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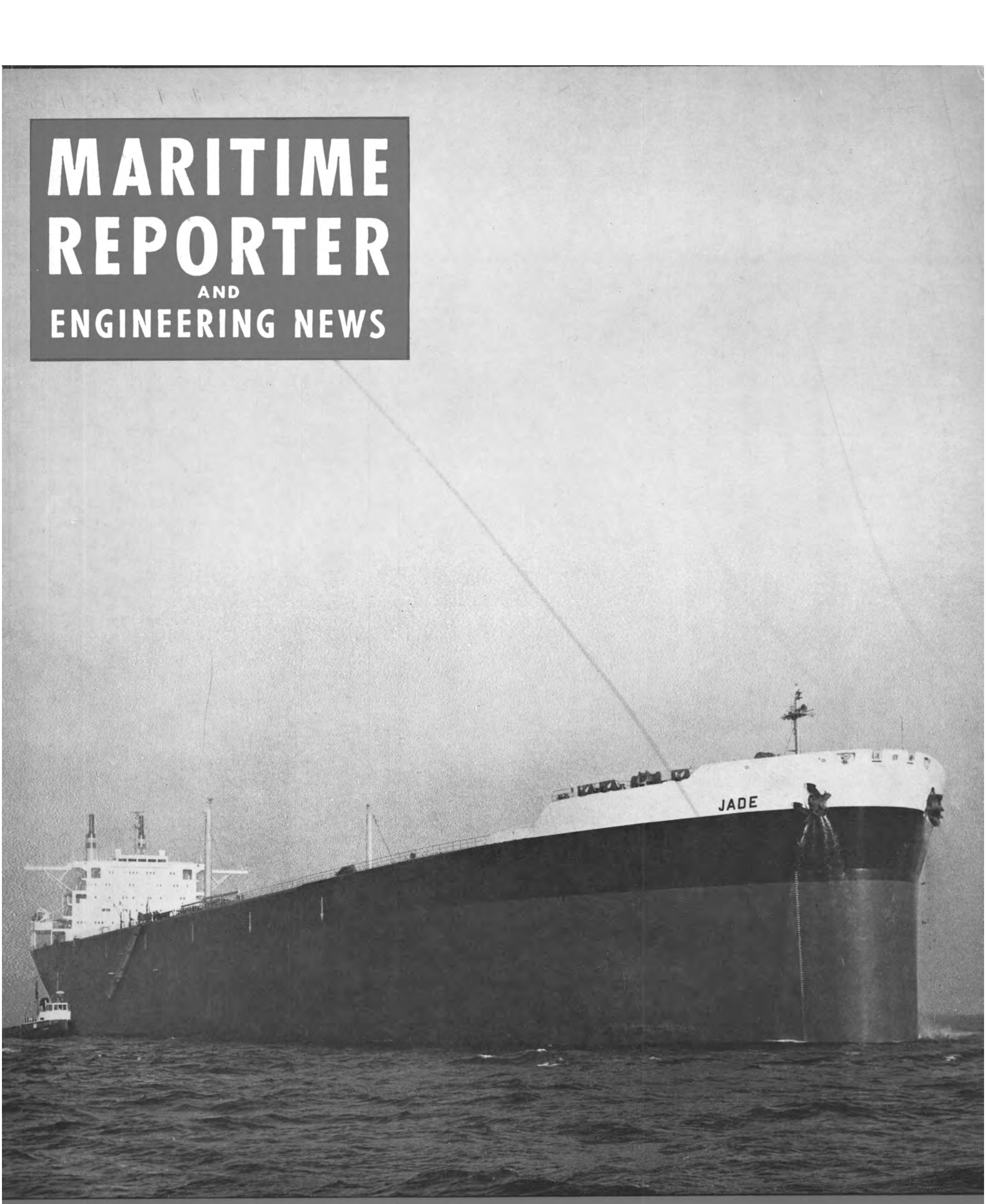

**Kockums Delivers 255,374-Dwt Jade
Largest Ship In French Merchant Fleet
And Largest Vessel Built In Sweden**

(SEE PAGE 6)

