MARITIME REPORTER
AND
ENGINEERING NEWS

OCEANS '81 AND PROPELLER CLUB ANNUAL

SEE PAGE 4

Blue Ridge

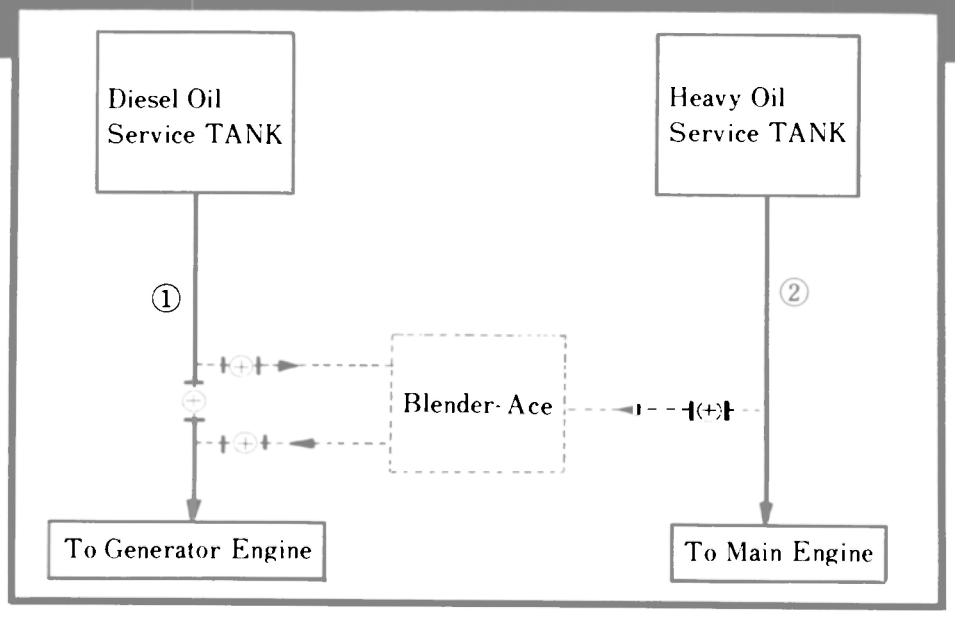
NASSCO Delivers First Of Three New Carlsbad Class Product Carriers To Union Oil

(SEE PAGE 8)

SEPTEMBER 15, 1981

PENCO & BLENDER-ACE

FUEL SAVINGS FOR DIESEL OPERATORS



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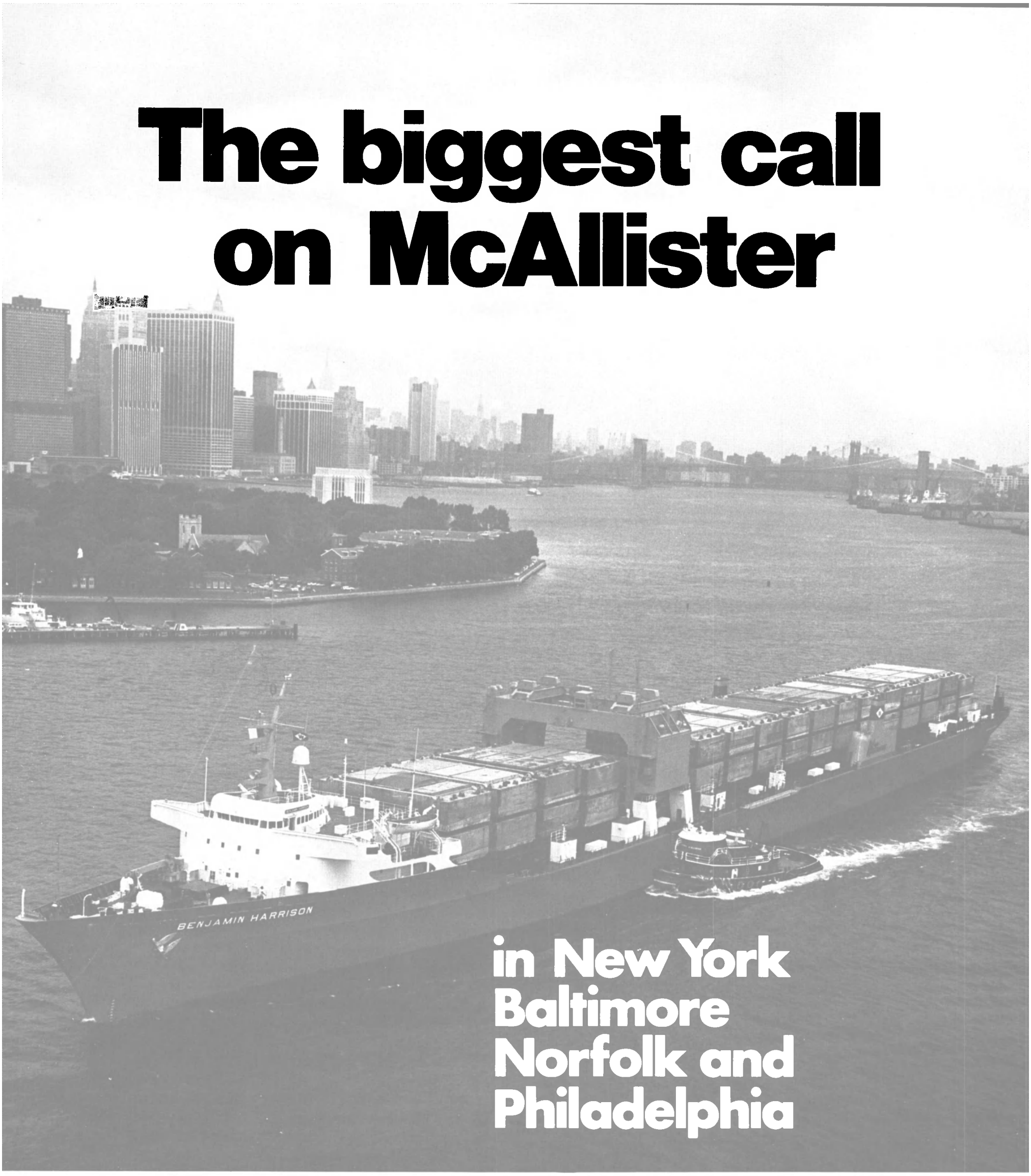

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ON THE COVER

Oceans '81
Page 12

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Page 26

Blocker Asks Title XI For Two Drilling Units To Cost $67 Million

Blocker Drilling and Marine Co., a subsidiary of Blocker Energy Corp., Houston, Texas, has applied for a Title XI guarantee to aid in financing the construction of two semisubmersible drilling vessels.

Each of the 85-foot vessels are to operate in the Gulf of Mexico. Chicago Bridge & Iron Co., Pascagoula, Miss., is the proposed builder. Deliveries are set for October 1982 and February 1983.

If approved, the Title XI guarantee would cover $47,460,000 or about 75 percent of the estimated actual cost of $67,150,000.

Title XI Sought For 116 Barges And 12 Tugs To Cost $92.2 Million

Florida Barge Lines Corp., a subsidiary of Central Gulf Lines, Inc., Number Two Canal Street, New Orleans, La., has applied for a Title XI guarantee to aid in financing the construction of 116 river barges and 12 tugs.

Bergeron Barges, Inc., St. Bernard, La., will build the open hopper-type, 3,000-ton barges. Jeffboat, Inc., Jeffersonville, Ind., has been named to build two 8,400-hp river tugs. Builders and characteristics of the remaining tugs have not been announced. All of the vessels will operate on the Mississippi and Ohio Rivers. Most are expected to be delivered in 1982 and 1983.

If approved, the Title XI guarantee would cover $80,742,550, or 87½ percent of the barges' and 75 percent of the tugs' combined estimated actual cost of $92,277,200.

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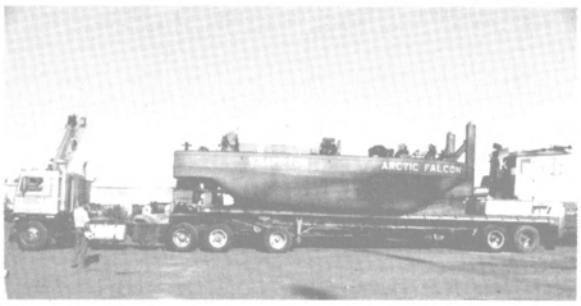
Two Vessels Trucked To 'Sea'



The 36-foot long towboat Arctic Falcon, her detached pilothouse at the rear, begins a six-day voyage by flatbed trailer truck via the Alcan Highway to Prudhoe Bay, Alaska. The vessel was specifically designed to be hauled by truck.

Two recently delivered vessels—a vehicle ferry and a harbor push tug—had to endure difficult overland journeys by truck to reach the sites of their respective intended service.

The Arctic Falcon is a 36-foot-long towboat that was specifically designed to be trucked overland. The vessel was delivered by Columbia Marine Construction, Inc., Vancouver, Wash., to Knappten Corporation, Portland, Ore.

Upon completion, which took a little more than six weeks from the time the order was received, the vessel was transported by truck on a six-day trip to Prudhoe Bay over the Alcan Highway. For such moves, the fully-insulated pilothouse can be removed in about 20 minutes with the use of hand tools. The two-piece vessel and house then are loaded onto a standard 45-foot flatbed truck for transport without convoy along roads with a maximum 14-foot-height restriction. The tug was in service the day after she arrived.

The Arctic Falcon is the first in a series of small truckable tugs called Harbormates that range in size from 24 feet 11 inches to 35 feet 11 inches. Columbia Marine builds the tugs under license to a design of Penobscot Marine of Tacoma.

Specially tailored by Knappton for Arctic operations, the vessel is powered by twin Cummins NT-855M diesel engines through Twin Disc MG 509 3:1 gears and is capable of a maximum speed of five knots pulling and eight knots pushing. With the Cummins fuel-efficient engines, the 1,000-gallon fuel tank provides more than 50 hours' endurance. Hough-Wagner M24 hydraulic steering and Wagner propulsion controls, with port and starboard jog stations, provide positive control through the twin 38-inch stainless-steel, four-blade propellers. A modified tunnel stern with anticavitation design allows the maximum use of the horsepower available. A full package of electronics and navigational equipment make the vessel ideal for offshore to harbor use.

A new ferry, Columbian Princess, built by Fishermen's Boat Shop, Everett, Wash., recently made a long journey by water and 108 miles overland by truck to Lake Roosevelt on the backwaters of the Grand Coulee Dam in eastern Washington. Built for the Bureau of Indian Affairs, the vehicle ferry was delivered to the Colville Confederated Tribes who will operate it on Lake Roosevelt.

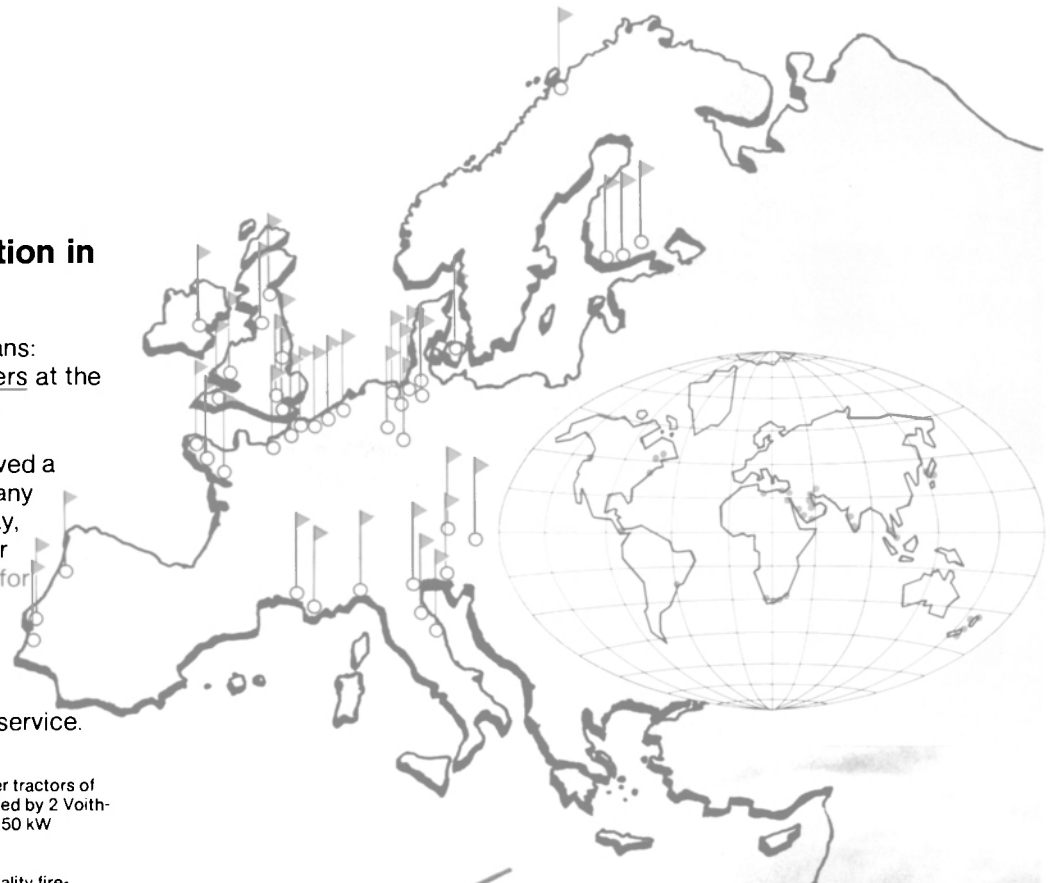
The Columbian Princess will be the new Inchelium-Gifford free ferry used to handle expanding local traffic including logging and mining trucks in that area as well as general public vacationing traffic, particularly during the summer.

The vessel is unique in construction. There are four General Motors diesel 4-71 engines, one in each corner powering outdrive units with 36-inch propellers that can rotate the ship 360 degrees. The engines are controlled from a central pilothouse and usually are run in pairs, though they have the capability of operating separately, providing the ferry with extreme maneuverability. It will hold 16 vehicles up to 15 feet 7 inches in height, and the hydraulic ramps on each and facilitate loading.

From Everett, the 42-foot-wide, 120-foot-long ferry proceeded under her own power through the Strait of Juan de Fuca to the Pacific Ocean and down the coast to the mouth of the Columbia River, then up the Columbia, passing through the locks of five dams. At Burbank, near Pasco, it had the ramps, propulsion units and superstructure removed, then was towed to Lower Monumental Dam on the Snake River. There the 170-ton hull was taken out of the water and put on heavy moving trucks. The Columbian Princess was hauled 108 miles over country roads and state highways to Lake Roosevelt, passing wheatfields that had been sprinkled by Mount St. Helen's volcanic ash. This was the widest load ever moved along Washington state highways according to the state's Department of Transportation. Five miles of road were widened and four bridges reinforced for the 'voyage.' A crew preceded the ferry removing traffic signs and replacing them after the ferry had passed.

The Columbian Princess during sea trials in Everett.

Voith Water Tractor



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Two VPs Assigned New Posts At Raymond Builders

Edward D. Grandle, a senior group vice president of Raymond International Builders, Inc., Houston, Texas, a subsidiary of Raymond International Inc., and **Donald G. Armstrong,** a vice president in Raymond International Builders' Heavy Construction Projects Group, have been elected to new posts, according to **Frank M. Warren Jr.,** president of Raymond International Builders.

Mr. **Grandle** has been appointed project director of the $300-million Diego Garcia Navy and Air Force base project in the Indian Ocean, which has been awarded to a Raymond-sponsored joint venture. Mr. **Armstrong** has been elected a group vice president of Raymond International Builders. He has also been appointed manager of Raymond International Builders' Heavy Construction Projects Group.

Annual Dinner Set For Michigan's Marine Alumni

The annual dinner of the naval architecture and marine engineering alumni of the University of Michigan will be held in New York City on Thursday, November 19, 1981 at the New York Yacht Club, 37 W. 44th Street, located between Fifth and Avenue of the Americas. The reception will start at 6 p.m.

This dinner will take place during the annual meeting of The Society of Naval Architects and Marine Engineers, on the night before SNAME's annual banquet. Those interested in obtaining tickets for the dinner should contact **Lester Rosenblatt** of M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013.

Navy Buys Six SL-7 Sea-Land Containerships In $207.5-Million Contract

Six of the largest and fastest containerships in the U.S.-flag merchant fleet have been purchased by the Navy for use by the Military Sealift Command to enhance the strategic mobility capability of the armed forces.

The Naval Sea Systems Command recently awarded a $207.5-million contract for the purchase of six SL-7 containerships from Sea-Land Industries, Inc., Edison, N.J. The price includes 4,000 containers, 800 container chassis, and spare parts. The purchase contract includes the option to purchase two additional SL-7s.

Title of the ships will go to the government after a five-day survey and a 45-day inspection period. The ships are being delivered to the Military Sealift Command at San Francisco, Calif., and Elizabeth, N.J., at intervals from the end of August through early November.

The 33-knot ships will provide fast logistic capability and improve the strategic sealift to quickly deploy supplies located within the U.S. to potential danger areas worldwide.

Each ship can carry 1,968 twenty-foot equivalent containers (TEUs), or 50 percent more than the next largest U.S.-flag containership. The SL-7s, all less than 10 years old, are 946 feet long with a beam of 105.5 feet.

Within three years the ships will be converted to self-sustaining roll-on/roll-off vessels with sufficient cranes, booms, hatches, and sideports to permit rapid loading and unloading.

When converted, the eight SL-7s will have the capability to carry all the equipment required by a heavy mechanized Army division. While the Army will be the principal user of the SL-7s, to be designated T-AKRXs, they will be equally capable of transporting Air Force, Marine Corps, or Navy equipment and supplies when necessary.

After being accepted by the Navy, the SL-7s will be given new names following the Navy's practice of naming dry cargo ships for celestial bodies and phenomena. Proposed new names are USNS Algol, Bellatrix, Denebola, Betelgeuse, Altair, Galaxy, Zenith, and Eclipse.

$5-Million Contract To Burrard Yarrows For Vessel Lengthening

The Burrard Yarrows Corporation, Vancouver, Canada, was recently awarded a major contract—worth nearly five million U.S. dollars—to lengthen the geophysical exploration vessel Hollis Hedberg by 60 feet.

The purpose of the lengthening to 262 feet is to permit the installation of new sophisticated data processing and other special exploration equipment. The vessel, built by Burrard Yarrows Vancouver Division in 1974, is owned by Cayman Island Vessels, Ltd., and is on a long-term charter to Gulf Research and Development Company. Preliminary work on the contract has already begun, and the vessel will arrive at Burrard Yarrows's Vancouver Division on January 15 next year. She is scheduled to leave on April 15.

The Hollis Hedberg, which is classed ABC Ice Class LIA, can accommodate a crew and technical complement of approximately 55 people. A helicopter landing deck and additional fire-fighting equipment will also be installed. The naval architects involved in the conversion are William R. Brown and Associates of Vancouver.

ITT JABSCO Publishes Equipment Catalog

A 66-page indexed catalog describing and illustrating more than 120 items of its marine equipment has been published recently by ITT JABSCO Products, Costa Mesa, Calif.

The catalog includes equipment from JABSCO®, PAR™, and Ray-Line®, such as a wide-range of pumps, automatic water systems, seacock and mounting valves, air horns, marine waste systems, blowers, stoves, fenders, searchlights, cabin control lights, and work lights, as well as accessories for all units. Nine new product lines are highlighted.

Each item is depicted in a photograph and specifications are listed. A service kit and parts reference guide also is included. For a free copy of the catalog,

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ON THE COVER

NASSCO Delivers First Of Three New Carlsbad Class Product Carriers To Union Oil

The S/S Blue Ridge (shown above) the first of three 37,500-dwt Carlsbad Class product carriers built by National Steel and Shipbuilding Co., San Diego, Calif., for Union Oil Co. of California, was delivered recently in ceremonies held aboard the new ship.

The product carrier was received by Capt. **Glenn O. Burk**, president of West Coast Shipping Co., a subsidiary of Union Oil.

The Blue Ridge hull was constructed in the company's flat-bottomed 1,000-foot-long building dock. Launching was accomplished by flooding the dock and floating out the vessel.

The name Blue Ridge is in honor of the mountain range in the Appalachians extending from New England to Georgia. See MR/EN December 15, 1980, page 26, and MR/EN June 15, 1981, pages 26-27.

The second of the sister ships, Coast Range, was launched on January 10, 1981, and the third, Sierra Madre, was launched on May 2. Both are scheduled to be delivered before the end of the year. The Blue Ridge will transport products from Union Oil's refinery in Beaumont, Texas, to Atlantic and Gulf Coast ports.

The ships are a new class designed by NASSCO. Each of the refined products carriers has a capacity of 300,000 barrels and is capable of carrying several different products simultaneously. The Blue Ridge can transport up to 20 different products in 27 cargo tanks. Each tank is fitted with a deep well cargo pump.

The 658-foot-long ship is also fitted with a cylindrical appendage-type bulbous bow to improve speed, and is powered by a GE steam turbine engine. Each of the vessels incorporates state-of-the-art equipment and meets the latest safety and environmental protection standards including double bottoms, a clean segregated ballast system, an inert gas system, a sewage treatment plant, collision avoidance radar, and a backup steering system.

The ships, ordered by Union Oil in April 1979, were built entirely without federal subsidy. NASSCO currently has under contract a total of seven product tankers, two U.S. Navy destroyer tenders, and a Navy cable repair ship. The shipbuilder is a wholly owned subsidiary of Morrison-Knudsen Company, Inc., Boise, Idaho.

S/S BLUE RIDGE

Major Suppliers

General Electric:	Turbines and gears, 13,000-shp (2) 1,500-kw ship service turbogenerators.
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ITT Mackay:	Navigation Equipment.
Sperry Marine:	Steering gear.
Hewett Marine:	Anchor, chain.
Lake Shore:	Davits and winches.
Appleton Marine:	Fairleads.
Ferguson:	Propellers.
Foster Wheeler:	Main boilers.
Waukesha:	Shaft and stern tube bearings.

ASNE Honors Sec. Of Navy Lehman

Vice Adm. **C.R. Bryan,** USN (ret.), left, immediate past president of the American Society of Naval Engineers, recently presented the Society's Certificate of Honorary Membership to **John F. Lehman**, Secretary of the Navy.

Bartell Named GM Of Texaco's International Marine Sales Department

James J. Bartell has been appointed general manager in charge of the International Marine Sales Department of Texaco Inc., effective September 1, it was announced recently by **John K. McKinley,** chairman and chief executive officer. In his new assignment, Mr. **Bartell** will continue to be located at Texaco's offices at Harrison, N.Y.

The International Marine Sales Department is responsible for Texaco's worldwide sales of marine fuels and lubricants. Texaco supplies about 13 percent of the worldwide marine demands for bunker fuels, distillate fuel oils, and lubricating oils and greases through nearly 350 international ports. Marine products are delivered to 75 countries.

After joining Texaco in 1960 as a computer programmer trainee, Mr. **Bartell** was graduated from St. John's University in New York City in 1963 with a Bachelor of Business Administration degree. He subsequently held various programming and supervisory positions in the Computer and Information Systems Department and was named manager-projects in that department in 1969. He was appointed manager-economics and planning in the Marine Department in 1972, and assistant to the senior vice president for strategic planning in 1976. Since 1977, Mr. **Bartell** has been assistant general manager in the International Marine Sales Department.

Mr. **Bartell** will succeed **Kenneth F. Murchison,** who has elected early retirement after nearly 32 years of service with Texaco and affiliated companies, including nearly 11 years as general manager in charge of international marine sales.

Amsterdam Drydock To Rebuild Ro/Ro Passenger Vessel For Irish Line

The Amsterdam Drydock Company (Amsterdamse Droogdok Maatschappij B.V.) of the Netherlands, has recently been awarded an order involving the complete rebuilding of the twin screw ro/ro passenger vessel Saint Killian for the Irish Continental Line, Dublin, Ireland.

The rebuilding will be done in cooperation with the Danish consulting naval architects Knud E. Hansen, Copenhagen. The conversion is foreseen between mid-November and the end of February 1982, at the cost of about 30 million Dutch guilders.

The Saint Killian is one of the vessels of Irish Continental Line which has, together with the Saint Patrick, a direct daily connection between Cherbourg/Le Havre, France, and Rosslare, Ireland. ICL, the owners of the Saint Killian since 1978, has transported in 1980 a total 208,-000 passengers and 39,000 cars. From the Netherlands ICL transported in 1980 5,000 passengers and 1,800 cars, about 12 percent of the Dutch visitors to Ireland.

After the conversion, Saint Killian will have an increased capacity of 2,119 persons, 500 more than at present. The new passengers' accommodation will have 400 cabins with 1,332 beds, while the extended public rooms will have about 1,400 comfortable seats installed.

Private car capacity of the ferry will be increased from 280 up to 378. Additional space will be created for 10 freight trailers.

Dravo SteelShip Delivers The 'Bud Weber'

Dravo SteelShip Corporation, Pine Bluff, Ark., recently delivered a 65-foot by 26-foot by 9.5-foot towboat from their stock boat line to Dravo Mechling and on charter to Compass Marine.

The Bud Weber (shown above) is powered by twin GM 16V92 diesel engines rated at 600 hp each. The engines are equipped with Twin Disc MG527, 5.17:1 reduction gears. Fernstrum keel coolers provide for main engine jacket water cooling.

Twin GM 4-71 engines with 50-kw generators supply the ship's power, which includes Carlisle Finch 1,000-watt incandescent searchlights, Nabrico 7½-hp hydra-electric deck winches, Quincy air compressors and owner-furnished electronics which are by Electronic Services of Greenville, Miss. The generators are controlled with a Con-Select marine panel. Main engines and generator sets were supplied by Western Diesel of St. Louis, Mo.

The steering system is a Dravo SteelShip standard designed full follow-up electrical-over-hydraulic with an Activation power unit and Wagner controls. The vessel is equipped with two Kahlenberg four-blade, stainless-steel, 60-inch by 54-inch propellers. Tank capacities are: fuel, 13,000 gallons; potable water, 4,000 gallons; bilge, 500 gallons.

Currently, Dravo SteelShip Corporation is building a 65-foot towboat with 1,200 hp and a series of 85-foot towboats with a range from 1,800 hp to 2,100 hp.

Principals at the keel-laying ceremony of Chesapeake Trader, a 44,000-dwt La Jolla-class product carrier, include, from the left, **John M. Murphy**, vice president, corporate relations, NASSCO; **Al W. Lutter**, vice president, marketing, NASSCO; **John McCoy**, American Bureau of Shipping; Capt. **C.S. Wetherell**, U.S. Coast Guard; **Casey Cooper** and **Herbert Lyman**, American Trading construction representatives; **Steven Lopez**, NASSCO welding foreman; **Frank J. Murphy**, American Trading board chairman; and **Richard H. Vortmann**, NASSCO executive vice president. The vessel is the first of a series of three product carriers being built at NASSCO which are scheduled to join the American Trading fleet in late 1982 and early 1983.

NASSCO Lays Keel Of 44,000-Dwt Product Carrier For American Trading

A keel-laying ceremony recently at National Steel and Shipbuilding Company (NASSCO), San Diego, Calif., marked the start of construction of the Chesapeake Trader—the first in a series of 44,000-dwt petroleum product carriers being built for American Trading Transportation Company, Inc., of New York.

Frank J. Murphy, chairman of the board of American Trading, served as keel-layer; **Richard H. Vortmann**, executive vice president, represented NASSCO at the ceremony.

The vessel is the first of a series of three product carriers being built at NASSCO which are scheduled to join the American Trading fleet in late 1982 and early 1983. American Trading has options to construct three additional vessels of the same design.

The new La Jolla-class vessels will be approximately 658 feet in overall length, with a Panamax beam of just under 106 feet. The fully coated vessels will meet current Coast Guard safety and environmental requirements and will have segregated ballast systems with double bottoms, crude oil washing, and an inert gas system.

The vessels will be capable of transporting both crude oil and a full range of petroleum products. The 15-knot vessels will be powered by 11,400-bhp Sulzer slow-speed diesel engines, and will be fitted with fully automated engine rooms designed for unattended operation.

American Trading Transportation Company operates a fleet of U.S.-flag tankers and is a wholly owned subsidiary of American Trading and Production Corporation, a diversified Baltimore-based concern. NASSCO is a wholly owned subsidiary of Morrison-Knudsen Company, Inc. Boise, Idaho.

The night Crowley tied the American knot.

George Talbot, American's West Coast sales manager, remembers it well. One of our best customers, Crowley Maritime, called early one afternoon with a big problem. There was a barge on the beach off Moclips, Washington, and Crowley needed two miles of 9″ polypropylene rope *fast*—by 6:00 AM the next day, less than 18 hours away.

They had to have polypropylene. Salvage tugs could only get within two miles of the beach, so the rope had to be light enough for a helicopter to pull it from the beach to the tug. Crowley wanted the barge refloated quickly and the next high tide dictated the timing.

The problem George faced was this: no one supplier or warehouse ever stocks two *miles* of 9″ rope. That, by the way, is 18 54-inch reels weighing in at about 14,000 pounds. Well, he got half of it together by commandeering every available inch of rope in San Francisco — and finally the other half by scouring every available source in Los Angeles. But he still had to get all 14,000 pounds to Portland by 6:00 AM the next day. Back to the telephone. Warehouses agreed to put in extra hours, special trucks were hired at overtime rates, a flight was found to move the L.A. consignment to San Francisco.

