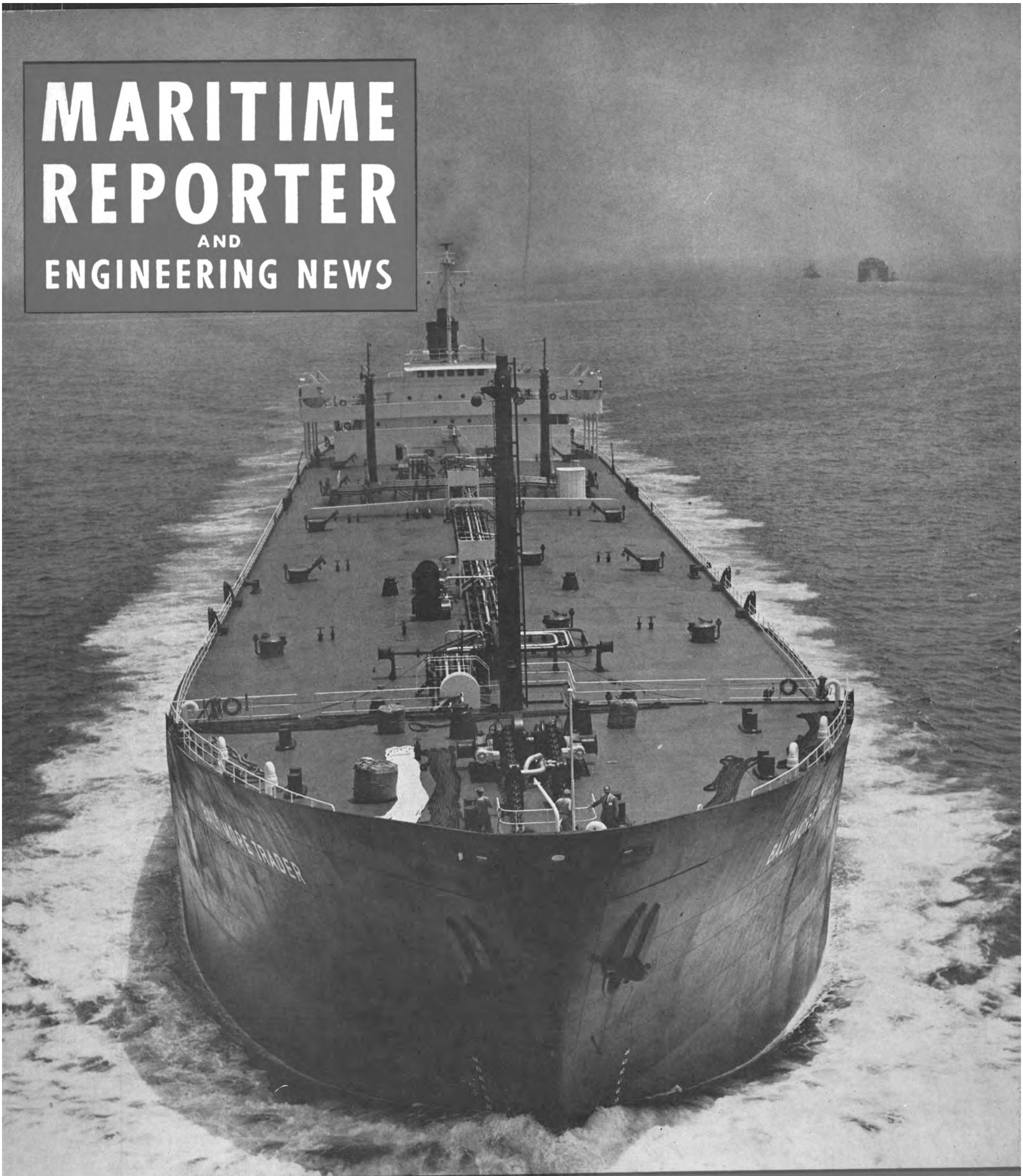
MARITIME
REPORTER
AND
ENGINEERING NEWS



Newport News More Than Doubles Deadweight Tonnage Of Baltimore Trader —Largest Jumboizing Project In U.S.A.

(SEE PAGE 6)

AUGUST 1, 1971

South Pacific cruise director: 1642

The greatest of all Dutch navigators was Abel Janszoon Tasman who commanded the most ambitious voyage ever undertaken for the exploration of the Southern Hemisphere.

It was on August 14, 1642, that Tasman left Batavia, Java, with two ships, to search for "rich southern and eastern lands," and investigate the possibility of a sea passage eastward to Chile.

In this single voyage of ten months, Tasman managed to discover Tasmania (which, of course, bears his name), New Zealand, the Tonga and Fiji Islands. Curiously enough, the great explorer sailed completely around Australia without ever seeing it!

On June 15, 1643, he returned to Batavia and reported to the Dutch East India Company which had sponsored the voyage. The council of the company was disappointed in Tasman, finding him negligent in not investigating the lands he had discovered.

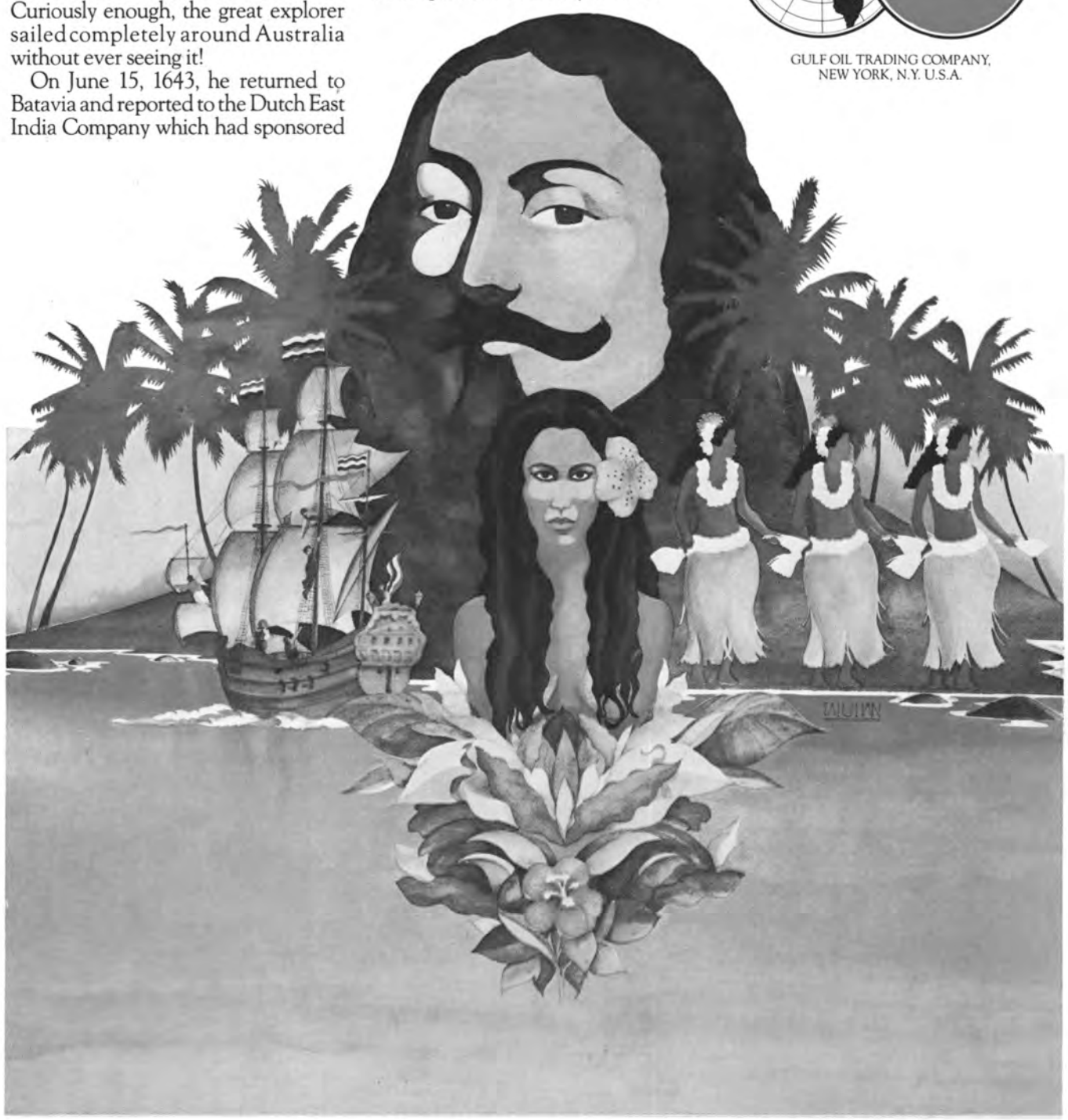
So, in 1644, they sent him on another voyage. Here, too, although Tasman explored a number of new lands, he found none of potential wealth, and the company regarded his voyage as a failure.

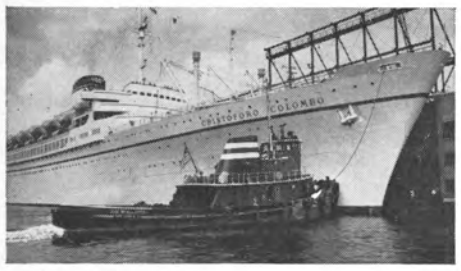
Tasman left the Dutch East India Company shortly later, and although he remained active on the seas, he died in comparative obscurity in 1659.

This advertisement, prepared by Gulf Oil, a leading supplier of quality marine fuels and lubricants, is one of a series paying tribute to the great explorers of the sea. It is published in the interest of the shipping industry and those associated with it.

Gulf

GULF OIL TRADING COMPANY,
NEW YORK, N.Y. U.S.A.





Cristoforo Colombo discovers the new McAllister.

Docking and undocking now faster, more efficient than ever.

The newest addition to the McAllister fleet, the 3160-hp Kort-nozzle tug "Jane McAllister," is shown here undocking the pride of the Italian Line, "Cristoforo Colombo." The "Jane's" flanking rudder system gives her a powerful edge in manuverability that pays off in speed, economy and safe conduct of the ship.

The "Jane" is only one of four new powerful tugs that are swelling the McAllister fleet. Supertugs for superships. So, whatever your harbor movement needs, including tug and barge transportation, why not discover for yourself the new McAllister?
McAllister Bros. Inc., 17 Battery Place, N.Y. 10004.

Mac has the knack.

Stern Trawler Bids To Be Opened Aug. 11

Bids for the construction of from one to three steel stern trawlers will be opened by North Atlantic Marine Enterprises, Atlantic City, N.J., on August 11.

The 725-hp vessels will each measure 95 feet 8 inches in length, with a beam of 24 feet.

Teledyne Sewart And Swiftships To Build Patrol Boat For NSSC

RFP N00024-71-R-0619 has been issued to Teledyne Sewart Seacraft, Inc., Berwick, La., and Swiftships, Inc., Morgan City, La. 70380 by the Naval Ship Systems Command, Washington, D.C., for the construction of an aluminum patrol boat. The vessel will measure 85 feet.

Requests are being made by NSSC for technical proposals concerning the design and construction of two oceanographic research ships for FY '71 (Reference IFB N00024-71-R-0526).

Bel-Aire Shipyard Ltd. To Build Two 184-Foot Oil Supply Vessels

Two large oil supply vessels are to be built by Bel-Aire Shipyard, Ltd., North Vancouver, British Columbia, for Nordic Offshore Services, Ltd. The measurements of each vessel will be 184 feet by 45 feet by 16 feet 6 inches. They will be equipped with twin English Electric diesels supplying 5,280 bhp.

Norfolk Shipbuilding Wins NSSC Contract

The Naval Ship Systems Command, Washington, D.C., has awarded a contract in the amount of $5,900,000 to Norfolk Shipbuilding & Drydock Corp. for the construction of a F-PF-108 class patrol escort ship.

The vessel, which is destined for the Thailand Government, will measure 275 feet.

Barge Awards To Missouri Valley Steel And Brown-Minneapolis

The Corps of Engineers, Philadelphia, Pa., has awarded a $476,220 contract to build three steel oil barges to Missouri Valley Steel, Inc., Leavenworth, Kan., and a contract for building deck barges at a cost of $145,938 to Brown-Minneapolis Tank and Fabricating Co., St. Paul, Minn.

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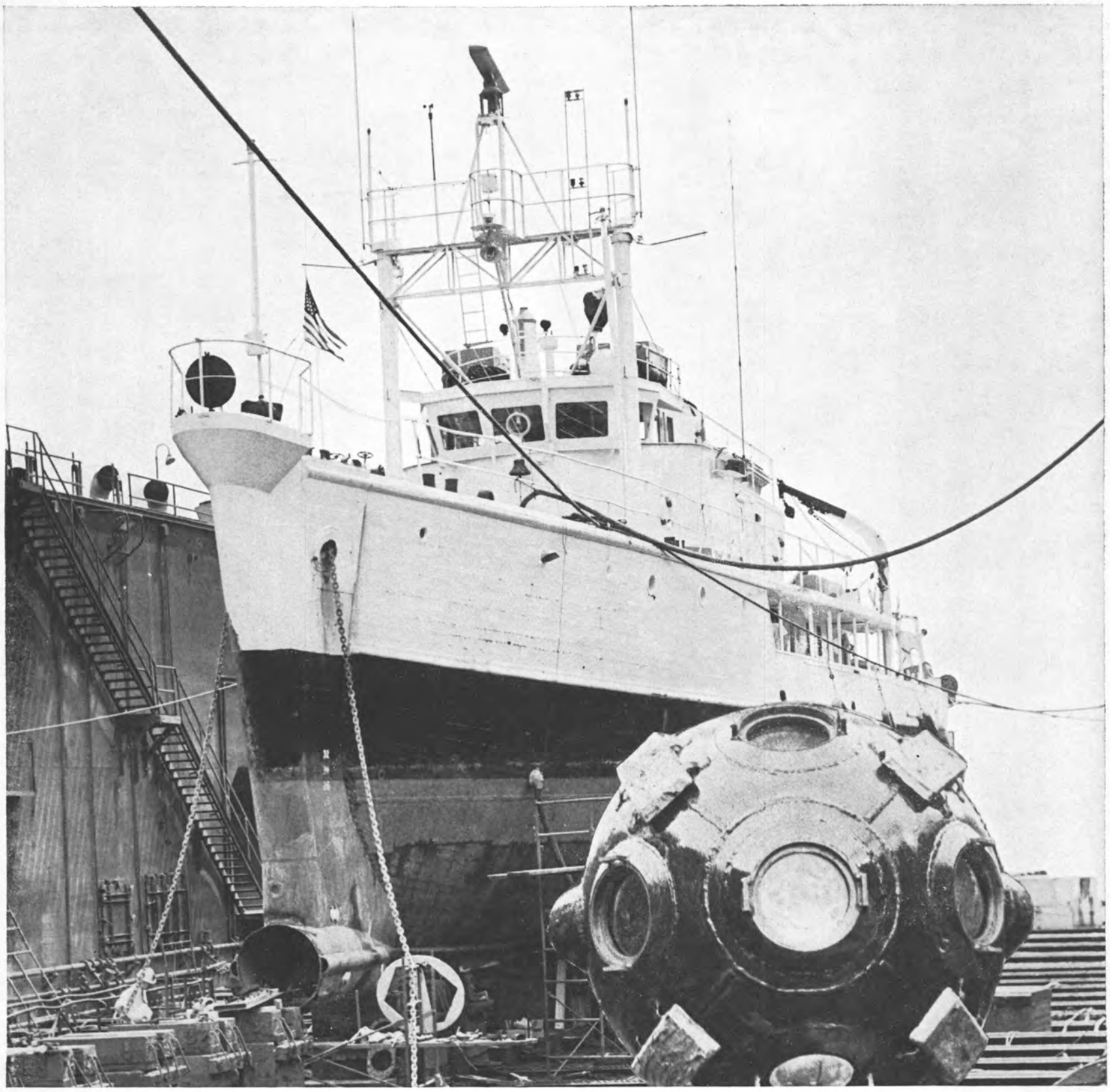

Todd helps keep Cousteau on the go.

Jacques-Yves Cousteau, famed oceanographer and marine biologist, is a man not easily amazed. Yet "amazing" is the very word he used – repeatedly – of Todd's performance in repairing his research vessel, the *Calypso*.

Her underwater observation capsule (hardly a standard item!) had been damaged. Todd's New Orleans yard fabricated a new capsule and installed it. In eight days, overall, the *Calypso* was off again expanding human knowledge of the underseas world.

Whatever kind of repairs your ships may need, try Todd. All Todd yards have a record of pleasant surprises for economy, efficiency, and speed.

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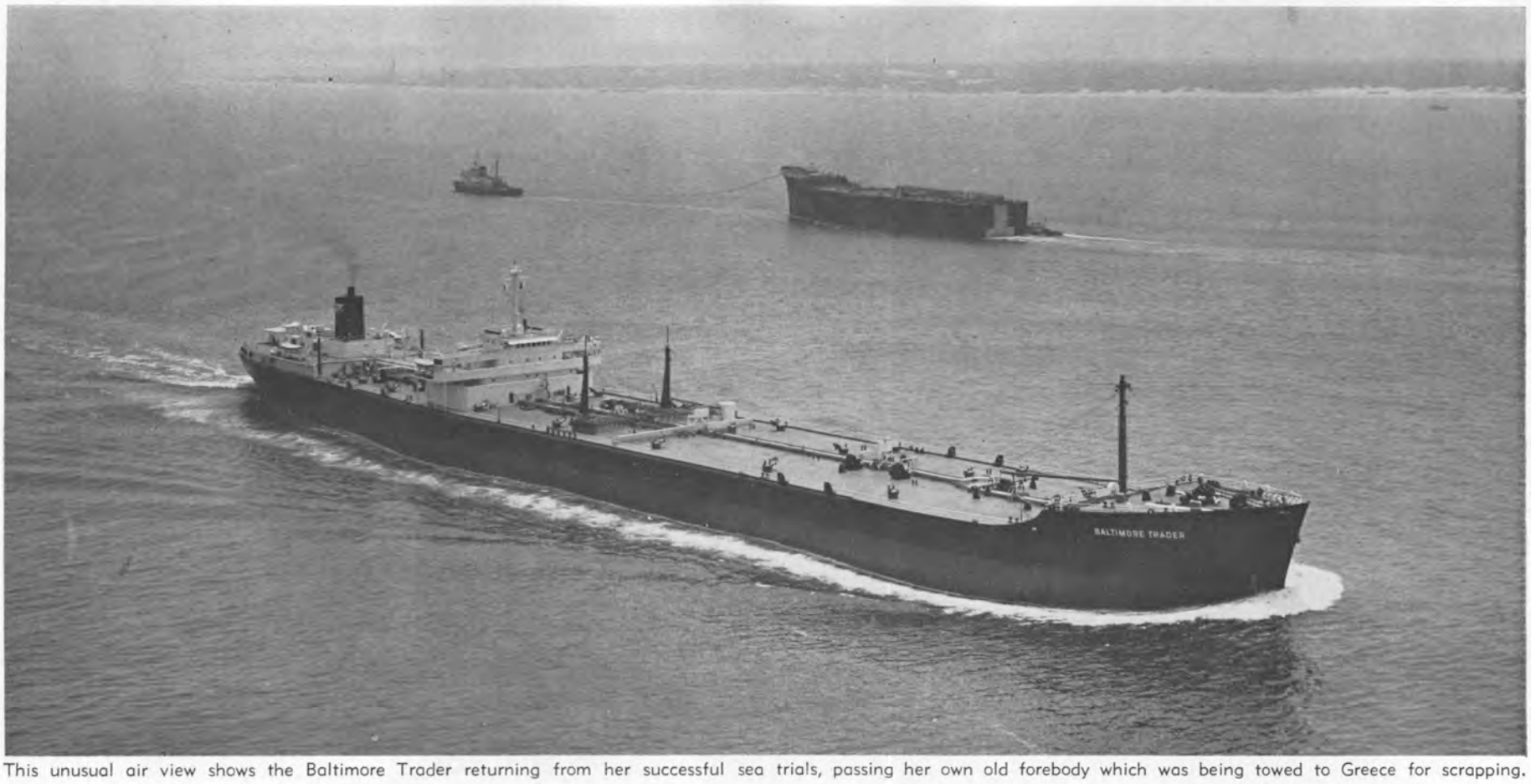

This unusual air view shows the Baltimore Trader returning from her successful sea trials, passing her own old forebody which was being towed to Greece for scrapping.

The New Baltimore Trader

Newport News Shipbuilding More Than Doubles Tanker Deadweight In Largest Jumboizing Job Ever Performed In An American Shipyard

The recently jumboized tanker Baltimore Trader sailed from Newport News Shipbuilding and Dry Dock Company in late June, carrying with her a series of milestones for the Virginia-based shipyard and new records for American charter shipping and shipbuilding.

The day after her sea trials off the Virginia Capes, the vessel went to work for her owners, American Trading and Production Corporation. She began service with a record 10-year consecutive voyage charter to Texaco Inc. for coastal shipping of crude and clean petroleum products.

The 56,000-dwt tanker is the largest jumbo job ever to be performed in an American shipyard, going from a former length of 575 feet to 800 feet. Her deadweight tonnage was more than doubled from a former 25,241 during the nine-month construction period in a Newport News shipway. Newport News played a pioneering role in the jumboizing process, which involves construction of a new cargo-carrying forebody and welding it to the stern section of a smaller existing tanker. In the case of the Baltimore Trader, a new 625-foot forebody was built to mate with the 175-foot stern section of a retired tanker.

Significance of the operation, according to **Frank J. Murphy,** marine vice president of American Trading, "involves not only the expansion of capacity, but the time factor," noting that the jumboizing process can be completed in a fraction of the time necessary to design and build an entirely new ship, with virtually the same results.

Mr. **Murphy,** speaking at a dinner in Newport News the night before the ship's sea trials, said the Baltimore Trader, built without Government subsidy, represents "an ideal marriage insofar as Government and private industry are concerned—no Government construction subsidy and no dependence upon Government-generated cargoes. It could only happen, however, under the protective umbrella of the Jones Act." For non-maritime guests at the dinner, Mr. **Murphy** explained the Jones Act, citing the legislation for the important part it plays "in the continued existence of the independent American-flag tanker owner." He continued: "An independent is a shipowner who relies upon third-party users of ocean transportation as distinguished from a proprietary owner who owns ships primarily to transport his own cargoes. Vessels built in the United States for American-flag operation are protected from lower-cost foreign-flag ships in domestic coastwise trades by the Jones Act." Calling the act "the lifeline of the independent coastwise fleet," Mr. **Murphy** noted that "if we are to add more Baltimore Traders and new buildings to (the fleet), we must be certain that the Jones Act is not compromised by those who would seek to weaken or destroy it."

During the dinner, tributes were paid to the memory of **Jacob Blaustein,** the late president and founder of American Trading and Production Corporation. Memoriam was also paid to **Gardiner Symonds,** chairman of the board of the shipyard's parent company, Tenneco Inc., until his death on June 1.

American Trading and Production Corporation president Dr. **Morton K. Blaustein** called the Baltimore Trader a major milestone in the life of his firm. "This represents a significant step in our program to modernize and expand American Trading's tanker fleet," he said, "and reaffirms our confidence in a strong merchant marine built in U.S. shipyards."

First major milestone in the reconstruction of the Baltimore Trader came on September 14, 1970, when the first keel plates for the new forebody were laid down. In March—nearly six months and 8,600 tons of steel later—the new 460,000-barrel-capacity cargo section was launched by flotation and moved to a nearby pier for sandblasting and application of special coatings to cargo tanks, interior and exterior surfaces. The flotation was witnessed by **L.C. Ackerman,** president and chief executive of Newport News Shipbuilding, Mr. **Murphy** and other shipyard and American Trading officials. Also present for the flotation was **Gardiner Symonds,** the late chairman of the board of Tenneco Inc.

Meanwhile, a tanker which previously had been retired was towed into the shipyard. On her arrival, work began on cutting away the stern section housing the ship's machinery. Other work performed on the stern section included automation of the ship's boilers and modernization and air-conditioning of deckhouses.

Construction of the ship also involved installation of a 1,000-horsepower bow thruster

(Continued on page 8)

The master of the long haul is a master indeed—
He may be called upon to tow floating units of any size or type—
from dredges to drydocks, from barges to battleships,
from derricks to drill rigs on the oceans of the world—tow ships
in distress under the most adverse conditions to a safe haven—
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challenges of his job—and deliver his tows safely—is born
of experience and the knowledge that the vessel he commands
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MORAN TOWING & TRANSPORTATION CO., INC.
17 Battery Place, New York, N.Y. 10004

Baltimore Trader–

(Continued from page 6)

to facilitate docking and undocking and to increase vessel safety. Much of the construction work on the Baltimore Trader took place within sight of the Navy's newest aircraft carrier, part of the $1.5 billion backlog at the Virginia shipyard.

