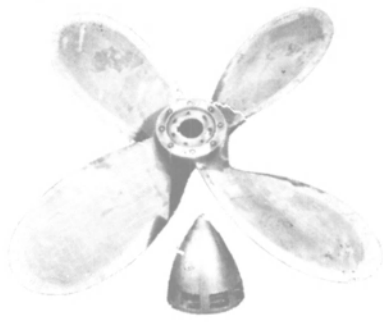
Diameter: 6 1/8" Length: 21' 2 5/8"



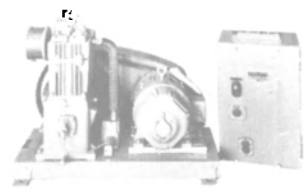
GOULD FIRE & BILGE PUMP

250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.

4-BLADE PROPELLERS BRONZE — PORT & STARBOARD



7' Diameter—pitch constant 4.699. Bore tapers from 6 1/8" to 4 53/64". 14½" Taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2½ X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.

COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1½"X1½")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1½") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40°C temp rise. Ball bearing.

THE BOSTON METALS COMPANY

313 E. Baltimore St. 752-1077 Baltimore, Md. 21202
TWX: 710-234-1637

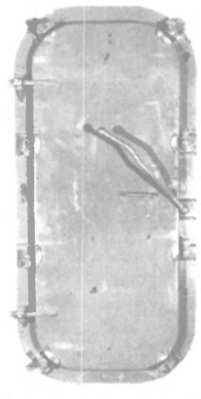
WALZ & KRENZER USCG APPROVED HEAVY SLIDING DOORS WITH FRAMES

All Doors Bolted In And Easily Removed

- 1 36"x66" Horizontal hand mech. steel sliding door—complete with mechanical local & remote gear boxes
- 1 60"x78" Steel watertight sliding door. Complete with mechanical local and remote boxes.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637



QUICK-ACTING LEVER OPERATED WATERTITE DOORS

26" X 66"
8-DOG
Rights & Lefts

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

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Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44052
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
GMMC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205
Goff Corporation, One Pleasent Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning
Clayton Manufacturing Company, 486 No. Temple City Blvd., El Monte, CA 91731
Combustion Engineering, Inc., Windsor, Connecticut 06095
A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BRAKES
Goodyear Aerospace (Industrial Brakes Division), Box 477, Berea, KY 40403

BROKERS
B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre Quebec, Canada H8R 3Z6
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

BUNKERING SERVICE
Belcher Company of New York, Inc., 48-02 54th Avenue, Maspeth, NY 11378
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHOCKING SYSTEMS
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

CONTROL SYSTEMS—Monitoring
Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 5909 West 130th Street, Cleveland, OH 44130
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS
Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK MACHINERY—Cargo Handling Equipment
Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, KS 66115
Twin Disc, Incorporated, Racine, Wis. 53403

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
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

EMULSIFICATION SYSTEMS
Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine
ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
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
Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Unitor Ships Service A/S, Mastemyr, 1410 Kolbotn, Norway
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186
Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150

EVAPORATORS
Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS — METALS
Fibergrate Corporation, P.O. Box 344610, Dallas, TX 75234
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS
Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52
Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
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
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing
Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Comfort-Mate, Inc., P.O. Box 43-1572, Miami, FL 33116

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

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS
Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredriksstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022
Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY

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, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038
Whitehall Brokerage, Inc., 685 3rd Ave., New York, NY 10017

JOINER—Watertight Doors—Paneling
Masonite Commercial Division, Dover, OH 44622
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LIFEBOATS & DAVITS
Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 10-99 3901 North 29th Avenue, Hollywood, FL 33020
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

LNG CONTAINMENT
McDonnell Douglas Astronautics Co., 5301 Bolsa Ave., Huntington Beach, CA 92647

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
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General Electric Company — Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