Then, disaster. The only airfreighter out of San Francisco was scheduled to leave before the L.A. flight arrived, and it was going east rather than north. George hit the phones again. Middle-of-the-night calls finally got the airfreighter diverted north to Portland, then east. And every last inch of rope was delivered in Portland before the 6:00 AM deadline.

The rest of the story is Crowley's. They had trucks waiting at the airport and transported the rope to the barge location. Various lengths were tied together with bowlines, strung from the beach to the barge by helicopter and the cargo was successfully salvaged.

George Talbot is very good at his job. Just like all the guys at our other 14 Service Centers. With American, it's the old story: the difficult we do right away, the impossible just takes a little longer.

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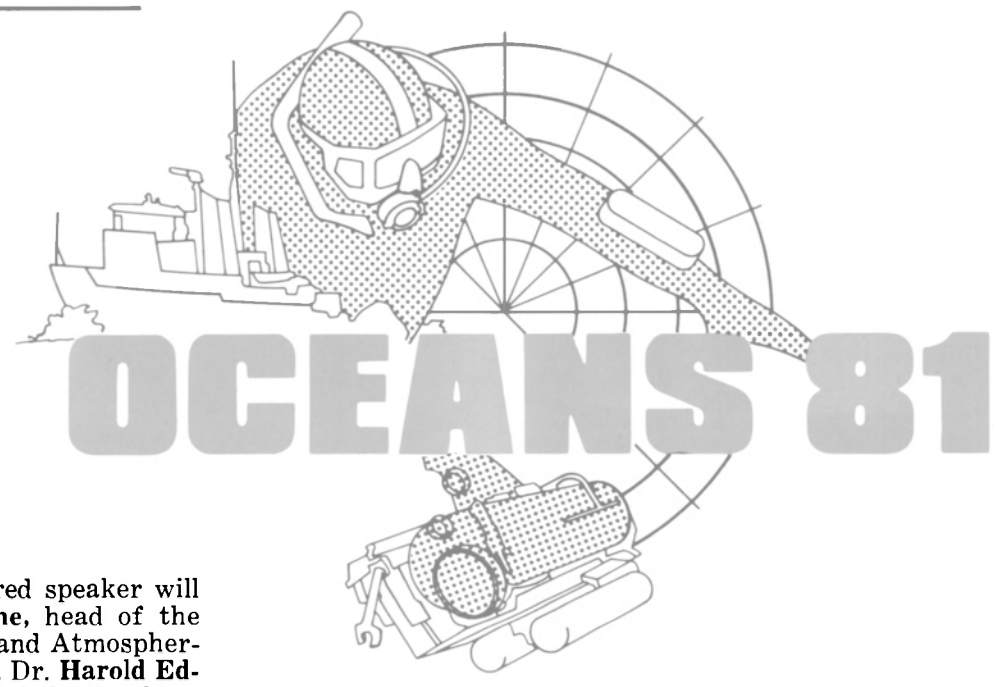

Oceans '81, the annual conference and exhibition sponsored by the IEEE Council of Oceanic Engineering and the Marine Technology Society, will be held September 16-18 at the Sheraton Hotel, Boston, Mass.

A record 300 technical presentations will be made by eminent persons from academe, research organizations, industry, and government agencies. There will be 85 exhibitions — representing a wide range of marine products, equipment, and services.

The international theme of the annual event—"The Ocean—An International Workplace"—is reflected by both the exhibits and by the authors of many of the technical papers. Scientists from countries such as Canada, China, India, Japan, West Germany, and the United Kingdom, as well as from the United States, will make their presentations at a record 60 sessions.

According to **Stanley G. Chamberlain**, the general chairman of Oceans '81, the conference "will be an unsurpassed forum for the presentation of the technologies, especially the new technologies, of those who work in, on, and under the oceans of the world, and those applying technology to the problems of the ocean." He said the committee expects the largest turnout in conference history.

The keynote address will be delivered by Rear Adm. **Leland F. Kolmorgen**, chief of research, U.S. Navy, at the plenary session. Mr. **Chamberlain**, the conference general chairman, will give the address of welcome.

At the IEEE/COE president's luncheon on Wednesday, September 16, the featured speaker will be Dr. **John Byrne**, head of the National Oceanic and Atmospheric Administration. Dr. **Harold Edgerton**, professor of electrical engineering at the Massachusetts Institute of Technology and a founder of EG&G, will be the main speaker at the conference banquet to be held on Thursday evening, September 17.

The leadoff for the technical program is scheduled to be given on Wednesday morning at the plenary session by Dr. **Ira Dyer**, professor of ocean engineering at M.I.T.

The technical presentation, some of which are to be rendered in poster formats as well as by traditional lectures, will be organized into sessions covering topics such as acoustics, coastal zone management, instrumentation, marine biology and fisheries, ocean energy and engineering, research vessels, seafloor engineering, and wave measurements.

An unusual feature of Oceans '81 will be the holding of a one-day primer on Outer Continental Shelf Petroleum Operations. The session will cover the technology and the constraints of exploration, site selection, development, and production of oil and gas resources from the sea.

The primer is designed to provide an introductory technical background for the engineering and scientific community, as well as policymaking groups. Specific areas covered by the primer include: offshore petroleum resources as part of the energy mix for 1990; geologic, geophysical, and geochemical exploration technology; economic and technology dictates in determining high potential and high development interest prospects; the OCS leasing process; the exploratory drilling phase of offshore operations; development drilling and production operations; pipeline and marine transportation systems, and marketing of OCS crude and natural gas resources.

(continued on page 14)

About 85 major suppliers and manufacturers of marine products, equipment, and services will have attractive displays at Oceans '81, similar to the exhibits from last year (shown above).

OCEANS '81 EXHIBITORS

Aanderaa Instruments, Inc.
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Electronic Sales of New England
- Giannini Instruments
- Innerspace Technology, Inc.
- Magnavox Satellite Receivers
- Photo Sea Systems

Emerson and Cuming
EMI Technology, Inc.
Engineering Service Associates, Inc.
- Canflex Manufacturing, Inc.
- Diving Unlimited International
- Efcom Communications Systems
- EG&G Sea Link
- Fathom 36, Inc.
- JMR Instruments, Inc.
- Lucker Manufacturing Co.
- Optelecom, Inc.
- Rochester Corporation
- Tellurometer

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EPC Labs, Inc.
Fluid Dynamics Corporation
General Instrument Corp.
General Oceanics, Inc.
Gould Chesapeake Instrument Division
Guildline Instruments, Inc.
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Klein Associates, Inc.
Krupp Atlas-Elektronic
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Motorola
Naico
Naval Underwater Systems Center
Naval Oceanographic Office
Neil Brown Instruments Systems, Inc.
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Oceano Instruments, U.S.A. Inc.
ODEC
O.R.E. Inc.
P&P Industries, Inc.
Raytheon Ocean Systems Co.
Raytheon Submarine Signal Division
Robert A. Patterson, Inc.
- Consolidated Products/South Bay Cable
- D.G. O'Brien, Inc.
- Heckerman Corp.
- Preformed Marine
- Whitehill Manufacturing Corp.

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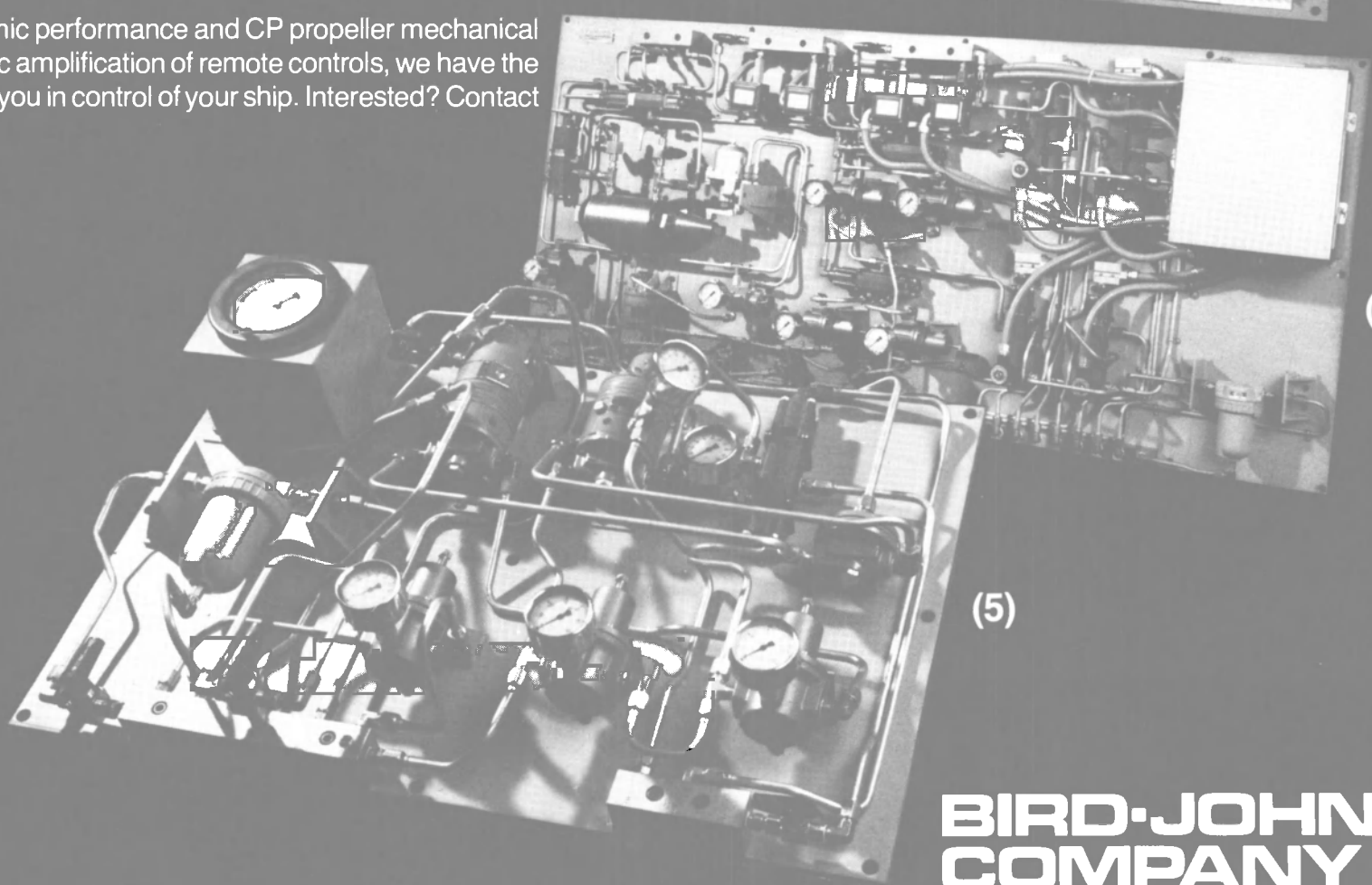
From hydrodynamic performance and CP propeller mechanical design to hydraulic amplification of remote controls, we have the experience to put you in control of your ship. Interested? Contact us for the details.

(1)

(2)

(3)



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(5)

BIRD·JOHNSON COMPANY MARINE DIVISION

110 Norfolk Street, Walpole, MA 02081, (617) 668-9610

Oceans '81

(continued from page 12)

Calendar Of Events

OCEANS '81 CONFERENCE AND EXHIBITION

Sheraton Boston

Tuesday, September 15, 1981

5:30 p.m. Early Bird Reception

Wednesday, September 16, 1981

8:30 a.m. Plenary Session

10:30 a.m. Autonomous Undersea Vehicles-I
Acoustics
Marine Law & Policy
Ocean Energy I
Offshore Structures
Marine Pollution Monitoring Analysis-I
Tide and Water Level Measurement Systems

12:15 p.m. IEEE/COE Luncheon

1:30 p.m. Autonomous Undersea Vehicles-II
Expendable Instrumentation
Acoustic Telemetry
Marine Law and Policy-II
Ocean Energy-II
Remote Sensing-I
Marine Pollution And Monitoring Analysis-II
Instrumentation—Sensors and Systems
Wave Measurements
Cables and Connectors

3:00 p.m. Coffee Break

3:30 p.m. Autonomous Undersea Vehicles-III
Expendable Instrumentation-II
Acoustic Telemetry-II
Marine Law & Policy-III
Ocean Energy III
Remote Sensing-II
Marine Pollution and Monitoring Analysis-III

5:00 p.m. Exhibitors' Cocktail Party

Thursday, September 17, 1981

8:30 a.m. Autonomous Undersea Vehicles-IV
In-Situ Instrumentation-I
Positioning, Localization, and Tracking-I
Seismic Exploration Engineering-I
Buoy and Mooring Technology-I
Ship Dynamics and-Propulsion
Coastal Zone Management-I

10:00 a.m. Coffee Break

10:30 a.m. Autonomous Undersea Vehicles-V
In-Situ Instrumentation II
Positioning, Localization, and Tracking-II
Inspection of Undersea Structures
Buoy and Mooring Technology-II
Research Vessels
Cold Water Engineering
Marine Sciences
Education
Data Bases and Data Processing

12:15 p.m. Lunch

1:30 p.m. Undersea Vehicles-I
Current Measurements-I
Navigation
Marine Penetrators
Economic Potential of the Ocean-I
Marine Materials-I
Ocean Margin Drilling Program
Seafloor Engineering—Penetrometers
Undersea Vehicles-I
Seismic Exploration Engineering-II

3:00 p.m. Coffee Break

3:30 p.m. Undersea Vehicles-II
Current Measurements-II
Geology and Geophysics
Offshore Engineering and Support
Economic Potential of the Oceans-II
Marine Materials-II
Marine Penetrators and Seafloor Engineering

6:30 p.m. Cocktails

7:30 p.m. "A Taste of New England" Banquet

Friday, September 18, 1981

8:30 to 10 a.m. Outer Continental Shelf Petroleum-Primer

10:15 a.m. Coffee Break

10:30 to Noon Outer Continental Shelf Petroleum-Primer

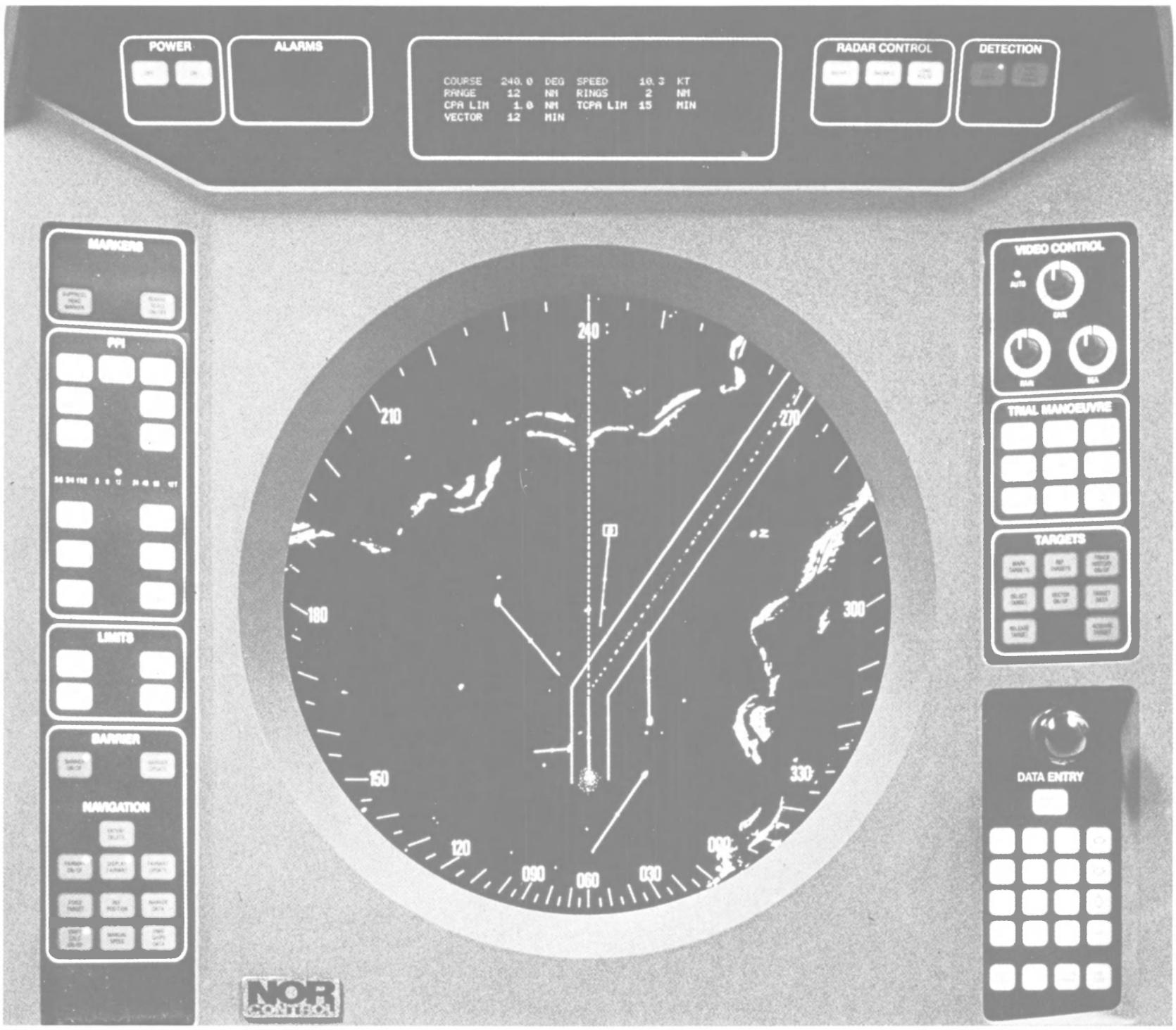
12:15 p.m. MTS Luncheon

1:30 p.m. Numerical Modelling of Estuarine & Nearshore Circulation Dynamics
Marine Biology-I
Marine Biofouling-I
Wave Data Collection and Processing
Latin America and Law of the Sea

3:00 p.m. Coffee Break

3:30 p.m. Ocean and Coastal Processes Modelling
Marine Biology-II
Marine Biofouling-II
Coastal Zone Management II
Marine Fisheries

DATABRIDGE 7
THE ULTIMATE ARPA



DataBridge 7 is a third-generation Automatic Radar Plotting Aid that acquires and tracks up to 50 radar targets and continuously displays collision avoidance data on the most threatening 20. It will sound a collision warning alarm whenever any of these target tracks exceed user specified values for closest point of approach and time to closest point of approach. As a collision-avoidance system, it meets or exceeds all IMCO recommendations and U.S. Maritime Administration (USCG) Standards, soon to be mandatory for all vessels over 10,000 gross tons.

The DB-7 acquires targets throughout the operator-designated search area—not just when a target penetrates a guard ring. The system displays anti-collision data in the form of vectors superimposed over a daylight viewable 16″ radar presentation. Operator selection of true or relative vectors, and vector length provide the utmost in system flexibility. Full trial maneuver facilities, including operator selection of time-to-maneuver, quickly and clearly show the results of maneuver alternatives. The DB-7 warns the operator when the proposed maneuver does not satisfy his CPA and TCPA criteria or when it will bring him into conflict with a previously non-threatening target.

And DataBridge 7 is much more than a simple ARPA. Channels and fairways, radar locked to fixed geographical references, can also be displayed. In addition to warning the operator if the vessel strays from its intended track, this display provides the information that is vital to assure that a maneuver to avoid a collision with another ship does not result in a collision with the bottom.

And Norcontrol hasn't forgotten the operator. In addition to a control panel layout designed to simplify operation and reduce fatigue, the DB-7 includes a built-in training simulator. Preprogrammed training exercises are presented to the officer to develop his ability to operate the system and effectively use all of the information it provides. Operational problems related to new crew members or crew turnover are virtually eliminated.

Finally, Norcontrol's unquestioned reputation for reliability and service are your best assurance that the DB-7 will operate perfectly and keep on working for years to come.

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Gibbs & Cox Names Ford Chief Engineer

James J. Convy, chairman of the board, Gibbs & Cox, Inc., New York-headquartered naval architectural firm, has announced the appointment of **Robert J. Ford** to the position of chief engineer and head of the machinery division in New York.

Mr. **Ford** joined Gibbs & Cox in 1942, immediately after graduating from M.I.T. He spent the early years in field positions in the metropolitan New York area. In addition, he was the Gibbs & Cox representative to the General Electric Co., Schenectady, N.Y., assisting in work being done on Project GENIE, the liquid metal reactors system for the U.S. Navy. Since returning to the New York office in the early 1950s, Mr. **Ford** has held various positions including project manager for the DD1052 class program and assistant chief engineer.

Three AMSHIP Yards To Handle C-4 Conversions In $73-Million Project

American Ship Building Company announced recently that work on the $73-million cargo ship conversion contract with Moore McCormack Lines will be initiated at its Toledo, Ohio, Nashville, Tenn., and Tampa, Fla., shipyards.

The schedule calls for midbody construction at the Toledo and Nashville shipyards and conversion work in Tampa. Both the Chicago and Toledo yards are heavily booked for the winter. The contract involves lengthening four C-4 cargo vessels with the addition of a new 115-foot-long section to each, substantially increasing containerized cargo capacity. Each ship will be increased from 550 to 665 feet and the capacity from 199 to 628 twenty-foot container equivalents. Deliveries are expected in 1982 and 1983.

New Line Scan Recorder From Raytheon— Literature Available

A new Line Scan Recorder with built-in memory capability is described in new literature offered by Raytheon Ocean Systems Company. The Raytheon recorder LSR-910M provides simulated high-speed printing on dry electrostatic paper with minimum data loss. Its design emphasizes interface flexibility and ease of operation for high resolution marine or land seismic profiling, precision depth recording, sonar and radar recording, spectrum analysis, and computer print-out.

The LSR-910M features a highly variable, digitally displayed electronic sweep range of 1024:1. Data resolution is 2,000 elements per inch with 16 discernable shades of gray. Other features include a self-test mode and self-aligning stylus for jitter-free control. The unit is capable of direct plug-in operation with most existing survey systems.

For complete literature on the new Line Scan Recorder,

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Literature Available On Devflex 1, Fire Retardant Finish From Devoe Marine

A new, water-based, fire-retardant enamel called Devflex 1 was recently introduced by Devoe Marine Coatings Co., Louisville, Ky.

Recommended for use in wardrooms, mess rooms, living compartments, and interior areas where safety is the prime concern, this high-quality coating is self-extinguishing and passes fire retardant tests at 2300 degrees F.

Devflex 1 releases no dangerous toxic fumes into the environment during the application and drying process. Designed for excellent adhesion to aged alkyd finishes and primers, this durable enamel can be applied to rigid bulkheads, flexible surfaces and over foam insulation.

Devflex 1 can be applied using a brush, roller, or spray. The coating is available in a variety of decorative shades.

For full details and descriptive literature on Devoe Marine Coatings' new fire retardant Devflex,

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It's not idle talk...just observe the PACECO cranes in action. The way these big machines produce tells you there's something outstanding. PACECO equipment is the choice of major ports and terminals worldwide. There are reasons why.

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Announce Personnel Changes In Marine Branch At Phillips

Seven major personnel changes were announced recently in the marine branch of Phillips Petroleum Co., Bartlesville, Okla.

The new assignments are: **Michel E. Dabbar**, marine manager; **Richard C. McFarland**, director of fleet operations; **C. Jeff Goodell**, director of chartering and traffic; **Lawrence E. Cahill**, director of marine development; **Raymond J. Dionne**, fleet superintendent; Capt. **Robert T. Bush**, senior marine advisor, and **Robert E. McDermott**, marine engineer coordinator.

Mr. **Dabbar** is responsible for the operation of the company fleet of tankers, new construction, and chartering for all ship and barge shipments. Mr. **McFarland**, formerly the Phillips fleet superintendent, is responsible for directing the operation and new construction of the company's tanker fleet. Mr. **Goodell** will direct and coordinate marine chartering activities for Phillips. Mr. **Cahill** is responsible for developing and evaluating marine projects in the company's supply division. Mr. **Dionne** is responsible for directing maintenance and repair, provisions procurement, and crewing of the company's tanker fleet.

Captain **Bush**, who is responsible for bunkering, scheduling and appointing agents for the Phillips fleet, consults on special projects for Phillips, and fleet safety and training. Mr. **McDermott** is responsible for the fleet safety program, new vessel construction, and various staff engineering functions.

World Wide Diesel Awarded $2.3-Million Contract From ODECO

World Wide Diesel, Inc. was recently awarded a $2.3-million contract by Ocean Drilling and Exploration Co. (ODECO) to provide a complete SCR drill rig power package. The package consists of six units powered by remanufactured ALCO 16-251-F diesel engines coupled to new 2,500-kw, 600-volt Louis Allis generators.

World Wide Diesel is presently packaging the units at its Pasadena, Texas, facility. They are scheduled for delivery in January 1982 to the Port of Houston, then to Japan where they will be installed on ODECO's offshore drilling unit "Ocean Ranger II."

World Wide Diesel is a leading supplier of diesel power systems both new and remanufactured. The company provides sales and support services to the industrial, marine, and drilling industries.

John Chandler Named York Vice President

John W. Chandler has been named a vice president of Borg-Warner Corporation's York-International operation, York, Pa.

John W. Chandler

He is responsible for all marine, military, and government sales of the company's air-conditioning and refrigeration equipment in the U.S. and international markets. In addition, he heads York's government relations activities in Washington, D.C.

Mr. **Chandler** joined the York Division of Borg-Warner in 1944 and has served in several capacities, most recently as director of York-International's marine, military and government department. He is a member of The Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, and the American Society of Heating, Refrigerating and Air Conditioning Engineers.

He was graduated from Worcester Polytechnic Institute, Worcester, Mass., with a Bachelor of Science degree in mechanical engineering.

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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HBC Barge, Inc.

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Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

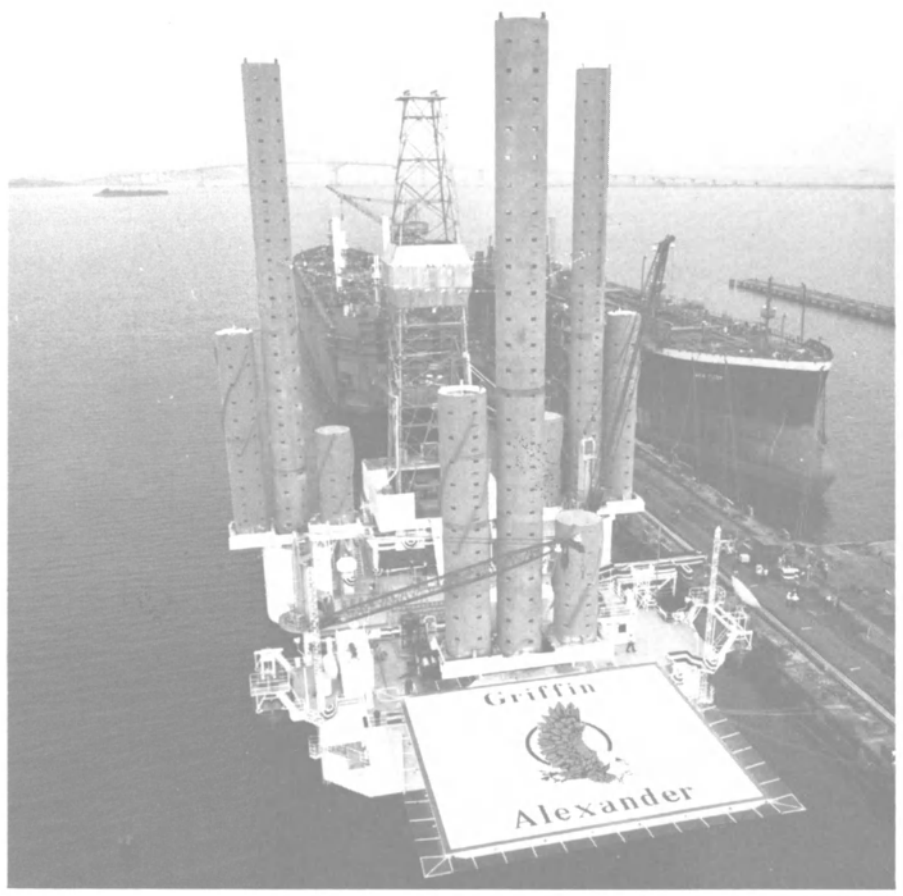
Southwest Marine Awarded LST Conversion Contract

Southwest Marine, Inc., San Diego, Calif., recently announced that it had been awarded a $813,-991 contract by John J. McMullen Associates, Inc., Ventura, Calif., to convert an LST to a barge.

The conversion will be performed at Southwest Marine's San Diego facilities according to **Arthur Engel**, president.

The overall conversion involves the removal of the superstructure and main deck areas so that only the second deck remains. The barge, upon completion, will be used to carry cargo to San Nicholas Island off Ventura. After the barge is beached, cargo will be discharged over the bow ramp.

Southwest Marine, Inc. has three full-service shipyards located in San Diego, San Pedro and San Francisco.



The topmost sections of its legs were added to the Griffin-Alexander III after it was towed south of the Chesapeake Bay Bridge, Md.

Griffin-Alexander III Commissioned At Beth Baltimore

Griffin-Alexander Drilling Company and Bethlehem Steel Corporation's Sparrows Point, Baltimore, Md., shipyard recently commissioned a self-elevating mobile offshore drilling rig.