On May 7, old and new forebodies were exchanged while the ship's 300-ton midships house was held aloft by the shipyard's 19-story gantry crane. The crane, spanning two of the yard's largest shipways, lifted the midships house while the old forebody was floated from underneath. Shipyard workers then floated the new forebody into position for joining to the refurbished stern section. Then the midships house was lowered to its new foundation. The lift, an all-day exercise, qualified as the big crane's heaviest since entering service at the yard.

The Baltimore Trader more than proved herself and her builders during the one-day sea trials off the Virginia Capes. Tests slated for the newly-finished tanker included calibration of navigation and communications equipment, checks of the steering mechanism, and a trial of the new bow thruster. During the entire course of the trials, close surveillance was kept on the vessel's automatic boiler firing and control system and related equipment. During the hour-long full-power run, the Baltimore Trader turned out an unexpected 15.8 knots, exceeding her expected speed of 15 knots.

The ship's regular assigned crew, commanded by Capt. **E. Strohm,** manned the vessel during the trial cruise. Capt. **Douglas C. Broad** of the Virginia Pilot Association guided the tanker through the waters of Hampton Roads. A 25-man team of shipyard technical experts headed by **J.M. Branch,** general superintendent of ship repair, monitored tests. Also monitoring trial events were representatives of the American Bureau of Shipping and the U.S. Coast Guard. Shipyard president **L.C. Ackerman** and **G. Guy Via Jr.,** manager of marketing for commercial ships and manager of ship repair sales, headed a delegation of shipyard officials. Also aboard the ship during her trial cruise were Mr. **Murphy,** American Trading senior vice president **David Hirschhorn,** and vice president **Robert Ihrie.** A guest of the owners during the cruise was **Robert J. Blackwell,** U.S. Deputy Assistant Secretary of Commerce for Maritime Affairs.

Pictured aboard the vessel during her trial cruise, from left to right: **L.C. Ackerman,** president and chief executive officer, Newport News Shipbuilding; **Frank J. Murphy,** vice president, marine transportation, for American Trading and Production Corporation; **Robert Ihrie,** American Trading vice president, and **G. Guy Via Jr.,** the shipyard's manager of marketing for commercial ships and manager of ship repair sales.

Robert J. Blackwell, U.S. Deputy Assistant Secretary of Commerce for Maritime Affairs, looks over equipment aboard the Baltimore Trader.

The new Baltimore Trader carries her cargo in 23 tanks. She is equipped with separate lines and pumps to carry several grades of cargo. With a beam of 102 feet and a depth of 52 feet, the ship has the capacity of carrying some 20-million gallons of petroleum products.

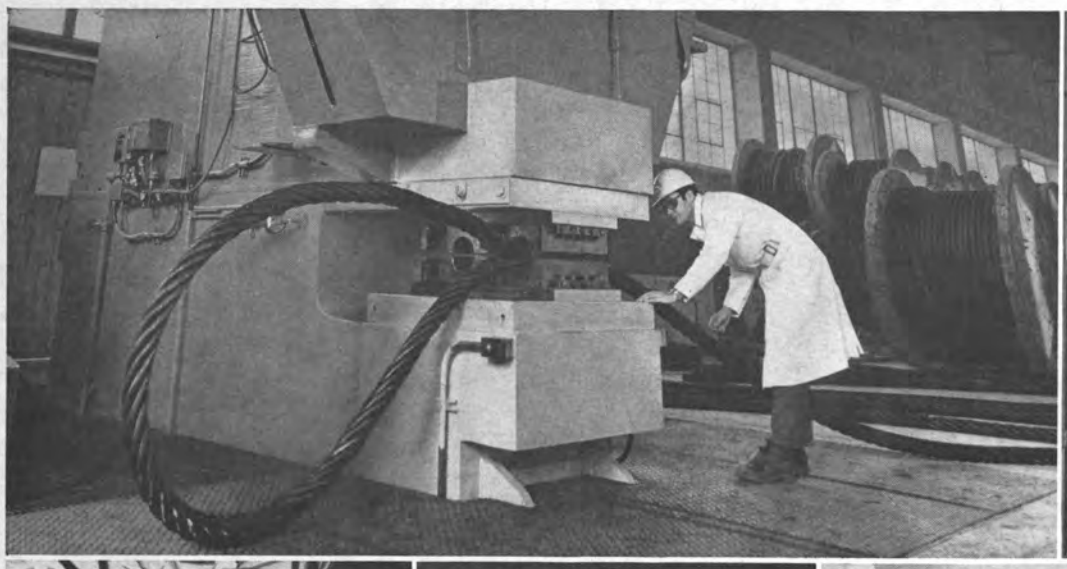
The shipyard's initiation into the jumboizing of ships came in 1946, when it modified the World War II damaged Nueva Andalucia by adding a new midbody. It was another decade before the Amoco Delaware—presently being re-jumboized at the yard — began a steady parade of reconstruction assignments at the Tenneco Company. Among items on a typical Newport News jumboizing agenda are installation of an oil-lubricated stern bearing to replace the wooden bearing, enlargement of the rudder to handle the longer vessel, changing the ship's fire protection system from steam to foam, and the use of welding rather than rivets for joining operations. Newport News jumboized ships have returned to service with automated boilers, new evaporators, air-conditioning, resin-glass coated decks and automatic priming systems.

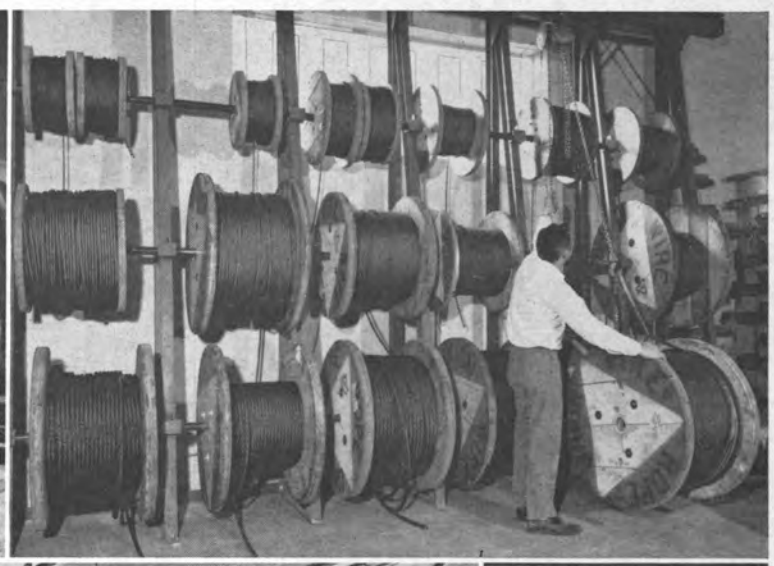
One of the more interesting aspects of the jumboizing process is disposition of the original and no-longer-needed forebodies. While some have been sold for scrap, others have enjoyed second "careers" as barges or huge storage tanks. One forebody discarded from a Newport News jumbo job was split lengthwise and used as a bulkhead in a shipyard landfill project. While the Baltimore Trader was returning to Newport News from her successful sea trials, she passed her own old forebody beginning her towed journey to Greece to be scrapped.

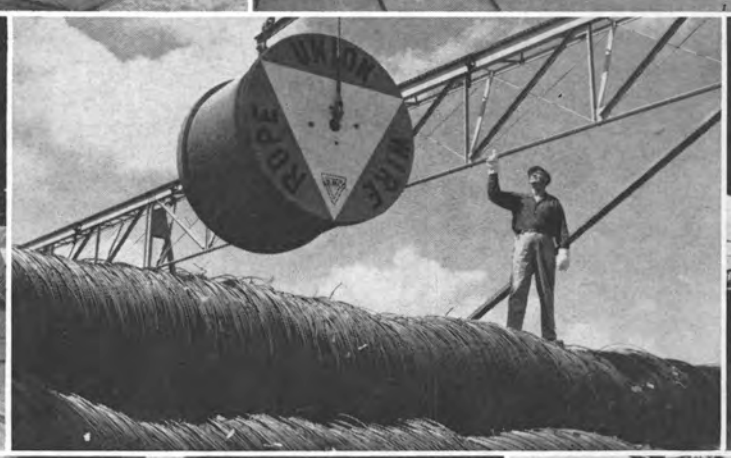
The new American Trading and Production Corporation ship is the 27th vessel to be expanded by Newport News Shipbuilding. As the ship prepared for her maiden voyage, company jumboizing experts were preparing to add yet another chapter to their capability—re-jumboizing. The Amoco Delaware returned to the shipyard 15 years after her first jumboizing. Her stern will be cut away and welded to a new shipyard-built forebody. When she re-enters service later this year, the original stern will be starting its 28th year of operation.

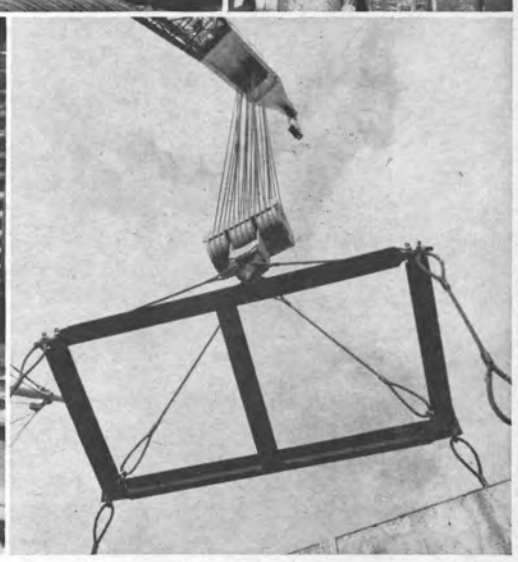
A second jumboizing contract the shipyard currently holds is for the enlargement of the T-2 tanker Colorado. Under a contract with Sabine Towing and Transportation Company of Port Arthur, Texas, deadweight tonnage of the ship will be increased to 30,400.

The new 625-foot forebody, which was built to mate with the 125-foot stern section, was launched at Newport News Shipbuilding and Dry Dock in March.









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ARMCO STEEL ARMCO

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If you need over 2250 horsepower, you need not rely on one big diesel.

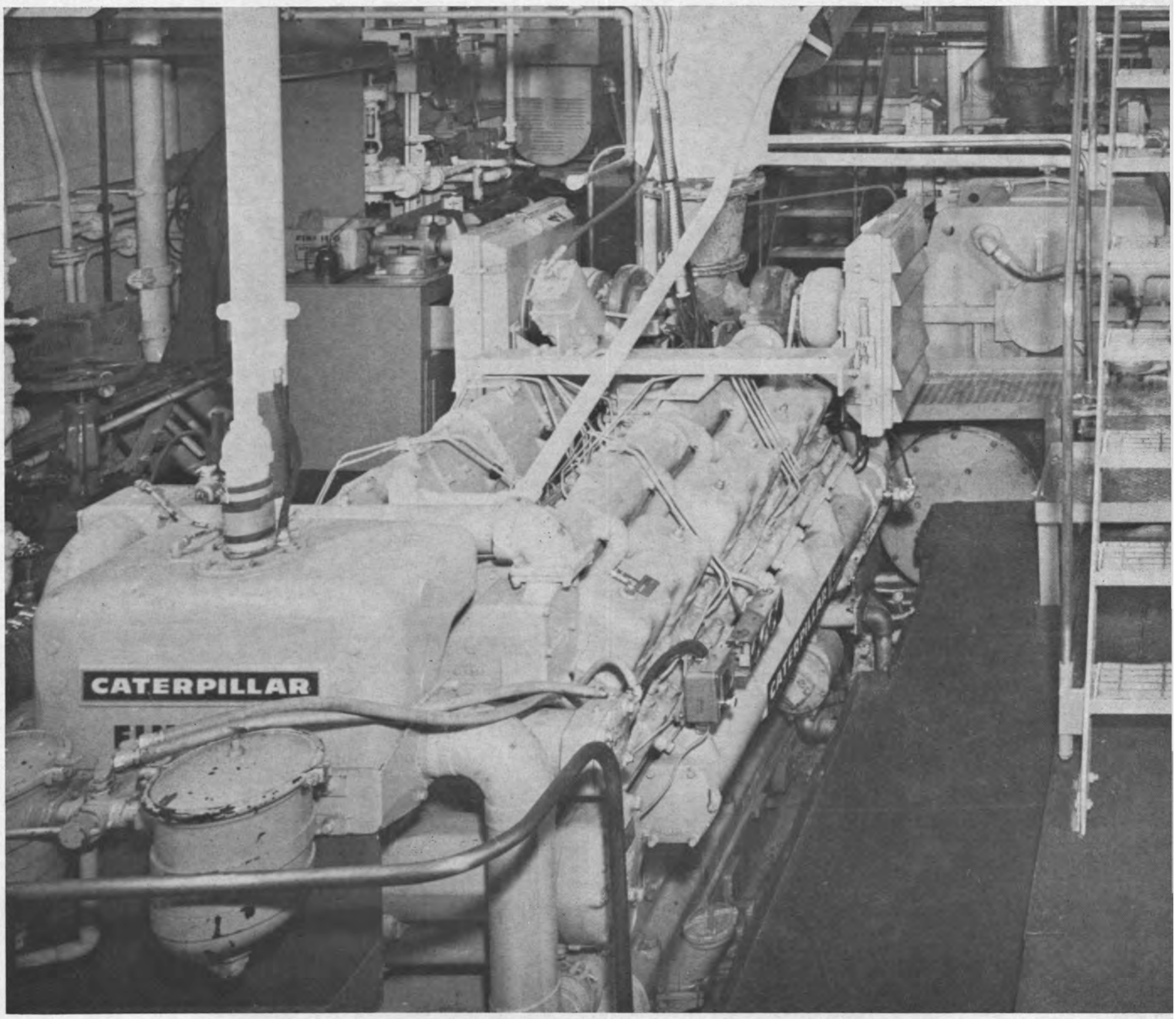
A compound propulsion system incorporating Caterpillar Diesels will multiply your reliability and safety factor and give you economies in power flexibility, too. It gives you the ability to adjust power to the load, reducing fuel consumption and required maintenance.

You might compound Cat Diesels on a single screw. Like the GULF JOAN which has four D398s connected to a Lufkin marine gear. This allows the use of from one to all four engines, depending on the load.

The Cat D398 Diesel Engines each develop 765 hp to give the GULF JOAN a total of 3060 propulsion hp. The 149 ft. tug has a 33 ft. beam and 18 ft. draft. She makes 14 knots light and 10 knots towing a 6000 ton deck cargo barge.

A single lever in the engine room controls all four engines or each can be controlled separately. So the captain has all the power he needs, but can use only the power he needs.

Ship's service aboard the GULF JOAN is supplied by two Cat D333 Diesels driving 75 kw generators. Another Cat



St. Louis Ship Delivers

The 7,000-HP Myra Eckstein

The towing knees on the Myra Eckstein, of special heavy design, provide easy access to the barges in tow at any level.

On June 10, 1971, the powerful new Myra Eckstein was christened in St. Louis, Mo.

The 7,000-hp Myra Eckstein was designed and built by St. Louis Ship, Division of Pott Industries Inc., and is the fourth Hydrodyne towboat to be built for Wisconsin Barge Line within the last four years.

The traditional champagne bottle was broken by **Mrs. Vincent Tranchita,** wife of the vice president of Wisconsin Barge Line. Serving as matrons of honor were **Mrs. Ray J. Eckstein** (for whom the vessel was named), the mother of the president of Wisconsin Barge Line, **Ray A. Eckstein,** and **Mrs. Anthony Tranchita,** mother of **Vincent Tranchita.**

Attending the ceremonies were officials of Wisconsin Barge Line and St. Louis Ship, many civic leaders of Cassville, Wis., and a large contingent from the river industry.

The Myra Eckstein hull is 166 feet by 45 feet by 11 feet, with normal draft of 8 feet 6 inches. The hull is heavily framed longitudinally and transversely, with the aft deck raised to provide additional strength to the stern. Bottom plating is 5/8-inch thick, side plating is 7/16-inch with 5/8-inch bilge knuckles, 5/8-inch headlog and 7/8-inch plate in way of the tunnels.

Propulsion power is furnished by two General Motors Model 20-645E5 marine diesel engines, each developing 3,500-hp at 900 rpm through Falk Model 35-MR-48 horizontal offset reverse reduction gears with Airflex clutches providing 212 rpm ahead. Fuel capacity is 126,000 gallons.

The propellers are stainless steel, 114-inch-diameter, 5-blade, turning in stainless steel lined Kort nozzles.

The main engines are cooled with clear water circulated through a St. Louis Ship designed skin cooling system. The engines are started from the engine room only, but the engines and clutches are controlled from the pilothouse by means of General Motors pneumatic control equipment. A control console is also located in the engine room.

In addition to the conventional engine room gageboards installed on all towboats, the Myra Eckstein is equipped with a monitoring system which features an alarm panel in the pilothouse, engine room and chief engineer's stateroom.

All primary and auxiliary systems are continuously monitored and any abnormal temperature, pressure or liquid level will manifest itself by both visual and audible alarms on the engine room panel, and certain functions will be indicated on the chief engineer's and pilothouse panels.

The engine room monitoring panels and control console are located in a soundproofed, air-conditioned room in the engine room.

Two powerful steering systems of St. Louis Ship's mechanical-hydraulic design are installed on the Myra Eckstein. One system controls the two steering rudders and the other controls the four flanking rudders. An additional pump is provided as a standby. Rudders can be turned hard over to hard over in 16 seconds while towing.

Two 155-kw Delco Model E5280E9 3/60/208/240-416/480 volt generators are each driven by General Motors Model 7083-7000 diesel engines. The generators are equipped for automatic start and are located in a separate soundproof room.

A Central Electric dead front switchboard located in the main engine room is wired for parallel operation of the generators.

The engine room and auxiliary engine room are large and well lighted. Two stack exhaust fans and four blower fans keep the areas comfortably ventilated. The steering room is accessible from the engine room, making it convenient to service steering power and control units at regular intervals.

Fire pumps can be started by remote controls from the deck. Escape hatches are provided for the auxiliary engine room and shaft alleys.

Automatic safety features are installed on machinery wherever danger of runaway, overload or explosion may exist.

Auxiliaries provided include a 225-gpm fire pump supplying five hose stations, a 165-gpm bilge and ballast pump, a 165-gpm fuel oil transfer pump, two 10-gpm fuel oil service pumps, two 34-cfm air compressors with four air tanks, 3/4-hp reduction gear circulating water pumps, one 13-gpm lubricating oil priming pump, two 40-hp steering pumps and one 25-hp steering pump. Two Schoellhorn-Albrecht motor-driven double barreled capstans, and four Patterson power winches are installed forward. King Post Derricks with two one-ton electric winches are located aft to facilitate handling of supplies and the vessel's dispatch boat.

The towing knees, of special heavy design, provide easy access to the barges in tow at any level. Concrete filled double steel fenders extend full length on the sides.

From left to right: **Mrs. Anthony Tranchita,** matron of honor; **Mrs. Vincent Tranchita,** sponsor; **Mrs. Ray J. Eckstein,** matron of honor, and **Mrs. Ray A. Eckstein.**

The Myra Eckstein deckhouse is arranged for maximum comfort and convenience of the crew. The galley and mess are immediately forward of the engine room; crew's quarters and a lounge are forward on the main deck, officers and guests on the second deck. Interior stairs connect all decks and the pilothouse.

All living quarters of the Myra Eckstein are year-round air-conditioned, with hot or chilled circulating water through "dual-vectors" located in each room.

The pilothouse is large and is raised to make the pilot's eye level about 31 feet above water level. Windows are sloped to prevent glare. A control console, settee with storage space underneath, a water cooler, and air-conditioning are provided for the comfort and convenience of the pilots.

Navigating and communicating equipment include a Raytheon Twin Radar, Raytheon Swing Indicator, Raytheon Depth Recorder, DuKane intercom system, radiotelephone and sound-powered telephones.

One 19-inch 45-amp Carlisle & Finch arc searchlight, one 19-inch Carlisle & Finch Xenon Searchlight and a Kahlenberg 8-inch Model Q3 air whistle are located atop the pilothouse. Seven 500-watt floodlights illuminate work areas at forward and aft decks.

The M/V Myra Eckstein is an outstanding boat in every respect and should give its owners many years of reliable service.

Pictured aboard the new towboat, from left to right: **Edward Renshaw,** president of St. Louis Ship; **Richard P. Conerly,** president of Pott Industries; **H.T. Pott,** chairman of Pott Industries; **James Snyder,** president of Consolidated Leasing Corporation; **Ray A. Eckstein,** president of Wisconsin Barge Line; **Lee Reeder,** board of directors, Consolidated Leasing Corporation; **Vincent Tranchita,** vice president of Wisconsin Barge Line; **Richard Les,** controller, Consolidated Leasing Corporation, and **Warren Golden,** secretary, Consolidated Leasing Corporation.

Lakes Bulk Carriers Subject Of SNAME Symposium In Canada

"Hull Stresses in Great Lakes Bulk Carriers" was the subject of a SNAME Symposium at the Chateau Laurier in Ottawa, Canada, July 21-23. Thirteen papers in all were presented by authors from both the United States and Canada during the three-day symposium, which was sponsored by the Eastern Canadian and Great Lakes Sections of The Society of Naval Architects and Marine Engineers in conjunction with the Society's Technical and Research Program.

Strength standards and load lines for large bulk carriers on the Great Lakes have received considerable attention over the past few years. This has included full-scale stress measurements on the Inland Steel Company's Great Lakes ore carrier Edward L. Ryerson, as well as programs of continuous measurement of waves and weather on the Great Lakes by the Canadian Ministry of Transport, National Research Council of Canada, United States National Weather Service, Lake Survey of NOAA and reporting ships. The various technical papers presented summarized these on-going programs, analyzed bending moment experiments on Great Lakes bulk carrier models, discussed current and future strength standards and load lines and evaluated hull bending and springing stresses.

Robert Shaw, Deputy Minister, Canadian Department of Environment, gave a short address on a timely subject during the Symposium Dinner at the Chateau Laurier on Thursday, July 22.

Concluding remarks to the technical session were given on Friday, July 23, by Dr. **Pierre Camu,** The Administrator, Canadian Marine Transportation Administration, Ministry of Transport.

Social events included a reception Wednesday evening, July 21, followed by a theater performance at the National Arts Center; reception, dinner and dancing at the Chateau Laurier on July 22, and a tour of the Marine Dynamics and Ship Laboratory of the National Research Council of Canada on July 23. Much assistance for these social events has been rendered by the Dominion Marine Association and the Lake Carriers Association.

GE Names Williamson Manager Gas Turbine Market Development

Delbert L. Williamson

Delbert L. Williamson has been appointed General Electric's manager of market development for the Gas Turbine Marketing Operation. The announcement was made by **Edward W. Springer,** manager of the Gas Turbine Marketing Operation.

As manager of market development, Mr. **Williamson** is responsible for the development of new products, applications, standards, and systems involving the use of heavy-duty gas turbines. He is also responsible for marketing communications and sales promotion for the Gas Turbine Operations.

Prior to his recent appointment, Mr. **Williamson** was manager of combined cycle systems for GE's Gas Turbine Operations.

Mr. **Williamson** attended the University of Kansas and received a B.S. degree in electrical engineering from Finlay College in 1959. After graduation, he was employed by GE and held several electric utility sales assignments. In 1966, he moved to the marketing section of the Medium Steam Turbine Generator Department in Lynn, Mass., where he held positions as electric utility sales engineer, manager of new applications, and manager of product planning and market development.

United States Lines Elects D.G. Aldridge Exec. Vice President

Donald G. Aldridge

Donald G. Aldridge has been elected executive vice president of United States Lines, it was announced by **E.J. Heine Jr.**, president of the containership company.

Mr. **Aldridge** joined the company in 1970 as senior vice president for marketing and sales. He is a former director and executive vice president of American Export Isbrandtsen Lines.

At United States Lines, the new executive vice president was instrumental in the organization and development of the company's Tri-Continent containerized freight service between Europe, the United States and Far East.

The company inaugurated the 15,000-mile "Sea Bridge" last year and now has 16 containerships, the largest new fleet of its kind, operating that trade route. Intercoastal service between the East and West Coasts is also included.

Mr. **Aldridge** is a graduate of St. John's University. He is a member of the Downtown Athletic Club and the Whitehall and Foreign Commerce Clubs.

Ocean Drilling Plans To Build Drilling Rig Costing $20-Million

Plans have been announced by Ocean Drilling & Exploration Co. for the construction of a $20-million semisubmersible drilling rig. According to **Alden J. Laborde,** president, "slightly more than half" of this contract will go to Avondale Shipyards, Inc. The remainder of the contract will go to firms not yet named.

"This will be the fifth largest drilling rig that Avondale has built for Ocean Drilling and we are, of course, hopeful of building more, which at this time would appear to be a good prospect," Mr. **Laborde** stated.

Pancontinental Marine Appoints Peter Klopfer

Peter M. Klopfer has been appointed manager, sale and purchase, of Pancontinental Marine, Inc., 50 Broadway, New York, N.Y. 10004, according to **J.R. Kirsten,** president of the company.

