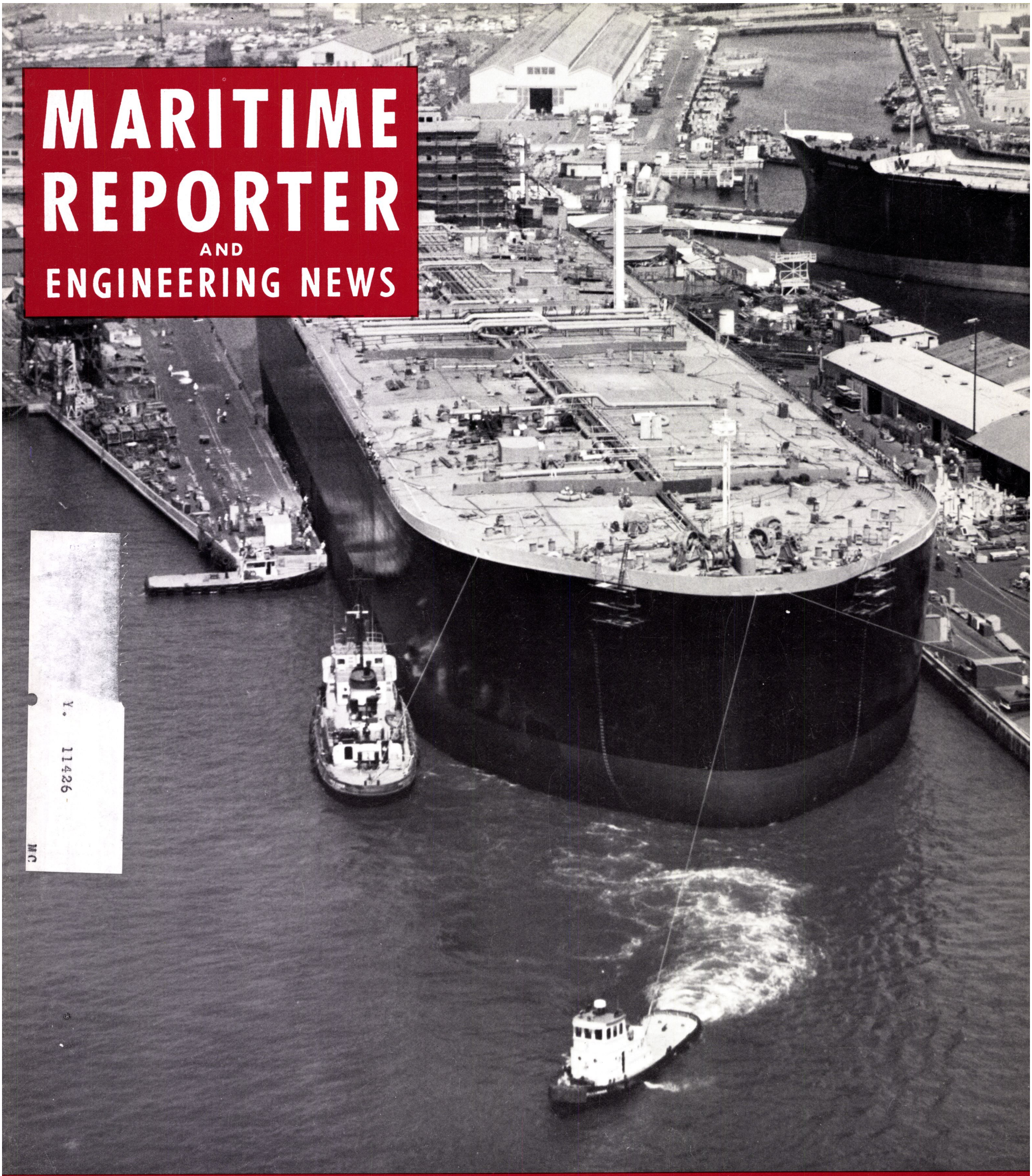
MARITIME REPORTER
AND
ENGINEERING NEWS



First Of Two Shell Oil Tankers
Largest Ships Built On West Coast
Floats Out Of NASSCO Building Dock

(SEE PAGE 10)

SEPTEMBER 1, 1977

The Star Ferry. Tiger Balm Gardens. Gulf Veritas DPO.

When Marco Polo came here in the thirteenth century, Oriental ways and things were new and exotic to Western man.

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Gulf Veritas DPO oils are among the reasons for this reputation. They are highest quality, alkaline detergent lubricating oils developed by Gulf marine experts for use in medium and high speed diesel engines burning distillate and marine diesel fuels. Engineers value Veritas DPO oils for their excellent lubricating properties.

Gulf Veritas DPO oils are formulated to a Mil-L-2104B level of performance. They have the alkaline qualities necessary to neutralize the acidic products of combustion, as well as the dispersant detergent qualities needed to maintain a high degree of cylinder, piston, bearing and crankcase cleanliness. A careful balance of corrosion, oxidation and foam inhibitors have been added for additional protection under all service conditions.

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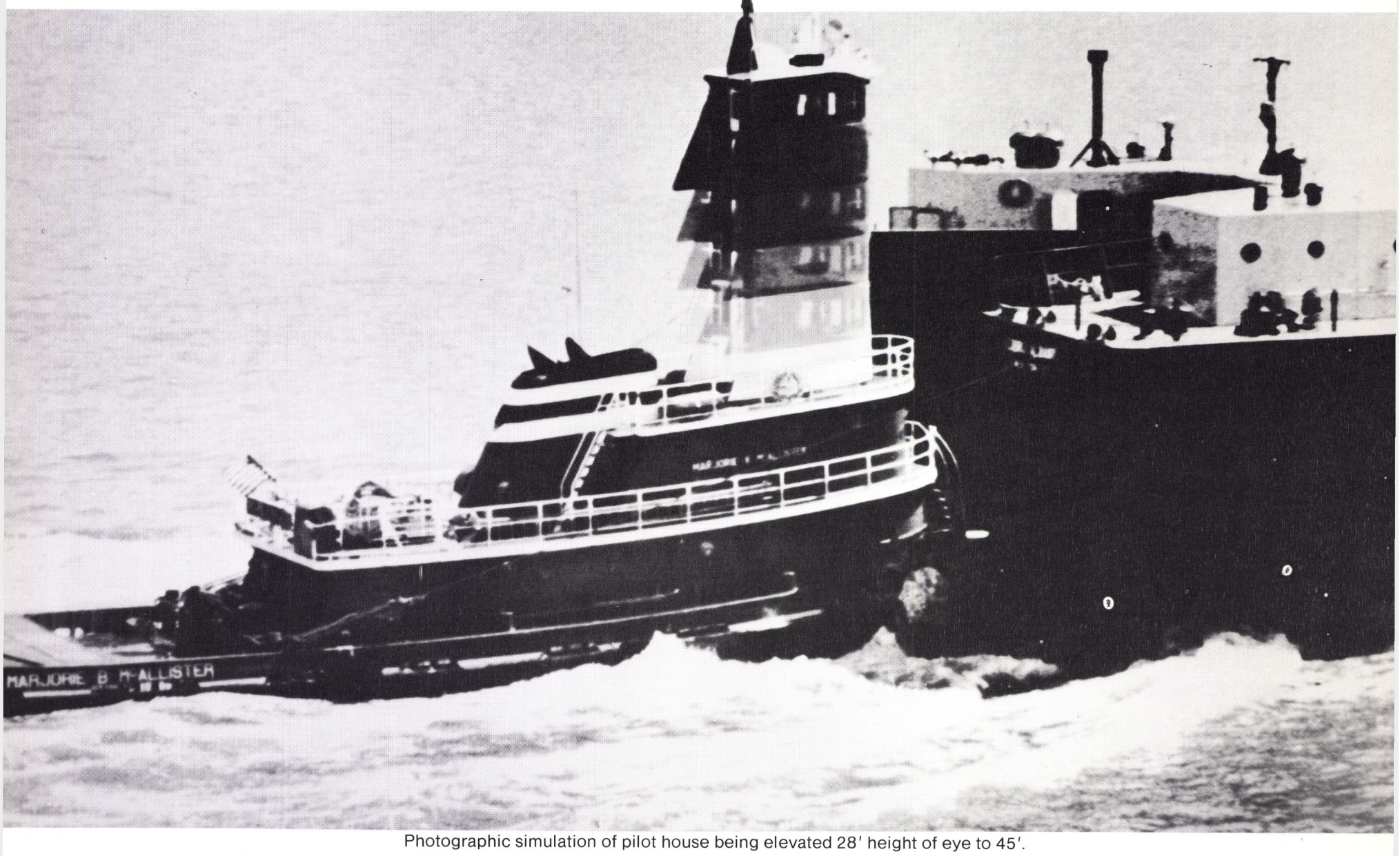

Photographic simulation of pilot house being elevated 28′ height of eye to 45′.

Tug Marjorie B. McAllister in notch of 18,000 ton/125,000 barrel barge.
Pilot house elevated to 45′ height of eye.

Tug Marjorie B. McAllister with barge on hawser,
pilot house lowered to a conventional 28′ height of eye.

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Atlantic Marine Receives $3.3-Million Contract To Build Research Ship

Construction of a specially designed $3.33-million oceanographic research vessel (R/V) for the University of California, San Diego's Scripps Institution of Oceanography will begin this year, with completion scheduled for the summer of 1978, chancellor **William D. McElroy,** UC San Diego, has announced.

When fully equipped, the ship will have a total cost of about $4 million.

Dr. **McElroy** said a contract to build the ship, to be named New Horizon, has been awarded to Atlantic Marine, Inc. of Fort George Island, Fla.

This marks the first new ship to be added to the Institution's fleet since acquisition of the 245-foot R/V Melville in 1969, and will increase the size of the fleet to five ships and two research platforms.

Lloyd's To Class Two Large Crane Barges To Be Built By Mitsui

Two large crane barges are to be built to Lloyd's Register class by Mitsui Engineering and Shipbuilding Co. for the Heerema Group. A design appraisal will be carried out by the Society's Offshore Services Group, and the barges will be built under survey at the Mitsui Shipyard.

The barges will be semisubmersible units for worldwide service and suitable for operations in ambient temperatures down to minus 20°C. Each unit is of the catamaran type with working decks supported by stability columns. Two cranes will be fitted on each barge — 3,000 and 2,000-short-tons lifting capacity.

The barges are designed to carry 8,000 tons of payload on deck and are provided with 1,600-hp propulsion units which, added to the 1,500 hp of two assisting tugs (for anchor running, etc.), will give the barges an estimated speed of 10 knots.

Principal dimensions are 450-foot length, 282-foot breadth and 136-foot height. Both barges can accommodate 350 crew, and the first will be operational in the North Sea area in September 1978 and the second one in February 1979.

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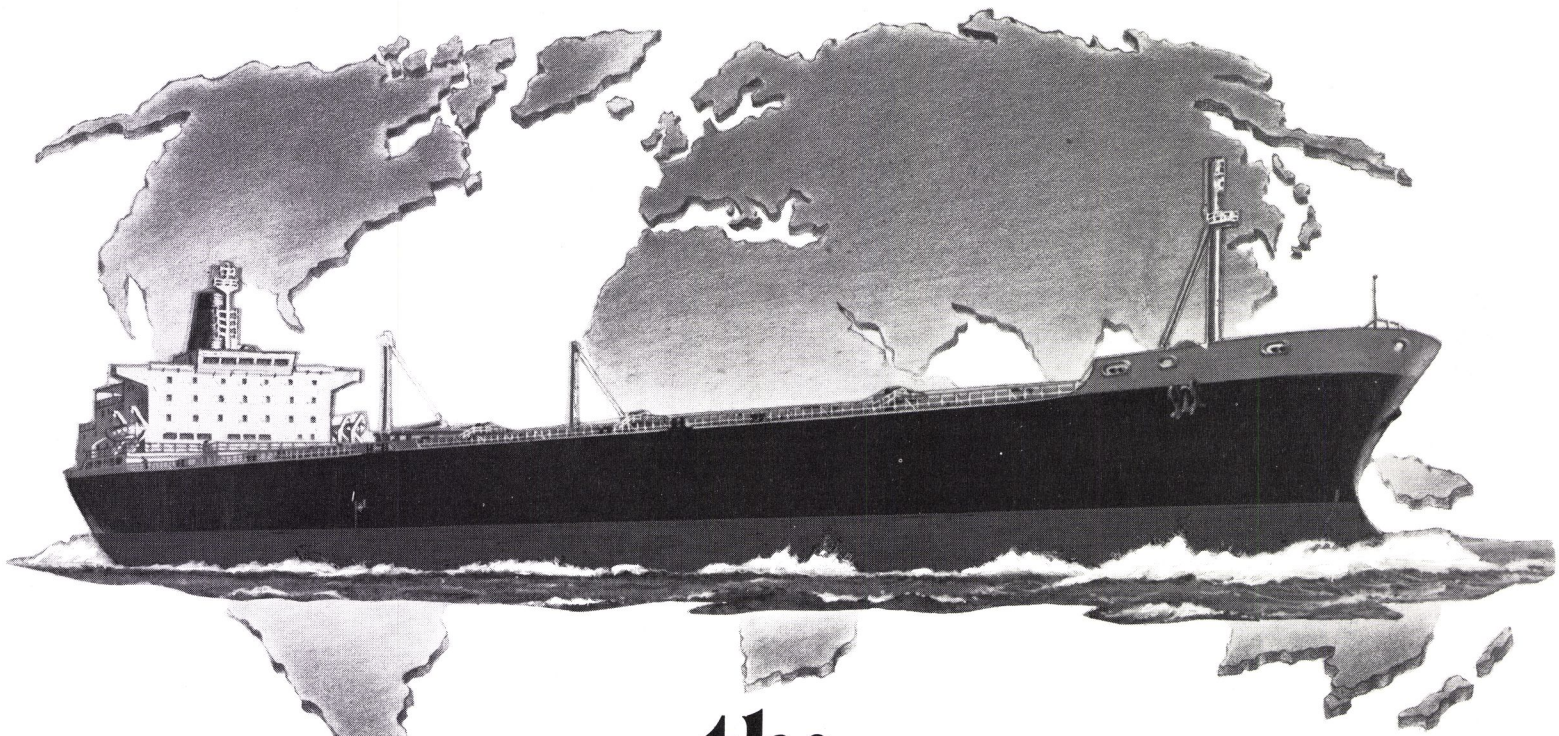

the 66K series-built products carrier from Harland and Wolff

Harland and Wolff's "66K" Products Carrier is a well-constructed series-built vessel with a deadweight capacity of 66,000 tonnes and a speed of 16 knots, capable of carrying up to four discrete oil parcels which can be loaded or discharged simultaneously without admixture. Four large cargo pumps give the vessel an exceptionally short discharge time of 8 - 10 hours.

Without incurring the penalties of the IMCO regulations regarding segregated seawater ballast the "66K" offers owners flexible operation at economic cost levels throughout the world. It is particularly suited for operation in the Caribbean and U.S. East Coast areas where its optimum dimensions not only permit it to make the fullest use of existing port facilities but will also allow it to take advantage of the improvements in facilities now being planned.

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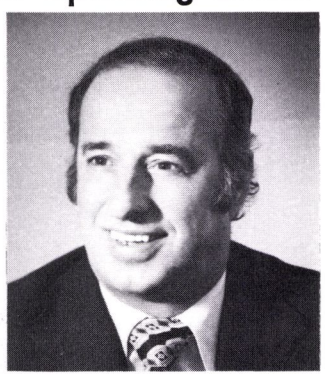
FMC Transportation Equipment

McAllister Brothers Name Robert Lounsbery Chief Operating Officer



Robert Lounsbery

McAllister Brothers, Inc., the 113-year-old New York City-based marine transportation company, has announced the appointment of **Robert Lounsbery** to the post of chief operating officer.

Mr. **Lounsbery,** a 47-year-old graduate of New York University, with a B.S. degree in management, was previously vice president in charge of operations of Navios Corporation, United Steel Corporation's maritime subsidiary. Prior to joining Navios, Mr. **Lounsbery** had worked in various posts with United Brands Company, serving as assistant vice president, transportation operations prior to leaving to join Navios.

As chief operating officer, Mr. **Lounsbery** will have responsibility for the New York-based operations and will gradually assume responsibility for all other operating subsidiaries and divisions, including the ports of Philadelphia, Pa., Norfolk, Va., and San Juan, Puerto Rico, as well as Tug and Barge Dry Docks, Inc., McAllister Brothers' shipyard in New York Harbor. The company currently operates approximately 100 tugboats and barges along the Eastern Seaboard and in the Caribbean Sea.

Lockheed Wins Contract To Evaluate Ocean Platform Candidates

Lockheed and its team of subcontractors have won a contract to evaluate six platform candidates that would carry massive power equipment to generate electricity from ocean water temperature differences. The research program is called Ocean Thermal Energy Conversion (OTEC).

Work on the 11-month contract from the federal Energy Research and Development Administration (ERDA) was begun in late July, according to **Roger D. Fuller,** program director at Lockheed Missiles & Space Co., Sunnyvale, Calif.

Lockheed is one of three prime contractors to help ERDA select the best platform for a 100-million-watt OTEC electrical power plant to be constructed by 1984 to demonstrate the concept. Platform candidates for the study include ship shapes, circular barge, tuned sphere, submersible, semi-submersible, and spar.

Following are the subcontractors and their role in the Lockheed study: Earl and Wright, and Morris Guralnick Associates, Inc., both San Francisco, Calif., naval architect firms, will perform conceptual design analysis; Hydronautics, Inc. of Silver Spring, Md., and naval architect consultant Prof. **J. Randolph Paulling Jr.** of the University of California, Berkeley, will establish design criteria and motion analysis; The Bechtel Corp., and T.Y. Lin International, both of San Francisco, will study, respectively, power systems and concrete construction; Tuned Sphere International of Nashua, N.H., will provide design requirements for the spherical shape.

OTEC is the concept of using ocean surface waters, continually warmed by the sun, to heat and vaporize a working fluid (such as ammonia) which in turn drives a turbine to generate (alternating current) electricity. The gas is then condensed with cold water from the ocean depths and recirculated.

Lockheed has studied OTEC since mid-1974, first under contract to the National Science Foundation and then ERDA, concentrating on engineering and economics. The OTEC concept was first propounded by a French physicist, Jacques D'Arsonval, in 1881.

MarAd Approves Title XI For Five Moran Tugboats

Deputy Assistant Secretary **Robert R. Casey**, U.S. Department of Commerce, Maritime Administration, has approved in principal the application of Moran Trade Corporation (Moran), One World Trade Center, New York, N.Y., for a Title XI guarantee to aid in financing the construction of three 3,000-bhp tugboats and two 2,150-bhp tugboats.

The three 3,000-bhp tugboats are being constructed by J. Ray McDermott & Co., Inc., Morgan City, La., at a combined total estimated actual cost of $7.3 million. They are 105 feet in length and 32 feet abeam. Deliveries are scheduled on or before September 15, 1977, October 15, 1977, and November 15, 1977.

The two 2,150-bhp tugboats are being constructed by Jakobson Shipyard, Oyster Bay, Long Island, N.Y., at a combined total estimated actual cost of $3.7 million. Both of the vessels measure approximately 100 feet in length and 29 feet abeam.

Jakobson delivered one of the vessels on April 30, 1977, and is scheduled to deliver the second in December 1977.

All five tugboats will be chartered to wholly owned subsidiaries of Moran. Two will operate at New York, and the others will operate at Philadelphia, Pa., Jacksonville, Fla., and Port Arthur, Texas.

Craig Mullen Named VP Operations For Alcoa Marine Corp.

Craig T. Mullen

Craig T. Mullen has been appointed to the newly created position of vice president, operations of Alcoa Marine Corporation, 8235 Penn Randall Place, Upper Marlboro, Md. 20870, a subsidiary of Aluminum Company of America.

He will be responsible for all marine field operations, including project management of Alcoa Seaprobe, the company's 243-foot, deep-ocean research and recovery vessel.

Mr. **Mullen** joined Alcoa Marine in 1974 as manager of operations, following service as an officer in the U.S. Navy. He has managed a number of Alcoa Marine's ocean-oriented projects, including tethered vehicle operations, marine salvage and ocean cable burial.

Mr. **Mullen** holds a Bachelor of Science degree from Western Illinois University, where he also did graduate work in marine biology. He was graduated from the U.S. Naval Officer Candidate School in 1967.

Marinette Marine Awarded $6.5 Million For Landing Craft

Marinette Marine Corporation has been awarded a contract from the Naval Sea Command for construction of 29 LCM (6) HPI (56-foot landing craft), with option for five or six more vessels.

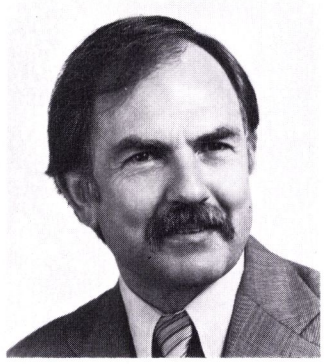
Value of the contract is placed at $6,500,000 by the Marinette, Wis., shipbuilder.

Delivery of the first two vessels is scheduled for 14 months from the start, with delivery of four per month thereafter.

Twelve of the LCMs are to be delivered to Portsmouth, 13 to San Diego, Calif., and four scheduled for dispersement through the MAP (Military Assistance Program).

Marinette Marine is a major supplier of custom-engineered vessels for commercial and military use—including oceanographic research craft, supply vessels, barges, gunboats, tugs and patrol boats.

Santa Fe International Appoints Charles Ball



Charles R. Ball Jr.

Santa Fe International Corporation, Orange, Calif., has announced the appointment of **Charles R. Ball Jr.** as senior vice president-administration.

Mr. **Ball** has been assigned to Santa Fe's corporate headquarters in Orange since July 1976, after completing more than 12 years in the company's foreign drilling operations.

As drilling division regional manager in London from 1972 to 1976, he was responsible for coordinating the company's activities in the North Sea, as well as managing its drilling operations throughout Europe and Africa. He headed the company's Singapore office as Southeast Asia regional manager in 1971-72.

Before joining Santa Fe in 1961, Mr. **Ball** held engineering positions with oil companies in California, the Middle East and South America. He was foreign coordinator for Richfield Oil Corp. before its merger into the present Atlantic Richfield Co.

Willamette Awarded $15 Million To Modernize Alaska State Ferry

The State of Alaska has awarded Willamette Iron & Steel Company, Portland, Ore., a $15,228,-500 contract to lengthen and modernize the M/V Matanuska, an Alaska state ferry.

Work will begin in October, with completion scheduled for May 1978. WISCO will employ approximately 350 shipyard workers for the job.

The 16-year-old Matanuska, a passenger/vehicle ferry that plies the Inland Passage, will be "jumboized" to 408 feet from its present 352-foot length. This will involve cutting the ship in two sections and adding a new 56-foot midbody. The midbody will be built in part by FMC Corp., Portland.

Other work to be done includes installation of new staterooms, crew's quarters, deckhouses, dining and recreation areas, funnel, masts, and elevators. A new solarium will be added to the aft end of the bridge deck.

Approximately one month will be spent in drydock while sectioning and rejoining takes place. Further modernization and refurbishing will be done at WISCO's dock on N.W. Front Avenue.

This is the second such jumboizing job done by WISCO for the State of Alaska. In 1972, the firm did similar work on another Alaska ferry, the Malaspina.

The Matanuska will be the most costly single ship lengthening and modernization job done in Portland area shipyards.

MSB Estimating Foreign Cost Of Ro/Ro And LASH Vessels

The Maritime Subsidy Board has authorized publication in the Federal Register of a notice of intent to compute the estimated foreign cost of the construction of either one 19,534-dwt roll-on/roll-off (ro/ro) vessel or one 38,500-dwt lighter-aboard-ship (LASH) vessel. The computations are being made in connection with an application for construction-differential subsidy submitted by Waterman Steamship Corporation (and noted in the MarAd Press Book on July 8, 1977).

Parties having an interest in the computations may file written statements by the close of business on September 30, 1977, with the Secretary, MSB, Room 3099-B, Department of Commerce, Washington, D.C. 20230.

NASSCO Building 188,500-DWT Tankers For Alaskan Oil Trade

Hull 405, 188,500-deadweight-ton San Diego-Class tanker, is hauled from the graving dock of National Steel and Shipbuilding (NASSCO) of San Diego, Calif. The new tanker is the first of four to be designed and built by NASSCO. Hull 405 and 406 are for long-term use by Shell Oil Company. Hull 408 and 409 will be built for Atlantic Richfield Company. All of the tankers will be used in the Alaskan oil trade.

The first of two 188,500-deadweight-ton San Diego-Class tankers for long-term use by Shell Oil Company was floated out of the graving dock of National Steel and Shipbuilding Company (NASSCO), San Diego, Calif., on July 21, 1977.

The two new ships, the largest ever built on the West Coast, represent the first flight of San Diego-Class tankers to be designed and built by NASSCO. Completion work on the floated tanker, designated as Hull No. 405, will continue with delivery and christening scheduled for late 1977 or early 1978. The second ship is scheduled for delivery in the third quarter of 1978.

Each tanker will have a crude oil cargo capacity of about 188,000 long tons (about 1.3 million barrels), and will be chartered to Shell Oil Company of Houston, Texas, for anticipated long-term service in the transportation of crude oil from Alaska to mainland United States ports.

The two ships will be 951 feet in length, 166 feet in beam, 78 feet molded depth and will have a loaded draft of about 59 feet. Propulsion is by a twin boiler geared steam turbine plant which is capable of being operated continuously at 28,000 shaft horsepower. Engine speed and direction can be controlled from a console on the bridge.

The ships include the latest environmental features. They have full double bottoms and sufficient clean segregated ballast to comply with U.S. Coast Guard and proposed IMCO "International" Rules for Prevention of Pollution of the Sea by Oil. Current rules of the Environmental Protection Agency for no overboard discharge of sewage are met by full onboard retention in holding tanks. The vessels are also fitted with a collision avoidance radar system.

An inert gas system, designed to fill the void spaces in the cargo tanks, thereby minimizing the possibility of an explosive vapor mixture, has been fitted. The cargo system is designed with a holding tank to collect oil from tank washings for discharging to shore facilities. The bilge system contains apparatus to effectively separate and retain oil from the bilge waters for discharge to shore in accordance with the U.S. Coast Guard requirement.