The rig was christened the Griffin-Alexander III by its sponsor, **Mrs. Anne Place**, wife of **Jack R. Place** of Houston, vice president of U.S. Offshore and Gulf Coast Area, Energy Resources Group of Cities Service Company.

The multimillion-dollar rig has been under construction for about 10 months, and upon delivery this month will begin drilling operations in the Gulf of Mexico for Cities Service.

George S. Hamilton, general manager of the Sparrows Point yard, said the Griffin-Alexander III is the third of eight rigs which Bethlehem will deliver to Griffin-Alexander over the next two years. The first two rigs were

(continued on page 23)

Mrs. Anne Place of Houston, Texas, christened the Griffin-Alexander III mobile offshore jackup drilling rig at Bethlehem Steel Corporation's Sparrows Point, Md., shipyard recently. She is joined by **George S. Hamilton** (from left), general manager of the Sparrows Point yard; and owners **J. William Alexander**, president and chief operating officer, and **Loy D. Griffin**, chairman of Griffin-Alexander Drilling Company, Houston. The rig, capable of drilling in 250-foot water depth, will be put into service for Cities Service following a 24-day, 2,150-mile tow to the Gulf of Mexico.

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- Experienced, dedicated shoreside staff.

Tugs CAPE HENLOPEN 3300 hp and FELLS POINT 2400 hp docking STONEWALL JACKSON.

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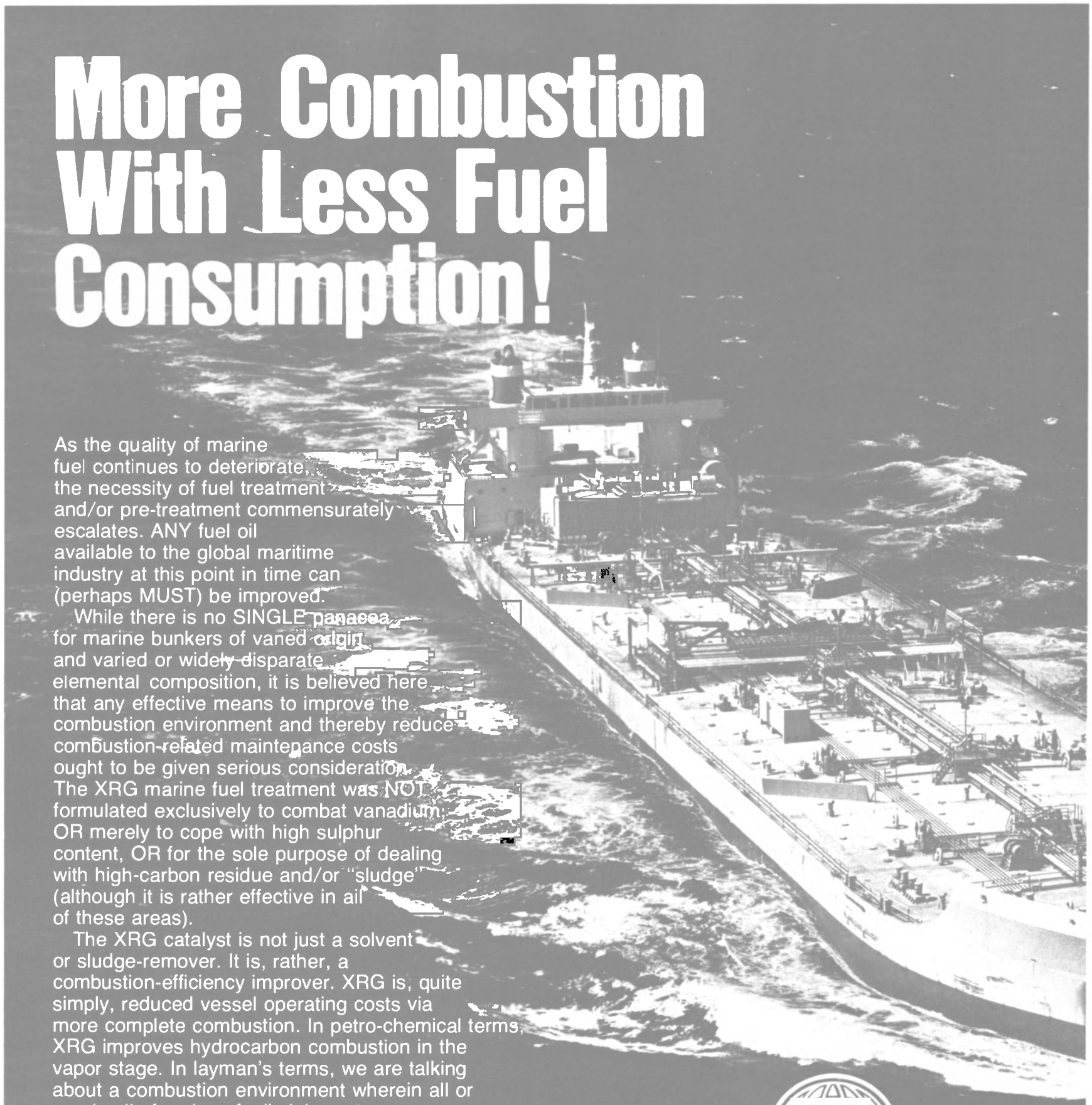

As the quality of marine fuel continues to deteriorate, the necessity of fuel treatment and/or pre-treatment commensurately escalates. ANY fuel oil available to the global maritime industry at this point in time can (perhaps MUST) be improved.

While there is no SINGLE panacea for marine bunkers of varied origin and varied or widely disparate elemental composition, it is believed here that any effective means to improve the combustion environment and thereby reduce combustion-related maintenance costs ought to be given serious consideration. The XRG marine fuel treatment was NOT formulated exclusively to combat vanadium; OR merely to cope with high sulphur content, OR for the sole purpose of dealing with high-carbon residue and/or "sludge" (although it is rather effective in all of these areas).

The XRG catalyst is not just a solvent or sludge-remover. It is, rather, a combustion-efficiency improver. XRG is, quite simply, reduced vessel operating costs via more complete combustion. In petro-chemical terms, XRG improves hydrocarbon combustion in the vapor stage. In layman's terms, we are talking about a combustion environment wherein all or nearly all of a given fuel's inherent BTU value is combusted and thus utilized.

XRG

No. 1208 1 June 1981

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Griffin-Alexander III Commissioned At Beth

(continued from page 20)

built at Bethlehem's Beaumont, Texas, yard and delivered within the last three months. Two additional rigs for Griffin-Alexander are under construction at the Sparrows Point yard, and the remaining three units will be delivered from Beaumont.

With the completion of this rig, the Sparrows Point yard will have delivered two mat-supported jackups, and Bethlehem yards will have completed their 89th.

Basic components of the Griffin-Alexander III consist of a 166-foot-long by 109-foot-wide by 15-foot-deep buoyant platform with a drilling slot, a 210-foot-long by 170-foot-wide by 10-foot-deep supporting mat, three 12-foot-diameter by 312-foot-long cylindrical legs and a hydraulic jacking system.

GRIFFIN-ALEXANDER III

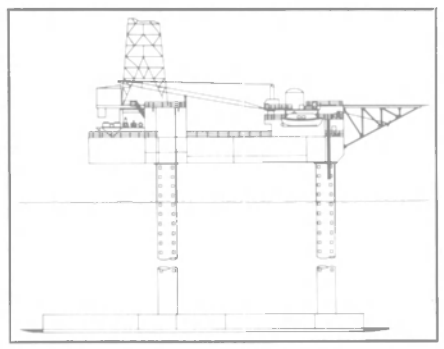
Major Equipment

Drawworks . . Mid-Continent U-1220 EB Electra-Flow drawworks
Derrick . . . . . Branham Universal 147' high with 30 by 30 base, nominal capacity 1,392,000 lbs
Rotary . . . Gardner Denver 37½ in. powered by D79 electric motor thru 2-speed Gardner Denver transmission
Traveling Block . . McKissick Type RP NO684 rated for 550 tons
Hook . . . Byron-Jackson Model 5500 rated for 500 tons
Swivel . . . . . Oilwell No. PC500 rated for 500 tons
Kelly . . . . . Baash-Ross Tri-Kelly 5¼ in. model ITP-6
Master Bushing . . . . . Varco
Main Power . . 3 EMD diesel SR12EW rated at 1,650-hp each pulling 2 D79 generators each plus one generator each skid with a thru shaft pulling a Columbia 600-kw generator
Emergency Power . . . . 1 Caterpillar D353 turbocharged engine with a 300-kw Columbia generator
Blowout Preventers . . . . 2 Cameron 13⅝" Type U double 10,000 psi w.p.
1 Shaffer 13⅝" annular 5,000 psi w.p.
1 Ragen KFL-3 30" 2,000 psi diverter
Choke and Kill Manifold . . . . 10,000 psi w.p.
All Blowout Preventers and manifolds treated for H_2S Service
Mud Pumps . . . . 2 Gardner Denver PZ-11 triplex 1,600 hp powered by 2 D79 EMD motors per pump
Mud System Equipment . . 1 Brandt dual tandem shaker
1 Swaco mud degasser
6 Brandt mud agitators
1 Flo Trend 5" solid separator with 16 5" cones 1,200 gpm capacity
1 Swaco mud gas separator
Cranes . . . 2 Sea King model 1400 marine crane with 100 ft. booms
ABS certified for cargo handling
Distillation Plant . . 1 MECO PEE 300 M3B water maker
Safety Equipment . . . . 2 Watercraft 58-man lifeboats

Outfitted with deep-well drilling equipment, the rig can operate in waters up to 250 feet in the elevated position while experiencing forces resulting from 70-knot winds and 33-foot seas. The Griffin-Alexander III contains onboard, air-conditioned living accomodations for 58 persons, including sleeping quarters, galley, laundry, and recreation facilities.

The rig was designed and built to comply with standards of the U.S. Coast Guard and rules of the American Bureau of Shipping.

More than 5,700 tons of steel were used in the construction, composed of the following: 4,942 tons of plate from Bethlehem Steel's Sparrows Point plant; 815 tons of structural shapes from the Bethlehem, Pa., plant; nearly four tons of wire rope from the Williamsport, Pa., plant; and about 1.75 tons of fasteners from the Lebanon, Pa., plant.



Outboard Profile

Skully Bros. Delivers Omaha Arrow, Second Of Six Supply Vessels

Arrow Marine, Inc. of Houston, Texas, recently took delivery of the Omaha Arrow (shown above), a 120-foot by 26-foot by 10-foot 6-inch, 1,200-horsepower, supply/utility vessel built by Skully Bros. Boat Builders, Inc., Stephensville, La. She is a sister ship to the Navajo Arrow delivered earlier this year, and the second of six vessels scheduled for delivery in 1981.

The vessel is powered by twin GM 16-V-92 diesel engines through Twin Disc MG 527 5:1 gears and has a maximum speed of 12 to 14 knots. The Omaha Arrow has a 66-foot by 20-foot clear deck space with a cargo capacity of 80 long tons. Her fuel tanks have a capacity of 31,000 gallons (U.S.). In addition, she is able to carry 44,200 gallons of fresh water and 2,700 gallons of potable water.

Arrow Marine, Inc. entered the supply/utility market three years ago and has plans underway for two additional vessels in the 140-foot class.

Iowa Marine Delivers M/V Tony H

Iowa Marine Repair, Keokuk, Iowa, recently delivered the M/V Tony H (shown above) to Morris Harbor Service, Morris, Ill. The Tony H is the first of a new model developed by Iowa Marine and designed by Marine Power Inc., Gulf Breeze, Fla. She is particularly suited for the rough conditions of harbor work and economical operation.

The Tony H is named for Tony Hoenig, shipyard superintendent for Iowa Marine at their Keokuk shipyard, who has been with the company since its founding over 10 years ago.

The vessel is 50 feet by 20 feet by 7 feet with a 24-foot eye level. The hull is 5/16-inch steel with a headlog of ½-inch and all outboard corners of ¾-inch. Bow corners are also protected with formed Morse rubber bumpers mounted on ½-inch steel plates.

Hull construction is of side tank design, giving her a 6,000-gallon fuel capacity in three tanks on each side. Fresh water capacity is 1,000 gallons and lube oil capacity is 300 gallons.

The twin Cummins NT-855 main engines were supplied by Great Plains Diesel of Cedar Rapids, Iowa, giving her a total of 570 hp at 1,800 rpm. The Twin Disc MG-514 gears, with a 5:1 ratio, turn Columbian 52-by-46-inch stainless steel propellers.

Power is supplied by a single 15-kw Lima generator with a Duetz two-cylinder air-cooled diesel engine. The vessel is designed to operate completely without power if necessary or desired. She has 10-ton Nabrico winches which can be converted to hand operation. She is equipped with two Carlisle Finch 14-inch incandescent searchlights, one of which is operated on the 12-volt system.

Steering is a mechanical over hydraulic follow up system designed by Iowa Marine with two variable volume Vickers pumps driven off the main engines.

The Tony H is also equipped with a Regency Polaris MT-5500 radio-scanner, Ray Jefferson 312 hailer-intercom, Dayton air compressor, Well-Troll fresh water pressure system, Teel bilge and fire pump, Jabsco 12-volt automatic diaphragm bilge pump from stuffing box segregated from deep bilges, Morse cutlass bearing, Kahlenberg stuffing boxes, Sturm bearings, and Microphor septic system.

She has an open bar grating fleet deck allowing for easy access to empty barges. Since the Tony H is used strictly as a harbor vessel, the lower deck cabin as well as the Texas cabin are utilized as deck lockers, but are so designed that they could quick-

ly and easily be converted into galley and quarters.

Iowa Marine has capabilities of constructing vessels up to 75 feet in length and 1,600 hp. They also build other standard marine equipment as well as specialized items, such as the Montrose-Nauvoo ferry.

Curtis S. Townshend Appointed Vice President Of Mobil Marine Sales

Curtis S. Townshend has been appointed vice president, marine sales, for Mobil Sales and Supply, New York. He succeeds **J. Owen-Smith** who has assumed new duties with the Mobil organization in London.

Curtis S. Townshend

The Marine Sales Department is responsible for overseeing the worldwide sale of Mobil marine fuels and lubricants, and for providing technical service and assistance to shipowners and operators. Mobil marine fuel is available at 300 ports worldwide; its premium marine lubricants are sold at some 450 locations.

A 1953 graduate of Webb Institute, Mr. **Townshend** joined Mobil in 1959 as supervisor of new construction, became manager of inland operations in 1963, and manager, Gulf-East Coast operations, two years later. He became operations and chartering manager in 1975, the post he held at the time of his appointment as vice president.

Lease MARISAT Satellites For Use In Three Oceans

COMSAT General announced recently that INMARSAT, the International Maritime Satellite Organization, will lease commercial communications capacity for $10.5 million in all three existing MARISAT satellites.

At its recent meeting held in London, the INMARSAT Council approved the leasing of the commercial capacity in MARISAT communications satellites for maritime purposes in the Atlantic and Indian Oceans. The satellite capacity in the Atlantic Ocean will be leased for nine months for $3.5 million and in the Indian Ocean for one year at $2.0 million, both beginning February 1, 1982. In November 1980, INMARSAT had agreed to lease the commercial capacity of the Pacific Ocean MARISAT satellite for a two-year period for $5.0 million, also beginning on February 1, 1982.

The lease agreements pave the way for the smooth transition from MARISAT, developed and operated by COMSAT General, to the 36-member nation INMARSAT organization and the continuation of high quality telephone and telex service to the maritime industry.

COMSAT General will receive 86.29 percent of the $10.5 million in revenues from INMARSAT, the percentage of COMSAT General's share in the Marisat Joint Venture. The remaining 13.71 percent share will be divided among RCA, ITT, and Western Union International in proportion to their ownership interests in MARISAT.

In other action during the Council session, **L.F.T. Perrone** of Brazil, the current vice chairman of the Council, was elected chairman. **Edward J. Martin**, the head of maritime services for COMSAT World Systems Division, was elected vice chairman. They will serve for the next year. Mr. **Martin** also will serve as chairman of INMARSAT's newly created finance committee.

INMARSAT was established in July 1979. COMSAT, as the U.S. representative in INMARSAT, has an investment share of about 23 percent. The next four highest investment shareholders in INMARSAT are the USSR, the United Kingdom, Norway, and Japan.

55th Annual PROPELLER CLUB CONVENTION

The 55th Annual Convention of The Propeller Club of the United States, and the concurrent 1981 American Merchant Marine Conference, will be held in Baltimore, Md., on October 14, 15, and 16. Headquarters hotel for the event, which is being hosted by the Propeller Club Port of Baltimore, is the Baltimore Hilton Hotel.

General Chairman of the Convention is **William J. Detweiler**, president of the Steamship Trade Association of Baltimore; **Thomas J. Murphy Jr.**, president of The Baker-Whiteley Towing Company, is Conference Chairman. The theme for this year's Convention and Conference is "The American Merchant Marine—An Imperiled Lifeline."

Preconvention activities include a golf and tennis tournament at the Sparrows Point Country Club on October 12 and an early arrivals reception at the National Aquarium on October 13 at 6 p.m.

The "positions" that will be voted on during the convention include the following:

The Propeller Club of the United States strongly supports the maritime objectives enunciated by President **Reagan** prior to his election, including his seven-point program. That program calls for the preservation of our shipbuilding mobilization base, increased military support functions for the merchant marine, the assurance of an equitable share of U.S. trade for our vessels, the restoration of cost-competitiveness to our fleet, a coherent national policy for the U.S. water transportation system, review of regulatory requirements which inhibit American competitiveness, and recognition of the importance of the sea on our economic vitality, national defense, and foreign policy. The Propeller Club considers these objectives essential to the nation's future and calls upon the Government and industry to work cooperatively for achievement of those goals.

Position No. 2 calls for an effective approach for maritime legislative and regulatory reform. The Propeller Club recognizes that, both in tonnage and number of ships, our merchant marine is below that needed for our commercial requirements and national defense. Further, some of the problems of our merchant fleet are attributable in appreciable measure to our failure to update our maritime laws and regulatory controls. In addition, the omnibus approach attempted in the 96th Congress proved to be, perhaps, too ambitious and failed of success for that reason. The Propeller Club believes that

(continued on page 28)

Baltimore City and the Port of Baltimore, looking east over the inner harbor.

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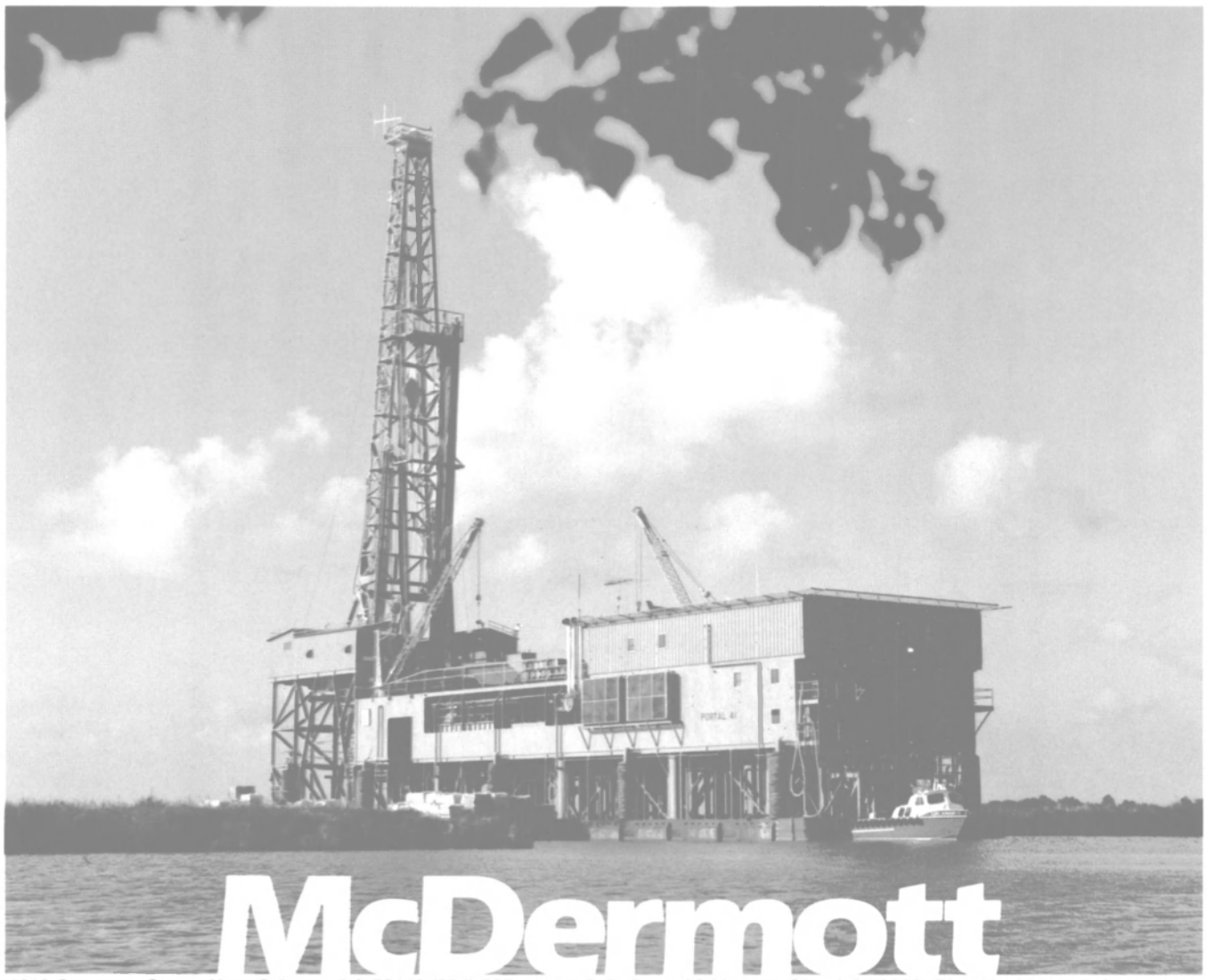

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a segmental rather than an omnibus approach should be reverted to in the next Congress and recommends that the Congress address the matter of maritime legislative and regulatory reform on this basis in the coming sessions.

Position No. 3 covers expansion of marine fire-fighting school programs. The Propeller Club fully supports the maritime fire-fighting program now being carried out by the Maritime Administration and the expansion of its fire-fighting schools to all four coasts of the United States. The Club recognizes that the growing needs of expanding world commerce require such action for the protection of seafarers, ships, and cargoes from the ravages of fire at sea.

Position No. 4 concerns gaining full advantage of our maritime cargo preference laws. The Propeller Club considers that cargo preference provisions now in our laws have been eroded through unnecessary exemptions and waivers or misplaced administrative concern, and urges the various branches of government to follow a positive approach to these laws and regulations to insure that American-flag ships carry an equitable portion of our trade. The Club calls upon the government to take such measures as are consonant with the President's announced program.

Position No. 5 relates to uniformity in maritime regulatory enforcement. The Propeller Club recognizes that maritime regulatory enforcement is essential to the promotion of the commerce of the United States, however, it objects to a scheme of enforceability which penalizes the American merchant marine and fails to achieve equality of treatment for all carriers in our trades. The Club supports such appropriate legislative and regulatory remedial action as will provide the necessary uniform enforceability so essential for a strong U.S.-flag merchant fleet.

Position No. 6 concerns the Gallipolis Locks and Dam modernization project. The Propeller Club recommends and supports modernization of the Gallipolis Locks and Dam in accordance with the recommendations of the Huntington District Engineer in his November 1980 Report, the project to consist of (1) rehabilitation of the existing dam, and (2) replacement of the existing locks by construction of one 110-foot by 1,200-foot lock and one 110-foot by 600-foot lock in a 1.7 mile long navigable by-pass, landward of the existing lock.

Position No. 7 refers to the oil pollution fund: a Federal problem. The Propeller Club recommends and supports the establishment of one national regime and one Federal oil pollution fund for the payment of cleanup costs and damage claims arising from spills of oil and other petroleum products. Further, the Club expressly supports the preemption of State liability laws and State oil pollution funds and a limitation on vessel liability to a reasonable and insurable level. Such measures will help to insure the success of a truly national oil pollution regime and fund.

Position No. 8 calls for port improvements for exports of coal and agricultural products. The Club considers that many vital U.S. seaports are inadequate for the efficient and competitive export of bulk coal and agricultural products, and urges that dredging projects fully funded by the Federal Government for maintenance and deepening of our seaport channels and harbors be expedited by all means possible for the benefit of our national interests and economy. In keeping therewith, the Propeller Club calls for support of such measures as will improve the capacities of our seaport navigation channels as quickly as possible, and is opposed to tying such programs to cost-recovery concepts.

Position No. 9 opposes increased waterway taxes and proposals for cost recovery. The Propeller Club opposes the proposals of the Administration for cost-recovery by the U.S. Army Corps of Engineers of expenditures for operation, maintenance, and con-

(continued on page 31)

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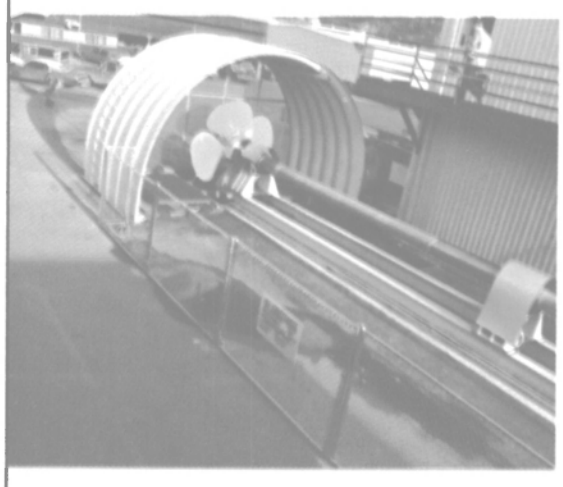

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struction of facilities used by shallow-draft vessels on inland and intracoastal waterways of the United States. Current proposals would also greatly increase fuel taxes effective October 1, 1981, before consideration can be given to a study on the impact of waterway user taxes required by the 1978 legislation (Public Law 95-502) for report to the Congress by September 30, 1981.

The Club notes that, except for the 1978 inland waterway legislation, U.S. Army Corps of Engineers services have been rendered without user taxes or other charges for the benefit of all the public, serving boating, fishing, recreation, flood control, water supply, erosion containment, pollution prevention, and environmental control purposes. Imposing such costs exclusively on one specific user to the exclusion of other modes of transportation which also benefit therefrom is grossly unfair, this Position states.

The Propeller Club considers that cost-recovery proposals now being advanced by the Administration discriminate against the most effective commodity transport service offered to the American consumer. The applicability of such a process to U.S. Coast Guard cost-recovery schemes would be equally discriminatory in nature. Any transfer of taxing authority to local port authorities for cost-recovery purposes for port "improvements" would raise important questions of constitutionality, according to this Position.

The 10th and final Position concerns sustaining the provisions of the Jones Act and our other cabotage laws. The Propeller Club fully supports Section 27 of the Merchant Marine Act, 1920, (popularly called the Jones Act) and all other existing cabotage provisions of U.S. law which mandate the exclusive construction and operation of U.S.-flag ships in our domestic commerce and opposes any attempt to abandon or weaken the full effect of such laws upon our domestic welfare and national security. The Club does not oppose the traditionally conservative granting of waivers from our cabotage laws but considers that such waivers, whether granted in the form of administrative actions, or as legislative exemptions, should be allowed only on a temporary basis and only upon a clear showing that such action is necessary in the interest of national defense.

CALENDAR OF EVENTS

PROPELLER CLUB 1981 CONVENTION AND CONFERENCE

WEDNESDAY, OCTOBER 14

9:00 a.m. Convening of the Convention

Presiding: **William J. Detweiler,** General Convention Chairman

Welcomes: The Honorable **William D. Schaefer Jr.,** Mayor of Baltimore

William J. Wolter, National President, The Propeller Club of the United States

Milton H. Leubecker, President, Propeller Club of Baltimore

9:45 a.m. First Convention Business Meeting

Presiding: National President **Wolter**

10:30 a.m. Conference Opening

Presiding: **Thomas J. Murphy Jr.,** Conference Chairman

Keynote Speaker: The Honorable **Walter B. Jones,** Chairman, Committee on Merchant Marine and Fisheries, U.S. House of Representatives

12:00 noon Port of Baltimore Luncheon

Presiding: **Milton H. Leubecker,** President, Propeller Club of Baltimore

Introduction: The Honorable **Barbara A. Mikulski,** Committee on Merchant Marine and Fisheries, U.S. House of Representatives

Speaker: **Edwin M. Hood,** President, Shipbuilders Council of America

2:00 p.m. First Conference Session

Presiding: Conference Chairman **Murphy**

Conference Panel: "The U.S. Merchant Marine — Essential Component of Military Requirements"

Moderator: Adm. **James L. Holloway III,** USN (Ret.), president, Council of American-Flag Ship Operators

Panelists:

"Our Merchant Fleet — Inadequate Lifeline For Our Rapid Deployment Force," Adm. **James D. Watkins,** USN, Commander in Chief, U.S. Pacific Fleet

"What Is The Merchant Marine's Role In National Seapower Expansion?," Vice Adm. **Kent J. Carroll,** USN, Commander, Military Sealift Command

"Merchant Marine Manpower — A Shrinking National Asset," Capt. **Robert J. Lowen,** president, International Organization of Masters, Mates and Pilots

(continued on page 32)

3:30-4:45 p.m. Conference Panel
"Domestic Waterborne Industry — Economic Lifelines"
Moderator: Rear Adm. **Thomas A. King,** USMS, Superintendent, U.S. Merchant Marine Academy
Panelists:
"Great Lakes Marine Shipping — Economic Plus For Our Industrial Heartland," **D. Ward Fuller,** executive vice president, American Steamship Company
"The Offshore Marine Industry — Vital For Our National Needs," **Edward A. Wardwell,** chairman, Oceaneering International, Inc.
"Inland Waterway Shipping — An Indispensable Transportation Mode," **Stephen Van Dyke,** president, Interstate and Ocean Transport Company

THURSDAY, OCTOBER 15

9:00 a.m. Second Conference Session
Presiding: Conference Chairman **Murphy**

9:00-10:30 a.m. Conference Panel
"Our Marine Shipping Infrastructure —A New Beginning"
Moderator: **Samuel B. Nemirow,** former assistant secretary of commerce for maritime affairs
Panelists:
"Shipyards — Essential To Our National Needs," **Stuart S. Adamson,** vice president, Shipbuilders Council of America
"Port Congestion — Impact On Coal And Other Bulk Exports," **W. Gregory Halpin,** port administrator, Maryland Port Administration
"Dredging and Port Facility Problems," Col. **Herbert R. Haar Jr.,** USA (Ret.), associate port director, Port of New Orleans
"Will Our Inland Waterway System Be Adequate For This Decade?," **Neil N. Diehl,** president, Ohio Barge Line, Inc.