Mr. **Klopfer,** who was previously with Hellenic Lines, Ltd., will be in charge of Pancontinental's activities as shipyard representatives and sale and purchase brokers.

Dorsey To Build Bulk Resin Containers For Union Carbide

An order to build 500 seam welded all-aluminum bulk resin containers for the Chemicals and Plastics Division of Union Carbide Corporation, has been awarded to Dorsey Trailers, Elba, Ala., it was announced by **George L. Collier,** president. The contract figure was given as in excess of two-million dollars.

Especially designed for hauling resin pellets, the 30-foot by 8-foot by 8-foot boxes will be of exterior post construction to provide smooth interior surfaces. Specifications call for baffles in all corners to prevent trapping bulk materials. Another set of baffles, between two 8-inch diameter discharge chutes on one end, facilitate unloading by tilting. Net usable cargo volume will be 1,630 cubic feet.

The roof of each container will have a 20-inch loading hatch and an 8-inch inspection port. All closures will be subjected to air and soap testing to assure water tightness to protect cargo from contamination.

Union Carbide uses containers extensively in transporting resins from its plants by sea, rail and truck. Dorsey, a subsidiary of The Dorsey Corporation, will build the containers at its manufacturing facilities in Elba.

Three Firms Receive USCG Contracts For Oil Recovery Systems

Adm. **Chester R. Bender,** Coast Guard Commandant, has announced the award of three contracts totaling $637,632 for the system development competition for the development of a prototype, air transportable, high-capacity oil recovery system for use on the high seas. The recipients of the contracts were Ocean Systems, Inc. of Reston, Va., Lockheed Missile and Space Co. of Sunnyvale, Calif. and Martin-Marietta Corp. of Denver, Col.

The Coast Guard, a major component of the Department of Transportation, has the responsibility for enforcing antipollution laws which affect the marine environment. Coast Guard officials say that the development of an effective high-seas oil recovery system is part of their overall program of prevention, containment, and cleanup of oil spills—a major marine pollution problem.

According to the terms of the contracts, each of the three companies will develop its version of the recovery system and submit a detailed report to Coast Guard research and development officials by December 1971. The Coast Guard will then evaluate the three systems, select one or more with a "high probability of success," and award contracts for Phase II of the project—construction of the full-sized prototype unit.

The system being developed by Lockheed is based on a rotating drum principle. Spilled oil will be lifted off the surface by vane-connected discs that are rotated through the oil. The oil attaches to the discs and is later removed by a wiper.

Martin-Marietta is working on a system that will use an endless belt that attracts and holds oil while letting water flow through it. The collected oil is then squeezed out of the belt and pumped into collection tanks.

The Ocean Systems' plan calls for the use of a small wave conforming boom fitted with weirs. The weirs allow the oil to flow into a flexible basin from the ocean surface. After further oil-water separation in the basin, the oil is pumped to storage containers.

Rear Adm. **C.A. Richmond,** Chief of the Office of Research and Development at Coast Guard Headquarters, said that the development of an effective high-seas oil recovery system is an important part of the Coast Guard's three-phase antipollution program. The first part, an air-deliverable, antipollution transfer system (ADAPTS), has been developed to off-load disabled tankers before they can spill any oil.

The second phase, a new high-seas oil containment barrier designed to prevent spilled oil reaching the coast, is currently being tested off the Florida coast to determine its effectiveness. The oil recovery system is the important "third link" in the prevention, containment, and cleanup program.

Adams & Porter Assoc. Names Fred M. Schall

Fred M. Schall

The appointment of **Fred M. Schall** as an insurance account executive with Adams & Porter Associates, Inc., has been announced by the Houston-based firm. Mr. **Schall** will be responsible for servicing existing accounts and the production of new accounts.

A graduate in finance from Texas Tech in Lubbock, Mr. **Schall** also holds an M.B.A. degree in finance from the University of Texas at Austin. He is a member of the University of Texas MBA Association and has served with the Texas Air National Guard.

Adams & Porter Associates, Inc., has offices in New York and California in addition to their Houston, Texas, branch.

Litton Ship Systems Launches

SS Austral Envoy— First Ship Launched From New Shipyard

The recent christening of the Austral Envoy at Litton Industries' new $130 million shipyard in Pascagoula, Miss. inaugurated a new method of ship launching in the United States. With the exception of the splash from the champagne bottle, the new Farrell Lines containership was not launched in the usual fashion. Instead of a slide down the shipway as in a traditional launching, the Austral Envoy was transferred from land to water by way of a new launch platform system designed by Crandall Dry Dock Engineers, Inc., Cambridge, Mass. This system is part of the assembly-line production process being utilized by Litton Ship Systems in the building of the Austral Envoy and her three sisterships, Austral Ensign, Austral Endurance and Austral Entente.

The Austral Envoy was sponsored by **Lady Phyllis Bates,** wife of the Hon. **Sir John Bates,** C.B.E., Australian consul general in New York. **Mrs. Rudi E. Tolnay** of Bronxville, N.Y., attended the sponsor as matron of honor. Speakers at the launching included Vice Adm. **Arthur R. Gralla,** USN, commander, Military Sealift Command; **Ellis Gardner,** senior vice-president, heading Litton's Marine Group, and Dr. **R.L. Roderick,** president of Litton Ship Systems Division of Litton Industries.

The new Litton "shipyard of the future" employs new shipbuilding concepts of fabrication, handling and assembly of ship components, which are all brought together in an integration area adjacent to a waterfront bulkhead. The launching of the ship is the final operation of this integrated system of ship construction. The floating dry dock, of the Crandall Dry Dock Engineers' sectional self-docking type with the wing on one side removable for transfer, was selected for this operation because of its unique qualities.

Launching is accomplished from the yard, located 12 feet above water level, to a floating attitude as shown in the photographs to the right and as described in the February 15, 1971 issue of Maritime Reporter/Engineering News. This dock has the capacity to launch vessels weighing up to 35,000 tons light displacement. It has an overall length of 960 feet and width of 212 feet (the clear width between wing walls is 180 feet). The pontoons are 24 feet deep for lift-off from the underwater foundation. The structural strength permits a lineal loading of 60 tons per foot of dock length.

The 668-foot containership, Austral Envoy, will carry cargo and passengers on Farrell's Australian/New Zealand service route. The

(Continued next page)

1. The Austral Envoy prior to launching on the shipyard's integration area where the various modules of the ship were joined together to form the completed hull.

2. In this view the ship has been moved onto the launching platform. This transfer from shore to platform is by means of a special wheel-on-rail transfer system. The total transfer distance is about 300 feet and required four hours to complete, as the ship was moved at a rate of 22 inches a minute. The platform can support 57,000 tons.

3. The Austral Envoy in its launching position on the Crandall floating dock. In this view, the portable wing-wall sections are being put in position. The platform rests on an underwater foundation. At high tide the platform is dewatered and floats free so that it can be moved into the ship channel where actual launching takes place.

LAUNCHING OF S/S AUSTRAL ENVOY: left to right, Sir **Laurence McIntyre,** Australian Ambassador to the United Nations; Sir **John Bates,** Australian Consul General in New York; **Mrs. Rudi E. Tolnay,** matron of honor; Honorable **Robert L. Lawrence,** New Zealand Consul General in New York; **A.C. Weeks,** P.R., Litton; Lady **Phyllis Bates,** sponsor; **L.C. Hoffman,** Assistant Administrator for Operations, Maritime Administration; **Thomas J. Smith,** president, Farrell Lines; **James A. Farrell Jr.,** chairman, Farrell Lines; Adm. **Arthur R. Gralla,** Commander, Military Sealift Command; Honorable **John J. Rooney,** House Appropriations Committee; **Harold Gray,** senior executive vice president, Litton, and Dr. **R.L. Roderick,** president, Litton Ship Systems.

4. The launching platform with the ship is moved into the middle of the ship channel by means of a special out-haul system utilizing two self-contained mooring winches and two spring-line winches. The dock is ballasted by 48 pumps, powered by on-board generating equipment, and the ship is floated off the platform. The traditional bottle of champagne is broken at this time by means of electronically operated release activated by the sponsor. The reverse process can be used to dry dock a ship.

SS Austral Envoy—

(Continued from page 18)

Farrell Lines, which pioneered the route from New York to South Africa more than 45 years ago, also services trade routes between the United States and South, East and West Africa. The sisterships of the Austral Envoy will also enter this service.

With a service speed of 22 knots, the new Farrell ships will have capacity for 870 twenty-foot containers as well as space for heavy-lift, unitized, refrigerated and bulk liquid cargoes. Each ship will have a 90-foot beam, a full load draft of 33 feet, and a displacement of 30,000 tons. The ships will each be manned by a crew of 39. This class of ships was designed by George G. Sharp, Inc., New York naval architects and marine engineers.

Each ship will be equipped with a 70-ton conventional boom aft and a 30-ton Thomson crane forward. Both types of crane will have an outreach of 20 feet from the maximum beam of the ship.

Insulated containers will use a unique central cooling system in refrigerated cells below deck and liquid nitrogen ashore. This system will keep the cargo cold all the way to the receiver's door.

In addition to these four containerships, Litton Ship Systems is producing for the U.S. Navy five 820-foot multi-purpose amphibious assault ships (LHA) and a fleet of 30 Spruance Class DD-963 destroyers. These latter ships will be powered by four marine gas turbines, which will provide the destroyers a speed in excess of 30 knots.

Lake Shore To Build Plastic Lifeboats

Lake Shore, Inc., Iron Mountain/Kingsford, Mich., a leading supplier of deck machinery for naval and commercial ship construction, has now entered the fiberglass-reinforced plastic lifeboat field. Lake Shore will now offer a complete line of davits, winches and lifeboats for commercial vessels.

Carmen Guide, Lake Shore's vice president, marine, announced the firm's entry into the commercial davit and fiberglass boat manufacturing field upon completion of negotiations with officials of Lane Marine Technology, Inc., the successor to the Welin Davit and Boat Division. Lake Shore has purchased the Welin Davit and Boat Division of Lane Marine Technology, as well as the fiberglass-reinforced plastic lifeboat manufacturing business of Lane.

All davits and winches will be produced at Lake Shore's Kingsford plant. Since the manufacture of the plastic lifeboats requires special techniques and craftsmanship, the production of the fiberglass-reinforced plastic lifeboats will continue at the present plant site in Brooklyn, N.Y. Lake Shore will also offer field service, spare parts and related accessories for all Welin equipment now in service.

Lane Marine Technology, Inc., will continue the manufacture and repair of steel and aluminum lifeboats, in addition to retaining all other facets of their diversified operation.

Commenting on this latest expansion by Lake Shore, executive vice president **J.T. Malsack** said: "Shipbuilders, shipowners, naval architects, and ship operators have long looked to Lake Shore as a leading supplier of deck machinery. We are now pleased that we have the opportunity to expand our service to the marine industry by making available from one source an even more complete line of equipment."

Mississippi Marine Building Two Towboats

Two 3,200-horsepower towboats, each measuring 136 feet by 38 feet by 10 feet 6 inches, are being constructed by the Mississippi Marine Corp., Greenville, Miss.

One of the vessels will be sold under contract to Cox Towing Corp. of Greenville, while the other towboat is being built as a stock vessel.

Third LNG Conference Set For Wash., D.C.

The Third International Conference and Exhibition on Liquefied Natural Gas (LNG-3) will be held in Washington, D.C. from September 24 through September 28, 1972. In conjunction with LNG-3, tours of LNG plant facilities in New York, Boston and Philadelphia will be conducted on the day following the close of the conference.

Plans for the conference were confirmed at a recent steering committee meeting held at the Chicago-based Institute of Gas Technology (IGT). The sponsors of LNG-3 are the International Gas Union (IGU), headquartered in London, England; and the International Institute of Refrigeration (IIR), located in Paris, France, and IGT.

The chairman of LNG-3 is **G. Robert,** president of IGU. Serving as vice chairmen are Prof. **G.G. Haselden** of the University of Leeds, U.K., representing the IIR, and Dr. **Henry Linden,** director of IGT.

Both the LNG-3 conference and exhibition will be held in the Washington Hilton Hotel. The conference will be divided into seven technical sessions. They are: "The Impact of LNG on Gas Supply"; "LNG Technology: Research and Development"; "Liquefaction Plant Experience: Baseload, Peakshaving and Satellite"; "LNG Technology: Safety, Codes and other Aspects," and "LNG Projects: Financial and Economic Aspects."

Persons interested in presenting papers at any of the sessions should submit abstracts, not to exceed 200 words in English and/or French, no later than October 15, 1971, to Program Committee Secretary, **A.G. Higgins,** International Gas Union, 17, Grosvenor Crescent, London, S.W. 1, England. For information to prospective exhibitors, contact either **G. Robert,** president, Compagnie Francaise du Methane, 15 rue de Lubeck, Paris 16e, France, or **W. Bodle,** Institute of Gas Technology, 3424 South State Street, Chicago, Ill. 60616.

Those attending the conference may choose to join either of the three optional field trips planned for Friday, September 22, 1972. The New York bound group will tour LNG plants at Staten Island and Brooklyn. The tour to the Boston area will consist of trips to an LNG receiving terminal at Everett, Mass., where an LNG tanker will be unloading, and a visit to the Boston Gas Co.'s LNG facility. In Philadelphia, the group will see the LNG plants of the Philadelphia Gas Works and of the Philadelphia Electric Co.

Over the years, the biennial LNG conferences and exhibitions have become an increasingly popular international event to members of the natural gas and related industries. The second conference attracted over 1,200 delegates from 37 countries to Paris, France, in October of 1970. Two years before that, the first conference was held in Chicago, Ill., with a total attendance of 760.

FIRST OF TWO: Representatives of four interests mark the laying of the keel of the first of two containerships to be built for Pacific Far East Line at Bethlehem Steel Corporation's Sparrows Point, Md., yard. From left to right are: **William Zuppe,** resident inspector of Pacific Far East Line; **Neil Baker,** Maritime Administration representative; **William H. Collins,** general manager of the yard, and **N.J. Thompson,** George G. Sharp Company. The vessel is due to be launched early next year, at which time the keel for the second vessel will be laid in its place. Delivery of first vessel is expected for the end of 1972 and the second vessel about mid-1973.

Newport News Ship Licensed To Build LNG Tankers

Newport News Shipbuilding, a Tenneco company, and Gaz Transport, S.A., a French engineering firm with headquarters in Paris, announced the signing of a licensing agreement that will permit Newport News to use Gaz Transport's system for constructing liquefied natural gas tankers. **L.C. Ackerman,** president of Newport News, and **Audy Gilles,** president of Gaz Transport, executed the agreement, which will provide a royalty payment to the French firm for each tanker built by Newport News that utilizes the system.

Mr. **Ackerman** said: "This licensing agreement will permit us to accelerate our efforts to develop a market for building the new tankers that will be needed to satisfy the world's increasing energy demands." He said the yard has no commitments at present for construction of the new tankers, but that "we are actively seeking construction contracts."

L.C. Ackerman, left, president and chief executive officer of Newport News Shipbuilding, a Tenneco Company, and **Audy Gilles,** president of Gaz Transport, S.A., a French engineering firm with headquarters in Paris, sign contract permitting Newport News to use Gaz Transport's construction system for liquefied natural gas tankers.

The Gaz Transport system is unique to the French firm, Mr. **Gilles** said. Ocean transportation of natural gas in liquefied form can be accomplished only at temperatures of 258 degrees below zero (Fahrenheit). The method devised by Gaz Transport utilizes a thin membrane of special alloy steel containing 36 percent nickel which lines tanks insulated with specially constructed plywood boxes containing perlite. The two layers of boxes are built up as a wall following the inner hull of the tanker. A second membrane identical to the above membrane is placed between the two layers of boxes. The space between the inner and outer hulls is used for ballast.

The French firm has designed systems on two Swedish-built tankers, the Polar Alaska and the Arctic Tokyo, which serve Japanese natural gas demands from Alaska's gas fields. In addition, eight LNG vessels from approximately 1,412 to 4,237,872-cubic-foot capacity are under construction in French shipyards using the Gaz Transport membrane technique.

Under terms of the licensing agreement, Mr. **Gilles** said the shipyard will pay a royalty based on the amount of membrane surfaces exposed to the LNG. The royalties therefore will vary according to the size of the ship.

In addition, the license arrangement includes supervisory and consulting services during construction, and testing of the completed system in the finished ship.

Natural gas, long burned off as a waste by-product in oil production, has come into world demand because it is clean burning. Its success has been widely demonstrated in Japan, where other fuel resources are scarce and the demand for energy is high.

LNG ships, called cryogenic tankers, require a liquefaction facility at the point of shipment and a regasification facility at the point of use. While the insulated tanks can maintain the liquefied natural gas at the proper subzero temperature, some of the liquid at the top of the tank evaporates. This evaporation, called "boil-off," can be controlled so that the gas may be used in the ship's boilers for propulsion.

Bulk lube oil delivery

at major U.S. ports

Shell distributors at 13 U.S. ports are lifting lube oil in bulk directly into ships' tanks.

Advantages: faster than drums, safer than drums, more economical than drums, and with less material handling, less likelihood of product contamination.

Our large photo on the opposite page shows a bulk lube oil delivery by Standard Boat Company, Shell's marine distributor at the Port of New York.

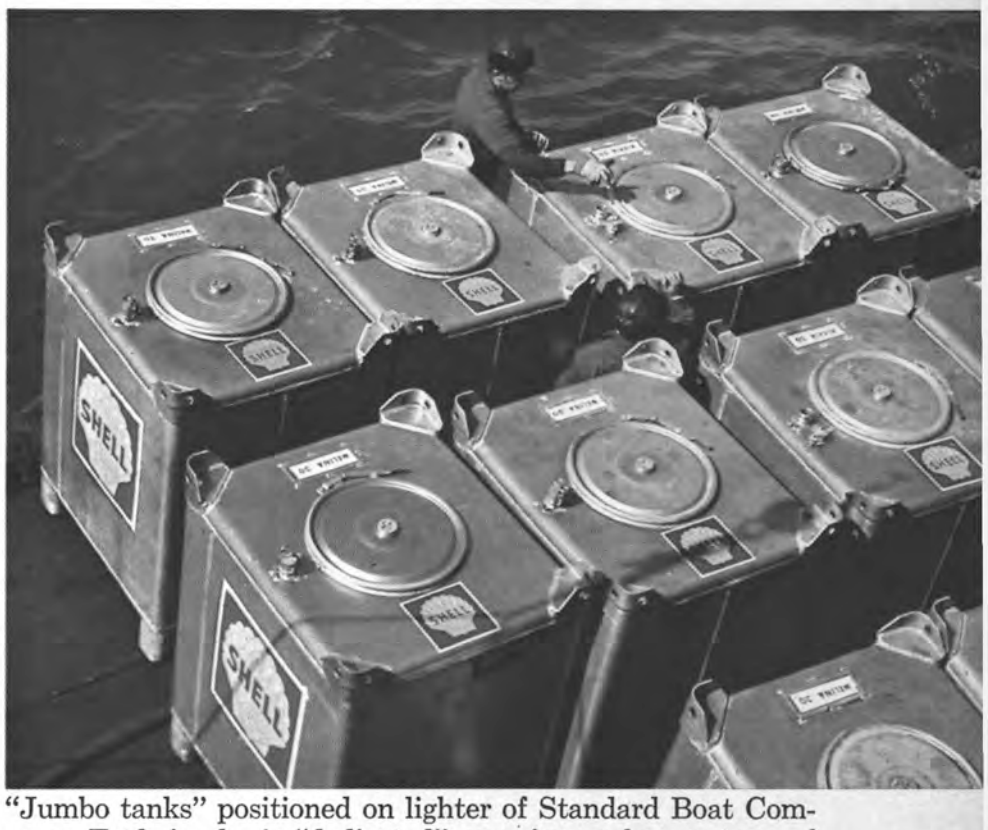
Those silvery objects on the lighter's deck are "jumbo tanks."

Pumping from the 450-gallon jumbos, Standard Boat delivers more than 1300 gallons of lube oil in 30 minutes.

At Port of Portland, Maine, the Shell marine distributor delivers lube oil in bulk by "tank boat"—a four-compartment vessel with total capacity of 20,000 gallons.

From port to port, equipment may vary but results are the same: fast, clean, safe delivery. Minimum assistance needed from ships' hands. No interference with cargo operations. No hold-ups on turn-around.

Shell has completed bulk lube oil delivery systems at the ports shown on the map. For details, call the Shell Marine representative at the Shell Transportation Sales area office nearest you.



"Jumbo tanks" positioned on lighter of Standard Boat Company. Each jumbo is "dedicated"—receives only one type of oil—thus assuring freedom from contamination.

◀ Standard Boat Company, Shell's marine distributor at the Port of New York, pumps lube oil from 450-gallon "jumbo tanks" directly into ship's tanks at a rate of 2640 gallons per hour. A fast, clean, safe delivery.

And with the increasing use of Shell's MELINA Oil, a heavy-duty multipurpose lube oil, this bulk delivery trend is accelerating.

The more motorships that use Shell MELINA® Oil, the more advantage there is to bulk delivery facilities. And the more reason to believe that bulk lube oil facilities are a good investment for all concerned.

If you want to take full advantage of the speed, cleanliness, safety and economy of bulk lube oil delivery, Shell is ready for you at major ports on the East, West and Gulf Coasts. Shell Commercial Marketing, One Shell Plaza, Houston, Texas 77002.

For details, call the nearest Shell Transportation Sales area office:

Stamford, Conn., (203) 327-3600
Baltimore, Md., (301) 821-5905
Chicago, Ill., (312) 341-3275
New Orleans, La., (504) 288-7511
Menlo Park, Calif. (415) 325-0721

Bulk Lube Oil Delivery

SHELL

ANOTHER LOCKHEED DELIVERY: The Ponce (LPD-15) recently sailed from Lockheed Shipbuilding's West Seattle shipyard, bound for the Puget Sound Naval Shipyard, Bremerton, Wash., for commissioning. Lockheed has built seven of the large, 16,550-ton assault transports for the Navy. The ships are designed to carry 1,000 marines, their vehicles and equipment, and rush them to trouble spots to go ashore either by amphibious craft loaded in a well deck inside the ship or by helicopter from an aft flight deck. The ships are 570 feet long, 84 feet in beam, and travel at better than 20 knots. Keel for the LPD-15 was laid October 31, 1966. It was launched May 20, 1970.

Todd Contract To Convert Three APL Ships Ups Total To Eight Conversions For Same Owner

Signing the APL contract were, left to right: **E. T. Sommer,** vice president, American President Lines; **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs, and **Robert J. Farrington,** vice president, Todd Shipyards Corporation.

Todd Shipyards Corporation has been awarded a contract for the conversion of three conventional freighters into partial containerships for American President Lines, Ltd. (See Maritime Reporter/Engineering News issue of July 15, 1971) These three ships—the Presidents Polk, Monroe, and Harrison — will be converted at Todd's yards in Seattle, Wash., and Los Angeles, Calif., at a cost of $6,746,973 per ship.

Earlier this year, APL, MarAd, and Todd entered into contracts calling for the conversion of five similar freighters into full containerships for the line's U.S. Atlantic, Gulf, and Pacific/Indonesia, Malaysia, and Singapore service at a total cost of $32.5 million.

This latest group will have the capacity to carry 689 containers (20-foot equivalents), as well as 220,000 cubic feet of breakbulk cargo. The 564-foot-long ships are also being lengthened by the addition of a 105-foot midbody.

In a related activity, American President Lines has become the first subsidized operator to incorporate the statutory changes required by the Merchant Marine Act of 1970 into its Operating Differential Subsidy Agreement.

The law calls for elimination of the recapture provision, the incorporation of the wage index system for calculating subsidies, and the substitution of the new Capital Construction Fund for the old Capital and Special Reserve funds maintained by the subsidized operators.

However, lines holding Operating Differential Subsidy Agreements when the law was enacted may option to continue recapture until the end of the current recapture period and/or to continue their present reserve funds, while accepting the other amendments. APL elected to accept all amendments while maintaining its old reserve funds.

An artist's conception of the American President Lines freighters after being lengthened to carry containers by the addition of a 105-foot midbody.

CONOCO Appoints Wilfred M. Kluss To Transportation Post

Wilfred M. Kluss

Wilfred M. Kluss has been appointed president of World Wide Transport, Inc., and manager, marine department, transportation and supplies for the Eastern Hemisphere Petroleum Division of Continental Oil Company, New York, N.Y., it was announced by **J.B. Cecil,** vice president of transportation and supplies. World Wide Transport is an affiliate of Continental.

During his 16-year tenure with a major oil company prior to joining Conoco, Mr. **Kluss** held positions in marine operations and coordination, including management responsibility for the company's international tanker fleet. He was also associated with the company's Middle East affairs department for a period of four years. Before entering the petroleum industry, Mr. **Kluss** was operations officer in the Asia and Middle East department of the World Bank, a statistician with Morgan Stanley & Co., and overseas development specialist for the Economic Cooperation Administration in Paris.