Other NASSCO-designed tankers under construction are on order for the Alaskan oil trade and include two 188,500-dwt San Diego-Class tankers for Atlantic Richfield Company and three 90,-000-dwt San Clemente-Class tankers for subsidiaries of Overseas Shipholding Group, Inc.

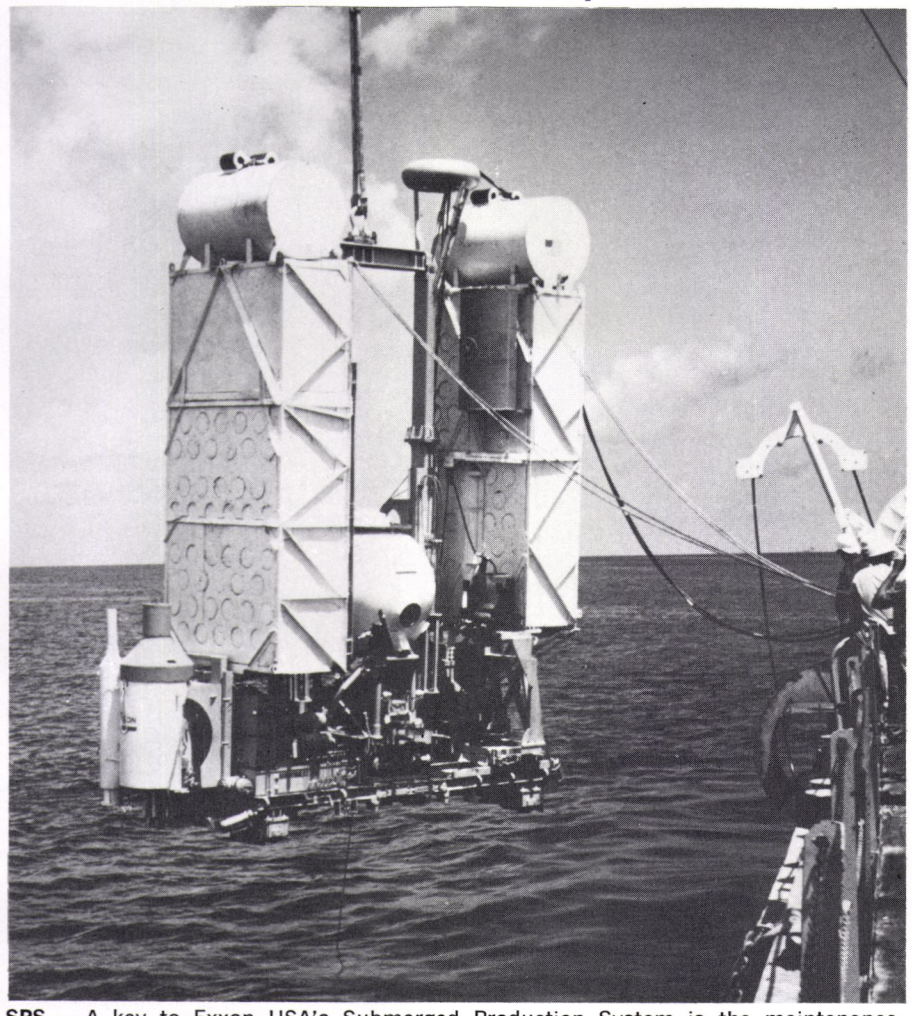
NASSCO is owned equally by Kaiser Industries Corp. and Morrison-Knudsen Company, Inc., and is managed by Kaiser Industries.

New Orleans Propeller Club Elects Roy Perrin

Roy A. Perrin Jr. of Alexander Industries, has been elected the new president of the New Orleans Propeller Club.

Other new officers are Capt. **Henry G. Joffray,** associate director of the Port of New Orleans, La., first vice president; **Joseph P. Ruppel,** Boland Marine & Manufacturing Co., second vice president; **Wilson F. Beavers III,** Frank B. Hall & Co., secretary, and **Sam Giallanna,** New Orleans Steamship Association, treasurer.

Exxon Begins Operating Remote Sea-Floor Production System



SPS — A key to Exxon USA's Submerged Production System is the maintenance manipulator, shown above. When needed, the manipulator is taken to the location and performs remotely controlled, routine maintenance operations by replacement of equipment on the system. The manipulator is launched from a workboat and descends to the sea-floor structure, where it moves along a track around the unit. A system of underwater television cameras built into the manipulator allows the operator on the surface to watch and control the movements of the manipulator.

A full-scale production pilot test of a prototype subsea system designed to produce oil and gas from remotely controlled ocean-floor equipment is underway in the Gulf of Mexico, according to Exxon USA.

"This is the first time that oil has been produced through a well and sea-floor production system that were remotely installed, remotely completed, remotely operated, and remotely maintained, by the use of deepwater diverless techniques," said **A.C. Garner Jr.,** manager of Exxon's southeastern production division in New Orleans, La.

Exxon's prototype Submerged Production System (SPS) is located 27 miles southeast of Grand Isle, La., in 170 feet of water. The system was brought on production using equipment and diverless procedures suitable for producing oil and gas in water 2,000 feet deep, according to Mr. **Garner**.

"In the United States, the search for new reserves of oil and gas offshore is rapidly approaching water depths of 2,000 feet," he explained. "Overseas, Exxon has drilled exploratory wells in 3,400 feet of water. Development of offshore reserves by conventional fixed platforms will be limited by costs to water depths of about 1,000 feet. The objective of our Submerged Production System project is to develop and demonstrate a diverless system capable of producing oil and gas in water depths beyond 2,000 feet. Bringing the prototype Submerged Production System on production is a major step towards accomplishing that goal."

Exxon expects the pilot production test to last about a year. "By the time the production test is completed, Exxon will have invested more than $66 million and over 400 man years of engineering effort to develop the technology and know-how to produce oil and gas from the deep waters of the world," Mr. **Garner** said.

The SPS project began in 1968, when Exxon realized that the search for petroleum would extend beyond the capability of conventional offshore production technology in the near future. After successful onshore tank tests, a full-scale offshore test of the system was initiated, and construction began in June 1973. The SPS sea-floor structure, called a template, was launched in October 1974 and was secured to the sea floor through the use of diverless, deepwater procedures. Remotely controlled equipment and pro-

cedures were developed to lay and connect five pipelines and two power and control cables to the template. Every component of the system was subjected to extensive testing. Initial production was achieved on February 11, 1977.

Oil can flow from the well, through a subsea production manifold, through a separator and pump station, and through a pipeline to a nearby production platform. Throughout the production sequence, sensors monitor the flow of oil. Should abnormal conditions develop, the on-bottom safety control system will automatically shut in the affected part of the system. A remote control system provides the command and power link between a surface control center and the remotely operated equipment on the ocean floor. The remote control system, in conjunction with the safety alarm and shut-in system, is designed to provide fail-safe operation of the Submerged Production System. Inverted pans over oil-producing equipment provide a maximum of pollution control in the event of an oil leak.

A key to the system is a maintenance manipulator. When needed, the manipulator is taken to the location and used by remote control to perform routine maintenance operations by replacement of equipment on the Submerged Production System. The manipulator is launched from a workboat and descends to the template, where it moves along a track around the unit. A system of underwater television cameras built into the manipulator allows the operator on the surface to watch and control the movements of the manipulator. Since the SPS was launched offshore, the manipulator has been to the sea floor more than 30 times and has successfully performed the basic types of equipment installation and maintenance operations.

The Submerged Production System project will enter its final phase in late summer when Exxon plans to install, connect and operate a special production riser designed to test an alternate surface connection for operation of the subsea system and for receiving production from the ocean floor.

During the coming year, the company will conduct extensive performance and reliability tests of all Submerged Production System components. An additional well will be brought on production to increase the flow rates through the unit. "By the time commercial reserves of oil and gas are discovered beneath the deep waters of the world's oceans, Exxon wants to be ready to design a Submerged Production System to develop such reserves as safely, rapidly, and economically as possible," said Mr. **Garner**.

Propeller Club Convention Includes Shipyard Panel

John T. Gilbride, chairman of the board, Todd Shipyards Corporation, has accepted chairmanship of the 1977 American Merchant Marine Conference to be held in Galveston, Texas, October 12-14, in conjunction with the 51st Propeller Club Convention. The program will include a panel discussion on "American Shipbuilding — National Security and Welfare," among others. Participants will be:

Ralph W. Cousins, president, Tenneco's Newport News Shipbuilding. Subject: "Adequacy of the Shipbuilding and Ship Repair Mobilization Base"; **Leonard Erb,** president, Ingalls Shipbuilding Division, Litton Industries, Inc. Subject: "Recent Influences on Shipyard Activities"; **C. Larry French,** president, National Steel & Shipbuilding Company. Subject: "U.S. Shipbuilding — An Economic Force," and **John F. Sullivan Jr.,** president, Bath Iron Works Corporation. Subject: "Myths and Facts About American Shipyards."

Edwin M. Hood, president of the Shipbuilders Council of America, will serve as moderator.

MacMillan Bloedel Orders Log Carrier At Cost Of $14 Million

MacMillan Bloedel, Vancouver, British Columbia, has ordered the world's second self-propelled log carrier to be built in Victoria by Yarrows Ltd., at a cost of almost $14 million.

The keel will be laid October 1 in Victoria, British Columbia by Yarrows, a member of the Burrard-Yarrows Group, and the new vessel will begin operating in October 1978.

The contract will create employment for 225 men for a year at Yarrows, and an additional 50 jobs in subcontractor companies.

James Lawson, MB's group vice president, raw materials, said the 398-foot-long carrier would have a load capacity of 9,700 short tons. Powered by twin diesels, it has been designed to transport logs from company logging operations to Port Alberni mills and to log storage areas on the south mainland coast.

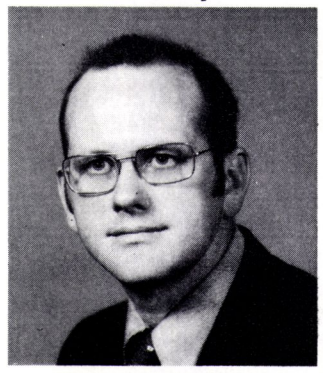
MB pioneered and now owns the world's first self-loading, self-dumping, self-propelled log carrier, the Haida Monarch, which began operating in January 1975. The new vessel will be an improved version of the Haida Monarch, with heavier lift gear.

The new log carrier, the first designed to load logs in bundles, will allow MB to deliver logs from remote dryland sort locations to the booming grounds and mills without loss from sinkage or escapement. To achieve this, two special cranes are being installed on the carrier to load 40-ton bundles.

Construction of the carrier was announced earlier this year by MB president **Calvert Knudsen** as one of the projects in a $450-million five-year capital spending program to improve productivity in MB operations and facilities in British Columbia.

The self-propelled, self-loading, self-dumping carrier concept was conceived by MB, and Mr. **Lawson** said the performance of the Haida Monarch has more than justified the investment. Its average load, speed and turnaround time in actual service have exceeded the company's original expectations.

C-E Names Matthews Manager Of Contracts, Marine Power Systems



Thomas E. Matthews

The Power Systems Group of Combustion Engineering, Inc., Windsor, Conn., has announced the appointment of **Thomas E. Matthews** as manager of contracts, C-E Marine Power Systems.

Mr. **Matthews** will be responsible for the overall performance and administration of marine contracts, including direction of production planning, purchasing, contract administration, and project engineering, reporting to **Robert B. Hedges,** general manager, C-E Marine Power Systems.

Mr. **Matthews** joined C-E in 1964, and has advanced through various design engineering and project engineering positions, including project manager for the U.S. Navy's DE-1052-Class Destroyer Ship Program, and the new LHA-1-Class Amphibious Helicopter Assault Ship Program. Most recently, Mr. **Matthews** has been serving as assistant manager of marine engineering.

Mr. **Matthews** received a bachelor's degree in marine engineering at the State University of New York's Maritime College. He is a member of The Society of Naval Architects and Marine Engineers and the American Society of Naval Engineers.

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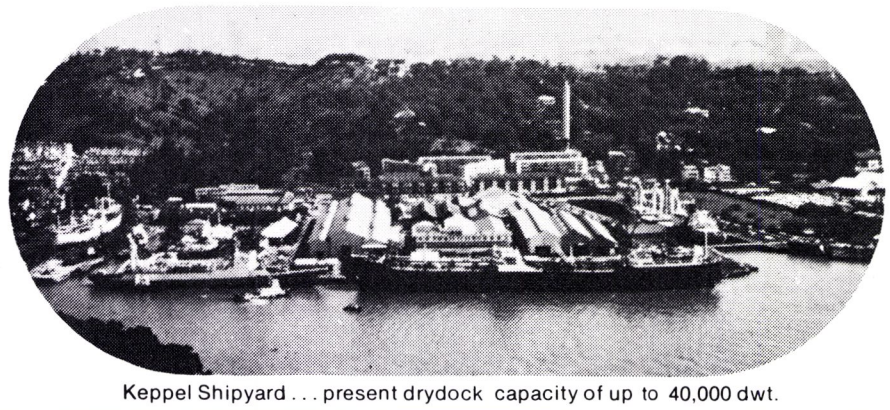

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Keppel Shipyard Limited
325, TELOK BLANGAH ROAD, P.O. BOX 2169, SINGAPORE 4. TELEPHONE: 2706666, TELEX: RS 21367. CABLES: KEPPELDOK.

Representatives Meet For First Time In Bahrain

Seventeen representatives from ASRY's 14 ship repair agencies are shown above meeting for the first time in Bahrain. It was a truly international meeting with the 14 different agency nationalities being entertained by Arab Shipbuilding & Repair Yard management, which is Arab, Portuguese, and British, as well as ASRY's chairman, Bahrain's Minister of Works, Power and Water, His Excellency **Majid Al-Jishi**. The purpose of their visit was threefold: (1) To discuss the new sales package presented to them by ASRY. It is anticipated that this package will result in the booking of at least seven vessels into the ASRY drydock before the Inaugural Ceremony on December 16, 1977. (2) To see the ASRY drydock in the final stages of construction and to witness, first-hand, the first-class and up-to-date shops and the equipment which has been installed in the ASRY shops. (3) To familiarize themselves with Bahrain—its climate, amenities, local customs and topography.

ASRY's worldwide agency network consists of the following countries and their agents: Benelux—Euro Shipbuilders & Marine Agencies; Brazil — Sonave S.A.-Comercio E Industria; Denmark—Aktieselskabet Maritime Agency; France—Bigard le Grand S.A.; Germany—Wilhelm Schmidt, Ingenieur-Dock-Werftburo; Greece—N. Bogdanos Marine Bureau; Hong Kong—Island Navigation Corp.; Italy, Monte Carlo and Switzerland—Agenzia Marittima Cambiaso Risso; Japan—Nissho-Iwai Co. Limited; Norway—Henning Astrup A/S; Spain—Fernando de Azqueta Bernar; Sweden and Finland—A.B. August Leffler & Son; U.K.—Keller, Bryant & Co.; and USA—Bethlehem Steel Corp.

The ASRY agents' agenda included a visit to the ASRY yard, a tour of Bahrain to see dhow building, hand pottery and weaving, as well as Bahrain's existing infrastructure and industrialization. Functions were held at the Hilton Hotel, and meetings at the ASRY offices were followed by buffet lunch and dinner at the Delmon and Gulf Hotels, respectively.

The reaction by the agents to ASRY and Bahrain was one of amazement. One was heard to say, "I thought I was coming to a stinking hot sand pit in the middle of nowhere, only to find the Garden of Eden, a beautiful climate and a fantastic yard."

Dravo Awarded Two Contracts Totaling $7 Million

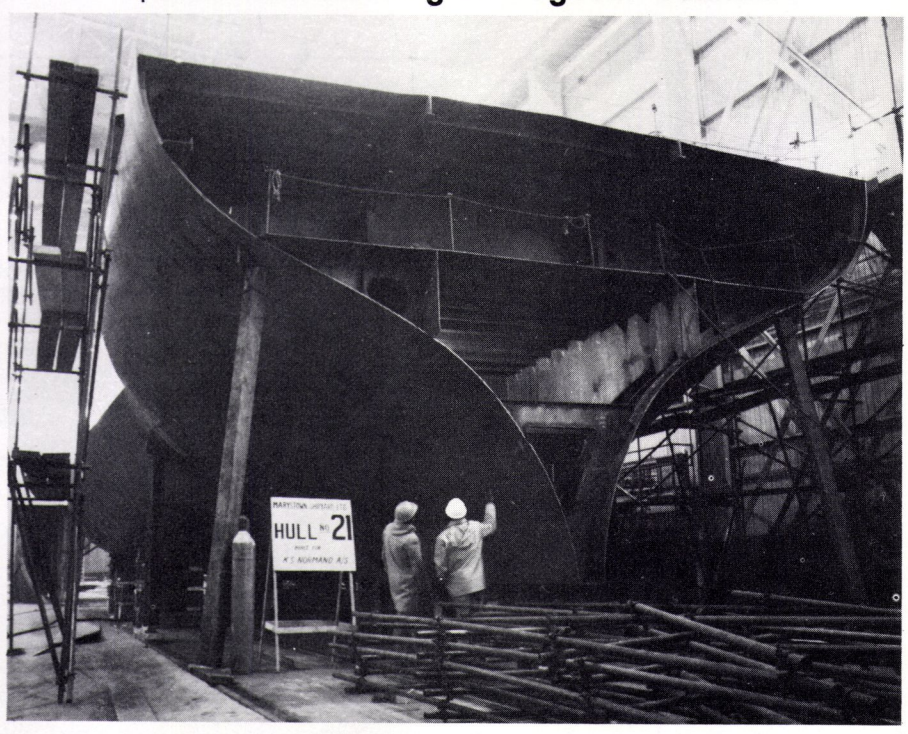
Dravo Corporation, Pittsburgh, Pa., has received two contracts totaling $7 million for the design, engineering and construction of a coal barge unloading system and a 40-cell dock at Allegheny Power Systems' Pleasants Power Station at Willow Island, W.Va.

The unloading system will include a bucket-elevator barge unloader and shuttle barge haul system designed to handle 3,300 tons of coal an hour from barges. The dock facility will be used for unloading coal and lime for the plant's pollution control system.

The first of the two new 626-megawatt units on the Ohio River will be in commercial service in 1979. United Engineers & Constructors Inc. of Philadelphia has overall responsibility, under direction of the Allegheny Power Service Corporation, for the engineering and construction of the station. Allegheny Power System includes three operating companies — Monongahela Power Company, The Potomac Edison Company, and the West Penn Power Company.

Dravo is an international engineering, construction and manufacturing firm with more than 50 years' experience in civil construction and the design and manufacture of materials handling systems.

Marystown Shipyard Reports On Progress Of $23-Million Norwegian Tugboat Contract



Shown above is the hull of a super tugboat being built at Marystown Shipyard Limited, for use in North Sea offshore oil work.

Marystown Shipyard Limited, Marystown, Newfoundland, Canada, now currently working on a $23-million Norwegian order to build five of the heaviest class of tugboats used in offshore oil operations, is now establishing a vessel production control system, extending its production facility and building a new plumber's shop.

Anthony Barclay, Marystown's general manager, said this expansion program is on top of a recent building program which included a new 200-foot-long fitting-out dock, a 7,600-square-foot sheet metal shop for light fabrication, and a 1,200-square-foot assembly bay for specialized custom-built contracts.

Commenting on Marystown's expansion program, Mr. **Barclay** said: "Thanks to our expansion, Marystown is emerging as one of North America's most efficient and well-equipped shipbuilding and ship repair facilities of its size."

Easily accessible to the North Atlantic shipping lanes, the 10-year-old Canadian shipyard is owned by the Newfoundland Government. Commenting on future sales possibilities, **John Lundrigan,** the province's Minister of Industrial Development, said: "We are pleased with our performance to date on the tugboat order for Norway, and we are currently bidding on orders from the Middle East, Europe, the Far East, and Southeast Asia. Marystown's expansion should put us in a good position to win some of these new contracts, as well as construction of trawlers resulting from Canada's new 200-mile fishing limit."

Helping Marystown Shipyard secure new international orders are its agents located in Norway, West Germany, the Netherlands, and Singapore.

The current $23-million order for five super tugboats is for K-S Normand Tugs A.S. of Skudenshaven, Norway, which will use them in North Sea oil work. The Norwegian company already has nine supply boats operating there, but the 140-foot-long anchor-handling tugboats being built in Newfoundland will feature an 80-ton bollard pull, and each will be equipped with 6,000-horsepower twin-screw controllable-pitch propellers.

According to Mr. **Barclay,** the first tug for Normand will be completed this fall by the work force of 350. Two of the vessels are on the berth, with steel work almost complete. The first units of the third were erected in July.

One reason why Marystown Shipyard Ltd. is highly regarded is its "under cover" facilities, where construction can go on day and night and during inclement weather. Another unusual feature is a side transfer carriage enabling ships under construction to be moved laterally from one berth to another, giving the yard an exceptional degree of operational flexibility and mobility.

The new Marystown publication also describes the yard's preparation shop, assembly and erection unit, engineering facility, joiner's shop, repair berths and wharves, and its Syncrolift marine elevator which can drydock vessels up to 280 feet long. This unit has a maximum lifting capacity of 3,000 tons.

The new 16-page report on Marystown Shipyard Ltd. can be obtained at no charge by writing **Anthony Barclay,** Marystown Shipyard Limited, P.O. Box 262, Marystown, Newfoundland, Canada.

Tug Heide Moran

Moran's new Heide-class tugs put power where you need it.

Whether she's behind the biggest barge, or towing the long-distance haul, "Heide Moran" has enough power, size and technology to handle your toughest jobs. This new breed of Moran tug is 126 feet long, powered by 4,730 hp turbo-charged engines, equipped with full towing machinery. She can do your work faster and more effectively. Saving you time and money.

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for well over a century.

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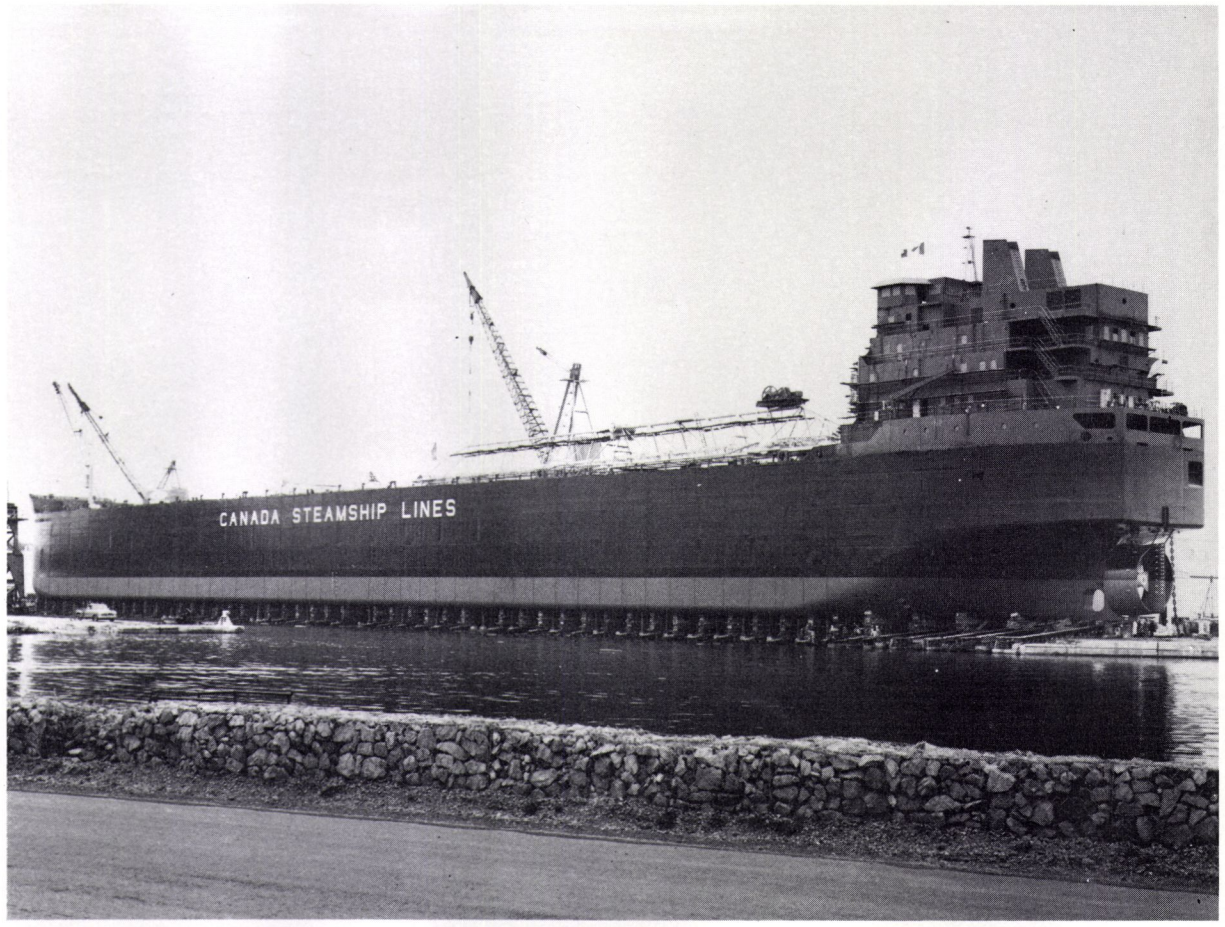
Canada's Newest Great Lakes Bulk Carrier Launched



The 730-foot Hull 212 will be the 34th ship in the Canada Steamship Lines fleet.