APRIL 15, 1971

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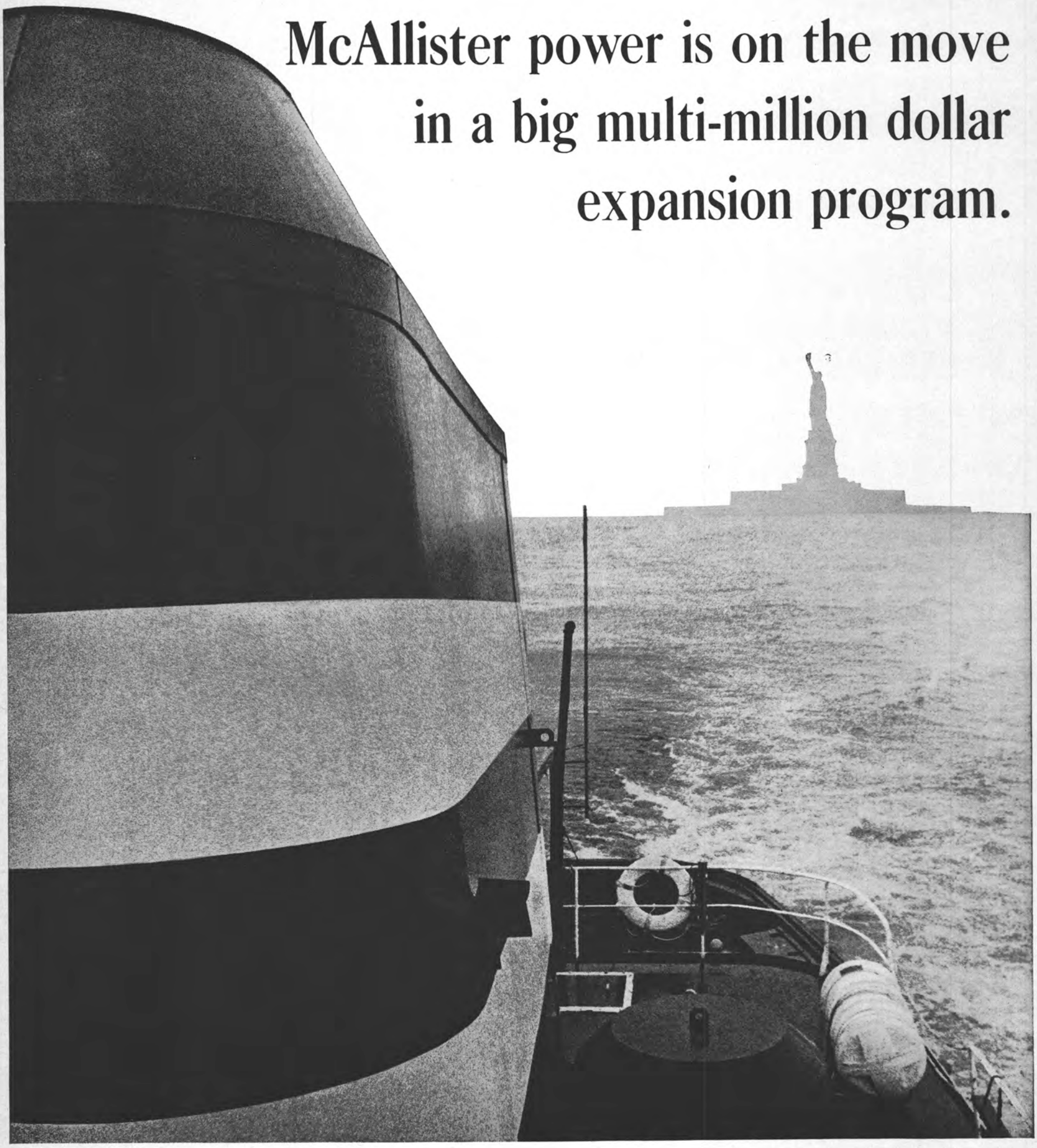

NSSC Awards Study Contract To Gibbs & Cox, Inc.

Gibbs & Cox, Inc., New York, N.Y. has been awarded a $90,000 cost-plus fixed-fee contract for design study of potential economic advantages in employing a common hull for both antisubmarine and antiaircraft warfare escort ships. The award, which was made by the Naval Ship Systems Command, will require the preparation of three preliminary designs by Gibbs & Cox, and to address "philosophy of commonality." The results of this study should be ready by mid-June.

