MARITIME
REPORTER
AND
ENGINEERING NEWS

Point 'T'

First Of New Halter Line Of Fire Utility Vessels Delivered —Detroit Diesel Powered Point 'T'

(SEE PAGE 10)

NOVEMBER 15, 1980

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MarAd Bid Opening On Prepositioning Vessels Postponed To January 19

The bid opening date for the Maritime Prepositioning Ship has been extended from November 18, 1980 to January 19, 1981, to permit additional time for the preparation of bids. The Maritime Administration originally extended the invitation for sealed bids on the first two vessels in this new series of cargo ships on August 22, setting October 22 as the opening date. The invitation was amended to October 10 to reschedule the opening date for November 18.

MarAd is serving as contracting authority for construction of the ships under a joint agreement with the U.S. Navy. The Navy Sea Systems Command is responsible for the overall program. The Military Sealift Command will operate the vessels.

The prepositioning ship is designed to provide standby logistic support for the rapid deployment of U.S. Marines around the world. (It is designated by MarAd as the C8-M-MA-134j and by the Department of Defense as the TAK-X).

Bids are now scheduled to be publicly opened at the Commerce Department at 2:15 p.m. on January 19.

Brown Marine Requests Title XI For Two Barges To Cost $3.6 Million Total

Brown Marine Service, Inc., Pensacola, Fla., has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of one single-skin tank barge and one double-skin tank barge. The single-skin barge will have a 20,000-barrel capacity; the double-skin barge will have a 40,000-barrel capacity. Ingalls Marine Division of Ingalls Industries, Decatur, Ala., will build both vessels, and expects to deliver them in 1981.

Brown Marine plans to operate the barges in the Gulf of Mexico and on U.S. inland waterways. If approved, the Title XI guarantee will cover $3,154,854, or 87½ percent of the $3,582,690 estimated cost of both barges.

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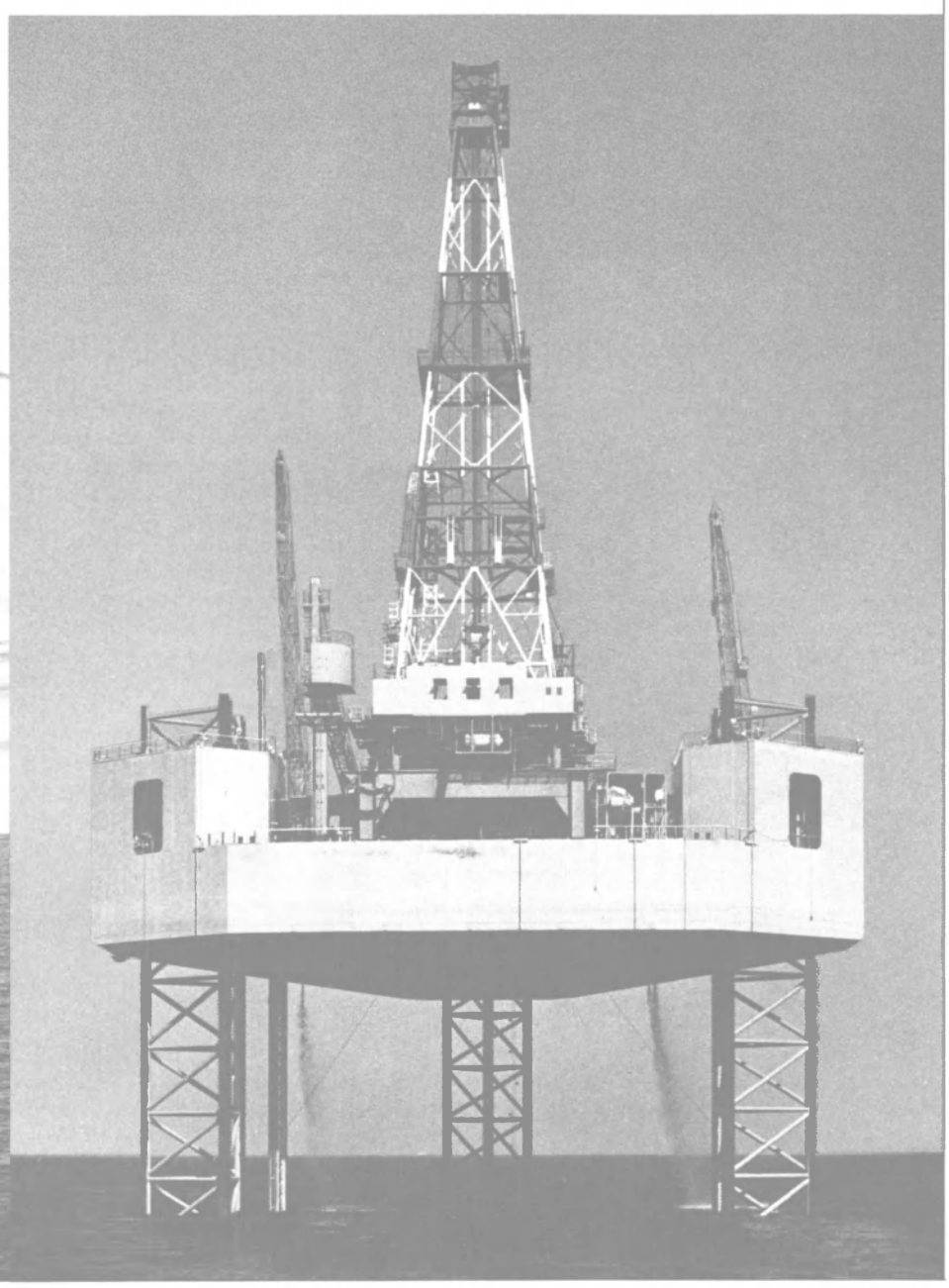
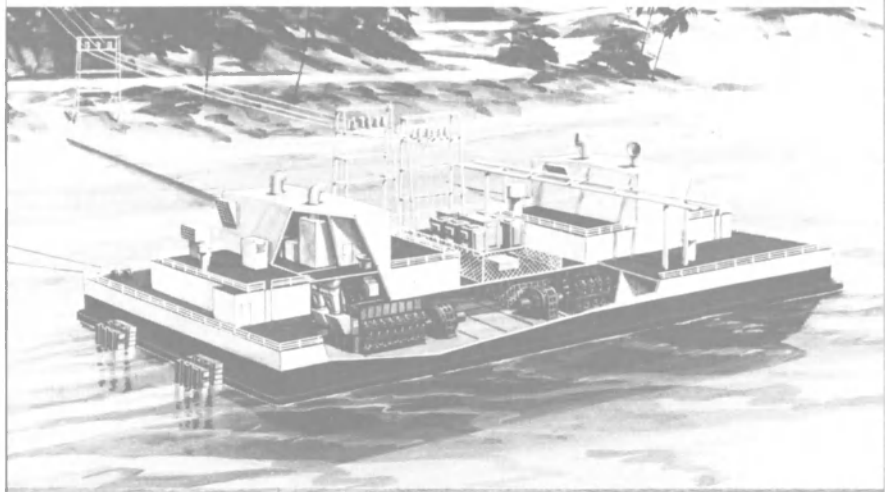
In addition, we can combine our world-famous shipbuilding technology with extensive know-how in building land machinery to construct an industrial plant that floats, for refining oil, processing petrochemicals, or for producing pulp, cement, fresh water from saltwater or generating electrical power.

This expertise is apparent in the Middle East where we have constructed the world's two largest barge-mounted desalination plants. In addition, we have recently received an order to build two barge-mounted power plants for the Philippines.

Our approach is total. So whenever you have a comprehensive offshore project in mind, get in touch with us or our overseas representative nearest you. Your project's in good hands when you do.





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Pump Test Facility Described At Hampton Roads SNAME Meeting

Hampton Roads Section vice chairman **D.L. Blount** congratulates guest speaker **Jim Crawford**. Looking on are **Chuck Horton**, chairman of Audit Committee, and Section chairman **Donald E. Kane Jr.**

The Hampton Roads Section of The Society of Naval Architects and Marine Engineers held its first meeting of the 1980-81 year at Fisherman's Wharf in Hampton, Va. Chairman **Donald E. Kane Jr.** of Newport News Shipbuilding opened the meeting by welcoming the 110 members and guests present and presenting the new slate of officers for the coming year, plus a brief of the upcoming programs.

A technical paper, "Pump Test Facility for Acceptance Operational Testing of Ships Pumps After Shop Overhaul," was presented by **Jim Crawford**. Before coming to Norfolk Naval Shipyard, Mr. **Crawford** was a test engineer with Newport News Shipbuilding.

Shop overhaul of ships' pumps is common practice. After reinstallation in the ships system, there is often a long time before conditions can be established to operate a pump under system full-load. The result of this inadequate post-overhaul testing capability is often failure of a pump during ship operation when shop overhaul facilities are not available.

To assure adequate overhaul of pumps at Norfolk Naval Shipyard, before reinstallation in ships systems, a complex pump test facility was designed. Mr. **Crawford's** paper described the design of the facility from conception to preparation of detailed installation plans. He concluded with a discussion of the intended use of the facility, including logistics of the Shop Pump Test Program.

Following the presentation, formal discussions were presented by **S.E. Bevins** and **J.S. Bradshaw** of Newport News Shipbuilding, and **J. Stone** of the Norfolk Navy Yard. All were in agreement that the need for a facility of this type was evident, and it should help to lower the percentage of pump failures after overhaul.

Ambroseno Elected New President Of Wild Goose Association

Bernard Ambroseno

Bernard Ambroseno is the newly elected president of the Wild Goose Association, an international organization for individuals with a common interest in Loran. He comes to the office well equipped with a background rich in Loran work. He is currently the Loran product manager for navigation systems at Epsco, Incorporated, Westwood, Mass. He is also actively involved as a member of the board of directors for the International Omega Association and a member of I.O.N. and R.T.C.M. Minimum Performance Standards for Loran-C receiving equipment.

Mr. **Ambroseno's** background includes work as a member of the technical staff of the Applied Science Laboratory at Harvard University, where he designed ionospheric sounder and radar countermeasure equipments. His past work with major marine electronics companies includes responsibility for the design and study of navigation and communications equipment, hardened communications systems, and underwater communications systems.

He has worked in great detail on navigation and timing equipment, antenna systems, including submarine VLF antenna, and a scale model of an Omega transmitting antenna for OMR. Mr. **Ambroseno** has also conducted FAA studies on Omega Lane Resolution in the Western Hemisphere. He begins his one-year term this fall.

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Our aluminum anodes offer predictable offshore performance.

Controlled rate of corrosion, a Kaiser Chemicals technological breakthrough, enables designers to predict performance and life of aluminum marine anodes KA90 and KA95 with a high degree of success.

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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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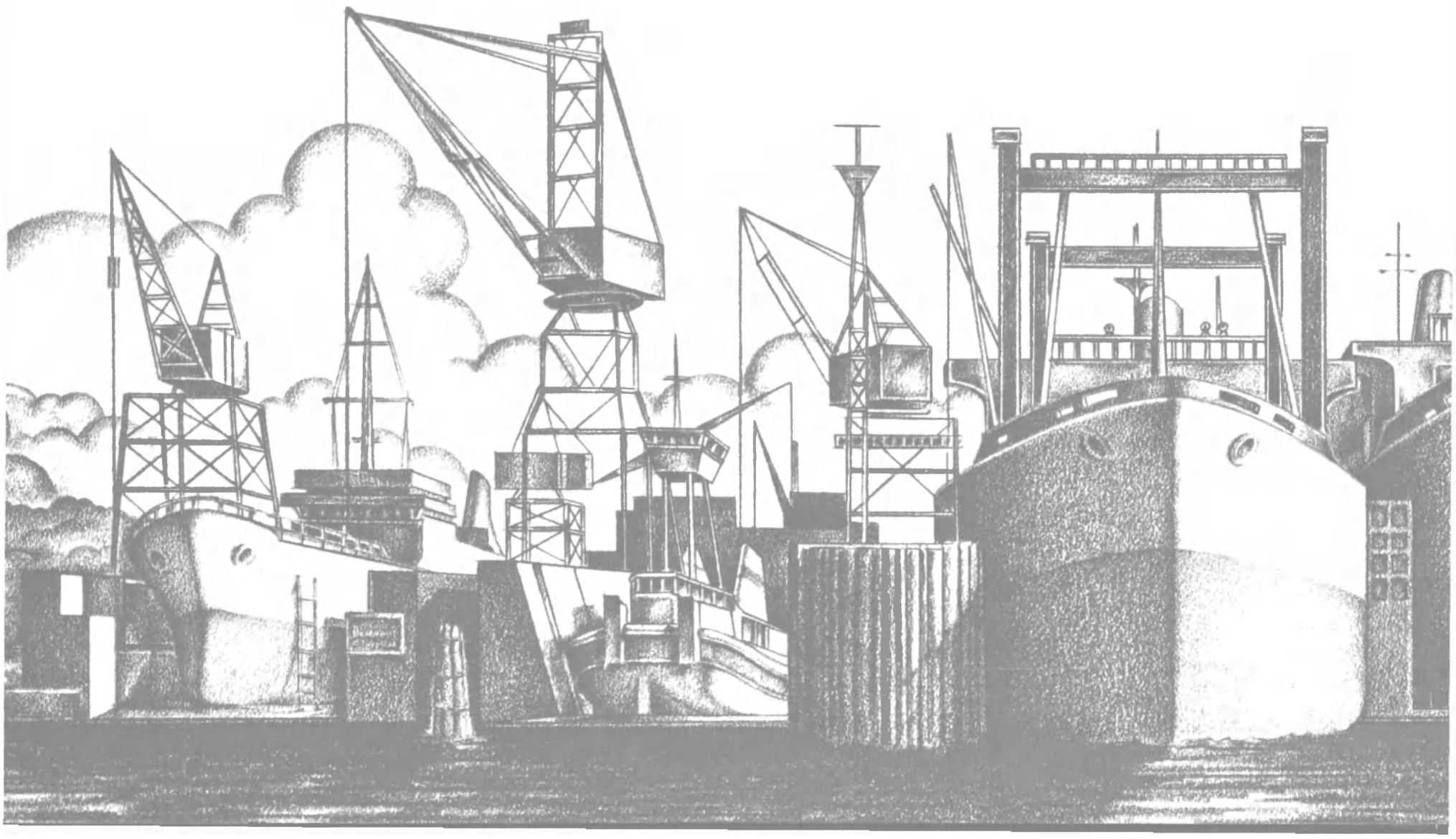

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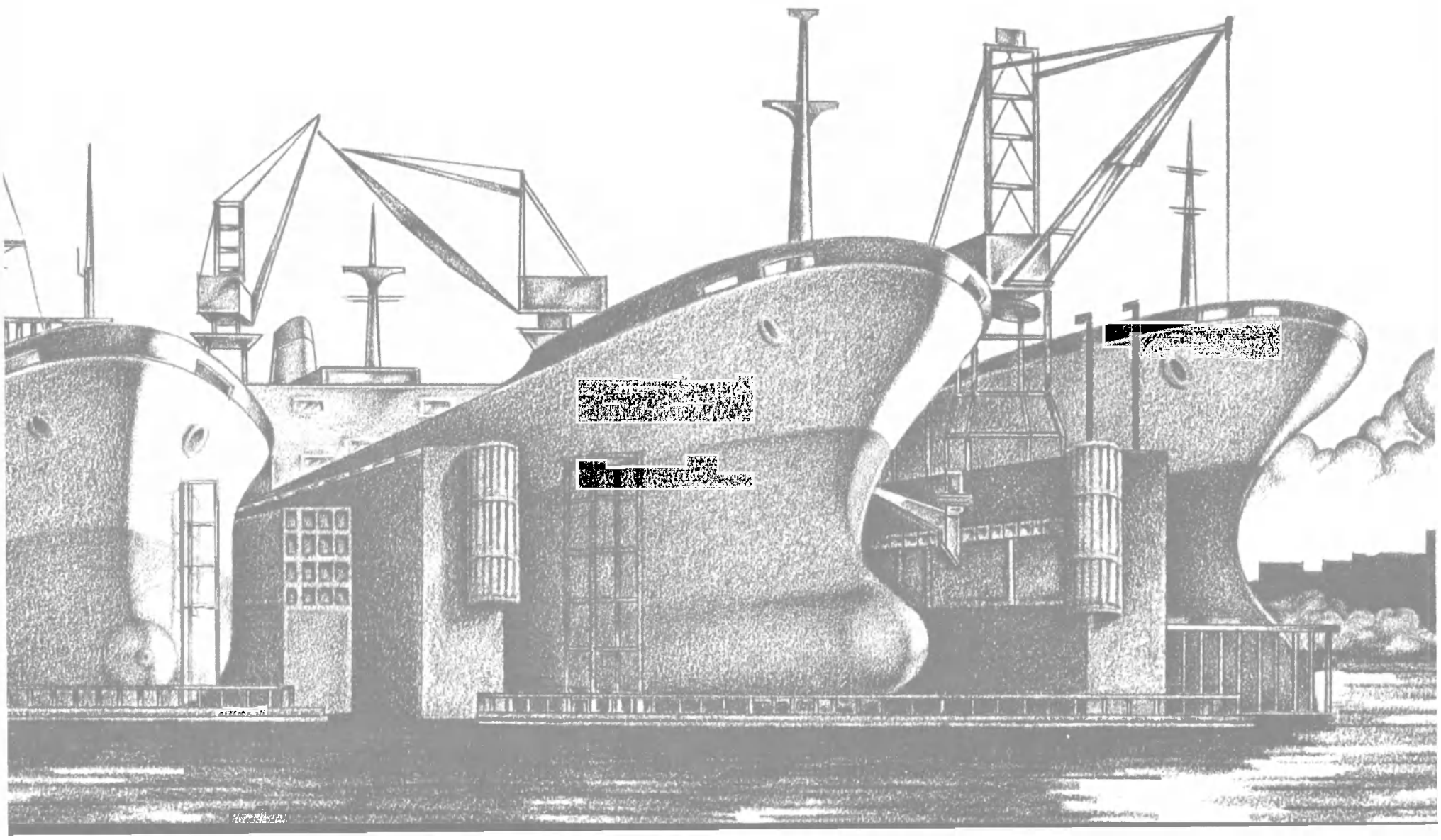


ON THE COVER

Halter Introduces New Line Of Fire Utility Vessels

Fire/utility boat **Point 'T'**, built by Halter Marine for Point Venture, Ltd., is first of a new line just introduced. Vessel is powered by two 900-bhp Detroit Diesel engines and fitted with a Bird-Johnson bow thruster.

Halter Marine, Inc., introduced a new line of fire/utility boats with the delivery of the 150-foot Point 'T' to her owners, Point Venture, Ltd. of Morgan City, La. In addition to her 61,000-gallon liquid mud capacity, the new vessel carries three 6-inch, 2,400-gpm fire monitors capable of pumping water as well as 1,720 gallons of foam.

A smaller version, the Halter-built 130-foot Point Au' Fer, similarly equipped and working for Mobil Oil, recently assisted in extinguishing a serious bulk fuel storage fire at Morgan City. Following the fire, the Morgan City fire chief said: ". . . I definitely feel that if it were not for the Point Au' Fer and its outstanding equipment and crew, a large part of the Front Street area would have gone up in flames."

"Our experience with these vessels in the field has been so satisfactory that we anticipate building several more in the same class," said **Arthur Levy Jr.**, president of Point Venture. "In addition," Mr. **Levy** added, "we are considering adding full firefighting equipment to the three 191-foot tug/supply boats we have under construction at Halter now. Included on each would be four large fire monitors with 10,000-gpm capacity, plus the capacity to pump 10,000 gallons of foam."

The Point 'T', whose overall dimensions are 150 feet by 36 feet by 14 feet, is powered by two GM Detroit Diesel Allison 16V-149NA diesel engines developing 900 bhp each at 1,800 rpm.

She has a cargo capacity of 275 long tons and has 2,200 square feet of cargo space on her aft deck. She can carry 78,560 gallons of fuel oil, 1,283 gallons of lube oil, 3,974 gallons of fresh water, 108,196 gallons of ballast water, and has a sanitary holding capacity of 895 gallons.

Auxiliary machinery includes two GM 75-kw generators driven by two GM Detroit Diesel Allison 6-71 diesel engines, a Continental Electric generator control panel, an Engine Monitor, Inc. monitoring system, two Quincy D325 air compressors, and Aurora fire, ballast, bilge, and fuel transfer pumps. The vessel is also equipped with a Bird-Johnson bow thruster driven by a GM diesel, and the engine room is protected by a fire alarm system and automatic CO_2 flooding system.

Living quarters include six staterooms, 20 berths, and a fully equipped modern galley.

The Point 'T' is American Bureau of Shipping classed A-1, +AMS; USCG NVC 1-78, USCG Subchapter I, carries a Panama Canal Admeasurement certificate, and is U.S. Public Health approved.

She was built at Halter's Chickasaw, Ala. division, one of 10 shipyards owned and operated by Halter in the Southeastern United States. Halter Marine is the world's largest builder of supply vessels for the offshore oil and gas industry.

Bethlehem-Beaumont Yard Commissions Jackup— Gets Order For Two More

O & U Drilling, Inc. of Beaumont, Texas, and Bethlehem Steel Corporation's Beaumont shipyard recently commissioned an offshore jackup drilling rig and announced the ordering of two other rigs. One of the new rigs will be built at the Beaumont yard, and the second at the Singapore shipyard.

Commissioned was the Gulfdrill I, with **Mrs. George H. Galloway**, wife of the president of Amoco Production Company, as the sponsor. Upon delivery, the rig will work for Amoco in the Gulf of Mexico.

The Gulfdrill I is a mat-supported jackup that features a cantilevered substructure. It offers the capability to position its drill floor over existing offshore production platforms in order to drill developmental wells or to rework existing wells. Being mat-supported, the unit can operate on a wide range of bottom soil conditions. On location, the rig offers a variable load capacity of four million pounds, and handles hook plus setback loads of one million pounds, on wells as far as 32 feet past the aft end of the platform. The maximum cantilever reach of the rotary is 40 feet, with a hook/setback load capacity of 800,000 pounds at rig centerline.

The structure consists of a platform that is 157 feet by 120 feet, supported by three 9-foot-diameter columns fixed to a large stabilizing mat that is 192 feet by 160 feet. Outfitted with deep-well drilling equipment, the rig can operate in waters up to 150 feet deep. It can withstand hurricane forces resulting from 100-knot winds and 55-foot seas in water depths up to 125 feet.

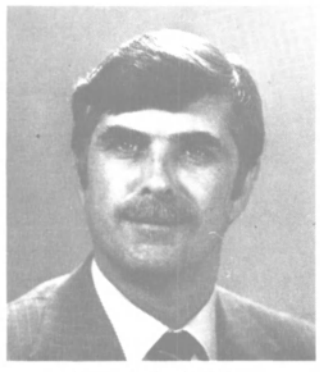
The Gulfdrill I contains onboard, air-conditioned living accommodations for 50 people, complete with sleeping quarters, galley, recreation room, laundry, and rest rooms, and is built to comply with United States Coast Guard and American Bureau of Shipping standards for offshore drilling units.

The rig ordered by O & U for construction in Singapore is scheduled for delivery in October 1981, and the one to be built at Beaumont is scheduled for delivery in January 1982. Similar to the Gulfdrill I, they are mat-supported with cantilevered substructures and thus offer similar operating advantages. These units are designed to operate in waters to 200 feet deep.

Graham Named New York Operations Manager for MacGregor Land & Sea

MacGregor Land & Sea, Inc. has appointed **Maxwell S. Graham** to the post of operations manager of its New York area service station. Being the nation's largest port, this assignment is a key position in MacGregor's rapidly expanding marine service network. Not only will Mr. **Graham** direct a team of highly experienced service engineers, but his efforts also will be employed in expanding and modernizing the machine shop, hydraulic facility, and spare parts fabricating shop located in the Brooklyn area.

After a distinguished career in the Royal Navy, serving in a variety of capacities in many types of ships, Mr. **Graham** worked with



Maxwell S. Graham

Y-ARD of Glasgow, Scotland, a highly respected company in the research development and training fields in the United Kingdom. For the past two years, he has been with a large Gulf Coast marine repair facility. He brings to MacGregor a wide range of experience in all manner of ship repairs.

MacGregor Land & Sea is the repair arm of MacGregor Comarain, Inc., located in Cranford, N.J. The Land and Sea operation now has six locations in North America, and is experiencing rapid growth due to their prime locations and expansion into all manner of general marine repairs.

Fred Ramsden, Fred West

"Our strict inspections mean these barges are ready for immediate loading on delivery"

Making certain the customers get everything they wanted, and that a barge can do everything it was designed to do, requires total knowledge of barges and their construction. HBC Barge Inspectors, Fred Ramsden and Fred West:

"We've both worked as welders, fitters and layout men here at HBC Barge. We know from experience what goes into a well-built barge, start to finish. We inspect, start to finish.

"Welding is tested with an Ultrasonic Tester for required penetration and solid integrity. Hydrostatic testing is run on every tank barge. Every seam is soap seal tested.

"Our air test on every barge is different than most. We test the whole barge, seam by seam, not just by compartments.

"We check on everything the blueprints and specs calls for, and everything that good construction requires, such as: fittings; pumping, piping and power systems; insulations, linings and coatings; and as perfectly straight barge construction as possible.

"The Coast Guard, and the American Bureau of Shipping, also inspects these barges. So do the customers' inspectors, some of whom say this is some of the finest work they have seen. They say virtually nothing gets past us.

"We try."

Get your next barge fleet from a couple of inspectors as tough as any river. HBC Barge builds barges in any size and configuration you need, for chemicals and other liquids, coal, grain and other commodities.

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ASNE Northern New England Section Hears Gas Turbine Report

The Northern New England Section of the American Society of Naval Engineers held its first meeting of the new season at the Commissioned Officers Club, Naval Shipyard, Portsmouth, N.H. The featured speaker for the technical session was **Robert Reid,** who gave a slide presentation titled "Operating Experience of the LM2500 Gas Turbine in Navy Ships."

The LM2500 gas turbine has been in service in the U.S. Navy since 1975 as the main propulsion engine for the Spruance Class (DD-963) destroyers and the FFG-7 Class frigates. It is being used in the ships of 11 navies around the world, and is now operational in 37 U.S. Naval vessels ranging from 230 tons up to 24,000 tons.

Section chairman Capt. **Phil O'Connell** (left) and guest speaker **Robert Reid,** at first meeting of the Northern New England Section of ASNE.

Some of the features of the LM2500 that make it an attractive propulsion package include quick start-up, fast throttle response, rapid engine replacement, and a wide range of output horsepower.

The following officers and committee chairmen will lead the Section during the 1980-81 year: Capt. **Phil O'Connell,** chairman; **Philip V. Johnson,** vice-chairman; **Terry Hardy,** secretary; **Gerald Gouveia,** treasurer; **Harold F. Neville Jr., Robert I. Hockenhull,** and **Burton K. Murdock,** councilmen; **Richard Brooks,** Arrangements Committee chairman; **Bill Turner,** Membership Committee chairman; and **John C. DeWitt,** Publicity Committee chairman.

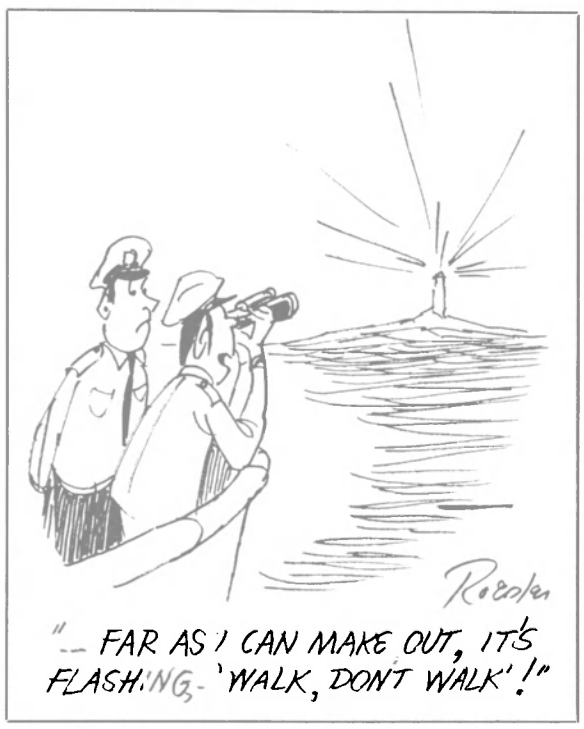
Dravo SteelShip Delivers Pilot Boats For Panama Canal

Pilot boat Darter is one of nine 48-foot vessels of this type designed and built by Dravo SteelShip for Panama Canal Commission.