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
Agemar, Avenida 3E No. 71-51, Edif. Acuario (Planta Baja) Apartado 1465, Maracaibo, Venezuela
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
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 82 Beaver Street, New York, NY 10005
Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545
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
Lucander Designs, P.O. Box 711, San Perlita, TX 78590
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
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
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
Oromar International Enterprises, Inc., P.O. Box 13069, Port Everglades, FL 33316
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716
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
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Corning Townsend III, 18 Church St., Georgetown, CT 06829
Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Dantronics Company, P.O. Box 204, Bocca Raton, FL 33432
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02090
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, Palm Coast, FL 32037
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
North American Philips Communication Corp., 91 Mckee Road, Mahwah, N.J. 07430

RCA Service Co., Building 204-2, Camden, N.J. 08101
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Texas Instruments Inc., P.O. Box 226080, M/S 3107, Dallas, TX 75265
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
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

OIL/WATER SEPARATORS
Alfa-Laval, Inc., 2115 Lindwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

PAINTS—COATINGS—CORROSION CONTROL
Belzona Molecular Metalife Inc., 224 7th Street, Garden City, NY 11530
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Jotun-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21230
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 03817
Woolsey Marine Industries, Inc., 1250 Broadway, New York, NY 10001

PETROLEUM SUPPLIES
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE—HOSE—Cargo Transfer, Clamps, Couplings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Tioga Pipe & Supply Company, 2450 Wheatsheaf Lane, Philadelphia, PA 19137

PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Alsthom-Atlantique, 2 quai de Seine, 93203 Saint-Denis, France
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004
Caterpillar Tractor Company, Engine Division, Peoria, IL 61629
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525
Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073
Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

PUMPS—Repairs—Drives
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083

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

ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
Tubbs Cordage Company, Orange, CA 92668

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.

SANITATION DEVICES—Pollution Control
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford IL 61111
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
Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

SCAFFOLDING EQUIPMENT—Work Platforms
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

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
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 Corporation, 1310 Canal Blvd., Richmond, CA 94807
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., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzs de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
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
Delattre-Levivier, Tour Fiat, Cedex 16, 92084 Paris La Defense, France
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
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
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Jackson/Engineering Company, Inc., 2945 Richmond Terrace, Staten Island, NY 10303
Jeffboat, Inc., Jeffersonville, Ind. 47130
Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 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
North American Hydraulics, P.O. Box 278, Brampton, Ontario Canada L6V 2L1
O.A.R.N. (Officine Allestimento-Riprazioni 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
Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012
Port of Portland, P.O. Box 3529, Portland, OR 97208
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
S.E.B.N., Societa Estercizio Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175
The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308
Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal
Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Sun Ship Inc., Chester, PA 19013
Swiftships Inc., P.O. Box 1909, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904

SHIP STABILIZERS
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
Francis B. Crocco. Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 77 River St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS
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Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017
Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042

TECHNICAL MANUAL PREPARATION
Benhof, Inc., 2468 N. Jerusalem Road, N. Bellmore, NY 11710

TERMINALS—Oil-Transfer
Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614
Delong Corp., 29 Broadway, New York, N.Y. 10006
Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottsville, VA 22903

TOWING—Barges, 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
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
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
Ocean Salvors Company, One World Trade Center, New York, NY 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

TRAINING SERVICES—Simulator
Ship Analytics, Park Circle, Centerport, NY 11721

VALVES AND FITTINGS
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208
Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222
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
Winel of America, Inc., 16014 Cowley Road, Grafton, OH 44044

WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Halogenic Products Corporation, P.O. Box 27488, Salt Lake City, UT 84127

WINCHES AND FAIRLEADERS
Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
Gearmatic Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

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
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

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

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors.

Participants at recent Philadelphia Section SNAME meeting included: (seated, L to R) Dr. **Yung-Kuang Chen**, author; **Tom Campbell**, vice chairman; and Dr. **Donald Liu**, author; (standing, from left) **Merv Willis**, coordinator; **Charlie Lofft**, Executive Committee; **Jim Hibbits**, chairman; and **Dean Champlin**, secretary-treasurer.