10:45-11:45 Conference Panel
"Maritime Laws And Regulations — A Need For Review"
Moderator: **Edward J. Heine,** attorney, Gilmartin, Poster & Shafto (former president of U.S. Lines)
Panelists:
"The Jones Act — Is It Imperiled?," **Ernest J. Corrado,** assistant to the president, American Institute of Merchant Shipping
"Commercial Cargo Sharing — Why Is The U.S. Fleet Left Out?," **Julian H. Singman,** president, Maritime Institute for Research & Industrial Development
"U.S. Maritime Regulation — Why Do We Handicap Ourselves?," **Albert E. May,** executive vice president, Council of American-Flag Ship Operators

12:30 p.m. American Marine Industries Luncheon
Presiding: Convention Chairman **Detweiler**
Introduction: The Honorable **Alan Green Jr.,** chairman, Federal Maritime Commission
Speaker: Adm. **John B. Hayes,** Commandant, United States Coast Guard

FRIDAY, OCTOBER 16

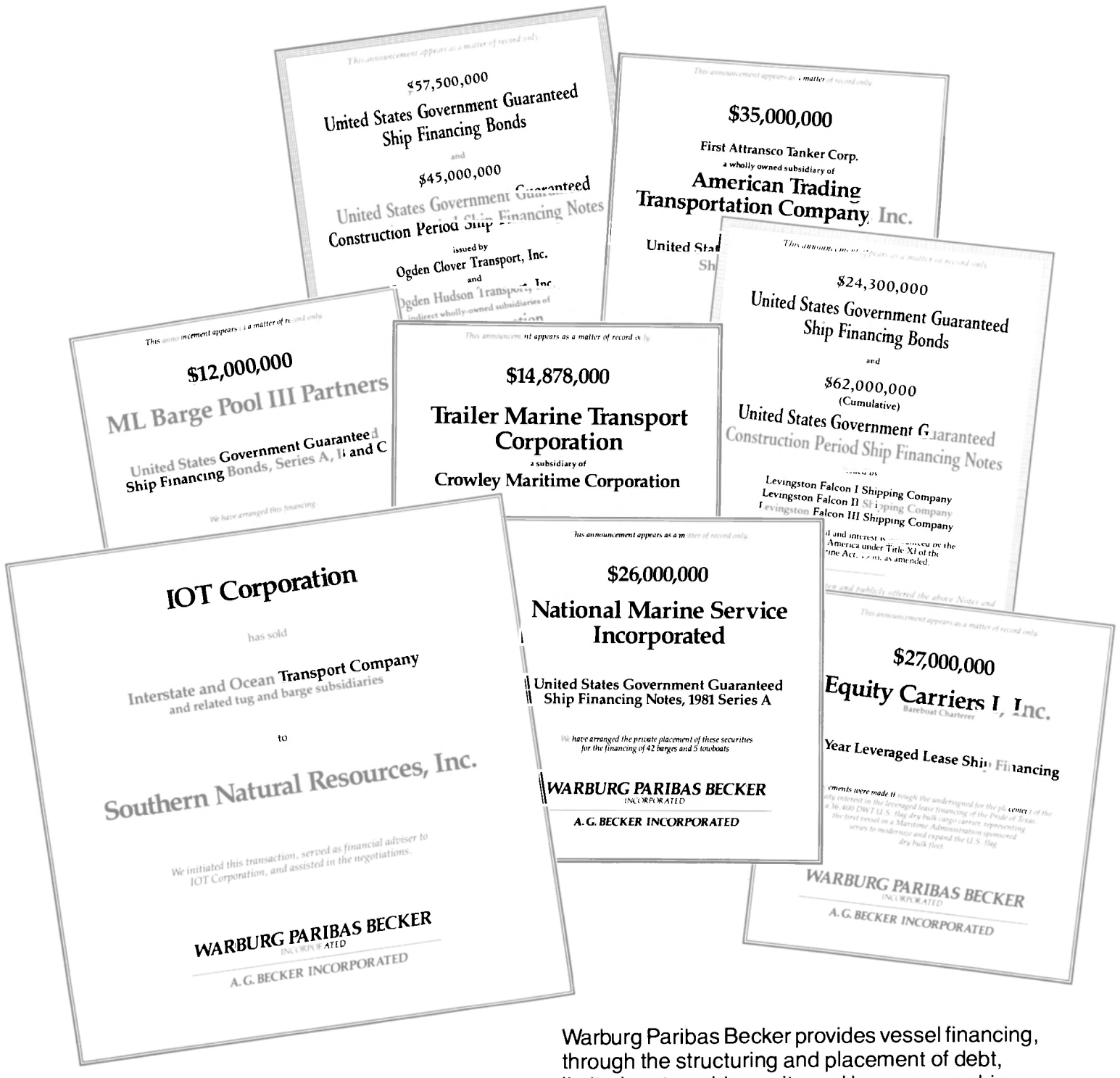
9:00 a.m. Third Conference Session
Presiding: Conference Chairman **Murphy**

9:00-10:15 Conference Panel
"U.S. Marine Transportation—In The National Interest"
Moderator: **M. Lee Rice,** president, Ogden Corporation
Panelists:
"The U.S. Merchant Fleet — Its Economic Impact," **Michael L. Sclar,** vice president and director, Temple, Barker & Sloane
"Domestic Offshore Service Industries," **William Croyle,** president, Tidex International
"Sufficient U.S. Ships — To Assure Export Markets And Strategic Imports," **Clifford M. Sayre Jr.,** manager, International Distribution Division, E.I. Dupont de Nemours & Company
"A College Student's View Of Our Merchant Marine And National Interest," **Elaine M. Saunders,** student, University of Maryland Propeller Club

10:30-11:45 Conference Panel
"National Marine Shipping Objectives —Where Are They?," **Helen Delich Bentley,** former chairman of Federal Maritime Commission
Panelists:
"Transportation Policy — Essential For The Inland Waterways," **Ralph E. Van Der Naillen,** vice president, Cargo Carriers, Inc.
"Shipbuilding And Repair Policy — Vital For Shipyard Stability," **David H. Klinges,** vice president, shipbuilding, Bethlehem Steel Corporation
"Maritime Financial Policies — The Future," **Paul R. Tregurtha,** president, Moore McCormack Resources, Inc.

12:30 p.m. American Merchant Marine Conference Luncheon
Presiding: Conference Chairman **Murphy,** who will present a Conference summary
Introduction: **W.J. Amoss Jr.,** president, Lykes Bros. Steamship Company, Inc.
Speaker: The Honorable **Drew Lewis,** secretary of transportation

2:30 p.m. Final Convention Business Meeting
6:30 p.m. Reception
7:30 p.m. Final Banquet



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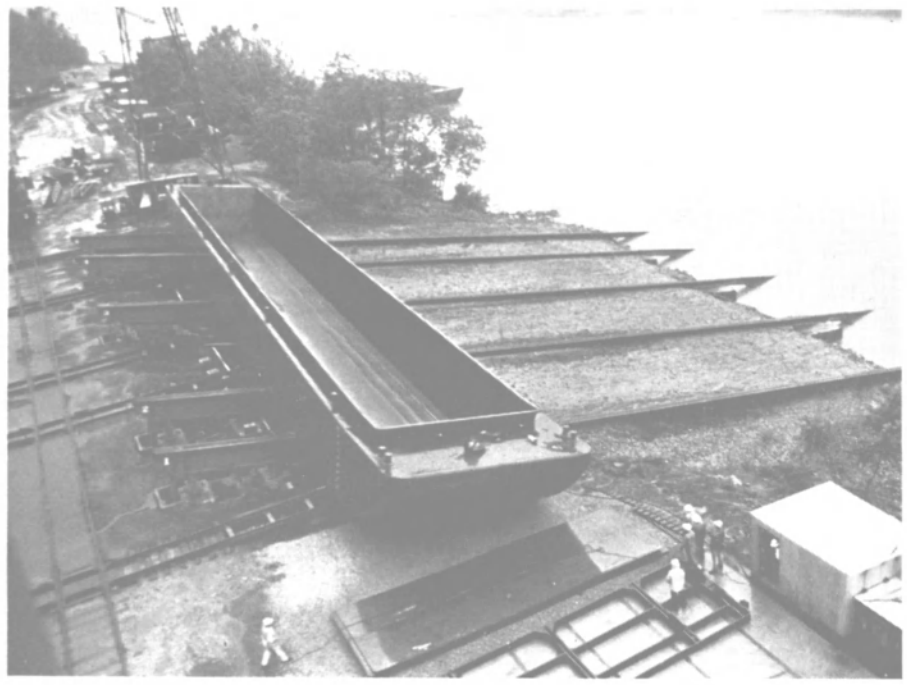
Bayou Black Shipyard, Inc. Delivers 'Delta Christie'

Bayou Black Shipyard, Gibson, La., recently delivered the push boat Delta Christie (shown above) to C.D. Blankenship of New Orleans. The boat is 60 feet long, has a 25-foot beam, and a 9-foot depth midship. The fuel capacity is approximately 16,000 gallons. Water capacity is approximately 5,600 gallons.

A special feature of the steel-hulled boat is the 3-foot-wide push knees fabricated by the shipyard. The main cabins and pilothouse are of aluminum construction. Main propulsion is provided by two Cummins KTA1150 diesel engines, each rated at 470 bhp at 1,800 rpm driven through Twin Disc Model 518 reverse reduction gears. Main engines are air-started supplied by the boat's two Quincy air compressors. Shafts are 5-inch cold roll built up with stainless steel. Propellers are four-blade, 58-inch by 44-inch stainless steel. Electric power is supplied by two 3-71 GM Detroit Diesel 30-kw generator sets. Generators are air and electric start. Electronic equipment provided by the shipyard includes SIT09 radar, one SCC-C866 550-Au VHF radio, and one GLH-100 Loudhailer. The steering is hydraulic with a mechanical follow up system. Main engine controls are by WABCO. The Delta Christie will be used mainly in the moving of drilling rigs and barges.



HBC Barge Installs New Launchways–First Phase In $4-Million Expansion

HBC Barge, Inc., Brownsville, Pa., has recently completed installation of new launchways, (shown above) the first phase in the company's $4-million expansion and upgrading program.

The new launchways can handle barges up to 54-feet in width, which is 19 feet wider than the previous system permitted.

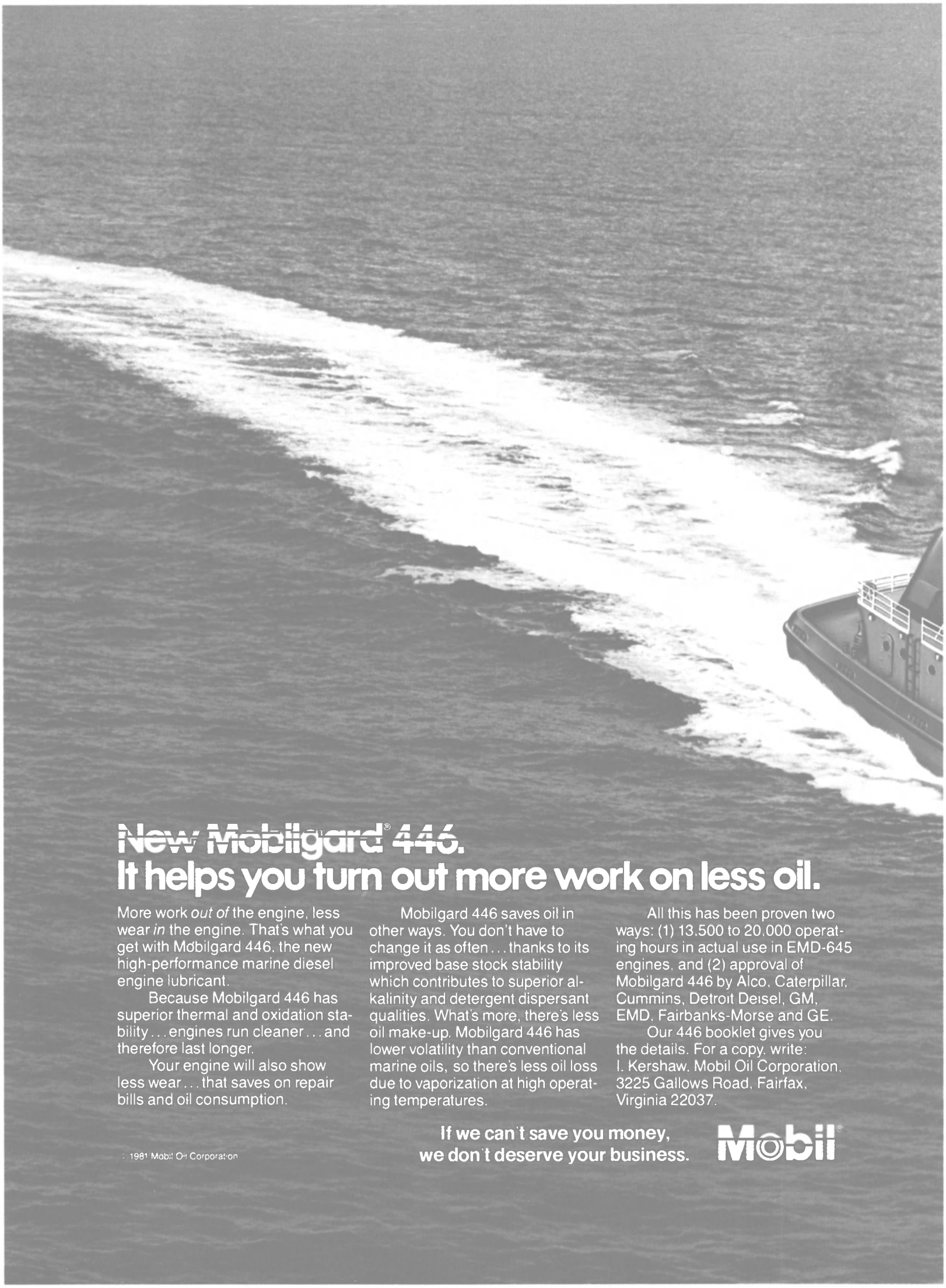
According to **Ira Singleton**, HBC Barge's vice president-manufacturing, widening the launchways provides more support for the barge's innerbottom. "This extra support reduces the chances of launch damage, which was one of the primary objectives for installing the new system."

Launchings at HBC Barge are now accomplished with hydraulically operated tipping beams that are easily operated by one person. "Compared to the old system the new one launches the barges faster and safer at less expense, and we now have more control," Mr. **Singleton** said. The company's old launchways used the traditional sled system, which was costly and time-consuming, Mr. **Singleton** added.

HBC Barge's expansion and upgrading will include improvements to the work yard and plant, plus installation of additional metal working equipment. Mr. **Singleton** said, "We're aiming at maximizing productivity, while expanding our capabilities with the latest equipment."

The company specializes in custom design barges built to meet customer demands. "It is essential that we maintain the latest in equipment and technology because of the type of barges we build," Mr. **Singleton** said. He added, "We try to give each customer the type of features that meet their unique needs. That requires first-time designs more often than something from an option list.

"By expanding and upgrading our facilities, we can readily meet the demands of both new and existing customers," Mr. **Singleton** concluded.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Birdsall Appointed Manager Of Geological Operations For Longhorn

Barton C. Birdsall has been appointed manager of geological operations for Longhorn Oil and Gas Company, Oklahoma City, Okla., privately held independent exploration and production firm active both onshore and offshore, primarily in the Gulf Coast, Mid-continent and Rocky Mountain areas of the United States.

Reporting to **John S. Porter,** vice president of exploration, Mr. Birdsall will coordinate Longhorn's domestic exploration activities, with primary emphasis on developmental operations, said **Jack Phillips,** president and chief executive officer of Longhorn Oil and Gas Company.

Literature Available On New ARPA Unit From Norcontrol

A four-color brochure and a technical report have been published by Norcontrol of Horten, Norway, describing the capabilities of its DataBridge 7—a third generation Automatic Radar Plotting Aid (ARPA) manufactured by the member company of Kongsberg Vapenfabric A.S.

This multifaceted collision avoidance system incorporates a training simulator which uses preprogrammed exercises to familiarize the operator with the system and all the information the unit can provide. According to **Peter Talbot,** marketing manager for Kongsberg North America, Inc., Leonia, N.J., this unit is the only ARPA system made that includes a training simulator.

For a free copy of the brochure and technical report,

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Name O'Leary Marine Development Manager At Dillingham Ocean

Tim O'Leary, formerly with Foss Launch & Tug Co., has been promoted to manager, market development and research for Dillingham Maritime's Ocean Division, Seattle, Wash. According to **Tom Van Dawark,** president of the Dillingham Maritime Ocean Division, Mr. **O'Leary's** new responsibilities will include administration of general research functions for the ocean marketing group, developing market opportunities and maintaining information for long-range planning.

Dillingham Maritime Ocean Division is part of Dillingham Corporation's maritime group. Other companies within the group include Foss Launch & Tug Co., Foss Alaska Line, Pacific Towboat & Salvage, Long Beach, Calif., Ocean Transportation Services, Inc., Houston, Texas, Dillingham Tug & Barge and Young Brothers, Limited, Honolulu, Hawaii.

"HANDS-ON" DEMO — Modular Systems president **George J. Koury** demonstrates one of the 52 emergency rudder arresting systems that his company is supplying for Esso tankers so they will meet latest requirements of the Intergovernmental Maritime Consultative Organization (IMCO). Each system consists of a skid-mounted pump, driver (motor or diesel), directional indicator, and relief valves completely piped and tested before shipment. Modular Systems of Rockaway, N.J. is a division of Warren Pumps/Houdaille. For further information and a free brochure,

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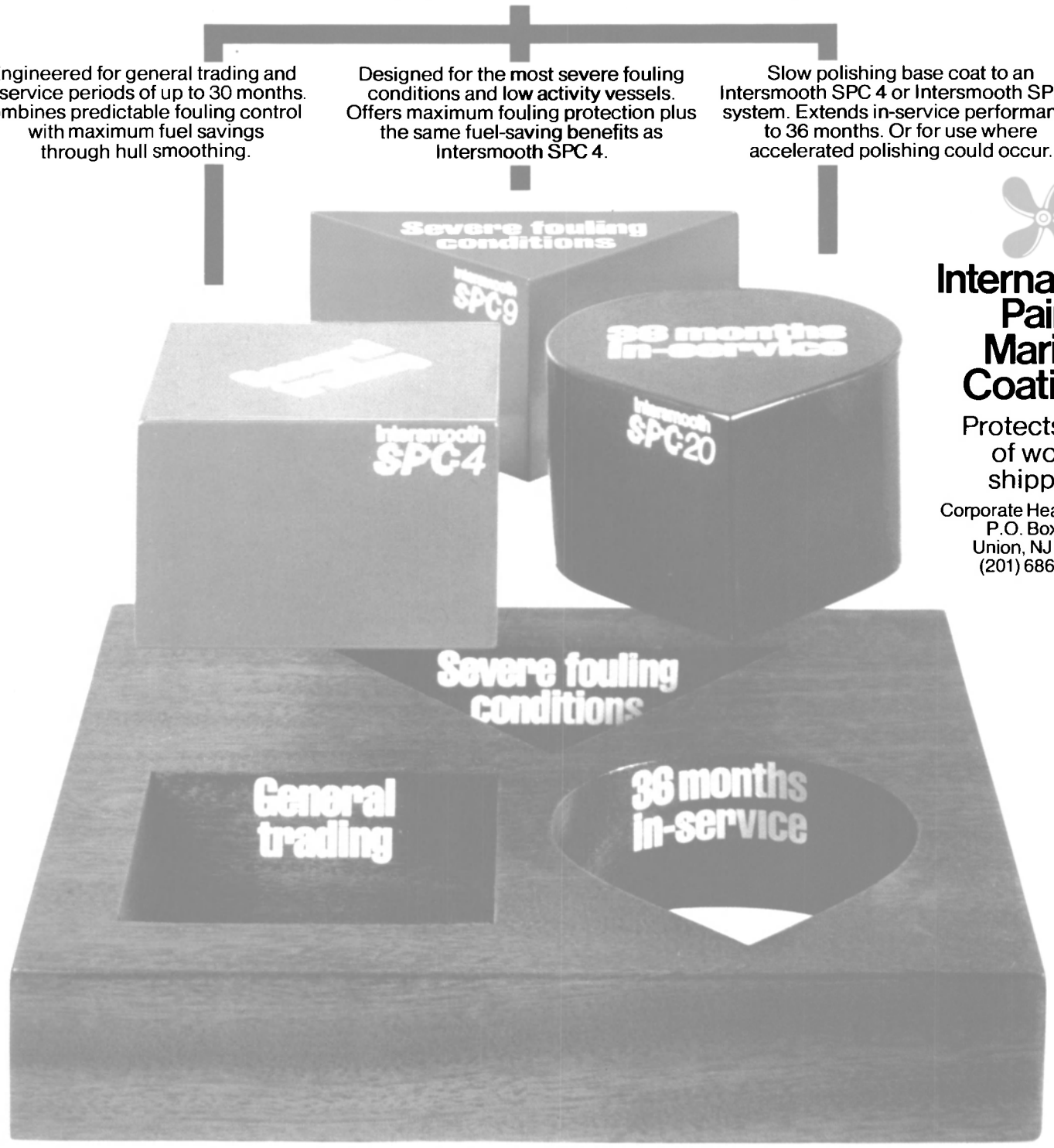

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Two Repair Firms Merge, Offer Electromechanical Services Worldwide

Two well-known service companies — National Electric Coil and Worthington Service — recently combined to form McGraw-Edison Service, a new international organization that offers a wide range of service for mechanical, electrical, industrial and utility equipment worldwide.

Headquartered in Columbus, Ohio, McGraw-Edison has 64 facilities and nearly 4,000 employees that provide comprehensive capabilities for markets such as marine, chemical, mining, petrochemical, petroleum, paper, railroad and public utilities.

For a free copy of a brochure outlining the services provided by McGraw-Edison,

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Tracor Marine Announces Production Appointments At Port Everglades Yard

Joseph D. Deal Jr., president of Tracor Marine, Inc., recently announced the appointment of **Joe Menghi** as production control manager and **Jack Schmidt** as production manager at the company's Port Everglades (Fort Lauderdale) shipyard. The added volume of ship repair work from

Joe Menghi

Jack Schmidt

two recently installed floating drydocks made an expansion of the shipyard management staff under **Sydney Jenkins**, the general manager, desirable in order to achieve an optimum check and balance between control, project coordination, and production functions.

With over 40 years of combined experience in building and repair of ships and other metal structures, Messrs. **Schmidt** and **Menghi** will be filling key roles in Tracor Marine's management team, Mr. **Deal** said, and the company will be better organized for comprehensive overhauls of military and complex commercial vessels.

Literature Available From Gems Sensors On New Flow Transducer

Literature on a new Flow Transducer designed for continuous flow monitoring is available from Gems Sensors Division, Plainville, Conn. Called the FT-200, the transducer interfaces with remote recorders, meters, controllers or other instrumentation.

It provides an analog signal of 1-10 VDC which is directly proportional to flow rate, with a rate of flow accuracy of ± 1 percent. The unit provides direct flow sensing, and monitors liquids within a range of 0.2 gpm to 10 gpm in 1-inch NPT size. Other sizes are available to 3-inch NPT. Standard line sizes are 1-inch to 3-inch NPT. Other sizes may be available upon request.

For instant flow data, an FT-200 option is available for LED local readout. This Gems Flow Transducer provides high reliability for monitoring water, oils, gasoline and water-based chemicals in a variety of applications.

For more information on the new Gems Sensors FT-200 Flow Transducer,

Write 54 on Reader Service Card

WARNING
CALL YOUR ELECTRICIAN

Your building may have one of these Federal Pacific Circuit Breakers which need to be replaced, or field modified:

NEJ/HEJ NFJ/HFJ NEG/HEG NEF NP

Under certain conditions these breakers could cause personal injury or property damage.

FPE circuit breakers are most likely to be found in enclosures marked FPE. However, they *may* also be found in *some* enclosures made by other manufacturers, such as: Zinsco, Sylvania, Frank Adam Electric Co.

THEY WILL NOT BE FOUND IN ENCLOSURES MARKED GE, WESTINGHOUSE, ITE, SQUARE D, AND CUTLER-HAMMER.

Because of the difficulty in identifying these devices, have your on-site electrician or facility engineer review the following chart to determine if you have any of these FPE Breakers.

Identification chart of breakers involved in corrective actions

BREAKER TYPE	AMPERE RANGE	POLES	VOLTS A.C. RATING MAX.	TYPE OF FACILITY	CORRECTIVE ACTION REQUIRED
NEJ/HEJ	70-225	2 & 3	240	Light Industrial	REPLACE BREAKERS
NFJ/HFJ	70-225	2& 3	600	Industrial	REPLACE BREAKERS INSTALLED ON ELECTRICAL SYSTEMS ABOVE 550 VOLTS
NEG/HEG	30-100	2 & 3	600	Heavy Industrial	MODIFY BREAKERS INSTALLED ON 480 VOLTS OR ABOVE. MODIFY BREAKERS INSTALLED IN FPE ENCLOSURES 1100T.
NEF	40-100	2 & 3	480 600	Commercial and Industrial	REPLACE BREAKERS
NP	600-2500	2 & 3	600	Large Electrical Distribution Systems	REPLACE BREAKERS INSTALLED ON ELECTRICAL SYSTEMS WITH AVAILABLE FAULT CURRENTS ABOVE 85,000 AMPERES AT 240 VOLTS OR 50,000 AMPERES AT 480 AND 600 VOLTS OR WHERE ROUTINELY USED AS A SWITCH

This is part of a program voluntarily initiated by Federal Pacific. The Consumer Product Safety Commission has been notified. Lab tests have indicated that these Circuit Breakers could cause personal injury or property damage. Federal Pacific will respond as soon as possible by phone or mail. Allow 6 weeks for this preliminary contact.

If your electrician finds you have these FPE breakers in service, or if he is uncertain, please call, toll free: 800-526-3962 (In N.J.: call 800-942-7773.)

YOUR SAFETY IS OUR CONCERN.

Yes. We have _____ breakers in use.

Please have an FPE engineer contact us.

Name _____

Title _____

Company _____

Address _____

Phone _____

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272-R-1

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Failure of cooling equipment at sea could cause serious problems. That's why York reliability is built into the design, manufacturing, and servicing of each York air conditioning and refrigeration system.

We're aboard cargo, naval and passenger ships. And about the only things we might have spoiled are the people we've cooled.

We do it by design.

For cargo, for instance, our experience in marine refrigeration design, engineering, and manufacturing quality control has made York Marinepak systems what they are: Secured on their own base. Deck supported. Compact enough to give you as much as 25% or more space in your equipment room. Economical to install. Factory-assembled under exacting conditions to assure clean, leakproof systems. And delivered to more ships than any other refrigeration systems made.

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We do it with service.

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So before you launch or refit your next ship, see your York Marine representative. Or contact us. York Marine Department, York Division of Borg-Warner Corp., P.O. Box 1592, York, PA 17405.

YORK DIVISION OF BORG-WARNER CORPORATION BORG WARNER ®

Vancouver Shipyards Launches Log Barge On A Film Of Water

The building capabilities of some shipyards are hampered by the problems involved in moving a launch-ready hull across dry land to the ways.

For Vancouver Shipyards Co., Ltd., North Vancouver, British Columbia, the solution has been to use "water bearings" to float the hull across land on a .005-inch film of water. In so doing, the yard has expanded its capability from a vessel size of 270 feet and 1,200 tons to a present maximum of 500 feet and 9,000 tons.

In addition, the water bearings allow the company to build several larger ships simultaneously. "With the water bearing system that we now use for this purpose, we can have several ships at various stages of construction," according to **Ken Davies**, naval architect for the firm.

The company's first major use of water bearings to position a large ship for launch took place in 1975, with the transfer of a 457-foot-long, 3,500-ton ferry for the provincial government. The most recent use of the system took place when the yard launched the first barge to be designed specifically to carry bundled logs. That barge, the Seaspan Rigger, will cost $11 million when completed. The barge has an overall length of 120 meters (about 394 feet), molded breadth of 27 meters (89 feet), and cargo deadweight of 12,700 tons. The barge is intended to serve major forest companies around the Queen Charlotte Islands, off the west coast of Canada, and Vancouver Island.