Dravo SteelShip Corporation has announced the recent completion and delivery of nine 48-foot pilot boats for the Panama Canal Commission. The single-screw pilot launches have all been delivered to the Canal Zone under their own power. They were delivered two at a time for safety measures. The 2,200-mile trip typically took approximately 15 days, with stops en route in New Orleans, Cozumel Island, and finally arrival in Panama at Colon.

The vessels are powered by single GM Detroit Diesel 8V-71 engines rated 230 bhp at 1,800 rpm, and have proven themselves to be extremely seaworthy in their maiden voyage to the Canal Zone. Only the delivery crews have proven to be more rugged, as some of the boats have no sleeping, galley or other living accommodations onboard.

Dravo SteelShip builds a wide variety of inland and offshore vessels in both steel and aluminum.



New Tank Gauging System Has Modular Components—Literature Available

A new standardized marine tank gauging system, designed with modular, interchangeable, and plug-in components packed with marine gauging benefits, has been introduced by Metritape, Inc.

The new Metrimodule™ system features unique compact Metrimodule-digital displays—each providing level, temperature, and alarm indications plus operational controls for a single tank. Continuous tank ullage is displayed to the nearest centimeter, tenth foot, or inch, and product temperature in degrees C or F at the press of a button. Three adjustable audible and visual alarms are for high, overfill, and low levels. Low alarm also monitors deck cables for open circuit.

Metrimodule-digital displays can be panel-box mounted in bow-up tank plan pattern (up to 23 displays plus system control module), or recessed into an available console.

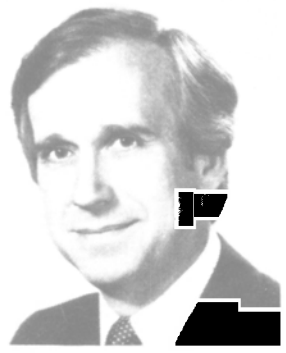
All major Metrimodule system components, including Metritape Level/Temp sensors, Multifunction-4 circuit cards, intrinsic safety barriers and Metrimodule-digital displays are separate for each tank, interchangeable and plug-in. These standardized repeated elements assure most component failures will affect only one tank, and simplify service by shipboard personnel — maximizing system reliability.

For more information and free literature, write to **Kathryn B. Weaver**, Metritape, Inc., Dept. MR, 33 Bradford Street, Concord, Mass. 01742.

Star Iron Awarded $4-Million Navy Contract For Shipboard Cranes

Canron Corporation, Star Iron and Steel Division, Tacoma, Wash., has been awarded a $4,028,200 formally advertised, firm fixed-price contract for boat and missile cranes for use in ship alteration Submarine Tender AS-34. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-4016)

Wasacz Named Executive Vice President For Matson Navigation



Michael S. Wasacz

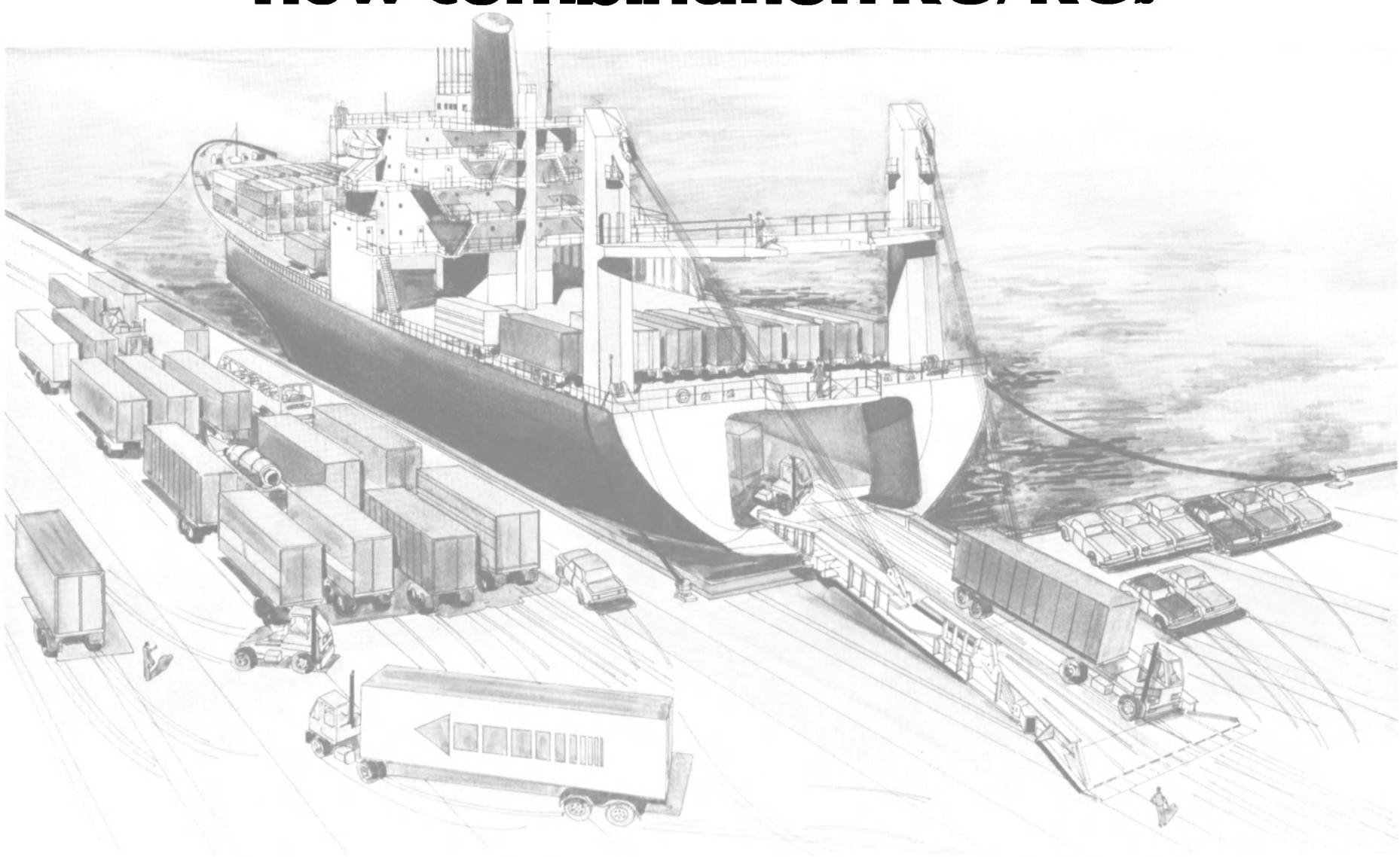
Michael S. Wasacz has been appointed to the newly established position of executive vice president of Matson Navigation Company of San Francisco, it was announced by **James P. Gray,** president. Mr. **Wasacz** will also continue to serve as president and chief executive officer of Matson Terminals, Inc., Matson's terminal and stevedoring subsidiary.

Starting in Matson's New York freight office in 1959, Mr. **Wasacz** later held managerial posts at San Francisco headquarters and in Seattle, Portland, Los Angeles, Honolulu, and Oakland.

He became vice president, area manager, northern California, in 1976 and a year later went to Honolulu as vice president, area manager, Hawaii. He was promoted to senior vice president in 1978, before returning to San Francisco to head the freight division. He became president of Matson Terminals in January, this year.

It's a trailer ship. It's a container ship. It's a vehicle ship. It's a unitized and palletized cargo ship.

It's Sun Ship's new combination RO/RO.



No matter how you view it, our new combination RO/RO is one flexible ship that can easily be tailored to the precise needs of the operator. Three of these versatile cargo vessels are now being constructed by Sun for Waterman Steamship Corp.

The flexibility is inherent in the design. Once the operator settles on the specs, he gets a ship that's designed from the keel up to perform the functions he wants.

The ship has a cargo capacity of 762 forty-foot containers and trailers. The forward section is for containerized freight, but the main deck and hatch covers are capable of RO/RO operations. Aft is 100% roll-on, roll-off.

Each ship is equipped with a full-slewing ramp on the stern. A self-sustaining crane is available for loading and unloading. The modern engine room features a steam turbine power plant that can generate a speed of 22 knots at 32,000 maximum shaft horse-power. Accommodations for 41 are provided, including an owner's stateroom and spares.

Sun Ship is the world's most experienced builder of RO/RO ships. For information, contact Sun Ship Inc., Chester, PA 19013.

Sun Ship Inc.

Write **402** on Reader Service Card

Si-Tex Enters VHF/FM Marine Field— Literature Available

Si-Tex has expanded into the marine radio market with the introduction of the Model 678 synthesized VHF/FM radiotelephone. With 55 transmit and 78 receive channels, the transceiver provides complete coverage of all U.S. and international VHF marine frequencies. Four weather channels are also included.

The Model 678 automatically sets up proper domestic or international mode by use of a single front panel selector switch. Proper operation is provided for anywhere in the world. LED indicator light advises when in semi-duplex operation. Selected channel is indicated by easy-to-read green LED digital display.

The radio has a priority channel 16 instant select button for alternating between a working channel and channel 16 without resetting channels. Front panel push buttons provide instant selection of weather one and two.

A full 25 watts of power is delivered to the antenna. At the touch of a button, power is decreased to one watt. Front panel red TX light indicates when transmitting. Receiver sensitivity of 0.3 microvolts for −20 dB SINAD helps bring in weak or distant signals. A five-watt audio speaker jack is also included.

For more information and free literature, write to **Presley Taylor,** Si-Tex, P.O. Box 6700, Clearwater, Fla. 22518.

Matson's R.J. Pfeiffer Named Board Chairman At Alexander & Baldwin

R.J. Pfeiffer

R.J. Pfeiffer, president and chief executive officer of Alexander & Baldwin, Inc., has been appointed chairman of the board by the directors of the Honolulu-based company.

Mr. **Pfeiffer** is also chairman of the board and chief executive officer of Matson Navigation Company, Alexander & Baldwin's subsidiary in San Francisco, which he served as president of 6½ years before being named to head the parent company a year ago.

Red Fox Industries Names Flo-Systems As Agent In California

Red Fox Industries has recently appointed Flo-Systems, Inc. of Burbank as their sales/service agent in California. Located in New Iberia, La., Red Fox pioneered in the research and development of marine and conventional (land-based) sewage treatment units. With more than 1,900 systems in use worldwide, the company has become a leading manufacturer of MSDs in this country, and presently holds a predominant position in the market for marine systems.

The fabrication division of Red Fox Industries designs and fabricates offshore drilling rigs, steel living quarters, production platforms, and inland drilling barges for the petroleum industry.

Flo-Systems will concentrate on sales and service of Red Fox prepackaged sewage systems for onshore/offshore applications, and a unique wire line unit designed by Red Fox for the drilling industry. The recent appointment was announced by **Robert J. Buza,** regional manager, of Red Fox Industries' Western Office, P.O. Box 922, Encinitas, Calif. 92024.

Jeffboat To Build Two Tank Barges For East Boston Firm

Jeffboat, Incorporated of Jeffersonville, Ind., recently signed a contract to build two 36,000-barrel manned tank barges for Boston Fuel Transportation Company of East Boston, Mass.

The two 260-foot by 60-foot by 18-foot 3-inch barges will be designed for ocean service and carry Grade "A" or lower petroleum products. Equipment on the barges will include two Gould VMP 12N-12, 4-stage deep-well pumps, powered by two Detroit Diesel 8V-71 engines.

Contract schedules call for the first vessel to be delivered in September 1981, with the second to follow in December 1981.

Alaskan-Built Drilling Rig Unveiled By VANguard Industries

The first oil-drilling rig constructed in Alaska by an Alaskan firm recently was unveiled by its owner and operator, VANguard Industries. The 175-foot-high rig was begun in November 1979 as a joint venture by VECO, Inc. of Anchorage, and three Alaskan native organizations—NANA Development Corporation, Kuukpik Corporation, and Kaktovik Inupiat Corporation. Together, these firms have formed VANguard Industries.

The rig has been leased for three years by the Sohio Petroleum Company for offshore and on-land drilling in the Prudhoe Bay region. A sister rig, scheduled for completion this year, also has been leased by Sohio. Both structures will be operated and maintained by VANguard employees housed in 60-man camps built by VECO in Kenai. The camps will accompany the rigs to Prudhoe Bay.

Previously, oil rigs were constructed outside of Alaska and transported there for drilling. VANguard's management believes that may change as oil exploration increases within the state.

"This project indicates that Alaskan companies can be competitive with outside firms," VECO executive vice president of operations **Rod Christ** said. "Right now there are about 15 rigs functioning in Alaska. But compare our oil potential to Texas, where there are about 1,000 rigs, and you realize that there could be a big market here for building drilling rigs." If that market develops, in-state construction would create more jobs and keep more money within the state.

"Our rigs and the related equipment cost more than $30 million and took over 100,000 Alaskan man-hours to build," said **Willie Hensley**, chairman of the joint venture and president of NANA Development. "Multiplied by a larger market, that would mean a big economic boost for the state."

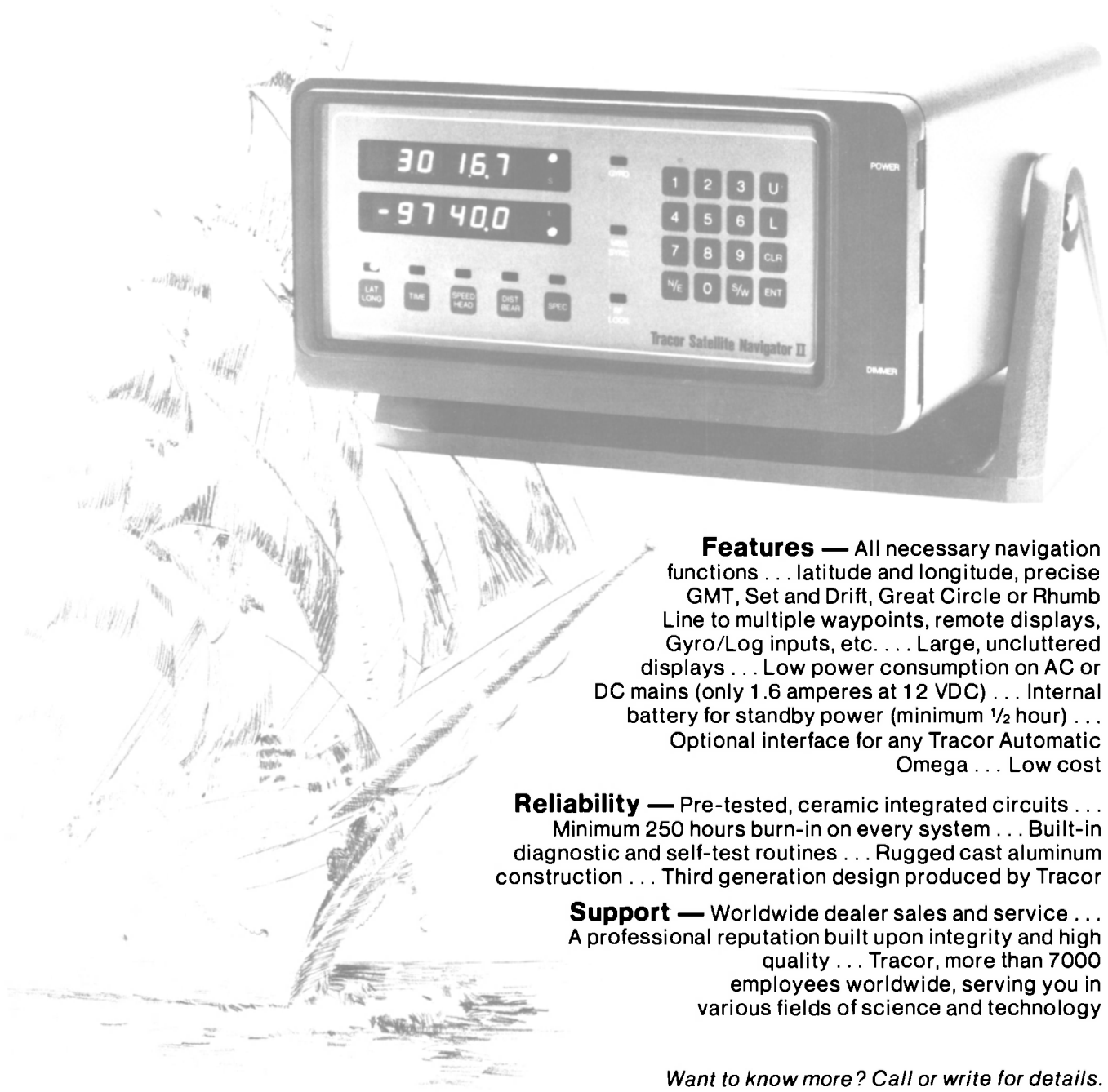
About 170 employees took part in the construction project, Mr. **Christ** said. Twelve of those workers were Alaskan natives who were trained in oil technology by VANguard at the Seward Skill Center. At the completion of their training, these men were brought to Anchorage as part of the crew that assembled the rigs. They will continue working for VANguard in Prudhoe Bay.

The two VANguard rigs have the capacity to drill more than 20,000 feet into the earth. However, they are extremely mobile. Using a master skid and rollers, each of the structures can be moved forward or backward to begin new drilling in a few hours. A modular design makes it possible to transport the main substructure and the derrick to a new location or pad in two loads.

New from Tracor ...

Satellite Navigator II

Meets U.S. Coast Guard regulations for vessels entering U.S. ports (without Loran-C!)



Features — All necessary navigation functions . . . latitude and longitude, precise GMT, Set and Drift, Great Circle or Rhumb Line to multiple waypoints, remote displays, Gyro/Log inputs, etc. . . . Large, uncluttered displays . . . Low power consumption on AC or DC mains (only 1.6 amperes at 12 VDC) . . . Internal battery for standby power (minimum ½ hour) . . . Optional interface for any Tracor Automatic Omega . . . Low cost

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Support — Worldwide dealer sales and service . . . A professional reputation built upon integrity and high quality . . . Tracor, more than 7000 employees worldwide, serving you in various fields of science and technology

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Write 353 on Reader Service Card

$170-Million Order For Four Drill Rigs Placed By Global Marine Inc.

Global Marine Inc. of Los Angeles recently placed orders for a total of four more jackup type offshore drilling rigs at a cost in excess of $170 million.

Ingalls Shipbuilding division of Litton Industries will build one rig, with delivery scheduled for May 1982. Two of the new rigs will be constructed by Marathon Le Tourneau Offshore Company—one at its Singapore yard and the other in Brownsville, Texas. Delivery of both Marathon rigs is set for mid-1982.

The fourth jackup, also scheduled for mid-1982 delivery, will be built by Davie Shipbuilding, Ltd. at its yard in Lauzon, Quebec, Canada.

Manual Gauging System Approved By USCG & ABS —Literature Available

A manual ullage tape installation, which makes it possible to gauge tanks visually under closed loading conditions, has been accepted for tanker and barge use by both the U.S. Coast Guard and American Bureau of Shipping.

Developed by VU-GAGE Systems, the installation is said to eliminate the maintenance and reliability problems associated with "automatic" ullage measuring systems. It also makes it possible to monitor loading operations with the same accuracy as hand-held tapes and open tank tops.

The new gauging system is designed for use with the VU-GAGE ullage opening cover. The system is permanently installed in the ullage trunk, directly below the VU-GAGE window. It consists of a 20-ounce sparkproof copper ball float, ullage tape, and winding mechanism. When not in use, the tape and float are locked in a stowed position at the top of the trunk, well above the cargo level.

Ullages can be easily read through the 6½-inch circular VU-GAGE window. A viton wiper blade on the underside of the completely sealed window permits it to be cleaned at any time—even during loading operations—with no escape of fumes. VU-GAGE ullage covers are available in bronze for conventional service, and in stainless steel for chemical tankers and barges.

For additional information and free literature on the new manual ullage installation and the complete VU-GAGE line, write to **E.A. Waryas**, VU-GAGE Systems, Dept. MR, Room 910, 150 East 42nd Street, New York, N.Y. 10017.

$4.7-Million Spanish Navy Contract Awarded To Stewart & Stevenson

Stewart & Stevenson Services, Inc. has announced a $4.7-million contract to provide generator sets for a Spanish Navy aircraft carrier. The company will supply three 2,500-kw "high shock" gas turbine generator sets by mid-1982 to the prime contractor, Empresa Nacional Bazan Shipyard in Spain. These generator sets are similar to Stewart & Stevenson systems now in use by the U.S. Navy on its Spruance class destroyers.

The Spanish aircraft carrier is the first of a new class specifically designed for VSTOL (Very Short Take-Off and Landing) jet fighter aircraft, and features an elevated bow for aircraft take-off assistance. In addition to its aircraft carrier role, it will function as the command and control ship using sophisticated computers to direct the entire fleet during operations.

Traylor Named General Manager Of Halter's Chicasaw Division

James T. Traylor has been appointed general manager of Halter Marine's Chickasaw, Ala., division, according to **James Steadman** vice president-special assignments. Before joining Halter, Mr. **Traylor** had been associated with Ingalls Shipbuilding, Pascagoula, Miss., for five years as special assistant to the president and director of division planning. Prior to that, he was associated with the Westinghouse Corporation for seven years in program management.

After graduating from the U.S. Naval Academy, Mr. **Traylor** served for 27 years in the Navy. He retired in 1969 as a captain after serving in destroyers, submarines, amphibious ships, and aircraft carriers.

Halter's Chickasaw division is currently building seven giant Catugs—the propulsion units for integrated tug/barge combinations. Six of the 18,000-bhp vessels are being built as a subcontractor to Bethlehem Steel Corporation, while the seventh is being built for C&H Sugar. The yard also builds supply boats.

J.E. Chenault Appointed A Member Of DRECO's Board Of Directors

DRECO, Inc., Houston, has announced that **James E. Chenault Jr.** has become a member of the company's board of directors. **Douglas Frame**, DRECO's general and vice president, made the announcement for the company.

James E. Chenault Jr.

Mr. **Chenault** is the president and chief executive officer of Lone Star Steel Company, and past president of United States Steel Corporation's U.S. Oilwell Division. He was with the division for 30 years.

DRECO principally serves the oil industry in the manufacture and sales of heavy machinery, masts, derricks and substructures, mud handling systems, and downhole equipment.

Lykes Expands Freight Stations To Improve Intermodal Service

Lykes Bros. Steamship Co., Inc. of New Orleans, a subsidiary of The LTV Corporation, has set up container freight stations at Atlantic, Gulf, and interior cities for intermodal service via the West Coast to and from the Far East. This arrangement allows a shipper to move his cargo between the Far East and, for example, New York, via the West Coast on a single through bill of lading issued by Lykes.

The cargo moves via Lykes's trans-Pacific service on the ocean leg of the trip, and by rail on the land portion. Service can be house to house, pier to pier, or in combinations of the two.

Lykes container freight stations already are in operation at Boston, New York, Philadelphia, Baltimore, and Norfok, and are being established at several South Atlantic cities. Stations are in operation on the Gulf at New Orleans, Houston, and Mobile, and inland at Memphis and Nashville.

Lykes provides U.S.-flag liner service between the West Coast and Far East with roll-on/roll-off ships and combination container-breakbulk vessels. The line's fleet of 44 ships operates on a total of seven trade routes covering five continents. Lykes also offers intermodal service to and from South and East Africa, the Mediterranean, and Continental Europe.

Hitachi Zosen

ENERGY-SAVING SHIPS REFERENCE

The Hitachi B&W Twin Bank Diesel Engine proves energy-efficient and cost saving in active service.

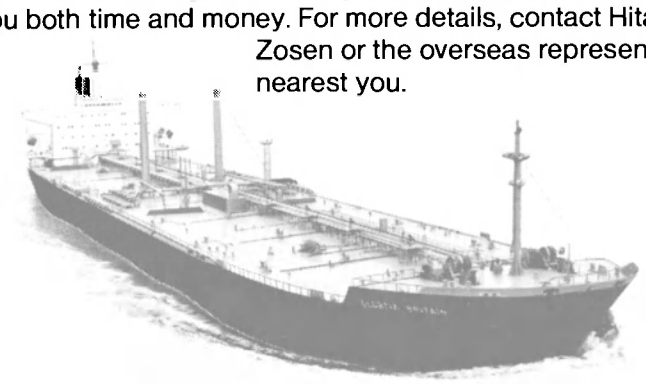
Having a deadweight capacity of 85,280 long tons, "Globtik Britain" is the first ship in active service to employ the energy-saving Hitachi B & W 2x8K45GTC Twin Bank Two-Stroke Crosshead Type Marine Diesel Engine. *The economies of the Twin Bank configuration are many.*

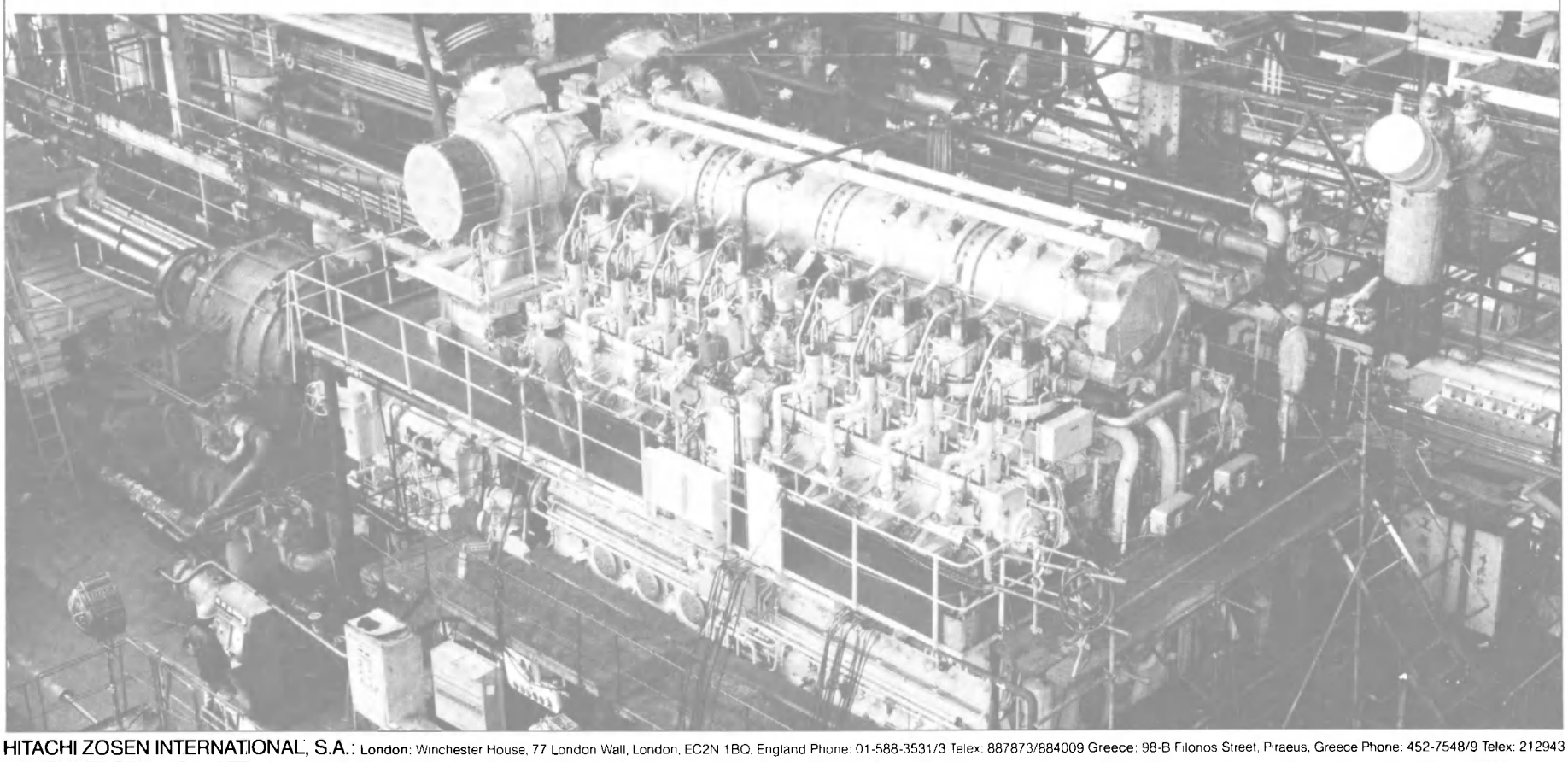
The Twin Bank Diesel Engine reduces fuel oil consumption by using a large diameter, low-speed propeller that serves to increase the propulsive efficiency, thereby decreasing the power needed for propulsion. Constant-pressure turbocharging gives it the lowest fuel consumption of any low-speed diesel engine, and a better rate than medium-speed diesel engines.