SNAME Philadelphia Section Discusses Finite Element Method

The Philadelphia Section of The Society of Naval Architects and Marine Engineers met at the Engineers Club recently for the presentation and discussion of the technical paper *Fundamentals and Applications of the Finite Element in Analyzing Structural and Non-Structural Marine Problems*. The paper, written by Dr. **Donald Liu** and Dr. **Yung Kuang Chen**, both of the American Bureau of Shipping, was presented to 55 members and guests following cocktails and dinner. A discussion and a general question session followed the presentation.

Since the development of the finite element method (FEM) in the sixties, it has become a widely used and significant means of ship structures analysis and structural analysis in general. Not only has the number of users of FEM increased but so has the variety of applications increased from stress analysis to magnetohydrodynamics.

The paper illustrates the use of FEM in solution of complex structural problems such as web frame stress analysis, analysis of stress in propellers whose complex shapes (high skew, large blade sections) can be adequately modeled with FEM and the stress analysis of complicated jackup drill rigs. The paper also includes illustrations and examples of vibration analysis using FEM, most notably the modeling of an entire tanker, including deckhouse, to determine the dynamic response of the tanker to propeller-induced vibratory forces.

Following the presentation, Dr. **Bernard McNamee** (Drexel University), **Gary Mauers** (Delaval), and **William Toner** (Delaval) each presented a discussion of the paper. Dr. **McNamee** noted the benefits and trade-offs of FEM, as well as some introductory FEM textbooks. Messrs. **Mauers** and **Toner** illustrated the use of FEM at Delaval for turbine and gear design. The three discussors as well as the topic presentation generated a lively and interesting debate with the audience.

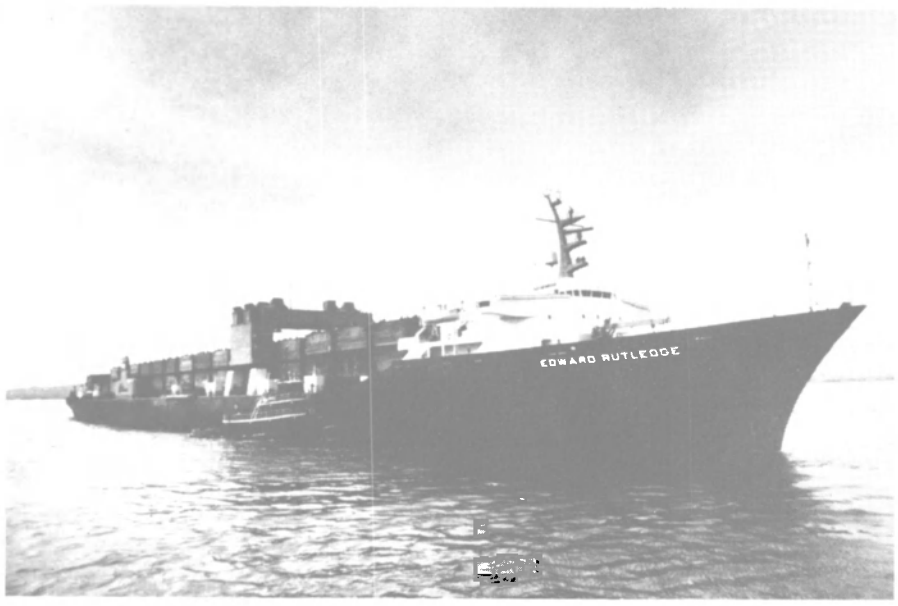
Also of note was a presentation honoring **Kees Gyswyt** (J.J. Henry Co., Inc.) for his outstanding work as last year's Section chairman.

Vosper Limited Group Gets Three Contracts Worth $29 Million Total

Vosper Limited, naval craft designers and builders, fast boat, and SES specialists, reports that its two main manufacturing subsidiaries, Vosper Private Limited, Singapore, and Vosper Hovermarine Ltd., Southampton, U.K., have recently received orders worth more than 12.5 million pounds (about $29 million).