Born in Waterloo, Iowa, he was graduated from Harvard in 1942, and was elected to Phi Beta Kappa. While attending Harvard Business School in 1946, he was selected as an American Rhodes Scholar. He attended New College, Oxford, until 1949 and received B.A. and M.A. degrees in economics and politics. During World War II, Mr. **Kluss** served in the U.S. Navy with the Fast Carrier Task Force. He retired as a lieutenant commander.

$1.8 Million Contract To Allied Shipbuilders For Newsprint Barge

It has been announced that Allied Shipbuilders Limited of North Vancouver, British Columbia, has been awarded a $1.8-million contract by MacMillan Bloedel, Limited, for the construction of a 363-foot-long steel barge. The vessel, with a 7,200-ton newsprint capacity, will enter service transporting newsprint from the MacMillan Rothesay Limited mill at Saint John, New Brunswick, to the East Coast of the United States. MacMillan Bloedel holds the majority interest in the MacMillan Rothesay newsprint mill in Saint John.

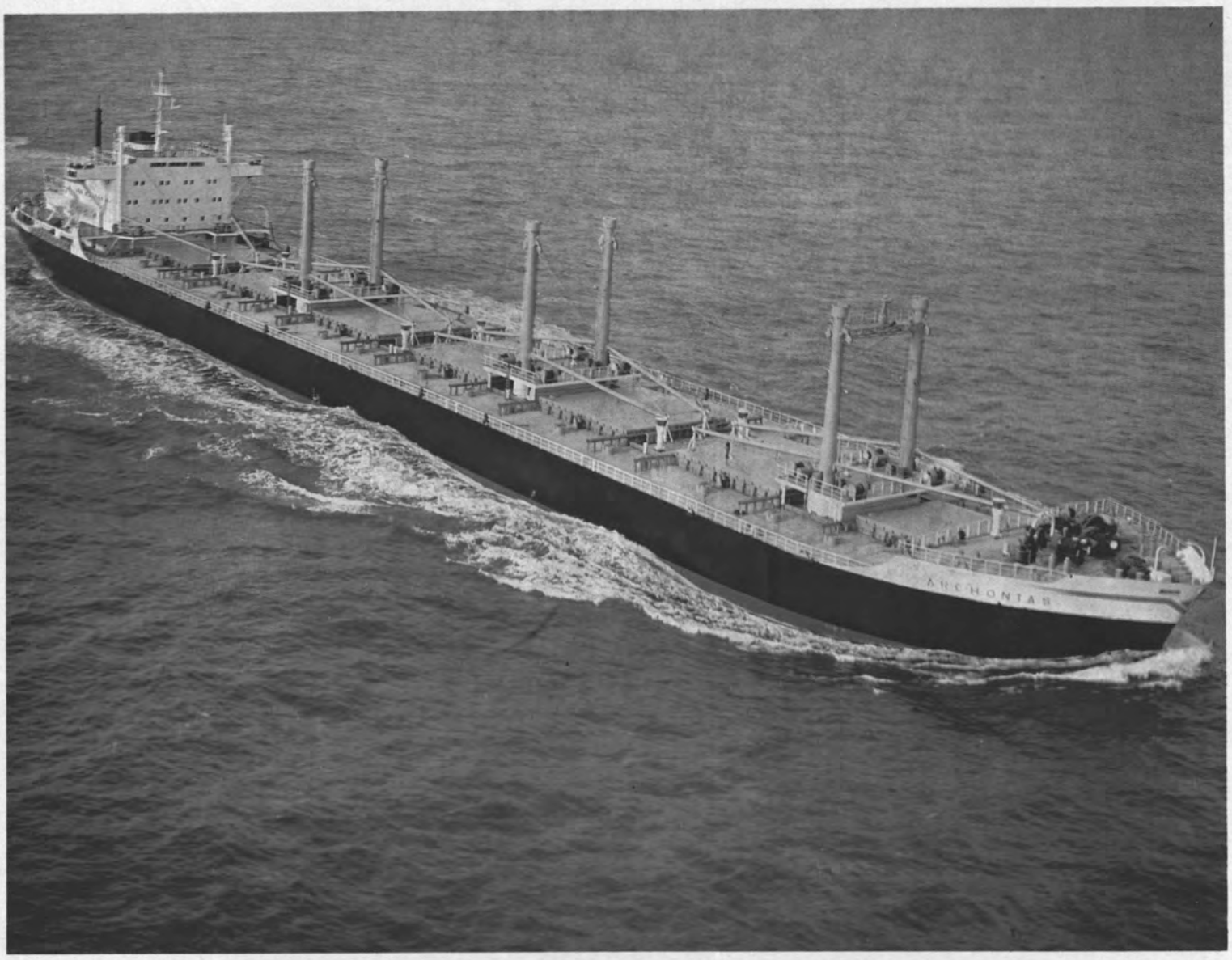
Allied Shipbuilders is presently building a 53-foot twin-screw tug for Columbia Cellulose.

Mobil To Jumboize 100,000-Dwt Tankers

The largest tanker jumboizing job ever undertaken will be performed for Mobil Shipping and Transportation Company when two 100,000-ton vessels are each increased in size to approximately 150,000 deadweight tons at the Mitsubishi Heavy Industries yard in Yokohama, Japan.

Under a contract signed between Mobil and Mitsubishi, work on the Mobil Astral will begin in March 1973 and the vessel will rejoin the company's fleet the following August. Work on the Astral's sister ship, the Mobil Daylight, will start in September 1973 and the vessel will rejoin the fleet in February 1974. The reconstructed vessels will each be 1,053 feet in overall length, with a breadth of 127 feet, a depth of 74 feet, and an operating draft of 57 feet. They will carry crude oil in worldwide trade.

A smaller vessel, the Australian Progress, will also be jumboized under the same contract, and will be redelivered to Mobil in June 1972. The vessel, presently a 15,600 tonner, will be increased in size to 22,800 tons. Its new length will be 565 feet, with a breadth of 75 feet, a depth of 42 feet and its draft will be 31 feet. The vessel will carry petroleum products in oceangoing service.



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Irving B. Gruber Honored By ODFI

Irving B. Gruber

Irving B. Gruber, president of American Engineered Products Company, (formerly American Forge & Manufacturing Co.), McKees Rocks, Pa., manufacturers of forgings for the maritime industry, has been honored by the Open Die Forging Institute, La Grange Park, Ill., for outstanding contributions to the industry and the association. The institute is the trade group of open die forgers in the United States.

In presenting the ODFI Award recently, **Charles Finkl,** president of the association, cited the many activities in which Mr. **Gruber** has participated and which have contributed to the growth and improvement of the industry and the institute.

The Open Die Forging Institute, representing the leading manufacturers of open die hammered and pressed forgings for commercial use, promotes the interests and future growth of the industry through the research, manufacturing, marketing, financial and other management education programs.

Getty Orders Third 220,000-Dwt Tanker From Mitsubishi Yard

Getty Oil Company, 3810 Wilshire Boulevard, Los Angeles, Calif. 90010, has announced that a contract has been awarded for construction of the third 220,000-deadweight-ton, very large crude carrier for the company's international subsidiary fleet.

B.E. Williams, vice president and general manager, International Supply, Transportation, Manufacturing and Marketing Operations, said the vessel will be built by Mitsubishi Heavy Industries at its Nagasaki, Japan, shipyard. Construction is to start in late 1973, and the vessel is due to be completed in July 1974.

The new tanker will be a sister ship to two other 220,000-deadweight-ton vessels that Getty Oil now has under construction by Mitsubishi Heavy Industries at Nagasaki. The S/S J. Paul Getty is scheduled for delivery in mid-November 1971, and the second 220,000-deadweight-ton ship, as yet unnamed, is scheduled for delivery in mid-1973.

Presently, Getty Oil's international subsidiary supertanker fleet is comprised of 14 proprietary vessels, plus nine vessels under charter.

The newest vessel will have a length of 1,049 feet 10 inches, and a breadth of 171 feet 11 inches, with a capacity of approximately 1,554,000 barrels of crude oil. The ship will draw 62 feet 4 inches, which will permit it to sail through the Malacca Strait off Singapore.

The newest ship will be chartered by Mitsubishi Oil Company for crude oil transport.

Litton Ship Systems Awards Frigitemp $3-Million Contract

Frigitemp Corporation, New York, N.Y., has received a contract from Litton Ship Systems, a division of Litton Industries, Inc., to outfit five LHA vessels Litton is building for the U.S. Navy.

Gerald Lee, president of Frigitemp, said the contract was valued at approximately three million dollars, and thus is one of the largest contracts for galley equipment ever let.

The contract calls for the design, engineering and furnishing of all the galley and commissary areas in the five ships. Frigitemp will execute the contract in a joint venture with Rudman & Scofield, Inc.

Litton is building the Landing Helicopter Assault vessels at its Ingalls West Bank shipyard at Pascagoula, Miss.

Central Gulf Steamship Plans To Build Two More LASH Ships This Year

A $27.5-million contract for an 893-foot-long LASH (Lighter Aboard Ship) vessel, with options to contract for two sister ships this year, was recently signed in Washington, D.C., by the New Orleans, La., based Central Gulf Steamship Corporation. (See Maritime Reporter/Engineering News issue of July 15, 1971).

The contract was awarded to Avondale Shipyards of New Orleans and was the third for LASH ships to go to the shipyard in a six-week period.

Central Gulf, which is operating the world's first two LASH ships under long-term charter, is expected to take delivery of the 39,000-deadweight-ton ship in July of 1974. The company plans to operate the ship on a trade route between U.S. Gulf and East Coast ports and the Middle East, India and Pakistan.

Central Gulf said it will have "in the immediate future" a requirement for 160 LASH lighters that will be operated in conjunction with the new ship. The company owns and operates a fleet of 420 LASH lighters, all of which were built in New Orleans by Equitable Equipment Company.

Signing the contract in the U.S. Maritime Administration offices were Central Gulf president **Erik F. Johnsen,** Avondale president **Henry Zac Carter,** and **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs. Attending the ceremony were **N.W. Johnsen,** New York, Central Gulf vice chairman, and **Jerome L. Goldman,** president of Friede & Goldman, Inc., New Orleans, who designed the LASH ship.

The principal characteristics of the new ship include overall length of 893 feet, beam of 100 feet, and draft of 37 feet, with space to carry about 33,000 long tons of cargo in 89 standard LASH lighters. An average speed of 22 knots will be generated by the 32,000-horsepower single-shaft steam turbine.

Signing the Central Gulf contract were, from left to right, **Erik F. Johnsen,** president of Central Gulf, **A.E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs, and **Henry Zac Carter,** president of Avondale Shipyards.

This new ship is the 21st LASH ship ordered since Central Gulf placed the first one in operation in November of 1969. The contract is the third signed under the Merchant Marine Act of 1970.

The LASH System, which includes the ship and its cargo lighters, was designed by the New Orleans naval architectural firm of Friede & Goldman, Inc.

Bailey Meter Co. To Supply Centralized Control Systems For New Seatrain Tankers

Two new Seatrain tankers will be equipped with centralized control systems manufactured and supplied by Bailey Meter Company. The 230,000-ton tankers, the first commercial ships built at the Brooklyn Navy Yard by Seatrain Shipbuilding Corporation, are also the largest commercial vessels ever built in the United States. The first vessel will be completed by mid-1972.

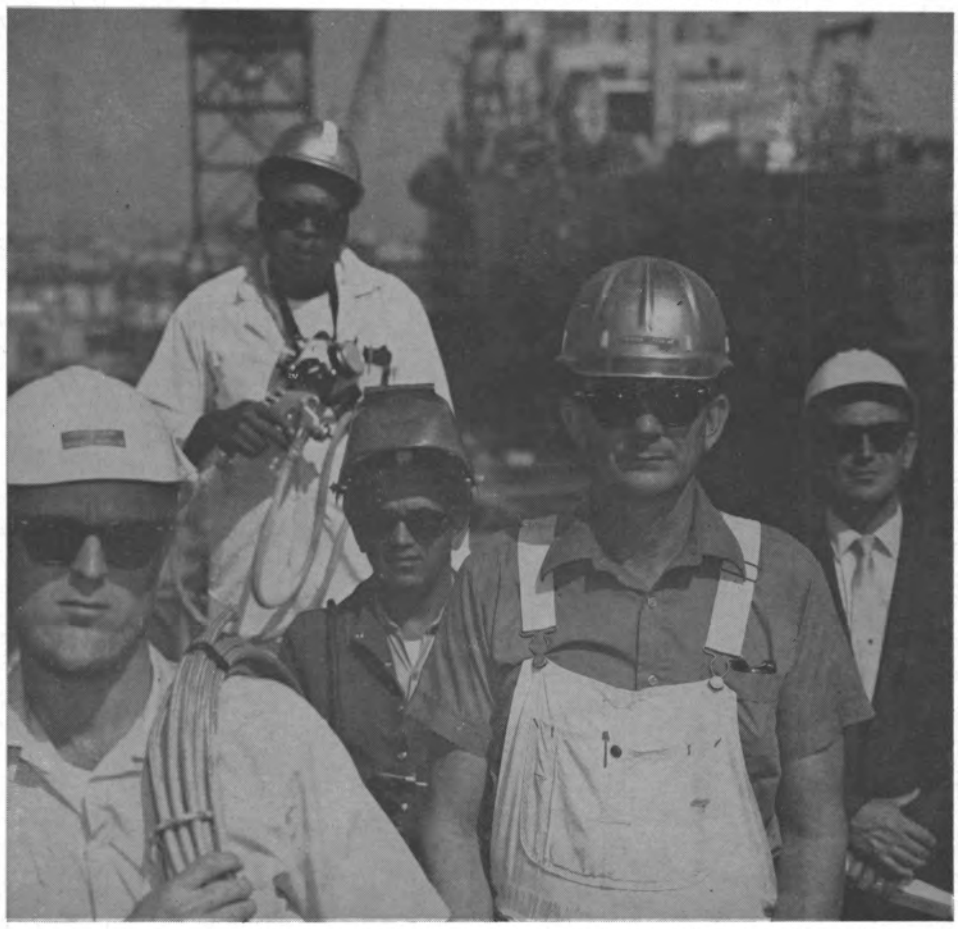
A pneumatic control system will provide combustion and feedwater control for two Combustion Engineering drum boilers producing 260,000 pounds/hour steam at 875 psig and 930°F.

Steam turbine, throttle controls, and engine room and bridge consoles that permit one-man engine room watch are included in the contract.

A subsidiary of Babcock & Wilcox, Bailey Meter Company is a leading manufacturer of instrumentation and control and computer systems for power plant, industrial process, and marine automation.

NEW ENGLAND SNAME VISITORS: General Electric Company's Marine Turbine and Gear Department (MTGD) was host to the New England Section of The Society of Naval Architects and Marine Engineers at the Section's recent spring meeting. Approximately 125 members and their wives toured the department's manufacturing facilities for a closer look at how GE geared marine steam propulsion equipment is made. **Frederick P. Eisenbiegler,** manager of marine sales for MTGD, is shown at left, describing propulsion gear made by the company to **William R. Porter,** captain, USN (center), and **Curtis Powell,** professor of marine engineering at Massachusetts Institute of Technology, who are members of the Society.

LET THE SUN SHINE



The *Age of Aquarius* wasn't our idea, but it could have been. We've been working in year-around sunshine for a long time. It's a rare day when dark glasses are not part of our standard working equipment. It is no secret, of course, that things grow quicker and better under the bright sun . . . shipbuilding is no exception to this axiom. San Diego's continuous mild, sun-blessed weather means more annual work days for all departments. "Weather permitting" is a phrase rarely heard in this yard. We suggest that you add a little sunshine to your next project. It costs nothing more, but it really does perform wonders.

NASSCO NATIONAL STEEL AND SHIPBUILDING COMPANY
owned by Kaiser Industries Corporation and Morrison-Knudsen Company Inc
San Diego, California 92112 (714) 232-4011

THE BOSTON METALS CO.

KNOWN 'ROUND THE WORLD

313 E. BALTIMORE ST. • BALTIMORE 2, MD.

Main Office: LExington 9-1900 • Marine Dept.: ELgin 5-5050

TURBO GENERATOR SETS

1

WESTINGHOUSE 440/3/60 200 KW UNIT

GENERATOR: Westinghouse 200 KW—250 KVA—450/3/60—1200 RPM—80% PF—with 40 KW—120 VDC on same shaft. GEAR: 9989/1200 RPM—double helical. TURBINE: Westinghouse—540 PSI—superheat 322°F. Test 930 PSI 800°TT. Also operates 615 PSI—850°TT.

2

WESTINGHOUSE 60 KW 120 VDC M-20-EH

120 VDC—1800 RPM TURBINE: M-20-EH—20 lbs—dry & saturated—25" vacuum. 7283 RPM. GEAR: 7283/1800. GENERATOR: 60 KW—120 VDC—500 amps—SK—stab, shunt wound.

3

300 KW WORTHINGTON-MOORE CROCKER-WHEELER UNITS

AP2 ExMedina Victory units. Worthington-Moore turbine—440 lbs—740°TT—28½" vac.—type S4—5-stage—6097 RPM—serial 7547 & 7548. GEAR: 14x7—6097/1200. GENERATOR: Crocker-Wheeler 300 KW 120/240 DC—1250 amps—type 102-H—compound—973643—999759—armature flange 8¼"—bolt circle 7"—12 holes. Also new armature in stock (weighs 1840 lbs). Also have 2 units—generator 102 HP—300—KW120/240—stab. shunt—1200 RPM.

4

VICTORY 300 KW WESTINGHOUSE TURBO GENERATOR SET

440# — 740°F — 5930 RPM — 2A-9794-15-16-17 — coupling non-recessed on steam end of pinion—5¾". GENERATOR: Westinghouse 300 KW—120/240 DC—1250 amps—1200 RPM—C.B. 208.4.

5

1000 KW G.E. TURBO GENERATOR—READY TO GO—WITH A.B.S.

TURBINE: Type FSN—eight stage—9268 RPM—525 lbs—825°TT or 590 PSI & 0° superheat. Turbine serial No. 53729. GEAR: Serial 54804—9268/3600. GENERATOR: Serial 5596572—1000 KW—450 volt 3-phase 60 cycle—3600 RPM—0.8 PF—type ATB—2-pole—complete with air cooler. EXCITER: EDF—10.2 KW—120 volts—4-pole—3600 RPM—direct conected. UNIT JUST COMPLETELY OVERHAULED & IN EXCELLENT CONDITION—READY TO INSTALL.

DIESEL GENERATOR SETS

6

G.M. 6-71 DIESEL GENERATOR SET

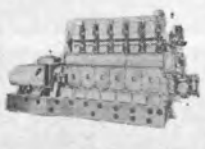
60 KW— 440/3/60 — 1200 RPM—with switchgear.

7

350 KW 120/240 VDC DIESEL GENERATOR SET

Ingersoll-Rand heavy duty type S engine—8 cyl.—505 HP—10½ x 12. GENERATOR: G.E. 350 K.W. 120/240—600 RPM—switchgear. Good condition—as removed from Grace Line ships.

8



250 KW DIESEL GENERATOR SET

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

$12,500.

9

UNUSED 500 KW 120/240 VDC BALDWIN/ALLIS CHALMERS DIESEL GENERATOR SET

ENGINE: Baldwin-DeLaverne 725 HP—12⅞"x15½"—8 cyl.—500 RPM—air starting. Dry weight 54050 lbs. GENERATOR: Allis-Chalmers 500 KW—120/240 VDC—500 RPM—550 RPM overspeed. 60°C rise—class B insulation—3-wire—25% unbalance—2083 amps—stab. shunt—open—drip-proof—self-ventilated—8-poles.

10

UNUSED 100KW SUPERIOR DIESEL GENERATOR SET

GENERATOR: 120/240 VDC—417 amps—stab. shunt—1200 RPM. DIESEL: Superior GBD-8—8 cyl.—5½x7.

11

UNUSED 10 KW SUPERIOR DIESEL GENERATOR SET

GENERATOR: Delco 10 KW—120 VDC—83⅓ amps—1200 RPM. ENGINE: Superior diesel—2 cyl.—4½x5¾—15 HP—heat exchanger cooled.

TURBINE ROTORS

MAIN PROPULSION

12

19 STAGE WESTINGHOUSE H.P. ROTOR FOR AP2 VICTORY

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

13

SPECIAL!

COMPLETE TURBINE OR ROTORS

8500 HP G.E. C-3 Victory—Sun C-4's

L.P.—Serial 77943 H.P. Serial 77942
G.E.I. 16263

14

NEW L.P. BLADE RINGS
for large 8500 H.P. Victory
Joshua Hendy Westinghouse

15

NEW 8500 H.P. G.E. TURBINES
Large Victory or C-3

H.P. #72271 L.P. 72272

10 BOXES SPARE PARTS, TOOLS & FITTINGS. WITH MANEUVERING VALVES.

ALSO AVAILABLE

16

U.S.M.C. RECONDITIONED SET
H.P. & L.P.

With 13 boxes spare parts. H.P. 77994—L.P. 77987—with maneuvering valves.

17

8500 H.P. G.E. — C-3 OR VICTORY

H.P.—8-stage—6159 RPM—serial 62043
L.P.—8-stage—3509 RPM—serial 62042
G.E.I. 16263

18

6000 H.P. G.E. — NORTH CAROLINA C-2

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

19

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

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

AUX. GEN. ROTORS

20

250 KW & 300 KW ALLIS-CHALMERS ROTORS

Typical serial No. 3067—will interchange with most 250 KW & 300 KW Allis-Chalmers as installed on Victory's and Moore C2-C3 vessels.

21

300 KW 5965 RPM JOSHUA HENDY

Turbine—3H-69	Gear—52269
Turbine—3H-52	Gear—52252
Turbine—3H-62	Gear—52262

T-2 ROTORS, STATORS COOLERS, ETC.

22

ELLIOTT 10-STAGE MAIN PROPULSION TURBINE ROTOR

#28702—Ex-Texas Trader—will interchange with large G.E. 1st Row—1 1/8" to shroud—1 3/16" O.A.H. 2nd Row—1 7/16" to shroud—1 9/16" O.A.H.

23

LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR

Turbine serial 77418—reconditioned with certificate. Just out of Beth shop 1970.

24

AUXILIARY GENERATOR ROTORS

DORV—325M—T-2 Tanker Aux. Generator.

25

WESTINGHOUSE MAIN PROPULSION REVOLVING FIELD

Ex-Ohio Sun—A.B.S.—ready to go. Serial 25R10

26

WESTINGHOUSE MAIN GENERATOR STATOR

A.B.S.—ready to go—certificate 70BA5297 — May 19, 1970—Rewound.

27

G.E. MAIN GENERATOR STATOR

A.B.S.—ready to go—mfg. by Elliott for G.E.—over G.E. design.

28

WESTINGHOUSE MAIN GENERATOR AIR COOLER

Reconditioned with A.B.S.

29

UNUSED G.E. MAIN GENERATOR AIR COOLER

PUMPS

30

VICTORY AP2 MAIN CIRCULATOR

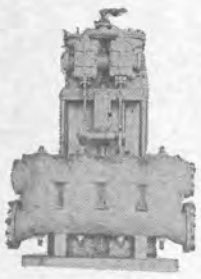
Ingersoll-Rand — 18 VCM—20" x 18"—10,500—10 lbs. MOTOR: 75 HP—Allis Chalmers—230 VDC—670 RPM. Spare unused armature. Motor frame F.B.V.—162.

31

UNUSED 10x9x12 VERTICAL SIMPLEX FUEL OIL TRANSFER PUMPS

Furnished on some T-2 Tankers. 160 GPM Bunker C —viscosity 70 to 700 SSF 122°F @ 100 lbs. discharge pressure. WP steam 150 lbs.—exhaust 10 lbs. 1¼" steam inlet—1½" exhaust. 4" Pump suction—3½" discharge.

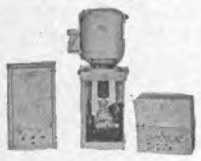
32



WORTHINGTON 16"x14"x18" 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.

33



NEW BLACKMER FUEL OIL TRANSFER PUMP

Rotary—50 GPM—50 lbs.—2"—5 HP—440/3/60—with starter & spares.

34

UNUSED BLACKMER VERTICAL ROTARY PUMP

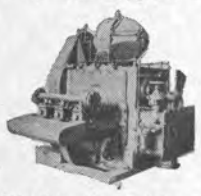
4"—100 GPM—100 PSI—15 HP — 440/3/60 — gear head.

35

R-2418 WATEROUS CARGO PUMP

Bronze—14"—top discharge—capacity 2500 GPM—20 PSI. Bilge service—oil service—2400 GPM—75 PSI. Reduction gear. ENGINE: Cummins JN-130M—6 cylinder—4⅛ x 5—130 HP—air starting.

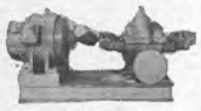
36



UNUSED BOILER FEED PUMP

Worthington Triplex—36.5 GPM—590 PSI—variable stroke—2¾ x 5—P_2—S_2—R_2 vessels. 40 HP—230 VDC—1800/2400 RPM.