As with the ferry and other vessels similarly launched, the barge was moved from its building berth across to the launch sleds for side launching, using water bearings or "casters" supplied by Aero-Go, Inc., of Seattle, Wash. The launch weight of the Seaspan Rigger was 3,000 tons.

Water bearings are basically the same design as the air bearings developed over 15 years ago by Aero-Go. The major difference between the two systems is that the water bearings employ a thin (.005-inch) film of water instead of air on which the load moves, almost free of friction. In the launching of the Seaspan Rigger barge, the cradle of the barge moved on 96 Aero-Caster water bearings in carrying the ready-to-launch vessel 150 feet to the launch sleds.

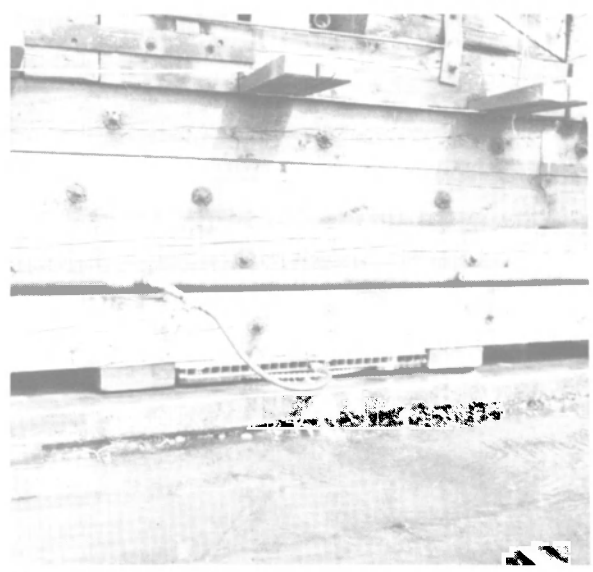
Each inflatable 48-inch by 48-inch caster has a circular element, or torus bag, permanently bonded to a rigid backing plate. The bag is donut shaped, forming a central plenum chamber inside. There are also corner and center "landing pads" to support the load when the element is not inflated. For lifting and moving, water is pumped into the bearing at a pressure of 50 psi. As soon as pressure within the caster exceeds the load's weight above it, the water escapes very gradually under the flexible bottom face, raising the load about .005 inch over the surface, which in this case is one of a number of concrete runways. The result is that the load floats above the surface so that approximately 1,000 pounds of load can be moved with only one pound of force.

Because the load can be moved with equal ease in any direction, work can be scheduled with great flexibility, Mr. **Davies** points out. "We can build ship modules under cover, move them past one another on the building berth if required, and adjust to unforeseen schedule changes under circumstances such as delays caused by special supply problems."

Connections and hoses under barge lead to Aero-Caster water bearings placed directly on concrete runways. When water bearings are inflated, they create a film of water to float barge along runways during transfer. The 96 Aero-Casters used to move the barge were made by Aero-Go, Inc., Seattle, Wash.

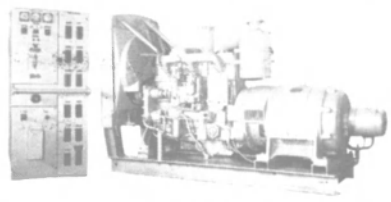
In the handling of the 3,000-ton log barge, the cradles on which the hull rested were sets of blocks, each 50-feet long. These in turn rested on wood spacers holding the blocks 2 inches above the concrete runways. This provided space for the insertion of the Aero-Caster bearings approximately one week before moving time to allow hookup of the water system. It took only two hours to place the water bearings and a week to install pipe manifolds and hoses. The yard used 3-inch-diameter pipe for the manifolds and 100-foot-long hoses from the service pits to the manifolds, with smaller hoses between the manifolds and the casters.

A crew inflated the water bearings, which lifted the blocks approximately 4 inches above the concrete runners. Motive power and guidance were provided by six crawler cats, two pushing and two braking, with one at each end to control movement fore and aft. "The vessel was also kept on line by a series of guide rollers attached to the launch cribs and acting on the sides of the concrete runways and launch sleds. We also had a 10-man crew on the ground including supervisors standing by." The excess water from the bearings was no problem, Mr. **Davies** adds, since it also kept the runways clean and simply drained off into the ground.



Typical water bearing installation under the barge shoring.

STANDBY GENERATOR
CUMMINS 75KW 93.8 KVA
DIESEL GENERATOR SET



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

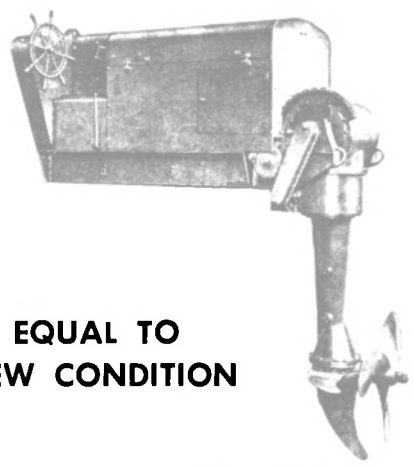
$9750

LOUIS-ALLIS M.G. SETS
2.5 KW 120 Volt Single Phase 60 Cycle Output
120 Volt D.C. Input — 1800 RPM
NEW - UNUSED EX - U.S.N.

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

CAN FURNISH WITH 230 VOLT DC INPUT

M&T Model O-2D
Marine Outboard Diesel
Driven Propulsion Units



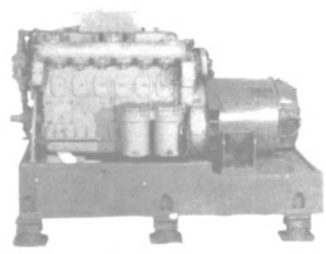
EQUAL TO NEW CONDITION

Equal-to-new-condition. Driven by GM 6-71 diesel—165 HP @ 1800 RPM—2-cycle—6 cylinders. Weight 9300 lbs—48" X 24" propeller. Unit shown with outboard shaft in running position. Distance from deck to bottom of skeg 89". 4 Units immediately available.

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

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

60KW DIESEL GEN. SET
DELCO GEN. — GM 6-71 DIESEL



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

Reconditioned — Ready To Go.

NEW BALANCED HEAD FAIRLEADS

1¼" **$2775**

1½" **$3350**

NEW — UNUSED SPHERICAL

MOORING BUOYS

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

CYLINDRICAL BUOYS

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

FAIRLEADS

NEW — UNUSED 4-ROLLER TYPE
UNIVERSAL SHIPBOARD FAIRLEADS

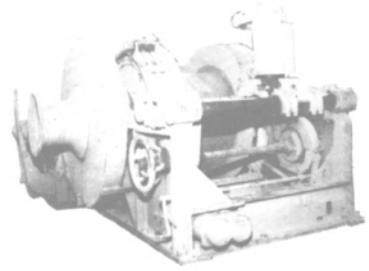
Opening between vertical rollers 10" — between horizontal rollers 4". Roller size 7½" — pin size 2½". Rollers 24" long. Extended legs for welding to deck. All are 18¼" x 33½" at top angled to 44" x 46½" at bottom. ⅞" Steel. Rollers have grease fittings. Plans available on request. SUITABLE FOR VESSELS UP TO 200,000 TONS. WIRE SIZE UP TO 5" CIRCUMFERENCE OR 95 TONS, NORMAL BREAKING STRENGTH. MAXIMUM LEAD 80°.

6 ROLLER TYPE

MOORING FAIRLEADS
WITH 12" CLEAR OPENING

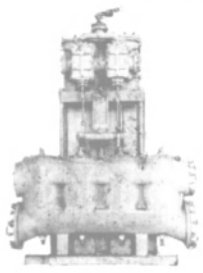
4 Vertical rollers — 5½" diameter—2 horizontal rollers—5½" diameter, split to enable working from either end of fairlead. Steel sideframe ⅞"—top & bottom 1". Handles 1½" wire easily—up to maximum lead 80°.

100,000 LB. ALMON JOHNSON
Constant Tension Mooring Winches



In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

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



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

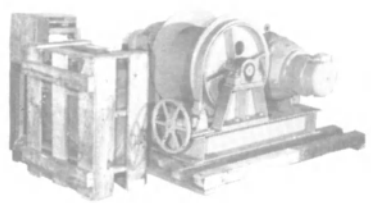
RECONDITIONED 1980
ABS — READY TO GO

WILSON-SNYDER 10 GPM 100 LB
Small Auxiliary
PORT BOILER FEED PUMP

Steam driven reciprocating pump. Operating pressure 100 lbs. 10 GPM @ 100 LBS. Suitable far boilers to 150 HP. 1½" Suction — 1" discharge.

GENERAL PURPOSE WINCH
3500 LBS AT 200 FPM

NEW UNUSED



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A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB —1750 RPM—type KR—full load amps 32. Motor drives winch through Falk reduction gear. Has compressor hand brake.

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CABLE: BOSIRON—BALTIMC

HATCHES

NEW UNUSED FLUSH HATCHES

54' X 77"

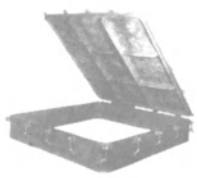
14-Dog — operated from top side by T-key, with dogs marked to show open & closed positions.

24" X 30"

30" X 30"

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

60" X 42" X 12"
10-DOG



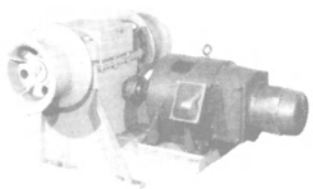
72" X 72" X 12"
16-DOG

36" X 26" 7-DOG
TANKER EXPANSION
TRUNK

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

NEW — UNUSED — IN ORIGINAL CRATE BOAT HANDLING AND GENERAL PURPOSE WINCH

EX
U.S.N.



2500 LBs @ 125 FPM on one gypsy head or 1250 lbs @ 125 FPM simultaneously on each gypsy. MOTOR: 15 HP—230 volts DC—55 amps—GE. AVAILABLE: 1 Set mfg by Lakeshore with Reliance motor—1 set mfg by Ideal with GE motor. Complete with controls and disc brake.

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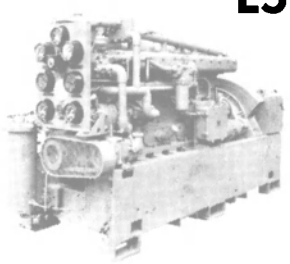
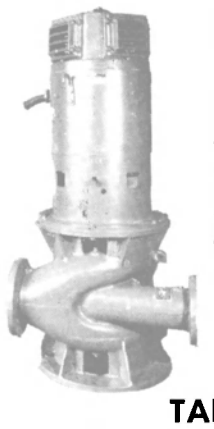


100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl —5½X7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high —42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

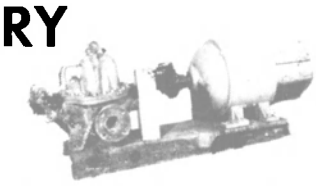


GARDNER-DENVER BALLAST PUMP

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

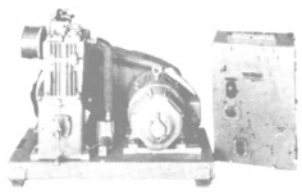
TAILSHAFTS

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



GOULD FIRE & BILGE PUMP

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



CLUTCH TIRE AIR COMPRESSOR

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

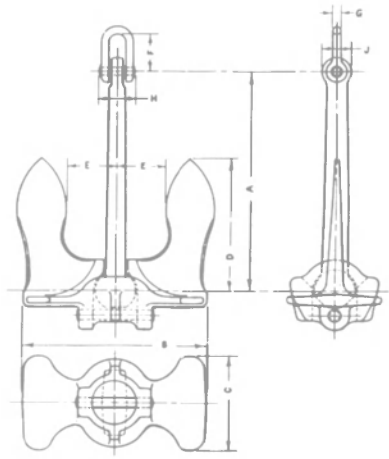
COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

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

ANCHORS -- CHAIN

DETACHABLE LINKS

PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

NEW — UNUSED LLOYD'S OR ABS CERTIF.

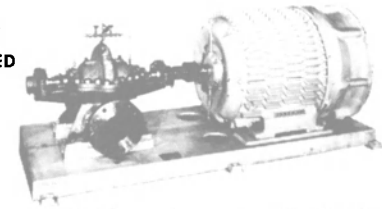
12000 LBS & 8000 LBS

STEEL DUPLEX STRAINERS

2", 3" and 4" sizes. Manufactured by Kraissl.

NEW 5" ALL BRONZE BALDWIN-LIMA 1000 GPM 150 PSI TOTAL HEAD CENTRIFUGAL FIRE PUMP

NEW
UNUSED



EX
U.S.N.

Single stage double suction type with 6" side suction & 5" side discharge. 3600 RPM—test pressure 250 PSIG. MOTOR: Reliance 125 HP 440/3/60—totally enclosed—fan cooled—Frame D-5003-S—50°C.

30 KW GM 3-71 DIESEL GENERATOR SETS

with self-contained fuel tank and switchboard

$9450

30KW Delco generator—80% P.F. GMC 3-71 diesel has 24 volt electric starter, with oil, amps & temp gauges, alternator and muffler. Generator equipped with main circuit breaker, voltage regulator, voltmeter, ammeter, frequency meter. 220/440/3/60—1200 RPM. Dry weight 4950 lbs. 100" long x 34" wide x 78" high.

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MARINE ENGINEERING/LOG
TOTAL WORLD WIDE BUYING POWER
(Non-buyers Removed)

BUYING POWER READERS

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Companies, Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers, Purchasing Agents, Works Managers, Superintendents, Naval Architects, Marine Engineers & Chief Draftsmen — **4,414** DOWN 23% LESS THAN '78

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TOTAL
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ME/Log...65% BUYERS

BUYERS	14,746
NON-BUYERS	7,918
TOTAL CIRCULATION	22,664

Source MR— June 1981 circulation statement
ME/1— December 1980 circulation statement

marine sales

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TOTAL BUYERS

MR

18,333

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TOTAL 18, 333

MARITIME REPORTER/ Engineering News

WORLD WIDE BUYING POWER TOTAL

(Non-buyers Removed)

BUYING POWER READERS

SHIPBUILDING, BOATBUILDING, DRILL RIG BUILDING & REPAIR COMPANIES:

(Commercial, U.S. Navy and U.S. Coast Guard): Companies, directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers and purchasing agents, naval architects, engineers and chief draftsman **5,595**

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

(Owners, Agencies and brokers) Companies, directors, owners, agents, presidents, vice-presidents, managers, secretaries and treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside **10,034**

PROFESSIONAL MEN:

Naval architects, engineers and consultants shoreside **2,704**

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MR...89% BUYERS

BUYERS	18,333
NON-BUYERS	2,240
TOTAL CIRCULATION	20,573

COAL RETURNS TO

C-E designed boilers will power the first six coal-fired steamships ordered in two decades. Naturally.

Combustion Engineering has long been a world leader in both marine boilers and coal-firing technology. So it's only natural that C-E boilers were selected to power the first six coal-fired steamships ordered in 20 years.

C-E designed coal-fired boilers will be aboard two 75,750 DWT bulk carriers to be built by Italcantieri, SpA for Bulkships Limited of Australia. Boilers of our design will also be on a pair of 74,700 DWT bulk carriers under construction by Mitsubishi Heavy Industries, Ltd., Japan, for The Australian National Lines. As well as on two 154,400 DWT bulk carriers to be *converted* by E. N. Bazan of Madrid for E. N. Elcano of Spain.

C-E modified a proven marine boiler design to permit coal-firing via spreader stoker. But we retained the conservative furnace rating, superheater design with vertical arrangement and wide tube spacing, and in-line main bank tubes that have been the hallmark of our oil-fired boilers.

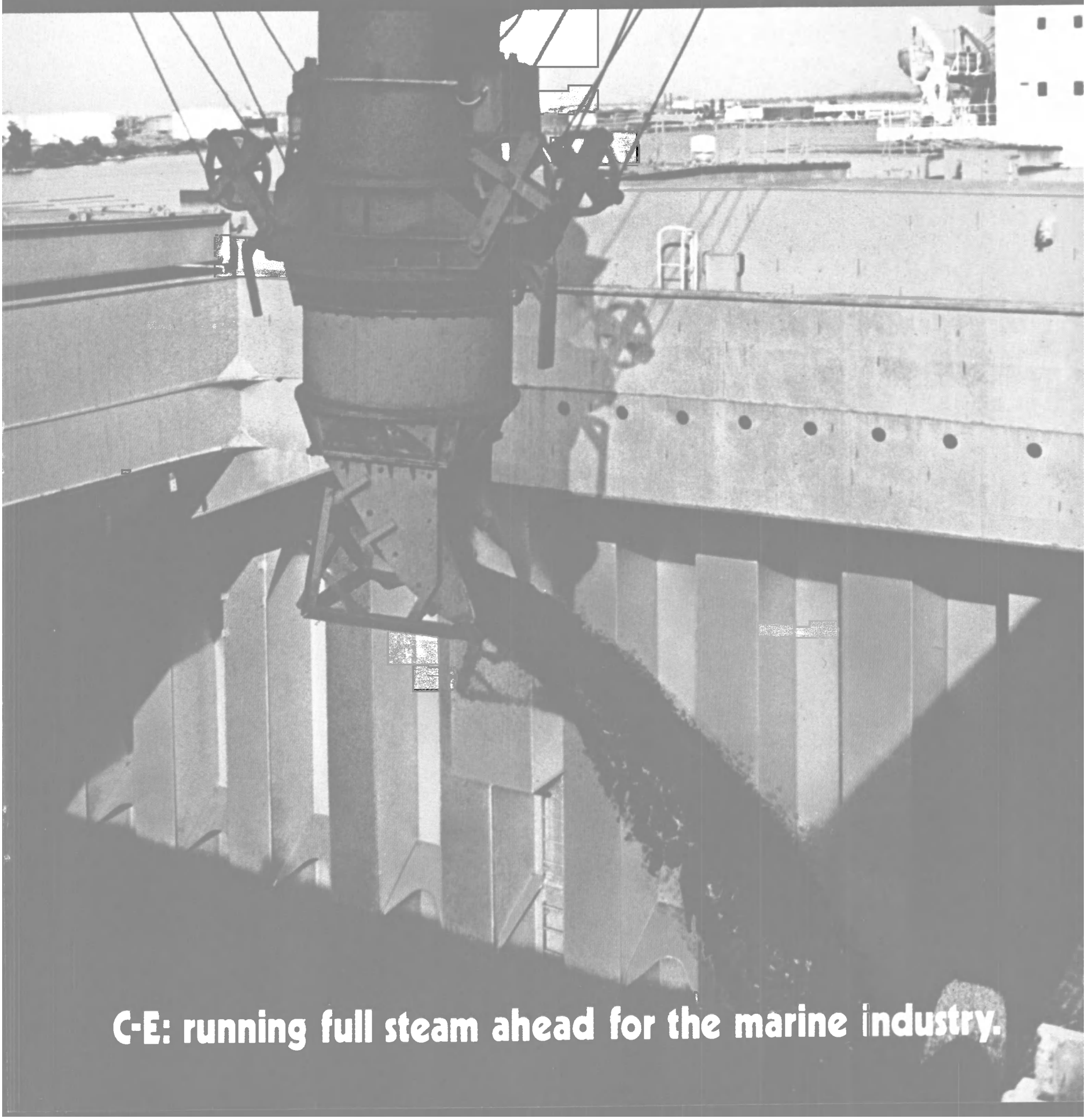
Many countries, eager to lessen their dependence on oil, are planning new coal-fired electric generating stations. C-E is ready with the technology and know-how needed to build new marine boilers for coal-fired steamships that will provide economical coal transport for these new stations.

For more about C-E marine boilers that are powering the new breed of coal-fired steamships, contact C-E Marine Power Systems, Combustion Engineering, Inc., Windsor, CT, U.S.A. 06095.

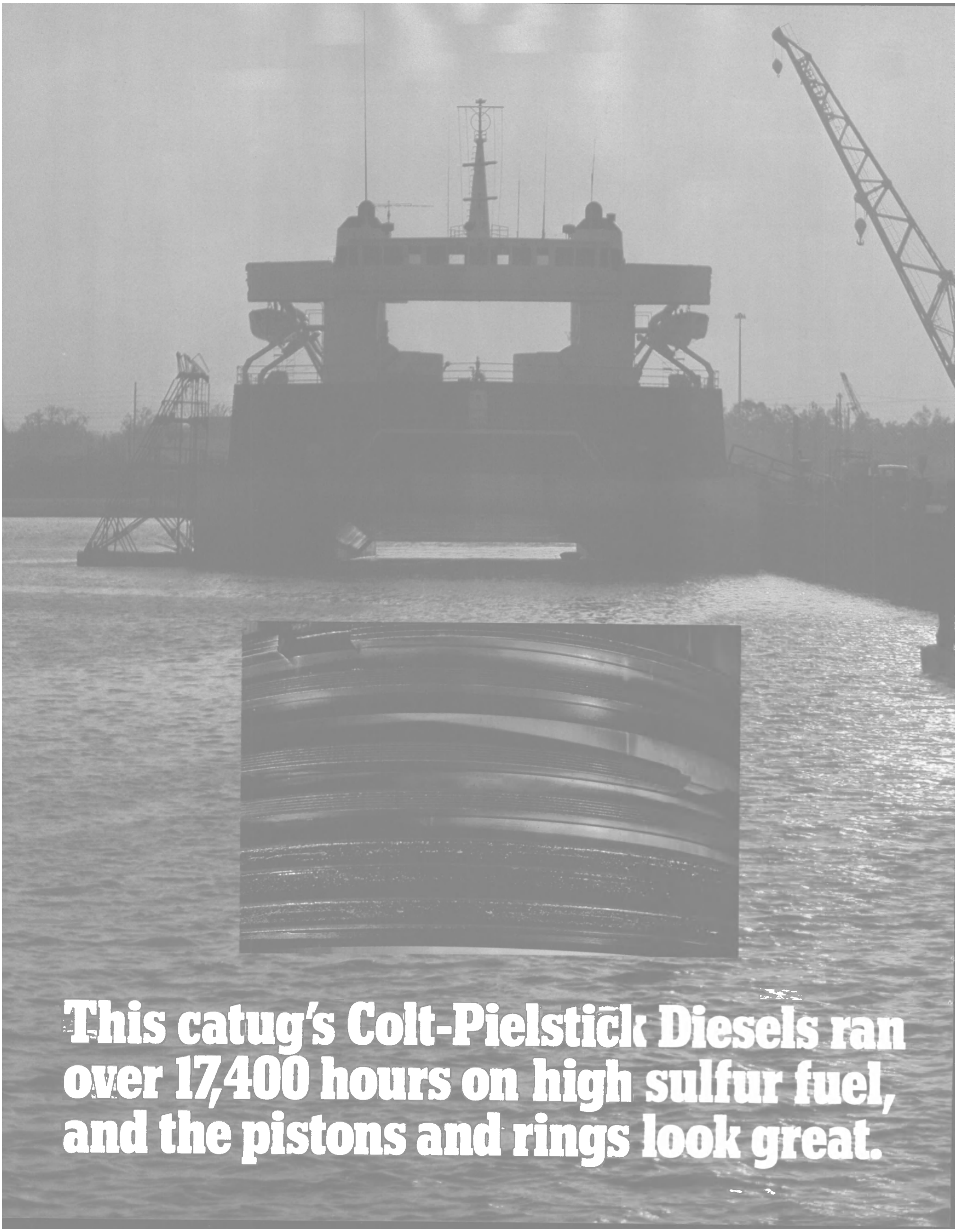
CE POWER SYSTEMS
COMBUSTION ENGINEERING, INC.

Write **156** on Reader Service Card

THE HIGH SEAS.



C-E: running full steam ahead for the marine industry.



This catug's Colt-Pielstick Diesels ran over 17,400 hours on high sulfur fuel, and the pistons and rings look great.

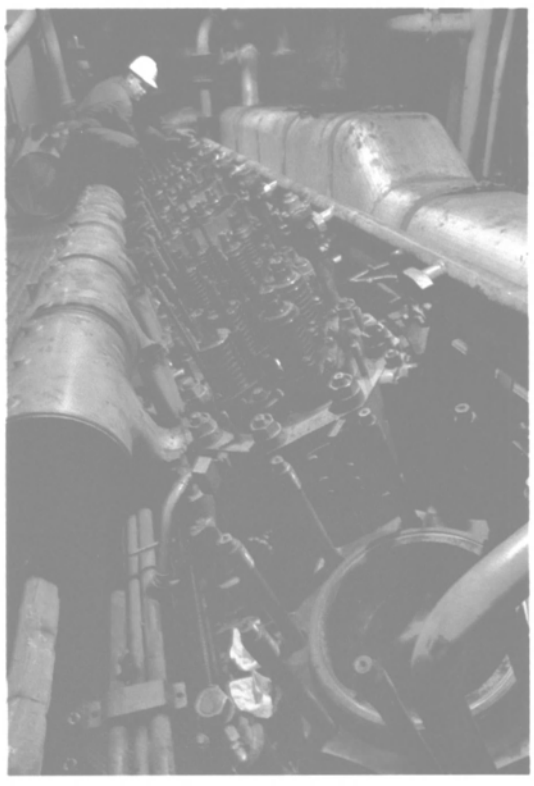
Two Colt-Pielstick PC 2 V-14 engines are the main power units on the M/V SEABULK MAGNACHEM, an ultra modern 39,900 ton integrated tug/barge owned by Hvide Shipping Company of Port Everglades, Florida.

When the vessel was commissioned, Gulftow® Special 30 was chosen as the lubricating oil. Since the engines use fuel with a sulfur content as high as 1.9%, with a viscosity of 1121 SSU at 100° F and vanadium at 32 PPM, sodium at 38 PPM, that's tough duty for any oil. Gulftow Special 30 stood the test.

(Left) The M/V SEABULK MAGNACHEM in port at Mobile, Ala. for drydocking and overhaul of engines.

(Inset left) After 17,800 hours of operation, lubricated with Gulftow Special 30, this piston from the port engine shows no detectable wear. All rings were completely free.

The M/V SEABULK MAGNACHEM, and her sister ship the M/V SEABULK CHALLENGER (above) are 39,000 ton integrated tug/barge combinations, transporting bulk liquids between U.S. Gulf and Atlantic Coast ports.



The port engine during overhaul and inspection.

The MAGNACHEM was able to run 7,800 hours beyond the recommended 10,000 hour overhaul point on the port engine, and 7,400 hours beyond it on the starboard. And when the engines were torn down and inspected, the piston skirts were clean and smooth, with no scoring, and all rings were completely free.

Hvide carefully considered the demands these conditions would place on an oil before choosing Gulftow Special 30. They chose it for stability, long life and superior protection in the tough marine environment.

Careful lubricant selection is only part of Hvide's meticulous maintenance program. They constantly monitor the performance of this vessel's engines on sophisticated monitoring consoles reading in both the engine room and on the bridge. And they use Gulf-Check tests on a regular basis to keep aware of oil and engine condition. It's this complete maintenance program that allows Hvide to get such long and economical service from its machinery.

In addition to using Gulftow Special 30 in the Pielstick Diesels, the M/V SEABULK MAGNACHEM also uses Gulftow 193, Gulf Harmony® 68 AW, Gulf Harmony 46 AW, Gulf E.P. Lubricant HD 220, Gulfcrown® Grease E.P No. 2 and Gulflube® Motor Oil XHD 10W/30 to meet other lubricant requirements.

Talk to your Gulf pro or Gulf Marine Distributor about Gulf lubricants for marine service. Or, for a brochure on "Gulf Inland and Coastal Marine Lubricants," write to Gulf Oil Corporation, P.O. Box 1563, Houston, Texas 77001.

Close inspection of the piston skirts found them clean and smooth, with no scoring.

Gulf®

Ask the pro from Gulf.

Write **198** on Reader Service Card

New Version Of National Supply Jacking System —Literature Available

Literature is now available describing a "fixed-mounted" version of its unique opposed-pinion jacking system for offshore platforms manufactured by National Supply Company. Attached by welding directly to the hull, the fixed version allows the National jacking system to be used on a greater variety of platform designs, according to the Houston-based company.

Fixed mounting enables a lighter leg support structure by transmitting jacking forces directly to the hull, noted National Supply. The new fixed mounting method was developed in cooperation with naval architects and shipyards and has been accepted by a number of yards both in the U.S. and overseas.

The National jacking system has been available until now in a "floating version" that uses shock pads to transmit loads between jack unit and hull.

Each version has advantages and design trade-offs, said the manufacturer. The "floating" version provides greater flexibility and fabrication ease, while the fixed version is simpler, lighter and more economical.

Availability of both provides greater options in meeting various performance criteria for everything from compact platforms for relatively shallow depths and moderate sea conditions to very large platforms for severe operating environments.

National Supply offers one of the most complete lines of offshore drilling platform equipment, including drilling machinery, derricks, wellheads, mooring equipment and offshore pedestal cranes.

For complete literature on National jacking systems,

Write 59 on Reader Service Card

MacGregor Promotes Ray Price

Doug Comer, operations manager, has announced the promotion of **Ray Price** to service engineer at the Houston MacGregor Land & Sea service station. Mr. **Price** is experienced in repair work, seagoing maintenance, and shipyard installation work. His appointment will help further the current expansion of MacGregor facilities to service a rapidly growing number of customers in the Gulf area.