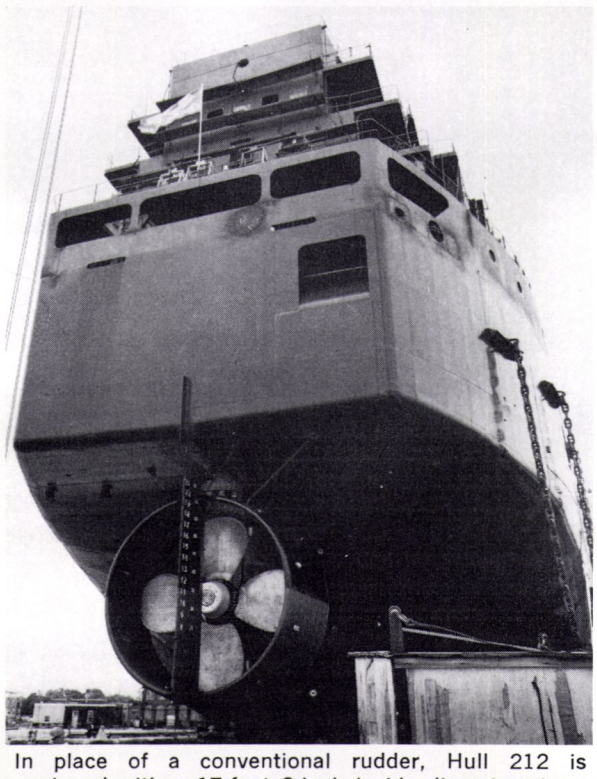
Canada's newest self-unloading Great Lakes bulk carrier was launched recently at the Collingwood, Ontario, Shipyard of Canadian Shipbuilding and Engineering Limited.

Built for the Canada Steamship Lines Division of Power Corporation of Canada, Limited, the laker slipped into the water in a rather spectacular side-launch which is used by the Collingwood Yard for particularly large vessels.

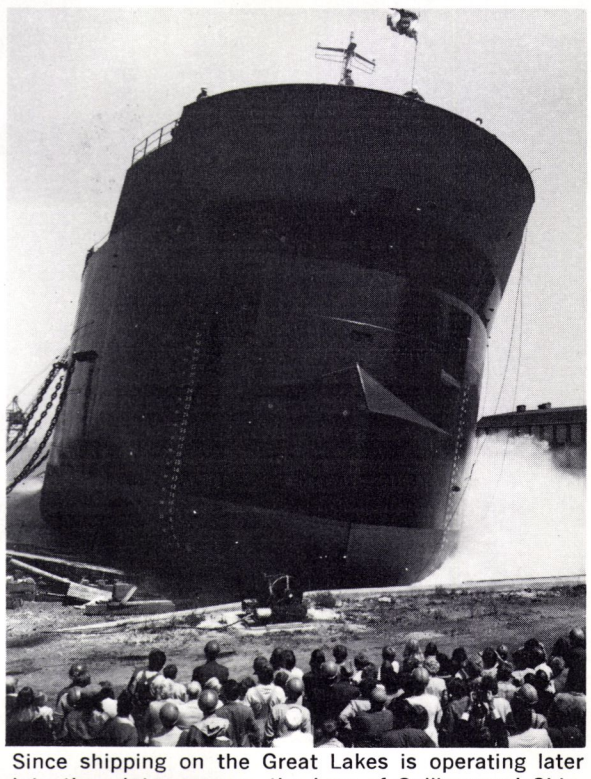
The new ship, which will be known only as Hull 212 until its official christening next October, has been specially equipped to transport western Canadian coal, which is expected to be an increasingly important cargo on the Great Lakes in coming years.

With an overall length of 730 feet, Hull 212 is the maximum-sized vessel that can be accommodated by the St. Lawrence Seaway. It will be the 34th ship in the Canada Steamship Lines fleet, and will bring the firm's total carrying capacity to more than 750,000 tons.

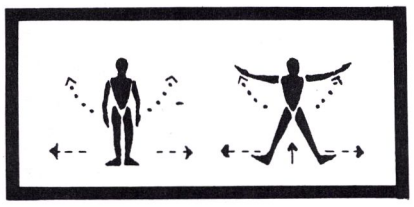
Like the 12 other self-unloaders belonging to CSL, Hull 212 will be able to deposit its cargoes as much as 200 feet away from dockside at a rate of up to 6,000 tons of ore per hour.



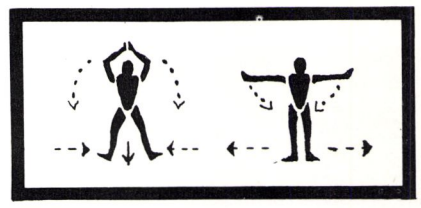
In place of a conventional rudder, Hull 212 is equipped with a 17-foot 3-inch inside diameter steering nozzle. It provides steerage for the 35,000-dwt vessel by changing direction of the prop-wash. With its two 50-horsepower electric motors in operation, the four ram hydraulic steering gear is capable of turning through a 65-degree arc in 18 seconds.



Since shipping on the Great Lakes is operating later into the winter season, the bow of Collingwood Shipyard's Hull 212 has been modified below the 30-foot waterline. "V"-shaped to the 24-foot mark, with a reverse sloping section to the 30-foot line, the bow will ride under the ice and break it in an upward direction, states the Yard's chief naval architect **Stuart Thoms.**

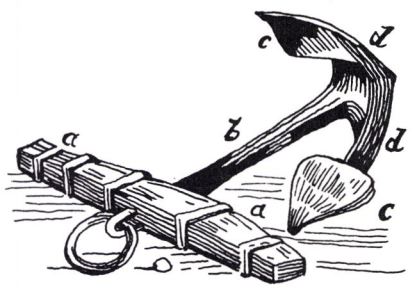


Shape up!



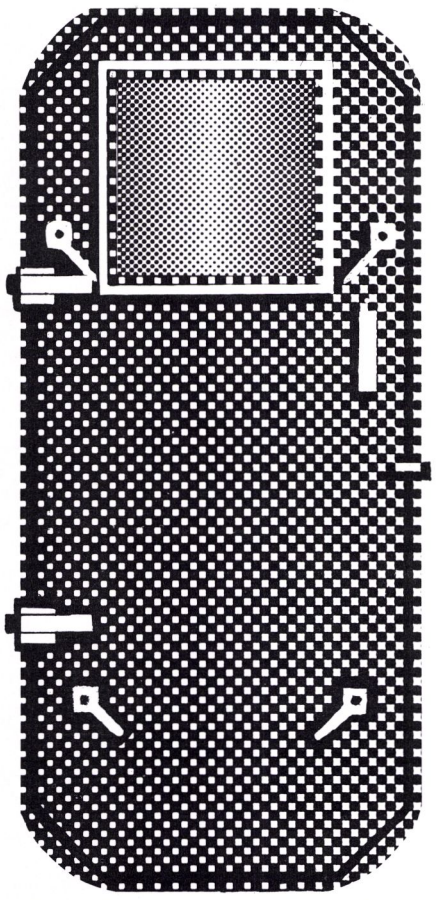
with Alexander's crew of outstanding maritime suppliers

Shape up! That's sound advice for anyone—athlete, able-bodied seaman, or executive. And being in top shape is as important for a ship as it is for a person. The safety and comfort of the ship, cargo and crew depend on it. So be sure to shape up *before* you ship out.



Don't let old equipment like this anchor hold you down. Shape up, matey!

Whatever your needs, from a coil of American Manufacturing Co. rope (above left) or an R. H. Wager Co. valve (above right) to an Automatic Light Co. safety light (below), you'll find it at Alexander Industries.



Two of our many fine products are the hatch cover (above) by Marhil Manufacturing Company, and the inflatable life raft (below) by B. F. Goodrich.

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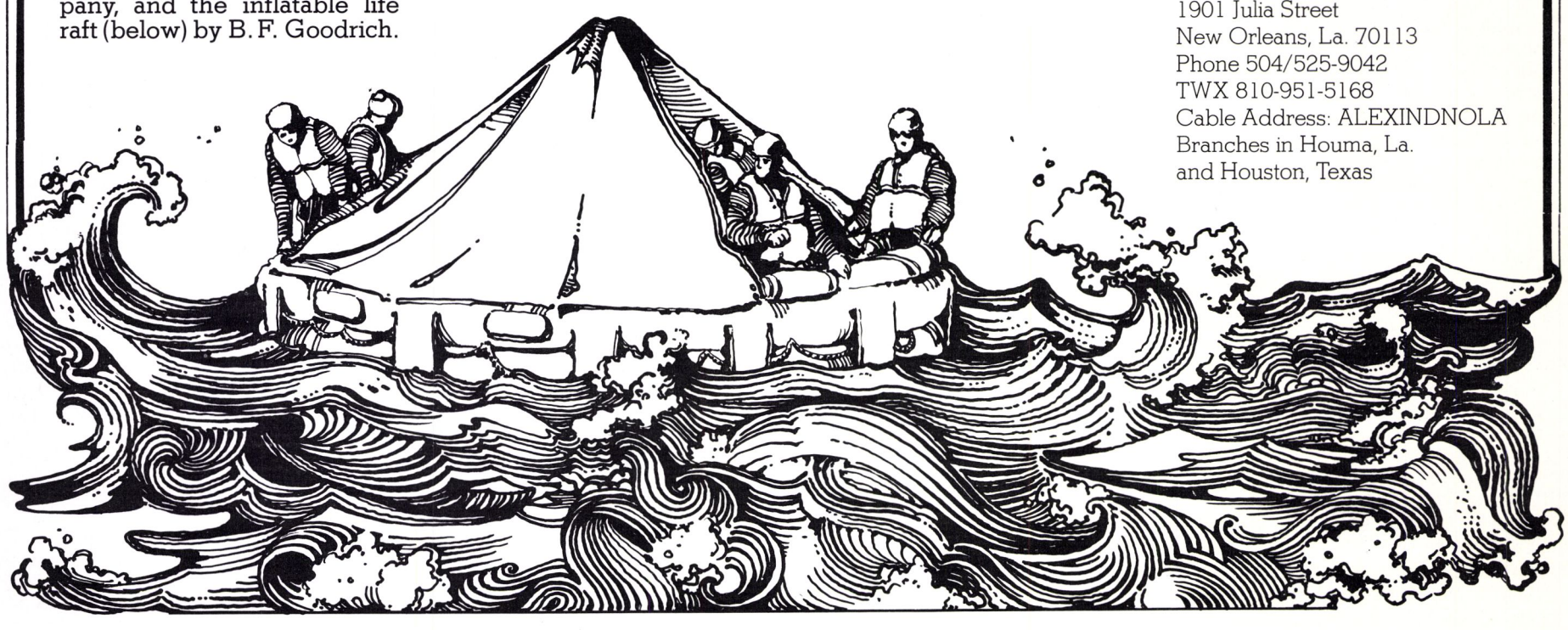


Todd Seattle Division Lays Keel For Royal Australian Navy Frigate

Shown at the HMAS Adelaide keel-laying ceremony are, left to right: Capt. **S.P. Passantino,** USN, Supervisor of Shipbuilding, Conversion and Repair, USN, Seattle; Capt. **J.D. Beecher,** USN, U.S. Navy Ship Acquisition Project Manager, FFG Program; **Carl R. Meurk,** general manager, Todd-Seattle Division; Commodore **R.G. Loosli,** RAN, Australian Embassy Naval Attache; Capt. **N.R. Berlyn,** RAN, Australian FFG Project Director; Comdr. **M.G. Hill,** USN, FFG Resident Project Officer; **Ward E. Squires,** Todd-Seattle Division Program Manager; Comdr. **J.C. Ballantine,** USN, Deputy Supervisor of Shipbuilding, Conversion and Repair, Seattle, and **John T. Gilbride Jr.,** Todd-Seattle Division assistant general manager-production.

Significant events occurred with keel-laying for the HMAS Adelaide at Todd Shipyards Corporation, Seattle Division, on July 29. This will be the first of two guided missile frigates (FFG-7 Class) which are being built especially for the Royal Australian Navy. On hand for the ceremony were guests from the City of Adelaide, along with Rear Adm. **J.D. Murray,** Commandant of the 13th Naval District.

Ward E. Squires, Seattle Division FFG Project Manager, noted that the HMAS Adelaide will be the first delivery of a combat vessel by the Division to a foreign government since before the First World War.

Principal characteristics of these multipurpose ships include: length, 445 feet; beam, 45 feet; displacement, 3,600 tons; horsepower, 40,000 and speed, 28 knots. Nineteen of the FFG's have been contracted for by the Navy. Options for additional vessels, which have both guns and missiles as armament, are expected to be exercised in the next fiscal year.

The HMAS Adelaide is named after the capital city of the Australian State of South Australia. This follows the precedent established of naming major Commonwealth naval units after capital cities. Adelaide also was the name of a previous Australian light-cruiser which saw action during World War II and left service in 1949.

The principal guest and speaker for the ceremony was Commodore **R. Geoffrey Loosli,** Naval Attache from the Australian Embassy in Washington, D.C. He explained the significance of this event: "It has been nearly 12 years since Australia has had a keel laid for a destroyer-size naval vessel." Commodore **Loosli** emphasized the close ties between the United States and Australian Navies, which go back to World War II. He stated: "Australia looks forward to association with Seattle, both from the standpoint of construction at Todd and housing the Australian crew and their families in the local area."

The two Australian ships with a value of one hundred million dollars will be an asset to the general Seattle economy. The Division is upgrading and expanding its facilities to meet the challenge of this new construction program. Workforce at Todd's Seattle Division may grow from the present 1,300 employees to over 3,000 before the FFG Program is completed.

Seacoast Electric Announces New West Coast Locations

Seacoast Electric Corporation, with offices and warehouses at Passaic, N.J., and in Houston, Texas, has announced a West Coast expansion.

They have acquired the inventories of S.J. Electric Cable, formerly of Oakland, Calif. "This, together with our substantial existing inventories of marine cables, stuffing, and terminal tubes, plus shipboard accessories, will enable our Los Angeles and Burlingame locations to provide the Western Seaboard with extensive on-site product availability," reported **David L. Cannold,** president of Seacoast.

Bill Brill, formerly of A.J. Electric, is now Seacoast's West Coast agent.

Title XI Approval For Two IOT Subsidiaries

The Assistant Secretary, U.S. Department of Commerce, Maritime Administration, has approved in principle the applications of SHIPCO 2297 Inc. and SHIPCO 2298 Inc. for Title XI guarantees to aid in the construction of one 165,000-dwt tanker each. The two corporations are wholly owned subsidiaries of IOT Corporation (IOT), 1400 Three Parkway, Philadelphia, Pa.

Both tankers are being constructed at Avondale Shipyards, Inc., Avondale, La. The first (SHIPCO 2297) is scheduled for delivery between May 30, 1978, and September 30, 1978; the second (SHIPCO 2298) is scheduled for delivery between September 30, 1978, and January 30, 1979. The estimated actual costs are $83.9 million and $85.8 million, respectively.

The tankers are being built pursuant to construction contracts between Standard Oil Company of Ohio (SOHIO) and Avondale Shipyards, Inc. (Avondale). They are planned to be used to transport crude oil from Valdez, Alaska, to ports on the Western Coast of the United States. These vessels are the third and fourth in a series of four hulls to be built at Avondale. The first two hulls, together with two being built at Sun Shipbuilding & Dry Dock Co., have also received conditional Title XI guarantees. All six ships are being built to carry Alaskan oil for SOHIO.

The two tankers will be time chartered by the applicants to SPC Shipping, Inc., a wholly owned subsidiary of SOHIO. The time charters are for 24 years on a "Hell or High Water" basis. Interocean Management Corporation, another wholly owned subsidiary of IOT, will act as managing agent for the two vessels.

Literature Describes New MIECO Loran C

MIECO, Division of Polarad Electronics Corporation, has introduced a new MIECO model CDX-II dual read-out Loran C navigation receiver that is fully automatic from turn on. To operate, the user selects the desired slave stations in his geographical area and turns on the set.

One unique feature is a cathode ray tube (CRT) display that may be turned on for signal analysis, or left off if desired. Power supply is universal: 115VAC, 12, 24,32VDC.

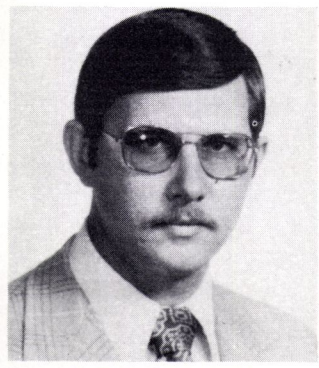
The equipment measures 10½ inches wide by 9½ inches high by 12 inches deep and weighs 25 pounds.

It comes complete with antenna, active antenna coupler, 50 feet of interconnecting cable, shock mounts and operating manual.

The CDX-II will select and track the third cycle of all eight pulses of the master and selected secondaries (slaves).

A free color catalog sheet is available from **Stan Berger,** Marketing Director, MIECO, division of Polarad Electronics Corp., 109 Beaver Court, Cockeysville, Md. 21030.

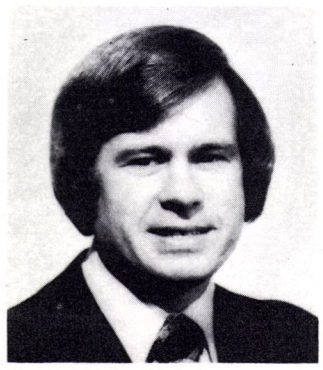
Jerry D. Icenhower Named President Glitsch Cryogenics



Jerry D. Icenhower

Jerry D. Icenhower has been appointed president and general manager of Glitsch Cryogenics, Inc., with duties to include full operational control of the organization.

Simultaneously, **Jimmy A. Ottinger** was appointed vice president of production and will be responsible for all phases of manufacturing.



Jimmy A. Ottinger

Based in Dallas, Texas, GCI is a licensee of Technigaz, S.A., and manufactures and sells the Technigaz Stainless Steel Liner used in Cryogenic Maritime Service.

Glitsch is a wholly owned subsidiary of the Foster Wheeler Energy Corporation, a worldwide engineering, manufacturing and construction organization which operates through 26 subsidiaries.

Mr. **Icenhower** was formerly vice president of GCI, and prior to that was manager of engineering for GCI's parent company, Glitsch, Inc. Presently, he is also president and chief executive officer of Glitsch Field Services, Inc., another of the Glitsch, Inc. subsidiaries located in the Dallas area.

Mr. **Ottinger** is an electrical engineer and was formerly plant manager of GCI. He has been with the company for the past three years. Prior to that, he was facilities manager for Haggar, Inc.

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COMSAT General is the *only* company which provides MARISAT telephone, facsimile and data communications. And the company has the largest number of telex channels for quick access.

Compact terminals. COMSAT General has the mobile terminals specifically engineered to operate with MARISAT. They're in service now on ships and offshore facilities flying the flags of more than a dozen different countries—from luxury passenger liners to tankers, tuna boats and oil drilling rigs. Compact economical to operate, they are available now, for lease or purchase, for immediate installation on your ship or offshore facility.

Cost-effective communications. In addition to passenger use, the Royal Viking Sea uses MARISAT daily for all types of company communications—to send ship operating data to her home offices in Oslo, to book passenger reservations, to arrange for pilots at some ports of call, to order fuel and supplies in advance, minimizing delays. She is the first to make high quality MARISAT communications available to passengers aborad ship.

Shouldn't your company be looking at ways to use the benefits of MARISAT? For more information about COMSAT General's MARISAT services, and how we can tailor them to meet your company's specific needs, call:

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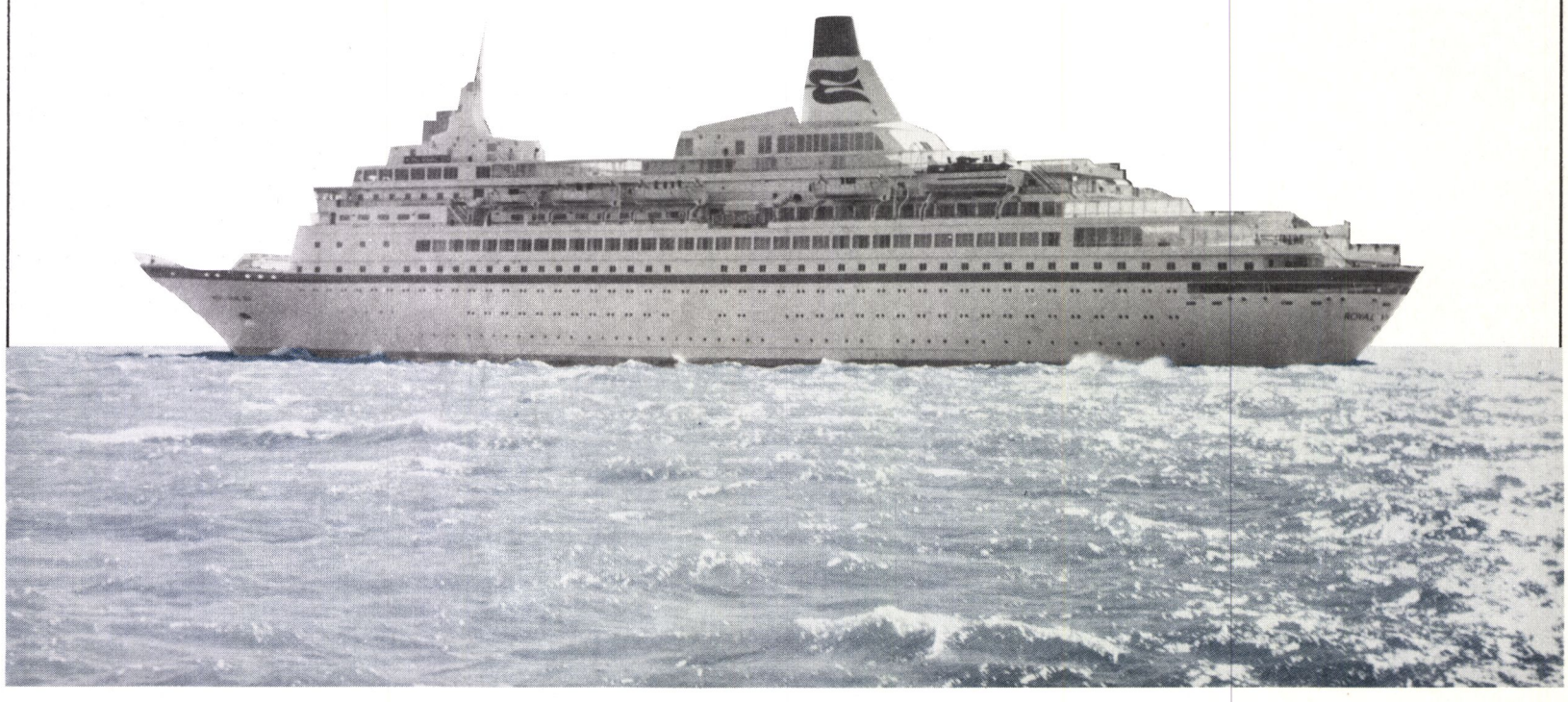


BP Invests $50 Million In Stolt-Nielsen

Stolt-Nielsen, BP Tanker Company, and bankers, together with their lawyers and financial advisers, met in Paris on August 2-4, for the signing of the various documents enabling BP to make its investment in the Greenwich, Conn.-based specialist chemical shipping and tanker organization. After several months of negotiations and complex restructuring in the Stolt-Nielsen Group, BP's loan of $50 million has been made available to Stolt Tankers and Terminals Inc. It is expected this loan will be converted into a 50-percent equity holding in due course.

Stolt-Nielsen will be operated on a completely arm's length basis from BP, and while the Stolt-Nielsen organization and management remain virtually unchanged, there will be some new faces seen in Greenwich as BP Tanker Company fills various agreed posts on the board and in the organization.

J.H. Ross will be leaving his present post as assistant general manager (commercial) of BP Tanker Company to join Stolt Tankers and Terminals, the holding company, as deputy chairman of the board, and to take up the position of executive vice president of Stolt-Nielsen Inc., the managing company, where he will report to the president, **C.N. Bjornson**. **G.A.B. King** and **R. Ilian**, managing director and general manager, respectively of BP Tanker Company, are also appointed to the board of Stolt Tankers and Terminals, **Jacob Stolt-Nielsen** remaining as chairman and chief executive. The two remaining directors, both to be appointed from Stolt-Nielsen, have not yet been named.

Stuart Butler, George Mulvein and **Stanley Symon,** at present executives of BP Tanker Company, will move from London to join the organization in Greenwich. No changes in personnel or function are contemplated for the other Stolt-Nielsen offices around the world.

Halter Marine Starts Construction On Ferry For Service In Alaska

Halter Marine Services, Inc., New Orleans, La., has begun construction of a fast 150-passenger touring ferry for use between Juneau and Skagway, Alaska. The 102-foot all-aluminum 24-mph craft is being built by Halter's Chalmette, La., division for Westours, Inc. of Seattle, Wash.

The sleek vessel will have overall dimensions of 102 feet in length, a 22-foot breadth, a 9-foot 6-inch depth, and a normal operating draft of 4 feet 6 inches.

The new Halter-designed boat will be powered by three General Motors 16V92 diesel engines developing 2,640 shaft horsepower.

The vessel will be equipped with a host of amenities for passenger comfort, including reclining seats, all weather air-conditioning, snack bar, and excellent visibility throughout.

A Halter spokesman said that while his company is known as the world's largest builder of offshore supply vessels, the Westours touring ferry is one example of a wide variety of smaller boats built by three of Halter's eight shipyards.

Sewage Treatment Brochure From Sigma

Sigma Treatment Systems, Inc. has published a new eight-page, two-color brochure on shipboard sewage treatment equipment which illustrates and describes the operation, maintenance, capacity, models and simplicity of installation.

Included are general arrangement drawings of two designs and dimensions of six models and four modules. Included is a process flow diagram and an isometric drawing defining the location and function of 24 important design advantages.

For your free copy, write **George B. Efthimiou,** Sigma Treatment Systems, Inc., 603 Dean Street, Brooklyn, N.Y. 11238.

Speakers Named For Weather Conference September 14-15-16

Congressman **John M. Murphy,** Chairman of the House Merchant Marine and Fisheries Committee, and **Zenon N. Sdougos,** Director, Marine Safety Division, Inter-Governmental Maritime Consultative Organization (IMCO), London, England, will be the principal speakers and honored guests at the three-day conference and exhibit, "Marine Weather and Ocean Systems—Today and Tomorrow," to be held at the Downtown Athletic Club, New York City, September 14, 15 and 16.