As compared with conventional type low-speed diesel engines, the Twin Bank Diesel Engine for the "Globtik Britain" achieves approximately a 24% total saving with main engine fuel consumption and propulsion horsepower. It also burns low-grade fuel and is lighter and more compact than a conventional diesel engine, so installation opens up more space for cargo. Furthermore, reliability and drive system performance are outstanding and all the main parts are interchangeable with those of a B & W K45GF Series engine. Also, the Twin Bank Diesel Engine requires less lubrication.

What's more, Twin Bank subsystems can be used independently or together. The low-pressure turbogenerator is also used effectively for recovering exhaust heat. The steering gear and autopilot assure fast and direct control and excellent course stability. And tank arrangements fully meet IMCO's requirements for controlling pollution.

Hitachi Zosen's new system is applicable to all ships. And that's an excellent reason to get a close up look at the system that can save you both time and money. For more details, contact Hitachi Zosen or the overseas representative nearest you.





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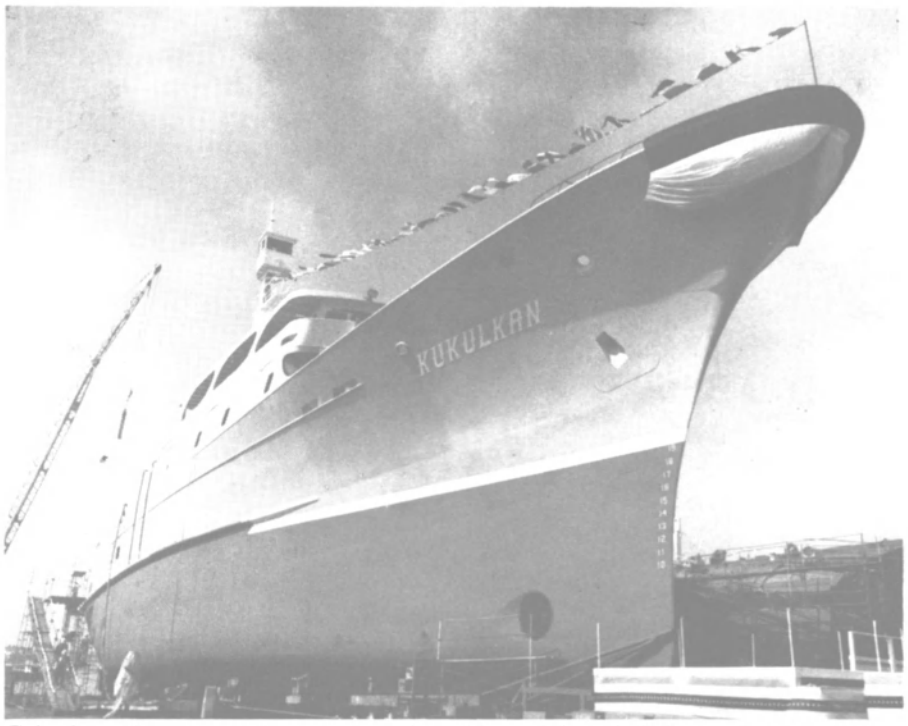


Poised on the ways prior to recent launching at Campbell Industries' San Diego shipyard, the superseiner Kukulkan is being built for Atunera del Carmen, Mexico.

Campbell Industries Launches Superseiner For Mexican Owner

Campbell Industries of San Diego launched the new tuna superseiner Kukulkan recently, adding impetus to the rapidly developing fisheries of Mexico. She is the first of two such seiners ordered by Atunera del Carmen, an association of veteran fishing people in the state of Campeche.

Kukulkan is the Mayan name for the Aztecan supreme diety Quetzalcoatl, personified by a feathered serpent. "Qetzal" means bird, and "coatl" means snake. Like its name, the new ship signifies the combining of two heritages. Over the years, her owners have devoted themselves to the development of the Gulf shrimp fishery. Now, their move to the tuna schools of the Pacific brings a second arena and a clear indication of the broad spectrum of interest within Mexico's fishing community.

Much of this vital interest in new fishery developments has been the result of encouragement and support from the Mexican government. A prime example is the financing for the Kukulkan, which comes from Banpesca (Banco Nacional Pesquero y Portuario). This fisheries-oriented bank was formed by the government in January of this year to provide some of the financial assistance required by the fishing industry in order to expand.

Principal speakers for midday Saturday launching were **Fernando Rafful,** head of Mexico's Department of Fisheries, and **Victor Abraham,** president of Atunera del Carmen. Brief remarks were also delivered by **Peter G. Schmidt,** president of Campbell Industries and MARCO Seattle, and **Ray Bryant,** president and directing business representative, District Lodge 50, International Association of Machinists.

Exhibiting the same grace with which she christened the Azteca I at the Campbell yard in February this year, **Mrs. Bertha Maldonada de Rafful** dealt the champagne honors to Kukulkan's waiting bow. She thus became only the second lady in modern-day history to serve as sponsor for two ships at the Campbell shipyard. Monsignor **Patrick Fox** of St. Agnes Catholic Church blessed the ship prior to its launching into San Diego Bay.

The Kukulkan is a 1,200-ton-capacity tuna superseiner built to fish the oceans of the world at a cruising speed of 16 knots and designed for helicopter operations. She is 221 feet 5 inches long, with a beam of 40 feet and a draft of 20 feet. The vessel's major components include a 3,600-bhp General Motors EMD diesel main engine, Caterpillar auxiliary diesel generator sets, MARCO fishing deck machinery (including the newly developed WS444 seine winch and associated systems), Vilter refrigeration, and a full complement of electronics and other navigational aids.

The vessel is scheduled for delivery in December of this year, following the outfitting and trials period.

Cummins-Powered Pusher Tug Is First Of Three For Archway

Marine Builders of Clarksville, Ind., built the Cummins-powered tugboat Jeanne Marie, and are completing work on two sister ships for Archway Fleeting and Harbor Service of St. Louis.

The recently delivered Jeanne Marie is the first of three sister vessels to be built for Archway Fleeting and Harbor Services of St. Louis, Mo., by Marine Builders, Clarksville, Ind. Powered by a matched pair of Cummins KT-2300-M diesels generating a combined 1,400 bhp at 1,800 rpm, the Jeanne Marie is the first newly constructed boat powered by KT-2300-M's on the nation's inland waterways.

David Houlihan, Archway's operating manager, sees high-horsepower engines like the KT-2300-M replacing lower rated engines on future inland waterway tugboats. "There are times when we need that horsepower to pivot quickly or fight the current when the river is at flood stage. It takes all day for a small boat with only 700 bhp or so to push barges upriver for a single switching operation on days like that," Mr. **Houlihan** said.

The tug measures 70 by 26 feet with draft of 5½ feet. A pair of Cummins 40-kw N-495-GS generator sets, one a standby unit, provide power to lights, winches, and radios.

The sturdy Jeanne Marie has been designed to handle heavy traffic. Twin Disc 530 marine gears with a 6.06:1 reduction ratio transmit power to twin 72:60 stainless-steel Kahlenberg propellers. Two knees rising 8 feet above the deck are bolted to the ship's understructure for added strength and stability. A Racor 800B-5 recycle blending system helps save fuel by centrifuging crankcase oil after changes and recirculating the 35 to 40 gallons into the fuel system.

The steel-hulled pushboat will be used in Archway's switching operations based at Reidy Terminal in St. Louis. Archway now operates four boats between mile 156.4 and Lock No. 26.

Surprising fuel economy ratings and low anticipated maintenance costs were cited by Mr. **Houlihan** as reasons for the selection of the Cummins engines. Mr. **Houlihan** said published fuel consumption curves showed the KT-2300 using nearly five gallons of fuel less per hour than the closest competitor in the same horsepower class. "We project an annual fuel savings of $80,000 per boat using the Cummins engine, which comes out to nearly a quarter of a million dollars savings in fuel alone when all three boats are working. That's a figure that's sure to catch your eye."

Archway owner **Eugene Slay** authorized purchase of the engines from Cummins Kentuckiana of Louisville after consultation with **Dave Evancyzk** of Marine Builders; **Pete Fanchi,** a consultant; St. Louis port engineer **Dennis Crank;** and representatives of the major marine engine manufacturers.

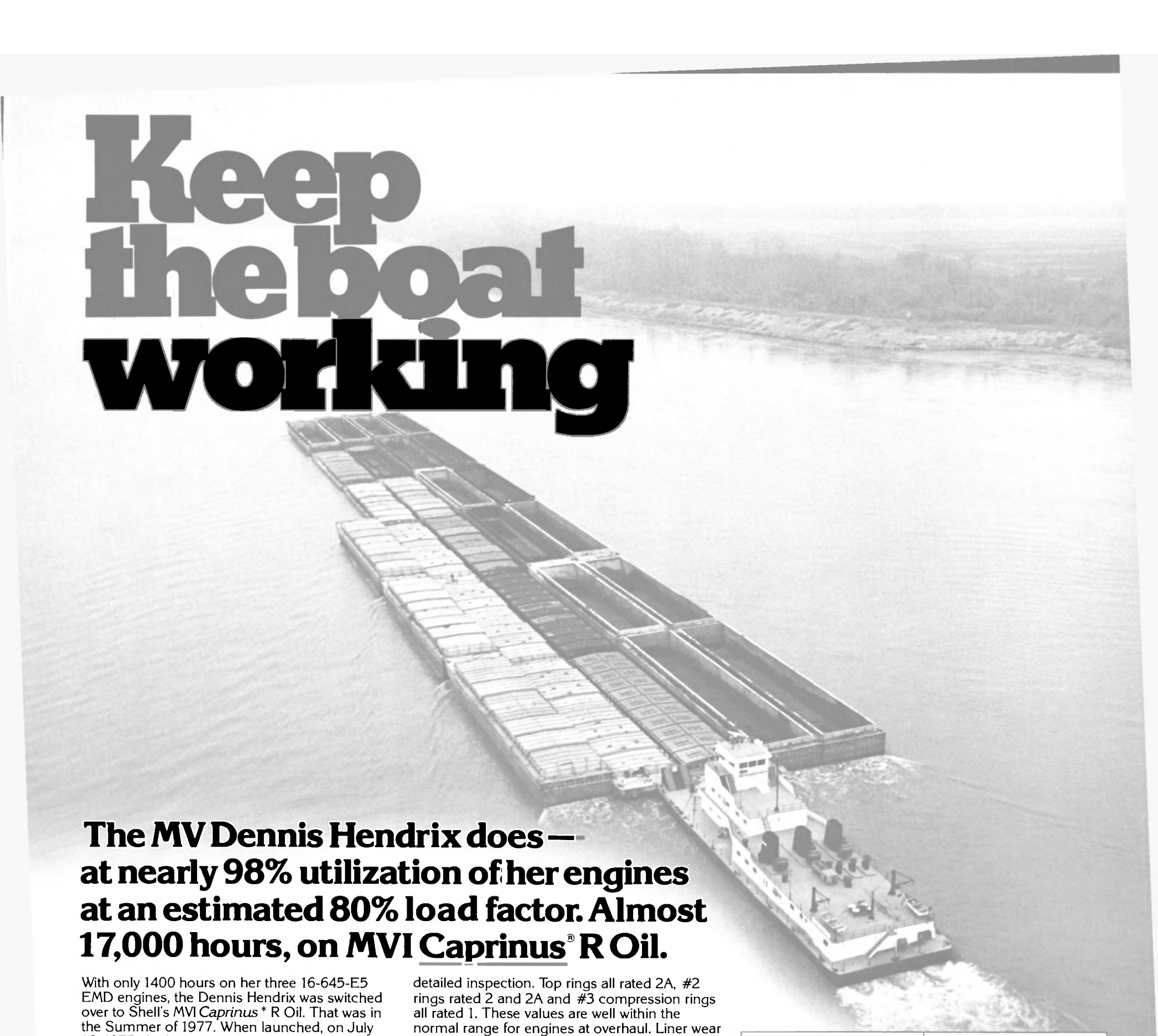
Mr. **Houlihan** estimates the Jeanne Marine will work more than 20,000 hours before an overhaul will be needed. Workload capability is part of the reason behind the surprising durability expectations. The engines will often operate below their maximum capacity, reducing wear and extending engine life.

Reliability and minimum downtime are vital to Archway. Their contract with Wisconsin Barge Company, a major bulk transporter on the Mississippi, requires that boats be available on a 24-hour, 365-day basis.

To further protect against lost time due to maintenance work, a service agreement has been signed with the local Cummins Marine distributor, Cummins Missouri, Inc., for parts and service requests on a priority basis.

The addition of the Jeanne Marine, named after Mr. **Slay's** eldest daughter, and two sister boats is a major move for Archway, doubling the size of its fleet. Archway also handles switching operations in the St. Louis area for Peabody Coal, Burlington Grain, Pillsbury, and several major barge owners.

Keep the boat working



The MV Dennis Hendrix does — at nearly 98% utilization of her engines at an estimated 80% load factor. Almost 17,000 hours, on MVI Caprinus® R Oil.

With only 1400 hours on her three 16-645-E5 EMD engines, the Dennis Hendrix was switched over to Shell's MVI *Caprinus* * R Oil. That was in the Summer of 1977. When launched, on July 16, 1977, the boat started working the Lower Mississippi pushing tows of up to 40 barges of 1500 tons each. On August 19, 1979, she was finally ready for her first scheduled overhaul. Total engine hours averaged 17,885. Individual engine hours were; port — 18,124, center — 17,421 and starboard — 18,110. Total *elapsed* time from the date of launch; 18,312 hours. And work on the Lower Mississippi usually means long runs with few interruptions. It was estimated that the load factor was averaging about 80% during these hours. In over two years, the engines averaged only 2.3% downtime.

The Dennis Hendrix was the first American Commercial Barge Line vessel to use *Caprinus* R. So, when the overhaul was scheduled, Shell went along to see the results. As is usual with *Caprinus* R oil, the engines were very clean, with relatively low deposit levels. Wear was low for the time and type of service. Used oil analysis showed that the premium MVI *Caprinus* R Oil had equilibrated at a TBN-E of 3.0, which means corrosion protection was adequate even though the engines were operated in 'no drain' service. Carbon deposits were as expected with an MVI oil, soft and flaky.

All three engines appeared about equal in appearance, and the port engine was selected for detailed inspection. Top rings all rated 2A, #2 rings rated 2 and 2A and #3 compression rings all rated 1. These values are well within the normal range for engines at overhaul. Liner wear was normal for the hours. All three engines had done their job well. The oil had done its job well. MVI *Caprinus* R oil had helped the Dennis Hendrix stay on the job with minimum downtime and maximum reliability.

MVI oils have been proven in almost half a century of operation in medium-speed diesels. Shell's MVI *Caprinus* R Oil maintains that reputation of MVI oil and uses a modern additive package to meet the latest engine service requirements.

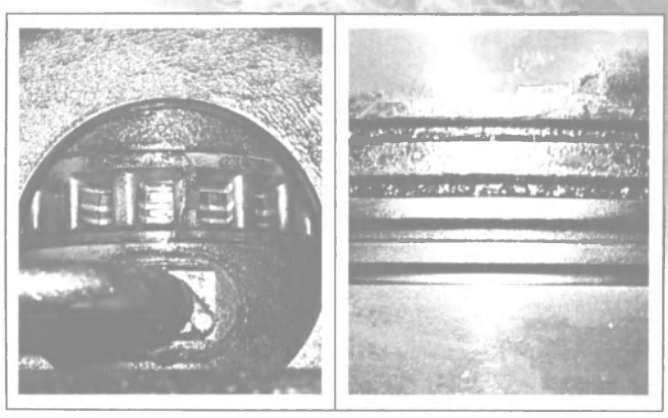
Shell doubling MVI capacity

Since Shell is *doubling* its MVI lube oil capacity, there is no need to switch to HVI oils, as suggested by some MVI-short suppliers. HVI oils form harder, denser carbon deposits that can block port areas and crowd rings in their grooves. With *Caprinus* R Oil, you can usually operate without changing oil in most engine types with good engine protection. A used oil analysis program can be the means to longer life and excellent engine protection with *Caprinus* R Oil.

For more information write Shell Oil Company, Manager, Commercial Communications, One Shell Plaza, Houston, Texas 77002.

Caprinus is a trademark and is used as such in this writing

Come to Shell for answers



The light carbon deposits in the airbox are typical of a premium MVI oil such as *Caprinus* R. Soft deposits will clean up rapidly, and even after 17,000 hours, are not blocking air flow.

Pistons had no scuffing or scoring. Ring groove fill and ring wear were normal for the time and type of engine service. Rings were free.

Woven Glass Insulation Introduced By HITCO—Literature Available

Fabrisil is the trade name for a family of fiberglass textile insulation offering exceptional versatility to industry in temperature control applications to 1,000 F. Introduced by HITCO, the woven glass family complements the company's existing line of Refrasil engineered silica textiles for insulation uses above 1,000 F to as high as 3,100 F. These glass-based textiles offer a unique combination of properties for insulation requirements, states HITCO, citing flexibility, ease of fabrication, noncombustibility, resistance to most chemicals, imperviousness to moisture degradation, and high dielectric strength.

Applications for the versatile fabrics include: insulation lagging; welding shields and stress relieving pads; refinery fire blankets; removable valve and flange covers; molten metal spray and splash shields; protection for pipe, meter lines, hose, wire and cable; and gasketing, seals and curtains for ovens, furnaces and kilns. Aiding this versatility, Fabrisil and Refrasil are offered in cloth, tape, sleeving, and rope forms and a wide choice of special finishes and coatings. They are available through a nationwide network of HITCO distributors for single-source availability on high-temperature textile insulations. HITCO is a subsidiary of Armco, steelmaker and diversified manufacturer.

For more information and free literature, write HITCO Materials Group, 1600 West 135th Street, Gardena, Calif. 90249.

Detyens Yard Awarded $3.9-Million Contract For Overhaul Of ASR

Detyens Shipyards, Inc., Mt. Pleasant, S.C., is being awarded a $3,874,647 formally advertised, firm fixed-price contract for the regularly scheduled overhaul of the submarine rescue ship USS Petrel (ASR-14). The Supervisor of Shipbuilding, Conversion and Repair, USN, Charleston, S.C., is the contracting activity. (N62673-79-C-0001)

Dunford And Wilkins Get New Management Posts At CDI Marine Company

Paul I. Beining, president of CDI Marine Company, Jacksonville, Fla., has announced an important change in executive management of the company. **James M. Dunford,** who had been executive vice president, has assumed the position of assistant to the president, and Dr. **James R. Wilkins Jr.** will succeed him as executive vice president.

As assistant to the president, Mr. **Dunford** will be responsible for special assignments, overall reviews of operations, and long-range planning and development. During the past seven years, he has been instrumental in guiding the progression of CDI Marine Company from one office with a staff of 40 in 1973 to the present 10 offices with over 700 employees.

Dr. **Wilkins,** as top operational manager of CDI Marine, will become responsible for the day-to-day operations and guidance of the 10 offices. He joined CDI Marine in 1977 as chief engineer, and has been involved significantly in the overall operation of the company.

CDI Marine Company, a major division of CDI Corporation of Philadelphia, is a prominent supplier of naval architectural and marine engineering services to commercial and naval shipyards and to their supporting industries.

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TRAINING REQUIREMENTS ANALYSIS – A staff with 15 years of experience in defining marine "instructional systems" based on the skills to be trained – not the hardware available for training. *TRAINING SERVICES & CURRICULUM PREPARATION* – Train at our facility or develop curricula for your facility with our senior marine educators, seagoing masters and pilots and educational technology professionals. Services include bridge team training, VLCC shiphandling, collision avoidance, emergency skills, and specialized skills for new ports. *SIMULATOR DESIGN SERVICES* – A staff of simulation experts combined with a laboratory of advanced simulation equipment provide the environment for design innovation. *MANUFACTURE OF "TURNKEY" SIMULATOR HARDWARE* – Ship Analytics is currently manufacturing its own designs and delivering bridge simulators with computer-generated imagery (see above) at realistic, affordable costs. Contact Tom Mara, Chairman of Ship Analytics, for complete details on the Marine Simulation Source that "boxes the compass."

SHIP ANALYTICS

Call (516) 757-8819 or write Ship Analytics, Park Circle, Centerport, New York 11721, U.S.A.

Hyde/Henschel Steering Failure Alarm Meets USCG And IMCO Rules

There is a new awareness of the need for improved steering gear reliability on tankships. This awareness has arisen as a result of recently proposed regulations and standards published by the U. S. Coast Guard and the Inter-Governmental Maritime Consultative Organization (IMCO).

Prominent among these proposed regulations is the requirement for a steering failure alarm system which can quickly detect rudder position errors and actuate visual and audible alarms when the errors indicate steering gear failure.

A steering failure alarm to meet the foregoing conditions is offered by Hyde Products, Inc. of Cleveland, and Henschel Corporation of Amesbury, Mass. According to **Parker L. Hay**, chief engineer of Hyde Products, Hyde and Henschel have developed the system in a joint effort, thus taking advantage of the best technology in both companies. Both Hyde and Henschel have been prominent in the marine industry for many years.

Hyde is prepared to handle all aspects of installation of the system, which includes the Henschel Model 40-271 steering failure alarm panel. Henschel has furnished steering failure alarm panels to the marine industry for many years. Their current Model 40-271 uses an 8-bit microcomputer to constantly monitor helm and rudder positions and to perform calculations to provide audible and visual alarms. The Model 40-271 also has built-in diagnostics and self-test routines to assure the utmost in reliability in a compact solid-state unit.

Hyde offers total service. A highly trained engineering and service staff can provide everything from initial survey to final installation. The development of the steering gear failure alarm system is the outgrowth of Hyde's continuing program in steering gear reliability. Over the past five years, Hyde developed such items as emergency steering power units, remote pilothouse control of power unit changeover, and introduced redundancy to control systems.

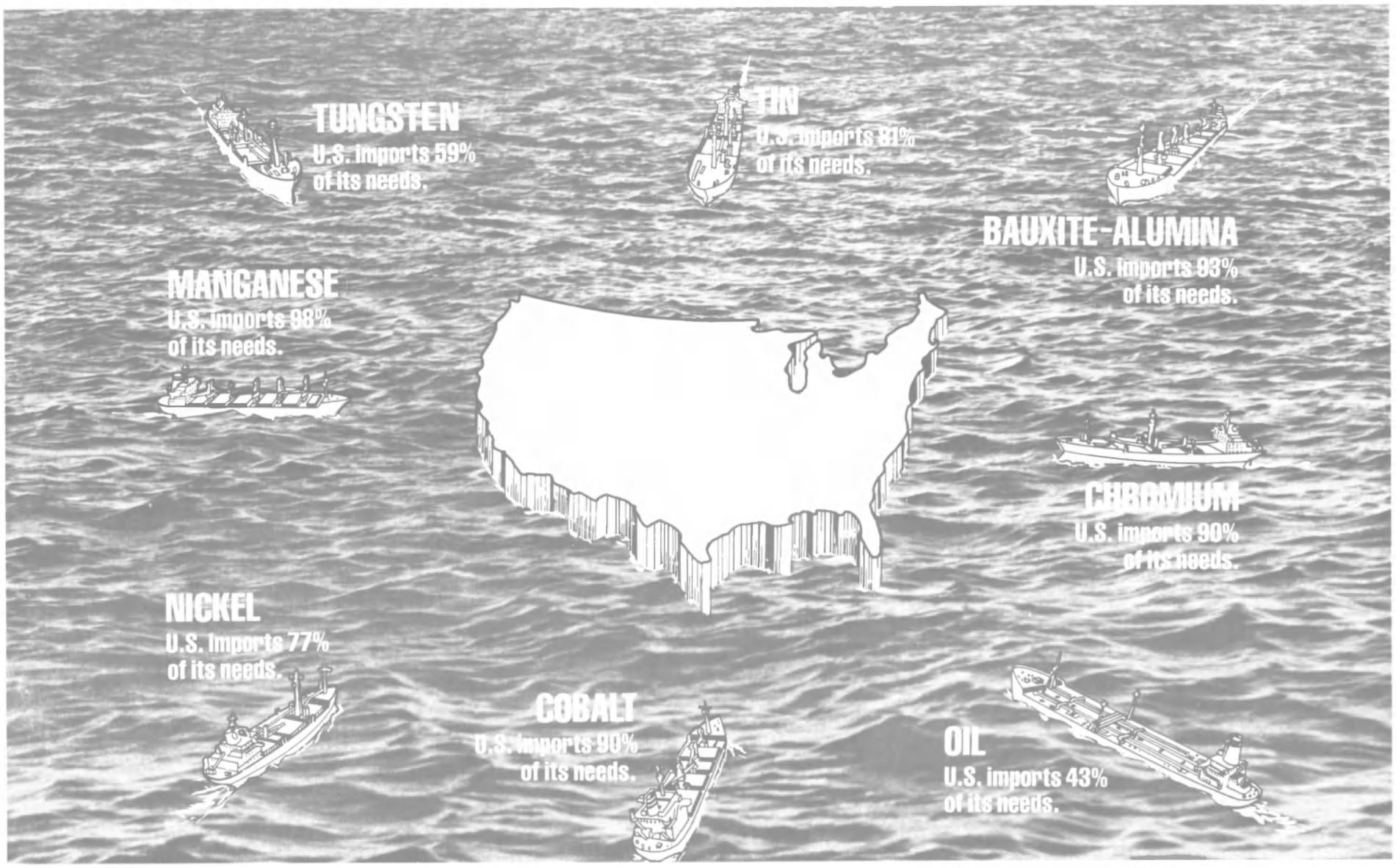
Robert W. Maceluch Named Controller At Ryan-Walsh Stevedoring

Robert W. Maceluch has been named controller of the Ryan-Walsh Stevedoring Company, Inc. and its subsidiaries. He will occupy offices in the Ryan-Walsh Center in Mobile, Ala.

Robert W. Maceluch

Prior to his appointment, Mr. **Maceluch** served as a consultant to Ryan-Walsh with the accounting firm of Pannell, Kerr, Forster & Company, assisting with implementation of long-range plans to apply computer science to accounting and management activities. "With his background in administration and accounting, and with the knowledge he's gained of our industry while working with us, we feel Mr. **Maceluch** will be a superb addition to our staff," states **Gregory L. Leatherbury**, president.

Mr. **Maceluch** was a supervisor accountant and specialist in data processing-accounting liaison with Pannell, Kerr, Forster & Company; has been controller of another large Mobile business; and was also a flight instructor in the U.S. Navy.



HOW WILL WE KEEP THIS ISLAND FUNCTIONING WITHOUT SHIPS?

Freedom of the seas has always been crucial to strong nations. For the U.S., which is the largest trading nation in the world and largely dependent on foreign sources for many strategic raw materials, safe and open sea lanes are essential to national security and economic well being. Any curtailment would have dire economic consequences.

Yet while the Soviet Union has been building its Navy to a point where it outnumbers our own, the U.S. has been going in the opposite direction. In the words of the U.S. Chief of Naval Operations, Admiral Thomas B. Hayward, "We are trying to meet a three-ocean requirement with a one-and-a-half-ocean Navy." And on the basis of current budget requests, the Navy's combatant strength will actually decline so that by the 1990s our defensive capability may be inadequate and our trade routes vulnerable.

The U.S. merchant marine fleet, too, is ill-prepared for a global mission. And the men and women skilled in building new ships and repairing those in our existing fleets to keep them on station are being laid off for lack of work. If this erosion continues, we will not have an adequate shipbuilding mobilization base to rely on in any future crisis.

Ships are indispensable for commerce... for peace...for defense...for the public good. U.S. ships must be built within our own borders, at our own facilities, by our own people, under our own control. We cannot rely on foreign governments, however friendly today, to come to our aid with their ships and crews during tomorrow's emergency.