Brochure Available On Antifouling Overcoat Guaranteed For Two Years

A full-color, four-page brochure describing the cost benefits of applying Pro-Tec 900 antifouling overcoat has been published by Agro-K Corporation, Minneapolis, Minn. Case histories and full-color photographs of ships coated with Pro-Tec 900 provide dramatic evidence of the effectiveness of this product. The brochure also contains tables on savings which can be realized by using the system, as well as a chart for estimating the benefits to your particular ship.

The Pro-Tec 900 overcoat is guaranteed, if correctly applied, to prevent the formation of marine growth by extending the normal antifouling paints for up to two years. For a free copy of the brochure,

Write 53 on Reader Service Card

Elect Two Directors At Twin City Barge

Two new directors have been elected to the board of directors of Twin City Barge, Inc., South St. Paul, Minn., **John W. Lambert,** chairman of the board announced recently. Elected were **Burton J. Vincent,** chairman of the board of Burton J. Vincent, Chesley & Co., Chicago, Ill. Mr. **Vincent** has served as TCB's financial adviser for the firm since its inception as a publicly held company in 1969.

James Wayne Musgrove is one of the principals of Transload and Transport, Inc., Morgan City, La., a liquid carrier recently acquired by Twin City Barge.

Twin City Barge is a diversified company engaged in river transportation, barge and dredge construction, and terminal operations.

Anschuetz Hosts Exhibit For Major Manufacturers Of Marine Equipment

Anschuetz of America recently hosted its first Marine Equipment Exhibit held in New York, along with the pricipal companies that Anschuetz represents. More than 350 guests attended the two-day function, by private invitation.

Participants in the exhibit included some of the world's best-known marine equipment manufacturers. Most of these introduced never-before-seen equipment to the New York shipping community. Krupp Atlas displayed its new 8500 ARPA; Debeg Marine introduced the 2340 Watch Receiver and the Model 2000 SSB; Metritape displayed its tank gaging equipment; Navidyne unveiled the ESZ-8000 Satellite Communications Terminal alongside the ESZ-4000 Satellite Navigator and the ESZ-7000 Loran-C; Philips provided the SITOR System; Radar Devices displayed the new ARPA I and II; Alden Electronics showed its new Weatherfax; Ametek Straza exhibited its newest doppler systems; Bowditch Navigation's new navigator was presented; Iotron displayed the Digiplot ARPA.

The host, Anschuetz, introduced its latest equipment: the new Standard 12 Gyrocompass, the fully adaptive autopilot, and the latest steering stand—all designed to meet USCG and IMCO requirements. Anschuetz of America, one of the leading suppliers of marine equipment, has offices throughout the U.S.

Hans Leszke (right) from the research department of Anschuetz in Kiel, Germany, and Hans Schulz (center) from the marketing department, explain navigation equipment capabilities to one of the 350 invited guests at the first exhibit held in the U.S. by Anschuetz of America. The show featured 10 major manufacturers.

'Petromar Bravo' Delivered By Halter —Third Of Six Ordered

The Petromar Bravo (shown above), third in a series of six 192-foot tug/supply boats being built by Halter Marine, Inc., New Orleans, La., for the Petromar Corporation of Rockport, Texas, was christened recently in Corpus Christi.

The vessel was christened by **Jan Cady**, wife of **George Cady** of Texaco Inc., who has chartered the Petromar Bravo for work out of Warri, Nigeria. The new boat will join her Halter-built sister ships Petromar Atlas and Petromar Chief, which are already working for Texaco in Nigerian waters. They will be followed there soon by the Petromar Dorado, which is nearing completion at Halter's Chickasaw, Ala., division.

The Petromar Bravo is 192 feet 6 inches long with a 40-foot beam, and 15-foot draft. She is powered by two EMD 12-645E6a diesel engines developing 1,500 bhp each at 900 rpm through Lufkin 3:1 reverse/reduction gears. Maneuverability is enhanced by a Schottel bowthruster driven by a GM8V71 diesel engine.

She can carry 5,000 cubic feet of dry bulk mud in her four Smatco tanks and 1,500 barrels of liquid mud in four additional tanks. Her spacious 4,100-square-foot aft deck can carry up to 700 tons of cargo.

The new tug/supply vessel can also carry 50,184 gallons of fuel oil, 1,000 gallons of lube oil, 10,000 gallons of potable water, and 211,000 gallons of ballast.

Auxiliary machinery includes two Delco 125-kw generators driven by two GM8V71 diesel engines, two Quincy D325 air compressors, and Carrier air-conditioning and heating for crew comfort.

Four Aurora 344 pumps move bilge, ballast, and fuel oil and fire-fighting liquids, while one Viking HL195D pumps oily water bilge and another serves as a fuel oil standby pump.

Some of the deck equipment aboard includes: one Smatco 1500 EAD-30 double wildcat; a 5-foot by 8-foot stern roller, a Smatco 66-DAW-200 towing winch; 16 shots of 1.5-inch high-strength stud link chain; and two 2,000-pound Danforth anchors.

In addition to the vessel's onboard fire-fighting system, she is also equipped to fight ship fires with a 500-gpm monitor located on top of the pilothouse. The monitor is served by an Aurora 421 pump and driven by power from a GM6-71 diesel engine.

The Petromar Bravo is load-line certificated and classed A-1,

Maltese Cross, full ocean towing by the American Bureau of Shipping. She is USCG classed subchapter I, USCG NVC 1-78, and Coast Guard admeasured under 300 gt.

The new Petromar vessel was built at Halter Marine's Chickasaw, Ala., division, one of a group of shipyards owned and operated by Halter Marine.

'PETROMAR BRAVO'

Main Particulars

Propulsion

Main Engines: 2—EMD 12-645E6A diesels, 1,500 hp @ 900 rpm.
Engine Controls: Mathers w/control stations in forward and aft pilothouse and 1 in engine room.
Reverse/reduction gear: Lufkin ratio: 3:1.
Propellers: 2 stainless steel, four-bladed.
Bow thruster: 1 Schottel driven by GM8V71N diesel.
Steering system: Electro-Hydraulic by Steering Systems, Inc.

Capacities

Fuel oil ..... 50,184 gallons
Lube oil ..... 1,000 gallons
Potable water ... 10,000 gallons
Ballast water ... 211,000 gallons
Pressure set ..... 1 Myers and 1 Elver E8 ultra violet water purifier
Bulk mud tanks ..... 4 Smatco @ 1,250 cubic feet
Liquid mud tanks .... 4 — 1,500 bbls.

Auxiliary machinery

Generators ... 2 — Delco 125-kw (1,200 rpm)
Generators driven by ..... 2 — GM8V71
Heating .... Electric Strip heaters 25 kw
Air-conditioning .. Carrier 15 tons
Air Compressors .. 2 Quincy D325 2-cylinder 2-stage 5 hp
Sanitary system ..... 1 Crown sewage tank pump 5 hp
Ballast pump ..... 1 Aurora 344
Bilge and fire pumps ... 2 Aurora 344
Fuel oil transfer pump .. 1 Aurora 344
Fuel oil standby pump .... Viking HL 195D rotary pump
Oily water bilge pump .... Viking HL 195D

Communications and Navigation Equipment

Satellite Navigator ..... N.C.S. Wherefinder II
Gyro ..... Sperry — MK 37D
Radar ..... 2 Decca 916 C
Radio .... 1 SSB Harris RF230M
VHF/RM ... 2 Texas Instruments
Automatic pilot .... 1 8T Sperry
Depth Sounder ... 1 Furuno 85F/ Datamarine
Loudhailer ..... 1 Raytheon

Deck Equipment

Anchor Windlass .. 1 Smatco 1500 EAD-30 double wildcat
Anchor chain .. 1½" — 16 Shots high strength stud links
Anchors ... 2 — 200 lb. Danforth
Stern roller ..... 5 feet x 8 feet
Towing winch ..... 1 Smatco 66-DAW-200

Electro-Nav Opens Two Facilities In Gulf States

Robert E. Negron, president of Electro-Nav., Inc. Elizabeth, N.J., announced recently that the company has established two new sales and service offices in the ports of New Orleans and Houston.

"The new offices, located near major shipping piers, are fully stocked with all major equipment and a good supply of spare parts. And each is staffed with very capable people with broad technical, marketing, and service experience in electronic navigation and communications," Mr. **Negron** said.

The New Orleans office, at 651 Richard, Suite 2B, is managed by **James Dougherty**, who joined Electro-Nav after his retirement from the USAF. **Frank Lensmyer III**, previously with F&L Industrial Electronics and Specialized Lorain, will direct marketing activities.

The Houston office, at 706 Curtis in Pasadena, is managed by **Frank J. Balsis**, who spent 21 years in the USAF, retiring as ATC maintenance supervisor working with radars, SSB, VHF and UHF radio, and other navigation and communications equipment.

$10-Million Overhaul Contract Awarded To Atkinson Marine

Atkinson Marine of National City, National City, Calif., has been awarded a $10,735,130 firm fixed price contract for the regularly scheduled overhaul of USS Prairie (AD-15). Work will be performed in San Diego. The Supervisor of Shipbuilding, Conversion and Repair, USN, San Diego, is the contracting activity.

Launch Two Stern Trawlers At Halifax

Halifax Industries Ltd. and National Sea Products Ltd. recently christened the stern trawler Cape Brier, and both launched and christened a sister ship — Cape Ballard — at the Halifax Shipyards.

The Cape Brier was launched at Halifax Shipyards on December 20, 1980, and was christened by **Mrs. Izilda Pittman,** wife of **Michael Pittman,** a captain with National Sea Products Limited.

The Cape Ballard was christened by **Mrs. Molly Covert,** wife of **Frank Covert Sr.,** a director of National Sea Products Limited.

The Cape Brier and Cape Ballard are the first two in a series of three stern trawlers to be built by Halifax Industries for National Sea Products as a result of a contract signed in December 1979. Construction of the third trawler is underway with the launching scheduled for later this year. The vessels were built in the recently refurbished and modernized steel fabrication facilities at Halifax Shipyards. The wheelhouse of the Cape Brier and the wheelhouse and superstructure of the Cape Ballard were constructed at the Dartmouth Marine Slips facility.

Designed as deepsea stern trawlers for operations in ice-infested waters, the vessels have the following main dimensions: length overall—49.9 meters (163.9 feet); breadth molded—11.8 meters (38.7 feet); design draft—4.0 meters (13.1 feet).

The steel hulls are ice-strengthened for operations in compact ice up to a maximum of 2 feet. The design features a ram-bulbous bow for breaking the ice and ice fins and ice davits to allow continued operations in ice conditions.

The vessels, which can accommodate 18 crew, are designed as fresh fish stern trawlers and have an overhead coil-cooling system to reduce melting of the ice in the approximately 426-cubic-meter insulated fishhold. Extensive winch equipment and nautical systems are features of both vessels.

MAK marine diesel engine will power the ice-strengthened stern trawler Cape Ballard after her launching at Halifax Industries Ltd. Shipyard.

The main engines are MAK type 8 m 453 AD, 8 cylinder in line, 4-stroke, non-reversible marine diesel with supercharging and direct injection adjusted to operate with a maximum output of 1,470 kw at 600 rpm. The vessels are equipped with a Lohmann and Stolterfoht reduction gearbox type GCM600, 3:1 ratio. The propeller is a controllable-pitch Liaaen type with speed of 200 rpm, diameter 2,750 mm and having four stainless-steel blades working in a "Kort" type nozzle.

Hudson Delivers The Amy Nicole

Gerald P. Hebert Enterprises, Lafayette, La., has taken delivery of the Amy Nicole (shown above), a 120-foot by 27-foot 6-inch by 11-foot 3-inch, 1,200-hp class utility vessel, built by Hudson Shipbuilders, Inc. (HUDSHIP), Pascagoula, Miss.

The Amy Nicole joins Hebert's fleet along with the Wanda Louise, which was previously constructed by HUDSHIP, the Jackie A and the Mark Alan.

The vessel is powered by twin GM 16V92 diesel engines through Twin Disc MG 520 5.17:1 gears and is capable of a maximum speed of 12 knots. Auxiliary power is provided by two Delco 50-kw generators driven by GM 4-71 diesels. An Aurora 421 fire monitor rated at 600 gpm delivers the necessary fire protection.

The deck cargo capacity is rated at 120 long tons in a clear deck area of 22 feet by 62 feet.

$3.6-Million Navy Contract Modification Awarded To Western Electric

Western Electric Company, Greensboro, N.C., has been awarded a $3,685,000 modification to an existing cost plus fixed fee contract for oceanographic equipment. Work will be performed in Burlington, N.C. The Naval Electronics Systems Command is the contracting activity.

C.H. Shue Is Named Port Engineer For Lexington

Chih Hwa Shue

Lexington Transport, Inc., New York, recently announced the appointment of **Chih Hwa Shue** as port engineer. Mr. **Shue** joined Lexington in 1963 and previously served as chief engineer. He will oversee the maintenance and repairs of a fleet of 10 specialized vessels for the line.

IHI To Employ New Hull Form On 223,000-Dwt Bulk Carrier

Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan, recently received an order to build a 223,000-dwt energy-saving coal/ore carrier from Kumiai Sanpaku Co., Ltd., a domestic shipowner.

The ship will have a newly developed hull form and the SSG (Super-economical Shaft Generator) Mark II system which is expected to reduce fuel consumption by up to 50 percent as compared with the 130,000-dwt energy saving ore carrier Pioneer Maru, built by IHI in 1978.

To be built with a long-term charter from Kawasaki Steel Corporation, the ship will be completed in January 1983, and operated by Japan Line, Ltd.

The ship size will be the maximum allowable for ports of call in Japan, Australia, South Africa, Europe, and North and South America.

The use of very large hull dimensions and slower ship's speed considerably reduces the wave-making resistance of a ship's hull but increases the frictional resistance. Accordingly, IHI engineers developed a hull form, termed the "IHI-L.V. hull form," which reduces the resistance. The hull has no bulb at the bow and incorporates a stern shape which reduces energy loss by improving the water flow.

The propulsion machinery will consist of two IHI-Sulzer 7RLB56 type diesel engines with one shaft and reduction gear. A clutch mechanism between the propulsion machinery and the reduction gear will enable the ship to operate on one engine.

Another feature of the ship will be the adoption of the SSG Mark II system. In the system, a turbogenerator is coupled mechanically to the main engine and when the turbine output exceeds the onboard electricity demand, excess power from the turbogenerator is transmitted to the propulsion system and if the turbogenerator output is too low, it can be assisted by the main engine. The SSG Mark II system also employs a three-stage evaporation type exhaust gas economizer, a mixed pressure steam turbine, and a charging air economizer.

Principal particulars of the ship are: length between perpendiculars, 299 meters (about 981 feet); breadth, 50 meters (164 feet); depth, 26.65 meters (87 feet); draft, 19.82 meters (about 65 feet); deadweight, 223,600 tons; gross tonnage, 113,000; main engines, two IHI-Sulzer 7RLB56 type diesel engines (with one shaft) developing an output of 18,900 hp at 164/67.5 rpm; service speed at full load, 13 knots.

Levingston, CNC Sign Agreement To Build Jackups At La Ciotat

Ed Paden, president of Levingston Industries, Inc., Orange, Texas, announced that a license agreement has been signed between Levingston Marine Corporation and Chantiers Navals de La Ciotat (CNC), under which CNC will build the Levingston Class 111-C self-elevating drilling unit in its shipyard in La Ciotat, France.

The Class 111-C jackup is a heavy duty rig designed for operation in water depths up to 300 feet, in weather up to the equivalent of hurricane conditions in the Gulf of Mexico, and in ambient temperatures as low as −20° C.

Levingston Marine Corporation is the Levingston Group's engineering subsidiary based in Annapolis, Md., providing naval architectural, marine engineering and transportation consulting services to the maritime and offshore industries, both in the U.S. and worldwide.

Chantiers Navals de La Ciotat is a privately owned shipbuilding and ship repair company located at La Ciotat on the French Mediterranean coast. CNC's shipyard occupies about 109 acres, including a 350,000-dwt graving dock, and employs about 4,500 people. Its current orderbook includes two containerships and three LPG tankers.

In a simultaneous announcement from its head office in Paris, Chantiers Navals de La Ciotat revealed that the company is in the final stages of negotiation of a contract for the construction of two of the Levingston-designed jackups for an owner as yet unnamed.

Seaward International Opens New York Office

Seaward International, Inc. has announced the opening of a New York City office and the appointment of **Marvin Gensler** as national sales representative. This new office, which will be managed by Mr. **Gensler**, will provide sales and technical support to Seaward's East Coast customers.

Marvin Gensler

Mr. **Gensler** will be responsible for the sale of Seaward's entire line of marine products. Seaward's products include the SEA CUSHION ship and dock fenders, the floating DONUT piling fenders and the new SEA GUARD platform leg and dock fenders. In addition to the foam-filled, high-capacity marine fenders, Seaward provides buoys, speciality flotation devices, and oil-spill control equipment to the offshore industry.

Prior to joining Seaward International, Mr. **Gensler** was a systems sales engineer with Lord Kinematics Corporation, a manufacturer of specialized rubber products for the marine and aerospace industries.

The office is located at 127 East 59th Street, New York, N.Y. 10022; telephone (212) 688-0620.

Broughton Offshore Plans Two Jackups Which Will Cost $64.3 Million

Broughton Offshore Limited III, Houston, Texas, recently applied for a Title XI guarantee to aid in financing the construction of two 100-foot jackup drilling barges. The vessels are to operate in the Gulf of Mexico.

If approved, the Title XI guarantee would cover $47,650,000 or nearly 87½ percent of the estimated actual cost of $64,360,000. Bethlehem Steel Corp., Sparrows Point, Md., is the proposed builder. Deliveries are scheduled for August and September 1982.

CALENDAR OF COMING EVENTS

The Sixth International Waterborne Transit Conference Sept. 29-Oct. 2

Organized by the International Marine Transit Association (IMTA).

Hotel Scandinavia, Copenhagen, Denmark, Contact Bryan C. Walker, president; or Lotte Oedegaard, press secretary, DDS A/S, Copenhagen K, Denmark, Skt. Annae Plads 30, DK-1295; 01 15 6300.

The Bunker Problem; How to Cope Sept. 30

Sponsored by U.S. Merchant Marine Academy Foundation.

U.S. Merchant Marine Academy, Kings Point, N.Y. Contact Capt. Alfred Fiore, U.S. Merchant Marine Academy, Kings Point, N.Y. 11024; (212) 765-3304.

SHIPASIA Exhibition and Conference Oct. 13-17

Sponsored by The Hong Kong Shipowners association, the Hong Kong Joint Branch of the Royal Institution of Naval Architects and the Institute of Marine Engineers, and the Shipping Committee of the Hong Kong General Chamber of Commerce, in cooperation with the ShipAsia management. The conference will be organized by Lloyd's of London Press Ltd.

Ocean Terminal, Hong Kong. Contact Peter K. Johnson, director, ShipAsia '81, 6006 Bellaire Boulevard, Suite 101, Houston, Texas 77081; (713) 666-5188, telex 910 881 5777.

Extreme Loads Response Symposium Oct. 19-20

Presented by the Ship Structure Committee and The Society of Naval Architects and Marine Engineers.

Sheraton National Hotel, Arlington, Va. Contact Comdr. James A. Sanial, registration chairman, ELRS, U.S. Coast Guard Headquarters (G-DMT-1/54), Washington, D.C. 20593.

Gastech 81: 8th International LNG/LPG Conference & Exhibition Oct. 20-23

Organized by Business Meetings Limited.

Congress Centrum, Hamburg, Federal Republic of Germany. Contact Gastech Secretariat, 2 Station Road, Rickmansworth, Herts WD3 1QP, England; 09237 76363, telex 924312. (Preview in October 1 issue of MR/EN)

Combat Systems Symposium Oct. 21-22

Sponsored by the Chief of Naval Materials; Chief of Naval Research; and the Commanders of the Naval Air, Electronics and Sea Systems Commands in cooperation with ASNE.

Mahan Hall, U.S. Naval Academy, Annapolis, Md. Contact American Society of Naval Engineers, 1012 14th St. N.W., Washington, D.C. 20005; (202) 737-0757.

Fishing Industry Energy Conservation Conference Oct. 26-27

Organized by SNAME Fishing Systems Panel. Sponsored by National Marine Fisheries Service.

Park Hilton Hotel, Seattle, Wash. Contact David F. Smith, Registration Chairman, P.O. Box 297, Seahurst, Wash. 98062.

Europort Exhibition and Congress Nov. 11-14

Sponsored by the Europort Organization, RAI Halls, Amsterdam, the Netherlands.

Contact: Peter K. Johnson, Europort, 6006 Bellaire Blvd., Suite 100, Houston, Texas 77081; (713) 666-5188, telex 910 881 5777.

International Issues Day Nov. 16

Sponsored by The Maritime Association of the Port of New York.

N.Y. City Passenger Ship Terminal, New York City. Contact Gary McIsaac, ISOSO-1981, 34th Floor, 80 Broad St., New York, N.Y. 10004; (212) 425-5704, telex 12 6808 Maritime NYK.

International Symposium on Ship Operations (ISOSO) '81 Nov. 17-19

Sponsored by The Maritime Assoc. of the Port of New York, American Institute of Merchant Shipping, Council of American Flag Ship Operators, The Hydrographic Society and the Council of American Master Mariners.

N.Y. City, Passenger Ship Terminal, New York City. Contact Gary McIsaac, ISOSO-1981, 34th Floor, 80 Broad Street, New York, N.Y. 10004; (212) 425-5704; telex 12 6808 Maritime NYK.

89th Annual Meeting of The Society of Naval Architects and Marine Engineers Nov. 18-21

Sponsored by The Society of Naval Architects and Marine Engineers.

Hilton Hotel, New York, N.Y. Contact Trevor Lewis-Jones, SNAME, One World Trade Center, Suite 1369, New York, N.Y. 10048; (212) 432-0310.

$6-Million Navy Contract Awarded To Crane Con

Crane Con Products Company, Seattle, Wash., has been awarded a $6,658,280 firm fixed price contract for electromechanical cranes for use onboard AFDM-class ships. The Naval Sea Systems Command is the contracting activity.

Adrick Marine To Build New Cooling System Line —Literature Available

Adrick Marine Corporation, Ronkonkoma, N.Y., an associated company of Adrick Cooling Corporation, will design and manufacture a new line of marine air handling units for cargo refrigeration and air-conditioning units for vessels at a large, newly purchased facility in Linden, N.J., **Richard C. Vassallo**, president of Adrick Cooling, announced recently.

The new product line complements Adrick's present line of marine condensing units. For detailed literature on Adrick's complete line of condensing, refrigeration and air-conditioning equipment,

Write 55 on Reader Service Card

Wheeler Associates Names Waryas A Vice President

The international maritime consulting firm of Wesley D. Wheeler Associates, Ltd., New York, has elected **Edward A. Waryas Jr.** to the newly created position of vice president, commercial.

Mr. **Waryas** will assist in developing and maintaining relationships between Wheeler's clients in the United States and

Edward A. Waryas Jr.

the worldwide network of shipyards and marine service companies represented by the Wheeler organization. He will also oversee the company's advertising and sales promotion programs, related activities, as well as provide his expertise to the firm's clients.

Wheeler Associates is exclusive U.S. agent for the Astilleros Espanoles, S.A. group of shipyards in Spain; Neorion Shipyards Syros Island, Greece; Royal Schelde Scheldepoort Shiprepairers, the Netherlands, and Astilleros Del Golfo, S.A., one of the industry's foremost marine blasting and coating specialists, with facilities in Mexico, Spain and the U.S. The company also represents Dutch crewing agents, Oceanwide Nautical Services, B.V., and selected agencies.

Ashland Oil Promotes Two In Marine Services Group

Robert P. Johnson and **C. Barry Gipson** were recently promoted in Ashland Petroleum Company's marine services group, it was announced by **Sam S. Watson**, group vice president, supply and transportation.

Mr. **Johnson** has been named assistant chief engineer responsible for towboats and barges maintenance planning.

Mr. **Gipson** has been promoted to maintenance supervisor-barges, involving repairs to Ashland's barge fleet and working with the U.S. Coast Guard to assure proper inspection and certification.

Award $6-Million Order For Cryogenic Pumps To Worthington Group

An order with a value of more than $6-million has been received by the Worthington Group, McGraw-Edison Company, Basking Ridge, N.J., for 40 cryogenic pumps to be installed at a new liquid petroleum gas (LPG) terminal in Arzew, Algeria.

The pumps, to be built at Worthington's Sacramento, Calif., plant were ordered by Shinsho Corporation, Tokyo. The order for the submerged, motor driven LPG pumps was placed on behalf of Ishikawajima-Harima Heavy Industries (IHI), which is constructing the LPG loading facility for L'Enterprise Nationale Sonatrach. The pumps will be delivered by Worthington in the second half of 1982.

In this application, the tank-mounted submerged pumps of retractable design, largest of this

type ever built, will handle liquids at 47 degrees below zero centigrade (52 degrees below zero Fahrenheit).

Peabody Holmes To Supply Inert Gas Systems For Four Tankers

ATCO Marine Corporation, exclusive U.S. representative for Peabody Holmes Ltd. of England, announced the recent signing of four contracts for complete inert gas systems. The tankers scheduled to be equipped with the Peabody Holmes Ltd. systems are: the M/V Point Vail, operated by Point Shipping Corporation of New York, the S/T Achilles and M/V Gorgona, operated by "C" Ventures, Inc. of New York, and the M/V Catalunya, operated by Naviera Aliosis, Maracaibo, Venezuela. Peabody Holmes Ltd. has supplied worldwide more than 400 inert gas systems.

'Gulf Shark' Delivered To Gulf Fleet Marine

Gulf Fleet Marine Corporation, Houston, Texas, recently accepted delivery of the Gulf Shark (shown above), a 112-foot by 26-foot by 11-foot, 1,200-hp utility vessel built by Hudson Shipbuilders, Inc., Pascagoula, Miss.

The Gulf Shark is the second of two utility vessels delivered to Gulf Fleet in 1981, and is the fifth vessel "Hudship" has delivered to the company in the past two years.

The Gulf Shark is powered by twin GM 16V-92 diesel engines through Twin-Disc MG 520 5:1 gears and is capable of a maximum speed of 13 knots. She has a deck cargo capacity of 82 long tons and is constructed with a clear deck area of 60 feet by 20 feet.

Her fuel tank capacity is 20,825 U.S. gallons and she can carry 57,900 gallons of drill water and 4,540 gallons of potable water. The Gulf Shark's air-conditioned pilot house, crew quarters and full package of electronic and navigational equipment, allows for service in most locations.

Three Oceangoing Great Lakes Bulkers To Be Built In U.K.

British Shipbuilders has been awarded a $130-million (Canadian) order for three oceangoing Great Lakes bulk carriers, it was announced recently. The 35,000-dwt ships will be built by Govan Shipbuilders — two for Misener Transportation, Ontario, and one for Pioneer Shipping, Manitoba.

The vessels, the first Canadian ships to be built in the United Kingdom in 20 years, will be specially designed to allow the bulkers to be used on the Great Lakes or in ocean commerce, especially during the times when the Lakes and the St. Lawrence Seaway are icebound. The vessels will be equipped with a water ballast system that is similar to that of a tanker which allows them to operate at sea with a 9.7-meter (about 32-foot) draft, and in freshwater with a 7.92-meter (about 26-foot) draft.

Deballasting reportedly will be accomplished in three hours, which is sufficient to negotiate the locks along the Great Lakes. While engaged in Lake commerce, the ships will have a reduced capacity of 25,000 dwt. The lower draft will permit them to operate from Canada's major grain terminal at Thunder Bay, Ontario.

The ships, to be delivered in the first half of 1983, will be powered by single Sulzer slow-speed diesels producing a 13-knot service speed. A four-blade controllable pitch propeller in a Kort nozzle will provide increased maneuverability.

British Shipbuilders also announced the receipt of an order for a 35,000-ton bulk carrier from Carisma Companhia Naviera, Panama. The vessel will be built at Sunderland Shipbuilders.

New Towboat Design At St. Louis Ship Results From Two-Year Research Program

The Super Hydrodyne, an improved towboat design that resulted from an extensive $500,000 research and development program, was unveiled recently by St. Louis Ship, a division of Pott Industries Inc., St. Louis, Mo. The Super Hydrodyne, claimed to be more energy efficient and maneuverable than existing models, is already in service on inland waterways, following two years of development.

The design changes incorporated in the Super Hydrodyne have a performance improvement of 4.9 percent, the company reports, yielding a return on investment of 47 percent compared to the original design of the equipment.

Three 6,000-hp towboats are currently in service. The first two, M/V Paulina, and M/V Altonian (shown above), were delivered to the Peavey Company, and the third, the M/V Beth Armstrong, went to H & S Transportation Co., Inc. Several new Super Hydrodyne towboats make up St. Louis Ship's backlog, ranging in horsepower from 4,500 to 9,000 and consisting of twin- and triple-screw designs.

The original Hydrodyne hull design was introduced in 1959, following an extensive model test program conducted at the Maritime Research Institute in the Netherlands (MARIN), formerly known as the Netherland Ship Model Basin.