Two Firms To Build Air-Cushion Craft

Aerojet General Corporation, a subsidiary of General Tire & Rubber Company, and Textron Inc., a subsidiary of Bell Aerospace Company, will build air-cushion landing craft under letter contracts awarded by the Navy.

Although each company has received $1,000,000 to construct two vessels, the Navy anticipates spending approximately $18 million at each firm to complete the prototype programs. The 94-foot vessels, capable of carrying about 75 tons, will be able to attain speeds of 50 knots.

A 100-ton surface effects ship, equipped with axial flow-lift fans and a pair of waterjets to drive the vessel at 90 knots, is under construction by Aerojet in association with Tacoma Boatbuilding Company, Inc., under a $10 million funding from the Navy and the Maritime Administration.

New Huntington Alloys Handbook Available

A new 52-page handbook, which is an excellent reference manual on Huntington's corrosion-resistant high-nickel alloys and welding products, has been published. All commercial products are covered, including three new alloys recently introduced.

Specifications, compositions, properties, and typical applications are among the information given. Also included in the handbook, are extensive data on a variety of other materials, such as castings and steels.

The new handbook is available on request from Huntington Alloy Products Division, The International Nickel Company, Inc., Huntington, W. Va. 25720.

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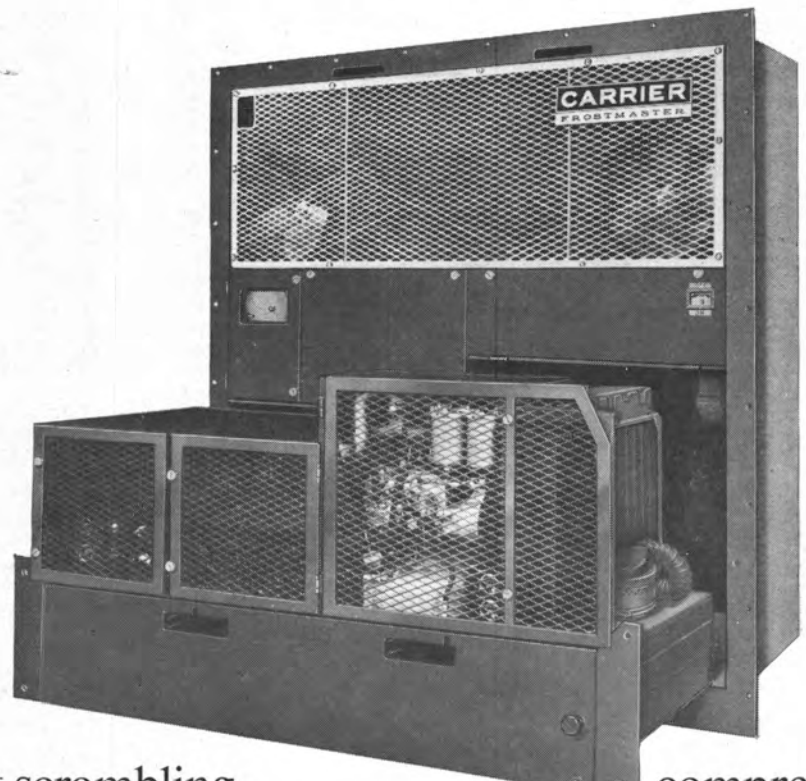

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Two Records Set By Kockums:

The Largest Ship Built In Sweden
The Largest Ship In French Merchant Fleet

The 255,374-Dwt Tanker Jade

The recent delivery by Kockums Mekaniska Verkstads AB of Malmo, Sweden, of the 255,374-dwt tanker Jade to her owners, Cie Francaise des Petroles of France, has set two records. First, the ship is the largest vessel built in Sweden; and secondly, the Jade is the largest ship in the French merchant fleet. Further, the Jade is the first of 17 similar tankers which Kockums will build at a rate of five per year.

This new 255,000-dwt tanker series resembles in major features the seven 210,000-dwt tankers which were commissioned at Kockums during the last 19 months, commencing with the Chevron tanker John A. McCone. These significant features are: cylindrical bow, raised forecastle deck, deck house with navigating bridge and accommodations erected on a cofferdam placed on the main deck aft, separate engine-room casing with one or two funnels, and cruiser stern. The Jade has, however, an extra accommodation deck (a total of seven) owing to a roomy dining and smoking salon and an owner's suite, which are not included in the standard six-deck arrangement. The standard cruiser stern has been slightly shortened by means of a small triangular transom stern.