37



UNUSED WARREN BRONZE PUMP

1175 GPM—11.1 lbs.—8" x 8". MOTOR: Reliance 10 HP—115 VDC—850—RPM—76 amps.

38

NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

For emergency use on passenger ships, etc. PUMP: JAS—264 GPM—171' head—two 6" inlets—one 5" outlet. Motor: 40 HP—230 VDC—149 amps.

39

NEW—UNUSED BRONZE VERTICAL LST BALLAST PUMP

1500 GPM—56' head or 25 lbs. — 8" suction — 6" discharge. MOTOR: Century 30 HP—230 VDC—110 amps—1750 RPM — 40°T rise — stab. shunt—BB drip proof —controls available.

40

EXCELSIOR MOLASSES PUMP—SIZE 5½"

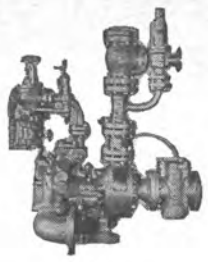
6" Suction and discharge—210 GPM—45 PSI—125 RPM. MOTOR: 10 HP—230 VDC—Frame 67—with gear.

41

UNUSED SIZE 4 BUFFALO FEED PUMPS

Terry Turbine—BM—273 HP—550 RPM—exhaust 15 lbs—590 PSI—superheat 0°—425 GPM Buffalo Pump—discharge pressure 750 lbs—5" x 4"—built for USN DD destroyers.

42



COFFIN MODEL F BOILER FEED PUMP—VICTORY OR T2

Control valve 1¼"—Form V1—constant pressure regulator — type C — 150 HP—200 GPM at 575 lbs discharge pressure. 7200 RPM —440 PSI—500°TT.

43

BRONZE 14x14x12 CARGO STRIPPING PUMPS

700 GPM @ 100 lbs. Ex-T2 Tanker pump. Also available in steel.

WINCHES AND WINDLASSES

44

VICTORY UNIT WINCHES

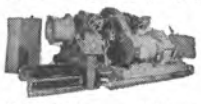
50 HP—230 VDC—U-1, U-2, U-4, U-5—reconditioned.

45

MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES

50 HP—230 VDC—reconditioned.

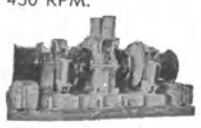
46



HYDE NO. 7 WINDLASS

1¾" Chain—Wildcat centers 3'3"—Handles 3000 lb anchors. MOTOR: 8.7/35 HP—440/3/60—1800/450 RPM.

47



NEW—UNUSED LINK BELT WINDLASS

1⅝" and 7000 lb. anchors. 56" Centers—50 HP—230 VDC—spares.

48

IDEAL WINDLASS—UNUSED

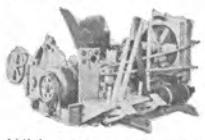
1-5/16" Chain—36" Centers—15 HP—115 VDC—1750 RPM—6000 lb. line pull.

49

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

2¾" Chain and two 10640 lb anchor & 30 fathoms chain @ 30 FPM. 70 HP—230 volts—shunt DC motors—233 amps—550 RPM—55°C rise. Wildcat centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

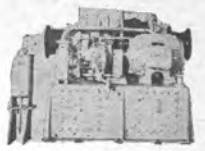
50



LCT-6 JAEGER GASOLINE DRIVEN WINCH

With torque converter & free declutchable drum, 31,000 lbs @ 6 FPM or 3000 lbs & 350 FPM. DRUM: 20"x23¾"x37½". GYPSY: 15"x13". Twin Disc torque converter—6 cyl. Hercules gas engine model WXLC-3. Total weight approx. 4500 lbs—serial 81843.

51



4 SINGLE DRUM ELECTRIC HYDRAULIC WINCHES

From Navy Research Ship Liberty AGTR-5. Like new. Mfg. by Lakeshore Engineering Co. Gypsy heads can be operated separately from drum. 7400 lbs @ 220 FPM; 624 ft. of ¾" rope in 5 layers. Total weight of winch, motor & pump 7221 lbs. OAW 84¼"; OAL 88"; OAH 58". With remote control stands.

MISCELLANEOUS

52

VICTORY AP2—WESTINGHOUSE MAIN PROPULSION GEAR

6000 SHP—Serial 4A—1620—Medina Victory.

53

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

20" Ex. inlet—⅝" Cu-Ni tubes—with or without air ejector.

54

1 PAIR OF 300 HP UNION DIESEL ENGINES

Port and starboard—model 06—1300 HP at 350 RPM —4 cycle—direct reversible—11 x 15—overhauled 1966—in good condition. Just in from Navy.

55

MODEL O-2-D M&T RECONDITIONED UNITS

Hydraulic starting steering, raising & lowering tailfin. Navy reconditioned 1965—fully checked out by us. Will demonstrate running. Wt. about 9500 lbs. PROPELLOR: 48"x24"—3 blade.

56

HYDE 30" DOCK CAPSTAN

10" x 10"—reversible—W.P. 125 lbs—2½" steam—3" exhaust.

57

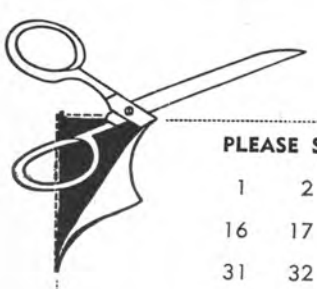
DOUBLE INPUT—SINGLE OUTPUT DIESEL REDUCTION GEARS

Farrell-Birmingham — 3200 SHP. Reduction gear: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard.

58

INGERSOLL-RAND MODEL 40 AIR COMPRESSOR

Two stage—135 CFM—7" x 6¼" x 5"—110 lbs—870 RPM—inner cooler. MOTOR: Allis-Chalmers 40 HP—230 VDC—145 amps—1750 RPM—Model EB 121.



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31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58		

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

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

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

James J. Reynolds, the president of AIMS, is shown above addressing the joint meeting of the AIMS and Marine Section, National Safety Council Awards Luncheon.

Adm. **Chester R. Bender** (left), Coast Guard Commandant, presents a special award to **William E. Cleary,** secretary-treasurer, The American Waterways Operators, Inc.

Adm. **J.M. Will** (right), congratulating **M.J. Murphy,** safety director for Interlake Steamship (Pickands Mather & Co.), Cleveland, at presentation of Devlin Awards.

Rear Adm. **John D. Chase** (right), USN, Deputy Commander Military Sealift Command, accepting award for MSC Yokohama Division from Admiral **Bender.**

Ship Safety Awards Luncheon

U.S.-flag tanker and dry cargo ships that serve the ocean and domestic trades—and Great Lakes fleets, domestic shipyards, river operating vessels and the thousands of officers and men who man them—were honored recently at the Downtown Athletic Club in New York for outstanding safety records.

Officials representing all segments of the U.S. maritime industry from the East, West and Gulf Coasts, as well as overseas, attended the Annual Ship Safety Awards Luncheon sponsored by the National Safety Council's Marine Section and the American Institute of Merchant Shipping (AIMS).

National Safety Council awards were presented by Adm. **Chester R. Bender,** Coast Guard Commandant. Jones F. Devlin Awards, sponsored by AIMS, were presented by Adm. **John M. Will,** president and board chairman of American Export Isbrandtsen Lines, and Mr. **Devlin,** retired U.S. Lines vice president in charge of operations, for whom the Devlin Awards are named. Both Admiral **Bender** and Admiral **Will** were featured speakers at the luncheon.

James J. Reynolds, AIMS president, and **John L. Horton,** general chairman of NSC's Marine Section, co-chairmen of the Downtown Athletic Club Luncheon, said in a joint statement: "Safety is fast becoming the watchword of the American merchant marine. In the past year, the maritime industry has conducted what amounts to a national campaign to promote safety at sea, on the docks and in the shipyards. Our results are heartening as measured by the dramatic increase in the number of excellent safety records of vessels and companies being honored here today. They illustrate graphically that our shipping fleet is the safest and our seamen the best cared for in the world.

"New safety challenges must be met as high-technology superships come down the ways as a result of the 1970 Merchant Marine Act's 300-ship building program. Our industry's safety directors and their companies, representing both

(Continued next page)

Accepting award from Adm. **John M. Will** for Unusual Safety Competence, in that 24 vessels were honored for having operated a total of over 57,000 days without a lost-time accident, are: **W. Ransom,** general manager, Great Lakes Division, U.S. Steel; Admiral **Will;** Capt. **J. Rankin,** operations manager, Great Lakes Division, U.S. Steel, and Capt. **Jones Devlin Jr.**

Admiral **Bender** (left), presents award to **W.C. Brigham,** asst. vice-president shipbuilding, Bethlehem Steel, first place winner, Shipbuilding & Repair Div., Private.

Admiral **Bender** presents award to **Clare Snider** (center), manager, Ford Motor Co. Fleet, as **John L. Horton,** general chairman NSC's Marine Section, looks on.

Harry P. Schnell (right) deputy director, Commercial Port, Guam, is shown receiving the first place award in Stevedoring Div., General Cargo, from Admiral **Bender.**

John Sheehan, Supt. U.S. Naval Ship Repair Facility, Subic Bay, Philippines accepting first place award in Shipbuilding & Repair Div., Govt., from Admiral **Bender.**

labor and management, will be working closely with Government to meet these challenges to insure that the 'flag of safety' that flies proudly over the fleet of today will still wave with honor over the fleet of tomorrow."

As an example of unusual safety competence, they cited 24 vessels owned by United States Steel Corporation's Great Lakes Division which were honored for having operated a total of over 57,000 days without a lost-time accident. Ford Motor Company's Steel Division held the days safety record for an individual vessel with the M/S Henry Ford II, which operated 5,439 days (over 14 years) without a lost-time accident. In the tanker and dry cargo categories, Texaco's S/S Texaco Minnesota was tops with over seven years, and Lykes Bros. Steamship Company's S/S Christopher Lykes with more than four years of accident-free operation, respectively.

Jones F. Devlin Awards were presented to 70 ships of 16 different U.S.-flag companies—over double the number of awards given last year. These ranged from awards given American-flag vessels operating for two or four years without a lost-time personnel accident, to special awards to ships with five or more years of accident-free operation. The 16 companies and the number of award winning ships from each fleet include: American Oil Company (2); American President Lines (1); Atlantic Richfield Company (1); Columbia Transportation Division, Oglebay Norton Company (2); Cleveland-Cliffs Iron Company (1); Delta Steamship Lines (2); Ford Motor Company (5); Getty Oil Company (3); Humble Oil & Refining Company (5); the Interlake Steamship Co. (8); Lykes Bros. Steamship Co., Inc. (2); Marine Transport Lines, Inc. (1); Mobil Oil Corporation (1); Texaco Inc. (9); United States Lines (3), and United States Steel Corporation (24).

Winner of first place in the NSC's Marine Section Safety Contest for U.S. oceangoing and coastwise dry cargo fleets was Bethlehem Steel Corp.'s Marine Division, Sparrows Point, Md., which had the lowest fleet injury frequency rate in competition with other company fleets on all sea coasts. Lykes Bros. and Calmar Steamship Company were second and third respectively in that category. Texaco's fleet won first place in the ocean and coastwise tanker division. First place plaque in the Great Lakes Straight Deck Vessel Division was presented to the Ford Motor Company, Marine Department, Dearborn, Mich. Huron Portland Cement Company of Detroit won first place in the Great Lakes-Self Unloaders category.

Rear Adm. **John D. Chase,** Deputy Commander, Military Sealift Command, accepted the first place award for the MSC Yokohama Division which, for the second straight year, won over three other MSC worldwide fleets for the least number of shipboard lost-time accidents in a 12-month period.

In the private shipyard category, a first prize award was given to officials of Bethlehem Steel's Sparrows Point shipyard, which competed against 15 other U.S. yards to post the best employee safety record in 1970. Bethlehem Steel's Boston and Hoboken yards won second and third place awards respectively. In the Harbor Equipment Division (dredging vessels, tugs, barges, etc.), first place was won by the U.S. Army Engineers' North Central Division, Chicago.

From the Philippines, **John F. Sheehan,** of the U.S. Naval Ship Repair Facility in Subic Bay, accepted a first place NSC plaque in the Government Shipbuilding and Repair Division. The Commercial Port of Guam received a first place Stevedoring Division (General Cargo) Award. Pittsburgh and Conneaut Dock Company, a subsidiary of U.S. Steel, Conneaut, Ohio, won the first place Stevedoring Division (Bulk Cargo) Award.

Sea Containers Inc. Files Share Offering With S.E.C.

It has been announced that Sea Containers Inc. has filed an offering of 414,843 shares with the Securities and Exchange Commission.

Under the terms of the proposed offering, the underwriters will purchase 200,000 shares from the company and 214,843 shares from selling shareholders. The company will not receive any of the proceeds from the sale of shares by the selling shareholders. The proposed offering will be made by an underwriting group led by Burnham and Company and New York Securities Co. Incorporated.

The net proceeds from the sale of the common stock offered by the company will be applied to financing the expansion of the company's container and containership fleets and to the purchase of additional container cranes, and may also be used for investment in container terminals and other activities related to containerization.

Sea Containers Inc., a New York corporation, and its subsidiaries are engaged in the worldwide renting of marine cargo containers and related equipment, containerships and container cranes to steamship lines, port authorities, freight forwarders and other transportation interests. In addition, one of the company's subsidiaries, Coldwrap Foods Corporation, and its subsidiaries, are engaged in the food processing business in the El Paso, Texas, area and southern New Mexico. The company's shares are listed on the American Stock Exchange.

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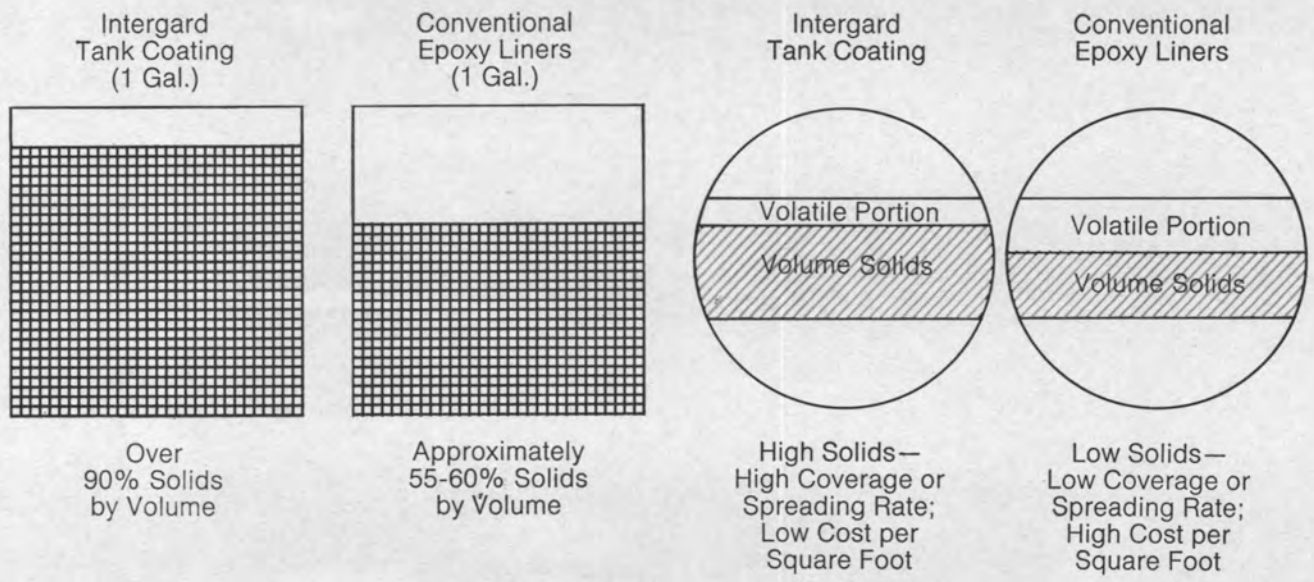

These illustrations tell the story. Using the volume solids of a coating is now widely accepted as the only meaningful method which will give a true estimate of the material costs on a square foot basis. And when you approach your jobs this way, you'll see why Intergard Tank Coatings can mean significant savings.

But there are a number of other reasons you should use them, too.

Intergard Tank Coatings are unique. Applied at over 90% solids, they provide maximum corrosion prevention in tanks, cargo holds, bilges and ballast tanks. They are characterized by terminal epoxy groupings which combine with the tank coating reactor to form a continuous coating of extreme durability, hardness and high gloss. This results in a porcelain-like finish so smooth and compact that most cargoes will not adhere, so only a minimum amount of clean-up and lay-up time is necessary before taking on the next cargo.

Intergard Tank Coatings, in addition to being approved for sophisticated cargo/ballast service, are also approved for potable water tanks and meet the requirements of other regulatory bodies for the carriage of edible products.

Intergard Tank Coatings are extremely economical to apply as only two coats are needed and special primers are not required since one coat acts as the priming coat for the other. Any voids or holidays are easily detected by color difference between the two coats.

Intergard Tank Coatings offer excellent adhesion to a variety of surfaces and unsurpassed tenacity to sand-blasted steel and most shop primers. They also provide high chemical and petroleum resistance, superior acid and alkaline resistance, excellent abrasion resistance, both fresh and salt water resistance, heat resistance and superior retained flexibility characteristics. An advantage in maintenance can also be realized because Intergard Tank Coatings can be readily butterworthed or cleaned with a variety of detergents without danger of softening or damaging the coatings.

So for savings of 35% or more in material costs and for a top quality job, contact our nearest office for complete details on Intergard Tank Coating Systems, today.

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NASSCO Starts Construction On First Subsidized OBOs

Looking at a model of the OBOs to be constructed are left to right: Capt. **Leon Burger,** president, Aries Marine Shipping Co., Lake Success, N.Y.; **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs, and **John Banks,** vice president, National Steel and Shipbuilding Co., San Diego, Calif.

With the signing June 30, 1971, of a $60,000,000 contract by National Steel and Shipbuilding Company, Aries Marine Shipping Company, and the Maritime Administration, U.S. Department of Commerce, a log jam has been broken and the 1970 Merchant Marine Act has for the first time been fully implemented for the purpose for which it was intended. The contract calls for the construction of two 80,500-deadweight-ton oil/bulk/ore carriers (OBOs).

The key elements of the new act embodied in this contract are: (1) the qualification of bulk carriers for Government assistance; (2) encouragement to shipyards to design and market high performance ships, and (3) reduction of subsidy levels through standardization and series production.

This revised legislation is the key to President **Nixon's** goal for the revitalization of the American merchant marine.

Economic studies sponsored by the Maritime Administration last year pointed to the OBO type vessel as being best suited to recapture the U.S. bulk trade now largely carried in foreign-flag ships. The versatility of the OBO in being able to transport different products, liquid or bulk, between ports permits high utilization and low cost transportation.

Designed by NASSCO as the "San Clemente" class, the vessels will be 80,500 dwt, 892 feet in length, 105 feet in beam, and have a molded depth of 62 feet. This is the maximum size that can transit the Panama Canal. Propulsion will be single screw, steam turbine, for a sustained speed of 16.5 knots. The latest in automation of operational controls is incorporated in the design, including provisions whereby the engine room can be operated unattended.

Work will commence immediately at NASSCO in San Diego, Calif., with the first ship scheduled for delivery to Aries Marine Shipping Co. in mid-1973.

Jacksonville Port Authority Appoints Robert C. Peace

Robert C. Peace has been appointed as the new managing director of the Jacksonville Port Authority. Mr. **Peace,** who resigned his Navy commission in July 1964 to accept the post of director of engineering for the Port Authority, was promoted to deputy managing director in 1969. He has been serving as acting managing director since February 3, 1971.

A native of San Antonio, Texas, Mr. **Peace** earned a B.S. degree in civil engineering from the University of Houston and an M.S. degree in engineering, specializing in ports and harbors, at Princeton.

French Operator Building 5,600-Hp Pusher Tug In U.S.A., Notched Barge In Hong Kong

A two-million-dollar contract for the construction of a 20,000-ton barge was signed on July 9 between the French firm Union Navale of Paris, and Hong Kong's Taikoo Dockyard and Engineering.

The 477-foot oceangoing pusher barge will be the largest such vessel ever built in Hong Kong. Construction work will begin in October, and the vessel will be launched in June 1972, after which date the Union Navale will use it for the Baltic Sea and North Sea coal trade.

The barge has been designed with a U-shaped notch in the stern into which a 5,600-horsepower pusher tug fits and links with a hydraulic system to form a single integrated unit.

Southern Shipbuilding Corporation has received the contract from Union Navale to build the oceangoing tug in their Slidell, La. shipyard. The tug will be delivered to Hong Kong in June. **Alain Seligman,** president of Southern Shipbuilding stated: "We are very pleased to have secured this contract and to have opened up a new foreign market for the American shipbuilding industry. We are pleased for the part we shall play in reducing the balance of payments deficit and in reversing the trend of having U.S. capital create jobs abroad by having a contract that will cause Western European capital to create jobs in Louisiana."

Breit Engineering, Inc. of New Orleans and Ingram Corporation have designed and patented the pusher barge system to be employed in construction.

The New Orleans firm says the new concept barge gives a susbtantial saving on construction and operation costs when compared with the conventional bulk carrier.

Port Of Galveston Opens Sales Office In San Francisco

The Port of Galveston now has sales coverage of the West Coast from a San Francisco office, Galveston Port Director **C.S. Devoy** announced recently. **J. Murray Fox** of the firm of Muller, Fox & Pennington, port consultants, will handle West Coast solicitation for the Port of Galveston. The San Francisco office is located at 465 California Street, San Francisco, Calif. 94104.

Galveston already has sales offices in Houston, New York, and Dallas. The addition of the San Francisco outlet will give the port coast-to-coast sales coverage on a daily basis.

Special account solicitation of the West Coast for Galveston by **William L. Brewster,** Western sales manager with offices in Houston, and by **Charles M. Ferguson,** Eastern sales manager in New York, will continue on a quarterly basis as in the past.

Mr. **Fox** has just returned from an extensive trip to the Far East, including lengthy stays in Korea and Japan. He was graduated from Georgetown University, School of Foreign Service, in 1942. He has held responsible positions in the transportation field, most recently with Sea-Land Service, Inc. and Matson Navigation Co. in the development of their container marketing programs. Mr. **Fox** has served as consultant to the Port of Norfolk, the U.S. Maritime Administration, and the States Steamship Co. of San Francisco.

J. Murray Fox

Mr. **Devoy** termed the San Francisco office vital to Galveston's future, particularly in view of the port's present building of container, SEABEE, and LASH terminals. Mr. **Fox's** solicitation work will be closely oriented to the growth of land-bridge shipments moving direct to and from West Coast origins under the Galveston ocean gateway and then by water to foreign destinations under a single bill of lading.

Flexitallic Gasket Names Paul Nucholls To Houston Plant

Paul M. Nucholls has been named sales manager of the Houston, Texas, plant of Flexitallic Gasket Company Inc., Camden, N.J. The plant, in suburban Deer Park, was purchased from Anderson Gaskets & Washers, Inc. It is being equipped for the manufacture of Flexitallic spiral-wound gaskets and will continue the manufacture of metal-clad gaskets, asbestos gaskets, and washers.

Mr. **Nucholls** has been involved with the sale of mechanical packing and gasket materials dating back to 1947. He continues as the owner of Tubes, Inc., a Houston distributor of heat exchanger and condenser tubes. He is a graduate of Auburn University with a degree in chemical engineering.

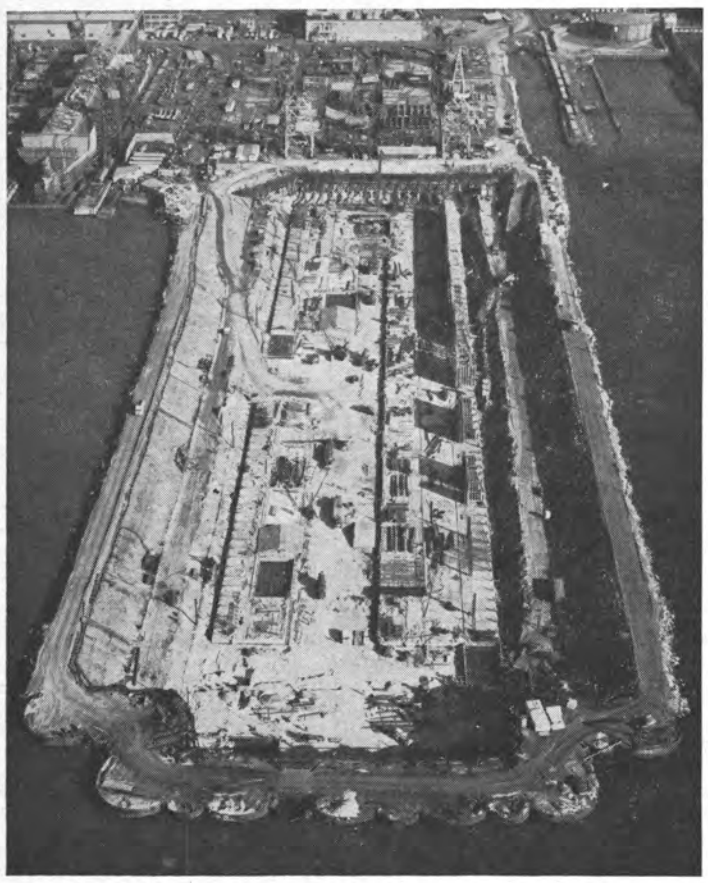
New Towboat Bulletin Available From Dravo

"Towboats," a new bulletin from Dravo Corporation, Pittsburgh, Pa., describes the diversified company's complete line of towboat designs, ranging from 1,500 horsepower to 7,000 horsepower.