Mr. **Murphy,** who also is a member of the House Ad Hoc Committee on the Outer Continental Shelf and the Subcommittee on Oceanography, will speak on Wednesday, September 14. He will address remarks to the critical issues dealing with development of the Outer Continental Shelf and National Weather Service observation and communications services.

Mr. **Sdougos** is in charge of the IMCO division responsible for coordinating intergovernmental agreements governing standards for maritime navigational safety at sea. He will speak on that subject.

Sponsored by the Maritime Association of the Port of New York, the first comprehensive three-day conference and exhibit to be held in downtown Manhattan will feature panels of individuals from industry and government agencies expert on weather systems and equipment.

Lawrence Moore, Sea-Land Service, Inc., will be the conference chairman, and **Raymond D. Yturraspe,** Griffith Marine Navigation, Inc., will be the exhibit chairman.

The panels will conduct seminars on such subjects as Ship Routing, Currents, Weather Equipment, Harbor and Coastal Weather, Ice, Facsimile, Heavy Weather, and Future Plans.

Exhibits will be on display by internationally renown manufacturers of weather equipment and systems utilized by shipping companies for efficiency of vessel operations and safety of lives and cargo at sea.

The cost of a reservation and ticket for the three-day event is $100 a person. The price includes morning and afternoon conference sessions, hosted cocktail receptions, coffee and danish breaks, two luncheons, and a printed copy of all speeches and panel discussions, which will be recorded live and transcribed.

A ticket is interchangeable among members of a company's staff, so that an individual can attend only those panels and principal addresses in which his professional interest lies.

For reservations and tickets, write to the Maritime Association of the Port of New York, 80 Broad Street, New York, N.Y. 10004.

PANEL PROGRAM

Wednesday, September 14, 1977

Ship Routing and Ocean Forecasts—Moderator, Capt. **P. Kurkimilis,** S.S., Sea Land Market.

"History of Ship Routing," **W. Kasiak,** Weather Routing Inc., Larchmont, N.Y.; "Ship Routing—A Specialized Service," **N. Cima,** Oceanroutes Inc., Palo Alto, Calif.; "Data Needs for Improved Services," **R.A. Raguso,** Bendix Marine Science Services, South Hackensack, N.J.; "Automated Ship Routing," **Anthony Klapt,** U.S. Navy, Fleet Numerical Weather Central, Optimum Ship Track Routing, Monterey, Calif.

Weather Equipment — Moderator, **W. Stoddard,** Port Meteorological Officer, National Weather Service, National Oceanographic and Atmospheric Administration (N.O.A.A.), New York.

"History of Weather Equipment," **Beryl Lanterman,** Bendix Environmental Science Service,

Baltimore, Md.; "Today's Weather Equipment," **J.B. Reilly,** Belfort Instrument Company, Baltimore, Md.; "Future Weather Equipment," **Richard Reynolds,** N.O.A.A., N.W.S., Equipment Development Laboratories, Washington, D.C.

Facsimile — Moderator, **L.W. Moore,** Sea-Land Service, Inc., Elizabeth, N.J.

"Development of Facsimile," **Armand Bouchard,** Alden Electronic & Impulse Recording Co., Inc., Westboro, Mass.; "Present Facsimile Services," U.S. Naval Officer (to be selected), U.S. Fleet Weather, Norfolk, Va.; "Future Facsimile Services," **James Travers,** Regional Maritime Special Service Meteorologist, W.S.A., New York; Hosted Cocktails and Exhibit Viewing.

Thursday, September 15, 1977

Harbor and Coastal Weather—Moderator, Capt. **K.C. Torrens,** Farrell Lines Incorporated, New York.

"Economic Effects of Weather," Capt. **Martyn Reynolds,** Operations Manager, Barber Steamship Lines, Inc., New York; "Weather and Its Effects on Terminal Operators and the Shipping Operator," **Tore H. Jakobsen,** president, Fleetweather, Inc., Hopewell Junction, N.Y.; "Weather Information for the Mariner," **H. Gibson,** Meteorologist in Charge, N.O.A.A., N.W.S., Weather Service Forecast Office, New York; "Coastal Weather," **R.A. Raguso,** Bendix Marine Science Services, South Hackensack, N.J.; "Weather and the Vessel Traffic System," Lt. Comdr. **Stewart C. Sutherland,** Acting Project Officer, Vessel Traffic Service, New York; "New Concepts in Regional Marine Weather Services," Rear Adm. **E.D. Stanley Jr.,** (ret.), Secretary, The Sea Use Council, Seattle, Wash.

Heavy Weather — Moderator, Rear Adm. **W.J. Kotsch,** USN (ret.), Management and Technical Service Company, Beltsville, Md.

"Heavy Weather Damage," **N. Cima,** Oceanroutes, Inc., Palo Alto, Calif.; "Hull Insurance Claims," **Raymond M. Hicks Jr.,** claims manager, Claims Department, American Hull Insurance Syndicate; "Cargo Insurance Claims," **William E. Hooley,** assistant secretary, Marine & Aviation Services, World Headquarters, Insurance Co. of North America, Philadelphia, Pa.

Future Weather and Ocean Systems—Moderator, **C.C. Bates,** Science Advisor to the Commandant, Office of Research & Development, USCG Headquarters, New York.

"MarAd," **Carl S. Mathews,** Program Manager, Office of Advanced Ship Operations, U.S. Department of Commerce, MarAd, Washington, D.C.; "N.O.A.A.," **G.A. Flittner,** Chief, Ocean Services Division, Washington, D.C.; "United States Navy," Capt. **C.R. Ward,** Director, Naval Oceanography & Meteorology, Bay St. Louis, Miss.; "United States Coast Guard," Capt. **B.F. Hollingsworth,** Chief, Telecommunications Management Division for Atlantic Area, U.S. Coast Guard; Hosted Cocktails—Exhibit Viewing.

Friday, September 16, 1977

Ice — Moderator, **Ben Strickland,** vice president and general manager, Crowley Maritime Corp., San Francisco, Calif.

"Iceberg Threat in the Vicinity of Grand Banks," Lt. **H.G. Ketchen,** U.S. Coast Guard, Staff Oceanographer, International Ice Patrol, New York; "Harbor & Canal Ice," **W. Markham,** Director, Ice Forecast Central Environment Canada, Ottawa.

Currents—Moderator, Capt. **T. Inman,** Port Captain, Exxon Company, U.S.A., Houston, Texas.

"Gulf Stream," Lt. **H.G. Ketchen,** U.S. Coast Guard, Staff Oceanographer, International Ice Patrol, New York; "Expendable Bathy Thermographs," **Burt Thompson,** Chief, Ocean Services Branch, National Weather Service Headquarters, Washington, D.C.; "Utilization of Offshore Currents for Improved Efficiency," Dr. **J. Bishop,** Marine Assessment, N.O.A.A./EDS, Washington, D.C.; Buffet and Open Bar—Time Period for Viewing Exhibits.

Study Shows Worldwide LNG Production Increase —60 Carriers Needed

Initial projections on the worldwide use of liquid natural gas did not take into account the enormous technical, economic, and logistical hurdles that would arise in the attempt to bring LNG onstream. But now the initial obstacles are being overcome and that—combined with the energy demand in industrialized nations—assures that "a real breakthrough" is now imminent in the worldwide LNG market.

The conclusion, derived from a remarkably rich analysis that covers LNG technology, economics and markets, is documented in a 410-page study, titled "Worldwide LNG Markets," by Frost & Sullivan, Inc. in New York City. Specifically, worldwide LNG imports at $758 million this year will increase to $2.35 billion by 1980. But of even greater interest, adds the study, "the stage is set for a very important quantitative rise in LNG shipments to occur between 1980 and 1985." Worldwide imports will soar to $7.9 billion by the end of that period.

To create such worldwide LNG production capacity, industry will make some $17 billion in capital investments over the 10-year period as follows:

- Baseload LNG plants: Investments to total $7 billion in 16 equipment categories (controls, valves, heat exchangers, etc.) and three service categories, each analyzed in depth in the two-volume F&S study.
- Storage: Capital investment at $1 billion to boost LNG storage capacity by nearly 10 million tons.
- LNG carriers: A "conservative" forecast shows that some 60 LNG carriers will be necessary as a minimum to meet transportation demands, and this will entail a $9-billion capital investment.

The projections weigh the principal technology alternatives that include 21 different LNG production processes, all principal LNG carrier designs, and LNG production outlook on a country-by-country basis.

The United States, Japan, and Western Europe will continue to rank as the Big 3 LNG consuming areas throughout the decade period, but with the U.S. market that now accounts for 3 percent of the world market to overtake Japan as the biggest single consuming area. Japan currently accounts for 49 percent of the global market. In absolute terms, U.S. LNG consumption currently at 35,000 tons-a-year (T/y) will increase to 14.5 million T/y in 1980 and "explode" to 60 million T/y by 1985. Japanese LNG imports will also grow, of course, but at a slower rate—from 6 million T/y currently to 16.3 million T/y by 1980 and 40.3 million T/y by 1985. Western Europe imports, meanwhile, at 5.9 million tons in 1977 will increase to 8 million T/y by 1980 and 27.5 million T/y by 1985.

From a production point of view, Algeria will remain the "most important LNG exporter, even after 1985," the study says. This country alone has some 14 LNG trade commitments that run as long as 25 years and that will require some 44 additional LNG carriers. Iran is to become the second most important LNG-producing single country by the 1980s, even though the country is not yet producing any LNG. Indeed, Iran LNG exports will reach some 21 million T/y by 1985 to be shipped to Japan and the U.S.

To handle the load, Iran will need some 39 additional LNG carriers. Alaska, as the third ranking LNG-producing area, will be exporting some 80 million T/y by 1985, and it will require 15 additional carriers.

The projections, based on orders to materialize by 1980, suggest a 30 percent average annual increase in LNG trade. Fueling the growth is the vast quantity of oil-associated natural gas that is now flared, a desire to eliminate this "frightening waste of natural resource," demand by the industrialized countries for low polluting energy sources, and a worldwide business recovery that will now be able to finance very expensive LNG projects.

For further information, contact Customer Service, Frost & Sullivan, Inc., 106 Fulton Street, New York, N.Y. 10038.

Technical Marine Planning Named For Ship Conversion

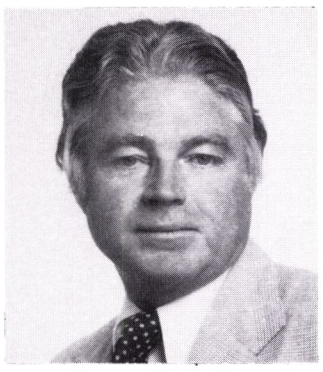
The Union Castle Liner S.A. Vaal, recently purchased by the Miami cruise operators Carnival Cruise Lines Inc., will be undergoing extensive reconstruction and conversion before commencing her passenger cruise service in the Caribbean next year.

Technical Marine Planning Ltd., the London consulting naval architects and marine engineers, have been retained by the vessel's new owners for the conversion project, including design, preparation of detailed specifications, and supervision during the reconstruction.

The vessel, to be renamed Festivale, will be extensively modified and rebuilt to double her present passenger capacity to a total of 1,400, with provisions of luxurious passenger amenities and recreation facilities to high-class modern cruise ship standards, and increase of crew accommodation to suit.

Bethlehem Steel Subsidiaries Name Collins And Coulahan

Two New York City office appointments in the water transportation subsidiary companies of Bethlehem Steel Corporation were announced by **Steven M. Moodie,** vice president, water transportation services.



George W. Collins

George W. Collins was named assistant vice president of Interocean Shipping Company, Steamship Service Corporation, and Venore Transportation Company, all wholly owned subsidiaries of Bethlehem Steel. He succeeds **Anthony J. Germano,** who retired May 31.

John P. Coulahan was appointed manager of chartering for the same companies, the position formerly held by Mr. **Collins.**

Mr. **Collins,** a graduate of Seton Hall University, joined the New York offices of the water transportation subsidiary companies in 1954, serving as a clerk in the bulk ore operating department.

In 1960, he was appointed senior transportation assistant, serving in several capacities until 1964, when he was named East Coast freight representative for Calmar Steamship Corporation. He later served Calmar as its manager of market development.

Mr. **Collins** became manager of the chartering department in 1975.

John P. Coulahan

Mr. **Coulahan,** a graduate of St. John's University, joined the water transportation subsidiaries in New York in 1952, serving as transportation assistant.

He was transferred to Sparrows Point, Md., in 1962, and was promoted to manager of domestic operations in 1963. He served in that capacity until 1972, when he was appointed to head marine personnel at Sparrows Point. Transferred to New York in 1975, he was named manager of planning and assistant manager of chartering.

Gotaverken Converts Cargo Ship To Carry 32,000 Live Sheep

Major conversion work on a 13,000-dwt general cargo vessel carried out at the Gotaverken shipyard in Goteborg, West Sweden, has resulted in the ship's transformation into a sheep carrier able to carry some 32,000 live sheep. The converted vessel, the Dorrit Clausen, has recently been redelivered to its Danish owners.

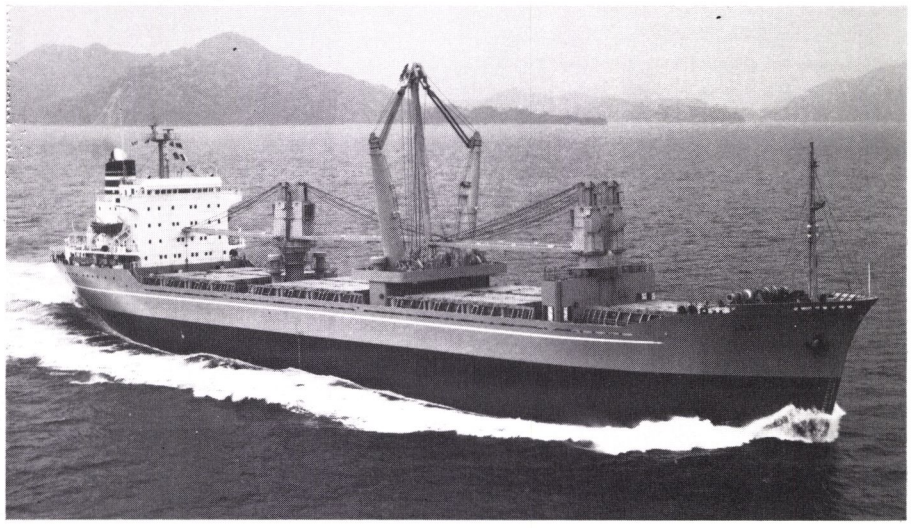
Six new decks—three of them below the weather deck — have been added, with five intermediate platforms, on which over 800 pens have been installed for the accommodation of the sheep. Pelletized feed is carried to troughs by automatic conveyor system from feed silos at fore and aft of the ship, while water is supplied from freshwater tanks.

A comprehensive ventilation system has been installed, and manure and urine are removed via gutters, ejectors, and conveyors. A special washdown system alloys the pens to be hosed down. Loading and unloading of the sheep is chiefly by the "walk-on, walk-off" system, via special ramps.

Decks and platforms above the weather deck are built in light alloy, while other new deck and platform structures are of galvanized steel. Deck surfaces have been coated with plastic composition or concrete, owing to the highly corrosive atmosphere to which they will be exposed.

Since an especially large crew will be required for the care of the sheep, an additional deckhouse housing 16 persons has been erected, and the existing deckhouse has been enlarged. A new wheelhouse has been built on top of the latter to provide a view over the new superstructure, Gotaverken says.

Hitachi Delivers First Of Two Multipurpose Carriers To West German Owner



The Tabora, a UC-20 multipurpose cargo carrier (shown above), was recently completed at Hitachi Zosen's Mukaishima Shipyard and delivered to her owner, Dal Deutsche Afrika-Linien GmbH of West Germany.

The Tabora is the first example of Hitachi Zosen's standard 20,000-dwt-class multipurpose Universal Cargo (UC-20) ship, and the first of two sisterships ordered by the West German company.

She is equipped to carry a wide variety of cargoes, such as grains, coal, ore or other bulk products, general, containerized or heavy cargoes, and lumber. To handle these products, she has one 180-ton heavy-duty derrick and two 31-ton twin cranes. Two rows of large hatchways are provided to facilitate container loading and unloading.

Powered by a Hitachi B&W 7K67GF type diesel engine, the Tabora has a length overall of 530 feet, a molded breadth of 75 feet, and a molded depth of 45 feet.

Halter Marine Delivers Large Supply Boat To George Engine Co.

Halter Marine Services, Inc., New Orleans, La., has delivered a new 166-foot offshore supply vessel, Fay Hebert, to its owner, the George Engine Co. of Harvey, La.

The ship's overall dimensions are 166 feet in length, with a 38-foot breadth, 13-foot depth, and a normal operating draft of 11 feet. Her normal displacement is 1,370 long tons.

The Fay Hebert has a fuel oil capacity of 28,774 gallons, a freshwater capacity of 7,480 gallons, and a lube oil capacity of 1,760 gallons.

The 12-knot vessel is powered by two Detroit Diesel 16V-149NA diesel engines rated at 900 horsepower each at 1,800 rpm. Her reduction gears are Lohmann Stolterfoht with a 5.90:1 ratio. She swings two 74-inch-diameter stainless steel propellers. Air controls are by Westinghouse, and the steering system was manufactured by Skipper Hydraulics.

The Fay Hebert is also equipped with a Murray Tregurtha 300-hp bow thruster driven by a General Motors 8V-71 engine. The boat is equipped with a bulk mud system comprised of four vertical tanks with a total capacity of 3,000 cubic feet of dry bulk mud.

Auxiliary, deck, and galley equipment aboard the Fay Hebert includes two 75-kw generators powered by two General Motors 6-71 diesels, an HBL anchor windlass, a 22 point alarm/engine monitoring system, two Quincy air compressors, a Barnes pumping system serving five fire stations, a 28-cubic-foot refrigerator/freezer, four-burner range, and dishwasher.

The new offshore ship is American Bureau of Shipping classed A-1, Maltese Cross, AMS, and is U.S. Public Health approved.

Halter Marine Services, Inc., operates seven shipyards in the United States, and is the world's largest builder of offshore support vessels.

Texaco Inc. Names John D. Ambler

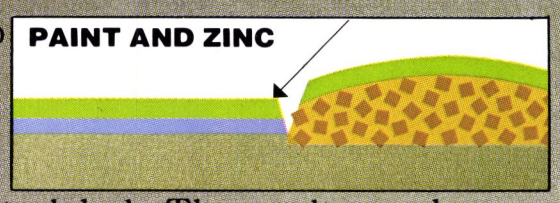
John D. Ambler has been appointed assistant to the president of Texaco Inc. In his new assignment, he will continue to be located in New York City.

Mr. **Ambler** was graduated from Virginia Polytechnic Institute with a Bachelor of Business Administration degree in 1956. He joined Texaco that same year as a sales trainee in the Marketing Department-United States at Norfolk, Va. In 1965, he was appointed district sales manager in Harrisburg, Pa., and in 1968, staff assistant, executive sales in New York.

Following assignments in Chicago and New York, Mr. **Ambler** was named general manager of Texaco Olie Maatschappij B.V. in Rotterdam, the Netherlands, in 1972. He was appointed managing director of Texaco Oil A.B. in Stockholm, Sweden, in 1975.

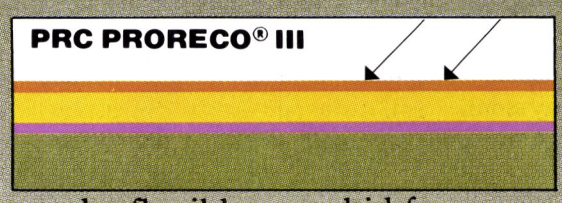
Before a coating can protect your deck, it has to protect itself.

Any damage to the surface of commonly used paint-type coatings will allow moisture to penetrate to your steel deck. The result: man-hours and materials must be invested in deck maintenance constantly, to control corrosion.



After rust has started to deteriorate the metal, you incur additional metal loss in sanding to remove the rust. The high costs of metal replacement become inevitable.

The PRC PRORECO® III system can virtually eliminate both on-going maintenance and major replacement costs. Unlike other coatings on the market, the resilient PRORECO® III system protects against abrasion and impact as well as corrosion. It does this with three layers: a corrosion inhibitive primer which does not sacrifice itself as do the zinc primer systems; an abrasion resistant base coat; and a flexible non-skid for crew safety.



PRC products have a proven track record in the most demanding high-wear conditions. Decks coated with PRORECO® III have seen years of heavy abuse with absolutely no repairs.

Whether you operate towboats, crew or supply boats, offshore drilling platforms, or the largest commercial vessels, you will find that PRC deck coatings pay for themselves many times over.

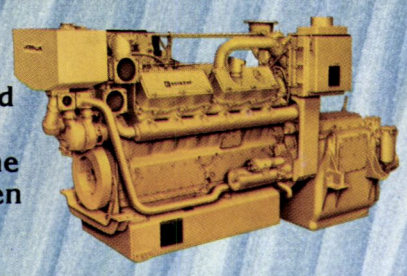
For information, call your nearest PRC representative or write to Rodney N. Morris, Marine Products Manager, PRC, 5454 San Fernando Road, Glendale, Calif. 91203.

PRC®

The PRORECO® III Deck Coating System

LOOK INTO THE 3400s

. . . for economy, dependability, profit!



Caterpillar 3400 Series Marine Diesels are designed to fit easily into space-limited engine compartments. Even the more powerful V8 or V12 models, with a 65° Vee, can be installed in narrow confines once restricted to in-line engines.

Large displacement results in fast, smooth response and long engine life. Fuel consumption is low. Simplified design reduces maintenance and service time. The 3400s have all the quality, durability and dependability you expect from a Caterpillar engine.

Cat 3400 Series Marine Diesels are offered in six horsepower ratings (250 to 520 continuous) for propulsion...in six ratings (185 to 395 kW at 60 Hz) for auxiliary power.

Your Caterpillar dealer has more information on the compact 3406, 3408 and 3412 Engines ...and on the full range of CAT PLUS™ services that back them. Give him a call.

CATERPILLAR

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APL Names Hubbard Senior VP Operations

William B. Hubbard, former Sea-Land Service, Inc., executive, has been appointed to the newly created position of senior vice president-operations for American President Lines. Announcement of the appointment was made by **D.L. Commons,** chief executive officer of APL and president of Natomas Company, controlling parent of APL.

Mr. **Hubbard** will have overall responsibility worldwide for American President Lines' marine and terminal operations, engineering and equipment maintenance. The appointment of Mr. **Hubbard,** said Mr. **Commons,** strengthens the APL management and places more emphasis on increasing the operational efficiency of the company.

Mr. **Hubbard's** appointment is effective immediately following more than 22 years of service with Sea-Land, Inc., where his diversified career spanned from sales representative to vice president and general manager, Mediterranean Division. For the past year, he served as vice president and general manager of Industrial Opportunity Incorporated, a McLean Industries company and corporate affiliate of Sea-Land.

He is a graduate of the United States Merchant Marine Academy with a B.S. degree in marine transportation.

Mr. **Hubbard** will be located at American President Lines' headquarter offices, 1950 Franklin Street, Oakland, Calif. 94612.

New National Supply Anchoring Windlass

A new heavyweight anchoring windlass offering major advances in braking capability and load control has been developed by National Supply Company for semi-submersible drilling rigs and drillships. The company says the D-520-E has been engineered to assure stability and safety under the higher loads resulting from the trend toward larger drilling vessels, greater operating depths and more severe offshore environments.

The D-520-E is a double wildcat, electrically powered design. Key improvements that contribute to greater load control are: Almost twice the wildcat braking area of the largest windlasses previously available from National Supply; a new, optional hydrodynamic auxiliary brake for controlled chain payout in deepwater mooring; and more positive, easier-to-set chain stopper mechanism.

The water-cooled band brake area on the wildcat pinion shaft has been increased by 92 percent, with substantial gain in thermal performance.

A second band brake operates on the motor pinion shaft and releases automatically when the motor is energized.

The combined capacity of the two brakes is 926,000 pounds. National says the rating is a "real" figure based on a friction coefficient of .33 typical with moisture conditions on working rigs. Computed at a coefficient of .40, the rating would approach 1,500,000 pounds, the company notes.

For additional braking control, National Supply offers as an option the newly developed auxiliary brake. Fitted to the gearbox, the brake is a hydrodynamic-type of essentially the same design as used on the drawworks. It was selected for its proven performance and the familiarity of oilfield people with its operation and maintenance, says National Supply.

National Supply manufactures the widest range of drilling, production and related equipment in the oil and gas industry. It produces a complete line of windlasses, winches and fairleaders for marine and drill rig mooring system. For literature on National Supply's complete line of mooring equipment, write **William D. Marmack,** National Supply Co., Division of Armco Steel Corp., 1455 West Loop South, Houston, Texas 77027.

Diamond Building Full Revolving Crane For Port Of Tampa

Diamond Manufacturing Company, Inc. of Savannah, Ga., was recently awarded a contract to design, fabricate and erect a full revolving crane for Tampa Ship Repair and Tampa Port Authority of Tampa, Fla.

The crane, which is to be put in service in 1978, is rated 100-ton capacity on a 100-foot gantry with a 200-foot boom. Power for the crane will be diesel electric with a two-drum main auxiliary hoist plus an independent boom hoist.

For further information on Diamond cranes for shipyard, port or construction use, contact **Donald McGriff**, the Material Handling Division of Diamond Manufacturing Company, P.O. Box 608, Savannah, Ga. 31402.

Shallow Water Maneuvering Trials Completed In Gulf

The 278,000-dwt supertanker Esso Osaka successfully completed shallow water maneuvering trials on August 3, 1977 in the Gulf of Mexico southwest of Galveston, Texas, it was announced by Exxon Corporation. The trials, which took nine days, were made in water depths providing as little as 11 feet under the keel of the ship, which had a draft of 71.5 feet.

The trials were sponsored by the U.S. Maritime Administration, U.S. Coast Guard, and industry represented by The American Institute of Merchant Shipping (AIMS). The following companies are contributors to the AIMS effort: Chevron Shipping; Gulf Trading & Transportation Company; El Paso LNG; Exxon Company, USA; Interstate Oil Transport, Company; Mobil Shipping & Transportation Company; SOHIO; Sun Transport Inc.; Shell, and Texaco.