The Jade was built under the special survey of the Bureau Veritas and fitted out in accordance with French regulations but with several extra features for safety and comfort.

The hull design for this class of ship was prepared by Kockums after careful analysis which employed the latest concepts in strength calculations. The concept has been checked and approved by Bureau Veritas, Lloyd's Register, American Bureau of Shipping and Det Norske Veritas, and also by Chevron and Texaco who both have ordered ships of this type. During sea trials, the Jade was instrumented for measuring static strain conditions—150 strain gauges were combined into 360 measuring circuits. During the maiden voyage to the Persian Gulf, the ship will have a 40-circuit instrumentation program for measuring dynamic stresses. The static measurements were made by the shipyard, while the dynamic measurements will be made by the Bureau Veritas.

The longitudinally framed hull has several structural changes from the usual tanker design which the yard feels reduced the hull weight and building costs. For example, the deep longitudinal bottom and deck stringers, except for the centerline docking stringer, have been eliminated. The functions of these deep stringers have been compensated for by strengthening the transverse frames and by using high-tensile steel in the center-tank bottom transverses. Previously, such steel was used mainly in the longitudinal strength members for the deck and bottom. All transverse tank bulkheads are stiffened by horizontal stringers and secondary webs. This feature aids in preventing hull vibrations.

Prinicipal Characteristics

Length overall	1,117 ft. 2 in.
Length bet. perp.	1,080 ft. 0 in.
Breadth, mld.	170 ft. 0 in.
Depth, mld.	84 ft. 0 in.
Draft, summer	65 ft. 9¾ in.
Cargo capacity	2,130,680 bbls.
Ballast capacity	7,980 tons
Shaft horsepower	32,000
Trial speed	16.24 knots
Gross tonnage	126,370 tons

The cargo-oil space is divided into three sets of five tanks each. Clean ballast spaces are arranged only in the fore and aft peak tanks and in wing tanks along the engine room. Fuel oil is carried in the forward deep tank and in a center tank and two wing tanks adjacent to the engine room.

Each group of cargo tanks are connected by a free-flow system. Normally loading will be done through the number 4 tanks and discharge from the number 5 tanks. An additional pipeline on deck may be used to load through the number 1 tanks. Oil interflow is regulated by rectangular port valves in the tank bulkheads. Most of the cargo-oil valves are remotely operated from a cargo-control room on C-deck. Aft of the number 5 wing tanks there is a load-on-top slop-tank system, having a capacity of 47,500 barrels.

The pump room, just forward of the engine room, is provided with two turbine-driven Laval/JMV cargo-oil pumps, each capable of discharging at a rate of 27,518 gpm, one Laval/JMV stripping pump of 8,000 gpm capacity,

Stern view of the largest tanker constructed in Sweden.

one reciprocating Gothia stripping pump with a capacity of 1,233 gpm, and one electric ballast pump of 17,600 gpm.

Due to the high capacity of the cargo pumps, the cargo-oil piping has the unusually large diameter of 31½ inches. All cargo tanks are provided with venting devices for oils of grade B and level indicators recording in the cargo-control room. The venting-relief valves at the tank hatches have the same diameter as the piping and are provided with waterlocks. In parallel with these there is a conventional venting system with Pres-Vac valves. The tanks are fitted with high-pressure cleaning machines of the Hydro-Synge type. The cargo piping is of spun nodular iron throughout. Heating coils are installed only in the bunker tanks and in the starboard slop tank.

Propulsion Machinery

During the fully loaded sea trials, the Jade attained an average speed of 16.24 knots. The contract called for a speed of 15.7 knots.