Vosper Private will build three 32-meter firefighting boats valued at 7.4 million pounds ($17 million) for the Saudi Ports Authority. It will also be responsible for the operation and maintenance of these vessels for three years. Under another contract, a technology transfer agreement of around 3 million pounds ($7 million), the company will provide subcontracting, consultancy, and training support for the construction of six 32-meter, Vosper-designed fast patrol boats for the Royal Malaysian Customs and Excise. The vessels will be built by Malaysian Shipyard and Engineering Company.

Vosper Hovermarine's latest contract is from the Hong Kong Yaumati Ferry Company Ltd. (HYF) for four additional Hovermarine 218 fast passenger ferries. This sale will increase the fleet of Hovermarine craft operated by HYF to a total of 20. They will be employed to augment various services within Hong Kong and the 90-mile route between Hong Kong and Canton, People's Republic of China. Value of the contract is in excess of 2 million pounds ($4.6 million), and calls for deliveries in late 1981. The vessels will be built at Vosper Hovermarine's works at Southampton.



Newest Waterman Steamship LASH/Containership Enters Service

The Edward Rutledge (shown above), a lighter-aboard-ship (LASH) vessel built for Waterman Steamship Corporation by Avondale Shipyards Inc., made her maiden voyage arrival at the Port of New York recently. The second of two LASH carriers built by Avondale recently for Waterman, the Rutledge was christened at the Avondale yard near New Orleans in 1980 by **Mrs. William Amado**, daughter of **Edward B. Walsh**, president of Waterman Steamship.

During her maiden arrival, McAllister Brothers docking master Capt. **William Gato** reported that the 40,921-dwt Rutledge, which is fitted with a bow thruster, "handled well" as she was assisted into her Brooklyn berth by the 4,300-bhp tug Roderick McAllister and the 4,200-bhp Kort-nozzled Bruce McAllister.

The newest addition to the Waterman fleet was named for **Edward Rutledge**, a distinguished member of the First and Second Continental Congresses, who signed the Declaration of Independence representing South Carolina. Mr. **Rutledge**, a Federalist, later was elected Governor of South Carolina.

The Edward Rutledge has an overall length of 845 feet 4 inches, molded beam of 100 feet, and depth to main deck of 60 feet. Designed by Friede and Goldman, Ltd. of New Orleans, she is a 32,000-shp, single-screw, turbine-propelled barge carrier/containership with a service speed of 22 knots and cargo capacity of 1,744,400 cubic feet.

The new vessel will serve ports along the Red Sea, Arabian Gulf, India, and Pakistan. She is arranged for the carriage and independent handling of 89 LASH type barges, each with a cargo capacity of 370 long tons, that are loaded in seven holds and on deck. The ship is equipped with her own 510-ton gantry crane mounted on rails that run her full length. The crane loads and discharges barges over the stern, permitting operation independent of shore facilities.

Waterman Steamship Corporation was founded with a single ship in 1919 in Mobile, Ala. Sailings to Puerto Rico were inaugurated in 1927 from the home port of Mobile, a service that proved to be a far-sighted move for Waterman and one that made an important contribution to the company's growth. During the period of 1946-1948 Waterman owned 55 vessels, comprising the largest dry-cargo fleet in the American merchant marine.

In 1965 the Walsh family purchased Waterman from McLean Industries, Inc. and formed Waterman Industries, Inc. Waterman Steamship Corporation is now headquartered in New York, with branch offices in Washington, Mobile, Houston, Chicago, San Francisco, Dallas, and New Orleans. Currently, its fleet consists of eight ships — six LASH vessels and two freighters—offering fast and efficient service to the Far East and Middle East from U.S. Gulf and East Coast ports.