The primary objective of the trials is to increase the understanding of how large ships maneuver in shallow water. While a vast amount of information on shallow water maneuvering, including model data, is available, the Esso Osaka trial was the first full-scale shallow water maneuvering trial of a very large crude carrier (VLCC) anywhere in the world to obtain data under carefully planned conditions. This knowledge will be used to improve computer programs for shiphandling simulators now being used for the training of ships' officers and pilots. It will also assist in the research and design studies of ships, their equipment, waterways, aids to navigation, and traffic controls.

An increasing number of responsible tanker owners are placing considerable reliance on training their mariners using shiphandling simulators, with particular emphasis on handling their ships in shallow water. Use of shiphandling simulators for vessel and waterway research and design is also increasing.

In addition, the trial results will sharpen the data upon which the size and configuration of deepwater port safety zones are based. It will provide direct shiphandling maneuvering information for ships' officers and pilots under realistic shallow water conditions, and will help researchers to better understand effects of size change in expanding results of model studies to the performance of real ships.

This safety-oriented program has involved extensive cooperation between the government and the marine industry. For example, MarAd handled the contracting, the Coast Guard provided the buoy tender services of the cutter Blackthorn and patrol services of the cutters Durable and Point Monroe, and Exxon International Company managed the program and provided the trial ship. The AIMS Tanker Council coordinated industry participation both for its members and other shipowners. Other participants in the project included Sippican Corporation, oceanographers of Marion, Mass.; the U.S. Navy Trials Branch of Carderock, Md.; AMETEK Straza Division, El Cajon, Calif., and Decca Survey Systems, Inc. of Houston, Texas. The Society of Naval Architects and Marine Engineers, Massachusetts Institute of Technology, Stevens Institute of Technology, and Hydronautics, Inc. were also involved.

Gross Tonnage In ABS Classification Exceeds 100-Million Mark

Total amount of vessel tonnage in American Bureau of Shipping classification passed 100-million gross tons in July for the first time in the ship classification society's 115-year history. As of July 31, there were 14,993 vessels of 100,111,236 gross tons, or 178,192,423 deadweight tons, in ABS class.

In announcing the figures, ABS chairman and president **Robert T. Young** said that ABS passed the 50-million gross tonnage mark in 1966. "With the tapering off in construction of the larger tankers," **Mr. Young** said, "we cannot expect to maintain this rate of tonnage increase. However, we do expect that the total number of vessels in ABS classification will continue to increase."

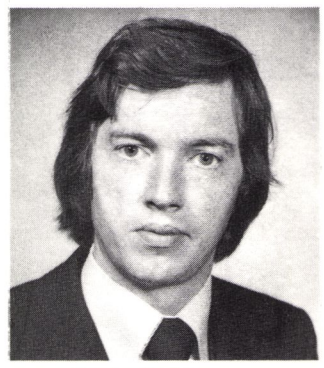
In July, ABS classed 112 new vessels of 463,086 gt, or 823,832 dwt, worldwide. The new vessels included eight offshore drilling units, two manned submersibles, one oil pollution control tanker, four oil tankers, and 10 bulk carriers.

Among the drilling platforms are four column-stabilized units — the United States-flag Sedco 708, built by Kaiser Steel Corp., Oakland, Calif., for Sedco Maritime, Inc., Dallas, Texas; the United States-flag Zapata Yorktown, built by Avondale Shipyards, Inc., Avondale, La., for Zapata Off-Shore Company, Houston, Texas; the Panamanian-flag Ocean Bounty, built by Mitsubishi Heavy Industries, Ltd., Hiroshima, Japan, for Odeco Niho, S.A., Panama, and the United States-flag Sedco 709, built by Hawker Siddeley Canada Ltd., Halifax, Nova Scotia, for the United States Trust Company of New York.

The two submersibles classed are the PC 1801 and PC 1802, French-flag vessels designed for underwater inspection and research. The vessels were built by Perry Submarine Builders, Riviera Beach, Fla., for Northern Offshore Services (UK) Ltd., London, England.

Also classed was an oil pollution control tanker, the Bay Skimmer, a 65-foot vessel fitted with oil sweeping and skimming features that will operate in Irish waters. The twin-screw vessel was built by Blount Marine Corporation, Warren, R.I., for Gulf Oil Terminals Ltd., Bantry, Ireland.

Airfilco Appoints Kevin McPherson



Kevin McPherson

John Riley, vice president and general manager of Airfilco Engineering, Inc., has announced the appointment of **Kevin McPherson** as projects manager, with special responsibility for the commissioning and servicing of inert gas systems and generators.

The appointment is part of Airfilco's overall backup program for inert gas systems presently being supplied in the United States at Avondale Shipyards, Inc., National Steel and Shipbuilding Company, and Sun Shipbuilding and Dry Dock Company.

A special aspect of Mr. **McPherson's** appointment will be the development of training facilities and program for the ship operators who will be using the inert gas systems.

This training facility is intended for general application for all operators, whether or not the inert gas system is of Airfilco design and manufacture.

Airfilco carries out surveys of all types of inerting equipment in their other role as independent consultant in the tanker safety field.

Mr. **McPherson** is a graduate chemical engineer who has specialized on the design and construction of inert gas systems since 1971, and his experience includes the survey and commissioning of inert gas equipment throughout Europe at the majority of tanker construction shipyards.

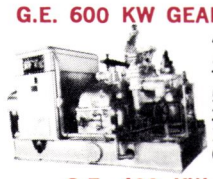
TURBO GENERATOR SETS

G.E. 1500 KW A.C. TURBO GENERATORS

1 

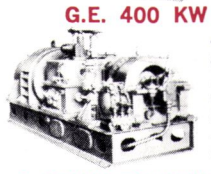
1500 KW — 450/3/1200 RPM —0.8 P.F.—2450 amps—525 PSI—850°TT—8145 RPM—11-stage geared 8145/1200—type FN4 — 3½" steam inlet. Unit will deliver full power at 440 lbs & 760°TT. OAL 16' 3-3/8"—OAW 6'6"—OAH 7'5¼"—wt. 36000 lbs. Almost equal to new. Very little use. With ABS or Lloyds.

G.E. 600 KW GEARED TURBO GENERATORS

2 

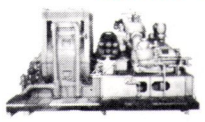
450/3/60/1200 RPM — 961 amps — type ATI — 0.8 PF. TURBINE: FSN-FN-20 6-stage—525 lbs/825°F — superheat 355°/371°F. GEAR: 10033/1200 — RPM 10033 — total — 6390 lbs. steam/hr. steam flow.

G.E. 400 KW TURBO GENERATORS

3 

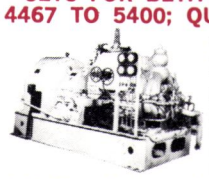
450/3/60/1200—0.8 PF—641 amps. TURBINE: 6-stage — 10059 RPM—525 lbs/825°TT — type GE 618N. Steam rate 5100 lbs/hr. — OAL 10' 10½" — OAW 4' 10½" — OAH 5' 5¼" — wt. 14,855 lbs.

2 EQUAL-TO-NEW LATE TYPE 500 KW SHIPS SERVICE TURBO GENERATORS

4 

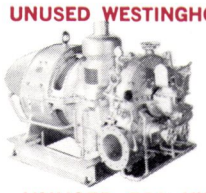
1962 DeLaval. Very little use. Completely preserved with rotors and diaphragms crated separately. TURBINE: DeLaval 585 PSI—840°TT—6-stage—6391 RPM — class CD. Also suitable 440 lbs — 740°TT — 25" vac. GEAR: 6391/1200 RPM. GENERATOR: Allis-Chalmers 450/3/60. Totally enclosed with static exciter and voltage regulator system. Weight 17,665 lbs. Complete with latest deadfront switch gear. Also available are the condensers, circulating and condenser pumps. All very up-to-date, compact construction. Turbines will easily handle 600 KW if up-grading is desired.

400 KW WESTINGHOUSE TURBO GENERATOR SETS FOR BETH-SPARROWS POINT HULLS 4467 TO 5400; QUINCY HULLS 1600 SERIES

5 

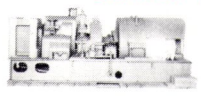
400 KW (500 KVA) — 0.8 PF — 1200 RPM — 450/3/60. TURBINE: 585 lbs—840°TT—28½" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA — 400 KW—450 volts—641 amps—0.8 PF — 3-phase 60-cycle — 1200 RPM — CR 40° — excitation amps 41 — excitation voltage 120. Instruction book 5442. Switchgear available.

UNUSED WESTINGHOUSE 60 KW 120 VDC M-20-EH

6 

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.

UNUSED 500 KW DELAVAL-WESTINGHOUSE GEARED TURBO GENERATOR

7 

GENERATOR: Westinghouse 500 KW — 120/240 volts DC — 2080 amps — 1200 RPM — stab. shunt. TURBINE: DeLaval — 730 HP — 440 PSI working pressure condensing. Temperature 740° — 9977 RPM. HELICAL GEAR: 9977/1200 RPM. Serial # of turbine 245204 — weight 22,000 lbs.

TURBINES & ROTORS

BETH-SPARROWS POINT, QUINCY HULLS

8
1 HP Turbine or rotor — Bethlehem
1 400 KW Stator only — Westinghouse
1 HP turbine casing only — Bethlehem
1 Complete Westinghouse 400 KW turbo generator set
1 Forced draft motor fan
1 Anchor windlass — 2 11/16"
Steering gear motors — 15 HP
Forced draft fan impeller

WESTINGHOUSE C-25 CARGO PUMP TURBINE ROTOR

VICTORY-AP2 MAIN PROPULSION

9 Westinghouse AP2 19-stage HP rotor for 6000 HP Victory — serial #4A-2079 — equal to new.
Unused surplus AP2 — Victory Ship complete HP & LP turbines
Allis-Chalmers HP & LP
Westinghouse LP AP2 with throttle valve
G.E. HP & LP with throttle valve

VICTORY-AP3 MAIN PROPULSION NEW 8500 HP G.E. TURBINES

10 Large Victory or C-3
HP #72271 LP #72272
10 Boxes spare parts, tools & fittings. With maneuvering valves.

8500 HP G.E. — C-3 OR VICTORY

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

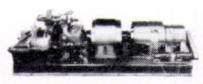
VICTORY SHIP AUXILIARY TURBO GENERATOR SET ROTORS

12 300 KW 5965 RPM JOSHUA HENDY

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

ALSO WESTINGHOUSE 2A & 5A SERIES

– FOR T-2 VESSELS –

13 

TURBINE: DORV-325M — 525 KW — 5645 RPM — 435 PSIG — 28" exhaust. REDUCTION GEAR: S-162 — form D — 5641/1200. A.C. GENERATOR: 500 KVA — 400 KW — 440/3/60 — 1200 RPM — 0.8 PF. D.C. EXCITATION GENERATORS: 75/55 KW — form AL — 110 volts DC. With new type amplydines.

538 KW WESTINGHOUSE T-2 AUXILIARY GENERATOR — COMPLETE

14 TURBINE: 538 KW @ 5010 RPM — 438 PSIG — 750°TT — 28½" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW—450/3/60/1200—0.8 PF. DC EXCITER: 32.5 KW — 120 volts (variable voltage) — shunt — 4-pole — DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

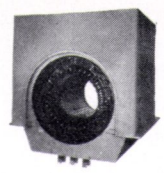
T-2 UNUSED G.E. MAIN PROPULSION STEAM TURBINE WITH ROTOR

15 10-Stage — 435# — 720°TT — turbine complete with rotor — serial #109166 — 4925/5400 KW — 3600/3720 RPM — 28.5" vacuum.

WESTINGHOUSE MAIN PROPULSION STEAM TURBINE WITH ROTOR EX-CHEVRON VESSEL "MACGAREGILL"

16 Shrouded—like-new condition. Will sell rotor separately.
WESTINGHOUSE MAIN PROPULSION TURBINE
Ex"Pecos" — unshrouded — serial 2A-7733-2 type A

UNUSED G.E. MAIN PROPULSION STATOR

17 

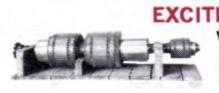
Type ATB-2—serial #6978272. 2300/2370 volts — 60/62 cycles — 3-phase — 3600/3720 RPM — armature amps 1237/1315 — 4925/5400 KW — 1.0 PF.
Westinghouse stator — from Ex "Pecos"

WESTINGHOUSE REVOLVING FIELDS

18 

For T2SE-A-1 Tankers. With ABS. Just received back from Westinghouse Service Shop. Ex-Chevron vessel "MacGaregill".

WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE

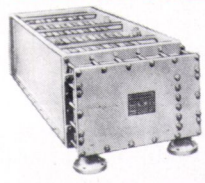
19 

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

538 KW WESTINGHOUSE AUXILIARY TURBINE ROTORS

20

WESTINGHOUSE T-2 TANKER MAIN GENERATOR COOLERS & MAIN MOTOR COOLERS

21 

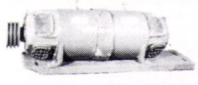
Reconditioned — with A.B.S. Units all ready to ship.

G.E. 525 KW AUX. GENERATOR EXCITER ARMATURE

22 

75-55 KW

NEW STYLE AMPLIDYNE

23 

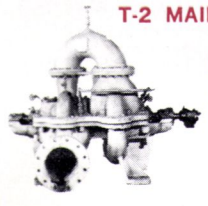
5LY148A2 — type A.M. — frame 605

AUXILIARY GENERATOR ROTORS

24 

G.E. aux. generator rotors — DORV-325M — for 525 KW turbo generator sets

T-2 MAIN CARGO PUMPS

25 

Ingersoll-Rand 6GT — 2-stage — bronze — 2000 GPM — 280' head

G.E. 200 H.P. CARGO PUMP MOTORS

26 440/3/60/1750 RPM — 40° — Frame 557-Z

MISSION TANKER T2SEA2 CIRCULATING PUMP MOTOR

27 150 HP — 440/3/60/590 RPM. Frame 6335 — type KF — 204 amps

T-2 MAIN ROTOR

28 

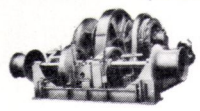
LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR

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

T-2 MISCELLANEOUS, PUMPS ETC.

29 10 HP Labour Self-Priming Bilge Pumps • Rudder 13½" Rudder Stocks • Main Injection 3-Way Valve Main Condensate Pumps • Fuel Oil Service Pumps Magnablast Breaker • 1 Set New Bull Gear & Pinion for G.E. 525 K.W. Diesel Gen Model S-162 • 32", 24", 15" Rubber Expansion Joints • Mission Tanker Steering Gear Pumps

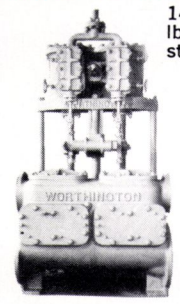
T-2 WINDLASSES
(Located West Coast)

30 

AH&D Model S-505 — for 2 5/16" chain. Engine 12x14 — operating weight 42,700 lbs. F.O.B. Portland, Ore.
1 Hesse Ersted — 12x14 — from Pecos

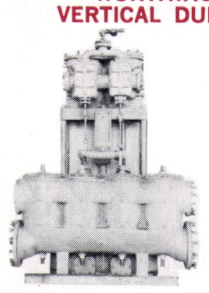
PUMPS

BRONZE T-2 TANKER STRIPPING PUMPS

31 

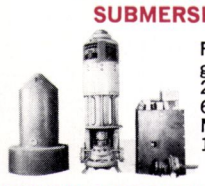
14x14x12 — 700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.

WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

32 

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

NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

33 

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.

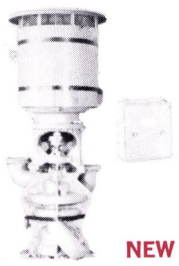
NEW BLACKMER FUEL OIL TRANSFER PUMP

34 

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

UNUSED BLACKMER VERTICAL ROTARY PUMP

35 4″ — 100 GPM — 100 PSI — 15 HP — 440/3/60 — gear head



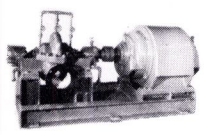
UNUSED BRONZE FEED-WATER BOOSTER PUMPS

36 220/237 GPM @ 144′ head — 2-stage — 1750 RPM with 30 HP 440/3/60 motor control & spares. Built for USN

NEW DeLAVAL PUMPS
Fuel Oil Service
Testing
Boiler Feed

37 High pressure rotary pumps — 186 GPM @ 1300 PSIG — 1750 RPM. Electro-Dynamic 20 HP motor — 440/3/60/1740 RPM.

400 GPM BRONZE FIRE & FLUSHING PUMP



38 400 GPM @ 150 lbs. 73 HP — 440/3/60/3550 RPM — 6″ suction — 5″ discharge

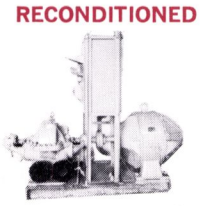
BRONZE FIRE OR GENERAL SERVICE HIGH PRESSURE PUMPS — BRONZE

39 2000 GPM — 337′ head — mfg by Frederick Iron & Steel Co. — 8x8 — bottom suction —side discharge. MOTOR: 250 HP — 230 volts DC — 1900 RPM — 880 amps. With controller & grids. Condition like new.

TURBINE FIRE PUMPS — BRONZE

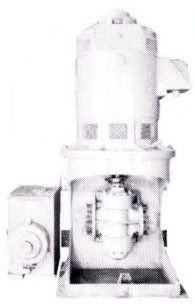
40 Worthington turbine — 440# — 448° — 3500 RPM — 75 HP — 15# back pressure — 750 GPM @ 125 lbs — 6″ suction — 4″ discharge.

RECONDITIONED WORTHINGTON FIRE PUMP



41 UBI — 3″ — 450 GPM — 125 lbs — 1750 RPM. MOTOR: 50 HP — 230 VDC — 178 amps — type SK — frame 133 — compound — 1310/1750 — with magnetic starter.

LUBE OIL SERVICE PUMP



42 Quimby-Rotex — size 6D — 500 GPM @ 70 lbs — 6″x6″ flange — 720 RPM. MOTOR: Allis-Chalmers — 40 HP — 230 VDC — type EBV-147S — stab. shunt — 148 amps. Complete with starter and rheostat — designed originally for C-1MAV-1 vessels.

DIESEL GENERATOR SETS

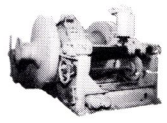
410 KW ENTERPRISE DIESEL GENERATOR SET

43 Enterprise DSG-6 6-cylinder diesel engine driving Westinghouse generator. 250 volts DC — 1640 amps — 650 RPM — shunt wound.

WINCHES AND WINDLASSES

100,000 LB ALMON JOHNSON CONSTANT TENSION MOORING WINCHES WITH UNUSED SURPLUS CONTROLS

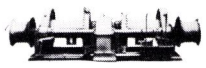
44



1 Available. In very good condition. Series 232 mooring and anchoring winches — automatic self-tensioning. Wide range from 100,000 lb line pull @ 10 FPM to 26,000 lbs @ 400 FPM. Gypsy line pull 12,000 lbs @ 125 FPM. Driven by 50 HP 230 VDC.

DOUBLE-DRUM TOWING-MOORING-UTILITY WINCHES

45



DUTY:
30,000 LBS @ 50 FPM—15,000 LBS EACH DRUM USING BOTH DRUMS SIMULTANEOUSLY

DRUM: 22″ diameter — 36″ face — 2500 ft of 1¼″ wire. Has spooling device. MOTOR: 75 HP — 230 VDC — under-deck mounted — 262 amps — 1140 RPM. Complete with all controls. Mfg by Commercial Iron Works. Winch heads declutchable. OAW 16′9″ — OAH 57″ — OA depth 7′7″.

LIDGERWOOD DOUBLE DRUM TOWING & MOORING WINCHES

46

Capacity of wire: 1800′ of 1/4″ wire each drum. Duty each drum 30,000 lbs at 10/50 FPM. Both drums simultaneously 15,000 lbs each. Gypsy heads on either end. MOTOR: 75 HP — 120/240 volts DC — 254 amps — 575/1150 RPM. All controls.

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

47

2¼″ Chain and two 10,640 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.

9 x 12 2-SPEED ALL-STEEL STEAM WINCHES
for use as
MOORING WINCHES
OR GENERAL USE

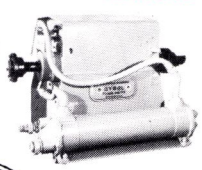
48 **20,000 LBS @ 110 FPM — 7450 LBS @ 250 FPM**

DRUM CAPACITY: 1250′ of 1″ wire in 9 layers or 2200′ of 3/4″ in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22″ diameter — 20″ between flanges; flange diameter 40″; two 16″ gypsies. Drum brake—contracting band type—asbestos lining—foot operated. WINCH DIMENSIONS: 12′ long—8′ wide—5′10″ high. Reconditioned by U.S. Navy. Equal to new.

MISCELLANEOUS

MARINE GYROL FLUID DRIVE

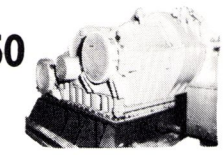
49



Type VS — class 2 — dual rotation. Mfg by American Blower — complete with oil cooler. Speed range 200 RPM minimum to 1750 RPM maximum. Unit locates between motor and pump. Suitable for pumping molasses, oil products, etc.

DOUBLE INPUT — SINGLE OUTPUT DIESEL REDUCTION GEARS — UNUSED

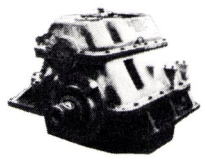
50



Farrell-Birmingham — 3200 shp. REDUCTION GEAR: 1.81:1 — handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port & starboard.

1 SET LST
REVERSE & REDUCTION GEARS

51



Port and starboard — with Airflex clutch. RATIOS: Forward 2.48:1 — Astern 2.52:1. Suitable for use with 12-567A and 12-278A propulsion engines.

EQUIPMENT FROM 1965 EX-CHEVRON TANKER "ELMER PETERSON" 19,500 S.H.P.

G.E. 750 KW TURBO GENERATOR—TYPE DVR-618N

52 TURBINE: 10022/1200 RPM—600#—850°F — 2″ exhaust — 6-stage. GENERATOR: 750 KW—0.8 PF—450 volts—60 Hz—1200 RPM —3-phase—model 5SJ2114AZ

G.E. 700 HP CARGO PUMP TURBINE AND GEARS

53 5000/1425 RPM — gear output. G.E. type DP-25M — 560 PSIG — exhaust 2 PSIG — temperature 490°

STEERING GEAR PUMPS

54 Heleshaw—L.P.36—serial #11955-11956

BOILER SAFETY VALVES

55 4″ and 2″ — Foster Wheeler boilers — 7150 sq. feet — FWB-3-37-4369/4370

SPARE IMPELLER

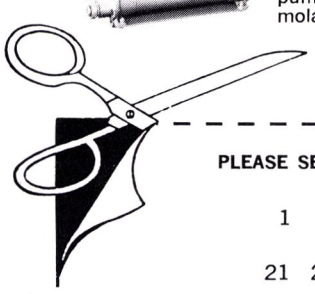
56 For main circulating pump

MAIN CIRCULATING PUMP AND MOTOR

57 G.E. motor—150 HP—440/3/60/705 RPM. PUMP: Worthington 24LV16 — 700 RPM — type KFR

58 **16″ BRASS PORTLIGHTS**

15″ and 16″ brass portlights. 16″ portlights are 3-dog type.



PLEASE SEND INFORMATION ON THE FOLLOWING: (Please circle items) **9/1/77**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

21 22 23 24 25 26 27 28 29 30 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 .....

Joseph Hurley Named President ITT Decca Marine

For a considerable length of time, **Derek Paget-Clarke** has been acting as general manager of ITT Decca Marine, pending the appointment of a new president for the company.

Mr. **Paget-Clarke** carried out extensive reorganization of the company, was responsible for the recent move to Palm Coast, Fla., and took care of directing day-to-day business.

Joseph Hurley has now been appointed president of IDM and will take up his duties immediately, with Mr. **Paget-Clarke** remaining on the board of directors and advising and assisting Mr. **Hurley** for a time.

Mr. **Hurley** is a graduate of the U.S. Naval Academy and has a wide background in high technology electronics in the U.S. and England. His naval experience ranges from a tour on the USS Missouri to destroyer escorts. Commercial experience spans 23 years in electronics and semiconductors.

Mr. **Hurley** has long been associated with ITT Corporation, where he has managed Portugal and California operations. Since 1969, he has been general manager of the ITT Semiconductor Company, based in Sidcup, England. One of the major programs there was special reliability amplifiers for trans-Atlantic cables.

"I am pleased to join a company with such a favorable position in its field," Mr. **Hurley** said when taking over his new job. "Both Decca and ITT have long established leadership positions in advanced electronic equipment, especially in high reliability applications."

Joseph Hurley

Over half the large ships in the world depend on Decca radar for the reliability they must have, he pointed out. And ITT transocean telephone cables, with more than a thousand amplifiers, must have a life expectancy of 25 years before an amplifier failure.

"Today's ecological demands have greatly increased the need for marine electronics," Mr. **Hurley** added. He cited current government consideration of a proposal to require all large ships entering U.S. waters to carry Loran-C navigation equipment in order to reduce the number of groundings and accidental oil spills.

Houston System Buys Shipyard In Louisiana

W.F. Haley, president of Houston Systems Manufacturing Company, 6022 Cullen Boulevard, Houston, Texas 77021, has announced the acquisition of the assets of Gulf Overseas Service Corporation located at the Port of New Iberia, La. The assets acquired include a 30-acre shipyard with over 3,000 feet of slip frontage, an office building, a 2,000-ton barge launchway, cranes and other equipment used in marine construction and heavy steel fabrication. Mr. **Haley** stated that the addition of this shipyard, which is adjacent to Houston Systems' marine construction facility at the Port of New Iberia, enables Houston Systems to fabricate larger offshore production platforms and to build custom, oceangoing barges including deck-cargo, hopper and fuel barges.