The eight-page brochure details aspects of Dravo's patented steering system, engine room, pilothouse and propulsion system design. The company also designs and builds a complete line of barges—hopper, tank, deck and special purpose—as well as derrick barges and other floating equipment.

The bulletin, No. 71MAR01, is available from Marine Sales Department, Dravo Corporation, Pittsburgh, Pa. 15225.

Bethlehem Moving Full Ahead



The nation's largest building basin is nearing completion at our Sparrows Point Yard. Measuring 1,200 by 200 ft, it can accommodate the construction of ships as large as 300,000 dwt. A new panel shop and a new sandblasting and paint building (behind the basin) have already been completed.

Bethlehem shipyards are among the most active in the nation—and we're working to keep them that way. At Sparrows Point, Maryland, we have over 1,000,000 tons of shipping on order or under construction, including four 120,000-dwt oil tankers, which will be built in our new basin (at left). These tankers will be larger than any commercial vessel constructed in America to date. The new drydock we recently built and installed at San Francisco (below) is the only floating drydock in the U. S. capable of fully servicing these giant tankers.

Our yard at Beaumont, Texas, has just completed a major expansion program which enables it to handle more building and repair work than ever before . . . and complete it faster and with greater economies all around. This yard is currently building their 19th and 20th Bethlehem-designed mobile offshore drilling platforms for the petroleum industry.

Bethlehem's newest yard—in Singapore—is already fully operational. Built primarily to service the booming offshore industry in the Far East, it can handle the construction of work and crew boats, and of such large equipment as mobile and stationary drilling platforms, barges, and underwater storage tanks. It can also perform miscellaneous fabricating work of all kinds.

Bethlehem yards are moving full speed ahead into the seventies.

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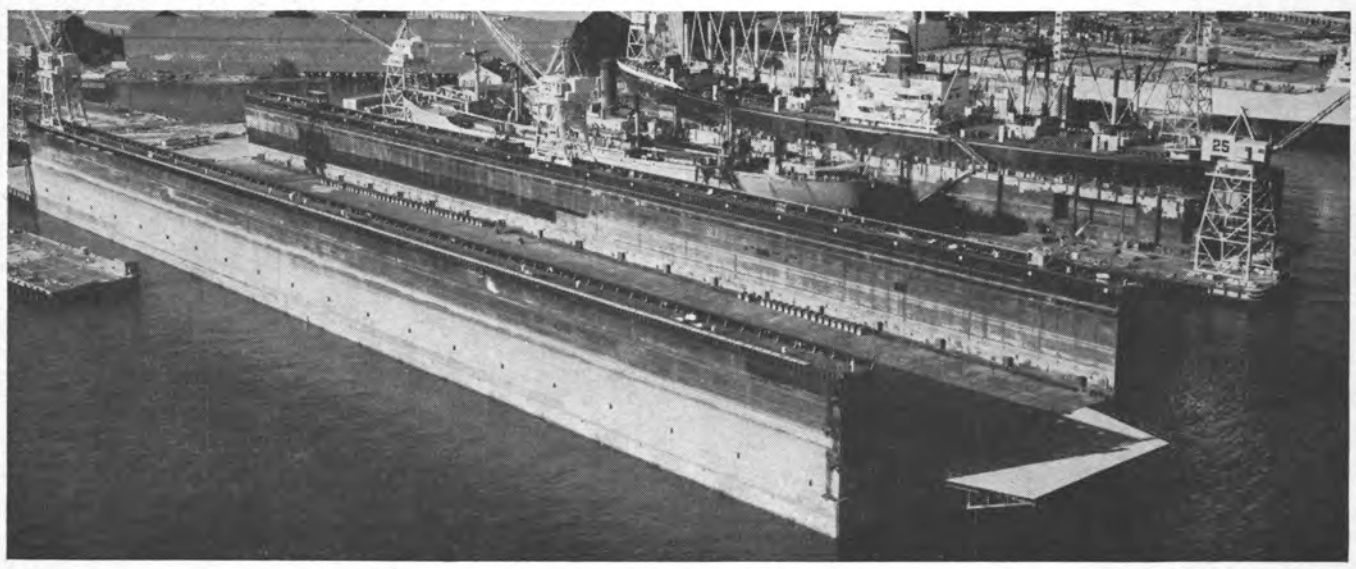
The nation's largest floating drydock was placed in service in 1970 at our San Francisco ship repair yard. Measuring 900 ft over the aprons by 150 ft between wingwalls, it will handle most ships up to 150,000 dwt—and some as large as 230,000 dwt.



Blount Marine Delivers Two Excursion Vessels

Blount Marine Corporation, Warren, R.I., has announced the delivery of two vessels—the 94-foot excursion vessel East Chop to Hyannis Harbor Tours, Hyannis, Mass., and the Island Wanderer to Combined Thousand Island Boat Tours, Alexandria Bay, N.Y.

The streamlined two-deck vessel East Chop is licensed to carry 350 passengers in Nantucket Sound and admeasures under 100 tons. It makes 14 miles per hour. Features include the patented Blount Vista-View windows in the bow, giving the passengers an unobstructed view forward, a modern snack bar and comfortable seating for all passengers.

Power is furnished by two General Motors 12V-71s, developing 670 horsepower. The delivery of East Chop brings to three the number of Blount-built vessels operating out of Hyannis to the islands of Martha's Vineyard and Nantucket.

The Island Wanderer is a replica of a Mississippi River excursion vessel built for sightseeing tours of the famous Thousand Island area.

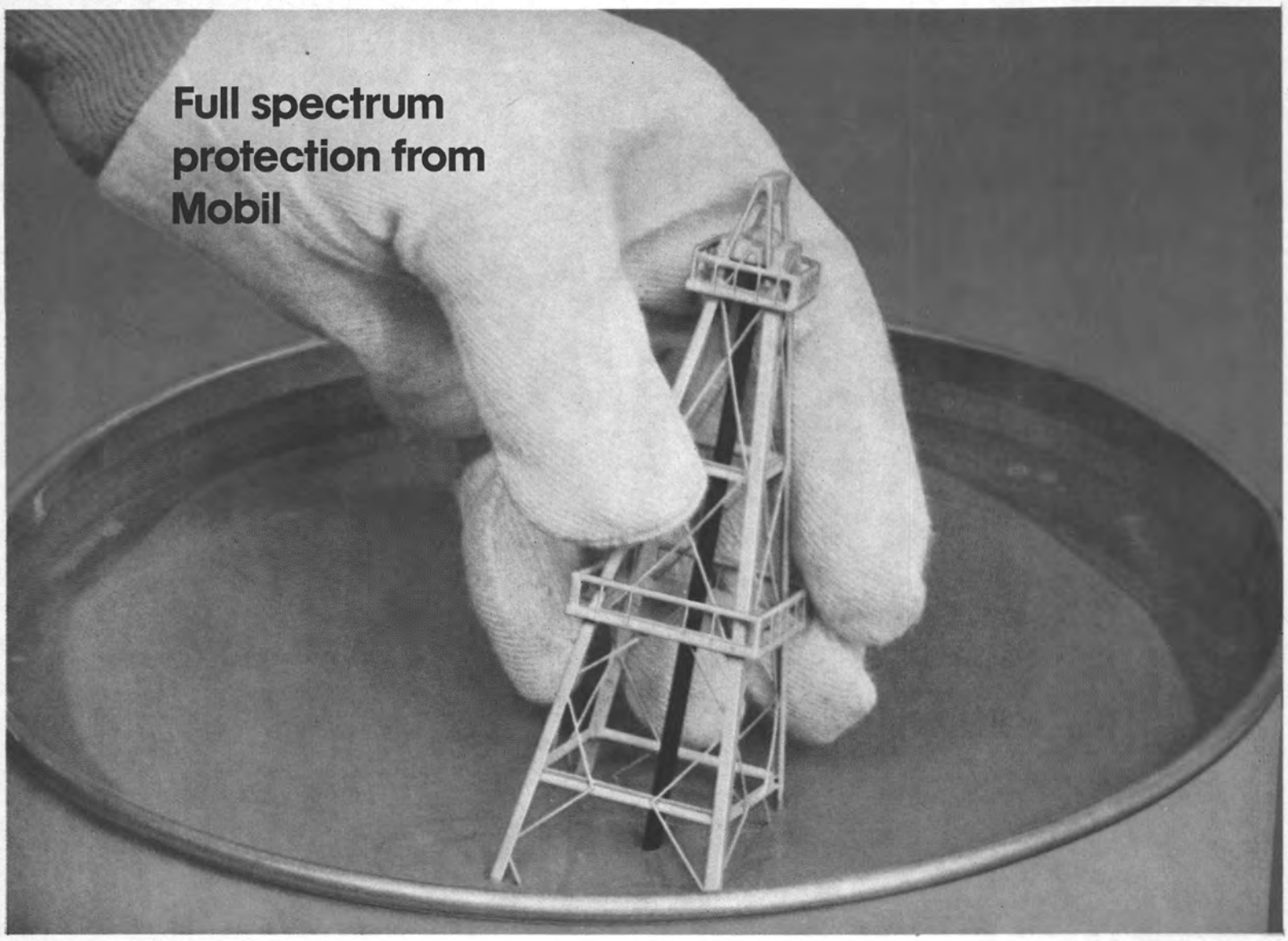
Complete with hinged antique smoke stack and all the filigree of the nostalgic river steamers, the all-steel 65-foot two-deck boat has a single stern paddle wheel and is twin diesel powered. She is licensed to carry 150 passengers.

The Island Wanderer has a Mississippi style superstructure but a modern, seagoing "V" bottom that Rhode Island "Salts" know how to build.

The Island Wanderer sailed under her own power through Block Island and Long Island Sounds and via the Erie Canal and Lake Ontario to her home port.

Moore And McCormack Buys Plastics Machinery Company

Moore and McCormack Co., Inc., parent company of Moore-McCormack Lines, has agreed to purchase all the issued and outstanding stock of the Cumberland Engineering Co., Inc., and H&B Building Trust, it was announced by **James R. Barker,** chairman and president. Cumberland Engineering Co., based in Attleboro, Mass., designs and manufactures special machinery for the plastics industry, including dicers, pelletizers, and granulators.



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Mobilzinc leaves a tough coating of zinc on steel substrates. During immersion, or in highly humid environments, the steel becomes cathodic and Mobilzinc becomes anodic. If the steel becomes exposed by damage, the zinc film is sacrificed slowly, protecting the steel.

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For expert advice on the best Mobilzinc coating for you, see your favorite Mobil oilfield supplier, or write to Mobil Chemical, Maintenance & Marine Coatings Dept., Edison, N. J., the largest supplier of maintenance coatings to the drilling industry.

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MEMBER BPA
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Richard J. Kehoe Joins Propellers, Inc.

Richard J. Kehoe

Richard J. Kehoe of Eastchester, N.Y. has recently become associated with Propellers, Inc. of Hoboken, N.J., and is responsible for the sale of Avondale Shipyards' propeller products in the New York region. Propellers, Inc. are representatives on the East and West Coasts and Great Lakes areas for Avondale propellers.

Mr. **Kehoe** has long been active in marine circles and brings with him a wide knowledge in this field. He is an alumnus of Colgate University, a member of The Propeller Club of the United States, and is a past president of the Marine Sales Association of New York.

Santa Fe Int'l Orders Drilling Vessel From Levingston Shipbuilding

Santa Fe International Corp., Los Angeles, Calif., has announced it is building its second drilling vessel of the Mariner class. **Edfred L. Shannon Jr.**, president, said the new unit will be almost identical to Mariner 1, the world's first twin-hulled column-stabilized drilling unit. The only design changes will be an increase in crew accommodations from 52 to 80 men and a change in the location of the derrick.

Like the Mariner 1, Mariner 2 will have an overall length of 270 feet and an overall width of 106 feet, narrow enough to permit it to transit the Panama Canal.

Levingston Shipbuilding Co., Orange, Texas, has been awarded the construction contract. The new drilling vessel is expected to be available for service in September 1972.

Largest Shipboard Closed-Circuit TV

When the 24,178-ton Greek cruise liner RHMS Atlantis recently commenced her cruising program from New York, her passengers and crew had television entertainment provided by Marconi Marine with what is believed to be the largest shipboard closed-circuit television system ever installed aboard a merchant vessel. The sophisticated television entertainment complex, valued at approximately $145,110, was system-designed by Marconi Marine especially for the Atlantis.

This ship, formerly the American passenger liner President Roosevelt, and now owned by Chandris Lines, has been completely redesigned to provide first class accommodations for 1,200 cruising passengers. A new deck has been added to incorporate a number of public rooms.

The "nerve center" of the TV system is the control desk, which contains all the electronics necessary to monitor and distribute simultaneously a choice of four different programs to the 390 twelve-inch receivers situated in the vessel's cabins and to the 24-inch receivers installed in 14 of the public rooms.

American Mfg. Co. Appoints Robert Heede

Kenneth P. Stephens, sales manager of the Rope Products Division of American Manufacturing Company, Inc., has announced the appointment of **Robert Heede** as sales representative working out of the Brooklyn, N.Y. headquarters of the company.

Mr. **Heede** brings to American 15 years of experience in the rope industry, having been connected with the original Waterbury Rope Company and more recently with Jackson Rope Corporation. He will cover the commercial marine, yacht marine and industrial fields in New England, New York State and the metropolitan area of New York City. Mr. **Heede** replaces **Donald Hires** who resigned to go into business in Palm Beach, Fla.

Lockheed To Design Oil Spill Remover For U.S. Coast Guard

An oil spill recovery system to sweep up oil slicks on the high seas will be designed by Lockheed Missiles & Space Co., Sunnyvale, Calif., under contract to the U.S. Coast Guard. The contract award was announced in Washington, D.C. at the Conference on the Prevention and Control of Oil Spills, sponsored by the Coast Guard, the Environmental Protection Agency, and the American Petroleum Institute. The Coast Guard has Federal responsibility for directing cleanup efforts on all high seas oil spill disasters.

Design of the air-transportable system will be based on Lockheed's patented paddle-wheel-like device, "Clean Sweep," which rotates in oil spills, picking up petroleum from the water and pumping it to storage tanks. Under the $231,000 eight-month contract, Lockheed will develop a preliminary design, and will test components for the proposed system. The final report is due next January. The Coast Guard will select one of three competitive designs for prototype construction in mid-1972. Because quick response is vital to the success of oil spill cleanups, the Coast Guard system must be air-transportable aboard the service's Lockheed-built C-130 Hercules cargo aircraft.

Lloyd Trimble, Lockheed program manager, explained that Clean Sweep is a drum-like series of parallel metal discs connected by overlapping metal vanes on the outside of the drum. As the partially submerged drum rolls through a spill, oil collects on the sides of the discs. Plastic blades inside the drum wipe the oil from the discs and direct it to a central channel where it is pumped to storage tanks.

The system Lockheed will propose to the Coast Guard is based on a Clean Sweep drum eight feet in diameter and 10 feet long. According to Mr. **Trimble,** the eight-foot sweep will work effectively in eight-foot seas running a two-knot current, with winds up to 20 miles per hour.

In May, the U.S. Patent Office awarded a patent on Clean Sweep to Lockheed and inventor **Robert Yates,** a 32-year Lockheed employee. The device originated in 1969, when Mr. **Yates** became concerned about the oil spill problem and began toying with the idea. "All the popular media and the trade press were covering the problem, and I kept thinking there's got to be a better way," said Mr. **Yates.** "I built a model in my shop at home, and when it worked, I brought it in to the Ocean Systems department at Lockheed." The result, two years later, is Clean Sweep, a patent, a Coast Guard contract and a number of very promising commercial possibilities.

"One of the advantages of Clean Sweep is the ability to work in high seas and current," said Mr. **Trimble.** "Tests show that the device works effectively with the water level anywhere within the central two-thirds of its diameter. With proper flotation to keep the partially submerged drum following the contour of the swells, an eight-foot device will easily perform in eight-foot swells." He explained that as the device rotates in a slick, the vanes slice into the oil, bringing the petroleum inside the drum. As the vanes move up from the water, their overlapping position keeps the petroleum inside the drum and helps build up the oil coating on the discs.

Lockheed officials see other applications than meeting the Coast Guard requirement for a high seas oil sweeper. They believe smaller Clean Sweep units could be used in harbors and naval installations, operating from small craft, or be placed in permanent positions in the effluent channels of riverside industries, defense installations and oil refineries.

"It isn't a complicated mechanism," said Mr. **Trimble,** "so it can be scaled according to the job."

Humboldt To Build Diesel Towboat

A towboat measuring 58 feet by 21 feet is being built for Canton Towing Service, Canton, Mo., by Humboldt Boat Service, St. Louis, Mo. The vessel will be powered by two Cummins diesels producing 740 hp.

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Ishikawajima-Harima Shipyard Delivers First Fortune Vessel

The 21,500-dwt Attica, the first Fortune ship built by IHI (Ishikawajima-Harima Heavy Industries Co., Ltd) for Faros Shipping Co., Greece, was recently shown to overseas and domestic shipowners and shippers at an open house at Harumi Wharf in Tokyo.

The Fortune ship is a multipurpose single-deck dry cargo vessel developed jointly by IHI and G.T.R. Campbell (International) Ltd., Canada, to be mass-produced to the standardized design. IHI placed this vessel type on the market in April 1970 as a second series of mass-produced ships, following the 14,800-dwt Freedom ship and has since received orders for a total of 24 Fortune ships.

Construction of the first Fortune ship began in July 1970 at IHI Tokyo Shipyard and was completed about a year later. Various performance trials were conducted and the test results of the first ship will be reflected in the design of subsequent ones. From the second ship on, full-scale construction en masse will begin at the No. 5 berth in the Tokyo Shipyard at the rate of 12 ships a year.

The Fortune can carry all normal dry bulk cargoes, including ore with alternate hold loading arrangement, automobiles, semi-finished steel products including long articles, containers, and lightweight cargoes requiring large hold cubic capacity. In view of increasing car export trade, the ship is also designed for convenient car transportation with added car decks.

The Attica, developed jointly by IHI and G.T.R. Campbell (International) Ltd., is the first of a series that will be produced at the rate of 12 ships a year.

It is the optimum size for transport through the St. Lawrence Seaway with a very shallow draft of approximately 32 feet, assuring the ship's versatility as a multipurpose vessel. Each hatch is provided with a set of 10-ton Universal cargo gear specially designed for the Fortune. The extra wide and long hatch openings permit the loading of many kinds of cargoes.

The main propulsion machinery is an IHI-SEMT Pielstick 16PC2V type medium-speed heavy oil burning geared diesel of 8,000-hp maximum continuous rating which drives the propeller via single reduction gear. This engine is especially designed to produce 500-hp per cylinder—nearly 17 percent more than the original output of this type engine.

Principal particulars and approximate measurements of the Attica are: length, bp, 510 feet; breadth, 75 feet; depth, 45 feet; draft, 32 feet; 21,500 deadweight tons, and a gross tonnage of 14,200. The vessel will have a complement of 27 and a service speed of 15 knots.

Arnessen To Represent Blohm & Voss, A.G. In U.S. And Canada

Blohm & Voss, A.G., Hamburg, one of West Germany's leading shipbuilders, recently announced the appointment of Arnessen Marine Systems, Inc., New York, as their representatives for the United States and Canada for their new buildings and turbines. Focal point of their new construction program is the remodeling of West Germany's largest drydock, the Elbe 17, which to date has mainly been used for ship repairing. According to present plans, the dock will be ready for building giant vessels up to 230,000 deadweight tons in 1973 and 400,000 deadweight tons at a later date. Delivery of the first vessel could be made in June 1974.

According to **Egil Arnessen,** president of Arnessen Marine Systems, Inc., the Blohm & Voss North American program will be under the leadership of **Joachim R. Werner,** vice president.

Texas Gulf Names R.C. Ballard Trigg

R.C. Ballard Trigg

R.C. Ballard **Trigg** has been named assistant general manager of the Transportation and Distribution Department of Texas Gulf Sulphur Company, Houston, Texas, it was announced by **John W. Hall Jr.,** vice president, marketing.

In the newly-created post, Mr. **Trigg** will be engaged in all phases of transportation, distribution and rail equipment. He had been serving as manager, transportation, a post to which he was appointed in 1969. Mr. **Trigg** will continue to make his headquarters in Houston. He joined the company in 1961 as assistant traffic manager, and in 1969 he was promoted to manager.

A native of Glasgow, Ky., Mr. **Trigg** served in the Army in World War II. He graduated from the University of Kentucky with a B.S. degree and received an LL.B. degree from the University of Kentucky Law School in 1952. A member of the Florida Bar Association, he had been with two law firms and was vice president and general manager of Tampa Marine Company before joining Texas Gulf.

Gulf Motorships Names James Bertel President

Nils O. Seim, chairman of the board and president of Motorships, Inc., has announced the appointment of **James Bertel** as president of Gulf Motorships, Inc. Mr. **Bertel** has served with Gulf Motorships since its inception in April 1962, and prior to that had been affiliated with Alcoa Steamship Co.

Gulf Motorships, a wholly-owned subsidiary of Motorships, Inc., maintains offices in New Orleans, La., Houston and Galveston, Texas.

Lloyd's Planning Underwater Surveys

Looking ahead to the time when the supertanker building program outstrips facilities for the repair and routine drydocking of tankers of 150,000 tons and upward, a working party at Lloyd's Register has been examining whether there is a need for the Society, in its future operations, to undertake underwater surveys as an alternative to the requirements for drydocking.

Draft specifications for such a service are being formulated covering both routine surveys and damage surveys carried out by means of divers and possibly diver-assisted vehicles. Closed circuit television and underwater cameras may be used to determine the extent of damage or, in the case of routine surveys, to assess the condition of the ship below the waterline, so that surveyors may decide whether docking is necessary. It is envisaged that the diving work would be carried out by contractors under the supervision of surveyors.

Sioux City And New Orleans Terminal Elects McKenzie VP

The board of directors of Sioux City and New Orleans Terminal Corp. has elected **John R. McKenzie** to the office of vice president.

Mr. **McKenzie** joined Sioux City and New Orleans Terminal Corp. in January 1970, as general manager of terminals. Prior to his association with Sioux City, Mr. **McKenzie** was marine terminals manager for a cement company in St. Louis, Mo.

In his new position, Mr. **McKenzie** will be responsible for the complete operation of the Omaha Terminal, Omaha, Neb., and Steinhart Terminal, Nebraska City, Neb.

Mr. **McKenzie** will retain his office and residence in Omaha, Neb.

Brochure Available On Mariport '72 Exposition

A new three-color brochure about Mariport '72, "The Maritime Exposition of the Americas," is now available to all companies involved in shipbuilding, marine engineering and allied industries. The illustrated 12-page booklet explains the concept of this annual maritime event.

Highlighted in the brochure are details of the 1971 event which was held in Baltimore last April; facilities at the Philadelphia Civic Center where the 1972 event will be presented; the value of Mariport to the exhibitor; the promotion behind the event, and reservation details.

Mariport '72 will be held at the Philadelphia Civic Center from May 22 through May 25, 1972. The brochure is available by applying to Mariport '72, 1601 West Lafayette Boulevard, Detroit, Mich. 48216 U.S.A. (Telephone (313) 961-9044) or Europort Tentoonstellingen N.V., Hoogstraat 111, Rotterdam, Netherlands (Telephone 010 130311).

MarAd Western Region Staff Reorganized

Thomas J. Patterson Jr., Western Region Director, Maritime Administration, San Francisco, Calif., has announced a recent reorganization of the Western Region staff. Moving up to Deputy Western Region Director is Capt. **S.W. Galstan,** formerly Assistant Director for Operations. A veteran shipping executive, he was formerly associated with Waterman Steamship Company for 20 years before moving to the Federal agency in 1967.

Other management shifts include Capt. **John Pullen,** who will head the new Office of Ports and Intermodal Systems, and **Leigh Miller,** who will head the new Office of Ship Management, which combines the regional ship operations and ship maintenance and repair functions.

"This reorganization," said Mr. **Patterson,** "is designed to realign the region so it can effectively implement the programs of President **Nixon's** new Merchant Marine Act of 1970."