Our nation urgently needs a firm decision in Washington now – by Congress and the Administration – to reverse the trend of declining maritime strength by funding a U.S. merchant and naval fleet of global dimension and capability, sufficient in numbers and deterrent potential to preclude any threat of economic strangulation.

As an island nation, we can't afford to wait any longer.

Despite the proven cost effectiveness and operational flexibility of the guided missile frigate (FFG), present government procurement plans call for only 54 of these sophisticated new warships instead of the 73 originally planned.

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Write 351 on Reader Service Card

New Valves Announced By Watts Regulator— Literature Available

Watts Regulator Company now has available full-port, flanged carbon and stainless-steel ball valves in 150 and 300 ANSI class —2, 3, 4, and 6-inch. These competitively priced valves conform to requirements of API 607, and grounded ball and stem, tapped actuator mounting holes, and glass-reinforced PTFE seats are standard. Two-piece construction facilitates easy maintenance.

The 304 stainless trim is standard on the CF1800 carbon steel valve. The CF8M stainless-steel valve is standardly furnished with 316 stainless-steel ball and stem, and all exterior parts are 304 stainless. In both the CF1800 carbon and SF2800 stainless, metal backup seats not only provide fire-safe performance but also scrape the ball clean during each operation of the valve.

For more information and free literature, write to Watts Regulator Company, Dept. MR, 10 Embankment Street, Lawrence, Mass. 01842.

MarAd Approves Title XI On Two Product Tankers To Cost $129 Million Total

The Maritime Administration has approved in principle an application by Ogden Shamrock Transport, Inc., and Ogden Hudson Transport, Inc., for Title XI financing to aid in the construction of two 50,624-dwt product tankers.

Both vessels are expected to carry primarily chemical products while operating under time charters. Each ship has an overall length of 629 feet and can attain a speed of 16 knots. Avondale Shipyards, Inc., New Orleans, is the builder for this Project. Deliveries are scheduled for March and June 1981.

The Title XI guarantee covers $113,096,000, or 87½ percent of the estimated cost of $129,253,444.

World-Wide Executive Helmut Sohmen Elected Chairman Of IMIF

The full meeting of the International Maritime Industries Forum (IMIF) held in London recently has elected Dr. **Helmut Sohmen** as its new chairman. Dr. **Sohmen** is chairman of Marine Navigation Company, the U.K. affiliate of Sir **Yue-Kong Pao's** World-Wide Shipping Group, the world's largest independent shipowner.

IMIF was founded in 1976 by a group of banks, shipyards, shipowners, and oil companies to develop and pursue a multi-sector approach to the tanker crisis. The organization now has 60 members representing major firms from all over the world, except the United States. IMIF is prominently involved in discussions with many national governments, the EEC Commission, the insurance markets, and the classification societies on questions of shipbuilding overcapacity, shipping credit policies, improved safety standards, and the enforcement of IMCO rules and regulations by port states, and the continuing tanker surplus. The Forum meeting decided to also review the bulk carrier markets regularly in the future, and to watch developments regarding the current UNCTAD proposals for cargo-sharing arrangements in the bulk trades.

Due to its unique membership structure, IMIF is well placed to assist governments with factual data and with balanced recommendations to help in the formulation of new policies affecting the shipping industry in its widest sense. Dr. **Sohmen** and the members of IMIF's Steering Committee intend to continue the active program of government meetings, industry discussions, and topical studies in the year ahead. Immediate visits are planned to Japan, Hong Kong, Greece, and Italy.

Transway Orders Second $22-Million Trailership From Jos. L. Meyer Yard

Coordinated Caribbean Transport, Inc. (CCT), a wholly owned subsidiary of Transway International Corporation, has placed a $22-million order for a roll-on/roll-off trailership with Jos. L. Meyer shipyard in Papenburg, West Germany.

Delivery is scheduled for August 1981, according to **John W. Wolcott**, president and chief executive officer of Transway, who said that CCT plans to place the new ship in service between Miami and Panama and Costa Rica. CCT currently operates four specialized roll-on/roll-off trailerships with 13 sailings per month from its Miami headquarters to Central America, Panama, and Ecuador.

The new 9,000-dwt ship will be identical to a sister ship, the M.V. Ambassador, which was built for CCT by the Meyer shipyard, and which began service between Miami and Ecuador on November 1, Mr. **Wolcott** said. The new ship has a cargo capacity of 165 highway trailers and 125 automobiles or other vehicles carried on four decks. It is 554 feet long and 71 feet wide, with a draft of 21 feet, and is designed to operate at a speed of 17 knots.

Transway International is a diversified transportation and distribution company with extensive domestic and overseas operations, including marine transportation, freight forwarding, truck trailer manufacturing, and the transportation, distribution, and marketing of liquefied petroleum gas.

Combustion Gas Testers Check Boiler Efficiency —Literature Available

It appears that however big you are, and however much oil you have, you still have to worry about how much oil you are burning in your boilers. Some major oil companies, although they deal in larger quantities of this precious resource than most companies, also are making the most stringent effort to conserve energy.

Telegan Limited of Croydon, England, reports that recently they sold over 25 mVO_2 combustion gas and millivolt testers to major oil company tanker operators. They will use these units to check on the efficiency of boiler plants in their oceangoing fleets.

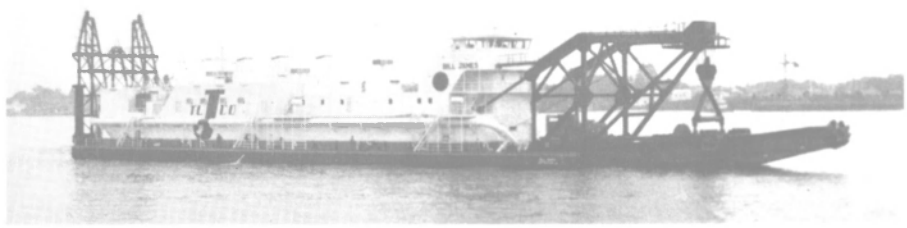
The mVO_2, introduced recently by Telegan, is one in a range of hand-portable monitoring instruments developed as a direct consequence of the company's wide experience in the electronic control and monitoring of combustion levels.

The instrument is said to offer an extremely rapid and simple way of detecting the stack temperature and the level of oxygen in the flue gases from boilers, and therefore provides an accurate and reliable measurement of combustion efficiency. At the same time it can be used to calibrate associated instrumentation and signal generators; for example, diesel engines exhaust thermocouples, and pressure and temperature transmitters.

The complete test kit is simple and convenient to use, weighing only 1.7 Kg, while the instrument itself, which weighs only 0.7 Kg, can be comfortably held in one hand.

The mVO_2 is one of three Telegan systems that use the same sensing cell. The other two, designed to meet current IMCO regulations, are the MO_2 Portable Unit for testing the quality of inert gas or human safety levels in hazardous areas, and the TLAP fixed system for indicating and recording the O_2 level of inert gas. This means an owner can use one family of equipment with all the economy of spare gear that that implies to meet safety and energy conservation requirements.

For further information and free brochure, write to Environmental Safety Associates, Inc., 5 Farmstead Road, North Caldwell, N.J. 07006.



The 265-foot, cutter-suction dredge **Bill James** is the ninth vessel of its type to be placed in service by T.L. James Company of Ruston, La. Designed by naval architect **Carlos A. Monje**, dredge was built by Bergeron Industries, Braithwaite, La.

Two Dredges For Private Industry Christened In New Orleans

Recent christening in New Orleans marked the completion of two new dredges for the growing private industry fleet. The cutter-suction drdege Bill James and the split-hull hopper dredge Atchafalaya are being place in service by Louisiana-based T.L. James & Company, Inc., and Gulf Coast Trailing Company.

Hundreds of guests and dignitaries jammed the Poydras Street Wharf on the city's riverfront to watch the vessels' sponsors, **Mrs. G.W. James** and **Mrs. G.W. James Jr.**, smash the magnums of champagne for the christenings. U.S. Senator **J. Bennett Johnston** (D-La.) and Maj. Gen. **E.R. Heiberg, III**, director of civil works for the U.S. Army Corps of Engineers, were principal speakers at the event.

G.W. James Jr., president of T.L. James & Company and master of ceremonies for the occasion, introduced the speakers and assisted his mother and his wife in the christenings. The invocation was delivered by Reverend **William C. Blakely**, district superintendent of the United Methodist Church.

Mr. **James** said the Bill James is the ninth cutter-suction dredge built for T.L. James & Company, and that the Atchafalaya is the first split-hull hopper dredge commissioned by Gulf Coast Trailing Company, a Kenner, La., firm owned by T.L. James & Company, Hollandsche Aanneming Maatschappy of the Netherlands, and Dredging International of Belgium. He noted that completion of the new dredges underscores private industry's expanding role in helping to maintain the increasing flow of waterborne commerce on our nation's inland and coastal waters.

The 265-foot-long Bill James is 54 feet wide, 15 feet deep, and displaces 4,364 long tons at its maximum draft of 11 feet 8 inches. Its dredging operations are powered by three in-line, 4,400-bhp Cooper-Bessemer LSV-16 diesel-electric engines equipped with 3,000-kw generators.

The Bill James was designed by naval architect **Carlos A. Monje** of Metairie, La., and the hull and superstructure were built by Bergeron Industries of Braithwaite, La. The design is characterized by a 121-foot-long cutterhead ladder that extends from the bow, a pilothouse that rises 56 feet above the baseline, and a spud frame that towers almost 75 feet at the vessel's stern.

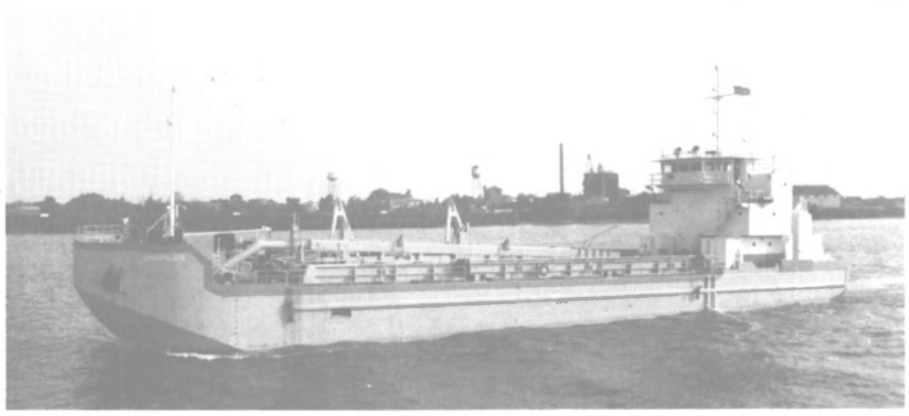
The ladder and the spud, gantry, and A frames were built by Williams-McWilliams Company of New Orleans, and the deckhouse, living quarters, and piping were fabricated by the Buster Hughes Company of Harvey, La. Gulf Electroquip of Houston furnished and installed the electrical equipment and controls, and mobile Pulley & Machine Works of Mobile, Ala., furnished the main pump, underwater pump-ladder and hull trunnions, spud keeper, and fore and aft hoists.

The 197-foot-long Atchafalaya is 40 feet 8 inches wide and 16 feet 4 inches deep, with a loaded draft of 14 feet and a light draft of 5 feet. Disposable materials is pumped into the 1,300-cubic-yard-capacity hopper through a long dragarm that can be extended to 65 feet below the vessel. The dredge can discharge its waste material at any location by opening the split hull or by pumping out.

The seagoing dredge has a service speed of 10 knots, and is powered by two 850-bhp Caterpillar D-398 diesel engines driving two Niigata 360-degree rotatable propellers.

Twin City Shipyard of St. Paul, Minn., designed the vessel's deckhouse and hull and built the hull. Twin City subcontracted the deckhouse to Zigler Shipyard of Jennings, La., where it was fabricated and installed. The propulsion system was designed by Niigata of New York City; EMI-Engine Monitor, Inc. of New Orleans was responsible for instrumentation, and SEADREC of Scotland designed the dredging system and furnished its components.

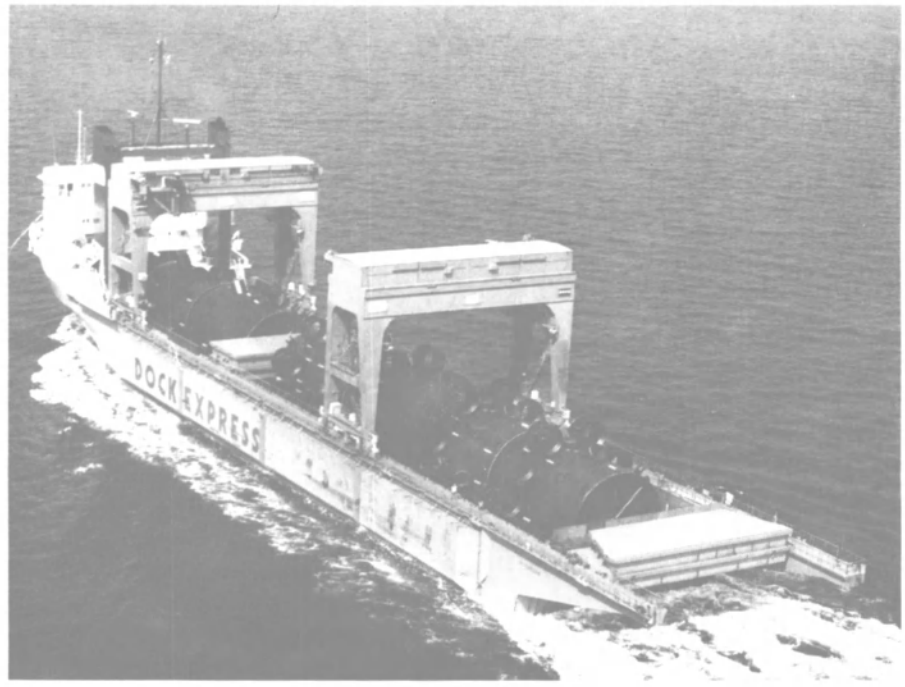
L.A. Hubert Jr., general manager of Gulf Coast Trailing, said the Atchafalaya is one of a new group of dredges developed by private industry to meet the growing needs for dredging of coastal channels and new port areas that will accommodate more and larger deepwater vessels. He said the company has contracted for a second seagoing, split-hull hopper dredge that is expected to be completed in 1981.



The seagoing, split-hull hopper dredge **Atchafalaya** is first commissioned by Gulf Coast Trailing Company of Kenner, La., a firm owned by T.L. James & Company, Hollandsche Aanneming Maatschappy of the Netherlands, and Dredging International of Belgium. Vessel's hull was built at Twin City Shipyard in St. Paul, Minn. Deckhouse was subcontracted to Zigler Shipyard of Jennings, La., where it was installed.

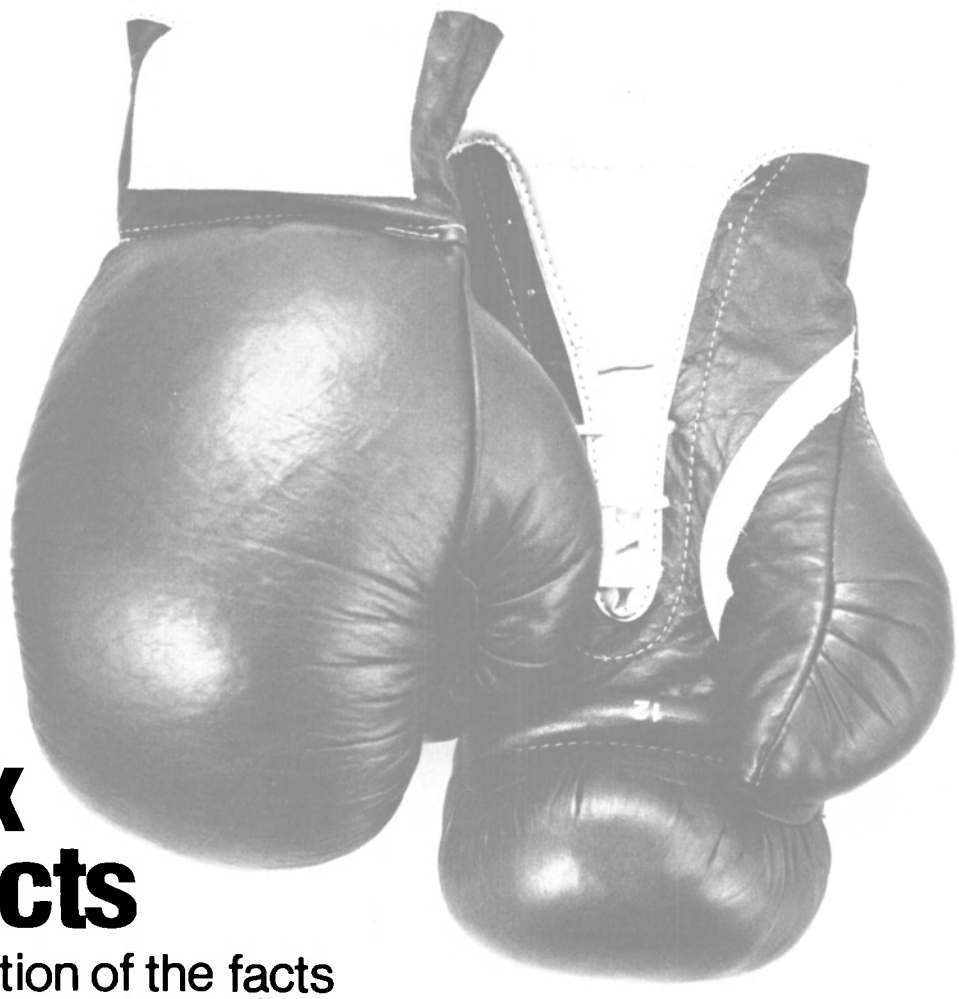
Electric Boat Awarded $23-Million Navy Contract For Trident Equipment

General Dynamics Corporation, Electric Boat Division, Groton, Conn., has been awarded a $23,000,000 modification to a previously awarded contract for additional items of long lead time material for Trident Hull No. 9. The Naval Sea Systems Command is the contracting activity. (N00024-78-C-2453)



LONG-DISTANCE HEAVY LIFT — Dock Express Shipping's M/V Dock Express 10 recently discharged six offshore production platform nodes in Nigg Bay, Scotland, following an 11,620-mile voyage from Japan. Transportation of this unusual cargo was performed for the account of Mitsui & Company, Ltd. and was delivered to Highland Fabricators. Each node is approximately 52.5 feet long and 52.2 feet in diameter, each weighing between 500-600 metric tons. The vessel's gantry cranes, which have a total rated capacity of 1,000 metric tons, were utilized to discharge the nodes at the Nigg Bay site. The nodes will be incorporated into the base of the legs of a production platform jacket, which will ultimately be installed at the BP's Mangus Field in the North Sea. Dock Express Shipping bv, a Rotterdam-based, specialized heavy-lift shipowner, has offices in Houston.

Hang up your gloves, round braid **nylon.**



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	American® Jumbo-8-Braid Nylon	Round Braid Nylon (braid over braid)
Lowest Cost	Yes—as much as 25%	*
Safer	Yes—strand construction permits easy inspection for internal wear.	No—"woven cover" construction conceals internal defects.
Easy Splicing	Yes—any time, even by average deck hand. *Even a poorly made splice in plaited rope results in relatively high splice efficiency.*	No—particularly difficult after use due to hardening and fusing of fibers.
Sheds Water and Dirt	Yes—water and foreign materials pass between the strands.	No—traps water and dirt causing freezing and internal wear.
Non-Kinking	Yes—defies kinking and hocking. Minimizes need for special handling.	No—internal yarns become twisted inside the cover.
Physically Fit	Yes—sturdy working strands even out working stresses.	No—when the cover yarns go, the rope is finished.
Stronger	Yes—American's special 8-strand nylon rope provides highest breaking strength.	*
Longer Life	Yes—by far	*
Easy to Handle	Yes—Sheds moisture and remains light.	No—picks up extra weight when wet. Freezes.

*NO CONTEST

Because of its superb performance, American® Jumbo-8-Braid nylon is in demand worldwide for such applications as single-point mooring systems, end-to-end towing, shock lines, pennant lines and many more.

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Write **114** on Reader Service Card

Dravo SteelShip To Build Two Cat-Powered Towboats For A&G Transportation

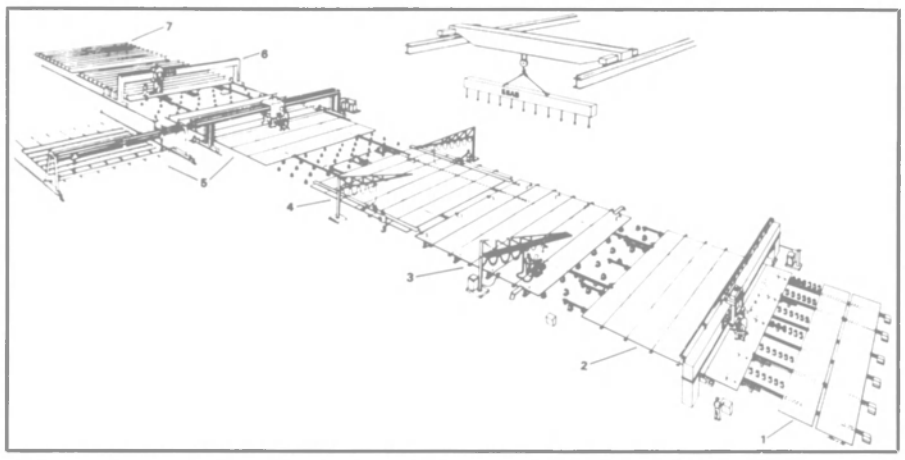
Dravo SteelShip Corporation, Pine Bluff, Ark., has been awarded a contract to design and construct two 85-foot by 30-foot by 10-foot towboats for A&G Transportation Company of Chickasaw, Ala. The towboats are designed with an 8-foot draft and 26-foot eye level.

These vessels are to be equipped with Caterpillar's new line of engines, the 3512, which develop 1,026 bhp each for a total of 2,046 bhp. These engines will be equipped with Caterpillar 7241, 7.07:1 reduction gears. Fernstrum packaged keel coolers are to be installed. The propellers will be stainless steel, four-blade, with 80-inch diameter.

An audible and visual alarm in the pilothouse will monitor main engines and generators. The panel alarms will include main engine lube oil pressure, water temperature and water level, generator lube oil pressure, water temperature and water level, reduction gear lube oil pressure, and low air pressure and bilge water level.

Two 50-kw Lima Electric generator sets, powered by Perkins diesel engines, will be provided as the source for Carlisle & Finch 1,000-watt Xenon searchlights, a 10-hp LO HED C-3 electric capstan, two Beebe Model 34RC deck winches, and owner-furnished radiotelephones, radar, citizen band base station, and other pieces of electronic equipment. Start and stop of the generator sets will be accomplished from the pilothouse.

Designed with full follow-up, mechanical/hydraulic steering, each vessel will be provided with two steering and four flanking rudders. Completion of these vessels is scheduled for third and fourth quarters, 1981.



Stations in a typical ESAB panel production line: 1—plate delivery; 2—tack welding; 3—butt welding; plate turnover and rotation; 4—gas cutting and marking; 5—feeding and tack welding of stiffeners; 7—fillet welding; 8—lift-off of stiffened sections.

Mexican Shipyard Orders ESAB Mechanized Panel Line

The government-owned Mexican shipbuilding company Astilleros Unidos de Veracruz (AUVER) has placed a multimillion-dollar order with the Swedish welding group ESAB for the supply of a mechanized panel-production line and associated web-production and treatment lines to the new shipyard at San Juan de Ulua. The order was negotiated by ESAB AB Engineering USA of Houston and SKF Mexicana, and is thought to be one of the largest in the world for this type of equipment.

The equipment will be delivered and installed during 1981 so that production at the shipyard can begin in January 1982. The yard at San Juan (situated near Veracruz on Mexico's Atlantic Seaboard), will be the first in Mexico capable of building large oceangoing vessels. Its main output initially will be oceangoing petroleum tankers of up to 44,000 dwt, as well as tankers up to 80,000 dwt of the Panamax type for traversing the Panama Canal. The yard will employ more than 4,000 workers directly, and is expected to create work for a further 25,000 in associated manufacturing and service industries.

The main panel-production line will produce webbed and stiffened straight sections up to 15 meters by 15 meters (50 feet by 50 feet). It will be a fully mechanized welding line, which first welds together individual plates to form flat square panels. An important feature is a turnover station that will make two-sided butt welding possible. At the end of the line, the stiffeners and webs are successively fillet-welded into position.

The new line will be one of nearly 40 which ESAB has supplied to shipyards throughout the world since 1968.

The web-production line at San Juan will produce longitudinally and transversally stiffened webs of maximum size 15 by 3 meters (50 by 10 feet) and total weight of 10 tons. The automated treatment line will treat both plates and profiles. It will consist of shotblasting, paint-spraying, and drying stations with necessary conveyors.

D.E. Dolak Named Finance & Accounting Director For Flow Control Division

David E. Dolak

Rockwell International has appointed **David E. Dolak** director, finance & accounting, for the Flow Control Division. The announcement was made by **D.J. Brannon,** division controller, who noted that Mr. **Dolak** will be responsible for all division accounting operations, including financial analysis, budgeting, cost and general accounting. In addition, he will be responsible for preparation of the annual operating plan, the financial aspects of the strategic business plan, and the consolidation and financial reporting of the division's seven manufacturing locations.

Mr. Dolak joined Rockwell International in 1974 as a senior financial analyst, and held increasingly responsible positions, including that of controller for the Raleigh, N.C., facility. He was manager, financial analysis & planning, for division headquarters since 1977.

MESCO Awarded Three Contracts To Build Offshore Equipment

Mitsui Engineering & Shipbuilding Company, Ltd. (MESCO) was recently awarded orders for a semisubmersible type and a jackup type offshore oil drilling rig, as well as a semisubmersible offshore accommodation platform.

The order for the semisubmersible oil drilling rig was received, with the assistance of Mitsui & Company, Ltd., from Petroleo Brasileiro S.A. of Brazil. This is a modified version, with MESCO-designed improvements, of the Aker H-3 type semisubmersible rigs Borgila Dolphin and Dan Queen, built in 1967 and 1977 respectively, under a technical license from Aker of Norway. It is the seventh semisubmersible offshore structure to be built by Mitsui.

The jackup type rig, Trident 8, was ordered jointly from MESCO, Mitsui Ocean Development and Engineering Co., Ltd. (MODEC), and Toyo Menka Kaisha, Ltd. by Triton Industry of Panama, an affiliate of Forex Neptune of France. It is basically similar in design to the jackup type rig Trident 6 ordered early this year by the same owner, and modified for shallow-water use.

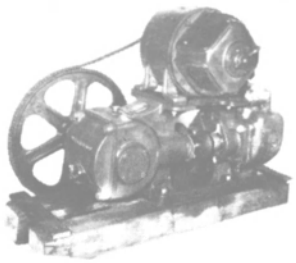
The semisubmersible offshore accommodation platform, to be constructed for Einar Rasmussen of Norway, will be of the pacesetter type developed by Friede and Goldman, Ltd. to serve as a floating hotel for people engaged in offshore work for a long period. Equipped with 100-ton and 40-ton cranes, it will also have offshore servicing functions.

This is the first order in the world for this kind of platform since the accident of a similar offshore accommodation platform in the North Sea last March. Taking into account the lessons learned from the disaster, it is of high-grade design and specifications in anticipation of more stringent rules likely to be prescribed by ship classification societies. Also taken into consideration is the fact that it will be used mostly in the North Sea and is to be used by a Scandinavian owner. The platform will accommodate about 600 people.

The drilling rigs will be classed by the American Bureau of Shipping, the accommodation platform by Det norske Veritas.

PUMPS

WORTHINGTON 2½x2 SANITARY & FLUSHING PUMP — 20 GPM — 80 LBS



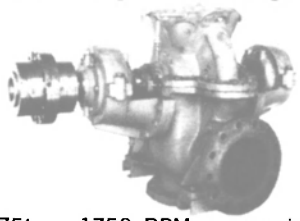
Motor driven type KAA — 1½" suction — 1" discharge. MOTOR: 2 HP — 230 VDC. Can also be furnished with A.C. motor if desired.