Houston Systems, with headquarters in Houston, designs and manufactures onshore and offshore drilling equipment, offshore platforms, drilling and production modules, marine cranes, special lift and handling systems, and other large, specialized hydraulic systems for energy-related industries worldwide.

Three Appointments At Chevron Shipping Co.

Chevron Shipping Company, San Francisco, Calif. 94105, has announced that **G.W. Colberg,** vice president and general manager of Chevron Shipping's Engineering Department, has retired after more than 40 years of service. As a result of Mr. **Colberg's** retirement, the following appointments became effective on August 1.

J.B. Arado, formerly manager, Maintenance & Repair Division, has been appointed to the position of vice president and general manager, Engineering Department, succeeding Mr. **Colberg; E.F. McCann** has been appointed to manager of the Maintenance & Repair Division, succeeding Mr. **Arado,** and **E.M. Palmieri** has been appointed to the new position of manager of the Design & Construction Division.

Oceangoing Split Hull Self-Propelled Dredge Completes Trials In Gulf

The hopper dredge Manhattan Island, first split hull, self-propelled hopper vessel built in the U.S., completed its sea trials recently, and was awarded certification by the American Bureau of Shipping and the U.S. Coast Guard.

Initial trials were held in Lake Pontchartrain, La. Because of its unique design, additional trials were held in Gulfport, Miss.

The purpose of the trials, which are required by the U.S. Coast Guard and ABS, is to put the ship through a series of tests for general seaworthiness and to evaluate her dredging capabilities, according to **J.R. Gillespie,** general manager of North American Trailing Company which owns and operates the dredge.

The demonstration of dredging capabilities was also observed by the U.S. Army Corps of Engineers.

The North American Trailing Company is a subsidiary of Great Lakes Dredge & Dock Company of Chicago, with the participation of Amsterdam Ballast Dredging of Amstelveen, the Netherlands.

Certificates of both ABS and the U.S. Coast Guard define the class of the ship and her load line. Because of U.S. Coast Guard certification, she will be registered as a U.S. vessel for service in all oceans. The proper manning requirements are also stipulated.

The ship will initially be employed by NATCO on the Eastern Seaboard and Gulf Coast, working on maintenance dredging and beach nourishment projects under the management of the U.S. Army Corps of Engineers.

The board of directors recently authorized the construction of a second hopper dredge to the NATCO fleet, according to **J.A. Downs,** president. "The plans and specifications will be made available to various shipyards within 30 days."

Captain of the Manhattan Island is **Leroy Platt,** who formerly served with the Marine Division of Bethlehem Steel Corporation.

The Manhattan Island has a carrying capacity of 3,600 cubic yards, with a split hull made up of two longitudinal half sections hinged together at the deck.

"The concept is almost 100 years old," according to Mr. **Gillespie,** "but this is the first time it has been incorporated into the design of an oceangoing self-propelled hopper dredge."

The ship is 281 feet long, with a loaded draft of 19½ feet and a light draft of 9½ feet. The total installed horsepower is 6,750, operating for 14 days without refueling. It cruises at 12.5 knots light and 11.5 knots loaded, and has a capability of dredging to a depth of 70 feet.

Great Lakes Dredge & Dock Company, the largest dredging contractor in the Western Hemisphere and one of the largest in the world, is listed on the New York Stock Exchange. In addition to the corporate headquarters in Chicago, Ill., the company maintains offices on the Atlantic, Pacific and Gulf Coasts, as well as overseas offices in Argentina, Venezuela, Saudi Arabia and the United Arab Emirates.

Dravo Corporation Appoints Peter Sour

Peter K. Sour has been appointed group controller for Dravo Corporation's Equipment & Transportation Group.

Mr. **Sour** joined Dravo in 1975 as vice president, finance of Union Mechling Corporation, Dravo's subsidiary barge line. He will retain this post in addition to his new responsibility.

Mr. **Sour** attended Cornell University, graduated from New Haven College with a bachelor's degree in business administration, and most recently completed the Advanced Management Program at the Harvard Business School. He is a member of the National Council of Physical Distribution Management, the National Association of Accountants, and the American Production and Inventory Control Society.

Dravo's Equipment & Transportation Group includes, in addition to Union Mechling, Dravo's heavy equipment distributors, Dravo Doyle in Western Pennsylvania, Dravo Marks in Ohio, and Dravo Cal-Ore in the Pacific Northwest. Dravo's other operating groups are Engineering Construction, Manufacturing and Natural Resources.

Blount Offers Brochure Describing Shipyard And Drydock Facilities

Blount Marine Corporation, located in Warren, R.I., has produced a new brochure containing photos and descriptions of its line of steel vessels and its shipyard and drydock facilities.

Blount Marine designs and builds a variety of hulls from 65 to 250 feet, including passenger and vehicle vessels, offshore tug/supply vessels, research vessels, party fishing boats, tugs, and tankers.

For a free brochure, write to **M. Blount,** Blount Marine Corporation, P.O. Box 368, Warren, R.I. 02885.

ITT Decca Marine Introduces 'Clearscan' New Radar Technique To Reduce Interference

Pictured at the Decca press conference, left to right: **Louis Foy,** Decca Radar, London; **Walter Finney, Robert Burns** and **Alan Thompson,** ITT Decca Marine, Inc., New York, and **John Gunner,** Decca Radar, London.

At a recent press conference held at the Seamen's Church Institute in New York City by ITT Decca Marine, Inc., a major technological breakthrough in marine navigation, the new Decca "Clearscan" Radar was introduced.

According to ITT Decca Marine, Inc., the U.S. distributor for The Decca Radar Company of Great Britain, Clearscan uses advanced video enhancement techniques to automatically suppress virtually all the things that make it difficult for an operator to locate ships, buoys, land masses, etc.

For example, on the conventional radar screen, such things as rain, or even the tops of waves, can show as a solid mass which blots out images of ships in that vicinity. The operator can adjust his reception manually to eliminate such "rain and sea clutter" in that sector. But, in doing so, he may also eliminate important "targets" in that sector as well as targets in other sectors.

Clearscan works in every sector, automatically suppressing not only rain and sea clutter but also other types of interference as well—without losing the significant images the operator must see. At the same time, it brightens and enlarges these images so they are more easily seen and identified.

The result is a radar picture of unprecedented clarity, completeness, accuracy, and brilliance. And the picture is maintained continuously, without any adjustment whatsoever by the operator.

Clearscan is being offered in two parts: the VP-1 and VP-2 (Video Processors 1 and 2).

The VP-1 printed circuit board, which is a direct replacement for the video board in existing solid-state units, provides automatic suppression of sea and rain clutter. The VP-2, which will be available in early 1978, is an optional "black box" unit that may be used with Decca radar equipped with VP-1. The VP-2 circuitry suppresses interference from receiver noise and other ships' radars. It also brightens weak echoes and "stretches" small echoes on the 12, 24, and 48 (or 60) mile ranges for better viewing.

According to a Decca executive, sea trials of Clearscan have been going on for the last 18 months. He indicated that Clearscan has been successfully tested on a variety of vessels—an ocean ferry, containership, fishing boats—and in several different waters, including the North Sea and North Atlantic.

"The new Clearscan Radar has to be seen to be believed," says **Alan Thompson,** sales manager of ITT Decca Marine, the U.S. distributor for Decca Radars. "Clearly, it's a major advance in radar technology . . . certainly the most important in the last 10 years."

For complete information on Clearscan Radar, write to Mr. **Thompson** at ITT Decca Marine, Inc., P.O. Box G, Palm Coast, Fla. 32037.

Hyundai To Build Full Containerships

Hyundai Shipyard has signed a contract to construct two 18,000-dwt containerships for Hanjin Transportation Co.

This is in line with the second phase of the government's Fleet Expansion Program to build vessels including containerships, totaling 1,000,000 tons by 1981, at domestic shipyards.

Another contract was signed by HDS and Korea Shipping Co. for the construction of a 25,000-dwt containership.

Red Fox recommended a 7 year old MSD for this new boat.

IT LED THE INDUSTRY THEN, AND IT LEADS THE INDUSTRY NOW.

When Tidewater Marine outfitted the Moon Tide as their most modern, sophisticated Towing-Supply class vessel, they came to Red Fox for the MSD.

Our Type II MSD, has been an industry benchmark since 1970, and meets the toughest USCG and IMCO standards for effluent discharge. Even standards scheduled to take effect in the future.

Tidewater chose the Red Fox MSD for efficiency of operation today, and because it exceeds future standards to avoid the necessity for costly changeovers later.

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P.O. Drawer 640
New Iberia, Louisiana 70560

Right now is the time to install a Red Fox MSD in your vessel or offshore operation. Delivery and installation can be accomplished in only 6 to 8 weeks, and you'll also have the easiest to operate Type II MSD known; a compact, continuous aeration system without filters, incinerators, holding tanks, or special commodes. It'll operate in Fresh or Salt water with only an occasional addition of inexpensive household bleach. No expensive chemicals, sludge removal, and no specially trained personnel.

Fill out the coupon and we'll show you that the Red Fox MSD is the clear solution for the future.

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P.O. Drawer 640 New Iberia, Louisiana 70560 318/365-8131 Telex 586680

Lloyd's Register Completely Revises Rules For Marine Refrigerated Cargo Installations

Lloyd's Register has completely revised the Rules for Marine Refrigerated Cargo Installations to take account of advances in refrigeration engineering technology and changing patterns in the method of transporting refrigerated cargoes at sea.

Additions to the Rules as they relate to new construction are detailed below, and notes are given on certain revisions (See Section A) and omissions (See Section B). Further notes (See Section C) are given on the revised sections dealing with the periodical survey of classed refrigerated cargo installations onboard ships in service.

ADDITIONS

A new section sets out requirements for the design, construction and testing of refrigerating plant supplying cold air to insulated containers in ships' holds.

While many of the rules in other sections are applicable to refrigerated cargo installations onboard containerships, new rules have been formulated especially for ships carrying refrigerated containers.

A new rule, applicable to all classed refrigerated cargo installations, stipulates that the classed installation must be completely independent of any refrigerating machinery associated with air conditioning plant, domestic refrigerating installation or process plant, unless full details of alternative proposals have been submitted and approved.

The "Stand-By" or reserve unit may now be considered as an operating unit during the limited cooling-down period of a non-precooled fruit cargo.

Rules relating to automated installations and to unmanned refrigerating machinery rooms are now included.

Rules have been added in Section 3 for the design and testing of rotary displacement compressors, now widely used for large capacity installations.

A new rule requires pressure vessels for use with ammonia above a stated size to be constructed to Class 2/1 or 2/2, with selected "Spot" radiography checks.

The rules now require pressure vessels designed for temperatures below minus 40°C and for vessels with a design temperature below 0°C, where the pressure/saturation temperature relationship does not apply, to be manufactured from materials that have been specifically approved for the proposed operating conditions.

SECTION A

REVISIONS

Conditions to be complied with in order that the symbol ‡ can be assigned to a classed installation have been amended to remove any ambiguity.

While in the past, it was recommended that a reasonable margin in plant output, over maximum load, be provided, it is now a requirement to design the plant to have at least 5 percent excess capacity over that required for the maximum design output for the desired class notation.

The formulae for determining the scantlings of compressor crankshafts have been completely revised, together with the table of pressures and the manner in which refrigerating plant components and completed installations are to be tested.

Alternative methods for preventing corrosion of the external surface of steel pipes conveying brine, other than by galvanizing, may now be approved and rules referring to the treatment of the surface of tank top plating in way of insulation have been revised.

The Section relating to insulating materials and methods of application and the rule requiring cargo battens to be fitted in insulated cargo spaces have been reappraised. Cargo battens may now be omitted from insulated cargo chambers when fruit cargoes are carried, and alternative methods of maintaining air circulation between the insulated lining and frozen cargo, other than by cargo battens, may be accepted.

The rules associated with thermometers and electric remote reading temperature measurement equipment have been updated to take into account modern technology, digital electronic temperature recorders and similar appliances.

The rules setting out the procedure to be observed when carrying out the Society's thermal balance test have been enlarged and various points clarified.

All the plant is to be tested under working conditions and, when found to be operating satisfactorily, the capability of the installation to perform the specific duty necessary to maintain the carrying temperatures assigned with the maximum sea temperature specified, is to be determined by the Society's thermal balance test.

This test measures the capability of the combined plant and insulated chambers. It does not separately measure the insulation "U" value or the efficiency of the machinery.

A thermal balance test may also be required when an installation is being considered for reclassification, when extensive repairs or alterations have been carried out, or when an amended temperature notation may be required.

SECTION B

OMISSIONS

Reference to refrigerated cargo installations using CO_2 (Carbon Dioxide) as a primary refrigerant has been omitted, while rules related to the use of Refrigerant R502 are included for the first time.

Rules referring to steam engines, or oil engines, no longer used as prime movers to drive refrigerant compressors, and to evaporators and refrigerant condensers, of the "Coil - in - Casing type" (also no longer employed in modern refrigerating installations), have been omitted from the rules under review.

Reference to insulation, in way of coal bunkers and piping carrying a refrigerating medium through bunkers, has also been omitted.

SECTION C

Survey of Classed Refrigerated Cargo Installations onboard ships in service

The Sections dealing with periodical survey regulations have been completely rewritten and now present a new approach to the problem of inspecting and testing refrigerating installations without opening out machinery at what may be considered to be too frequent intervals. The period between opening out refrigerating plant and the manner in which surveys are held have been revised to be compatible with modern refrigerating engineering design and operational performance.

In future, an Annual Survey of the refrigerated cargo installation under service conditions is to be held at approximately 12-month intervals. (Within a period two months prior to, and two months subsequent to, the date of survey).

It should normally be possible to complete the Annual Survey without opening out the machinery, or dismantling the insulation arrangements, unless any defects are observed, when the surveyor may recommend the opening out of suspected items for further investigation.

At intervals of four years, a Special Survey is to be held as detailed in the revised rules. The Committee will give consideration to the Special Survey requirements being carried out on a Continuous Survey basis, which will normally require that one quarter of the refrigerating machinery and arrangements, insulated holds and chambers is surveyed annually.

The intervals between opening out screw-type compressors will be given special consideration on application, and individual consideration may be given to alternative survey arrangements for all components, when there is a program of replacement instead of surveys onboard ship.

At Loading Port Surveys, which are held when requested by the owner or his representative, or when carrying out an Annual Survey under service conditions, the surveyor is now required to pay particular attention to the power supply available.

At Annual Surveys, the surveyor is also required to examine the Refrigerated Cargo Installation Log Book.

The performance of the installation during the previous 12 months as recorded in the Log Book, especially during any period when the plant was required to operate at, or close to, maximum capacity, is to be appraised by the surveyor and any pertinent observations reported to the Committee.

Finally, the format used for these revised rules is similar to that which will be used for the 1978 Rules for Steel Ships.

New Rib-Cage Hawser Floats By Samson Ocean Systems

Flotation for mooring and hawser systems can now be more effectively applied using a new Rib-Cage Float developed by Samson Ocean Systems, Inc.

The new design makes it possible to select and install flotation collars on single ropes and strops easily and with correct buoyancy for size and weight. The Samson Rib-Cage Hawser Floats are made of high-strength ballistic nylon with integral pockets to enclose the buoyancy ribs. When used over the entire hawser length, the rib-cage design also provides additional abrasion protection for the rope.

For more information, write **G.P. Foster,** Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110.

Navy Contracts For Additional Years Of MARISAT Satellite Service

The United States Navy has agreed to extend its use of each of the three satellites in the MARISAT System for an additional two and one-half years, ending in 1981.

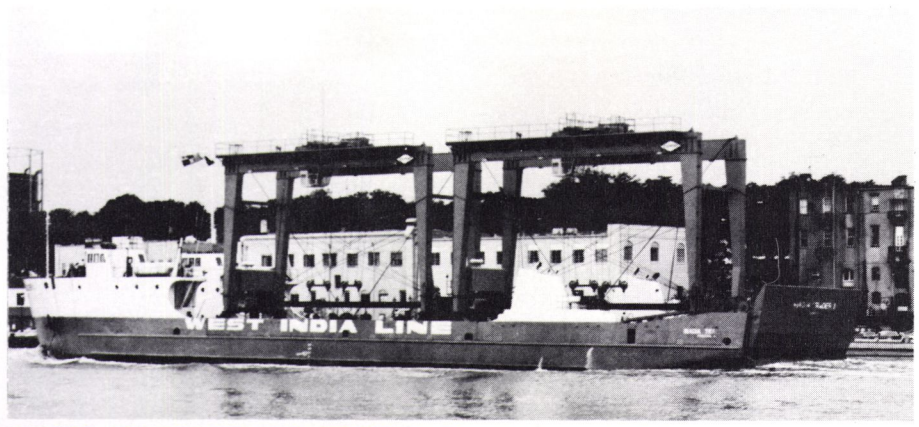
Payments for service provided during the full term of the agreement will total approximately $138 million if the MARISAT satellites located over the Atlantic, Pacific and Indian Oceans continue to operate satisfactorily. Payments under an earlier agreement would have totaled approximately $83 million.

The MARISAT System began providing communications service to the Navy in the Atlantic region in March 1976, the Pacific region in June, 1976, and the Indian Ocean region in January 1977.

The MARISAT System is owned by four companies under a joint venture arrangement approved by the Federal Communications Commission (FCC). COMSAT General Corporation holds an 86.29-percent ownership interest and also serves as System Manager. RCA Global Communications holds an 8-percent interest; Western Union International, a 3.41-percent interest, and ITT World Communications, a 2.3-percent interest. Total investment in the MARISAT System under the joint venture arrangement is estimated at approximately $107 million.

Each of the MARISAT satellites has a design life of five years, and operates in three different frequency bands: UHF (ultra-high frequency) for Navy service, L-band and C-band for commercial maritime users. The Navy leases all of the UHF capacity in all three MARISAT satellites for fleet communications between its own fixed and mobile terminals.

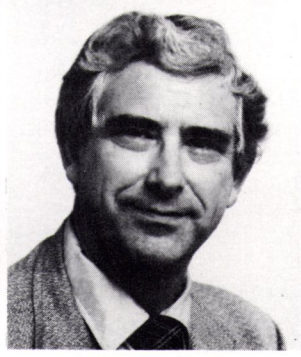
The Atlantic and Pacific MARISAT satellites also provide service to commercial maritime customers, using the L-band and C-band frequencies for modern, high-quality telex, telephone, data, and facsimile communications to commercial ships and offshore facilities.



FROM DIAMOND TO TRINIDAD — Diamond Manufacturing Company of Savannah, Ga., recently shipped the two 45-ton, rubber-tired, bridge-type container cranes shown above to Port of Spain, Trinidad, West Indies. The cranes will be used by the Trinidad and Tobago Port Authority, and will greatly enhance their efficiency and capacity. The cranes were shipped from the Diamond docks in Savannah via the West India Line. With agents in Trinidad, Taiwan, Venezuela, and the Mideast, Diamond has geared its operation to become a major supplier of materials handling equipment throughout the world.

Santa Fe Names Three Senior Vice Presidents

Ben B. Creel



Irving M. Davis

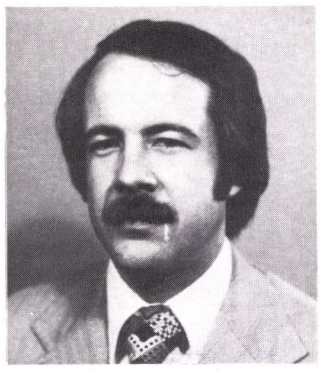
B.J. Warren

Ben B. Creel, Irving M. Davis, and **B.J. Warren** have been promoted to senior vice presidents of Santa Fe Engineering & Construction Co., a subsidiary of Santa Fe International Corp., Orange, Calif.

Mr. **Creel** is general manager of the company's Marine Construction Division. Mr. **Davis** is general manager of the Industrial and Petroleum Facilities Division. Mr. **Warren** is president of Santa Fe Engineering Services Co. and is responsible for marketing both engineering and construction services.

"MAYBE THERE'S MORE TO THIS POWER SHORTAGE THAN MEETS THE EYE."

Petro-Marine Names Murray Burns Manager Process Engineering



Murray Burns

Murray Burns has been named manager, process engineering, in charge of the mechanical and electrical engineering services of the Houston, Texas, office of Petro-Marine Engineering, Inc., according to **John W. Owensby**, president.

The Gretna, La.-based company is one of the largest independent consulting engineering firms in the country serving the offshore petroleum and marine industries. It specializes in feasibility, design, planning and coordination of offshore marine structural, process and pipeline projects.

Mr. **Burns** joined Petro-Marine in May 1976 as project engineer responsible for design, drafting, purchasing, fabrication and installation of offshore oil and gas production facilities.

He was associated with the Shell Oil Company from February 1969, until he joined Petro-Marine. His last assignment at Shell was as facility engineer in the Offshore Division, responsible for planning, design, fabrication, installation and start-up of offshore platform oil and gas production facilities and associated utilities.

Mr. **Burns** holds a Bachelor of Science degree in civil engineering from Texas A & M University, and is a registered civil engineer in Louisiana.

Brochure Describes Forming Tee Collars Directly From Pipe

An advanced method for forming tee collars directly from parent tubing and pipe is being introduced to shipbuilders and pipe fabricators by T/Drill, Inc., Ann Arbor, Mich.

By forming branch collars directly into the pipe, the cost for tee fittings is eliminated, as well as two joints.

T/Drill offers four models of collar formation machines to accommodate the various applications in copper, copper nickel, aluminum, carbon steel and stainless steel.

The new T/Drill method for forming a tee collar directly into the pipe or tube has tremendous cost advantages when compared to current methods of branching pipes.

Basically the cost of the fitting is eliminated, which in large sizes used in shipbuilding can cost over $2,000 per fitting.

For free descriptive literature and fact sheet, write to **Kenneth W. Mann,** T/Drill, Inc., 727 West Ellsworth, Building 8, Ann Arbor, Mich. 48104.

Ryan-Walsh Stevedoring Elects Loraine Pugh

G.L. Leatherbury, president of Ryan-Walsh Stevedoring Company, Inc., has announced the election of **Mrs. Loraine Williams Pugh** as assistant secretary-administration of the corporation.

Ryan-Walsh has stevedoring and related terminal operations in seven ports in the Gulf and in two southern Atlantic Coast areas, and offers many other services through its subsidiaries: Southern Steamship Agency, Inc., Container Services International, Inc., Southern Marine Service, Inc., and World Wide Crating and Warehousing Company, Inc.

Mrs. Pugh joined Ryan Stevedoring Company, Inc. in July 1937 and has held various administrative positions since then.

COMSAT General Expands MARISAT Services To Entire Indian Ocean

An agreement signed by COMSAT General Corporation has opened the way for the start of construction this year of a shore station in Japan to operate with the Indian Ocean MARISAT satellite.

The station, expected to be completed in the summer of 1978, will be the first MARISAT station to be constructed outside of the United States, and the first to operate at commercial frequencies with the Indian Ocean satellite.

It will extend MARISAT services to ships and offshore facilities throughout the entire Indian Ocean for the first time, significantly expanding the MARISAT System to provide full coverage over the three major oceans of the world. Other MARISAT satellites presently serve the Atlantic and Pacific Ocean areas.

Under terms of an agreement between Kokusai Denshin Denwa Co., Ltd. (KDD) of Japan, and COMSAT General, Manager of the MARISAT System, KDD will use capacity in the Indian Ocean satellite to provide modern telephone, telex and other public communications to maritime interests.

KDD will build a shore station at Yamaguchi. The start of commercial service through this new station and the Indian Ocean satellite next year will close a gap in coverage of the MARISAT System between the Straits of Malacca and the Persian Gulf.

The Atlantic and Pacific MARISAT satellites have been providing high-quality telex, telephone, facsimile and data communications at commercial frequencies to ships and offshore facilities at sea in those ocean areas for the past year.

The number of ships and offshore rigs now equipped with terminals for operation with MARISAT totals about 65. Of this total, 53 are equipped with COMSAT General mobile terminals, and 27 additional COMSAT General terminals have been ordered for installation in the near future.

U.S. Lines Names Three In Operations

Kenneth W. Gundling, vice president-marine, United States Lines, has announced three appointments to the division.

Capt. **Leonard H. Pert** has been appointed to the position of assistant marine superintendent. Mr. **Pert** joined the company in 1956 as a pier superintendent in New York. He was subsequently promoted to manager-terminal operations and then to superintendent-cargo operations. In 1969, he was transferred to the European Division as manager of London Area Terminals. He returned to the United States in 1971 as safety director, and in 1973 he was promoted to operations manager-East Coast Division.

John E. DeValue was appointed to the post of superintendent steward. He joined the company in 1946 as inventory clerk, and was subsequently promoted to chief food checker and then to assistant to the assistant superintendent steward. In 1961, he was promoted to the position of assistant superintendent steward, and served in that capacity until his promotion to superintendent steward.

Hans Stockfish has been appointed to the position of assistant superintendent steward. He served at sea for many years and was formerly chef on the S/S United States, once owned by the containerliner firm which now operates a fleet of 38 modern vessels including 16 high-speed, high-capacity containerships in its 15,000-mile, Tri-Continent Service between Europe, the East and West Coasts of the United States, Panama, Costa Rica, Hawaii, Guam and Far East and Southeast Asian ports.

Philippine Center Exhibit Highlights Filipino Seaman

Present for the official ribbon-cutting ceremony were, from left to right: (front row) Capt. **Benjamin M. Tanedo,** N.S.B. Assistant Executive Director; **Mrs. Tanedo;** Secretary of Labor **Blas F. Ople; Mrs. Pineda,** and Ambassador **Ernesto C. Pineda;** (back row) **Antonio R. Lopez,** N.S.B. Chief Administrative Service; Capt. **Rosendo Herrera;** Capt. **Inocencio Estaniel;** Commissioner **Adrian Cristobal;** Labor Attache **Efren E. Cristobal,** and Capt. **Gregorio Oca.**

The Philippine Center, located at 556 Fifth Avenue, New York, N.Y. 10036, is currently holding an exhibit that not only highlights but explains one of the Philippines' most valuable resources—the Filipino Seaman.