Hydrodyne was the name selected to describe the hull shape optimized for push towing service on Western rivers. The design included appendages specifically designed to perform in the restricted channel environment utilizing high horsepower installations. In most design applications, the hulls were fitted with Kort nozzles integrated into the tunnel stern. The Hydrodyne is designed to operate as an open propeller design as well. During the next two decades, additional model tests were completed at MARIN, resulting in continued refinements to the Hydrodyne. Seventy-two Hydrodynes have been delivered and are still operating.

In the early fall of 1979, meetings were held at St. Louis Ship on whether the Hydrodyne could be further improved by incorporating a more efficient design. Several weeks were spent planning and preparing a test program. During February 1980, St. Louis Ship representatives visited MARIN and established a model test program designed to investigate the optimum propeller diameter, nozzle length, and nozzle profile. Strut design, steering rudder, and flanking rudder designs with the latest Hydrodyne concepts were used.

A nominal 3,000-hp per shaft was selected as the basic design requirement and models of twin-screw towboats were manufactured for the tests. Beginning in April, overload tests were conducted behind a barge fleet representing 25 loaded jumbo barges and an eight-barge integrated unit tow in MARIN's shallow water basin.

Test data was collected for performance comparisons ahead, astern, steering, and flanking in different water depths with two different towboat lengths operating behind the two barge fleets. Using the optimum propulsion system, the steering rudder and flanking rudder designs were further tested and refined for maximum operating efficiency.

After two and one-half months of testing for design optimization in the shallow water basin, another test program was prepared for the large cavitation tunnel at MARIN to test the optimum towboat model and appendage combination obtained from the shallow water basin tests. These tests were to insure a propeller design as free of cavitation as possible. The tests resulted in changes to the strut design.

The following weeks were spent reviewing test results and comparing manufacturing costs versus performance gains. St. Louis officials contacted many barge line operating managers for their opinions of the relative importance of the various operating conditions that had been tested. Utilizing the operator requirements and information from model tests, the design was selected to give the optimum in push, steering, and flanking, and which also yields the best return on investment for the operator.

Alfa-Laval Publishes Corporate Brochure

"Alfa-Laval — Liquid Processor's Best Friend," a new 20-page, full-color brochure, has just been published by Alfa-Laval, Inc., Ft. Lee, N.J.

Alfa-Laval, Inc. is well-known as a leading supplier of centrifugal separators, plate heat exchangers and dairy farm equipment. Formerly known as The De Laval Separator Company, Alfa-Laval, Inc., has been manufacturing in the United States for almost 100 years.

Alfa-Laval markets its industrial line of products and systems to a wide range of industries. Marine applications account for the biggest share of the company's industrial sales, for purifying lubricating and fuel oils, and for cooling water aboard U.S. Navy and commercial ships.

The worldwide Alfa-Laval Group assists Alfa-Laval, Inc. by providing trained personnel and technological assistance when called upon.

For a free copy of Alfa-Laval brochure, Number SA-1900, "Liquid Processor's Best Friend,"

Write 61 on Reader Service Card

Sperry Introduces New Doppler Navigation Sonar —Literature Available

The Sperry Division of Sperry Corporation has announced the development of a new doppler navigation sonar system which will give scientific and commercial marine vessels the ability to know their position continuously with errors measured only in feet, according to the company.

The system can be used aboard surface vessels and manned or unmanned underwater vehicles. By using doppler sonar techniques, the system develops accurate position data using the ocean bottom as a velocity reference, thus making the system independent of navigation errors caused by unknown subsurface currents. Two-axis sonar data enable the system to measure movement of the vessel both fore/aft and athwartship. Altitude above the ocean floor is also determined. When used in conjunction with the Sperry Mk 47 subminiature gyrocompass, the system provides all the data required to navigate from one point to another. A preselected track can be followed if desired.

Morton J. Howard, marketing manager for this product, said that the system can be used aboard oceanographic vessels, geological survey vessels, dredges, oil pipeline inspection submersibles, cable-laying submersibles, underwater work vessels, and scientific submersibles.

For complete free literature on the new doppler navigation sonar system,

Write 56 on Reader Service Card

Appoint Lastovica Marine Manager At Fairbanks Morse Pumps

John F. Lastovica

John F. Lastovica has been appointed manager of marine operations at Colt Industries, Fairbanks Morse Pump Division, Kansas City, Kan. In addition to this new assignment, Mr. **Lastovica** will continue to serve as manager, public works operations.

Mr. **Lastovica** joined Fairbanks Morse in 1954 and for many years was the top sales person in the Pump Division. In 1978, he became manager, public works sales, and later that year was promoted to manager, public works operations.

National Marine Service Names Five To New Posts

David A. Wright, president of National Marine Service, Inc., St. Louis, Mo., recently announced the promotion of three persons and the appointment of two others to the staff of the shipbuilding, engine repair, and liquid bulk transportation company.

Robert W. Meyer has been named coordinator of corporate planning at NMS, responsible for coordinating short and long-range plans, researching business opportunities, and recommending productivity improvement programs. **Barbara A. Schaffer** has been promoted to manager of corporate accounting responsible for all corporate accounting functions. **Katina R. Truman** has been named corporate market analyst. She will direct the company's divisions in developing market strategies toward the achievement of planned objectives.

Newly appointed to NMS are **Frederick R. Glose** and **Michael Hawkins**. Mr. **Glose** has been appointed shipyard division quality assurance engineer where he will oversee quality control both in the engine rebuilding and repair programs at the NMS Hartford, Illinois, yard and the remanufacture of diesel engine components at Unipar, Inc. Mr. **Hawkins** was appointed shipyard division salesman and was assigned to the Midwestern area, representing all shipyard services including diesel engine repairs.

Krupp Christens Bridge Simulator For Use In Hamburg Polytechnic

The navigation bridge "Susan" is the main component of the ship handling simulator currently being built by Krupp Atlas-Elektronik for the Hamburg Polytechnic. At the center of the photo in front of the radar simulators is Professor **Werner Huth** from the Polytechnic's School of Maritime Studies.

Christening ceremonies were held recently at Krupp Atlas-Elektronik, Bremen, Germany, for the navigation bridge simulator "Susan." The bridge, whose facilities include a motion simulation system, is the most important component of the ship handling simulator Krupp is currently building for the Hamburg Polytechnic, where it is due to be commissioned in the autumn of 1982 in a specially built training center. Representatives of the Polytechnic's School of Maritime Studies were present at the ceremony.

The simulator bridge is mounted on hydraulic cylinders which simulate the pitching and rolling of a ship. The bridge is equipped with all navigational equipment and controls, including radar. Training is controlled using high-resolution color displays which convey detailed position information. The simulator's vision system is based on the principle of digital-synthetic image generation, using Krupp EPR 1300 process computers. Other ships, seamarks, and wharfs, etc. are simulated to provide a realistic view as it would appear on the bridge at any given instant.

J.J. Henry Announces Managerial Changes

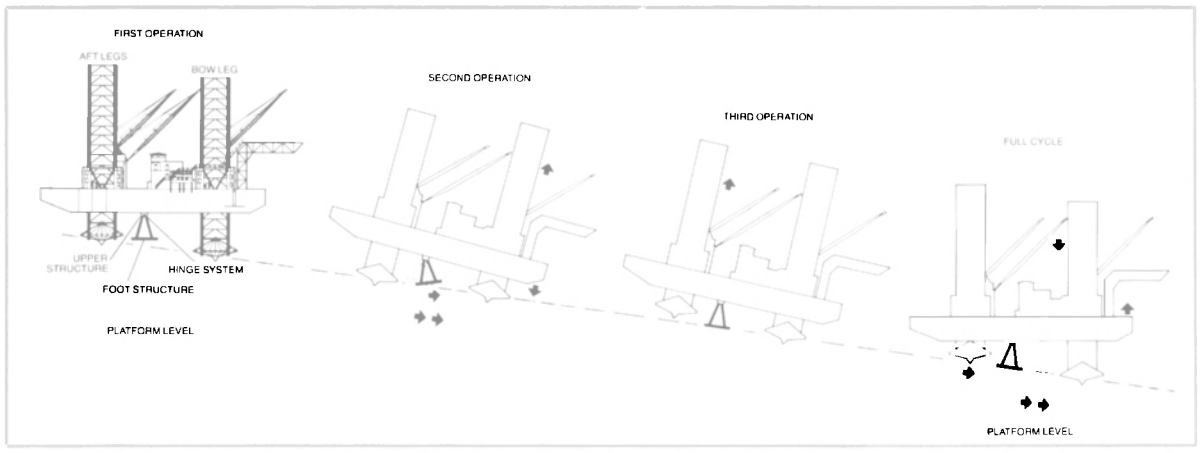
Gerald R. Jones

T.K. Lawrence

Richard R. Hopkins, vice president of J.J. Henry Co., Inc., Moorestown, N.J., recently announced two top-level managerial changes in a move to strengthen the firm's Moorestown division field operations network.

Gerald R. Jones, formerly manager of Henry's Hampton Roads operation in Portsmouth, Va., was named manager of the firm's newly expanded Washington, D.C., operation in Crystal City, Va. He will be replaced at Hampton Roads by **T.K. Lawrence**.

The J.J. Henry Co., Inc., one of the nation's principal naval architectural and marine engineering firms, is headquartered in the World Trade Center, New York City.



JACKUP LAUNCHING PROCEDURE

Marathon's Vicksburg Yard Refines 'Walking' Process For Jackups

In a quarter-century of building self-elevating offshore mobile drilling rigs on its banks, the Old Man Mississippi has continually challenged Marathon LeTourneau Company's shipyard at Vicksburg to put them into the water without launchways.

And for all the 68 rigs launched, the yard has responded successfully.

The Mississippi's water level rises and falls with the seasons and the banks change continually as soil is eroded and deposited. It is impossible to maintain permanent launchways on this unstable foundation and too costly to rebuild every time the river changes.

When the first three-legged jackup rig, the Scorpion, was built for Zapata Offshore Co. in 1955, the problem of moving the rig into the river had to be solved. LeTourneau engineers devised a method for "walking" the jackup into the water. Over the years this system has been refined and altered slightly, but the basic engineering principles still apply.

Originally, the "walking" procedure required moving tons of dirt. The operation began with the platform's deck level. Dirt was pushed under the stern to a certain height. The bow leg then was raised, lowering the bow toward the ground. Additional dirt was then moved under the stern. The two stern legs were raised, resting the hull on the mound of dirt. The bow leg was then lowered, levelling the deck and pivoting the stern forward. The procedure was repeated as many times as it took to move the rig's bow into the river.

In 1973, Marathon's Marine Division patented a "walking" method which used a launching pad consisting of a foot-like structure, an elevated hinge system, and an upper structure rigidly attached near the rig's stern. This foot structure was built with enough bearing area to support the weight of the rig's stern. The hinge system allowed the foot to act as a fulcrum.

When using this "walking" method, the launching procedure itself is much the same as it was in the mid-fifties. After the pad is attached, the rig deck is levelled. The bow is lowered, swinging the foot forward. The stern legs are raised, thus resting the weight of the rig on the foot and bow leg. The bow is then raised, swinging the stern legs forward. The bow leg moves forward since the weight (force) component parallel to the slope tends to shear the earth in front of the bow leg footing, causing the rig to move down the slope. The operation is repeated until the rig's bow is in the river.

With the recent launching of Hull No. 155, Marathon LeTourneau introduced a new refinement of the "walking" system which allowed for additional strain resulting from more weight in this rig's bow.

Hull No. 155, a Marathon Class 116-C jackup built for the Rowan Companies, is designed for North Sea operations. The heliport, foam tanks, helicopter fuel storage and heaters needed in the extreme cold were moved to the bow, putting more weight at that point. To offset this additional weight, Marine Division engineers moved the launching pad under the hull and reinforced the hull at the attachment point.

By moving the foot from the stern to under the hull, some of the load was taken off the bow leg. For the 16,000,000-pound rig, the foot was enlarged to 30 feet by 60 feet. The foot itself weighs 325,000 pounds.

This refined "walking" method, as well as earlier methods, puts greater strain on the hull and legs than is experienced during normal service. Since walking operations go on round the clock for several days, the jackup's structural integrity is more than adequately tested.

The longest distance a jackup rig has been walked at the Vicksburg yard was approximately 800 feet and the shortest distance about 300 feet. A water depth of at least 20 feet on the outboard or bow side is needed to launch a rig. When the bow is far enough into the river, the bow leg is raised and the rig is pivoted by launch cables into a position with the bow facing downstream.

Marathon LeTourneau Company is a subsidiary of Marathon Manufacturing Company, a leading manufacturer of mobile offshore jackup drilling rigs, materials handling equipment, fabricated steel products, metal buildings, white oils, batteries and consumer goods. In addition, Marathon provides civil engineering and construction services. Marathon is a wholly owned subsidiary of The Penn Central Corporation.

$30-Million, Eight Vessel Contract Signed By Halter And Tidewater Marine

Halter Marine, Inc., New Orleans, La., and Tidewater Marine Service, Inc. signed contracts recently for the construction of eight new tug supply vessels totaling $30.8 million.

The announcement was made by **Sam S. Allgood**, president of Tidewater Marine Service, and **Harold P. Halter**, president of Halter Marine.

Four of the vessels will be of Halter's new 200-foot Sea Master class and four will be Halter standard 192-foot vessels. The new Sea Masters will develop 6,140 bhp each and the 192-foot vessels will develop 4,600 bhp.

All eight of the boats will employ two-speed reverse reduction gears to deliver optimum bollard pull in the towing mode and maximum free running speed. All will be delivered between March and November 1982.

Mr. **Halter** said these new vessels are of special significance to his company because they are the first of a new generation of vessels designed to meet the need for larger, higher horsepower, multipurpose vessels. He added that the first Sea Master is hull number 1,000 for Halter Marine, which also coincides with the 25th anniversary of the company.

"I am pleased to usher in our next 25 years with the Sea Master," said Mr. **Halter**, "because they represent the aggressive, forward-thinking design and construction philosophy which has brought Halter Marine to its current position of world leadership."

Mr. **Halter** said the Sea Master class vessels include significant visible and subtle design changes from other supply vessels which will make the new boats more fuel efficient and profitable for owners and operators.

The most visible difference will be the sharply tapered bow and stern with displacement concentrated amidships. The finer ends produce a faster, more seakindly, and easily driven hull with a relaxed motion in the seaway.

Also readily visible is the vessel's single chine construction which reduces maintenance because of fewer welds, corners, and damage-prone protrusions. Displacement has also been increased by the use of a single chine and by increasing the beam and reducing the deadrise.

Also distinguishable will be the raised bow and increased freeboard for drier operations in rough seas. Visibility from the wheelhouse and control stations has been enhanced in all directions for safer and easier work and maneuverability.

Mr. **Halter** also said that payload capacities of the Sea Masters are comparable to much larger vessels. Clear deck space is 4,080 square feet and they can carry 6,000 cubic feet of dry bulk mud in tanks below deck, and 175,000 gallons of fuel oil.

Among the subtle changes in the new series are the placement of the ballast tanks aft and fuel tanks amidships and forward. Mr. **Halter** said, "This makes the Sea Master more economical to operate because it can carry more fuel while maintaining trim. This in turn reduces the need to carry ballast water with its resultant penalty of fuel consuming extra weight."

Mr. **Halter** added that close attention also has been given to crew comfort and habitability at sea. Quarters have been modularized for better space utilization and adaptability to customer requirements. They have been relocated to minimize the discomfort of pitching motion. The Sea Master series has living space for up to 24 crew.

Mr. **Halter** said the new vessels are the result of the company's vast experience in the design and construction of over 400 supply boats in the past 25 years.

Halter Marine owns and operates shipyards throughout the U.S. Gulf South and is the world's largest builder of supply vessels for the offshore oil and gas industry.

SEA MASTER 200-FOOT TUG/SUPPLY VESSELS

Characteristics

Length	200 ft.
Breadth	42 ft.
Depth	16 ft.
Draft	13.5 ft.
Deadweight	1,000 LT
Tonnage	Under 300 grt
Fuel Oil	175,000 gal.
Potable Water	6,000 gal.
Bulk Chemicals	6,000 cu. ft.
Complement	24 persons
Displacement @ Load Water Line @ 13.5 ft.	1,940 tons (loaded)
Propulsion	2 EMD16-645E7B 6,140 bhp total
Generators	2 Delco 150 kw (2 GM 12v71)
Bollard Pull	70 LT
Reverse/Reduction Gears	Reintjes 5:1, 4:1
Engine Controls	Westinghouse
Nozzles	Halter
Bow Thruster	Murray & Tregurtha (GM12v71)
Steering System	Dual Electro Hydraulic-Steering Systems, Inc.
Air Compressor	2 Ingersoll Rand H-10-TX
Bilge Pumps	Goulds 3405
Ballast Pumps	Goulds 3755
Fuel Transfer Pumps	Viking HL-195D
Radar	Decca 914 (1)
SSB Radio	RF Communications RF230 (1)
VHF Radio	Drake MRT-55 (2)
Automatic Pilot	Sperry 8T (1)
Compass	Sperry
Anchor Windlass	Fritz Culver FC WH-6
Anchor Chain	1½"—2,700'
Anchors	2,500 lbs. Danforth (2)

ABS classed A-1, Maltese Cross, Full Ocean Towing, Circle "E", AMS, USCG NVC 1-78. Suez Canal and Panama Canal admeasurement certificates.

New Brochure Describes Regency's Polaris Line Of Marine Electronics

A 16-page, five-color brochure describing and illustrating its complete line of Polaris marine electronics is now available from Regency Electronics, Inc. of Indianapolis.

The Polaris NC 7200 is said to be the only 55/75 channel VHF radio combined with a computer-controlled direction finder. The direction finder reads out via a circle of 36 scanning, light-emitting diodes to show relative position of ships and coastal stations. It even determines position by triangulating between two known transmitters.

Other Polaris equipment described in the catalog includes the MT 5500 all-channel, synthesized VHF transceiver; the NC 7100 digitally synthesized, computer-controlled direction finder; the MT 7000 55/75 channel VHF transceiver with a scanning receiver; and the MT 500 hand-held, six-channel 2.5/1 watt transceiver, as well as Polaris options and accessories that are available.

For a free copy of the Regency brochure,

Write 63 on Reader Service Card

Ingram Tankships Orders Five Product Carriers —Names Baldwin VP

Cyrus E. Webb, president of Ingram Tankships Inc., New Orleans, La., announced recently that the company had placed an order for five 37,500-dwt U.S.-flag product carriers to be built by National Steel and Shipbuilding Company (NASSCO), San Diego, Calif. The first vessel is scheduled for delivery in April 1982, and the remaining vessels are scheduled over the subsequent three-year period.

The vessels on order are a new class of ship with 658-foot LOA, a 90-foot beam, and a 36-foot fully loaded draft. Each vessel will be powered by a Sulzer slow-speed diesel, according to Mr. **Webb**. Ingram currently owns and operates two 35,000-dwt oil tanker tug barge units under charter to major U.S. oil companies in coastal trade.

Fred B. Baldwin has been named vice president of marketing at Ingram Tankships, it was announced recently by **F.B. Ingram**, chairman of the board of the parent Ingram Corporation. Mr. **Baldwin** will be responsible for marketing the new vessels as well as both the spot and long-term chartering of the two vessels now in operation.

$270-Million Expansion Is Proposed For Port Of Portland

The Port of Portland, Ore., is gearing up for the coming turn-of-the-century by which time it is anticipated that the volume of general cargo in the port will triple.

The Port Commission recently accepted a master development plan devised by a 30-member Citizens Advisory Task Force. The initial phase of the plan was completed in December 1979. According to the results of extensive research, the volume of cargo is expected to triple by the year 2000 — up to 22.8 million tons from 6.5 million tons at present. This is an average yearly growth rate of 6.2 percent.

No major shifts in cargo types are expected, but containers, grain, steel, and autos are expected to have significant growth rates. Moderate growth is projected for general cargo, forest products, and liquid and dry bulks. Anticipated new commodities include coal and Midwest grain.

The projections are that 18 new berths will be needed, an average of one new berth a year for the next 18 years. The Citizens Advisory group recommended that current port terminals 1, 2, and 4 be renovated beginning in the next five years to provide maximum operational efficiency and responsiveness to changing technological innovations.

Other recommendations are for the port to utilize the most efficient methods and equipment for increasing terminal throughput; to reserve current waterfront land inventory for future development; and to pursue aggressively the acquisition of vacant waterfront land that is suitable for marine terminal development.

The cost of providing the facilities needed to handle the forecast cargo volume is estimated at $270 million. It is anticipated that it will be financed through revenue bonds and port activities. Due to an expected shortfall in the first five years of the plan, a general obligation bond measure may be required to help finance some of the general construction.

The plans for the existing terminals are:

Improved Lumber and Barge Docks—The port's oldest facility, Terminal 1, is a general cargo facility. Terminal 1 is expected to continue its long record of productivity

Terminal 4 is the most diversified of the port facilities and the largest. The facility is currently designed to handle logs, bulk cargo, steel, autos, containers, and the biggest grain elevator on tidewater west of the Mississippi.

with the upgrading of existing docks and by filling in the slip berth. The low-level barge berth is to be lengthened, increasing its flexibility to handle ro/ro, pass/pass, and conventional breakbulk vessels. Accessibility to the warehouses will be improved, resulting in increased vessel productivity. Excel-

Terminal 4 will become a fully modern, eight-berth facility. The Terminal 4 rehabilitation features a multiphased, 15-year reconstruction program.

lent direct quayside rail service and truck access will be maintained.

New Flexi Terminal — Terminal 2's reconstruction consists of a $21-million program resulting in a fully modern, multipurpose three-berth facility. It will effectively accommodate all current modes of ocean transportation: containers, ro/ro, pass/pass, breakbulk and neobulk, and reefer. Twelve acres of new backup will be gained by the cleaning and filling of slip berths, while at the same time creating a foundation for new berths designed especially for the future. This rehabilitation will enhance the port's versatility in general cargo handling at this terminal which already provides direct quayside rail service and is located approximately one mile from the interstate highway system.

Expanded Utility Docks—Terminal 4 will become a fully modern eight-berth facility capable of efficiently handling grain, general cargo, neobulk, steel, containers, and automobiles. It also will feature on-dock rail service as well as ro/ro and pass/pass capabilities. Terminal 4 rehabilitation features a multiphased, 15-year reconstruction program that will first relocate the import/export dry bulk to Terminal 5. Both Wheeler Bay and Slip No. 3 will then be filled, gaining 21 acres of backup land and new dock facing.

Expand Container, Coal, Grain, Autos — The port's newest marine terminals have been built in the Rivergate Industrial District in North Portland. Sufficient waterfront is available for an additional four 1,000-foot or five 750-foot berths in a 112-acre vacant parcel south of the existing Columbia Grain facility. These acres will be developed for grain, coal, and import/export dry bulk. At Terminal 6, backup facilities already in place include a 60,000-square-foot container freight station, a 200,000-square-foot cargo distribution warehouse and on-dock intermodal rail trackage. Nearly 300 acres in North Rivergate surrounding the existing Terminal 6 complex are reserved for container terminal development as well as automobile berths. An intermodal rail facility is being planned to supplement the existing rail-serviced berths.

The Berth 603 expansion program is targeted for a December 1981 completion date. The project will add another 1,050 feet of berths and 17 acres of backup acreage. The $20-million expansion includes two new Hitachi 40-ton cranes and two additional Hitachi transtainers. Berth 603 will increase Terminal 6 facilities to include 2,850 feet of berths and 53 acres of backup facility serviced by a total of five gantry cranes and six transtainers.

Epsco Marine Introduces New 32-Mile Radar Unit—Literature Available

Epsco Marine, the marine electronics manufacturer in Westwood, Mass., has announced the addition of a new 32-nautical-mile radar, model SO2R, to its line that now consists of 10 models ranging from 7-inch, 3-kw, 16 nautical miles up to 12-inch, 25-kw, 100 nautical miles.

The Epsco SO2R was designed to satisfy the demands for a low-priced commercial radome radar addressing the requirements of inshore fishing vessels and small workboats. The SO2R features easy installation, operation, and reliability in a compact design to suit installation where space limitations exist.

With 5-kw peak power and six ranges from 0.5 to 32 nautical miles, the SO2R offers long range and flexibility of operation. A minimum of controls and LED tuning indication allow the operator to adjust for optimum performance with ease under all conditions.

Only one multi-conductor cable (supplied with unit) is required between the display and scanner units. This conductor is supplied with all connectors terminated, thereby reducing installation labor costs. Selectable power input allows operation for 12, 24, and 32 volts dc.

For additional information and free literature on the model SO2R,
Write 64 on Reader Service Card

Levingston Forms Purchasing Company —Names Officers

Ed Paden, president of Levingston Industries, Inc., Orange, Texas, announced recently the formation of a new member of the Levingston Group of Companies, to be called Levingston Service Company, Inc.

Levingston Service Company will have two principal activities, Mr. **Paden** stated. First, the purchase of material and equipment for all the members of the Levingston Group, including Levingston Shipbuilding, Texas Gulfport Shipbuilding, Levingston Armadillo, Levingston Industrial Products, and Levingston Marine Corporation; and second, the supply of all kinds of marine, offshore and other equipment and material for all sectors of the maritime and offshore industries.

Woody Gaines

Levingston Service will be headed by **Woody Gaines** as president and chief operating officer, and **W.D. Taylor** as vice president.

W.D. Taylor

Mr. **Gaines** has been with the Levingston Group since 1978, most recently as vice president, engineering and material, for Levingston Shipbuilding. Mr. **Taylor** has been with the Levingston Group since 1962, most recently as director of materiel for Levingston Shipbuilding.

Announcing the formation of the new company and the appointment of its officers, Mr. **Paden** said: "For some years now Levingston has been using its experience and expertise in the design and construction of offshore drilling rigs to assist our overseas licensees and their customers in the selection and acquisition of drilling equipment and other material. We believe that the time has come to make these services available throughout the maritime and offshore industries."

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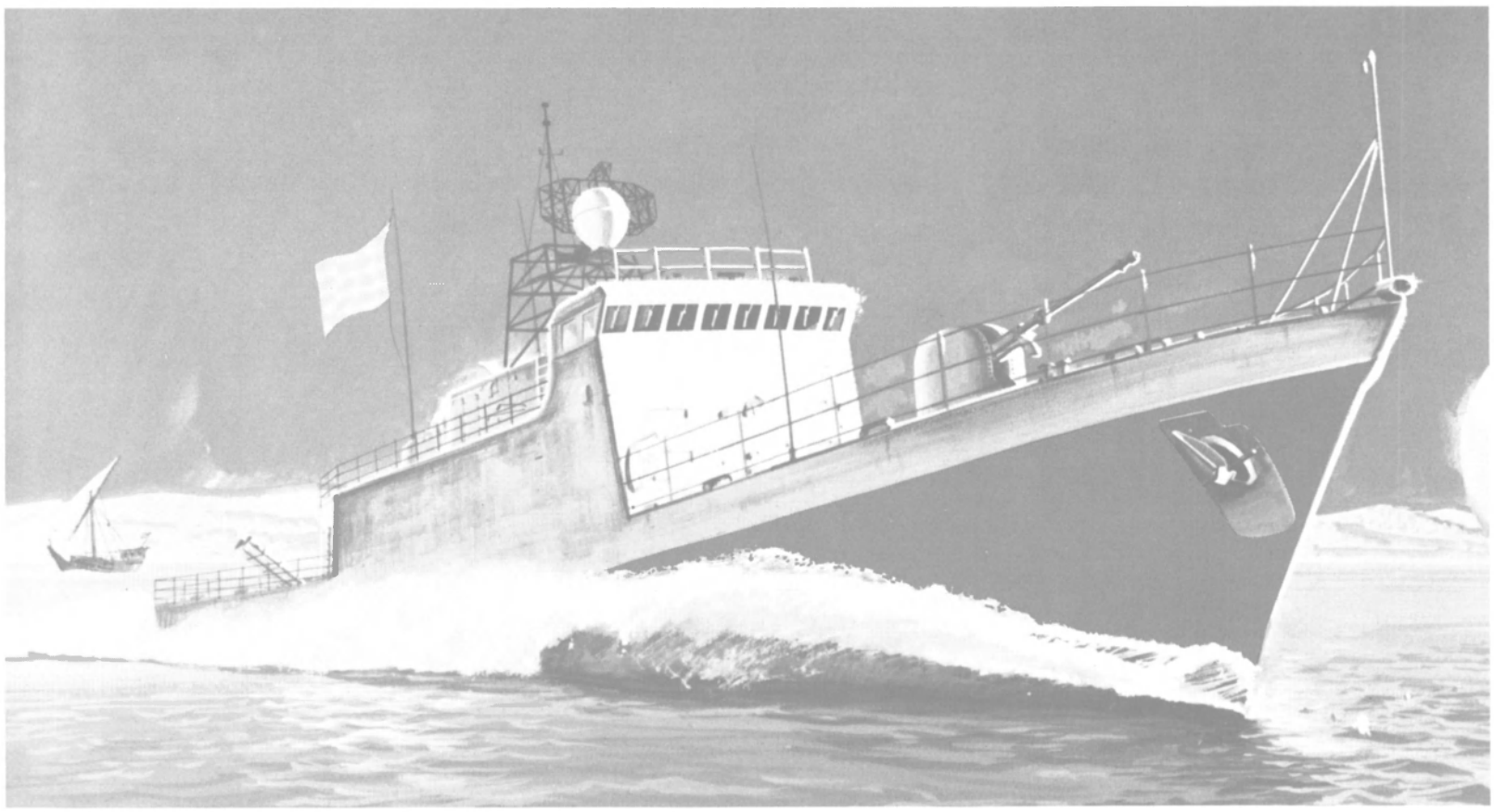

Tracor, Inc. is an international technological products and services company with headquarters in Austin, Texas. The Saudi Naval Expansion Program (SNEP) is managed by our Systems Technology Division in Rockville, Maryland.