UNUSED 5"x4" — 500 GPM @ 20 PSI — 1800 RPM WEIL GENERAL CIRCULATOR SERVICE PUMP

With totally enclosed explosion-proof motor. Bronze pump — horizontally split case — flooded submergence test pressure 300 PSI. MOTOR: Continental 10 HP — 440/3/60 — 1800 RPM — fan cooled — totally enclosed — horizontal — self-ventilated — EXPLOSION-PROOF. Unit 60" long — 24" flange to flange.

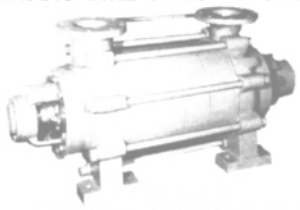
2000 GPM @ 75'

BRONZE PUMPS



8X8 — 2000 GPM @ 75' — 1750 RPM — requires 50 HP 440/3/60 1750 RPM motor — frame 445-S. Pumps are ball-bearing split case centrifugals with cast iron driplip base. Very good condition.

UNUSED NIJUIS FIRE PUMP — PUMP ONLY



HID-5125250 — 531 GPM @ 323' head @ 1800 RPM

6X5 BRONZE GARDNER-DENVER PUMP

Split case type D — 1000 GPM — 125 lbs — 281' @ 1800 RPM. Requires 100 HP diesel drive. Suction lift 15 to 25' — 10½" diameter flange. 6" Suction 5" Discharge.

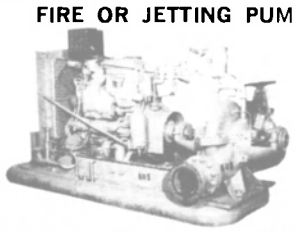
"EUREKA" DUPLEX DOUBLE-ACTING RECIPROCATING BILGE PUMP 500 GPM — 100' HEAD

Motor driven — pump operates at 320 RPM. MOTOR: 15 HP — 440/3/60 1750 RPM. DIMENSIONS: 5'9" high — 3' wide — 4' deep. Ex-M.V. Globtic Sun.

NIJUIS 3510 GPM DIESEL DRIVEN FIRE PUMP

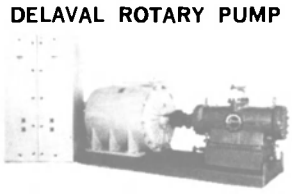
3510 GPM @ 350' head — 161.7 PSI. Pump is 10X8 — factory new — horizontally split case. ENGINE: GM 6V-71 or 8-V-71. Can furnish with heat exchanger & radiator.

GARDNER-DENVER 6"X5" BRONZE CENTRIFUGAL FIRE OR JETTING PUMP



Driven by GM 3-71 diesel engine. PUMP: 1000 GPM @ 150 PSI/1500 GPM @ 100 PSI — 1750/2000 RFM. Maximum head 175 PSI. Self-contained fuel tank in base. Automatic self-priming optional.

NEW UNUSED — 700 GPM — 150 PSI DELAVAL ROTARY PUMP



6X8 — 700 GPM @ 150 PSI — 1150 RPM — with 4-speed motor & control 100/75/50/37.5 HP — 440/3/60 — 1200/900/600/450 RPM. With Cutler-Hammer controller.

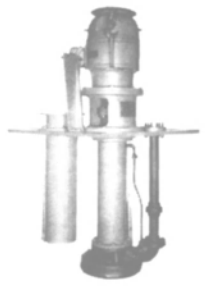
UNUSED BRONZE 2000 GPM @ 337' HEAD FIRE OR HIGH PRESSURE SERVICE PUMP

Mfg by Frederick Iron & Steel — 8" side discharge; — 8" bottom suction — model 8DSU-SPL. MOTOR: Crocker Wheeler — 250 HP — 240 volts DC — 1900 RPM — 102 7/8" O.A.L. — 34½" wide — 37" high.

NEW UNUSED KINNEY 20 GPM FUEL OIL SERVICE PUMP

Vertical — 50 PSI — with 2" inlet & outlet. MOTOR: 2 HP — 440/3/60 860 RPM — with starter. For fuel oil service, etc.

NEW UNUSED SUMP OR LOW PRESSURE DRAIN PUMPS



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

CARVER CHILLED WATER SERVICE PUMP 160 GPM — 57 PSI

For air conditioning or water circulation. 160 GPM @ 57 PSI — 110 ft. head. Closed coupled — 10 HP 440/3/60/3500 RPM.

500 GPM FIRE SERVICE PUMP

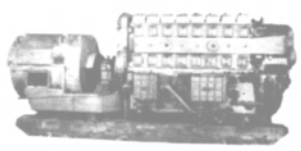
Mfg. by Buffalo. Bronze — 500 GPM @ 100 Lbs. — 5X4 — 30 HP/240 DC — 105 amps — 1750 RPM.

PASSENGER/CRUISE SHIP SELF PRIMING NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

FOR EMERGENCY USE ON PASSENGER SHIPS, ETC. PUMP: JAS — 264 GPM — 171' head — two 6" inlets — one 5" outlet. MOTOR: 40 HP — 230 volts DC — 149 amps. COMPLETE WITH NASH — SELF PRIMING PUMP ATTACHED.

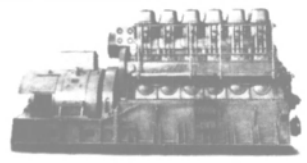
DIESEL GENERATOR SETS

290KW GM 8-268A DIESEL GENERATOR SET



120/240 VDC—1250 amps—shunt wound. ENGINE: GM 8-268A — 8 cyl — 6½X7 — 1200 RPM — good condition.

300KW BALDWIN DIESEL GENERATOR SET

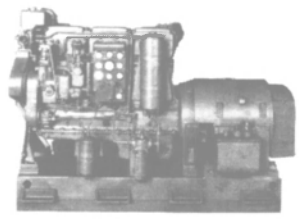


300KW — 120/240 VDC — 1250 amps — stab. shunt — 450 RPM. Baldwin diesel model VO. Ex C-1MAVO1.

100KW GBD8 DIESEL GENERATORS

From LST vessels. 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 weight 10,000 lbs. — OAL 124" — 65 11/16" high — 42" wide. Height necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

60 KW CUMMINS DIESEL GEN. SETS

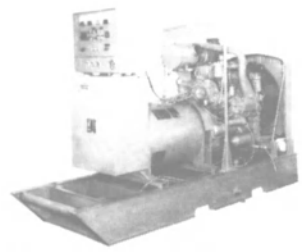


60KW — 120 volts — 500 amps DC generators. 6-Cyl. model H Cummins diesel engine.

75 KW CUMMINS DIESEL GENERATOR SET

75KW — 93.8 KVA — 440/3/60 — 1200 RPM — electric starting. Cummins 6-cyl engine with free-standing switchgear.

GM-4-71-T TURBO-CHARGED 100 KW DIESEL GENERATOR SET RADIATOR COOLED 1800 RPM

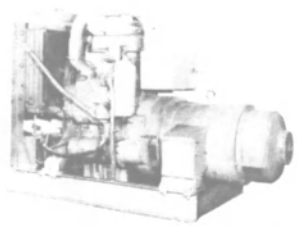


12 wire — all voltages possible — 100 KW 440/220/3/60. With switchgear. Has protective cabinet.

GM 8-268A 200 KW A.C. DIESEL GENERATOR SETS

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

20KW 2-71 DIESEL GENERATOR SETS TEST RUN 1 HOUR



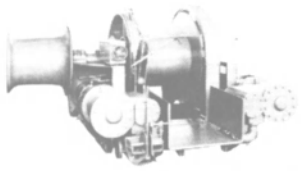
220/3/60 — 1200 RPM — Electric Machinery Co. or Delco. Brushless — will demonstrate running. (Also have 20KW sets with 220/440/3/60 — with brushes — 1200 RPM — Delco. Weight 2200 lbs.)

GM 3-268A 100 KW DIESEL GENERATOR SETS

ENGINE: GM 3-268A — 6½X7 — 1200 RPM — 80% PF — electric starting. GENERATOR: 100 KW — 440/3/60/1200 RPM — 161 amps. Dripproof — open — self-ventilated. (Class A insulation stator — class B insulation on field). EXCITATION: 2 KW DC unit — 9′ 1¾″ long — 37″ wide.

WINCHES

STEAM MOORING WINCHES

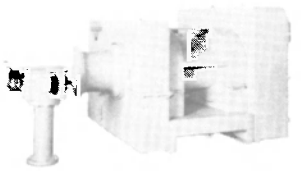


12″ X 14″ — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head 20,000 LBS @ 100 FPM — FIRST LATER ALSO HANDLES 16,000 @ 150 FPM OR 50,000 @ 8 FPM.

Drum will show 1500 ft or 1½″ wire in 9 layers. Steam inlet 3½″ — 4″ exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6′ X 6′ 3½″ — overall 8″ 4½″ wide x 9′ long. Mfg by Friedrich Kocks.

ALL UNITS CAN BE DEMONSTRATED RUNNING

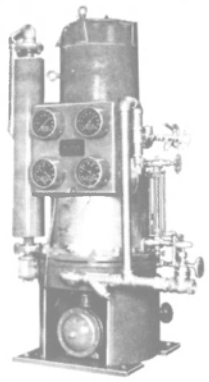
MODEL U1 UNIT WINCHES



7450 Lbs. @ 223 FPM. G.E. 50 HP Motor — 230 VDC. With controls and master switch.

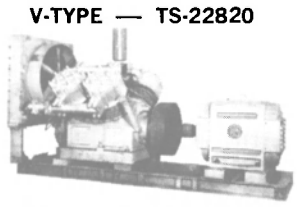
AIR COMPRESSORS

NASH MULTI-PHASE CONTROL AIR COMPRESSOR
50 CFM — 100 PSI



Model MV-673. Continuous pressure maintained by pressure control valve. Complete with motor, heat exchanger, separator, silencer, pressure control valve, water seal pressure control valve. CAPACITY: 50 CFM @ 100 PSI — 3500 RPM. Motor 27 HP — 440/3/60. Cooling water flow 35 GPM — relief valve set for 110 PSI. Vertical configuration. Pressure switch: on 80 PSIG — off 100 PSIG. Just removed from AT&T Vessel "Long Lines". Excellent condition.

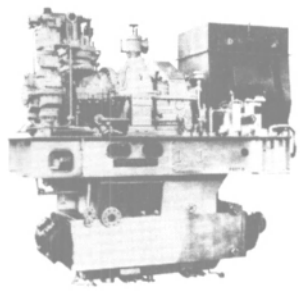
MARINE SHIPBOARD AIR COMPRESSOR
V-TYPE — TS-22820



160 CFM @ 125 lbs — two stage 870 RPM — 8X8¼X8¾ — air cooled — with intercooler. Direct — connected air compressor #2261021. MOTOR: 50 HP 440/3/60 — mfg by U.S. Motor. AIR COMPRESSOR: Mfg by Air Pumps Ltd. Excellent condition — formerly used on AT&T Vessel "Long Lines" and removed only because they needed a larger unit. Complete with inter- and after-cooler. Very good condition.

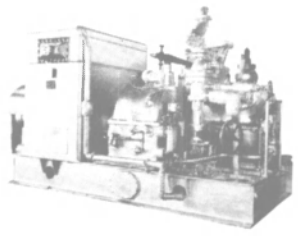
TURBO GENERATORS STEAM TURBINE — GEARS

1000 KW DELAVAL ALLIS-CHALMERS GEARED TURBO GENERATORS



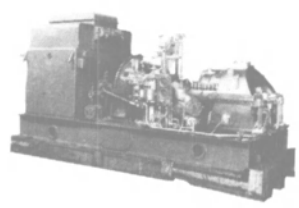
DeLaval turbine 1442 HP — 10019 RPM — class GJN — 9-stage — 1050 PSI — 950° TT. GEAR: 10019/12000. GENERATOR: Allis-Chalmers 1000 KW — 450/3/60/1200 — static excitation. Complete with condenser & switchgear optional. Send for brochure.

750 KW G.E. 7-STAGE TURBINE



450/3/60/1200 RPM — type FN3-FN24 — 10033 RPM. GEAR: 10033/1200 RPM. GENERATOR: type ATL — 6-pole — 450/3/60/1200 RPM — 0.80PF. EXCITER: 10KW 120 volts DC. Steam inlet 2½″ — 125% load — 2 hour normal steam condition. Normal steam condition 525 lbs/825°TT — 1 lb absolute back pressure at turbine exhaust flange. Steam flow 100% load 7870 lbs. OAL 11′ 4½″ — OAW 6′ ½″ — OAH 6′ 4″. Total weight 24,500 lbs.

MARINER CLASS TURBINE & GEAR ONLY



G.E. 700KW DRV618-MR73 — 10938/1200 RPM 850 PSI — 850°TT — GEI-90755 CONDENSING. Complete with rotor bearings, diaphragms, packing, etc. Gear complete — type S — 432 — Form B — 10938/1200 RPM.

TURBINE & GEAR ONLY — NON-CONDENSING

G.E. 700KW DRV318-MR1 — 10938/1200 RPM — 850 PSI — 850°TT — 24 PSIG exhaust pressure. Rotor, diaphragms, packings, bearings available.

AUXILIARY TURBO GENERATORS ROTORS ETC.

- **400KW DELAVAL ROTOR — 7-STAGE — CLASS CD — 5910 RPM**

835 lb W.P. — 840°TT — ex-Esso: Gloucester — Dallas Class — some Beth Sparrows Point & Quincy vessels, & Newport News Hulls 499-504 — in Book 820.

- **750KW DELAVAL ROTOR — 7-STAGE — CLASS G.J.**

9823 — 585/865# steam pressure

- **GEARS**

Class KD — 9283/1200 — ex-City Service "Alton Jones" type vessels

GE ROTOR
NEW
750 KW

Type FN-3-FN24 — 7-stage — 10033 RPM

WESTINGHOUSE
NEW
1250 KW

540# — 825°TT — 8050 RPM

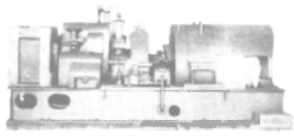
- **FOR G.E. T2 VESSELS**

G.E. DORV-325M — 5654 RPM — T2 tanker

- **WESTINGHOUSE 538KW**

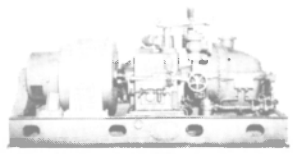
5010 RPM — T2 vessel

TURBINE & GEAR ONLY



New DeLaval type H.D. Turbine — #245204 — gear type KDC — 730 HP — 440# — 740°TT — 9977 RPM — with reduction gear output 1200 RPM. Turbine serial #245204.

G.E. 300KW TURBO GENERATOR & GEAR

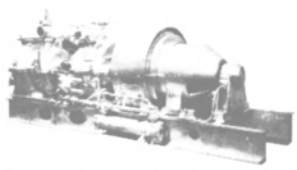


G.E. 300KW generator & 40KW D.C. exciter — 450/3/60/1200 RPM — ex USN D.E. vessel. TURBINE: DORV-325N — 4873 RPM — 400# — 50°F superheat.

300KW WESTINGHOUSE — LOW PRESSURE TURBINE & GEAR ONLY

Condensing or non-condensing designed for 300KW—5286 RPM/1200 RPM on gear. CAPACITY: 300KW Normal 250 psi — 0°superheat — 25″ vacuum 180KW — 250 psi — 0°superheat — 3 psi back pressure 300KW — 200 psi — 0°superheat — 25″ vacuum. Steam/hour 6463 lbs — 100% load — steam/KW hr. — 20.88.

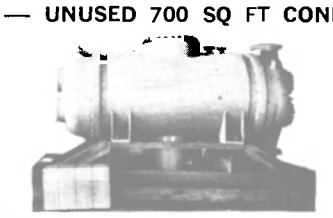
TURBO GENERATOR SET
NEW — 200KW A.C. — 40KW D.C.



Ex USN — turbine type DN — 5-stage — 10012 RPM. GEAR: s-155 — single helical. GENERATOR: 200KW — 450/3/60/1200 RPM. Steam conditions: 540# — superheat 197°/208°.

MISCELLANEOUS

2 NEW — UNUSED 700 SQ FT CONDENSERS



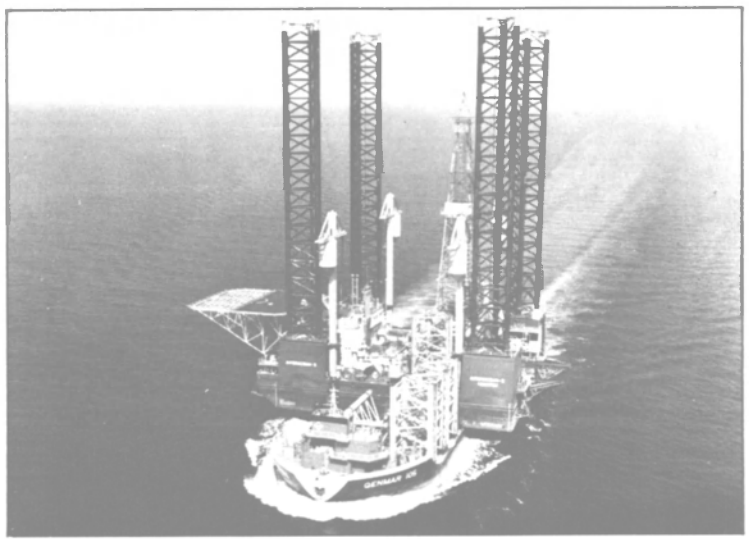
Mfg by American Locomotive Works. 700 sq ft — 2-pass — gunmetal waterbox & return head. ⅝″ tubes — 0.049″ (18 BWG) — cupronicel 70-30 — 100″ effective length — 476 tubes. Located San Pedro, Calif. With hot well — 20″ Center steam inlet — 9″ inlet & outlet. Shell 30 lbs/head 30 lbs.

TWICE EACH MONTH
THE *CURRENT* MAGAZINE

Your marine advertising wnrks ...in the number 1

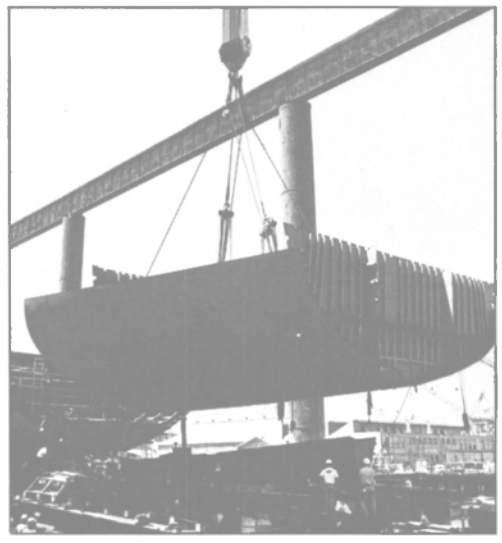
MARITIME REPORTER blankets thousands more shoreside buyers...

OFFSHORE DRILLING



GREAT LAKES

SHIPYARDS



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the only people with *authority* to give business to all marine advertisers.

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SHIPBUILDING, BOATBUILDING, AND REPAIR COMPANIES
Directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers, purchasing agents, naval architects and chief draftsmen

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Naval architects, engineers and consultants shoreside

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...BY EACH INDIVIDUAL READER

FIRST CHOICE OF MARINE BUYING READERS

harder...to produce more sales for you magazine, MARITIME REPORTER.

all marine areas...with a requested circulation to than than any other marine magazine in the entire world

OCEAN

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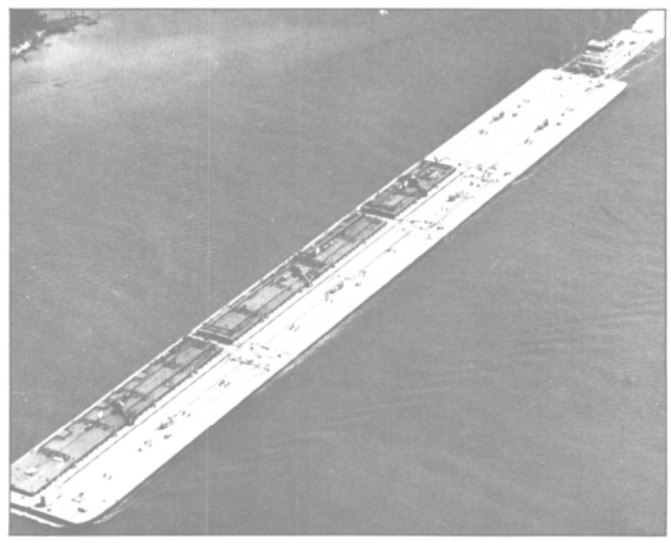

REQUESTED BY THOUSANDS MORE BUYERS WORLDWIDE — MARITIME REPORTER is requested, in writing, by thousands more marine men who specify and buy than *any* other marine magazine in the entire world.

REQUESTED BY THOUSANDS MORE U.S. BUYERS — Throughout the entire United States . . . MARITIME REPORTER is requested by thousands more shoreside buyers than *any* other U.S. marine magazine.

REQUESTED BY THOUSANDS MORE FOREIGN BUYERS — Than the second magazine, ME/Log.

MOST ADVERTISING PAGES — In 1979, MARITIME REPORTER carried more pages of advertising (7″ x 10″) than No. 2, ME/Log.

400,000 FREE DIRECTORY LISTINGS — Regular display advertisers in MARITIME REPORTER receive a free listing — company name and address — in the buyers directory section in all 24 issues for one entire year . . . whether an ad appears in every issue or not. No other marine magazine gives you this continuous sales-building exposure.

LOWEST COST — Why pay more . . . MARITIME REPORTER's advertising rates are lower than ME/Log's . . . and lower, cost per buying reader, than any other marine magazine.

AND MARINE ADVERTISERS

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MARITIME REPORTER AND ENGINEERING NEWS

SNAME Lakes/Rivers Section Fall Meeting Held In Minnesota

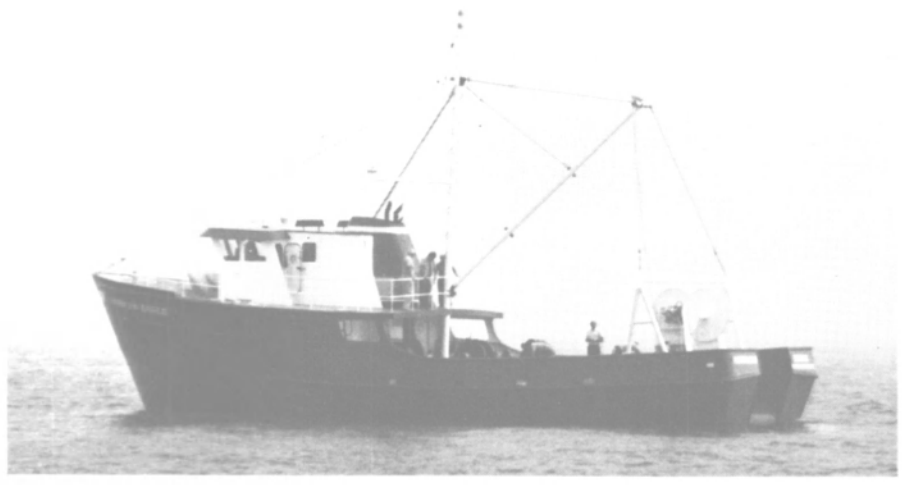
Authors and officers at fall meeting of SNAME Great Lakes and Great Rivers Section (seated, L to R): authors **Bruce W. Stunkard** and **Joseph E. Burns**. Standing (L to R): **Thomas J. Stewart**, section vice chairman, Great Lakes; **Ian D. Sharp**, papers chairman; **John P. Colletti**, section chairman; and **John O. Greenwood**, section representative, and public relations chairman.

The fall meeting of the Great Lakes and Great Rivers Section of The Society of Naval Architects and Marine Engineers was held recently at the Kahler Motel, Hibbing, Minn. Total attendance was 80 members and guests.

During the technical session, slides and detailed explanations were provided under the title, "The Hibbing Taconite Company Story," by **Bruce W. Stunkard**, assisted by **Steven Zietler**, both of Hibbing Taconite Company. The second paper presented was given by **Joseph E. Burns**, entitled "Burlington Northern — Linking Hibbing Taconite and the Lakes."

Following the customary luncheon and reception, a tour was made of the Hibbing Taconite facility, from the mining area of the taconite rock through the crushers and various other operations, to completion of the finished process of completed taconite pellets.

The winter meeting of the section has been scheduled for Thursday, January 22, 1981, at the Pittsburgh Hilton at Gateway Center in Pittsburgh.



Stern trawler **American Eagle**, built by Delaware Marine & Manufacturing for **Jack** and **Adele Daab**, is powered by twin Cummins diesels with total output of 730 bhp.

Delaware Marine's Latest Delivery Is Stern Trawler 'American Eagle'

The latest delivery made by Delaware Marine & Manufacturing Company is the stern trawler American Eagle, built for **Jack** and **Adele Daab** of Howard Beach, N.Y. The new vessel is 78 feet overall, with a 23-foot beam and 9-foot 5-inch draft fully loaded. The hull is plated with A-36 grade steel 5/16-inch thick, while the main deck is ¼-inch steel. The entire vessel is transversely framed with 3-inch by 2-inch by ¼-inch angles on 21-inch centers. In addition to the vessel's four main transverse watertight bulkheads, web frames were placed at intervals for additional strength.

"The hull lines of the vessel were developed carefully to produce a form that would be both easily driven and highly seaworthy," according to the American Eagle's designer **Richard Taubler**, who is president of Delaware Marine. The resulting vessel proved to be just that — seaworthy, stable, and economical to operate. Her top speed, fully loaded, is 13 knots.

The vessel is powered by a pair of Cummins KT-1150-M marine diesel engines, which also drive three hydraulic pumps by means of power take-offs. Each main engine develops 365 bhp at 1,800 rpm, and drives a 60-inch by 52-inch, three-blade bronze propeller on a 4-inch-diameter stainless-steel shaft through a 6:1 Twin Disc MG-514 reverse / reduction gear. Two John Deere/Lima generator sets developing 30 kw each were installed for auxiliary power.

Deck machinery consists of two Stroudsburg Engine Works model 1278 S.D. winches, and a yard-fabricated gallows frame and hy-

draulic net reel. Steering gear is by Wagner.

100,000 pounds of fish can be carried in the vessel's 3,500-cubic-foot fish hold which is polyurethane insulated and cement lined. Pen boards divide the hold into 30 compartments, and 10 flush Baier hatches installed in the main deck over the hold assure easy filling. 6,000 gallons of diesel oil is carried in four tanks, while the fresh water tank carries 2,500 gallons.

The boat, which will be used for bottom trawling for squid, flounder, scup (porgies), and butterfish, and midwater trawling for mackerel and herring, is outfitted with the latest electronic equipment including a Chromascope depth sounder, recording depth sounder, C-Nav-XL Loran C receiver and C-Plot two track plotter all by Epsco; a Seatrek autopilot, a Furuno radar, and Modar VHF radio.

The comfort of the American Eagle's crew of seven is assured by Carrier air-conditioning in the wood-paneled staterooms, galley, and mess rooms.

Delaware Marine & Manufacturing builds fishing vessels, tugs, barges, pilot boats, crewboats, ferryboats, and other equipment at its shipyard in Milford, Del.

New Equipment And Parts Supply Company Formed By Jon M. Liss

Jon M. Liss has announced the organization of a company, Jon M. Liss Associates. The new business will specialize in the supply of repair and replacement equipment, machinery, and parts for the marine industry.

Jon M. Liss

Mr. Liss has been serving the marine industry for more than 13 years, and has a comprehensive background in the supply of engine, deck, and floating equipment to vessel operators and shipyards, offshore contractors, and service companies.

For more information, contact Jon M. Liss Associates, P.O. Box 5554, San Mateo, Calif. 94402.