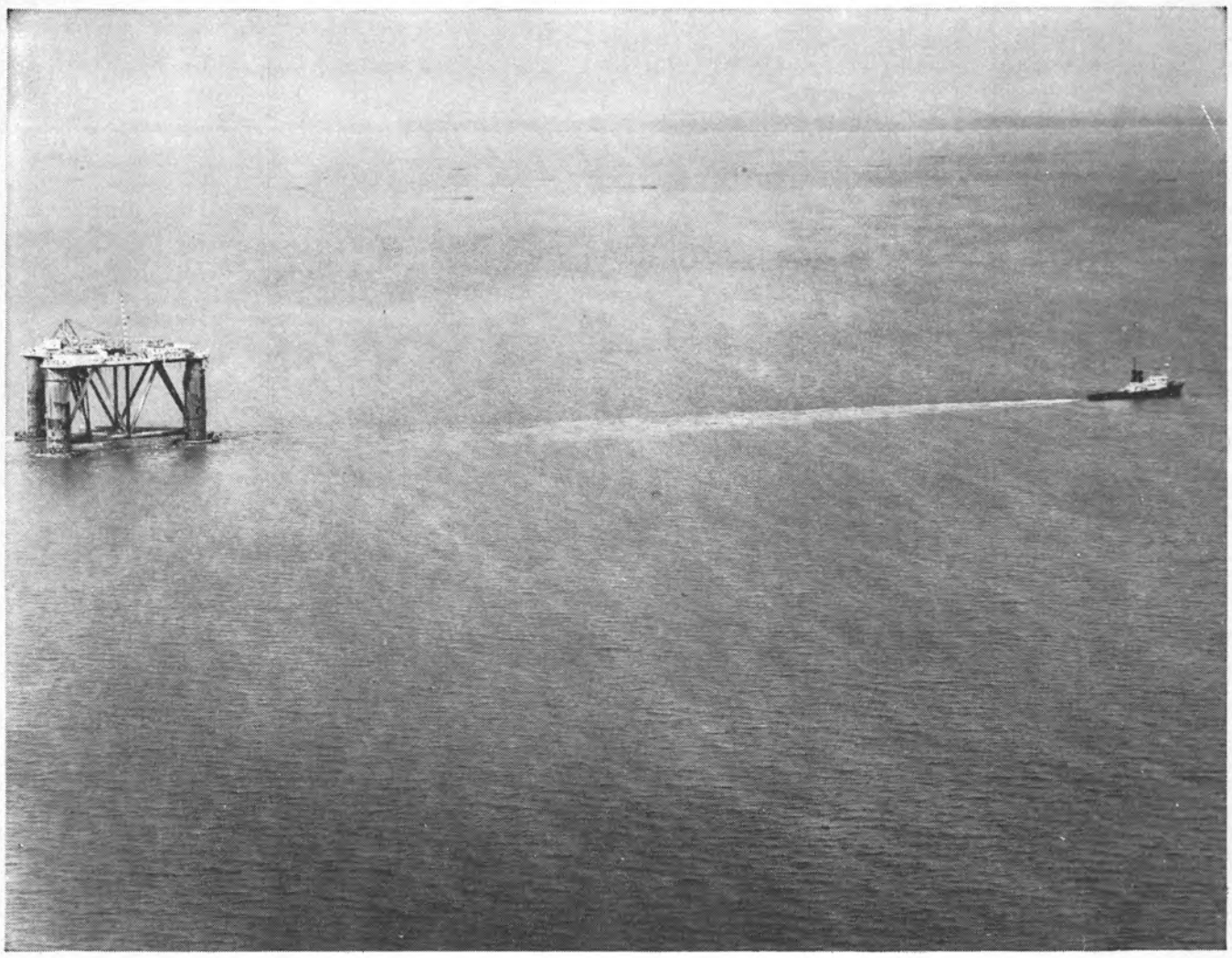
Propulsion is by a regular set of cross-compound triple-reduction geared Kockum-Stal-Laval AP 32 type turbines developing 32,000 shp at 85 rpm. The propulsion plant is remotely operated from the bridge by a Kockum-ASEA automation system. Otherwise, the automation and alarm system is arranged for continuous operation with a one-man engine-room watch.

(Continued on page 8)

The chart room, which is part of the wheelhouse, has its own radar and can be closed off by curtains at night.

The large wheelhouse has navigating, steering and machinery controls in one console along forward bulkhead.

Vast expanse of main deck can be seen from wheelhouse. Note men on deck amidships on starboard side.