Newport Ship Yard Increases Capacity Of Marine Railway

Newport Ship Yard president **Neil C. Peirson** has announced that Rhode Island's largest marine railway is undergoing a modification program which will increase hauling capacity from the present 750 tons. When completed in the early part of August 1971, the new system will accommodate vessels of 1,100 short tons with machine and chain capacity of 900 short tons bearing capacity. A 125-hp 30-minute-rated motor will operate the railway at 16 feet per minute.

Designed by Crandall Dry Dock Engineers of Cambridge, Mass., the new railway will take maximum advantage of existing hauling capacity and complete a modification phase started two years ago. Work includes the installation of new concrete motor foundations and motor controls, gear shaft alterations and control house alterations.

President **Peirson** notes that with the latest improvements, the railway will realize its full design potential.

Sky Climber, Inc. Establishes Nine District Offices

Sky Climber, Inc., a subsidiary of Western Gear Corporation, has opened and staffed a total of nine district offices across the United States to sell, rent, and service its line of powered hoists and swing stages for use in building maintenance, construction, shipyards, and many industrial applications. **Irv Walsh,** vice president and general manager, said the regional offices are also equipped to conduct safety schools at customer sites throughout their areas.

The complete list of Sky Climber offices in the United States and the names of the office managers are: Atlanta area, **Ed Walton;** Houston regional area, **William T. Hilger;** Chicago regional area, **Larry D. Steves;** Detroit area, **Mike DeShon;** Philadelphia area, **Walt Robertson;** New York-New Jersey regional area, **Art Ehrmantraut;** San Francisco Bay area, **Dorsey Allison;** Washington-Baltimore area, **Don Moxley,** and Western regional area (Gardena, Calif.), **Don Tilton.**

Zidell Explorations Launches Fifth In Series

Tidewater Barge Lines, Inc.'s Barge 44 (lower right) undergoes final launch preparations at the Marine Construction Division of Zidell Explorations, Inc. The 3,000-ton-capacity barge is fifth of identical series placed in service by Tidewater.

The growing grain transport fleet of Vancouver, Wash., based Tidewater Barge Lines, Inc. has been further expanded with the addition of the company's fifth new grain barge since May 1970.

Barge 44, recently delivered by Zidell Explorations, Inc., Portland, Ore., brings Tidewater's total grain hauling capacity to 36,000 tons, an increase of nearly 50 percent over their 1969 capacity.

Twenty-one barges, devoted solely to grain transport, are utilized by the company to move Pacific Northwest crops down the Columbia-Snake system to Portland Harbor. Tidewater's furthermost inland port of call is Almota, Wash., on Granite Dam pool, about 32 miles west of Lewiston, Idaho.

Each of the five Zidell-built barges delivered over the past 14 months is capable of hauling 3,000 tons of grain per trip. Each hull measures 222 feet long, 42 feet wide, 16 feet 6 inches deep, and is topped with a totally enclosed steel storage house. Four large screw augers (two forward and two aft) feed grain to a central sump to facilitate automated unloading at the terminal. A sixth identical barge is now being constructed for Tidewater by Zidell, and others are in the planning stage. Three tugs are undergoing conversion and re-powering to keep pace with the expanding grain fleet.

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FIRST IN THE BASIN: Congratulations all around are in order as Bethlehem Steel sets in place the first keel section for a 70,000-deadweight-ton class tanker in the Sparrows Point shipyard's new 1,200-foot-long building basin. The 810-foot-long tanker for the Atlantic Richfield Company will be the first vessel constructed in the new basin, the largest in the nation. Officials at the ceremony were, from left to right: **Rufus T. Brewton,** senior surveyor, American Bureau of Shipping; **Peter W. McClen,** principal surveyor, Baltimore District, American Bureau of Shipping; Capt. **Corben Shute,** manager, marine construction, Atlantic Richfield Company; **William H. Collins,** general manager of the Sparrows Point yard; **Walter W. Vogel,** resident inspector, Atlantic Richfield Company; Comdr. **David J. Linde,** resident inspector, U.S. Coast Guard, and **William Y. Clark II,** resident inspector, U.S. Coast Guard.

Secor To Head Environmental Control At Electric Boat

Robert H. Secor

A new position, chief of environmental control, to insure that operations of the company protect the health of its employees and the surrounding community, has been established at the Electric Boat Division of General Dynamics, Groton, Conn. In making the announcement, **Joseph D. Pierce,** general manager, said that **Robert H. Secor** of Mystic, a certified marine chemist, will fill the post.

"Control of manufacturing processes and practices, proper disposal of wastes and by-products and good housekeeping are essential," Mr. **Pierce** said, "if we are to control the environment and prevent the pollution of the atmosphere and the nation's waters."

In his new assignment, Mr. **Secor** will be responsible for identifying, evaluating and ensuring control of potential health hazards in the industrial environment within the division. In carrying out his responsibilities, he will coordinate with the chief of fire and safety, the medical director, the radiological control manager and the cognizant supervisors in operations, engineering, and other departments.

Mr. **Secor,** a former Groton town councilor, is a graduate of Providence College and attended graduate school at the University of Rhode Island, where he studied chemical oceanography. He is a member of the company's Mercury Review Committee.

French Yard To Build 90-Foot Leg Extensions For Santa Fe Rig

Norsmec Ltd., a subsidiary of Santa Fe International Corp., Los Angeles, Calif., has awarded a contract to a French shipyard to fabricate 90-foot leg extensions for the jackup rig Britannia. **E.L. Shannon Jr.,** president of Santa Fe International, said the contract with Union Industrielle d'Enterprise (UIE) calls for delivery of the new leg sections February 15, 1972. When installed, Mr. **Shannon** said, the extended legs will enable the Britannia to drill in as much as 250 feet of water in the North Sea during the winter storm season.

Since its completion at a British shipyard in 1968, the Britannia has drilled more than 20 wells in the North Sea off England and Denmark. After completion of its current well in Danish waters, it is scheduled to start drilling in the Dutch sector of the North Sea. Until now, the vessel's operations have been limited to maximum water depths of about 160 feet.

World-Wide Marine Orders Six Supertankers For $200 Million From Japanese Shipbuilders

Y.K. Pao, internationally known shipping magnate and governing director of World-Wide (Shipping), Ltd., was honored on July 6 by the Deputy Mayor of Osaka City, Japan, **Yashushi Oshima,** in a specially arranged ceremony at the city's Municipal Office during which he was presented with the key to the city.

The occasion preceded the launching later on the same day of the 25,000-dwt bulk carrier Eastern Wave for the Eastern Asia Navigation Company at the yard of the Osaka Shipbuilding Co. Ltd.

Sponsor at the launching ceremony was **Mrs. N.A.S. Mills,** wife of the manager of the Hong Kong and Shanghai Banking Corporation's Hong Kong office. This is one of the 15 similar size bulk carriers so far ordered by the World-Wide Shipping Group from Osaka Shipbuilding Co., all of which are due for completion in the next three years, and the key award to Mr. **Pao** was in recognition of the Group's significant contribution to Osaka City's ship exports.

Following the ceremony, Mr. **Pao** announced that his Group has recently placed another huge block order with major Japanese shipbuilders for the construction of six more supertankers with a total deadweight of approximately 1.5 million tons at an aggregate cost of close to $200 million. All are scheduled for completion within the period between 1974 and 1975, and the following is a summing up of these mammoth ships:

Type	Approx. Dwt.	Delivery	Builder
Tanker	260,000	1975	Nippon Kokan Kabushiki Kaisha
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The World-Wide Group presently has in service a fleet of 65 vessels, including tankers, bulk carriers and combination carriers, totaling around 3.5 million deadweight tons, and when all the new buildings on order, including the six aforementioned, are delivered by 1975, the Group's whole tonnage figure is expected to be nudging the 10-million-ton mark, comprising 120 vessels.

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A seagoing electronic research laboratory was launched at the Blount Marine Corporation, Warren, R.I., ways on June 26, following the traditional breaking of a champagne bottle across her bow by the widow of a renowned Raytheon Company scientist, engineer, and inventor.

Christened the M/V Sub Sig by **Mrs. Percy L. Spencer** of Newton, Mass., the new 83-foot research vessel will serve Raytheon Company's Submarine Signal Division, headquar-

marine navigation and communications equipment.

Senator **John O. Pastore,** principal speaker at the christening and launching ceremonies, stressed the importance of the emphasis by Raytheon's Submarine Signal Division on the application of its long-established expertise in marine technology to the growing fight against water pollution. Other speakers were Senator **Claiborne Pell,** Governor **Frank Licht,** Congressman **Fernand J. St. Germain,** and shipbuilder **Luther Blount.**

D. Brainerd Holmes, executive vice president of Raytheon, characterized the M/V Sub Sig as symbolic of the division's long service

prove and maintain the quality of our water environment. "May it serve not just as part of our industrial effort," he said, "but, in its small but real way, as a contributor to a stronger United States and to the growth of man's knowledge."

According to **Ralph A. Martin,** Raytheon vice president and general manager of the Submarine Signal Division, among the first assignments of the new research vessel will be the test and evaluation of an advanced computer-controlled sonar system developed by the company.

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Willamette Tug & Barge Co. Appoints Connelly And Gannon

The appointment of **William B. Connelly** as marine operations manager and Capt. **Richard L. Gannon** as port captain of Willamette Tug & Barge Co., Portland, Ore., has been announced by **Don Ray**, vice president and general manager.

Willamette Tug & Barge is a division of Willamette-Western Corporation, Portland-headquartered diversified service, marine and heavy construction company.

Mr. **Connelly**, previously chief dispatcher with Willamette-Western, has 26 years of experience in the marine field. Mr. **Gannon** is a veteran with 28 years of marine experience, 12 years as a Columbia River pilot.

Willamette Tug & Barge operates a fleet of 29 tugs, 53 cargo barges and 17 water cranes from its base in Portland. Its primary activities include ship assistance, river and harbor towing, ship and industrial oil barging, marine salvage, equipment charter, and oil spill cleanup.

The firm is a part of Willamette-Western's marine services group, which includes Western Tug & Barge Co., Richmond, Calif.; Tacoma Tug & Barge Co.; Tri-Cities Tug & Barge Co., Pasco, Wash., and Marine Equipment Charters, Inc. of Portland.

The State Of Alaska Asks For Bids To Construct Passenger/Vehicle Ferries

The State of Alaska, Department of Public Works, Division of Marine Transportation, jointly with the Department of Highways, have announced that they are requesting bids from shipyards on a nationwide basis for the construction of two 235-foot diesel-powered passenger-vehicle ferries to augment their Southeast Alaska Ferry Service.

The vessels are to be steel, transversely framed of all-welded construction with a full, complete double bottom fitted within the engine room. They will be fitted with twin rudders, and propulsion will be by twin 2,100-shp diesel engines driving twin fixed-pitch propellers through reverse reduction gears. The ships' service power will be provided by two 300-kw diesel generator sets, and emergency power will be provided by one 75-kw diesel generator set.

Passenger facilities are to be provided on the upper deck and superstructure deck. These facilities will include an observation lounge, foyer, sitting room, and coffee shop with cafeteria type food service. A corner cocktail bar will be located in the port side of the coffee shop. Public toilets will be provided on the upper deck.

The starboard gallery deck and navigating bridge deckhouse will accommodate the crew and officers. An officers' messroom and crew's messroom will be provided on the upper deck adjacent to the galley, but remote from the passenger area.

A solarium will be installed on the sun deck to provide a sheltered, panoramic viewing area for passengers. The solarium will be lighted and provided with infra-red radiant head units for passenger comfort.

Vehicle access will be through side doors port and starboard in the forward part of the vessel and by hinged ramps at the bow and stern. A hinged, hydraulically operated "Knighthead Visor" type bow is to be installed. A turnabout will be mounted in the main deck located between the two side doors for turning heavy vehicles.

Principal Characteristics

Length overall, molded	235' - 9"
Length on design load waterline	215' - 0"
Length between perpendiculars	210' - 0"
Breadth, extreme over guards	57' - 4"
Depth, molded, to vehicle dk at side	19' - 0"
Draft, design load waterline	12' - 9"
Service speed	15.5 knots
Deadweight and Capacities:	
Certified passenger capacity	250
Crew accommodation capacity	23
Vehicles: Automobiles	47
Diesel oil @ 95%	52,500 gals.
Lube oil	1,440 gals.
Potable water	26,660 gals.
Displacement at design load draft	1,911 LT

The vessels, with their propelling machinery, will be built under special survey of the American Bureau of Shipping, so as to entitle them to the highest class for ships of this type. They will comply with all applicable laws of the United States, including the U.S. Coast Guard and the U.S. Public Health Service.

Designers of the vessels are Philip F. Spaulding and Associates, division of Nickum and Spaulding Associates, 71 Columbia Street, Seattle, Wash. 98104.

Shipyards interested in bidding on this project are requested to communicate with the naval architect. One complete set of bidding documents, including plans and specifications, will be furnished upon receipt of a $100 deposit which will be returned after the bid award and the return of all plans and specifications.

Raytheon's New 83-Foot Research Vessel Sub Sig Launched At Blount Yard

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Christened the M/V Sub Sig by **Mrs. Percy L. Spencer** of Newton, Mass., the new 83-foot research vessel will serve Raytheon Company's Submarine Signal Division, headquartered in Portsmouth, R.I., as a laboratory for the development of advanced underwater acoustics systems, a pollution fighter, and a test bed for a wide range of ocean systems and marine navigation and communications equipment.

Senator **John O. Pastore,** principal speaker at the christening and launching ceremonies, stressed the importance of the emphasis by Raytheon's Submarine Signal Division on the application of its long-established expertise in marine technology to the growing fight against water pollution. Other speakers were Senator **Claiborne Pell,** Governor **Frank Licht,** Congressman **Fernand J. St. Germain,** and shipbuilder **Luther Blount.**

D. Brainerd Holmes, executive vice president of Raytheon, characterized the M/V Sub Sig as symbolic of the division's long service in the defense of the nation and to the cause of safety at sea and expressed the belief that it would further contribute to the welfare of the nation through its services to help improve and maintain the quality of our water environment. "May it serve not just as part of our industrial effort," he said, "but, in its small but real way, as a contributor to a stronger United States and to the growth of man's knowledge."

According to **Ralph A. Martin,** Raytheon vice president and general manager of the Submarine Signal Division, among the first assignments of the new research vessel will be the test and evaluation of an advanced computer-controlled sonar system developed by the company.

Oceangoing laboratory for Raytheon Company's Submarine Signal Division, Portsmouth, R.I., has range of 2,700 miles for ocean and coastal studies.

Mrs. Spencer, sponsor of the new vessel, is the widow of the late Dr. **Percy L. Spencer,** one of the first employees of Raytheon, a prolific inventor, and a senior vice president and a director of the company.

Skipper of the M/V Sub Sig is Capt. **Maxson Langworthy,** a veteran of 40 years as a small craft skipper and commander of Submarine Signal Division test vessels since 1945. He commanded the M/V Alan, a 65-foot test vessel being retired after more than 20 years of service to the division.

The M/V Sub Sig, powered by two 350-hp diesel engines, has a range of 2,700 miles and a cruising speed of 12 knots. She has 480 square feet of laboratory space and 500 square feet of work deck equipped with a hydraulic crane, a double capstan winch, and an oceanographic cable winch. She has living quarters for a crew of three and up to eight scientists, engineers, and technicians.

She is loaded with Raytheon electronic gear, including two radars, five marine radiotelephones, eight Fathometer® depth sounders, a Navimatic™ automatic direction finder, a sonar system, and a loran system. She has the capability for towed-line array and variable depth sonar systems, flooding-type transducer wells inside the vessel, a 36-inch sea chest for transducer testing, and a 34-square-foot diver platform on the stern.

She will be used in Atlantic coastal waters for research, development, and test in advanced underwater acoustics techniques and in the environmental sciences; coastal and harbor surveys; and the test and demonstration of ocean systems and equipment and of marine navigation and communications equipment.

East West Shipping Opens Houston Office

The opening of a new office in Houston, Texas, has been announced by **R.E. Workman,** vice president of East West Shipping Agencies. **Stephen P. Adams,** formerly with East West Shipping in Alabama, will head the new office as manager. The office will be located at 1714 Petroleum Building.

East West acts as general agents for National Shipping Corp. of Pakistan and as general agents and distributors for Fjord Boats of Norway. It also represents Nordship Agencies, Inc., a subsidiary company of East West Shipping on the Great Lakes.

Three Hillman Companies Elect Bernard Kelley As President— Frank Silliman Board Chairman

Bernard T. Kelley

Frank P. Silliman

Bernard T. Kelley has been elected president of Hillman Barge & Construction Co., Hillman Transportation Co., and Silliman Towing Co.

Mr. **Kelley** succeeds **Frank P. Silliman,** who has been elected chairman of the board and will continue as chief executive officer of the three companies. Mr. **Silliman** has been president of Hillman Barge since 1950, Hillman Transportation since 1960 and Silliman Towing since 1954.

Mr. **Kelley** has been with the Hillman companies for his entire business career of more than 25 years, most recently, as vice president and general manager and director of Hillman Barge and vice president of Hillman Transportation.

A native of Brownsville, Pa., Mr. **Kelley** received a degree in engineering from Marquette University, Milwaukee, Wis., in 1946. Hillman Barge & Construction Co., Hillman Transportation Co., and Silliman Towing Co. are subsidiaries of The Hillman Company of Pittsburgh, Pa.

Thrige-Nakskov Receives Deck Machinery Contracts Totaling Over $3-Million

Thrige-Nakskov Machine Works Ltd., the Danish marine engineering company, has announced that large contracts, both domestic and for export, have been signed recently. The value of the contracts exceeds three million dollars and includes steam-driven deck machinery for 16 supertankers to be built in Denmark and Italy. Esso, Shell and A.P. Moller are among the shipowners.

The current order book will result in further expansion of the recently founded company, which was a result of a merger between the deck machinery divisions of the two Danish companies Thrige-Titan and Nakskov Shipyard.

In addition to steam-driven deck machinery for all sizes of tankers, the manufacturing program of the company includes electrically and hydraulically powered deck machinery, remote-controlled valves and container spreaders.

Thrige-Nakskov's U.S. representative for sales and service is Stal-Laval, Inc., 400 Executive Boulevard, Elmsford, N.Y. 10523.

Stork-Werkspoor Diesels Run On High-Viscosity Fuels

Several years ago the Stork-Werkspoor diesel engine designers designed an in-line and a V-form, medium-speed engine to run on heavy fuels with a viscosity of 500 up to 3,500 sec. Redwood I at 100°F., with an average sulfur content of over three percent and average vanadium content of about 100 ppm. The engineers based the design on the wide experience the firm had with trunk-type piston engines already running on high viscosity fuels.

The features incorporated in this design were:

1. A low-pressure recirculating fuel-oil system to keep the fuel pumps at a constant temperature;

2. Effective cooling and heating of the injector nozzles by means of a separate cooling-water system, to prevent carboning and corrosion attack of injectors;

3. Deeply water-cooled exhaust-valve cages to reduce the exhaust-valve temperature. The seats of the exhaust valve and valve cage were stellited.

4. Separate impulse lubricating-oil system for the valve gear and valve stems. The waste oil and any water or fuel that might leak into the cylinder head is drained into a drain tank and thus prevents deterioration of the oil in the sump, and

5. Extremely large inlet and exhaust valves to reduce the exhaust-gas temperature in order to prevent the attack of vanadium-sodium components on the turbo-charger blades.

The tests of this design, known as TM 410, proved very satisfactory.

The first engines running on heavy fuels were installed in the ocean-going tug Rode Zee of Smit and Company International Towing Service. These engines were placed in service about three years ago and have run over 15,000 hours. Inspections made periodically of these engines have confirmed the test-bed results. Due to these service results, the inspection intervals for the exhaust valves have been increased to 5,000 hours and the injectors to 3,000 hours.

At present, about 45 TM-410 medium-speed diesels, developing at full load 667 bhp/cylinder at 550 rpm, are operating on high-viscosity fuels.

This engine is being distributed in the United States by Oosterhuis Industries, Inc., P.O. Box 30587, New Orleans, La. 70130, and by Oosterhuis Associates, Inc., 1025 Vermont Avenue, N.W., Washington, D.C. 20005.

FRENCH REPAIR YARDS BUSY: Shown above is the 208,000-dwt Shell Oil tanker Melo undergoing annual drydocking repair at Marseilles, France. The Melo is the largest tanker to be accommodated at Marseilles up to the present time. Drydocking facilities capable of accommodating supertankers of 400,000-dwt will be operational by 1973. This facility will be a result of the combined efforts of the two largest ship repairers in Marseilles—Groignard and Terrin (SPAT). Other vessels currently scheduled to enter the yard are the 194,000-dwt supertankers Esso Anglia and Esso Bernicia, and a number of orders from Mobil Oil Co., Shell, B.P., Olympic Maritime, among others.

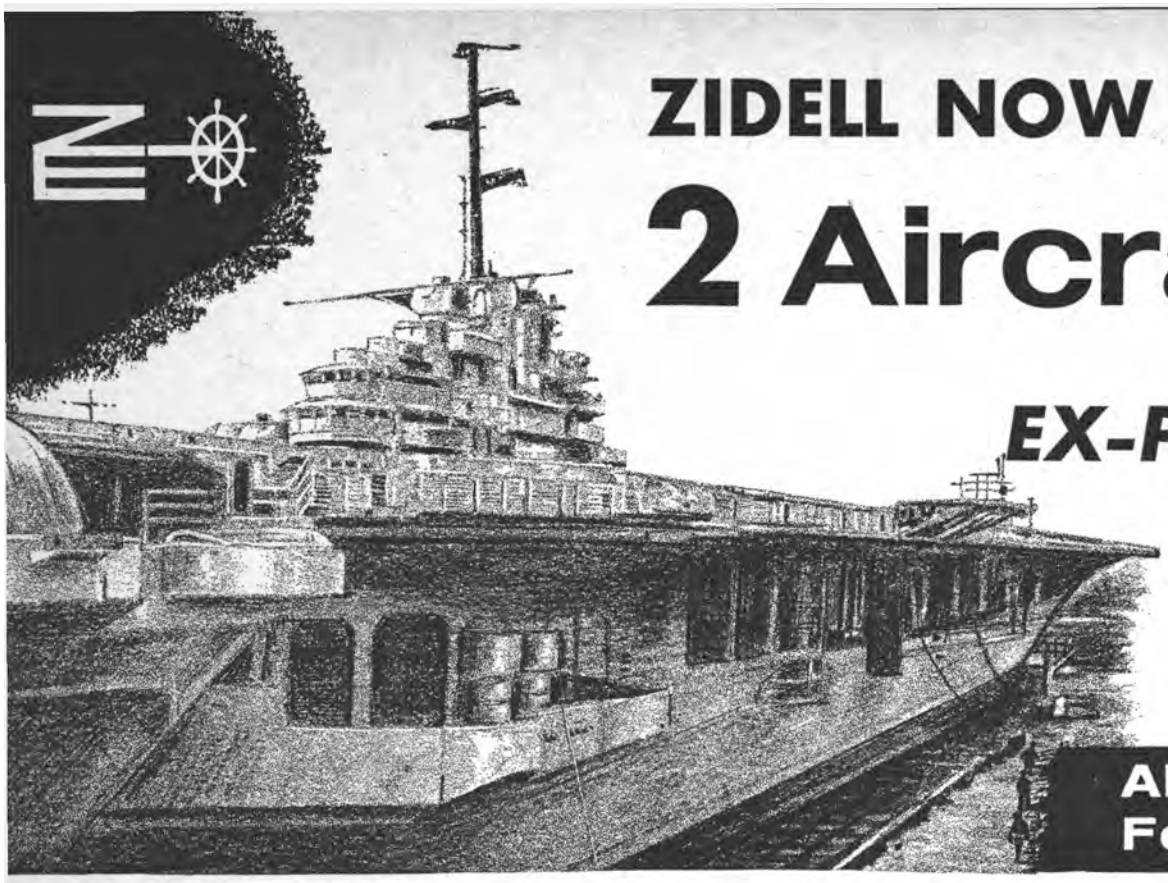
Independent Petroleum Supply Building Bunkering Tanker At Todd Houston Shipyard

IPS, Independent Petroleum Supply Company, a subsidiary of Natomas Company, reports that construction of the M/V Bunker Antigua, a 6,300-ton bunkering tanker, is progressing on schedule at Todd's Houston shipyard. Current plans call for the launching of this specially designed bunkering vessel in mid-September, and its subsequent employment in October at The West Indies Oil Company, Limited's refinery in Antigua, West Indies.

Bunker Antigua, with a designed delivery capability in excess of 5,000 barrels per hour for all grades of marine fuel products, is specifically programmed to provide fast bunker service to all vessels, including large deep-draft carriers. The addition of this ultra-modern custom craft to existing facilities will make Antigua one of the most flexible, efficient and fast bunkering ports in the world, providing shipowners and operators with convenient, complete and quick service.

IPS, with offices in New York, San Francisco, London and Tokyo, is the exclusive bunker marketing agent for The West Indies Oil Company, Limited.

"ACCORDING TO TRADITION, THAT EYE GUIDES THE SHIP.-THE RADAR IS A BACK-UP SYSTEM."