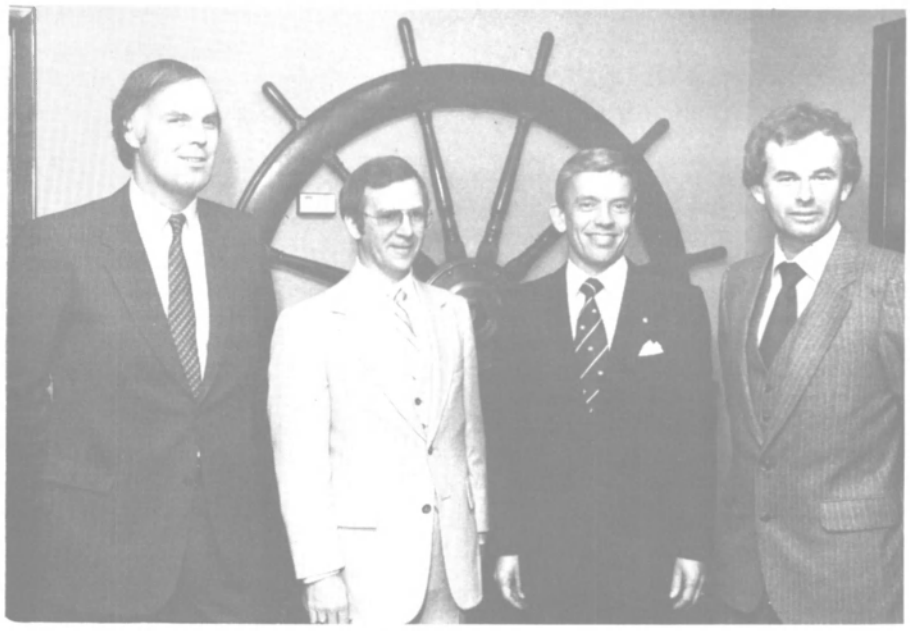
ABS Publishes 1980 Rules On Building And Classing Offshore Drilling Rigs

The American Bureau of Shipping (ABS) has published the 1980 edition of *Rules for Building and Classing Mobile Offshore Drilling Units*. The "Rules" will be applicable to units contracted after November 1, 1980.

In this third edition, there is a new appendix containing specific material selection guidelines applicable to any mobile offshore drilling unit based on the type of unit and intended operating environment. Another new appendix describes the procedures and conditions under which a properly conducted underwater inspection of a mobile offshore drilling unit may be credited as a drydocking survey.

The section of the "Rules" concerning surveys after construction has been considerably expanded to include detailed descriptions of hull areas and machinery subject to ABS survey. There is extensive updated information in sections that describe standards regarding watertight bulkheads and flats, welding, machinery, pumps and piping systems, electrical installations, and safety features.

Copies can be ordered ($20 each) from the Book Order Section, American Bureau of Shipping, 65 Broadway, New York, N.Y. 10006, or from other ABS offices.



Jotun officials at recent seminar in New York were (L to R): **Nicholas J. Scotland,** vice president, Jotun-Baltimore Copper Paint Company; **Gary W. Winegardner,** president, Jotun-Baltimore; **Torstein Bryn,** public relations/marketing manager, Jotun Marine Coatings, Norway; and **Terje Lunde,** marketing manager, Jotun-Baltimore.

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Using figures representative of a 280,000-dwt turbine tanker, Mr. **Bryn** described Jotun's extensive research and experience in coatings technology, which show that considerable savings can be achieved from an *investment* in a sophisticated hull coating system such as Jotun's Takata LLL organo-tin, acrylcopolymer self-polishing antifouling or its Seamaster chlorinated rubber / cuprous oxide system developed especially for reactivation.

Traditionally, the main object of using antifouling systems on ships has been to keep their bottoms free from fouling. Relatively low speeds and reasonable bunker prices made it necessary to consider only the rather extensive roughness created by organisms that could under bad conditions settle on the underwater hull, thus reducing speed significantly.

In the mid-seventies, however, a new concept was brought up, namely the requirement for keeping the ships' bottoms not only fouling-free, but also as smooth as possible in order to reduce skin friction to the lowest possible level, thereby enabling the owners to economize substantially on fuel consumption. This is, of course, due to the fact that on larger vessels 80 percent of the resistance to movement through water is due to skin friction.

Jotun Marine Coatings, as well as other paint manufacturers and research institutions, several years ago began to look more thoroughly into what could be done to reduce skin friction. Jotun's answer is the Seamaster and Takata LLL systems which, according to Mr. **Bryn,** have now been thoroughly tested over a number of years in cooperation with shipowners, and Jotun has been able to collect performance data that clearly prove the great savings in fuel consumption.

A/S Jotungruppen, more commonly known as Jotun, is an international group of companies with worldwide activities. Its main products are marine coating systems and coatings for corrosion protection in the oil and chemical industries; domestic and industrial paints, polyester plastics, polyurethane foams, and fiberglass-reinforced polyester pipes and tanks.

Belcher Spill Conference Featured Prevention, Control, And Cleanup

An international oil spill conference attracted more than 300 pollution control experts from major oil companies, conservation organizations, and government response teams to Lake Buena Vista, Fla., recently. The 7th Annual Spillage Control Conference & Workshops sponsored by Belcher Oil Company of Miami featured participatory exercises in the prevention, control, and cleanup of hazardous and toxic materials spills. Wildlife rescue and deployment of the latest containment and cleaning equipment were demonstrated during the conference.

In a dramatic exercise, a simulated oil spill was staged in the Cypress Gardens Aquarama Pool. For the first time, participants viewed a spill and cleanup from under water, through the pool's famous picture windows. "Our oil spill exercise demonstrated government and industry cooperation during pollution catastrophies that affect everyone," said conference director **Roger Pynn** of Belcher Oil. "The exercise posed the realities of a spill, giving participants a heightened awareness of their responsibilities in prevention and cleanup."

The conference was completely underwritten as a public service by Belcher Oil, a unit of The Coastal Corporation, Houston. Cosponsors were the U.S. Environmental Protection Agency, the U.S. Coast Guard, the Florida Department of Natural Resources, and the Florida Spillage Control Association.

Among leading authorities who addressed the conference were **DeVan L. Shumway,** editor and publisher of *The Oil Daily,* and a recognized energy authority; Rear Adm. **Wayne E. Caldwell,** Chief of the Coast Guard's Office of Marine Environment and Systems; and **Alice B. Berkner,** executive director of the International Bird Rescue Research Center, Berkeley, Calif., and one of the world's foremost authorities on saving oiled wildlife.

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draulic net reel. Steering gear is by Wagner.

100,000 pounds of fish can be carried in the vessel's 3,500-cubic-foot fish hold which is polyurethane insulated and cement lined. Pen boards divide the hold into 30 compartments, and 10 flush Baier hatches installed in the main deck over the hold assure easy filling. 6,000 gallons of diesel oil is carried in four tanks, while the fresh water tank carries 2,500 gallons.

The boat, which will be used for bottom trawling for squid, flounder, scup (porgies), and butterfish, and midwater trawling for mackerel and herring, is outfitted with the latest electronic equipment including a Chromascope depth sounder, recording depth sounder, C-Nav-XL Loran C receiver and C-Plot two track plotter all by Epsco; a Seatrek autopilot, a Furuno radar, and Modar VHF radio.

The comfort of the American Eagle's crew of seven is assured by Carrier air-conditioning in the wood-paneled staterooms, galley, and mess rooms.

Delaware Marine & Manufacturing builds fishing vessels, tugs, barges, pilot boats, crewboats, ferryboats, and other equipment at its shipyard in Milford, Del.

New Equipment And Parts Supply Company Formed By Jon M. Liss

Jon M. Liss has announced the organization of a company, Jon M. Liss Associates. The new business will specialize in the supply of repair and replacement equipment, machinery, and parts for the marine industry.

Jon M. Liss

Mr. **Liss** has been serving the marine industry for more than 13 years, and has a comprehensive background in the supply of engine, deck, and floating equipment to vessel operators and shipyards, offshore contractors, and service companies.

For more information, contact Jon M. Liss Associates, P.O. Box 5554, San Mateo, Calif. 94402.

ABS Publishes 1980 Rules On Building And Classing Offshore Drilling Rigs

The American Bureau of Shipping (ABS) has published the 1980 edition of *Rules for Building and Classing Mobile Offshore Drilling Units*. The "Rules" will be applicable to units contracted after November 1, 1980.

In this third edition, there is a new appendix containing specific material selection guidelines applicable to any mobile offshore drilling unit based on the type of unit and intended operating environment. Another new appendix describes the procedures and conditions under which a properly conducted underwater inspection of a mobile offshore drilling unit may be credited as a drydocking survey.

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Mr. **Shumway** predicted that oil prices will rise moderately next year because OPEC is likely to index the price of crude oil to inflation. He went on to say that nobody really knows what the Iran-Iraq war will do to world oil supplies, as the extent of the damage has not yet been determined,

but it is known that Western nations have stockpiled millions of barrels of oil. The Energy Department has stated that worldwide production is 2 to 2.5 million barrels a day above demand, and the glut, according to Mr. **Shumway,** will enable Western nations to withstand Iran's and Iraq's oil cutoff.

Admiral **Caldwell** discussed the state of the art in handling oil spills, and referred to prototype vessels that have shown a potential for recovering oil in currents up to eight knots. He said that the Coast Guard "would like to extend this concept to open-water situations if it proves successful in river and harbor conditions." According to Admiral **Caldwell,** open water situations are an area where commercial cleanup contractors have not really ventured. In closing, he said: "Coast Guard pollution response policy is not to interfere with private enterprise, but is a concerted effort to encourage private development and involvement."

Alice B. Berkner, author of *Saving Oiled Seabirds,* a publication endorsed by the U.S. Fish & Wildlife Service and the most definitive book in this field, conducted a special workshop on bird rescue techniques, in cooperation with attending representatives of the Florida Audubon Society and the U.S. Fish & Wildlife Service.

Cartner, Gaffney Named Director And Associate At ADI Transportation

ADI Transportation Systems, a division of CallData Systems, Inc. of the Grumman family of companies, has announced the appointment of Dr. **John A. Cartner** as director, marine transportation systems, and **Michael E. Gaffney** as associate director of marine transportation.

Dr. **Cartner** is a graduate of the U.S. Merchant Marine Academy and holds MS and PhD degrees from the University of Georgia and an MBA from Georgia State, and is a licensed Master Mariner. Dr. **Cartner's** responsibilities will be to develop a marine transportation consulting business within ADI Transportation Systems division dealing with computer applications, systems development, training, organizational analysis, and organizational development/effectiveness within the maritime industry. Before joining ADI he was a consultant in private practice.

Mr. Gaffney is also a Kings Point graduate and holds an MA degree from the New School for Social Research. He is a licensed First Class Pilot on Great Lakes vessels. **Mr. Gaffney's** responsibilities will include the development of business in the organizational development / effectiveness field in the maritime industry in addition to other senior consulting duties.

Gulf Barge Seeks Title XI For 10 Semi-Integrated Tank Barges

Gulf Barge, Ltd., I & II, Houston, Texas, have applied for a Title XI guarantee to aid in financing the construction of a total of 10 semi-integrated tank barges.

Two of the 10,000-barrel, double-skin barges will be built by Platzer Shipyard, Houston, for Gulf Barge I. Platzer will also build four of the barges for Gulf Barge II. The remaining four barges will be built by Bergeron Shipyards, St. Bernard, La., for Gulf Barge II.

All 10 vessels are expected to be delivered by August 1, 1981, and will be operated on the inland rivers and intercoastal waterways of the United States.

If approved, the Title XI guarantee would cover 87½ percent of the vessels' estimated actual cost: $900,000 of the Gulf Barge I barges' $1,033,971 estimated actual cost, and $3,800,000 of the Gulf Barge II barges' $4,344,634 estimated actual cost.

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Chairman **J.R. (Bob) Malone** announced the program for the year, pointing out the excellent job that **Carl E. Erickson**, program chairman, has done in getting an outstanding group of presenters with timely and interesting topics. He encouraged all present to invite friends and business associates to become members, stressing the attendance at the monthly meetings with a slogan "Bring a Friend."

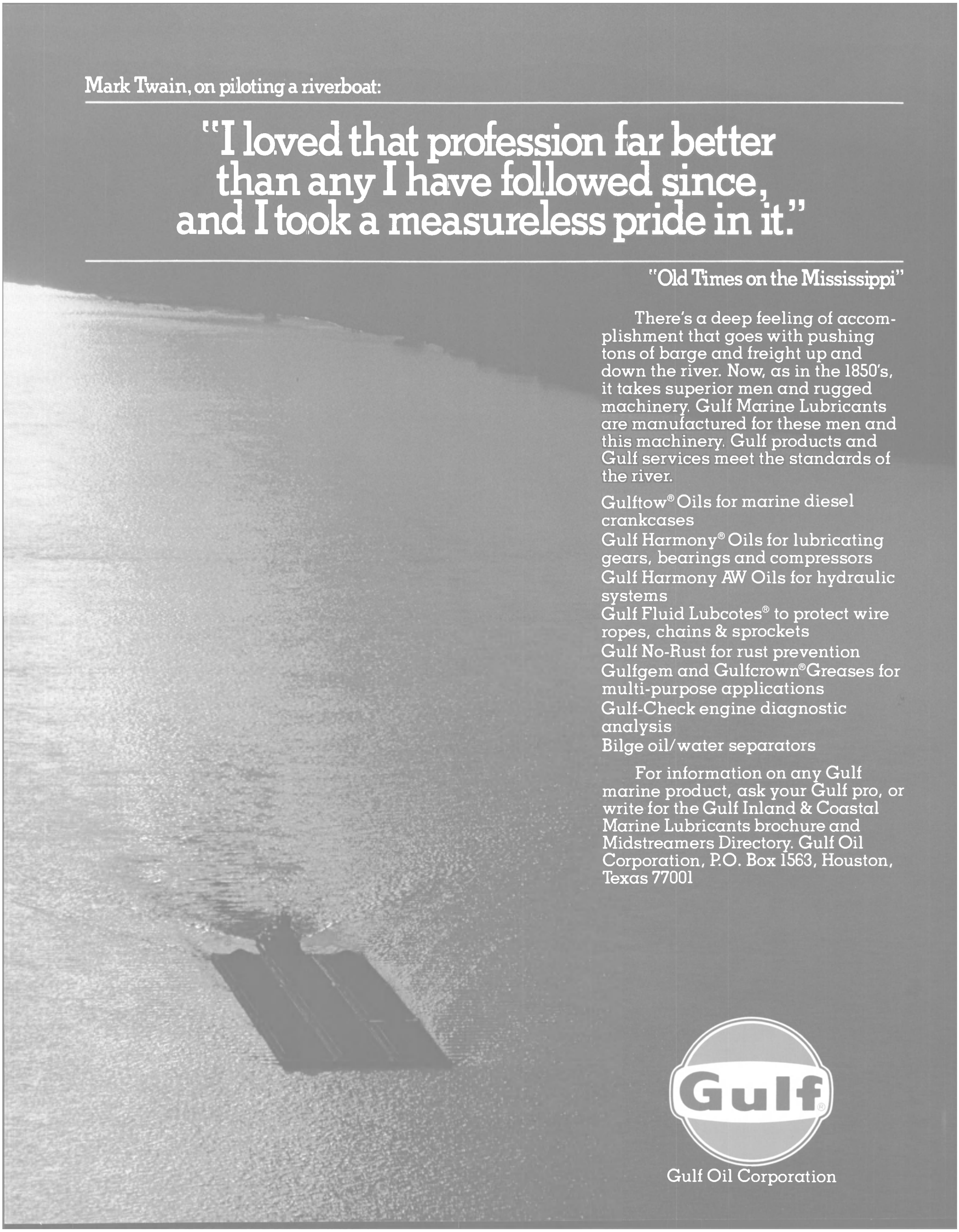
The chairman next introduced the Section officers and then asked program chairman **Erickson** to take over with the evening's activity. The announced topic for the meeting was "Update on Diego Garcia Facilities," by Lt. **Michael F. Casey**, CEC, USN, Assistant Officer in Charge of Construction for the Long Beach area. Lieutenant **Casey** has had two tours of duty on Diego Garcia, the last of which was as Officer in Charge of the 30th Naval Construction Regiment Detachment.

Lieutenant **Casey** opened by saying that his remarks would be accompanied by a number of slide pictures of the island and its facilities and that it would be rather informal, consequently he would welcome questions from the audience on the subject of the pictures as they were presented instead of having a formal question-and-answer period at the end of his presentation. This "audience participation" type of presentation made for a most interesting meeting that was extremely informative about a Naval base on an atoll in the Indian Ocean located about 1,000 miles south and slightly west of the tip of India. We occupy the western half of the island by virtue of a 50-year lease from Great Britain, negotiated in 1966, and share it with two British officers and 24 men who are totally integrated into our organization.

Framed Certificate of Appreciation was awarded to Lt. **Michael F. Casey** for his presentation at recent meeting of ASNE Long Beach-Greater Los Angeles Section. Section chairman. **J.R. (Bob) Malone** made the award.

Work goes on 24 hours a day, thus the cooks are busy serving 10,000 meals a day on a around-the-clock basis. The Seabees have done all of the construction work on Diego Garcia right down to the olympic size swimming pool, gymnasium, bowling alley, tennis courts, offices, warehouses, barracks, shops, piers, houses and even the streets, sewers, electrical generation and distribution facilities, as well as the 12,000-foot-long air strip.

To the complete entertainment as well as the enlightenment of all, Lieutenant **Casey** presented a lucid description in pictures and words of our most important military base to support our Naval operations in the Indian Ocean. He was given a resounding round of applause for his excellent program, and was presented with a framed Certificate of Appreciation by chairman **Malone** as an expression of gratitude on behalf of the Section.



Mark Twain, on piloting a riverboat:

"I loved that profession far better than any I have followed since, and I took a measureless pride in it."

"Old Times on the Mississippi"

There's a deep feeling of accomplishment that goes with pushing tons of barge and freight up and down the river. Now, as in the 1850's, it takes superior men and rugged machinery. Gulf Marine Lubricants are manufactured for these men and this machinery. Gulf products and Gulf services meet the standards of the river.

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For information on any Gulf marine product, ask your Gulf pro, or write for the Gulf Inland & Coastal Marine Lubricants brochure and Midstreamers Directory. Gulf Oil Corporation, P.O. Box 1563, Houston, Texas 77001

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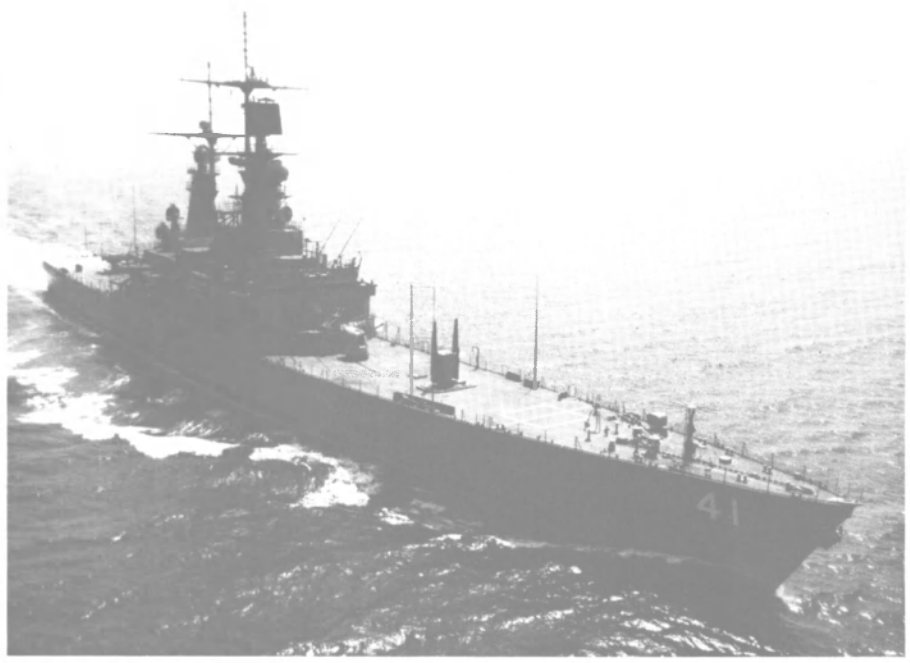
Philadelphia Section Of SNAME Hears Update On Coatings

Section officers and authors discussing paper at recent Philadelphia SNAME meeting (seated, L to R): **C.W. Lofft**, Sun Ship, coordinator; **J.J. Hibbits**, General Electric, Section chairman; and **J.H. Shubrook**, Sun Ship, Inc., author; (standing) **Frank L. Pavlik**, Keystone Shipping (celebrating his 50th year with SNAME); **D.S. Champlin**, Selby Battersby, secretary-treasurer; and **J. Fallick**, Sun Ship, author.

The Philadelphia Section of The Society of Naval Architects and Marine Engineers held its October meeting in Essington, Pa. Some 65 members and guests attended the technical session to hear a paper titled "New Construction Coatings and Corrosion Protection Update," presented by **J.H. Shubrook** and **J. Fallick** of Sun Ship, Inc. Prior to the meeting the members had visited the Sun Ship yard in Chester, Pa., for a conducted tour of its new blast and paint facility.

The paper described how marine paint systems have moved during the past decade from a position of relative unimportance, in the minds of builders and owners, to one calling for complex specifications and high performance expectations. Sun Ship's new facility was built to support this new awareness of the importance of proper surface preparation and the application of coatings.



U.S. Navy's nuclear-powered, guided-missile cruiser Arkansas (CGN-41), constructed by Newport News Shipbuilding, was commissioned recently at Norfolk Naval Base.

Newport News Shipbuilding Delivers U.S. Navy Nuclear-Powered Cruiser

Newport News Shipbuilding has delivered the nuclear-powered, guided-missile cruiser Arkansas to the United States Navy. The Arkansas is the fourth Virginia Class cruiser built by the Virginia yard. Her keel was laid on January 17, 1977 and she was launched on October 21, 1978. The vessel was commissioned recently at the Norfolk Naval Base.

This is the fourth U.S. Navy ship to be named in honor of the State of Arkansas. The first Arkansas, a screw steamer, was built in 1863 for service in the Civil War. The second, a battle monitor built in 1902, was used for instruction at the U.S. Naval Academy and later for patrolling the East and Gulf Coasts before being renamed Ozark in 1909 to make the name available for the third Arkansas. That vessel, the battleship Arkansas (BB-33), served during World Wars I and II, winning four battle stars for duty escorting convoys across the Atlantic and for participating in the invasions of Normandy and Iwo Jima.

The new Arkansas will have a crew of 497 and the most advanced weapons and equipment necessary to perform her mission of anti-surface, anti-air, and anti-submarine warfare. Powered by two nuclear reactors, Arkansas will be able to operate at least 10 years before refueling is required. She is 585 feet long with a beam of 63 feet (178.3 by 19.2 meters), displaces 11,000 tons, and is capable of speeds in excess of 30 knots.

Newport News Shipbuilding, the only shipyard capable of building and servicing the full range of nuclear-powered surface ships and attack submarines, has produced 14 of the 23 nuclear ships that have joined the U.S. Navy fleet since 1974.

Linane Renamed General Chairman-Marine Section Of NSC

James J. Linane, a vice president of the New York insurance brokerage firm of Johnson & Hig-

gins, has been reelected to another one-year term as general chairman of the Marine Section of the National Safety Council. Mr. **Linane** headed a slate of officials on the Marine Section executive committee for the 1980-81 period, who were elected at the group's recent annual business meeting, which was held in conjunction with the 68th National Safety Congress and Exposition in Chicago.

Also reelected to top Marine Section positions were **Edward F. McIntyre**, manager, safety and loss prevention, at Farrell Lines Incorporated, New York, as deputy general chairman; Capt. **Harold R. Rosengren,** senior deputy chief surveyor at the National Cargo Bureau, Inc., New York, as vice general chairman; and Capt. **Hugh M. Stephens,** president, Ships' Operational Safety, Inc., Port Washington, N.Y., as organization secretary. **Richard L. Fox,** director of safety and security at Ingram Industries, Inc., Nashville, was elected to his first term as a vice general chairman.

Amicucci Named Service Manager At FMC-Coffin Turbo Pump Division

John J. Amicucci

Brian A. Jones, general sales manager, has announced the appointment of **John J. Amicucci** to manager of service, Coffin Turbo Pump Division of FMC Corporation. Service management responsibilities include supervision of the factory service group and coordinating sales/service activities, in addition to actively promoting customer relations.

Mr. **Amicucci** was formerly employed as service manager for marine and Government by Worthington Pump Company.

Bird-Johnson Building New $5-Million Facility To Machine Blades

Bird-Johnson Company, Walpole, Mass., has begun construction of a $5-million blade-machining facility to convert bronze castings into finished marine propeller blades. The announcement was made by **Howard H. Scott,** chairman and chief executive officer, at a cornerstone-laying ceremony. Mr. **Scott** said: "The expansion will provide increased employment in the Walpole area. It will also allow us to reduce transportation and production costs while ensuring a quality product in any quantity needed by the U.S. Navy —now or in the future."

Startup is planned for March 1981, with the facility being fully operational before the end of the year. The addition represents a significant development of Bird-Johnson's manufacturing capability. The new center will contain processes involving machining, welding, and small-hole drilling by electrical discharge machining (EDM), as well as inspection stations.

It will be housed in a single building approximately 75 feet by 204 feet that has high- and low-bay work areas and a facility support area. Three major metal-cutting machines will be used: a horizontal boring mill, a three-axis computer-numerically-controlled (CNC) profile milling machine, and a large gantry-type, five-axis CNC profile milling machine.

Bird-Johnson Company is a wholly owned subsidiary of A. Johnson & Company, Inc. It also manufactures thrusters, hydraulic actuators, and low-speed, high-torque hydraulic motors. A. Johnson is a privately held company with annual sales of about $800 million and facilities throughout the United States.

Ship owners trust Texaco lubricants and services to help keep their vessels running efficiently.

They trust Texaco research to produce products that meet the severe operational demands of today. Products such as:

- DORO AR 30–alkaline reserve crankcase lubricant.
- TARO Special–our specially formulated cylinder lubricant.
- TARO XD and TARO DP–the multipurpose products for lubrication of medium speed diesel engines.
- REGAL R&O SERIES–turbine lubricants which meet the demanding requirements of today's equipment.

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WORLD WIDE
MARINE FUELS AND LUBRICANTS

They trust Texaco's rapid oil analysis program which provides an analysis-and-detection service that can spot potential problems early and help reduce costly unscheduled downtime.

It all adds up to one thing. Marine engineering experience. Ship owners and engineers know Texaco has that experience and know we are working harder to keep their trust.

For information on our full line of marine lubricants, direct your inquiry to:

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International Marine Sales Dept.
2000 Westchester Ave., White Plains, New York 10650

Texaco Ltd.
International Marine Sales
1 Knightsbridge Green, London SW1X 7QJ

China Shipbuilding Delivers Self-Unloading Cement Carrier

Cement carrier **Asia Cement No. 1** was completed recently at Keelung Yard of China Shipbuilding Corporation, Taiwan, for Asia Cement Corporation. Loading/unloading equipment, totally enclosed and dust-free, was supplied by Nordstroms of Sweden.

The first cement carrier ever built in Taiwan was delivered recently to her owners, Asia Cement Corporation, by China Shipbuilding Corporation's Keelung Yard. Named Asia Cement No. 1, the vessel is now operating in Taiwan coastal trade.

The 6,000-dwt ship constitutes an important step in the development of efficient bulk cement transportation in Taiwan and Southeast Asia. Her self-loading and self-unloading equipment was designed and delivered by Nordstroms of Sweden; it has a loading capacity of 600 tons per hour and unloading capacity of 400 tons per hour.

The cargo-handling system comprises Nordstroms' well-proven mechanical equipment with chains and screw conveyors. The all-weather operation is totally enclosed and dust-free between silo and ship. Similar Nordstroms systems have been in operation in other parts of the world for more than 30 years.

Don Welch Succeeds Clifford O'Hara As President Of AAPA

The American Association of Port Authorities concluded its 69th annual convention, held in Norfolk, Va., recently with the election of officers and directors for the coming year. **Don Welch,** executive director of the South Carolina Ports Authority, was elected president of the Association that represents ports in the Western Hemisphere.

Other officers for the coming year are: **Ned Reed,** executive port director and general manager, Port of New Orleans, who becomes first vice president; **Mel Shore,** port director, Port of Sacramento (California), second vice president; and **Lloyd Anderson,** executive director, Port of Portland, third vice president.

Mr. **Welch** succeeds **Clifford B. O'Hara,** director of port commerce for the Port Authority of New York and New Jersey, as president of the Association.