This informational exhibit on the Filipino Seaman, sponsored by the Philippine National Seamen Board under the auspices of the Philippines' Department of Labor, is designed to give U.S. shipowners in particular, and the public in general, an overall view of the Philippines' role in today's international maritime industry.

H.E. Ambassador **Ernesto C. Pineda,** Consul General of the Philippines, and the Honorable **Blas F. Ople** jointly hosted the formal opening of the exhibit on August 4, 1977, which will be held until October 4, 1977.

Although by international standards the Philippine merchant fleet is relatively small, the Philippines' contribution to the industry as a whole is gaining steadily in significance. For today, the Philippines is the world's second largest source of qualified seamen to the merchant fleets of the world. Over 36,000 Filipino officers and ratings are now serving aboard 18 percent of the world's 10,669 oceangoing ships. And the numbers are growing. Over 12 percent more Filipinos were hired in 1976 than in 1975.

In this exhibit, through the medium of an audio-visual show and a museum-type display, the National Seamen Board presents the manner in which Filipino seamen are trained, the nature of his qualifications in this field, and a critical assessment of his character and performance record by those who know him best — the shipping executives and ships' masters he has worked for.

In short, the exhibit presents a story — a story of the quality of leadership of the educators in the Philippine maritime industry, the effectiveness of the National Seamen Board in conjunction with others in moving toward the solution of many longstanding problems and the story of the Filipino Seaman, himself.

The exhibit will be open to the general public Monday through Friday, from 9 a.m. to 5 p.m.

Henschel Announces New Steering-Failure Alarm

Already operating successfully aboard tankers of a major U.S. oil company fleet, the new Henschel Rudder Follow-up Failure Alarm meets the recently proposed U.S. Coast Guard rules requiring an alarm upon steering failure. It provides the required audible and visual warning in the pilothouse in the event of loss of rudder control from the pilothouse.

The system consists of a bulkhead mounting alarm panel with attached bell for the pilothouse, a special rudder angle transmitter, and a synchro coupled to the helm wheel. It operates on the proven-reliable application of synchros, together with solid-state technology.

If, at any time while in either automatic (autopilot) or hand-electric (full follow-up) steering, the rudder position ordered and the actual rudder position differ by more than five degrees for more than 30 seconds, the alarm is actuated. When in hand-electric (nonfollow-up) steering, the system is deactivated. The alarm system is totally independent of the steering gear control system and its power source, except for the mechanical connection of a synchro to the helm.

The system is ideally suited to retrofit existing ships as well as new construction.

For detailed technical literature covering operation and installation, write for Technical Bulletin TB 772 to **Jack Landers,** Henschel Corporation, 14 Cedar Street, Amesbury, Mass. 01913.

Tulsa Port Of Catoosa Sets Tonnage Record

June tonnages at the Tulsa Port of Catoosa set an all-time record for a one-month period, according to figures released by port director **Harley Ladd.**

During June, the port recorded 136,412 tons of cargo moving in and out of the port, surpassing the previous one-month record set in September of 1976.

The June tonnages brought the port's 1977 tonnage total to 498,800 tons. For the same period in 1976, the port had 241,514 tons recorded.

Grain and grain products paced the June cargo movement with 61,441 tons departing Catoosa in 46 barges. Heavy fuel oil was the next leading cargo with 36,736 tons in 15 barges, followed by dry bulk with 22,833 tons.

Steel was the leading inbound cargo during June with 8,827 tons.

The Tulsa Port, head of navigation port for the 440-mile McClellan-Kerr Arkansas River Navigation System, has emerged as the focal point for activity along the navigation system, which stretches from the Verdigris River at Catoosa to the Arkansas River and into the Mississippi.

An initial investment of more than $20 million by City of Tulsa and Rogers County voters started the port, which opened for business back in 1971.

Today, that investment totals more than $72 million, almost evenly divided between public and private funds.

The payoff for the Central States has come in the form of a new mode of transportation, new industries, and new jobs.

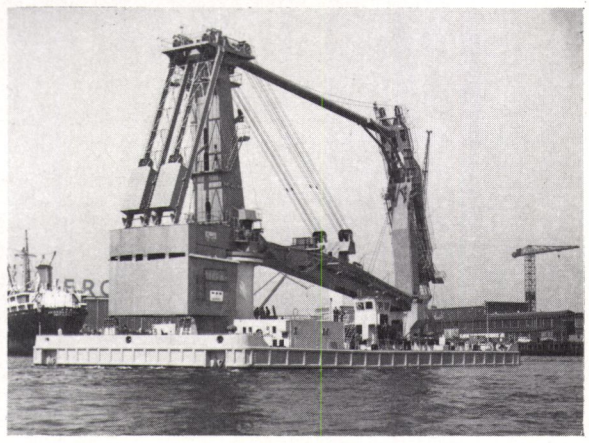
Today, some 25 industries are located in the port's industrial park, and some 750 persons are employed there full-time.

More than 2.4 million tons of cargo have moved through the port in six years.

For literature describing the port facilities, write to **Steve Turnbo,** Tulsa Port of Catoosa, P.O. Box 7626, Tulsa Okla. 74105.

MARINETTE MARINE CITATION — Marinette Marine Corporation, Marinette, Wis., recently received an award from the U.S. Army Material Development and Readiness Command. The award was presented to **Roger Derusha** (shown above), president of Marinette Marine Corporation, by Lt. Gen. **George Sammet Jr.**, Deputy Commanding General for Material Development. The citation, which was presented during the Atlanta IV conference, stated: "Marinette Marine Corporation is cited for its technical expertise and performance while under a Navy contract to produce and deliver to the Army 1600 series utility landing craft. Marinette Marine delivered its first LCU on target and proposes to deliver the last craft eight months ahead of schedule. In the production process Marinette Marine discovered and corrected numerous problems in the government furnished technical data package, making it possible to deliver a craft of high quality within cost. This performance reflects the highest order of professionalism and dedication on the part of Marinette Marine Corporation and warrants an Army salute."

GHH Sterkrade Delivers 200-Ton Floating Crane For Saudi Arabia



After a successful trial off the Dutch coast near Rotterdam, Gutehoffnungshutte Sterkrade Aktiengesellschaft (GHH Sterkrade) has delivered its second floating crane pontoon, the 200-ton Dammam shown above, for Saudi Arabia. The pontoon was towed from GHH Sterkrade's Rhine shipyard in Walsum to Rotterdam for mounting of the crane. The order for the pontoon was placed by the crane manufacturer—M.A.N., Nuremberg/Gustavsburg. The pontoon is for use in the Persian Gulf and has an approximate length of 169 feet, a width of 79 feet, a lateral height of 13 feet, and a draft of 7.7 feet. With an engine power of 2 x 655 DIN hp, it can reach a speed of 7 knots. In view of the climatic conditions in which the crane will be used, the ventilation and air-conditioning systems of the engine room, sanitary rooms and living quarters are extremely powerful.

Gulf Oil Trading & Transportation Announces Management Changes

The following management changes have been announced by Gulf Trading & Transportation Company (GT&T) president **Herbert I. Goodman**.

Edward A. Monto, formerly president, Compania Maritima Gulf S.A., an affiliate of Gulf Oil Corporation, is appointed general manager, crude oil sales-domestic markets. Replacing Mr. **Monto** in Madrid is **Richard Swanson,** formerly general manager of Gulf Oil Terminals (Ireland) Ltd., Bantry Bay. Succeeding Mr. **Swanson** in Bantry Bay is **Donald P. Ash,** formerly marine coordinator in GT&T's marine department in Philadelphia, Pa.

Prior to his tenure in Spain, Mr. **Monto** served as staff advisor-crude sales coordination, Gulf Oil Trading Company (GOTCO). He joined Gulf in the marketing and sales department in 1969 and held a variety of sales positions, until joining GOTCO in 1973. He was named director, sales coordination-Latin America in 1974. A native of Miami, Fla., he received his B.B.A. degree from the University of Miami in 1968.

Mr. **Swanson** was transferred to Bantry, Ireland, in March 1975, from his position as director, construction-Spain, which he had held since 1970. He joined Gulf in 1941 in New York, and held a succession of positions including director, construction-Japan, 1967; manager, maintenance & repair, Gulf Oil Marine Agency, S.A., Antwerp, Belgium, 1965, and port engineer, New York, 1963.

A native of New York City, he graduated from Newtown High School in July 1941. He joined the U.S. merchant marine in 1942, and graduated from U.S. Maritime Service Officers Candidate School, Fort Trumbull, Conn., in October 1944. In Spain, his responsibilities will include direct responsibility for operation of the Spanish tanker fleet, crude oil sales and exchange activities in Spain, liaison responsibility for tonnage exchanges in Spain, and management and operations of the affiliate fleet.

Mr. **Ash** joined Gulf in 1952 in Pittsburgh as staff assistant, coordination department. He has six years of overseas experience in all phases of marine management of Gulf's transportation subsidiaries. As marine coordinator 1976-77 in Philadelphia, he directed contract negotiations leading to Gulf's first U.S.-flag supertanker newbuildings.

A native of Stamford, Conn., Mr. **Ash** received a B.A. degree in 1948 from Dartmouth College and an M.B.A. degree the following year from the college's Amos Tuck School of Business Administration.

Dravo Elects Hinrichs Vice Pres., Acquisitions

Dravo Corporation has announced the election of **Walter E. Hinrichs** as vice president, acquisitions.

Mr. **Hinrichs** joins the Pittsburgh, Pa.-based engineering, construction, manufacturing and natural resources development firm following eight years with the Singer Company, where he served most recently as corporate director of acquisitions.

In his new post, he will plan and execute corporate acquisitions for profit growth through diversification and through entry into new worldwide fields of business. He will also assist Dravo operating units in the expansion of existing business.

Mr. **Hinrichs** holds an A.B. degree from Amherst College, an M.B.A. degree from Harvard Business School, and an L.B. degree from Harvard Law School.

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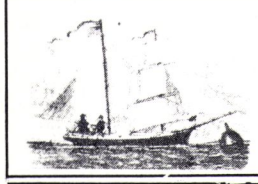

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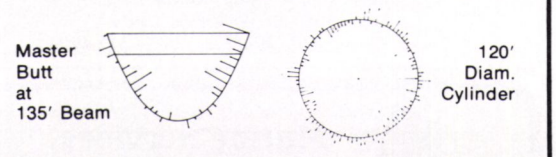

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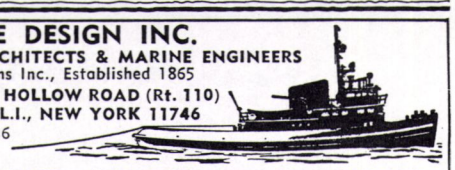

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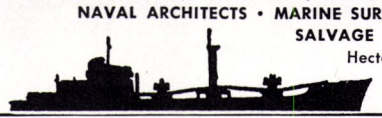

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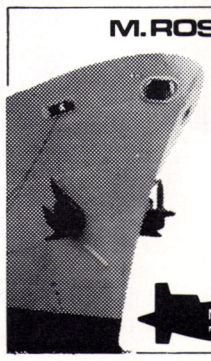

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Woolsey Brochure Describes Polyester-Glass Coating

Woolsey Marine Industries, Inc., Danbury, Conn. marine coatings manufacturer, is offering a brochure on their polyester-glass flake anticorrosive coating for commercial shipping applications.

Known as "Res-N-Glas," this glass-filled polyester resin self-laminates to form a tough, smooth coating which never changes its surface profile. This ship bottom smoothness is significant in terms of dramatic fuel economies which are of paramount importance to tankers and cargo carriers.

The brochure also details technical information on application, chemical resistance and gives successful case histories over the 12-year period since "Res-N-Glas" was introduced.

For a free copy of the "Res-N-Glass" brochure and color chart of Woolsey's marine coatings, write to **C.E. Raabe Jr.**, Woolsey Marine Industries, Inc., 100 Saw Mill Road, Danbury, Conn. 06810.

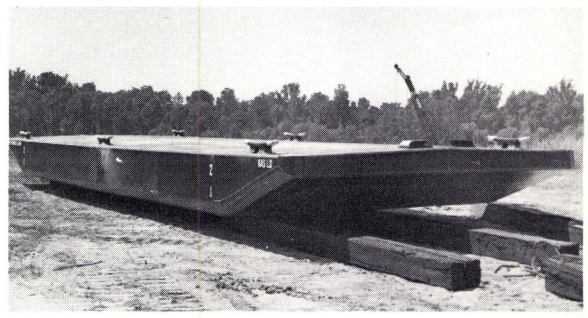
Det Norske Veritas' Rules New 1977 Edition Available

Det norske Veritas' 1977 edition of "Rules for the Construction and Classification of Steel Ships" is now available. A number of major and minor amendments and additions have been made to the Rules since the 1976 edition.

The rules for additional fire protection for cargo ships, the F-class Rules, have been completely revised on the basis of practical experience and the latest principles for fire protection and extinction. Systematic analyses to minimize the risk of fire are to be carried out for arrangements and systems in engine and boiler rooms. The F-class was already introduced in 1955, and until now 430 ships totaling about 12 million gross tons have been built to this additional class notation.

The rules for instrumentation and automation and the rules for the additional class notation EO for periodically unmanned machinery plants have been amended on the basis of service experience and recent technology development.

The rules for ships for alternate carriage of oil carge and dry cargo, the so-called combination carriers, have been revised. Additional requirements are stipulated for arrangements and systems as well as operational procedures necessary for obtaining a gas-free condition when the ship is converted from oil cargo service to dry cargo service. A new additional class notation, Tanker for Oil/Dry Cargo Alternate, has been introduced for these ships.



FROM MISSISSIPPI MARINE—Mississippi Marine Towboat Corporation, Greenville, Miss., recently delivered a deck barge to the Army Corps of Engineers. The 55-foot by 16-foot by 3-foot barge was built to ABS specifications with welding done by ABS certified personnel. A multi-coat system of organic-zinc and epoxy was used to meet military specifications on painting. The barge will be used in the St. Louis, Mo., district for lock and dam maintenance service. The barge was built in Mississippi Marine's shipyard on Lake Ferguson. In addition to new construction, Mississippi Marine also repairs towboats and barges for inland and offshore use.

GULF SECTION QUARTERLY MEETING — Members of the Gulf Section of The Society of Naval Architects and Marine Engineers recently held their Quarterly Evening Dinner and Technical Session at the Fountainbleau Motor Hotel, New Orleans, La. Those in attendance heard a paper, "Characteristics of Ultrasonic Testing," following the meal. The author, **David V. Raacke,** a consultant with Owensby & Kritikos, Inc., Gretna, La., also showed slides which visually demonstrated the advantages of this type testing. Shown above, **Sal Guarino** (center), vice chairman of the Gulf Section, and **Ralph Martin** (right), American Bureau of Shipping, congratulate Mr. **Raacke** on his paper presentation.

Camrex And Reliance Merge— New Company Name Becomes Camrex Reliance Paint Company

Effective August 1, the Reliance Paint Company in New York and Camrex (Holdings) Ltd. of the United Kingdom merged, and their new name will be the Camrex Reliance Paint Company, Inc., U.S.A.

The Reliance Paint Company was established in 1890, and has been servicing the marine industry for over 87 years. Reliance specializes in all the conventional and sophisticated coatings, as well as all the Navy and military formulations.

The Camrex organization is a worldwide leader for the manufacture, distribution and application of marine paints and specialty coatings.

Camrex Reliance Paint Company will now become a new link in the Camrex worldwide organization, and will be in a position to supply a complete package of paints and specialty coatings to its customers around the world.

The new directors of the Camrex Reliance Paint Company are **Andrew Argiriadi, Jerry Arger,** Capt. **James Mardikos,** and representing Camrex, **Allen Miller** and **Peter Dillon.**

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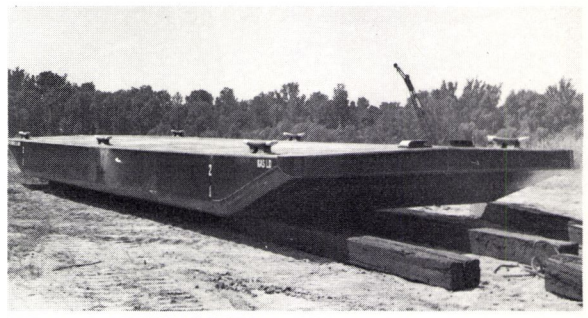

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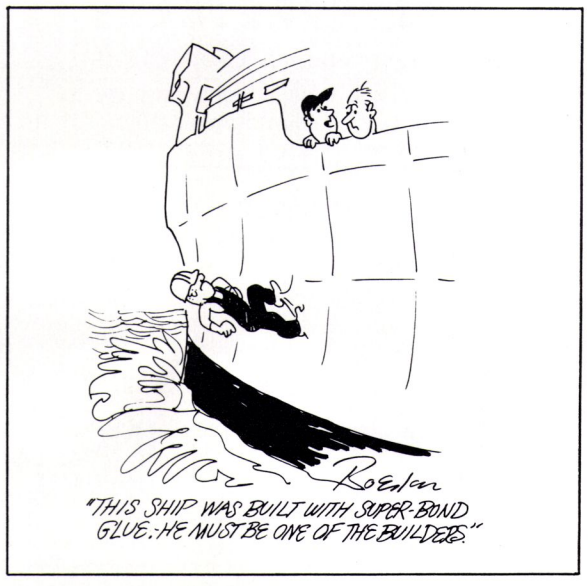

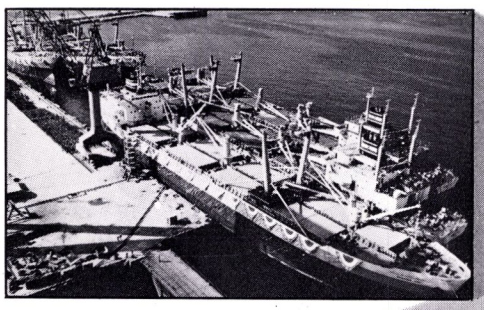

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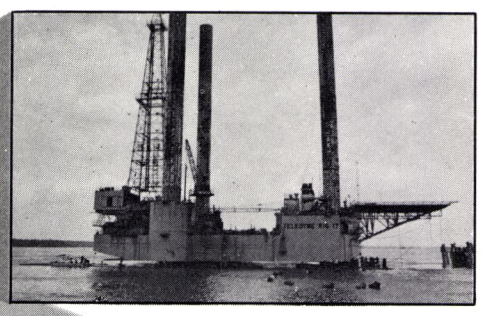

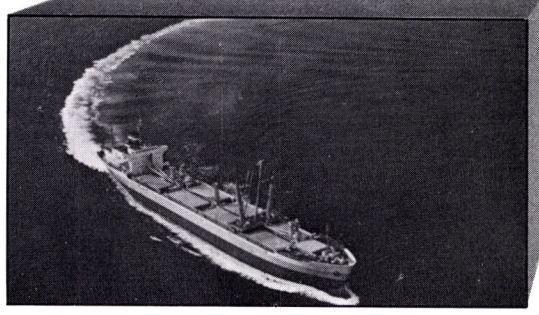

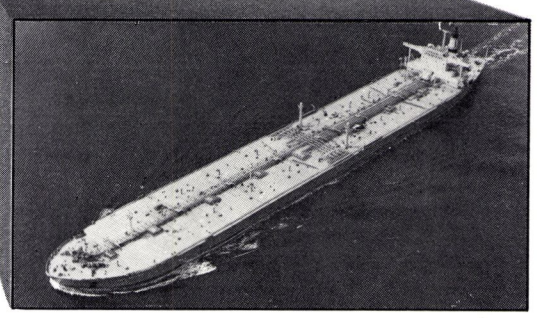

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Joseph R. Burgess To Head Central Pacific Shipping Agency

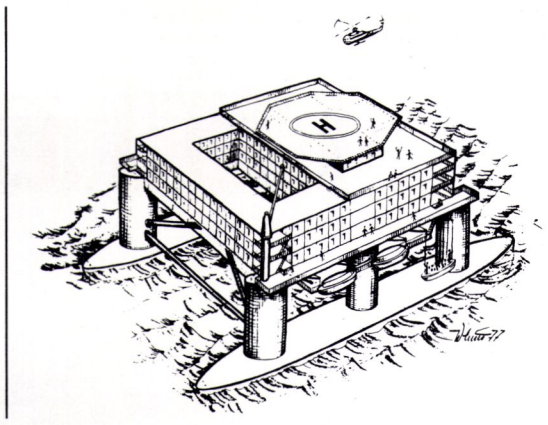
Joseph R. Burgess has been named president of Central Pacific Shipping Agency, a wholly owned subsidiary of Pacific Marine & Supply Co., Ltd., which has opened new offices at 126 Queen Street in downtown Honolulu.

The announcement by **Steven Loui,** executive vice president of the parent company, indicated that both Mr. **Burgess's** appointment and the move to new and larger quarters were first steps in a program of more aggressive marketing planned for the 15-year-old shipping agency.

Following Air Force service in Hawaii, Mr. **Burgess** began his career in the maritime industry with Pacific Marine & Supply in 1966. For the past eight years, he has been with Fred L. Waldron, Ltd., shipping agency division, five years as its manager. He is a graduate of Honolulu Business College and the Hawaii Employers Council-Management/Supervisory courses with a degree in management, as well as data processing and business accounting.

Central Pacific Shipping Agency, according to Mr. **Burgess,** offers "fast, comprehensive, and competent turnaround services for any ship coming to Hawaii, with full in-house support from one or more of the Pacific Marine & Supply family of qualified and experienced subsidiaries."

Among the present companies represented by Central Pacific Shipping Agency in Hawaii are China Union Lines, Mobil Shipping & Transportation Company, National Bulk Carriers, Taiwan Maritime Transportation Co., Great Success Shipping Co., and Deep Sea Ventures, Inc.



LIVING QUARTERS FOR 600—Gotaverken Cityvarvet repair yard in Goteborg, Sweden, has signed a preliminary contract for the construction of a "Flotel Rig," a platform with living quarters for 600 people. It will be stationed in the North Sea. The customer is a shipping line, owned by Container Safe AB in Goteborg. The contract is pending the authorities' approval for governmental financial support. The platform, to be delivered in July 1978, is a modified Aker H3 type. Its living quarters will consist of Container Safe's own modules, built by the Gotaverken Group. The assembly work of the platform will take place in Gotaverken Cityvarvet's new 200,000-dwt floating dock in Goteborg. The order will require about 10 percent of the yard's annual capacity as measured in working hours.

Seacoast Offers New Marine Cable Catalog

Seacoast Electric Corporation, a leading supplier of shipboard cable and accessories, announces the release of its latest Marine Cable Catalog.

The catalog contains many new features, including a convenient Glossary and "Cable Selector Guide."

The Glossary is a ready reference to marine cables—their designations and descriptions. The Cable Selector Guide will enable the reader to quickly locate any item by the required application.

In addition to sections on Terminal and Stuffing Tubes, Portable Cords and Cables and Co-axial Cables, the catalog features a comprehensive Technical Data supplement with a wealth of useful information, including new tables on Metric Conversion.

The catalog is available to recognized members of the marine industry by writing to **S. Goodstein,** Seacoast Electric Corporation, 225 Passaic Street, Passaic, N.J. 07055.

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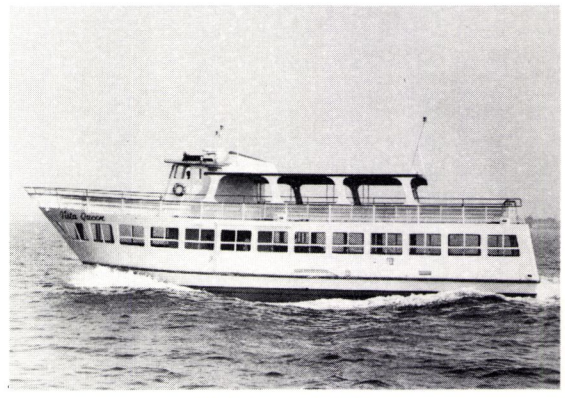
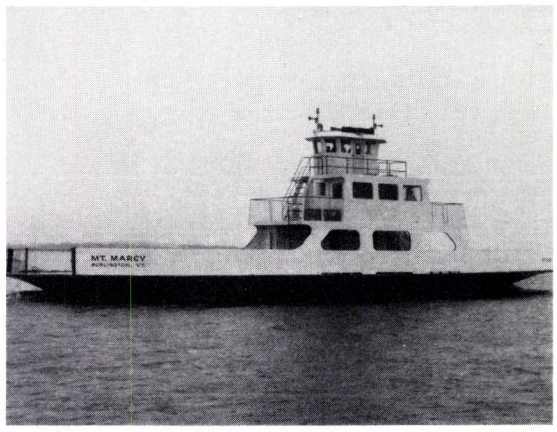
122′/500 passenger commuter vessel

BAY QUEEN
114′/454 passenger cabaret vessel

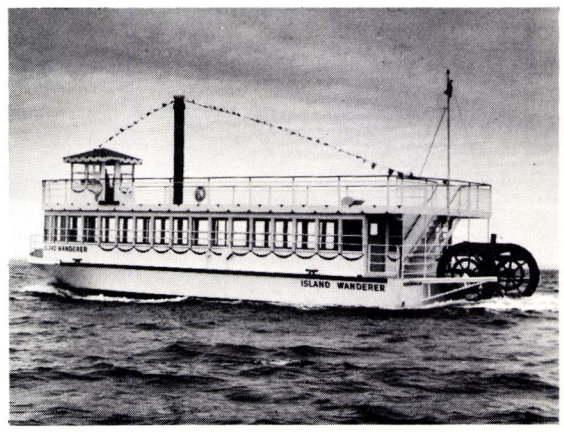


VISTA QUEEN
78′/280 passenger sight-seeing vessel

OLINDA
86′ passenger/auto ferry



MT. MARCY
100′/20 car double-ended ferry



ISLAND WANDERER
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TRAVELER

Hi-Speed Commuterboat

The 75′x18′x4′6″, 300 passenger "Traveler" has been tested at speeds up to 25 MPH. The aluminum superstructure is mounted on a Mayari R50 steel hull. She is powered by three GM Turbo 12V engines. The "Traveler" was launched in June and joins two sisterships operating between Long Island and Fire Island, New York.