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2 Aircraft Carriers

EX-PHILIPPINE SEA *(Ex-AVT-11)*

BUILT 1945

EX-PRINCETON *(Ex-LPH-5)*

BUILT 1946

Both Vessels ESSEX CLASS — 888' x 136' — 25,800 tons Light Displacement. Both located at our Tacoma, Wn. Yard

All Machinery and Equipment For *IMMEDIATE SALE!*

TURBINES

8-Turbines, Main Propulsion, High Pressure, Westinghouse, Horizontal Impulse, single flow, 17,700 SHP, 525 PSI, 5524 RPM.

8-Turbines, Main Propulsion, Low Pressure, Astern, Westinghouse, Double Flow, Power Rating Ahead—17,800 SHP, Astern —12,000 SHP, Speed Ahead—4,300 RPM, Astern—3019.

TURBO GENERATOR

TURBO-GENERATORS

6-Turbo-Generators, Ship's Service, G.E., Type: ATB-2, 1563 KVA, 1250 KW, 450 volts, 3600 RPM, G.E. Turbine.

REDUCTION GEARS

8-Reduction Gears, Main Reduction, Westinghouse, Double Reduction, Locked Train, Rated 37,500 HP.

ANCHORS

-4-

30,000 Lb. Stockless

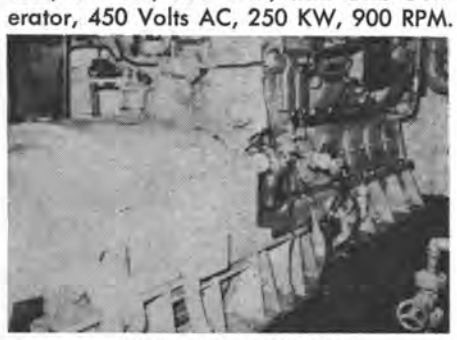
ANCHOR CHAIN

-Approx. 30 Shots-
3⅜" Anchor Chain

Doors, Fans, Chocks and Cleats

DIESEL GENERATOR SETS

8-Diesel Generator Sets, Emergency Ship's Service, Cooper-Bessemer, Model FSN, 375 HP, 900 RPM, with G.E. Generator, 450 Volts AC, 250 KW, 900 RPM.



DIESEL GENERATOR SET

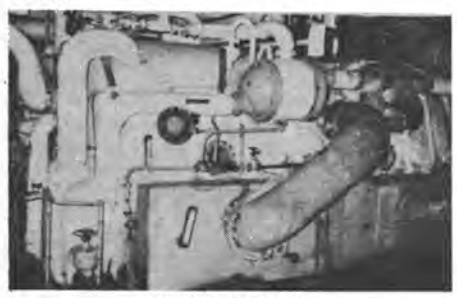
BOILERS

16-Babcock & Wilcox, Double Cased, Express Type, Single Uptake, 634 PSI, 5720 sq. ft. of Heating Surface, 770 cu. ft., 1547 tubes.

CONDENSERS

8-Condensers, Main Steam, Westinghouse, Single Pass, Straight Tube, Cooling Surface—1475 sq. ft., 7213 Tubes.

8-Condensers, Auxiliary Steam, Westinghouse, Cooling Surface—2000 sq. ft., 1578 Tubes.



DISTILLING PLANT

DISTILLING PLANTS

4-Distilling Plants, Main, Griscom Russell, 40,000 GPD, 1905 sq. ft., 1665 Tubes, 3 Stage.

2-Distilling Plants, Auxiliary, Griscom Russell, 12,000 GPD, 246 sq. ft., 302 Tubes, 2 Stage.

PUMPS

8-Centrifugal, Auxiliary Condenser, Salt Water Circulating, Warren, Steam, 2500 GPM, 12 PSI, 875 RPM, Westinghouse Motor, 2-Speed, 440 Volts, 23.4/6 HP.

8-Rotary, Aircraft Handling Elevator, Vickers, 315 GPM, 985 PSI, 900 RPM, G.E. Motor, 150 HP, 440 Volts.

4-Rotary, Fuel Oil Transfer, Quimby Pump Co., 250 GPM, 150 PSI, 690 RPM, Electro Dynamic Motor, 4-Speed, 440 Volts, 48/32/24/16 HP.

4-Steam Reciprocating, Emergency Feed, Warren Steam Pump, Size VSDA 11" x 8" x 18", 180 GPM, 750 PSI.

2-Pump Units, Elevator, Vickers, With G.E. Motors, 440 Volts, 37.5 HP, 865 RPM.

4-Feed Booster, Worthington, 5775 RPM, Type: VA-296.

2-Fuel Oil Transfer, DeLaval, 700 GPM, 1150 RPM, Continental Motors, 100 HP, 440 Volts, 60 Cycles, 3 Phase.

8-Main Feed, Worthington, 642 GPM, 580 PSI, 5000 RPM, Sturtevant Turbine, 348 BPH, 5000 RPM.

4-Main Condenser, Condensate, Ingersoll-Rand, 385 GPM, 1180 RPM, Westinghouse Motors, 440 Volts AC.

4-Auxiliary Circulating, Warren Steam Pump, 2500 GPM, 875 RPM, Westinghouse Motors, 440 Volts.

4-Auxiliary Feed Booster, Worthington, 200 GPM, 750 RPM, Westinghouse Motors, 440 Volts AC.

4-Auxiliary Condensate, Ingersoll-Rand, 65 GPM, 75 PSI, 1765 RPM, Westinghouse Motors, 440 Volts AC, 9.1 HP, 1745 RPM.

8-Lube Oil Pumps, Quimby, 650 GPM, 690 RPM.

2-Lube Oil Pumps, Northern Ord., 50/25 GPM, 485/243 RPM, 4.5/2.1 BHP, Westinghouse Motors, 440 Volts AC, 3 Phase, 60 Cycles, 1760/885 RPM.

MOTOR-GENERATOR SETS

3-M.G. Sets, Westinghouse, 75 KW, 120 Volts DC, 625 Amps, 1765 RPM, Motors, 115 HP, 3 Phase, 60 Cycles, 440 Volts A.C., 134 Amps., 1765 RPM.

3-M.G. Sets, Degausing, Hanson-Van Winkle-Munning Co., 36 KW, Motors, 60 HP, 440 Volts AC, 60 Cycle 1150 RPM.

GENERATOR SET

WINCHES & WINDLASSES

1-Winch, Electric, 1-Drum, 1-Gypsy, 7400 Lbs. @ 220 FPM.

4-Anchor Windlass, Hyde Windlass Co., Electro Hydraulic, 3⅜" Die Lock Chain, 70,400 Lbs. @ 36 FPM, General Electric Motors, 440 Volts AC, 337 Amps., 1175 RPM, 60 Cycles, 3 Phase, 68.8 HP.

COMPRESSOR

1-Compressor, Medium Air, Ingersoll-Rand, 200 CFH, Westinghouse Motors, 55 HP, 440 Volts.

MACHINE TOOLS

3-Reed and Prentice Engine Lathes.
1-Lodge and Shipley Engine Lathe.
1-Morris High Speed Radial Drill.
1-Racine Tool and Machine Motor Driven Hack Saw.

EJECTOR ASSEMBLY

1-Ejector Assembly, Westinghouse, Size C-1, 75 sq. ft.

THOUSANDS OF OTHER ITEMS TO BE REMOVED

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Phone 503/228-8691
TELEX 36-701 · CABLE "Zidell"

PUSHER-TYPE TUGS UTILIZE OUTBOARD POWER: Two tugs now in operation on the St. Clair and Detroit Rivers, the Phyllis Yorke and the Margaret Yorke, feature 950-hp rated outboard power units. M&T (Murray & Tregurtha) Harbormaster "Z" power units, combining engine, shafting, propeller, and steering, were selected for maximum pulling power both forward and astern, and for their high degree of maneuverability. Maximum thrust is provided in every direction. The tugs, built by Hike Metal Products, Ltd. at Wheatley, Ontario, for F.M. Yorke & Son, Ltd. of Vancouver, Canada, are operated by the Canadian National Railway to push the railroad barges St. Clair and Lansdowne between slips on the Canadian and U.S. sides of the rivers. Each tug and barge combination is operated with a crew of only four. Both tugs are identical, except that the Phyllis Yorke has three of the Harbormaster units, the Margaret Yorke, two. All units are interchangeable.

Overseas Enterprises Names Midwestern Shipping

Magnus E. Olsen, president of Overseas Enterprises, Inc., 82 Wall Street, New York, N.Y. 10005, has announced the appointment of Midwestern Shipping Agencies, Inc. as inland agents for the Portuguese line, C.N. Carregadores Acoreanos, who maintain regular liner sailings from U.S. North Atlantic ports to Portugal, Spain, Azores and Madeira.

Midwestern Shipping Agencies, Inc. maintain offices in Chicago, Detroit and Milwaukee.

BARGES
ON THE SPOT

FOR CHARTER
Steel Deck Barges

60' x 26'	120' x 32'	190' x 50'
100' x 28'	140' x 34'	195' x 35'
110' x 30'	150' x 34'	200' x 40'
110' x 40'	175' x 35'	269' x 50'

ALSO AVAILABLE:
Hopper—Offshore—Oil and Spud Barges

FOR SALE
205' x 40' x 10' Inland Deck Barge

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400 KW TURBO-GENERATORS

Turbine:
G.E. DORV 618—440 PSI—457° Superheat

Gear:
S 193 Form A—10059/1200 RPM

Generator:
400 KW—120/240 V DC—Type MPC—1200 RPM

6 Available — Excellent Condition
Suitable for Upgrading to 600 KW

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Meets Military Spec. Mil-A-18001 (ships)

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FOR FAST DELIVERY

SALE — DIESEL ENGINES

MOD. 8-278A — 800 HP.
750 RPM

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OS & D RUBBER HOSE

50 — 6" size 20' long sections with flanged ends, in little used, good condition.
Price: $150 per section.
FOB Portland, subject prior sale.

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AVAILABLE NOW
at a fraction of original cost

(1)—139,000 lbs./hr.—850 psig—905° TTF C.E. Model V2M-8 Marine Package Boiler. Complete with auxiliaries.

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For Sale or Charter Seagoing Tugs—Ships-Barges 210' Big Tug, 3600 HP, 40' Beam 18' Draft; Tug 125' 1600 HP; Tug 74' 1200 HP; At Hawaii Tanker 1000 Tons Surplus perfect $90,000.00; Barge Seagoing 153' X 36' with Deckhouse and Repair Shop, Overhead Crane $25,000.00; Barge Seagoing 261' X 49' Two story house for Barracks and shop $90,000.00; At New Orleans Tanker 2000 Tons Twin Screw Coils and Pumps $25,000.00; Bulk Carriers 4500 DWT $125,000.00. Ocean Service Corp., 1177 Brickell Ave., Miami, Fla. Phone 358-3262.

Link Belt Small Boat Winch

GEAR BOX: Link Belt—size DM-30—68 RPM output—ratio 25.63:1. MOTOR: Westinghouse type CS—style 7C4894—frame 225Y — class 1 — 2 HP—1720 RPM — 220/440/60/3—5.6/2.8 amps. With push button starter and magnetic controller. Wt. 320 lbs—duty 800 lbs @ 68 FPM.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
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New Watertight Doors

IMMEDIATE DELIVERY

6-Dog right and left hand hinged steel doors — with frames. Built and tested to A.B.S. specifications.

SIZES:
26" x 48" 26" x 57"
26" x 60" 26" x 66"
30" x 60"

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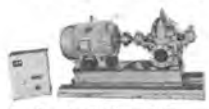
CENTRIFUGAL PUMPS

UNUSED BUFFALO PUMPS



All bronze — model S.L. — 750 GPM — 50 PSI head — 28 BHP. MOTOR: Continental—30 HP—440/3/60—37 amps—1760RPM. 5" Suction—4" discharge. OAL 4' 8½"—OAW 22"—OAH 30" —wt. 1200 lbs.

$1495.00

A.C. FIRE PUMPS

250 GPM—160 PSI discharge. Suction 3½"—discharge 2½"—3500 RPM. MOTOR: Reliance—25 HP—440/3/60—35.6 amps. 3 Weil pumps and 3 Aldrich pumps available. Reconditioned pumps and motors.

$887.00

UNUSED AURORA PUMP

300 GPM—37' head—5 HP—120 volts DC Centrifugal Pump. Bronze — size 5 x 4 — flanged. MOTOR: Reliance—super T.D.C. Electric Motor—5 HP—120 VDC — 36.8 amps — 1750 RPM — Frame L216A—with control by Cutler-Hammer. Excellent condition. Latest USN surplus.

$877.77

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5 KW — 120/1/60 A.C. — UNUSED
10 HP 115 VDC TO 5 KW 120 VOLTS SINGLE PHASE AC

INPUT: 10 HP—115 volts DC — 78 amps — 1800 RPM.
OUTPUT: 5 KW—115 volts single phase A.C. 4-bearing —with 10 HP 115 volt D.C. magnetic starter.

FIRST TIME IN A LONG TIME THAT 5 KW UNITS ARE ON THE MARKET

NEW 0.25 KVA M.G. SET
BY SAFETY CAR HEATING & LIGHTING CO.
INPUT: 0.65 HP—115 volts D.C.—4.6 amps—1800 R.PM.
OUTPUT: 2.5 KVA 115/1/60—1800 RPM—2.7 amps.

$89.50 F.O.B.

BURKE 7½ KW
120/1/60/1800 RPM M.G. SET
INPUT: 9.4 HP—230 VDC—35.5 amps—1800 RPM.
OUTPUT: 10 KVA—7½ KW—120/1/60. Total weight 1225 lbs. 49" long—22" wide. With all controls.

INQUIRE ABOUT MANY MORE SIZES NOT LISTED HERE

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Can be put in actual operation or used for decorative purposes.

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Rebuilt Guaranteed LaDel, STURTEVANT etc.

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

EXAMPLE LISTING:

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

SPERRY GYRO COMPASSES

SPERRY MARK 14, Model 1 Gyro Compasses, used, good, complete with Master Compass, with Binnacle, Amplifier panel, control panel, carbon pile voltage regulator, motor generator set, alarm panel, and repeaters with mounts.

FIRE PUMPS

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

Steel Watertight DOORS

Used, Good Condition, Trimmed Frames.

Many sizes available, priced reasonable. Some Typical Prices shown below. Please Inquire for other sizes.

26"x48"-4 Dogs-**$60.00 ea.**
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26"x66"-Q.A. Type-**$175.00 ea.**

CARGO HOISTER BLOCKS

5 ton rated, Steel, as removed from surplus ships. Manufactured by: Young, Draper, etc., 12" & 14" sizes.

$34.50 ea. 39.50 each with pull test certificates

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INGERSOLL-RAND, 50 CFM, 150 PSI, 20 HP, 440/3/60.

SULLIVAN, 60 CFM, 110 PSI, 15 HP, 440/3/60.

WORTHINGTON, 60 CFM, 110 PSI, 15 HP, 230 DC.

INGERSOLL-RAND, 50 CFM, 600 PSI, 15 HP, 230 DC.

CHICAGO-PNEUMATIC, 161 CFM, 100 PSI, 40 HP, 230 DC.

WORTHINGTON, 175 CFM, 125 PSI, 50 HP, 440/3/60.

JOY, 100 CFM, 300 PSI, 30 HP, 220/440/3/60.

INGERSOLL-RAND, 150 CFM, 600 PSI, 75 HP, 230 DC.

INGERSOLL-RAND, 60 CFM, 125 PSI, 15 HP, 230 DC.

WORTHINGTON, 142 CFM, 100 PSI, 20 HP, 230 DC.

HARDIE-TYNES, 30 CFH, 3000 PSI, 75 HP, 230 DC.

HARDIE-TYNES, 30 CFH, 3000 PSI, Steam Turbine Drive.

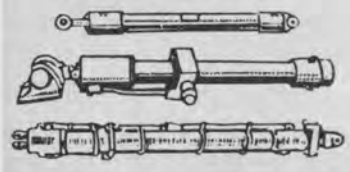
INGERSOLL-RAND, 30 CFH, 3000 PSI, Steam Turbine Drive.

WORTHINGTON, 30 CFH, 3000 PSI, Steam Turbine Drive.

WESTINGHOUSE AIR BRAKE, 246 CFM, 140 PSI, 50 HP, 440/3/60.

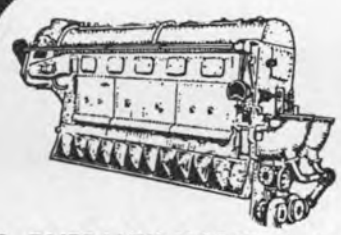
GARDNER-DENVER, 850 CFM, 100 PSI, 200 HP, 440/3/60.

HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	retracted length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	single
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	15½"	double
6"	8"	4"	144"	double
13"	9'7"	5½"	14'	double

MARINE DIESEL ENGINES

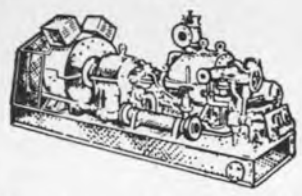


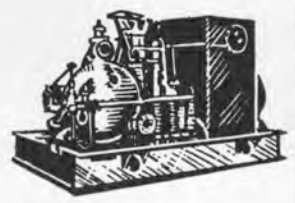
2—FAIRBANKS-MORSE Marine Diesel Engines. Model 38D8-⅛, 10 Cylinders, 1600HP, 720 RPM, 8-⅛" bore, 10" stroke, Air Start. Condition: Used, and Very Good. **$5000.00 each.**

FAIRBANKS-MORSE, Md. 38D8-1/8
Matched Pair, Port & Starboard
Used condition, 1800 HP, 800 RPM, 2 cycle, 8-⅛" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio—with hydraulic coupling.

3—COOPER-BESSEMER, Model LS-8-DR
1300 HP, 277 RPM, direct reversing, turbo charged.

TURBINE GENERATORS





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

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

TERRY, Type TM5, 440 PSI, 740°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.

DE LAVAL, 450 PSI, 750°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.

WORTHINGTON, Form S4, 440 PSI, 740° F, with Crocker-Wheeler Gen., 300 KW, 120/240 DC.

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

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

GENERAL ELECTRIC, Type FN3-FN24, Steam 265#G, with G.E. Generator, 750 KW, 440/3/60.

WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 300 KW, 120/240 DC.

WESTINGHOUSE, 410 PSI, with Westinghouse Generators 200 KW, 450/3/60.

WESTINGHOUSE, 440 PSI, 740°F, with Westinghouse Generators, 300 KW, 240 DC.

GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 200 KW, 450/3/60.

WESTINGHOUSE, 590 PSI, 487°F, with Westinghouse Generator, 540 KW, 120/240 DC.

GENERAL ELECTRIC, 410 PSI, with G.E. Generator, 200 KW, 450/3/60.

GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 450/3/60.

GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 438 KVA, 450/3/60.

WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 150 KW, 120 DC.

WESTINGHOUSE, 200 PSI, with Westinghouse Generators, 60 KW, 120 DC.

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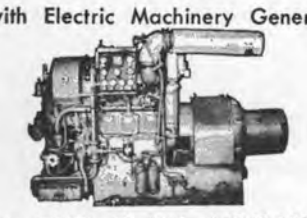
1—DeLavergne, 448 BHP, 400 RPM, 6 cylinders, with Westinghouse Generators, 300 KW, 120/240 DC.

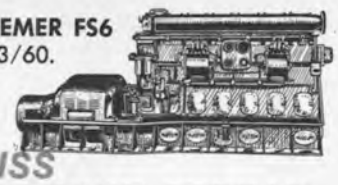
1—DeLavergne, 560 BHP, 514 RPM, 6 cylinder, with Electric Machinery Generators, 375 KW, 450/3/60.



HILL, Type C, 10 KW, 120/240 DC.
HILL, Type B, 12 KW, 120/240 DC.
HILL, 4 Cylinder, 15 KW, 120/240 DC.
SUPERIOR, GA2, 10 KW, 120 DC.
HERCULES, DOOC, 10 KW, 120 DC.
CATERPILLAR, D3400, 15 KW, 120/240 DC.
BUDA, 4 cylinder, 15 KW, 120/240 DC.
HERCULES, DJXC, 25 KW, 120 DC.
CUMMINS, WA255, 30 KW, 120 DC.
P & H, 387C-18, 45/56KVA, 120/208/3/60.
BUDA, 6DH909, 40 KW, 115 volts DC.
GM, 4-71, 50/60 KW, 120/208/3/60.
CUMMINS, HDG, 60 KW, 120 DC.
BUDA, 6DHG691, 60 KW, 120 DC.
CUMMINS, 6 cylinder, 60 KW, 120/240 DC.

GM, 6067, 60 KW, 450/3/60.
BUDA, 6DC844, 75 KW, 125/250 DC.
CATERPILLAR, D17,000, 75 KW, 230 DC.
MURPHY, ME66, 75 KW, 240 DC.
LORIMER, F5SS, 75 KW, 240 DC.
CATERPILLAR, D17000, 85 KW, 220/3/60.
GM, 3-268A, 100 KW, 120/240 DC.
SUPERIOR, GBD8, 100 KW, 120/240 DC.
GM, 3-268A, 100 KW, 440/3/60.
SUPERIOR, 100 KW, 440/3/60.
LORIMER, F5SS, 100 KW, 440/3/60.

COOPER-BESSEMER FS6
250 KW, 440/3/60.



COOPER-BESSEMER
FS6, 250 KW, 440/3/60.
GM, 8-268, 300 KW, 345/260 DC.
GM, 6-278A, 300 KW, 120/240 DC.

FAIRBANKS-MORSE
38E5-1/4, 300 KW, 345/260 DC.

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Anixter-New Orleans, 315 Notre Dame, New Orleans, La. 70130
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150

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Enjay Chemical Company, 60 West 49th St., New York, N.Y. 10020
Farboil Company, 90 West St., N.Y., N.Y. 10006
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
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General Electric Industry Control Dept., Salem, Virginia
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

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Humble Oil & Refining Co., Humble Building, Houston, Texas 77002
Mobil Oil Corp., 26 Broadway, New York, N.Y. 10004
Refineria Panama, S. A., 277 Park Ave., New York, N.Y. 10017
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International Paint Co., 21 West St., New York, N.Y. 10006
Mobil Chemical Company, Metuchen, N.J. 08840
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Woolsey Marine Industries Inc., 201 E. 42nd St., New York, N.Y. 10017

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Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.

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

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Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
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Samson Cordage Works, 470 Atlantic Ave., Boston, Mass. 02210
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Wall Rope Works, Inc., Beverly, N. J. 08010

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Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

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Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

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National Metal & Steel Corp., 1251 New Dock St., Terminal Island, Cal. 90731
Northern Metal Co., Minor & Bleigh Sts., Philadelphia, Pa. 19136
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

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Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
Huntington Alloy Products, Div. International Nickel Co., Inc., Huntington, W. Va. 25720
International Nickel Co., 1 New York Plaza, New York, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Brodogradiliste "SPLIT", P.O. Box 107, Split, Yugoslavia
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Dillingham Corp., P.O. Box 3288, Honolulu, Hawaii 96801
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gotaverken American Corp., 39 Broadway, New York, N.Y. 10006
Grafton Boat Co., Inc., Grafton, Ill. 62037
Groignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
Gunderson Bros. Engrg. Corp., 4700 N.W. Front St., Portland, Oregon 97208
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hongkong & Whampoa Dock Co. Ltd., Kowloon Docks, Hong Kong
Industrial Steel & Mach. Works, Inc., P.O. Box 2217, Gulfport, Miss. 39501
Ishikawajima-Harima Heavy Industries Co., Ltd., 15 William St., New York, N.Y. 10005
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla. 32203
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Kockums Malmo, Fack, Malmo, Sweden
Levingston Shipbuilding Co., P.O. Box 968, Orange, Texas 77630
LISNAVE, P.O. Box 2138, Lisbon, Portugual
Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Maryland Shipbuilding & Drydock, P.O. Box 537, Baltimore, Md. 21203
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsubishi Heavy Industries, Ltd., 5-1 Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan
Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
Nuclear Service & Construction Co., Inc., 9296 Warwick Blvd., Newport News, Va. 23607
O.A.R.N. (officine Allestimento e Riparazioni Navi) Genoa, Italy
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Fla. 33156
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
St. Louis Shipbuilding—Federal Barge, Inc. 611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Teledyne Sewart Seacraft, P.O. Box 108, Berwick, La. 70342
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

SHIP MODELS
Boucher-Lewis Precision Models, Inc., 36 E. 12 St., N.Y., N.Y. 10003

SHIP MODEL BASIN
Hydronautics, Incorporated, Laurel, Maryland 20810

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Bendix Commercial Services Corporation, Owings Mills, Md. 21117
Weather Routing, Inc., 90 Broad Street, New York, N.Y. 10004

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Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

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Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., Inc., 900 Fairmount Ave., Elizabeth, N.J. 07207

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Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18018
United States Steel Corp., P.O. Box 86, Pittsburgh, Pa. 15230

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