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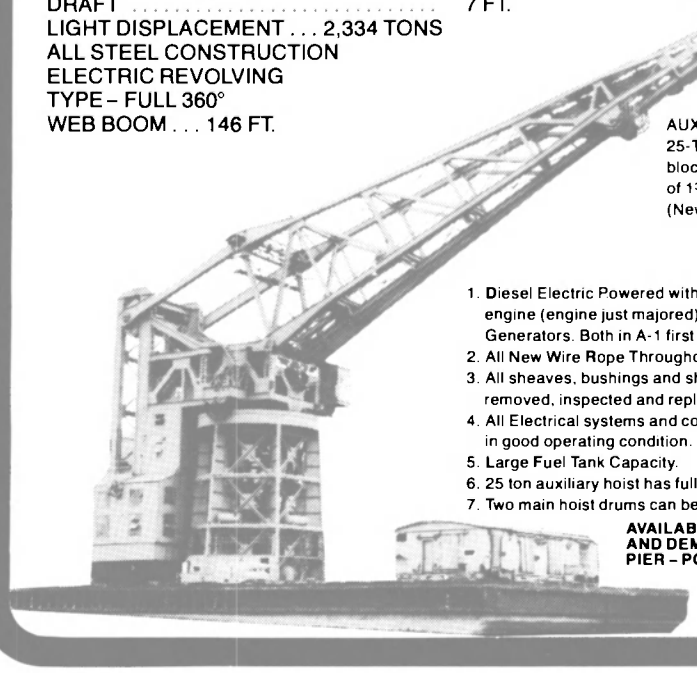

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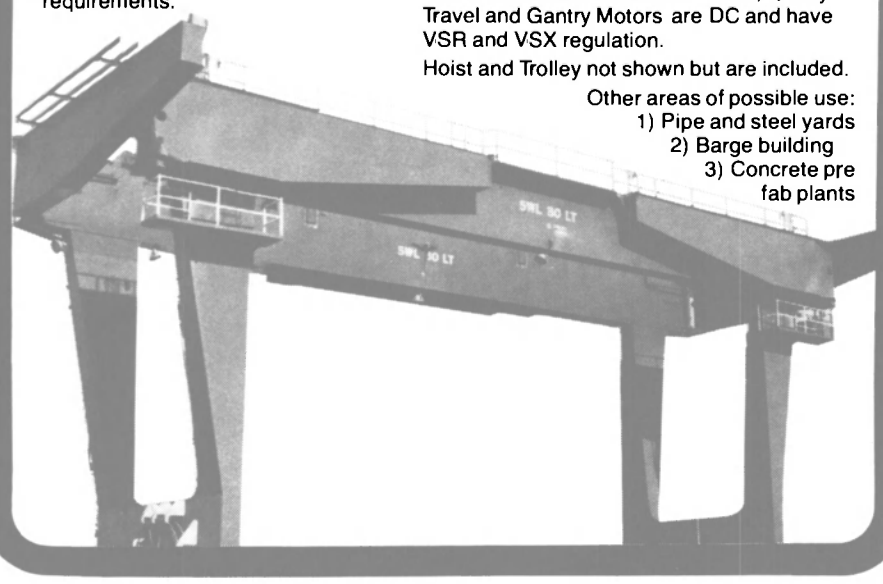
Hoist and Trolley not shown but are included.



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Rolled Bilge	48" R.
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Open Deck Area	37,886 S.F.
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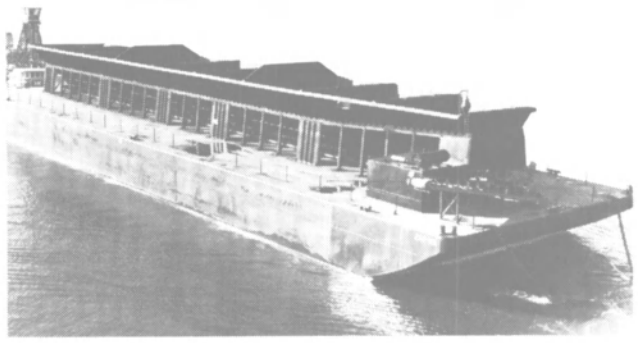

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Beam	63'- 0"
Depth	16'- 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'- 7½'
Draft Loaded (F.W.)	11 - 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd.

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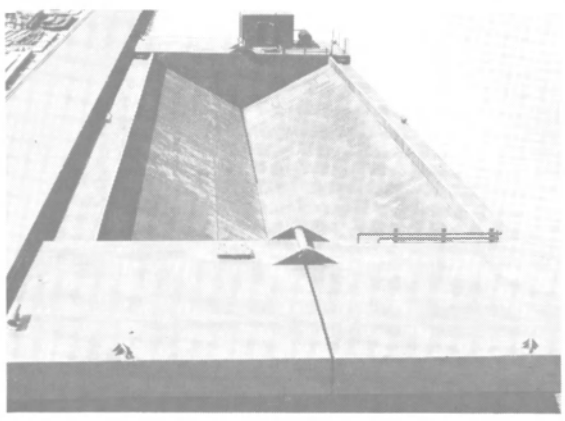

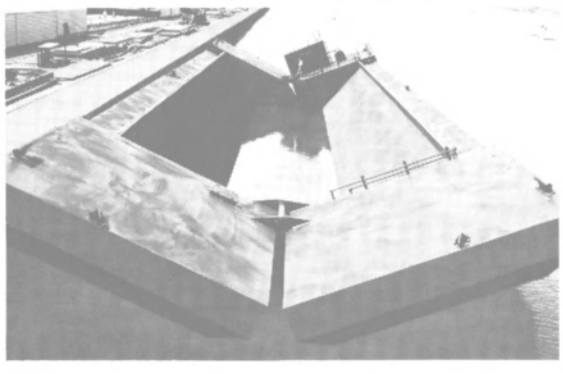

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Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft.	1615 L.T.
Rake Lengths F. & A.	26'- 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up	2'- 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5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

American Crane Barge

BARGE DATA

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

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Manufacturer	American Hoist & Derrick Co.
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Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
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Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part. rigg.)	
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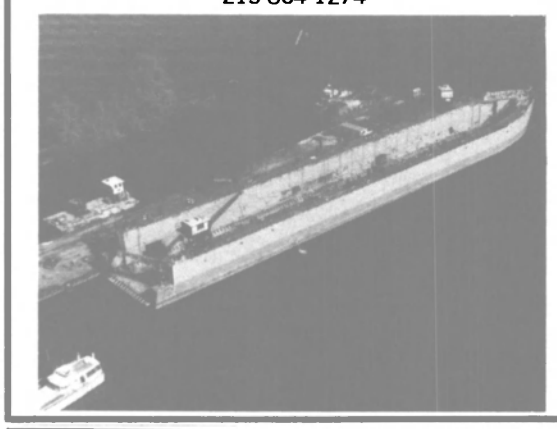

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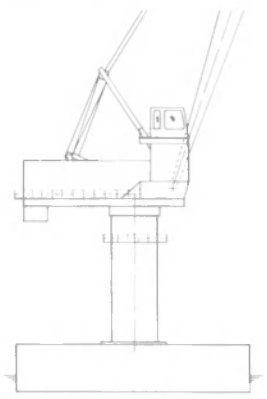

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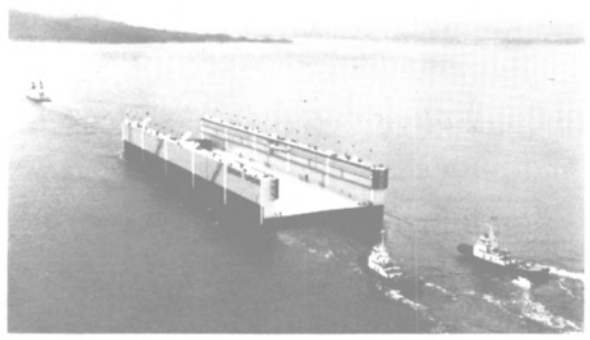
New Burrard Yarrows Floating Dock For Ships To 75,000 DWT



A 36,000-ton lifting capacity floating dock (shown above) has arrived at the Burrard Yarrows Shipyard, Vancouver, Canada, following a 5,000-mile tow from Hiroshima Bay, Japan.

The all-steel dock arrived at Vancouver after a 40-day tow carried out by Tokyo Marine Services using the 12,000-ihp tug "Dahlia."

The dock was built at the Hiroshima Yard of Mitsubishi Heavy Industries Ltd. under Burrard Yarrows 63.3-million (Canadian) dollar expansion program, of which the dock accounts for $40 million.

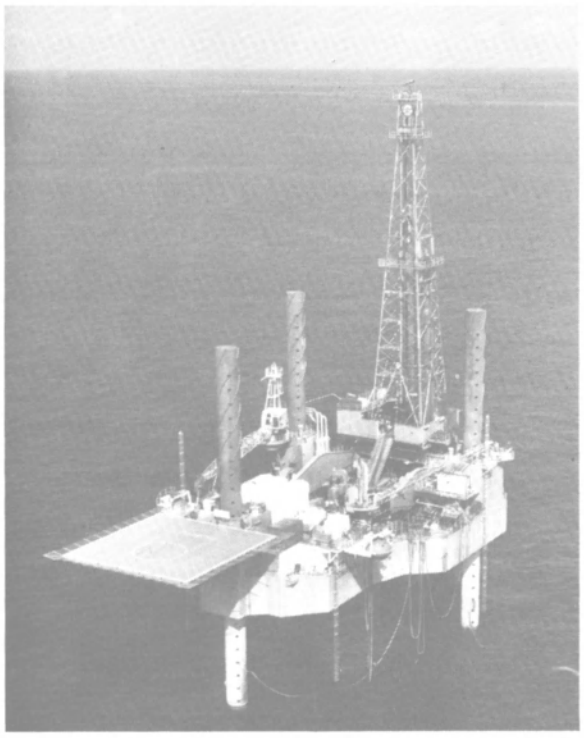
The dock will increase the work Burrard Yarrows Corporation's Vancouver division can carry out. For the first time Panamax-size vessels up to 75,000 dwt will be able to be repaired, as opposed to vessels up to 15,000 dwt at present.

The initial dimensions of the dock are 204 meters (about 669 feet) over blocks by 45.8 meters (150.3 feet) clear width. The dock is capable of being extended to 245 meters (804 feet) at a future date so that vessels up to 150,000 dwt can be accommodated.

Burrard Yarrows' nearby Victoria divi-

sion already has the capability of carrying out repairs and conversions on ships up to 100,000 dwt.

A new pier—230 meters (about 755 feet) long with a water depth of 10 meters (32.8 feet) and equipped with an 85-ton crane—has been built for the new dock. Also in the expansion program is the completion of a new machine shop, 75 meters (246 feet) by 25 meters (82 feet), covered by two 40-ton cranes and other support facilities. Burrard Yarrows is affiliated with Versatile Vickers Inc. of Montreal, another Canadian ship repair yard.



BETHLEHEM LAYS KEEL FOR TEMPLE RIG — The keel was laid recently by Bethlehem Steel's Sparrows Point, Md., shipyard for a Temple Drilling Company mobile jack-up oil rig, the Cheyenne. The new rig will be similar to the Comanche, shown above drilling for Gulf Oil Company in 50 feet of water southwest of New Orleans, which was delivered by Bethlehem's Beaumont, Texas, shipyard last December. The Cheyenne, which will be capable of drilling in a water depth of 200 feet, is scheduled to be delivered by the Sparrows Point yard in April 1982.

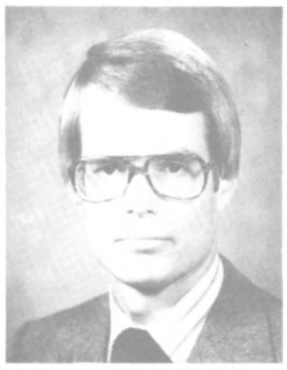
U.S. Steel Announces Four Promotions In Great Lakes Operations

Four management appointments at U.S. Steel's Great Lakes fleet and associated subsidiaries, Duluth, Minn., were announced recently by **William B. Buhrmann**, president.

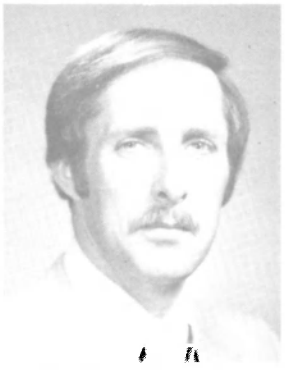
Dale W. App has been named general manager of USS Great Lakes Fleet, Inc., and **Calvin W. Main** has been named director, marine liaison. **David G. Van Brunt** has been named general manager of USS Great Lakes Fleet Services, Inc., while **Ralph H. Bertz** has been named director of engineering.

In his new position, Mr. **App** will be responsible for traffic, chartering, marketing, and sales of bulk material transportation for USS Great Lakes Fleet, Inc., upon the Great Lakes and the St. Lawrence Seaway.

Mr. **Main** will be the liaison between USS Great Lakes Fleet and associated subsidiaries, and will handle special assignments as directed by the president.



Dale W. App



David G. Van Brunt

Mr. **Van Brunt**, previously the fleet's marine superintendent, will be responsible for operations and total management of the fleet of Great Lakes vessels under charter to U.S. Steel and the Soo Warehouse at Sault Ste. Marine, Mich.

Mr. **Bertz**, formerly the superintendent of engineering, will be responsible for the engineering, construction, and maintenance of all fleet services facilities and USS Great Lakes Fleet chartered vessels.

Three Drum Seiners Delivered By RivTow Straits Limited

RivTow Straits Ltd., Vancouver, British Columbia, Canada, announced the recent delivery of three identical drum seiners to B.C. Packers Ltd. in time for the 1981 herring and salmon fishing season.

The Van Isle, Mary Isle and Pender Isle (shown above) are the first three vessels of a six-boat order. The remaining vessels are scheduled for delivery in January 1982, June 1982 and January 1983.

The 76-foot drum seiners, built at RivTow's John Manly Shipyard, feature a fish hold with 4,000-cubic-foot capacity and are suited to the Pacific salmon and herring fisheries.

With steel hulls and aluminum wheelhouses, the vessels have Caterpillar 3412 main engines and Mitsubishi 6 D14 auxiliary engines. Fuel capacity is 3,000 Imperial gallons. The vessels are equipped with a Wagner steering system and Wagner MK 4 automatic pilot. Furuno supplied two radar units and the FH105 depth sounders. Lifesaving gear for the crew of seven is supplied by Beaufort Canada. a division of RivTow.

FAST ON THEIR FOILS — Taurus, the first of five Patrol Hydrofoil Missileships (PHMs) being built by Boeing Marine Systems, Seattle, Wash., for the U.S. Navy, takes a flying tour of Seattle's Elliott Bay during pre-delivery tests in Puget Sound. Taurus, to be delivered in October, and the other four hydrofoil combatants — Aquila, Aries, Gemini and Hercules — will join the USS Pegasus (PHM-1) forming a six-ship squadron next fall in Key West, Fla. The PHM squadron will operate with mobile logistic support in a rapid deployment concept. Armed with Harpoon missiles, a 76mm rapid-fire gun, and capable of speeds in excess of 40 knots, PHMs are powerful and effective surface warfare ships. They provide a stable working platform for the 21-man crew even in rough seas.

Top Officers Elected At Guralnick Associates

Hubert E. Russell

Thomas B. Cole

Hubert E. Russell has been elected president and chief executive officer of Morris Guralnick Associates, Inc. (MGA), it was announced recently by the San Francisco, Calif., firm of naval architects and marine engineers. Mr. **Russell** will continue to handle the responsibilities of chief engineer until a replacement is named.

In related actions by the company's board of directors, **Thomas B. Cole** has been elected vice president of administration, and **Parker J. Matthews**, senior project manager and chief of the marine engineering department, has been elected a member of the board.

Morris Guralnick Associates, Inc., was founded 35 years ago by **Morris Guralnick**, now chairman of the board of directors.

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Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Francis C. Ducote, P.E., P.O. Box 644, Kenner, LA 70063
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Lucander Designs, P.O. Box 711, San Perlita, TX 78590
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Captain Conrad P. Nilsen, 66 Beverly Road, Bloomfield, NJ 07003
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
Oromar International Enterprises, Inc., P.O. Box 13069, Port Everglades, FL 33316
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Townsend Marine Consultants, 18 Church Street, Georgetown, CT 06829
Wadam Wartsila Helsinki Shipyard, P.O. Box 132, SF-00151 Helsinki 15, Finland
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
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
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
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., 55 Knights Bridge Road, Piscataway, NJ 08854
RCA Service Co., Building 204-2, Camden, N.J. 08101
Racal-Decca Marine, Inc., P.O. Box G, #1 Commerce Blvd., Palm Coast, FL 32037
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Southern Marine Research, Inc., 1401 N.W. 89th Court, Miami, FL 33172
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Houston Marine Services, Inc., 505 Atrium One, 11811 I-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL WATER SEPARATORS
Alfa-Laval, Inc., 2115 Linwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
E.I. Dupont De Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
Henkel Corporation, 4620 West 77th Street, Minneapolis, MN 55435
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
Mobay Chemical Corporation, Plastics & Coatings Div., Pittsburgh, PA 15205
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 03817
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

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

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
Tioga Pipe & Supply Company, 2450 Wheatsheaf Lane, Philadelphia, PA 19137

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

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
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
Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
P.J. Plishner Marine, 2 Lake Avenue Ext., Danbury, CT 06810
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, 1020 East 8th Street, Jacksonville, FL 32206
Tacoma Boat 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
Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092

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
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

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
Modular Systems, 164 Franklin Avenue, Rockaway, NJ 07866
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SAFETY EQUIPMENT
ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, FL 33020
Datrex, 3770 N.W. So. River Drive, Miami, FL 33142

SANITATION DEVICES—Pollution Control
American United Marine Corp., 575 Madison Avenue, New York, NY 10022
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
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
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Somat Corporation, Pomeroy, PA 19367

SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

SHACKLES
West Footscray Engineering Works P. L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12. Australia

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
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
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
Bay Shiphuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
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
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
Jeffboat, Inc., Jeffersonville, Ind. 47130
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
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
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
Newpork Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
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
Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2

SHIPPING—PACKING
Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
Crane Packing Co., 435 Regina Drive, Clarksburg, MD 20734

SHIP STABILIZERS
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

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

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
Penco Division Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 5 Marine View Plaza, Hoboken, NJ 07030

TANK LEVELING INDICATORS
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

TERMINALS—Oil-Transfer
Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Ocean Salvors Company, One World Trade Center, New York, NY 10048
Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

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

VALVES AND FITTINGS
American United Marine, 575 Madison Avenue, New York, NY 10022
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
Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
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, Inc., 34655 Mills Road, North Ridgeville, OH 44039

WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

WINCHES AND FAIRLEADERS
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
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

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

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract. MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266

MTB U.S. Agent For Arsenale Triestino San Marco Shipyard

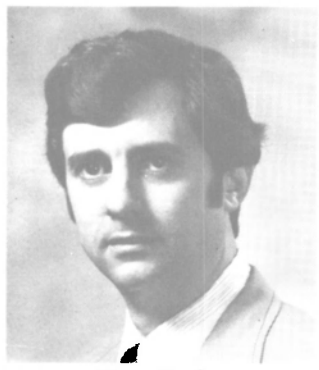
The announcement of the appointment of Marine Technologies & Brokerage, Inc. (MTB), New York, as U.S. agent for Arsenale Triestino San Marco Shipyard, Trieste, Italy, was made recently by **William H. Bevan**, president of MTB.

Arsenale Triestino, a member of the Fincantieri Group, has been operating as a shipyard since 1853. In 1970, Arsenale Triestino merged with the nearby Cantiere San Marco, which had been in the shipbuilding field for more than 100 years. The resulting Arsenale Triestino San Marco specialized in ship repair and modifications.

Offshore construction began at the end of 1967, and for this work the Arsenale Triestino San Marco Shipyard is one of the most well-equipped and specialized yards in the Mediterranean, containing modern and advanced workshops, heavy plate and profile shops, heavy and light machine shops to carry out any type of repair and construction work as well as equipment overhaul and maintenance.

Marine Technologies & Brokerage Corp. also represents Bender Shipbuilding, Alabama; Cantiere Navale Luigi Orlando, Italy; Haugesund Merkaniske Verkstad A.P., Norway; Tsuneishi Shipbuilding Co., Ltd., Japan; and Tsakos Industrias Navales, S.A., Uruguay.

Scalzo Appointed VP At Foss Launch & Tug



Steve Scalzo

Steve Scalzo, former general manager of marine operations for Foss Launch & Tug Co., has been promoted to vice president. His responsibilities include overseeing all Puget Sound marine operations for Foss as well as marine operations for Dillingham Maritime Ocean Division.

Mr. **Scalzo** was appointed vice chairman of the U.S. Coast Guard's Towing Safety Advisory Committee, Washington, D.C., in February and is vice chairman of the Maritime Committee of the Seattle Chamber of Commerce.

NABRICO's New Winch To Be Installed At Cummins Terminal

Cummins Investments has become the first company to purchase the time-saving "Big Blue" barge-moving winch recently introduced by Nashville Bridge Company (NABRICO), Nashville, Tenn.

The winch, the largest currently produced by NABRICO, will be installed at the company's Frontier Terminal in Muskogee, Okla., on the Upper Arkansas River.

James B. Cummins, president of the company, said that "Big Blue" will be used to facilitate both the loading of petroleum on barges and the unloading of petroleum as it arrives at the terminal by rail and truck.

Nicknamed "Big Blue" because of its color, the barge-moving winch has a three-speed operation in both directions to facilitate the back-and-forth movement of barges during loading and/or unloading. The three-speed capability saves an estimated one-third of the time required to load with a single winch.

The winch installation, scheduled for completion this month, is part of a major expansion at the facility that will add some 46,510 barrels of petroleum storage area.

NABRICO is a wholly owned subsidiary of The American Ship Building Company, Tampa, Fla.

MarAd Approves Title XI Construction Guarantee For Six Tug/Supply Boats

The Maritime Administration has approved in principle an application by Marsea Marine, Inc., New Orleans, La., to aid in financing the construction of six tug/supply vessels.

The 108-foot vessels, rated at 2,500 shp, are to operate in coastwise or foreign trade in the offshore exploration industry. Halter Marine, Inc., New Orleans, is building the vessels with deliveries scheduled between September and December of this year.

The approved Title XI guarantee covers $19,640,800 or 87½ percent of the estimated actual cost of $22,446,588.

Alfa-Laval Sponsors Fuel Systems Symposium In St. Louis, Oct. 12-13

Alfa-Laval, Inc., Fort Lee, N.J., manufacturer and marketer of fuel and lubricating oil purifiers for marine applications, has scheduled a symposium on modern fuel systems to be held at Stouffer's Riverfront Towers, St. Louis, Mo., October 12 and 13.

Speakers will include representatives of Alfa-Laval, Drew Chemical, Mobil Oil, and Hannah Inland Marine, and diesel engine manufacturers such as B & W Diesel, Inc., Bergen Diesel, Krupp MaK, Pielstick, and Sulzer.

The program will be oriented to the needs of inland and coastal waterways operators. Among the subjects to be covered in papers delivered at the symposium are the advantages and disadvantages of using heavy fuels in medium and high-speed engines, basic fuel chemistry, fuel purification systems, and fuel additives.

For further information, call **Mike Stepanovich** at (201) 592-7800.

Newport News Awarded $675-Million Contract For Three Nuclear Subs

Newport News Shipbuilding, Newport News, Va., has been awarded a $675,000,000 fixed price incentive contract for the construction of three FY 80/81 SSN 688-class nuclear attack submarines, SSN 721, 722 and 723. The Naval Sea Systems Command is the contracting activity.

Racal-Decca Marine Promotes Executives, Opens New Offices

A major restructuring of executives at Racal-Decca Marine Inc., New Orleans, La., was announced at the recent opening of a new regional sales and technical support office in New Orleans, at 5612 Jefferson Highway.

Mark Lipp, formerly comptroller and treasurer, was promoted to executive vice president, finance and operations. **Bob Burns**, former director of sales and marketing, was named executive vice president, sales and marketing. The marketing operation will be relocated to 4200 23 Avenue West, Seattle, Wash. Finance and operations will remain at Palm Coast, Fla.

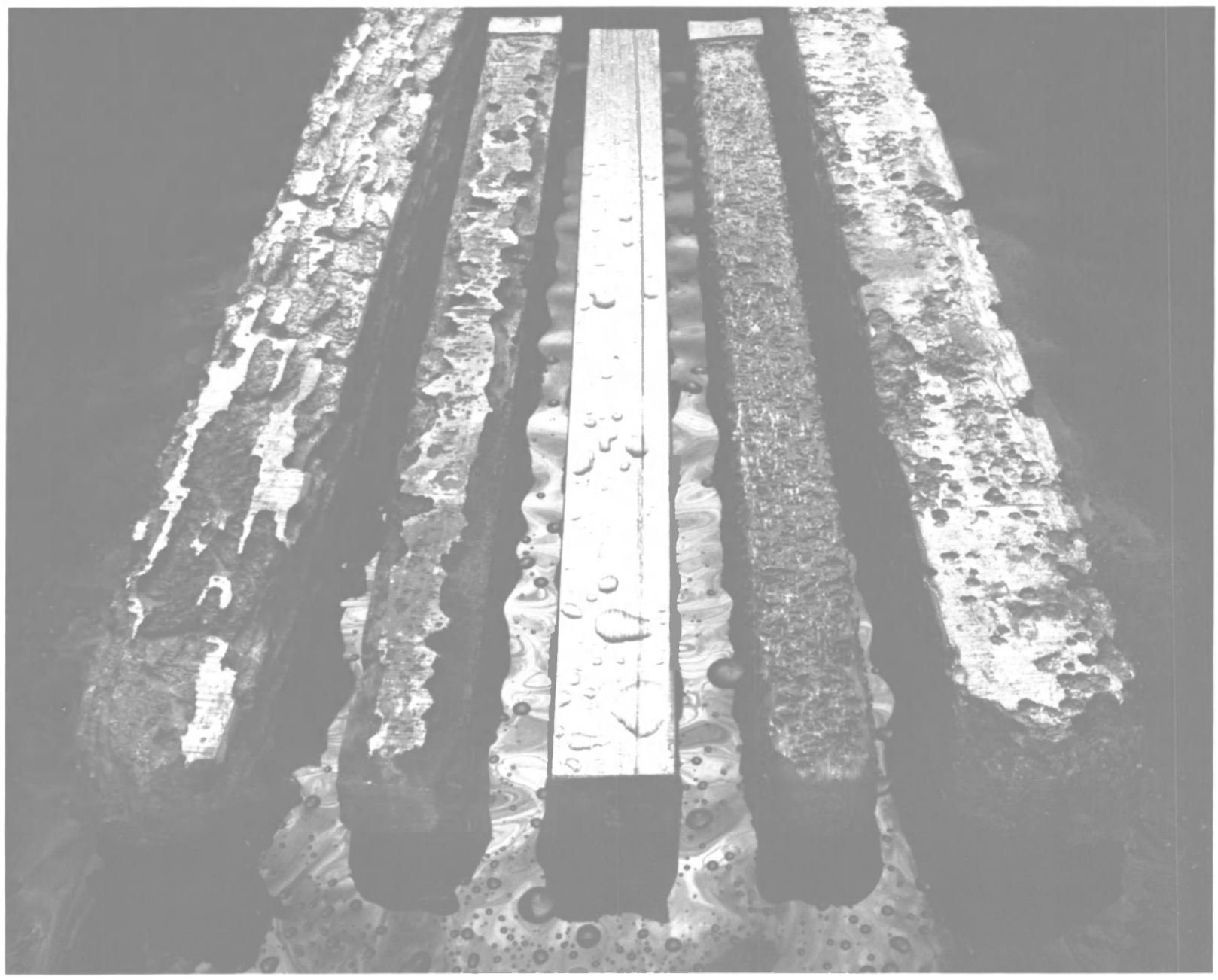
The company took the opportunity to thank the former president **Joe Hurley**, who is leaving the company to pursue other business interests, for his leadership during his term of office.

Racal-Decca Marine Inc. resulted from the acquisition of Decca by Racal Electronics and the subsequent purchase by the Racal-Decca Group (as Decca was renamed) of ITT's 50 percent holding in ITT Decca Marine.

A new expanded service and sales facility at 70 Jackson Drive, Cranford, N.J., to serve the Port of New York and ensure continuance of the Racal-Decca reputation for unparalleled after-sales service was also announced.

"These new offices underscore the determination of Racal-Decca Marine Inc. to support the marine community to the hilt," said Mr. **Burns**.

Racal-Decca Marine enjoys a successful track record in all four marine electronics areas: small boat and deepsea radar, navigational systems, radio communications, and autopilots.



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Both KA90 and KA95 aluminum marine anodes for corrosion protection are available in sizes up to 1100 pounds. Every heat must qualify for acceptance by going through our Q-7 seven-point quality control program.

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It can also: Do cross-hatching... Scale a picture—instantly... Save a picture, any part of it, or any shape or symbol, for re-use... add pointers... Calculate the exact dimensions between any selected points... Rotate a picture to any orientation... and Create composites or revisions in seconds—while retaining the original(s).

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