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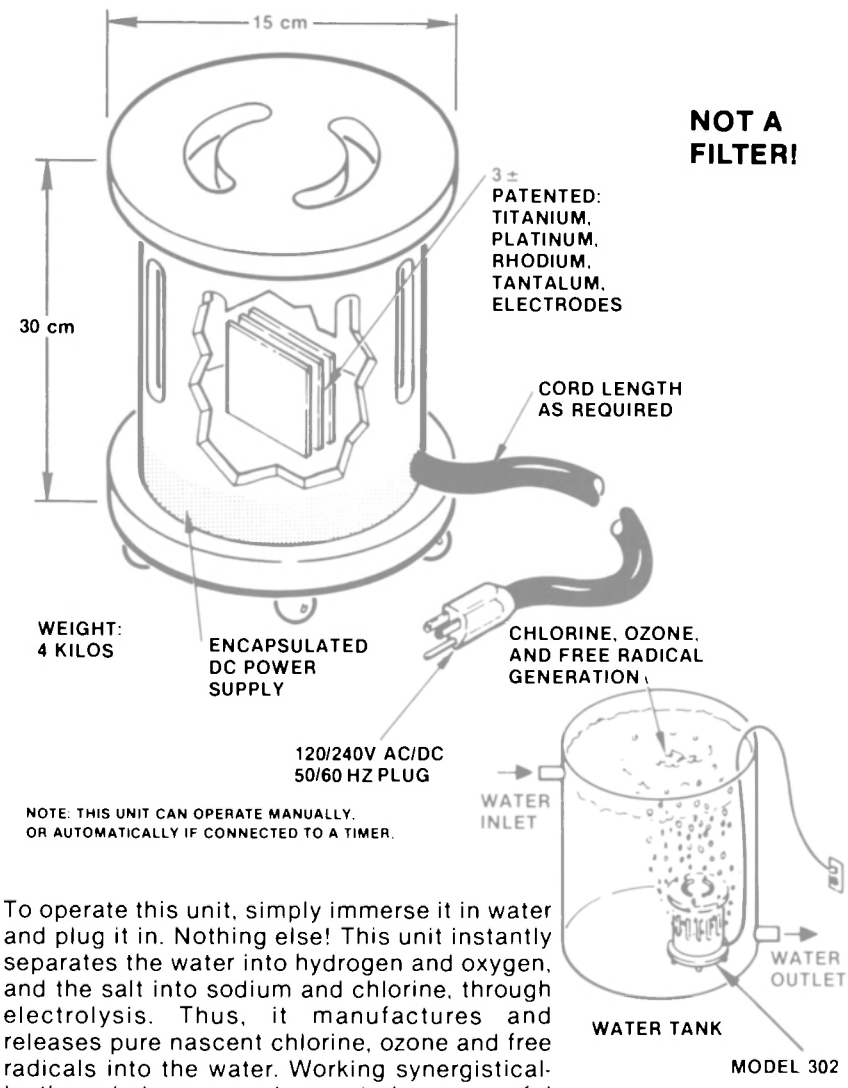
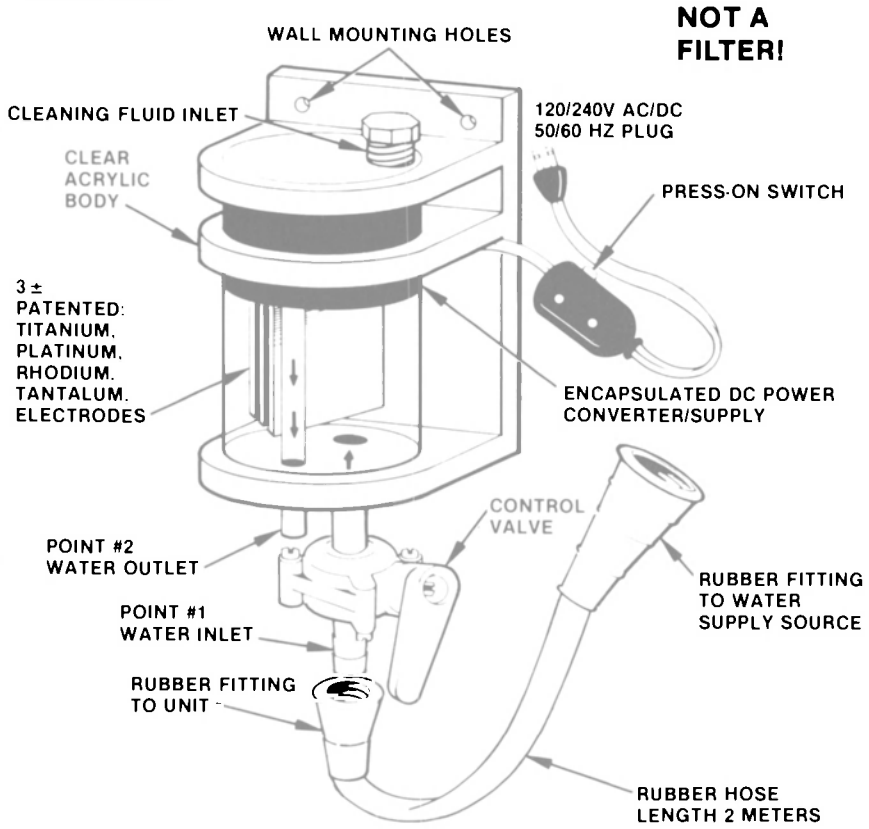
STER-O-LIZER Model 302