Largest of its kind in the world, 650-ft. **Intermac 650,** built by Hitachi Zosen's Sakai shipyard for McDermott Incorporated, is capable of carrying 36,300 metric tons.

Huge Jacket Launching Barge For McDermott Delivered By Hitachi

Intermac 650, a jacket launching barge built for McDermott Incorporated of New Orleans, was completed recently at the Osaka (Sakai) Works of Hitachi Zosen. After delivery, the barge set out on its maiden voyage to Louisiana.

The largest barge of its kind in the world, Intermac 650 is capable of carrying and launching jackets of up to 36,300 metric tons in weight. It is the second barge of this type constructed by Hitachi.

Two skid beams are mounted on deck and extend the entire length of the barge. These are designed to permit distance adjustment between the beams depending on the size of the jacket. Double-hinge rocker arms are provided at the stern to facilitate jacket launching.

The hull is divided into 34 ballast tanks to facilitate trim adjustment during unloading and launching of jackets. The deck is constructed of 36-millimeter-thick (1.4-inch) steel plate, and the rocker arm's bottom section is reinforced to bear the heavy launching loads.

The 65,416-dwt barge is 650 feet long with a beam of 170 feet and depth of 40 feet (198.12 by 51.82 by 12.20 meters).

Navy's Fleet Oiler Design Described At Chesapeake SNAME

At recent SNAME Chesapeake Section meeting (L to R): **Ronald K. Kiss,** Maritime Administration, moderator; **John F. Ince,** MarAd, author; **Clayton W. Davis,** MarAd, author; **Frank Slyker,** Bethlehem Steel, Section vice chairman; **Robert J. Scott,** Gibbs & Cox, Section chairman; and **I. David Gessow,** MarAd, author.

A paper titled "T-AO 'Commercial' Fleet Oiler" by **Clayton W. Davis, John F. Ince,** and **I. David Gessow,** all of the Maritime Administration Office of Ship Construction, was presented to a meeting of the Chesapeake Section of The Society of Naval Architects and Marine Engineers recently. The T-AO design grew out of a U.S. Navy proposal to acquire a new class of fleet oilers designed to commercial standards. The intent was to have these vessels certified by the U.S. Coast Guard, classed by ABS, and operated by the Military Sealift Command (MSC). The military capabilities of the U.S. Navy's AO-177 class of fleet oilers with respect to underway replenishment equipment, cargo piping, communications, and limited self defense in the form of two Vulcan Phalanx Close-in Weapons Systems was to be included in addition to the commercial specifications and requirements.

In their presentation, Dr. **Ince** and Mr. **Davis** described the two-part design effort conducted by MarAd. It consisted of an initial feasibility phase that considered three-point designs and 14 trade-off studies and a concept design phase that concentrated on the development of two of the ships along with four ancillary trade-off studies.

The feasibility studies considered three basic capacities—120,000, 150,000, and 180,000 barrels of JP-5 and Diesel Fuel Marine (DFM), 18 knots sustained speed, an endurance of 10,000 nautical miles at 18 knots, underway replenishment capability, and accommodations for 132 personnel. A single fixed-pitch propeller and twin medium-speed diesels were considered for propulsion except in one of the trade-offs where a controllable-pitch propeller was substituted.

The resulting designs, which were optimized around minimizing acquisition and operating costs, ranged in length from 590 to 680 feet, and had full-load displacements from 27,700 to 37,560 long tons. Costs remained in a narrow band bounded by $81.7 million on the lower end and $89.2 million on the upper.

The concept design phase considered only the 120,000- and 150,000-barrel capacity ships along with a change to a 20-knot sustained speed, and an endurance of 6,000 nautical miles at 20 knots. The 120,000-barrel design continued with a single fixed-pitch propeller and one rudder, while the 150,000-barrel design switched to

twin controllable-pitch propellers and twin rudders.

The 150,000 barrel configuration was presented by Dr. **Ince** as an example of the final designs. Its principal characteristics include: full-load displacement, 33,155 long tons; length between perpendiculars, 660 feet; beam, 88 feet; depth, 48 feet; draft, 34.4 feet. Power is provided by two medium-speed diesels totaling 27,080 bhp. Sixteen tanks carrying a mixed cargo of 60 percent DFM and 40 percent JP-5, or alternatively 50 percent DFM and 50 percent JP-5, are provided, and a centralized cargo pump room is located midships.

Prepared discussions were provided by **Don Stevens** of NAVSEA, **J. Sumner** of MSC, **James Robinson** of the David Taylor Naval Ship R&D Center, and **C. Sederstrom** of MarAd.

Enserve, Inc. Acquires Controlling Interest In Specific Equipment Co.

Enserve, Inc., a Houston-based, privately owned corporation serving the energy industry, has acquired controlling interest in Specific Equipment Company of Houston. The announcement was made by Enserve's chairman **Don E. Dixon** and president **Robert L. Kietzman.**

Since 1967, Specific Equipment has served the offshore petroleum industry as a supplier of specialized pump sets, packaged fluids-handling systems, service parts, and expendable parts for use on drillships, jackup and semisubmersible drilling rigs, and drilling and production platforms. Specific became a leading manufacturer of automated desalination equipment for the offshore petroleum and marine industries with a 1978 product line acquisition. Facilities include 30,000 square feet of office, manufacturing and storage space in a Northwest Houston industrial park.

China Licensed To Build And Install MacGregor Cargo Access Equipment

The burgeoning Chinese shipbuilding industry has become the newest member of the worldwide MacGregor organization. It was welcomed into the ranks of those countries already benefitting from the world's leading cargo-handling equipment designs, at a recent signing ceremony in Paris.

Under the terms of a technical cooperation agreement made between the Peking-based China Corporation of Shipbuilding Industry (CCSI) and MacGregor Cargo Handling (Pacific) Ltd., Hong Kong, the Chinese industry, through CCSI, becomes a full participant in the organization, thus gaining access to the know-how that will enable it to design, manufacture, and install the full extensive range of MacGregor cargo access and transfer equipment. Ships built in Chinese yards, whether for Chinese or foreign ownership, will benefit from the agreement.

The transfer of technology involved will be imparted through MacGregor Cargo Handling (Pacific) Ltd. and a number of other MacGregor companies, in a variety of ways. As a prerequisite for speedy implementation of the agreement, a program of training for a number of qualified Chinese designer/draftsmen, and for engineers specializing in fabrication and quality control, commenced almost immediately.

In addition to these more direct methods of technology transfer Chinese delegates will, in the future, be attending all the regular international technical meetings and conventions periodically arranged for the internal monitoring of MacGregor progress and interchange of knowledge between members of the international organization.

Products conforming to MacGregor designs and standards made in Chinese yards or factories will be readily identifiable, as they will bear a plate reading "Shanghai-MacGregor."

Coastal Towing Seeks Title XI On Eight Vessels To Cost $11.7 Million Total

Coastal Towing, Inc., Texas, a subsidiary of Coastal Towing, Inc., Houston, has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of six tank barges and two towboats. All of the vessels are to be used in the inland waters of the United States.

Verret Shipyard, Inc., Plaquemine, La., is to build the two towboats, which will be 100 feet long; Janoush Marine, Inc., Rosedale, Miss., will build two tank barges, which have an overall length of 290 feet; and Nashville Bridge Co., Nashville, Tenn., will build four tank barges, two of which will have an overall length of 297 feet 6 inches and two which will measure 282 feet 9 inches. All of the vessels are scheduled to be delivered between April and June 1981.

If approved, the title XI guarantee would cover $9,814,383 of the total estimated cost of $11,693,511.

Holland America Orders $135-Million Luxury Liner From French Shipyard

As the first step in a fleet modernization program, an order has been placed for construction of the world's newest luxury cruise ship, it was announced recently by Holland America Cruises.

The keel of the new 32,000-gt motor vessel, yet to be named, will be laid in January 1981 at Chantiers de L'Atlantique at St. Nazaire in France, and is expected to be commissioned March 31, 1983. The new luxury vessel will cost approximately $135 million. To be registered in the Netherlands Antilles, she will have a cruise capacity of approximately 1,200 lower berths and a crew of 536. The cruising speed will be about 21 knots. A firm option for a second identical vessel has also been signed by Holland America.

The new 11-deck luxury vessel will have all modern comforts, technological innovations, and the latest satellite navigation and communication equipment, but the prevailing atmosphere onboard will be one of grace and warmth—the rich Dutch heritage so valued in the 134 Holland America ships that have sailed during the past 108 years.

Dutch architect **F. de Vlaming** has been retained to design and guide the construction of the public areas and cabins. Passengers will find spacious lounges, cozy intimate bars, two swimming pools and a wading pool, a formal dining room and picture windows overlooking the ocean, a Lido area for informal breakfast and lunch, a disco, nightclub, casino, large gymnasium and sauna, and an observatory on the top deck of the ship with a panoramic view of the sea.

The new luxury liner will be built to Lloyd's Register of Shipping Rules and Regulations and complies with the latest Safety of Life at Sea, United States Coast Guard, Netherlands Shipping Inspectorate, the United States Public Health Service, and other United States and international rules, regulations, and requirements.

Kevin Peterson Joins Houston-Based JERED As Operations Manager

JERED of Houston, the new underwater unmanned vehicle inspection company, has announced that **Kevin Peterson** has joined the firm as operations manager. Mr. **Peterson** will be based in the firm's new offices in the Park 10 Business Complex at 16180 Barker Springs Road, Suite 215, Houston, Texas 77084.

Towboat Belgian, powered by twin Detroit Diesel engines, has been delivered by Hudson Shipbuilders of Pascagoula, Miss., to Spanier Marine of New Orleans.

HUDSHIP Reenters Towboat Market With Delivery Of 'Belgian'

Wendle Huddleston of Morgan City, La., announced that his Pascagoula, Miss., company, Hudson Shipbuilders, Inc. (HUDSHIP), has marked its reentry into the towboat market with the recent delivery of the 70-foot towboat Belgian to Spanier Marine of New Orleans. Belgian was christened at the George Engine Company in Harvey, La., by **Mrs. Nancy Gisclair,** wife of Capt. **Larry Gisclair.**

The new vessel is HUDSHIP's standard 70-foot towboat design and represents the yard's continued diversification in the ever-changing marine industry. Belgian is powered by twin GM Detroit Diesel 16V92NA engines each rated 600 bhp at 1,800 rpm, with Twin Disc 540, 7:1 gears. Auxiliary power is provided by two 50-kw Delco generators powered by GM Detroit Diesel 4-71 engines. The towboat is also equipped with two 40-ton Nabrico barge winches, Johnson Cutless bearings, Columbian Bronze propellers, Barnes pumps, Kobelt engine controls, Skipper steering system, Ingersoll-Rand air compressors, Carisle & Finch searchlights, and Kahlenberg air horn.

The pilothouse has full all-around visibility and a 27½-foot eye level. She houses an assortment of electronics equipment, including one Si-Tex Radar Model 22, two Modar 55-75 VHF radios, and one Lowrance Public Address System. Electronics was installed by Joe Guillory Electronics of Harvey.

The Belgian will work out of New Orleans and will service the Mississippi River and the intercoastal waterways. She is the second vessel HUDSHIP has delivered to Spanier Marine; the first vessel, the Clydesdale was delivered in January 1979.

Mr. **Huddleston,** president of HUDSHIP, is also chief executive officer for several companies in the Morgan City and Lafayette areas, including Port Hardware, Inc., Oilfield Warehouse & Specialities, Inc., Hudson Marine, Inc., and Vic's Shipyard, Inc.

MarAd Approves Title XI For Vessels Costing $12.4 Million

The Maritime Administration has approved in principle an application by Parker Towing Co., Inc., Tuscaloosa, Ala., for a Title XI guarantee to aid in financing 33 hopper barges, two double-skinned petroleum tank barges, one towboat, and the reconditioning of two towboats and four used hopper barges.

Jeffboat Inc., Jeffersonville, Ind., is building the 35 new barges and reconditioning the four used barges. Mainstream Shipyard & Supply, Inc., Greenville, Miss., built the new towboat Tim Parker and reconditioned one of the used towboats, the M/V Mobile. The remaining towboat, Lady Nica, was reconditioned by Hamilton Machine Shop, Inc., Chickasaw, Ala. Work on most of the vessels already has been completed; the remainder are expected to be delivered by the end of the year.

Parker Towing plans to use the vessels in its general towing service, which hauls coal, petroleum, steel, manganese, grain and other cargoes along the rivers and coastal waterways of the U.S. Gulf Coast.

The approved Title XI guarantee is for $10,655,000, approximately 87½ percent of the vessels' $12,450,158 combined estimated depreciated actual cost.

HUDSHIP Gets Contract To Build Two Utility Vessels

Wendle Huddleston, president of Hudson Shipbuilders, Inc. (HUDSHIP) of Pascagoula, Miss., has announced that his yard will construct two 120-foot utility vessels, and have signed an option for a third, for Gray MacKenzie Company, Ltd. of Bahrain.

Pictured above at the recent contract signing in Pascagoula are (L to R) : Mr. **Huddleston; Phil Carr,** director of marine operations for Gray MacKenzie; and **Travis Short,** vice president and general manager of HUDSHIP.

This contract represents the second vessel order that HUDSHIP has received from the Bahrain company. The latest vessels are scheduled for delivery in January and February of 1981, and will then join the already sizable Gray MacKenzie fleet now operating in the Arabian Gulf.

Calendar Of Coming Events

Conference on Coal Exports — **Dec. 15-16**
Sponsored by The Energy Bureau Inc.
Shoreham Hotel, Washington, D.C. Contact **Robert W. Nash,** The Energy Bureau Inc. 41 East 42nd Street, New York, NY 10017; (212) 687-3178.

1981

Communications Equipment Exhibition — **Jan. 27-30**
Sponsored by the U.S. Department of Commerce.
U.S. Export Development Office, Mexico City, Mexico. Contact International Trade Administration, Room 6015, U.S. Department of Commerce, Washington, DC 20230; (202) 377-2952.

33rd Annual Technical Meeting — **Feb. 10**
Sponsored by the Canadian Shipbuilding & Ship Repairing Association.
Hyatt Regency Hotel, Montreal, Canada. Contact **Mrs. Joy MacPherson,** CSSRA, 100 Sparks Street, Suite 801, Ottawa, Ontario, Canada; K1P 5B7; (613) 232-7127.

11th Annual International Diving Symposium — **Feb. 16-18**
Sponsored by the Association of Diving Contractors.
Hyatt Regency Hotel, New Orleans. Contact **Dave Neeb,** ADC, 1799 Stumpf Blvd., Gretna, LA 70053; (504) 362-0074.

1981 Oil Spill Conference — **Mar. 2-5**
Sponsored by the American Petroleum Institute, Environmental Protection Agency, and U.S. Coast Guard.
Atlanta Hilton Hotel, Atlanta, GA. Contact 1981 Oil Spill Conference, Suite 700, 1629 K Street N.W., Washington, DC 20006; (202) 296-7262.

Shipboard Management Seminar — **Mar. 10-13**
Sponsored by Maine Maritime Academy.
Maine Maritime Academy, Castine, Maine. Contact Capt. **George M. Marshall.** Center for Advanced Maritime Studies, Maine Maritime Academy, Castine, ME 04421; (207) 326-4311.

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.

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)

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.

OLDEST AND NEWEST FRIGATES — The USS Constitution, America's oldest frigate and the senior commissioned warship afloat in the world, recently welcomed the nation's newest frigate, the USS Samuel Eliot Morison, into the U.S. Navy in a historic commissioning ceremony. The famed "Old Ironsides," which fought more than 40 engagements, greeted the newest addition to the fleet 183 years to the month since her launching October 21, 1797, in Boston. The ceremony was believed the first time in her history that the Constitution officially participated in the commissioning of a Naval vessel. The Morison, designated FFG-13 and delivered 13 weeks ahead of schedule by Bath Iron Works, Bath, Maine, is a jet-powered, guided-missile frigate designed for defense against submarines, aircraft, and surface ships.

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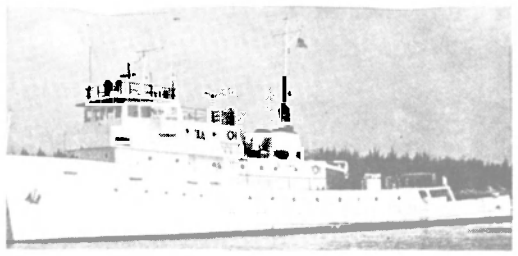

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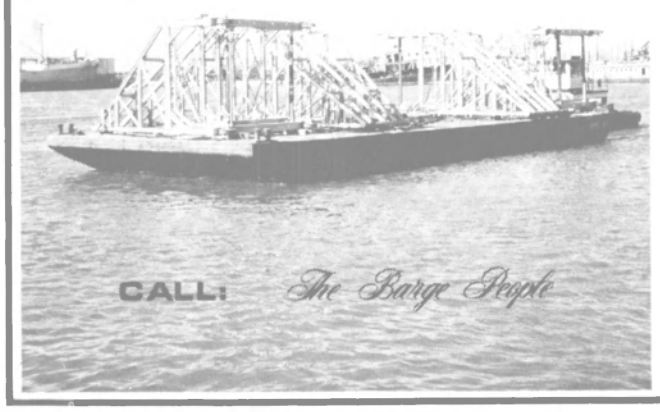

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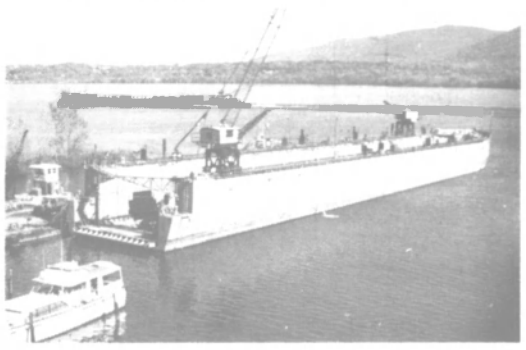

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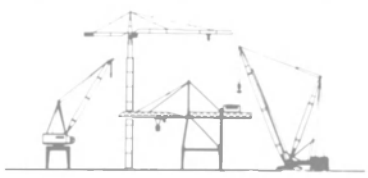

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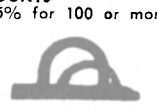

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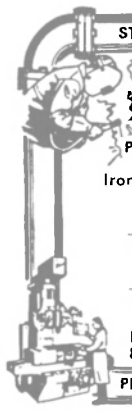

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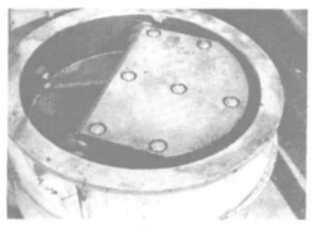

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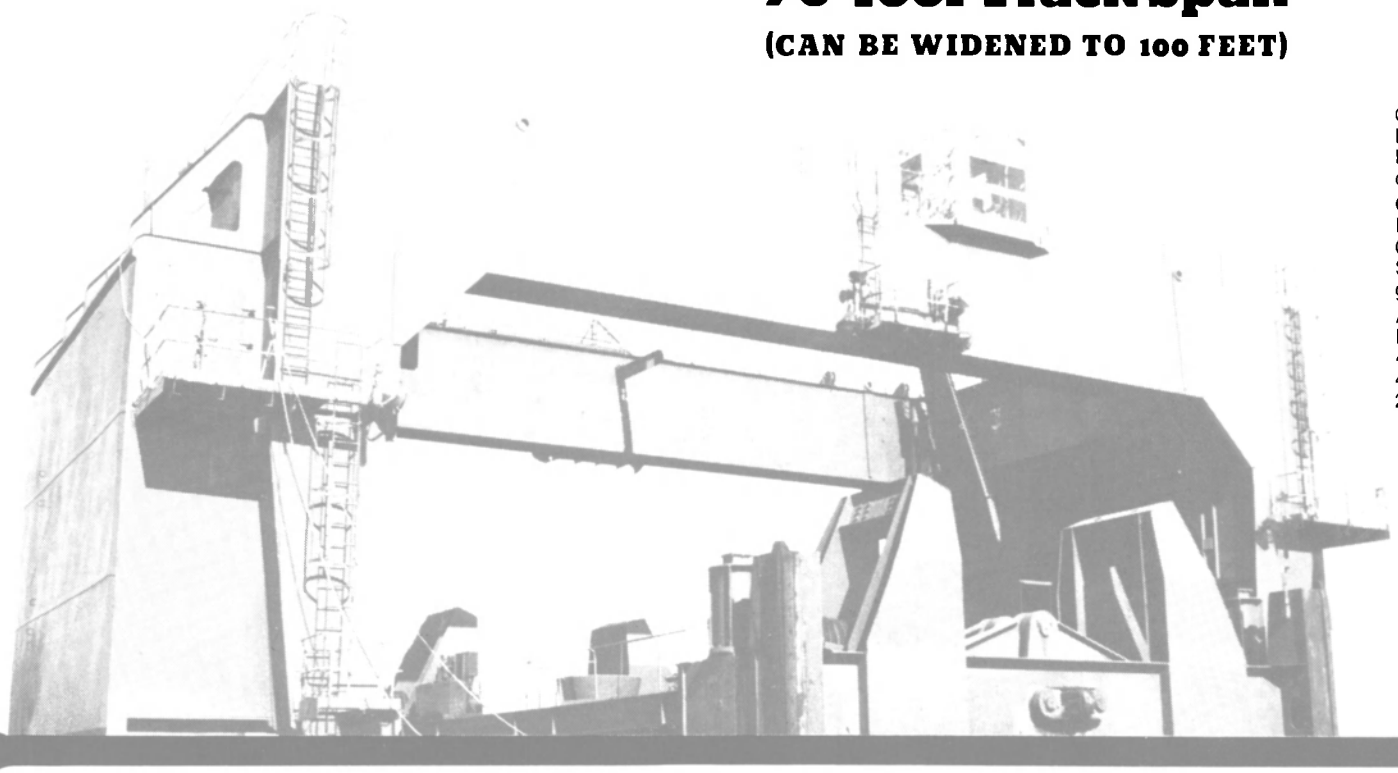

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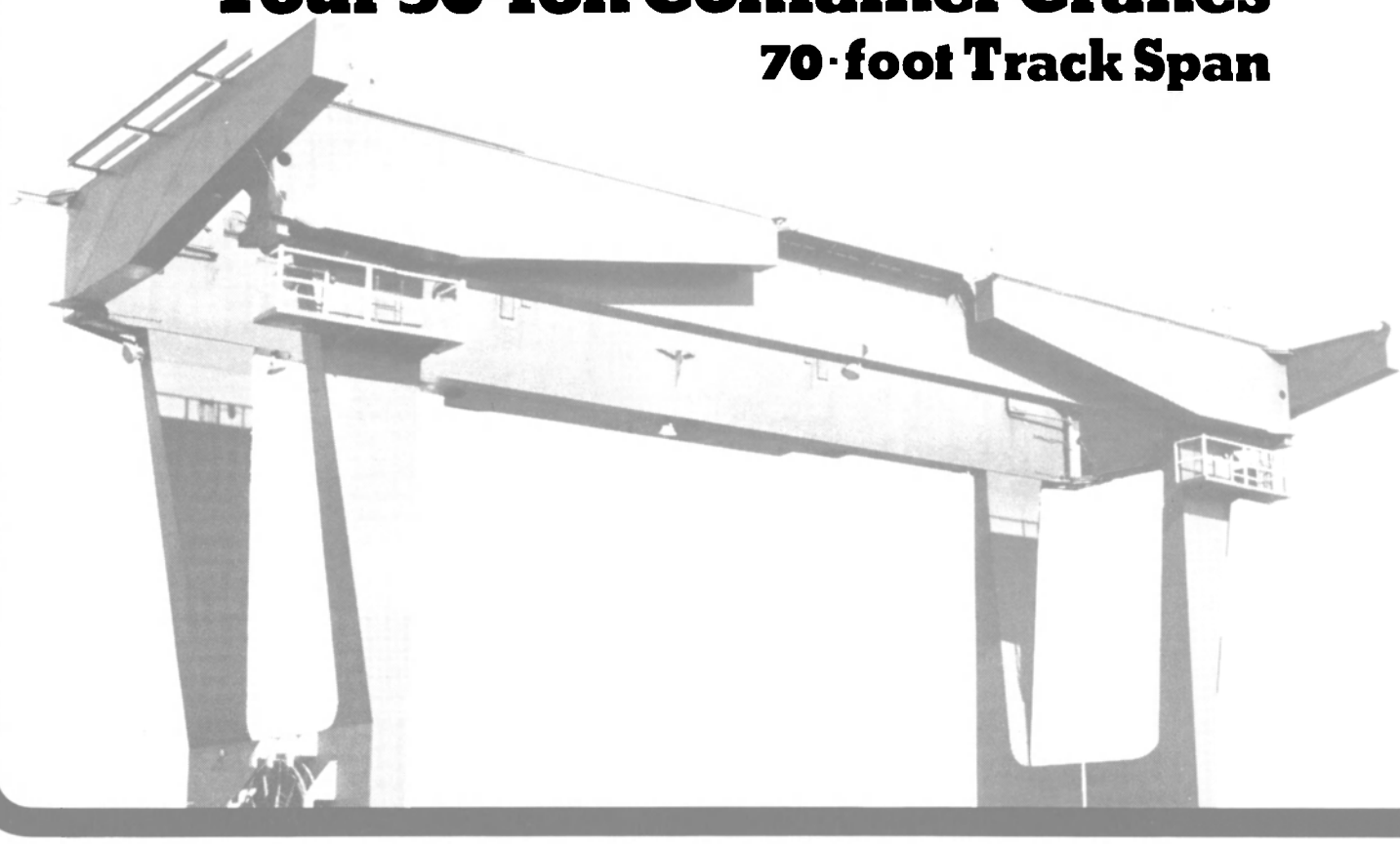

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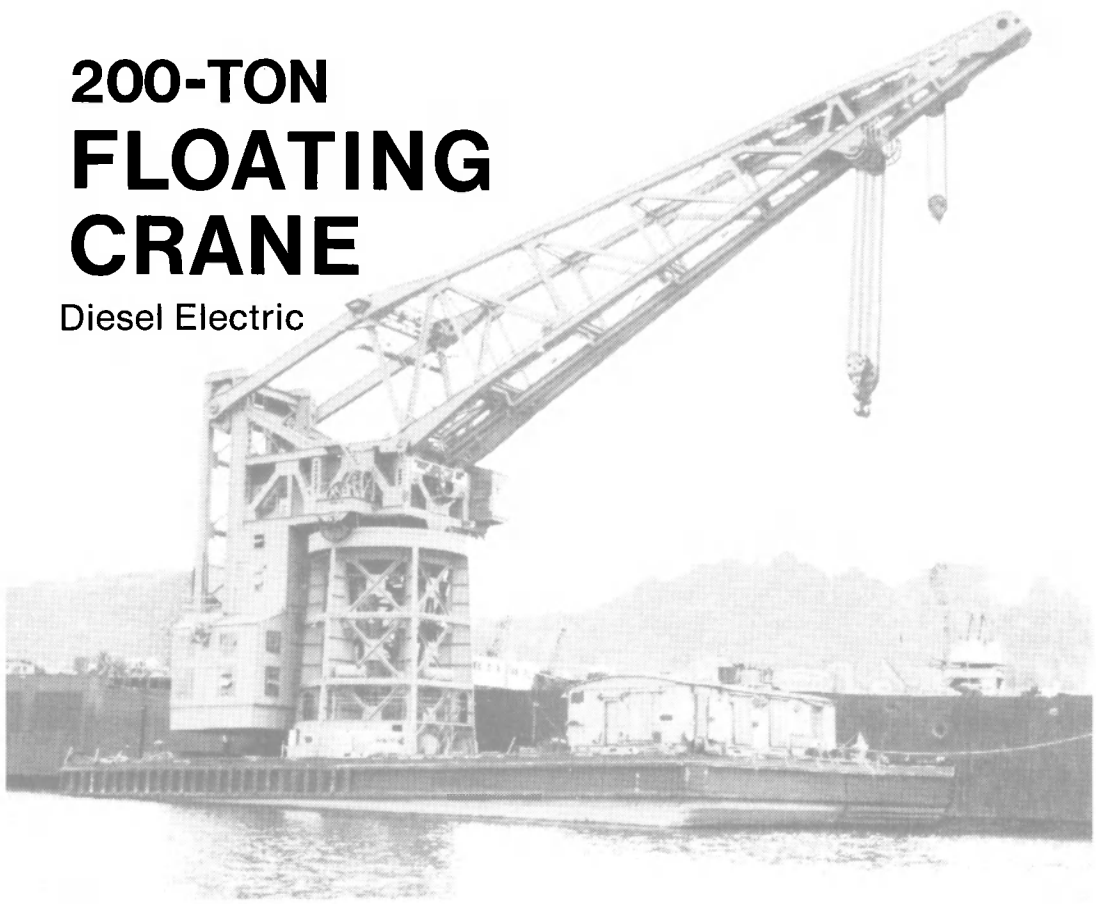

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MOORING BUOYS

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

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

ALUMINUM LIFEBOATS

50 Person — Oar Propelled — 26'X9'X3'10"

23" Centers on hooks — empty wt 2740 lbs. — total wt with passengers 11,993. With ridge pole, spreader & cover. Mfg by Marine Safety Equipment Co. Maleco release gear. Type B-1. Simultaneous release both ends. USCG approved No. 160,033/52/0.