Over the last 30 years, we have built more than 150 passenger and vehicle vessels in addition to Blount built offshore tug/supply vessels, research vessels, party fishing boats, tugs, and tankers. Customers look to Blount to fill their particular requirements for imaginative design, quality construction, and dependable service. All vessels shown here can be seen in daily operation. The variety of design demonstrates our versatility. We design and build any type steel vessel—65 to 250 feet.

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Naval Architects and Builders

Baker Marine Corp. Acquires Corpus Christi Fabricators, Inc.

Larry A. Baker Sr., president of Baker Marine Corporation, announced that his company has acquired the principal physical assets of Corpus Christi Fabricators, Inc., a heavy equipment machining and fabricating company located in Ingleside, Texas. This new acquisition becomes a wholly owned subsidiary of Baker Marine Corporation, with the new name of Baker Manufacturing Company. These facilities and their work force of highly skilled craftsmen add substantial capacity to the capability of Baker Marine Corporation to respond to customers' needs for offshore components. Current projects at Baker Manufacturing Company involve manufacture of gears and gear boxes for mobile offshore jackup drilling units.

BMC builds a variety of offshore equipment — construction barges, inland barges, submersibles, production facilities, packaged equipment, jackup drilling vessels, and packaged drilling rigs.

BMC's corporate headquarters, erection and erection site are located in Ingleside, about 20 miles north of Corpus Christi. The fabrication plant is at Cuddihy Field, about a mile from Corpus Christi International Airport. BMC also maintains a sales office in Houston.

Further details may be obtained by writing to **P.M. Lovie,** Houston Representative, P.O. Box 19733, Houston, Texas 77024.

Heavy Weather Ship Operation Subject Of Webb Seminar

A Seminar on Ship Operation in Heavy Weather has been scheduled for September 19-20 at Webb Institute of Naval Architecture, Glen Cove, Long Island, N.Y.

Recently, there has been increasing interest in technical developments toward more efficient operation of ships in heavy weather services. Storm seas cause delays for modern high-powered ships, and may result in damage—usually to local structure or hull fittings as a result of shipping water, bottom damage caused by slamming, or damage to cargo as a result of high accelerations. The pressure to conserve fuel has also indicated the need for guidance to the deck officer in the handling of his ship.

One recent approach to reducing such damage is the use of shipboard instrumentation that provides warning that the levels of bow motion, stresses or accelerations have reached dangerous levels. Some instrumentation also provides guidance to the deck officer in choosing the best combination of speed and course change to avoid damage.

Another approach that has been widely adopted is that of weather routing to avoid or minimize ships' encounter with rough seas. This technique has been successful in saving voyage time, avoiding serious damage and conserving fuel. However, there are new developments in long-range wave forecasting, ship response prediction, and optimization theory that should improve the quality of weather routing.

The purpose of this Seminar is to present the latest technical developments in shipboard instrumentation and weather routing techniques, with emphasis on results of research under the sponsorship of the National Maritime Research Center (NMRC) of the Maritime Administration, Kings Point, N.Y. It will also provide an opportunity for the exchange of ideas among operating and research people as a means of assisting in the planning of further research and development.

Guest speakers include: Dr. **Vincent Cardone,** City University of New York; **Norman Cima,** Ocean Routes, Inc.; **Henry Chen,** M.I.T.; **John Dalzell,** Davidson Laboratory; **Robert Raguso,** Bendix Field Engineering Corp.; **Robert Reid,** Sperry Marine Systems, and **Norman Stevenson,** Navy Fleet Numerical Weather Central, Monterey, Calif. Speakers from the National Maritime Research Center (Maritime Administration), Kings Point, will be Dr. **Walter Maclean** and **Virgil Williams.** Members of the staff of the Webb Center for Maritime Studies lecturing include Prof. **Edward V. Lewis,** director; Prof. **Dan Hoffman** and Prof. **Robert Zubaly** (who is also on the faculty of the Maritime College, SUNY, Fort Schuyler, Bronx, N.Y.).

For additional information, contact Prof. **E.V. Lewis,** Webb Institute of Naval Architecture, Glen Cove, N.Y. 11542.

Simrad Moves To Larger Facility In Armonk, N.Y.

Reflecting the proverb, "nothing succeeds like success," Simrad, Inc. has found it necessary to relocate their operations within the modern complex known as Norhus, in Armonk, N.Y.

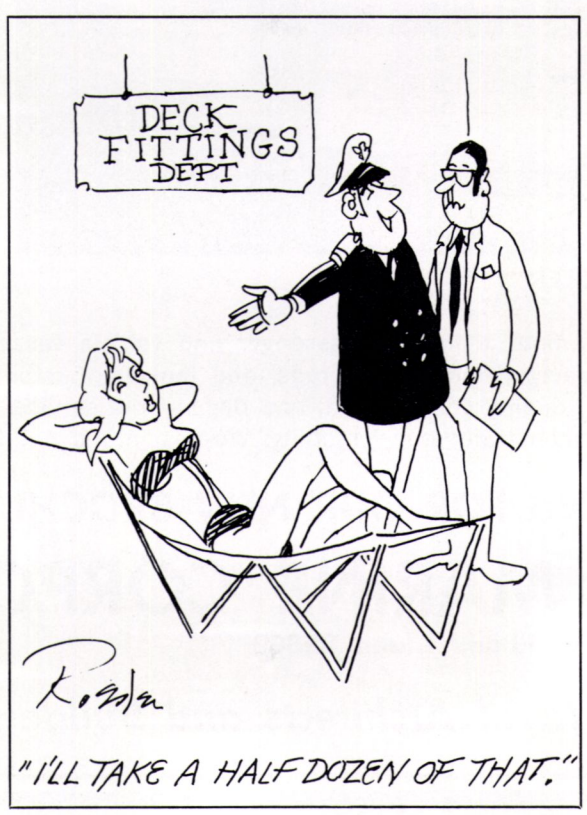
According to **Bjorn Carlsen,** president of Simrad, Inc., the recently completed move became necessary mainly because of the rapidly increasing acceptance of Simrad products in this country. "This situation brings with it the obligation to provide prompt delivery to our more than 100 nationwide dealers, of an ever-expanding line of quality marine electronic products."

The attractive Norhus building, which means "Northern House" in Norwegian, is situated directly across Route 22 from the immense properties which comprise the world headquarters of the IBM Corporation.

The new accommodations more than double the warehousing area previously occupied. An additional benefit is the expanded square footage available for service and office work.

Simrad, which has an international reputation in depth recorder and sonar technology, is also known as the world's largest supplier of Loran-C navigation receivers.

For a copy of the Simrad brochure, write to **Gilbert N. Nelson,** Vice President of Marketing, Simrad, Inc., One Labriola Court, Armonk, N.Y. 10504.



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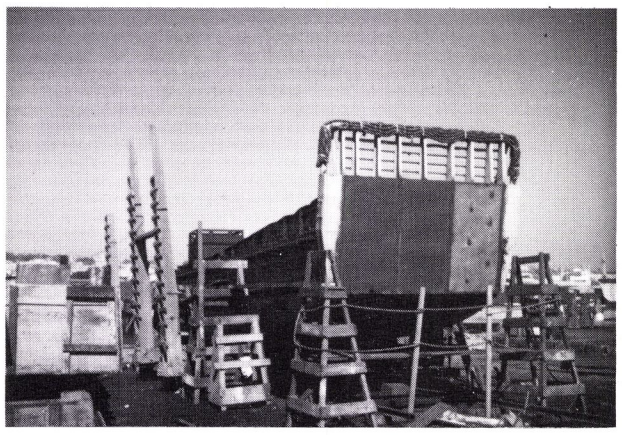
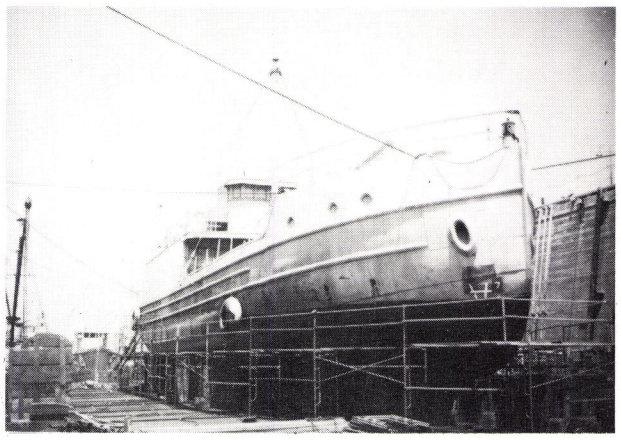


LCM 6's — 9 Units BUILT 1950's & 1960's
56′ x 14′4″ x 3′6″
LOCATION: (3) East Coast
(6) West Coast — ENGINES COMPLETELY REBUILT

ASR—Submarine Rescue Ship (Fleet Tug) BUILT 1942
251′ x 44′ x 16′ Single Screw-3000 SHP
LOCATION: West Coast



YF's (Yard Freighters) — 4 Units BUILT 1945
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4-GM Engines Total 4120 HP

LOCATION: West Coast

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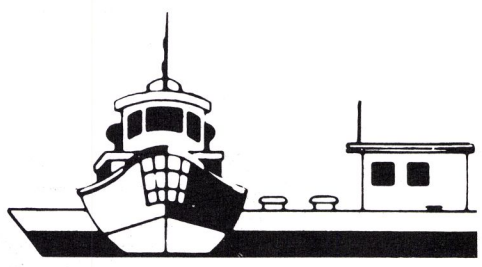
(A)	Personnel Boat C-3112 (Fiberglass) with Engine	Loc: W.C.	$6500
(B)	Personnel Boat 40′	Loc: E.C.	$3000
(C)	Buda Diesel Engine — Complete	Loc: W.C.	$2500
(D)	Hercules Diesel-Driven Fire Pump	Loc: W.C.	$3000
(E)	Murray & Tregurtha Propulsion "Mule"	Loc: W.C.	$2500
(F)	LeRoi Air Compressor (Diesel Driven)	Loc: W.C.	$2500
(G)	Trane Portable Air Conditioner	Loc: W.C.	$2500
(H)	Electric Forklift 600 Lb. "Mercury"	Loc: W.C.	$2500
(I)	Electric Pallet Trucks (16)	Loc: W.C.	$1500 Each



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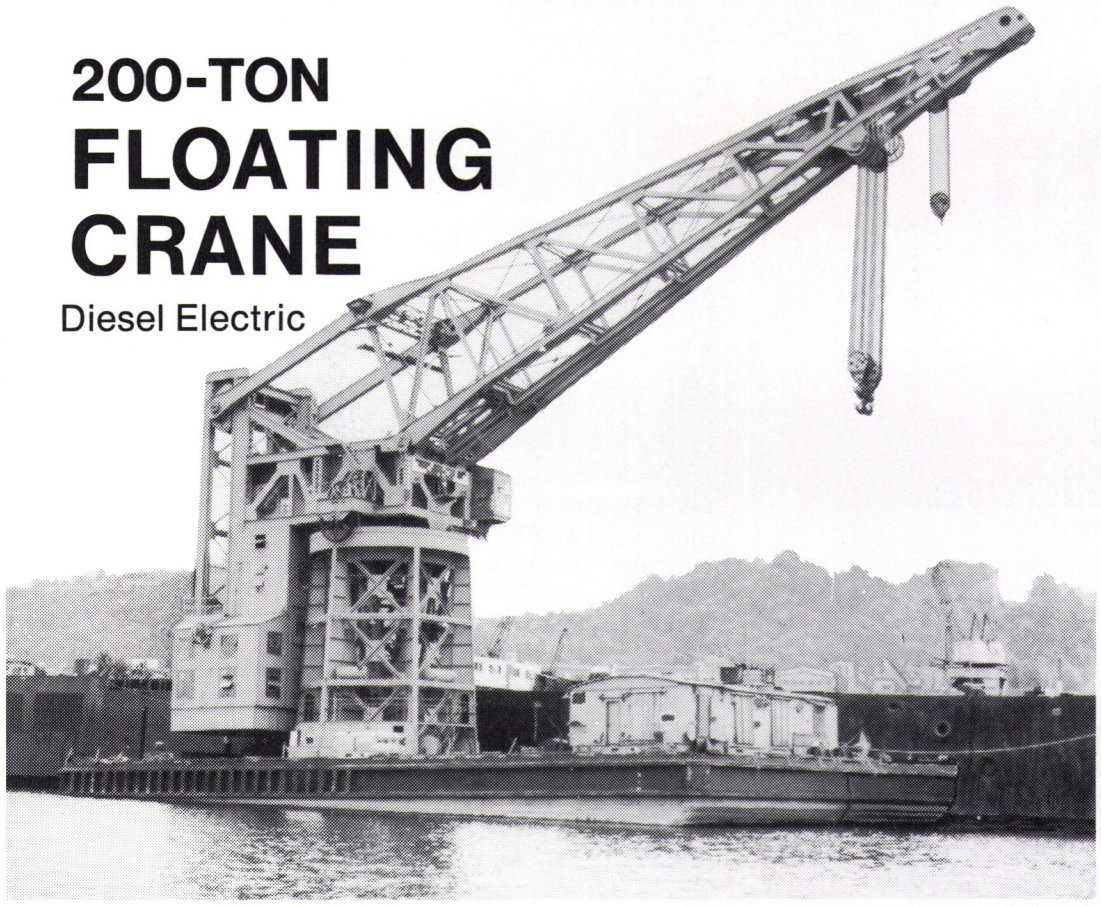

MR 7601

VESSEL CHARACTERISTICS
200-TON LIFTING CAPACITY

LENGTH OVERALL . . . . . 140 FT.
BEAM . . . . . 84 FT.
DRAFT . . . . . 7 FT.
LIGHT DISPLACEMENT . . . . . 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING TYPE — FULL 360°
WEB BOOM . . . . . 146 FT.
MAIN HOIST: 200-Ton—By 2 only, 8 part blocks. Each block carries 2,050 ft. of 1½", 6 x 37 I.P.S. wire rope (New).
AUX. HOIST: 25-Ton—By 1 only 4 part block. Block carries 1,110 ft. of 1⅜", 6 x 37 I.P.S. wire rope (New).

ADDED FEATURES

1. Diesel Electric Powered with G.M. 8-278A diesel engine (engine just majored) and 300 KW, 230 volt Generators. Both in A-1 first class condition.
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CRANES: Main Hoist 50 Tons
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Check these ADDED FEATURES

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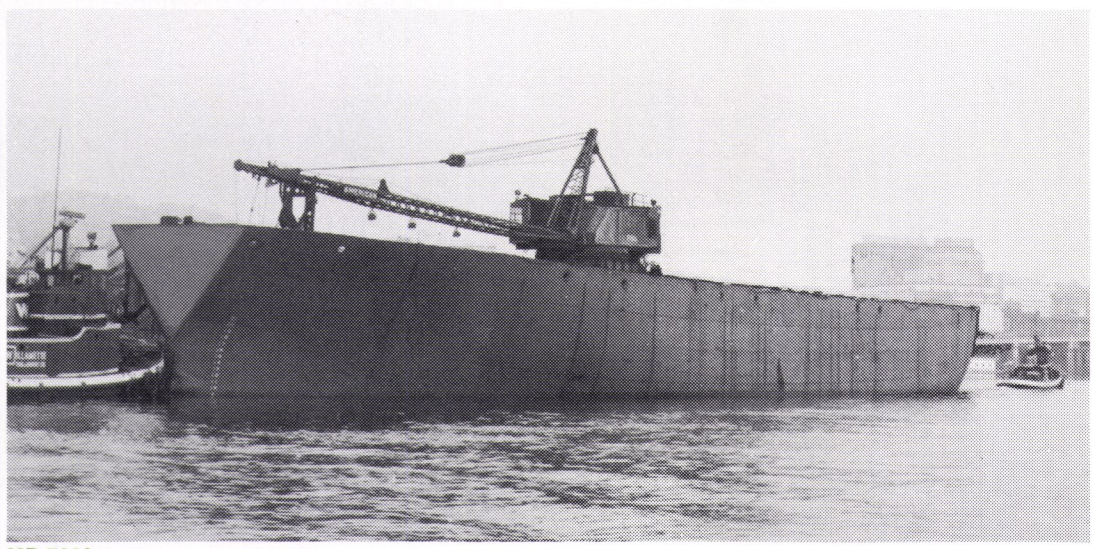

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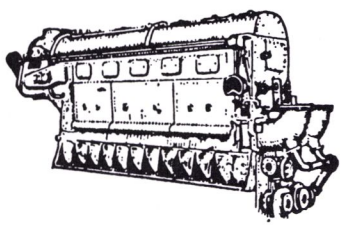
MARINE DIESEL ENGINES



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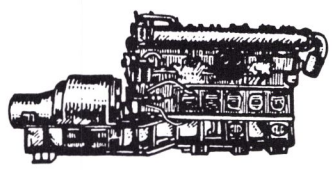
4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.



3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

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

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

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

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

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

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

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

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

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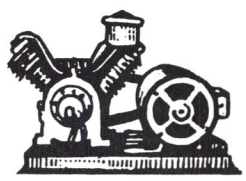
1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).



AIR COMPRESSORS

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

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

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

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

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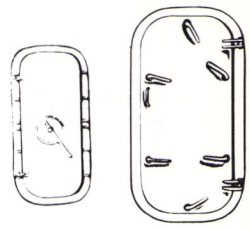

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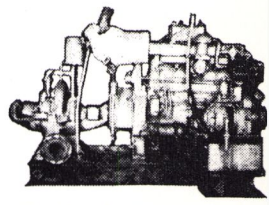
FIRE PUMPS



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

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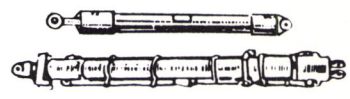

Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	double
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	15½"	double
6"	8"	4"	144"	double

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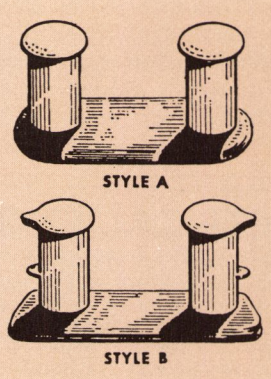

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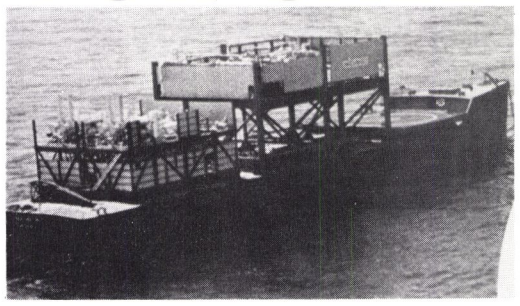

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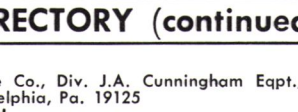

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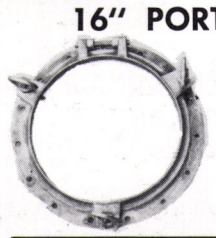

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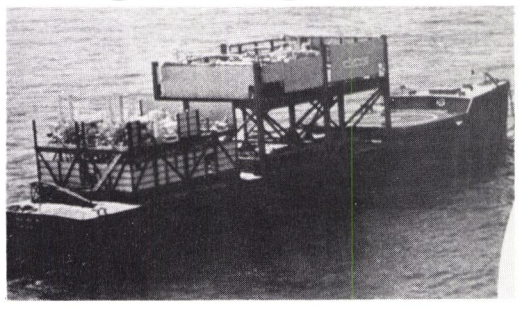

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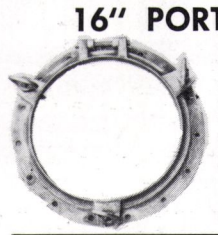

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Nav-Com, Inc., 2 Hicks Street, North Lindenhurst, N.Y. 11757
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Standard Communications Corp., P.O. Box 92151, Los Angeles, CA 90009
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

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Gulf Oil Corp./Gulf Oil Co.-U.S., P.O. Box 1563, Houston, Texas 77001

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Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine) 135 East 42nd St., N.Y., N.Y. 10017

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Farboil Company, 8200 Fischer Road, Baltimore, Md. 21222
Hempel's Marine Paint, Inc., 25 Broadway, New York, N.Y. 10004
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Products Research & Chemical Corp., (PRC Coating & Sealants Div.), 2919 Empire Ave., Burbank, CA 91504
Union Carbide Corporation, 250 Park Avenue, New York, N.Y. 10017
Woolsey Marine Industries, Inc., 100 Saw Mill Road, Danbury, CT 06810

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Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
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Demco, Inc., P.O. Box 94700, Oklahoma City, OK 73109
Eureka Chemical Co., P.O. Box 2205, So. San Francisco, CA 94080
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Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
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Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
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Hyundai Mipo Dockyard Co., Ltd., 456 Cheonha-dong, Ulsan, Korea
Hyundai Shipbuilding & Heavy Industries Co., Ltd., 5 World Trade Center, Suite 679, New York, N.Y. 10048
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Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
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Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
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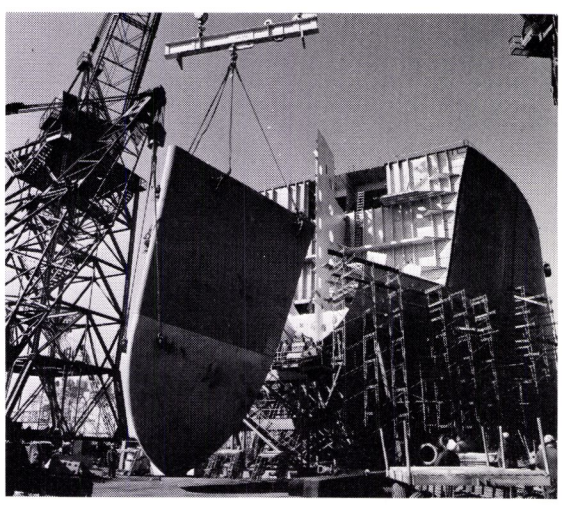

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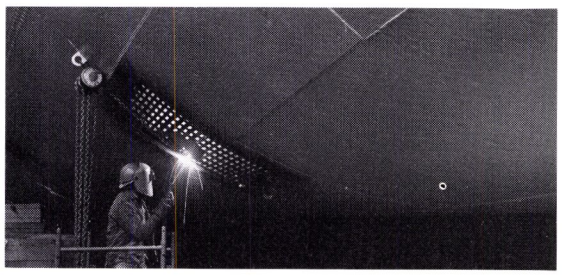

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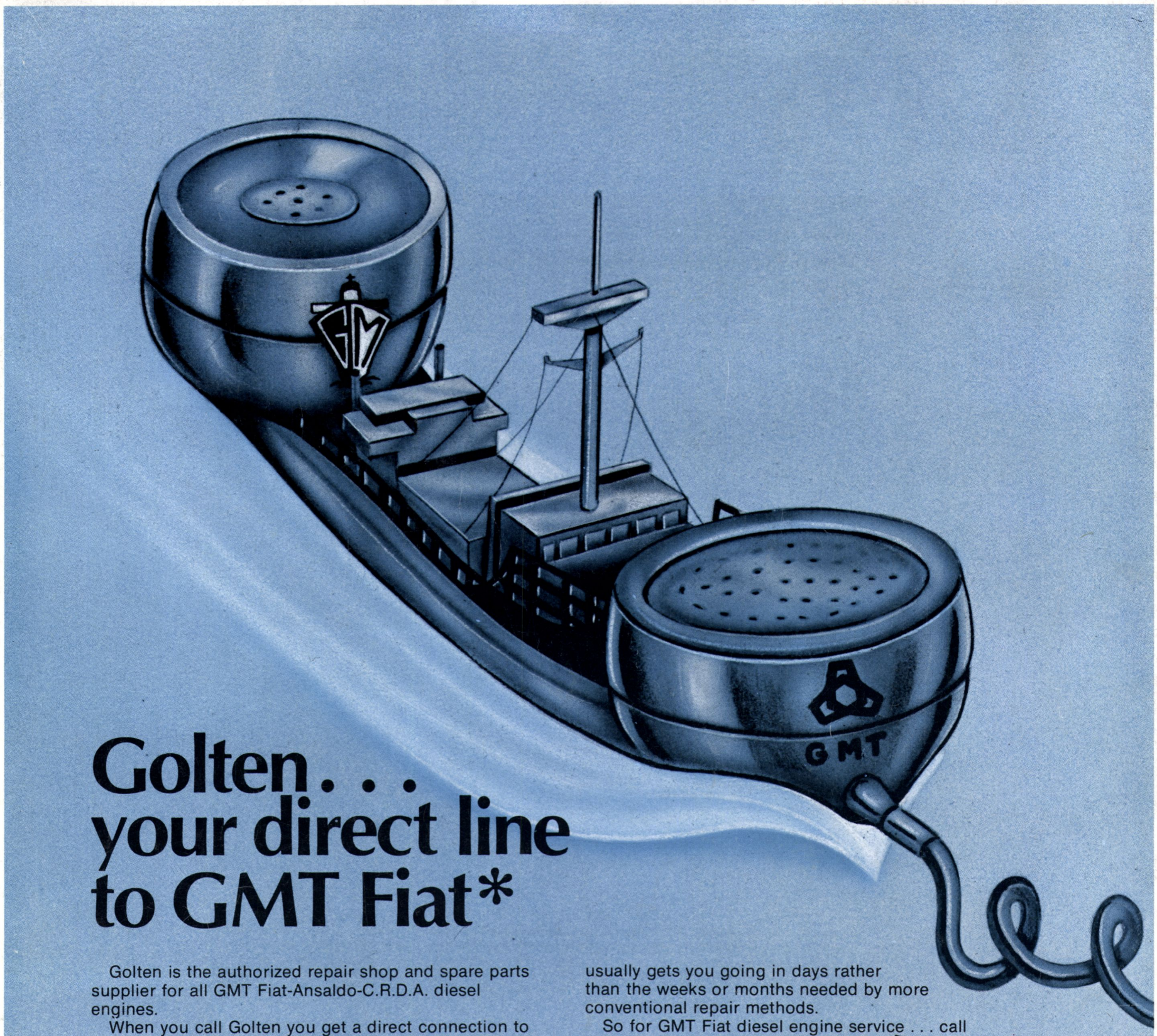

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