To operate this unit, simply immerse it in water and plug it in. Nothing else! This unit instantly separates the water into hydrogen and oxygen, and the salt into sodium and chlorine, through electrolysis. Thus, it manufactures and releases pure nascent chlorine, ozone and free radicals into the water. Working synergistically, these halogens are known to be a powerful germicidal agent, capable of instantly destroying all water-borne bacteria, rendering the water pathogen-free, sterile and safe for human consumption. It may also be used for sterilization of livestock water, food processing and a myriad of other applications. For drinking purposes, where the water contains about 50 ppm salt, capacity of Model 302 is about 200 liters per half-hour (10,000 liters per 24-hour day of continuous operation). Electrical consumption is 15 amps at 120 V, and 30 amps at 240 V. AC/DC 50-60 Hz. If water contains more than 50 ppm salt, consult the factory for modification to accommodate salt content. Higher salt content increases sterilizing capacity.

DIAMETER 10 cm
HEIGHT 20 cm
WEIGHT 2 kilos

NOT A FILTER!



STER-O-LIZER Model 310

CAPACITY:
4 liters per minute
6,000 liters per day

STER-O-LIZER Model 320

CAPACITY:
8 liters per minute
12,000 liters per day

To operate this unit, simply introduce running water which contains no more than 50 ppm salt at point #1. Plug it in and press the switch. Nothing else. The water will exit at point #2 free of all water-borne bacteria, pathogen-free, sterile, ready for immediate human consumption, or it can be stored for later use. If the water contains more than 50 ppm salt, the factory can adjust this unit to take up to 30,000 ppm salt. The process used is electrolysis of the water and its salt. The patented electrodes generate nascent chlorine, ozone and free radicals, known as a powerful germicidal agent. Electrical consumption is from 6 to 20 amps.