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250KW GM 12-V-71 DIESEL GENERATOR SET

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

CAN BE SEEN ABOARD ALCOA "SEAPROBE"

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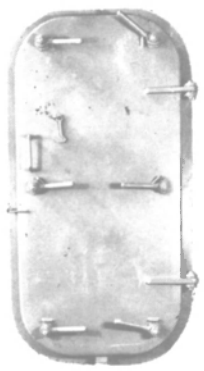
FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



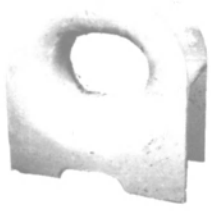
6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE

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

EACH DOOR

IMMEDIATE DELIVERY



NEW 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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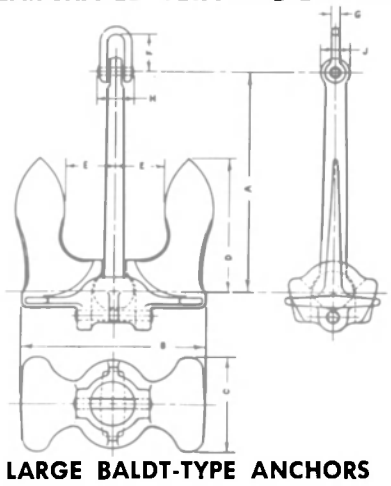
Marine Warehouse (301) 752-1077

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

10 X 90 Ft. 3" DILOK CHAIN — ABS
9 X 90 Ft. 2" DILOK CHAIN — ABS

NEW SWIVELS

3 EA. 2⅝ — 3" E&E SWIVELS
13 EA. 3⅛ DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS

25 EA. #7 — 17 EA. #5

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CROUSE HINDS

1000 WATT FLOODLIGHTS

NEW — UNUSED

HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

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NEW — UNUSED

FLUSH HATCHES

14-DOG

54" X 66" and 54" X 77"

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

4-DOG

24" X 30" and 30" X 30"

4 Dogs on underside. Top side is flush and dogs are operated with T-Key openers.

THE BOSTON METALS COMPANY

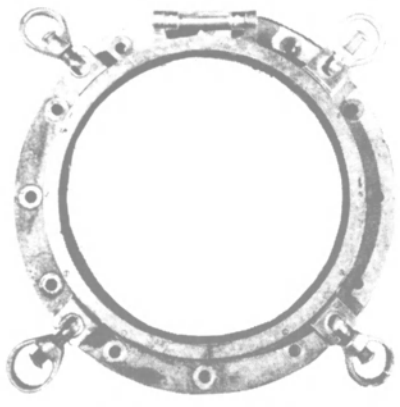
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

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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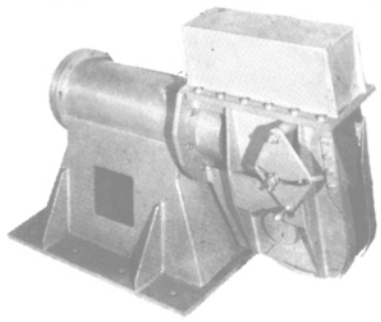
NEW — UNUSED — 1¼" SELF-ALIGNING FAIRLEADS



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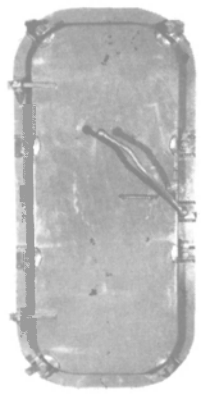

QUICK-ACTING LEVER OPERATED WATERTITE DOORS

26" X 66"
8-DOG
Rights & Lefts

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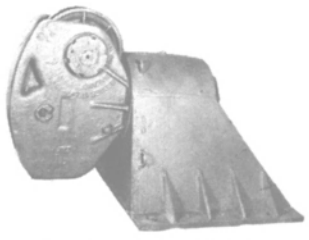
SURPLUS BERGER FAIRLEADS



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

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

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Marine Warehouse (301) 752-1077

MAXIM AQUAFRESH ALUMINUM EVAPORATOR

3000 G.P.D. — Model HJA-60. Type: submerged tube — jacket water heated. Cooling water required 107 G.P.M. — temperature sea water 85°F. Jacket water supply: 228 G.P.M. — 175°F at rated capacity. Weight dry 1300 lbs. Overall dimensions: Length 5' 6⅜" — width 3' — height 10½".

WITH ALL ACCESSORIES

Distiller condenser — fresh water cooler — dump valve — vacuum and brine jet pumps — fresh water pump and motor — salinity indicating panel — water meter — feed orifice — orifice valve — McNab Model C Aqua Purometer, etc.

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— FOR SALE —

AFTER REMOVAL FROM

"R.V. ALCOA SEAPROBE" – BUILT 1970-71

ONE OF THE MOST ADVANCED DEEPSEA SEARCH AND EXPLORATION VESSELS EVER BUILT!

Equipment is immediately available for inspection and is still aboard the ship

FOR TUGS, FERRIES, CRANES, EXPLORATION, ETC.

ALL EQUIPMENT FOR AUTOMATIC PILOT & STEERING CONTROL including
2 VOITH SCHNEIDER CYCLOIDAL OMNI-DIRECTIONAL PROPULSION UNITS WITH DYNAMIC POSITIONING CAPABILITIES and ELECTRO-HYDRAULIC WINCH FOR HANDLING UNDERWATER PHOTOGRAPHIC EQUIPMENT & TV CAMERAS & SCANNERS

Winch handles 10,000 feet of 1½" electric cable. Unit is complete with slip rings & level wind. Mfg by Swann, Ltd.

SUBJECT TO PRIOR SALE, ONBOARD EQUIPMENT INCLUDES:

2 VOITH SCHNEIDER CYCLOIDAL OMNI-DIRECTIONAL PROPULSION UNITS

Size 24/E150 — 6-blade stainless steel propellers — blade orbit 2400mm — blade length 1500mm. Complete with Voith Schneider reduction gears AD40 and spare parts.

PROPULSION MOTORS

2 800HP 440/3/60 — 1775 RPM — squirrel cage — mfg by Electric Machine Co. — with 2 propulsion motor switchboards.

AUTOMATIC STEERING SYSTEM PILOT HOUSE CONTROL — ITT DECCA CONSOLES

2 Decca Arkkas steering systems complete with autopilot and provision for automatic positioning (X-Y) input. This system controls 2 Voith Schneider propulsion units with complete redundancy for backup and dynamic station keeping. The Decca consoles are located with one on bridge and one in Control Search Center.

- 1 Baldt-type anchor — 4230 lbs
- 2 26' Aluminum lifeboats — oar propelled — 50-person — 530 cu ft — USCG approved — 23" centers
- 2 Sets of lifeboat davits for above lifeboats
- 3 Berger fairleads — 1¼"
- 2 Kohlenberg air horns — model D2
- 2 30HP Quincy compressors — 7½ X 4 X 4 — air cooled — 75 CFM @ 200 PSI — belt-driven by 440/3/60/1700 motor
- 83 Kearfott windows, fixed aluminum frames, 19" X 28"
- 4 Kearfott crank windows, aluminum frames, 19" X 28"
- 5 Kearfott windshield wipers — 18" blade — model K3-9120
- 14 Mooring bitts — 10"
- 12 Panama chocks — 14" x 10"
- 11 Steel fire doors — 26¾" X 74"
- 7 Watertight doors — 6-dog — 32" X 54"
- 8 Watertight doors — 6-dog — 32" X 66"

LIFEBOAT DAVITS
Type 24-40 MK 11 6000 lbs/arm or 12,000 lbs/Davit set will except manila or wire rope falls. USCG approved.

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

250KW DIESEL GENS.
2 — 250KW GM12-71 1800 RPM diesel generators — E.M. Bemac II — synchronous — 440/3/60. Complete switchgear — freestanding type

LIFEBOAT WINCHES
2 — CG approved No. 160,015/75/0 type 31-H — 6200 lbs w/load on single line — 13,000 lbs on 2 part line. Mfg by Marine Safety Appliance Co.

EMER. ONAN 40KW GEN.
Hercules model D4300 — 40KE — 50KVA — 64 amps — 440/3/60 — 1800 RPM — complete with emergency transfer switches & panels for automatic startup on power failure

WALZ & KRENZER USCG APPROVED HEAVY DUTY SLIDING DOORS W/FRAMES
All Doors Bolted In And Easily Removed

- 1 36" X 66" Steel watertight sliding door complete with local and remote gear boxes — electro-hydraulic
- 1 36" X 66" Horizontal hand mech. steel sliding door — complete with mechanical local & remote gear boxes
- 1 60" X 78" steel watertight sliding door. Complete with mechanical local and remote boxes

ALL THE ABOVE OFFERINGS CAN BE SEEN ABOARD "R.V. ALCOA SEAPROBE"
Located Panama City Port Authority Docks — Panama City, Florida

FOR PRICES & INSPECTION ARRANGEMENTS, CALL: AL BERMAN, ON SHIPBOARD PHONE (904) 785-7198

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TWX: 710-234-1637 PHONE: (301) 539-1900 CABLE: BOSIRON

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Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
R.W. Fernstrum & Company, 1716 Eleventh Avenue, Menominee, MI 49858
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 1139KB), Oakland, CA 94643

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
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
Combustion Engineering, Inc., Windsor, Connecticut 06095

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

BROKERS
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
Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

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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

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CLOCKS
Wempe Chronometerwerke Germany, Stubbenhulk 25 2000 Hamburg 11, Germany

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Colmac Coil, Inc., Colville, Wash. 99114

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Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

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Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 5909 West 130th Street, Cleveland, OH 44130
Seatronic Engineering & Mfg. Co., 1230 E. Joppa Rd., Towson, MD 21204
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

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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
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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

DRAFTING EQUIPMENT
AM Bruning, 1834 Walden Office Square, Schaumburg, IL 60196

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

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Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Baldt, Inc., P.O. Box 350, Chester, PA 19016
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
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
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

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Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
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Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

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Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
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Salomon Brothers, One New York Plaza, New York, N.Y. 10004
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

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Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
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MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
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Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment (Phoceenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

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Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

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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

INFORMATION—Marine
Maritime Data Network, 300 Broad Street, Stamford, CT 06901

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Dupont Company, Nemours Bldg.-RM C31H6, Centre Rd. Bldg., Wilmington, DE 19898
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Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209
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Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501
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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
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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
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CCS Marine Associates Ltd., 2784 Crescentview Drive, N. Vancouver, B.C. Canada V7R2V1
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CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
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Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
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Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
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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
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
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
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 Associates, Ltd., 104 East 40 St., Suite 207, New York, N.Y. 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Collins Marine Corp., Pier 32, San Francisco, CA 94105
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 Co., P. O. Box 673, Rye, NY 10580
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
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
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
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
Rockwell International, Collins Telecommunications Products Division, Cedar Rapids, IA 52406
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., First State Tower, Suite 509, Houston, TX 77015
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

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
The Skybryte Co., 3125 Perkins Ave., Cleveland, OH 44114

PETROLEUM SUPPLIES
Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015
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., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

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

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
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
Motive Power Corp., P.O. Box 365, Mineola, NY 11501 70124
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, 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, Inc., IMO Pump Div., P.O. Box 321, Trenton, NJ 08602
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 52030, New Orleans, La. 70150
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blount Marine Corp., P.O. Box 368, Warren, RI 02885
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
Coastal Dry Dock & Repair Co., Building 131, Brooklyn Navy Yard, Brooklyn, N.Y. 11205
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
Empressa Nacional Bazan, Paseo de la Castellana 65, Madrid 1 Spain
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/New York, 29 45 Richmond Terrace, Staten Island, NY 10303
Jeffboat, Inc., Jeffersonville, Ind. 47130
Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4
Kockums Shipyard, S-201, 10 Malmo 1, Sweden
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 1903, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
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
Zigler Shipyards, P.O. Box 2607, Morgan City, La. 70380

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
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 77 River St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS
Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032
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
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
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

UNDERWATER SERVICES—Contracting
SeaTec International Ltd., Blackburn Industrial Center, Gloucester, MA 01930

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

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

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Combining Practical And Theoretical Considerations

Matson Cuts Fuel Consumption

James J. Sweeney*

Matson Navigation Company recognized the importance of a long-range shipboard energy conservation program by eary 1977. At that time management authorized a study of alternative approaches to the problem, with the objective of developing a strong, systematic, and effective means of dealing with its many facets. Government and maritime industry conservation efforts were reviewed and it was concluded that the problem justified creation of a new position, Manager of Shipboard Energy Conservation.

The first order of business was of course to outline a program, define both general and initial specific objectives, and establish milestones to gauge progress. Based on the acknowledged achievements of others, the following prospectus was drafted:

Management Goals For 1979

A. The overall objective is to minimize fleet fuel consumption without adversely affecting transportation service. A five percent reduction is considered a reasonable target for the first one to two years, and it is intended to accomplish at least the first half of this amount, or roughly a two and one-half percent reduction in fuel consumption, by the end of 1979. The following features describe the scenario selected.

1. Concentrate attention on the new/large ships of the fleet.

2. Give priority consideration to underway at-sea (as opposed to dockside) operations.

3. Begin by ensuring that optimum efficiency is being achieved with the existing capital plant.

4. Following (3) (above) define and proceed with capital expenditures deemed necessary and justified to further improve vessel economy.

B. Establish close liaison with seagoing personnel and assure their cognizance and support of program goals.

1. Initiate frequent visits to ships. Become familiar with crews, procedures, and hardware. Confer with ship officers and engineers. Review the conservation imperative. Solicit their suggestions. Report findings and recommendations.

2. As time and priorities permit, publish an energy conservation newsletter, highlighting specific program goals and accomplishments and furnishing vessel operating and maintenance guidelines.

C. Establish a central office file of vessel voyage performance data and fuel conservation information.

1. Develop new forms for vessel data logging to enhance evaluation of energy consumption and efficiency.

2. Review data submitted. Note discrepancies from design and builders' trial data. Define and initiate corrective action as required.

3. Maintain files for future reference and trend analyses.

Specific Goals For 1979

A. Select a suitable boiler flue gas analyzer system to enhance regulation of minimum combustion air.

B. Evaluate improved boiler air registers for fuel savings and application to other vessels.

C. Establish a set of vessel performance curves to define fuel consumption variations with speed, displacement, trim, and time out of dock (or since hull cleaning) to enable accurate comparison of ships and voyages.

D. Evaluate self-polishing copolymer (SPC) bottom paint.

E. Investigate present and projected fuel oil quality characteristics, and assess the utility of alternative fuel oil modification systems.

The foregoing goals were selected to achieve an equitable balance of practical and theoretical considerations, eventually leading to a "comprehensive" conservation effort. With the managerial and technical resources available, there is no side of ship energy utilization which cannot eventually be subjected to scrutiny and evaluation. The only limitations are the perceived value of the subject (requiring engineering judgment and the ordering of priorities) and the time frame available to complete assessment and implement necessary action.

The First Phase

One of the most critical periods of a shipboard energy conservation program is its introduction aboard vessels. Ship officers and engineers have a crucial role to play which can either make or break the entire effort. In order to gain their support and establish an advantageous rapport, the conservation manager needs to convincingly present these individuals with a number of discreet but related precepts.

He should begin with a review of the cold facts of energy cost and availability. Next, he needs to demonstrate that he is concerned with all aspects of vessel energy consumption and utilization. The conservation manager must have (and display) a personal interest in ship operating practices, engineering procedures, personnel, machinery, and equipment. He must also demonstrate sufficient authority to initiate required action in any of these areas.

The seagoing (and port) personnel need to be made cognizant of the energy conservation manager's role as a focal point for energy-related suggestions, questions, complaints, and data. The conservation manager must in turn ensure that both verbal and written communications from either vessels or shoreside are acknowledged upon receipt, promptly evaluated and the originator kept informed of his submissions' progress. By being personally present aboard ship at appropriate intervals, the conservation manager demonstrates that a "hands on" (as well as a theoretical) approach to improved vessel efficiency is recognized as important.

The best means to accomplish program introduction is a series of sea voyages and ship visits in port. Approximately five months were required to complete this phase during which each major fleet unit was visited at least once in port (generally for specific work assignments such as boiler fireside or condenser inspections).

Interspersed with the port visits were sea voyages. These afforded ample time for relaxed interviews with vessel personnel. Each sea voyage also included at least one full day of recording steady state steam plant performance data. This, in combination with the interviews, personal observations, and daily notations on particular problem areas (such as rudder action, condensate subcooling, etc.) formed the basis of a written trip report. These reports became in turn the subject of management staff meetings, reviewing findings and recommendations.

Program Accomplishments

The preparation of this paper conveniently coincided with the first anniversary of the Matson Shipboard Energy Conservation Program. This was an appropriate moment to review achievements.

Vessel statistics are routinely recorded on the Fleet Performance Summary data sheets. Baseline data (representative of "preconservation" performance) were taken from the six-month period July through December 1978. Data from subsequent periods are related to the second half of 1978 to establish percentages, the 1978 numbers representing 100 percent. In the following paragraphs, performance from August 1979 through January 1980 is compared to the 1978 baseline.

Underway fuel consumption (computed in barrels per mile) fell 9.24 percent. This occurred during a gradual speed reduction of 7.59 percent and an increase in aggregate vessel displacement of 1.31 percent. Both the speed reduction and displacement increase can be attributed to improved cargo-handling facilities. Correcting for the increased displacement the overall fuel saved is in the order of 10.5 percent, of which roughly 7.25 percent is due to reduced speed, and 3.25 percent is attributable to energy conservation measures.

In-port fuel consumption (measured in barrels per day) fell about 4.7 percent.

Combining the above two categories actual five-vessel savings total 36,455 barrels of fuel oil per year. At an assumed $22 per barrel cost, this represents a conservation figure of $802,000 per year.

Conclusions

The above figure is impressive. It is nevertheless expected to be shortly eclipsed by even greater results as capital investments, particularly in improved air trim control, revised steam cycles, elimination of makeup feed evaporation, and operation at optimum trim begin to pay off. The author believes that the comprehensive approach taken (combining both theoretical and practical considerations of ship energy utilization) has been amply justified and demonstrably successful.

Only one more aspect needs attention, and that is the need for an increase in professional dialogue. Our industry can benefit enormously by some sort of organized forum on shipboard energy conservation. It is the author's hope that this Symposium will be only the first of many annual events to come. In addition our Society would do well to consider creation of a technical committee dedicated to the subject. A concerned and cooperative effort in this area cannot fail to pay immense dividends to our profession, our industry, and our national interest.

In closing, the author wishes to express personal thanks to the many people, in particular the seagoing engineers and officers, who supported this beginning. Their contributions have been the key to success.

*Mr. **Sweeney**, Matson Navigation Company, San Francisco, Calif., 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 held in New York City.

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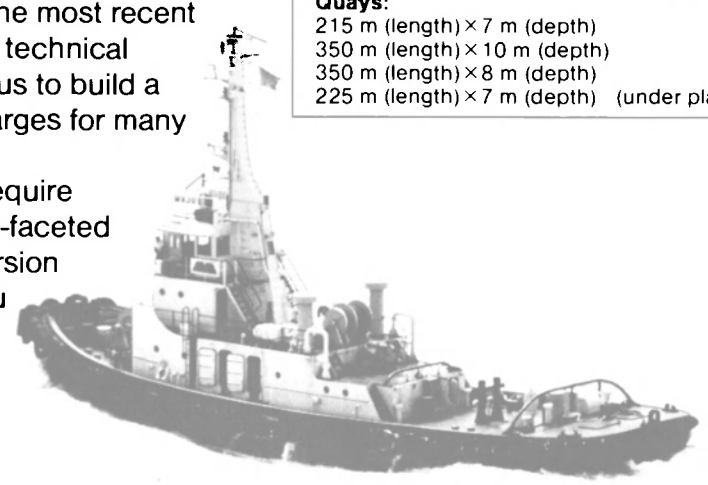

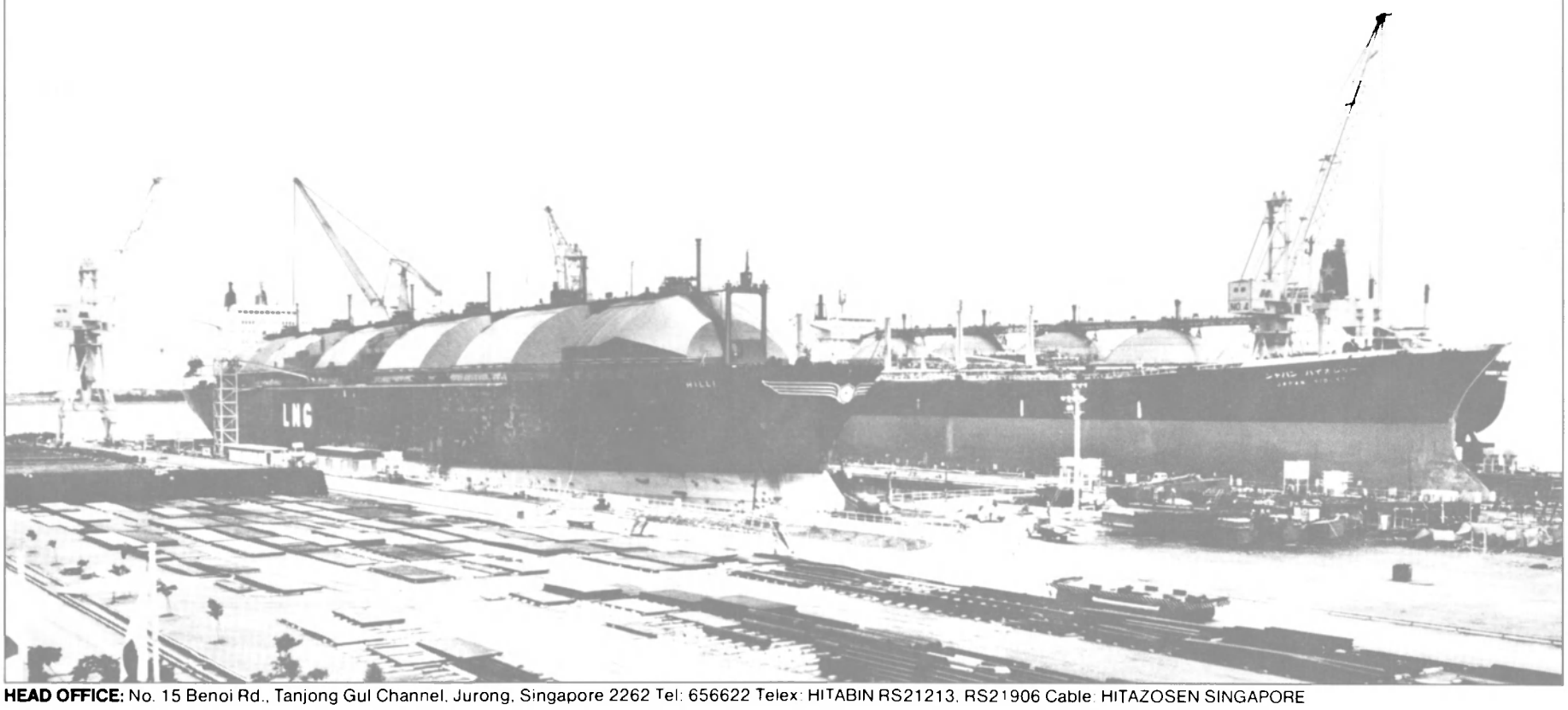

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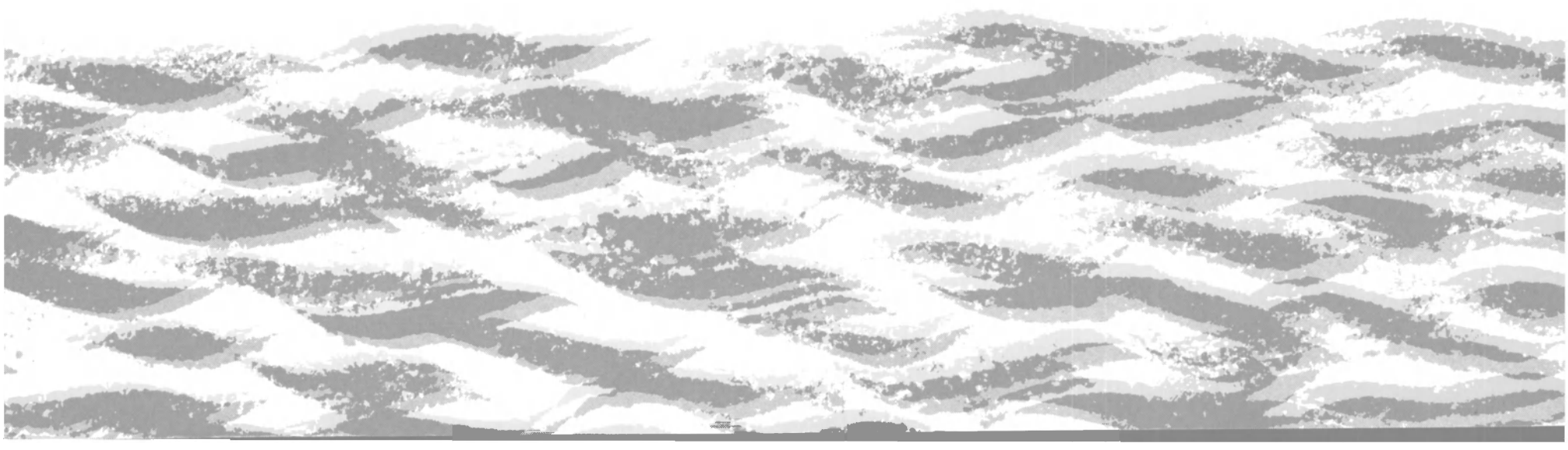

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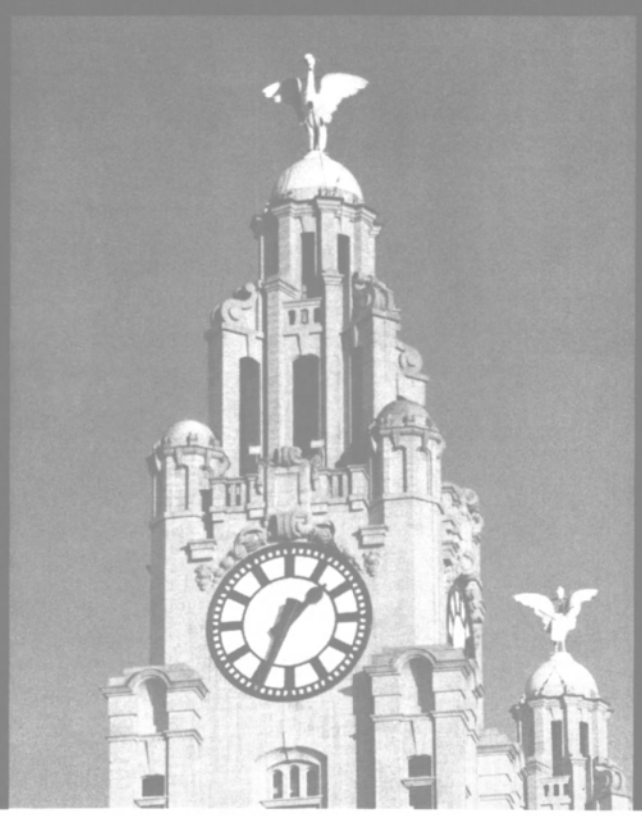

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