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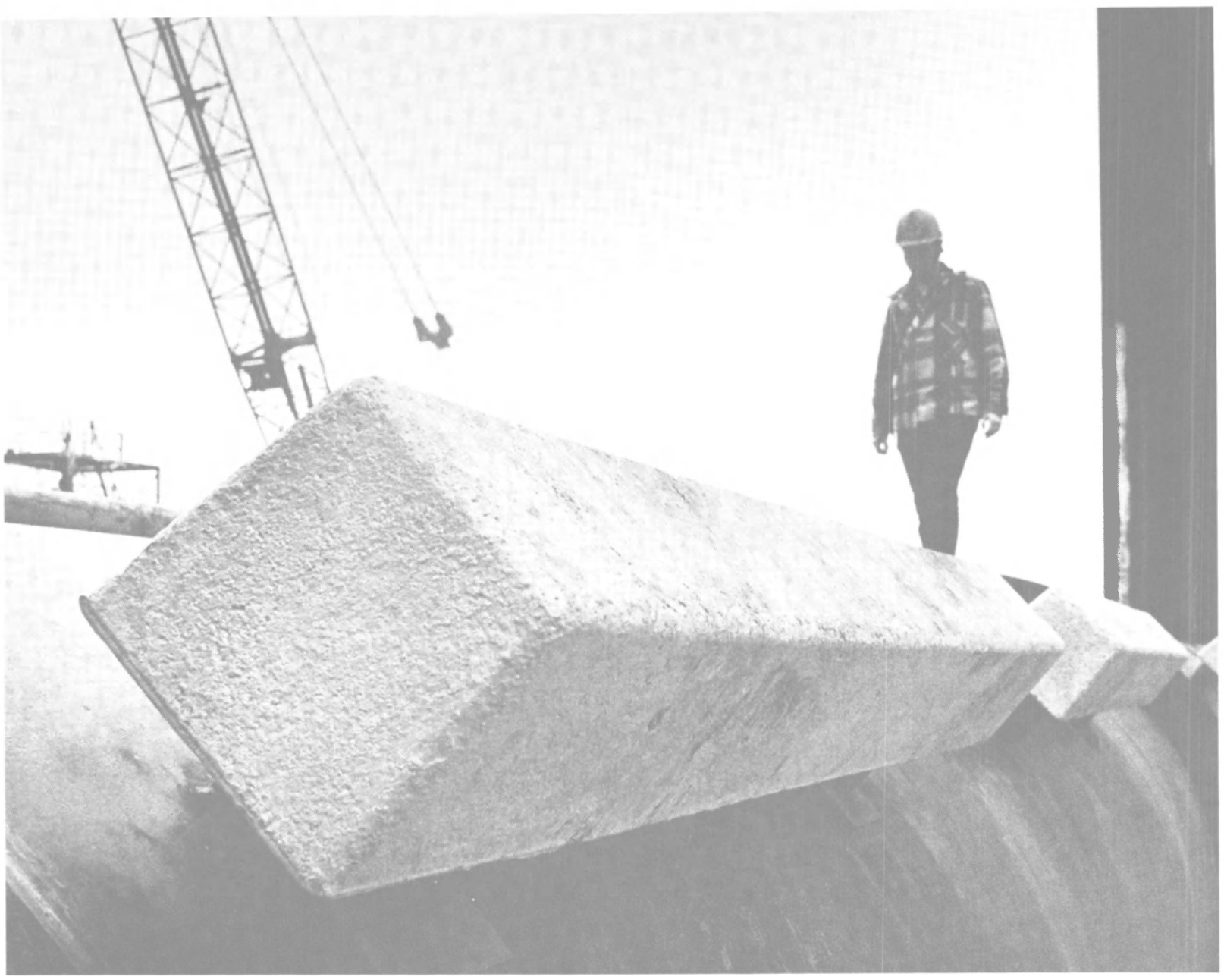

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Both KA90 and KA95 aluminum marine anodes are available in sizes up to 1,100 pounds from a 10,000,000-pound/year manufacturing facility designed exclusively for anode production. And every heat must qualify for acceptance by going through our Q-7 seven-point quality-control program.

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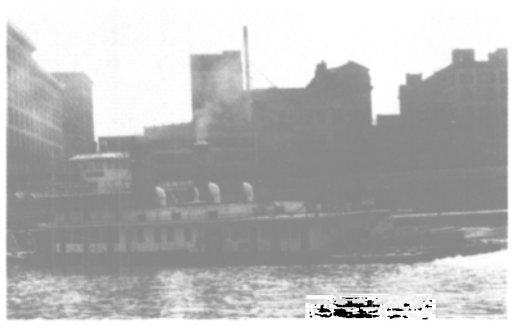
What does this new towboat have in common with one built in 1939?



Progress I was built 42 years ago and it was the first Jeffboat towboat ever to serve America's water transportation industry. Since then hundreds of Jeffboat vessels, like the Volunteer State pictured above, have transported cargo along America's inland waterway network. And crews, captains, and fleet owners alike have come to know and respect the dependable, comfortable, safe, and economical service every Jeffboat towboat provides.

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