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The Tanker Jade—

(Continued from page 6)

Steam is provided by two top-fired Kockum-Combustion Engineering type V2 M8 boilers, each normally generating 46.6 tons of superheated steam per hour at 860 psi and 950°F. The maximum boiler output is 71 tons per hour. The boilers are provided with Ljungstrom-type rotary air preheaters of Svenska Maskinverken's manufacture. Steam production and feedwater supply are maintained within narrow tolerances over the entire speed range by an electronic MK 3 TM type Kockums combustion control supplemented by two Kockums flame guards, one in each boiler, for direct observation of flame quality in the furnace. These instruments are sensitive enough to distinguish a center burner failure even if both side burners are in full operation.

Electric power is normally supplied by a multi-disc Laval/ASEA turbo-generator supplying 1,250-kva, three-phase, 450-volt, 60-cycle current. The turbine operates on superheated steam and also drives the main feedwater pump. As a stand-by, there is a similar single-disc turbo-generator set operating on desuperheated steam, and a 572-kva diesel-generator set which starts automatically if the main electrical supply fails.

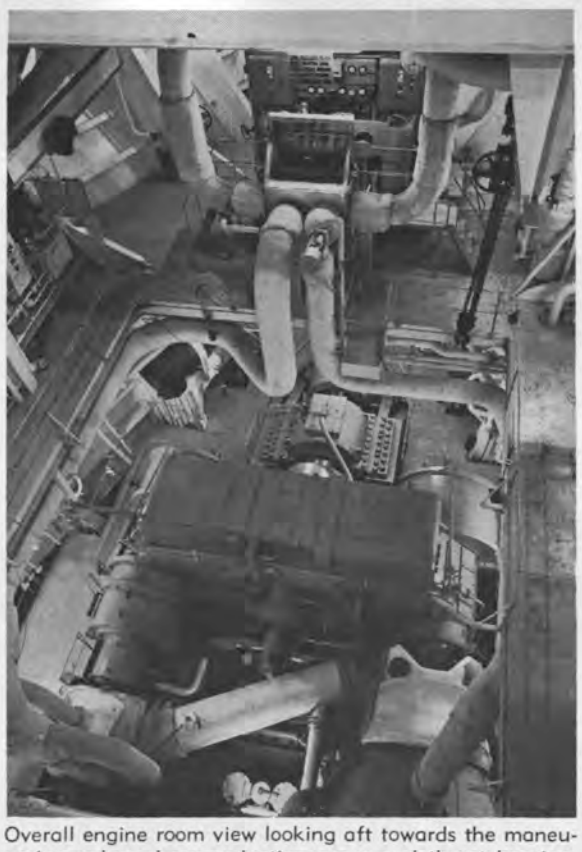
Fresh water is supplied by two 40-tons-per-day evaporators.

During normal operation at sea, the main condenser, atmospheric condenser and lube-oil cooler are supplied with cooling water from a bottom scoop inlet. When the scoop flow is insufficient, circulating is automatically taken over by a vertical one-stage ASEA/Ruhrpumpen main circulating pump and/or a similar auxiliary pump.

The engine room is fitted with three platforms, giving four work levels spaced about 19½ feet apart. The upper platform, located only on the port side, is used to store spare parts. It can be served by the engine-room lifting gear and the gantry crane on the main deck.

The intermediate platform carries the boilers, engine-control room, diesel generator, main switchboard, air compressors and a workshop.

SIGMA type port valve in bulkhead provides for the inter-tank free-flow system and greatly reduces cargo piping.



Overall engine room view looking aft towards the maneuvering valves shows reduction gears and thrust bearing.

Cargo control room from which most cargo valves are remotely operated has mimic diagram of the cargo system.

The lower platform is used for the main turbines' maneuvering valves, fuel-oil heaters and pumps, evaporators, feedwater heater, feedwater stand-by pump, fresh water treatment plant, turbo-generators, 1-p steam generator, external desuperheater, and fuel-oil transfer pump.

The usual equipment such as turbines, gears, condenser, etc. are located on the tank top.

The engine-control room houses the major portion of the control and monitoring instrumentation, grouped on a main console and a vertical panel with recorders and alarms. The alarm system, as is usual in Kockum-built ships, has an ATEW-type panel of alarm lights marking some 70 sensing points. Added to this usual installation is a novel electronic "speaking alarm" of the Vibratechniques concept and manufacture. When actuated, this system indicates by means of pre-arranged endless sound tape and several loudspeakers in the engine room, and by VHF pocket receivers, the source and reason for the alarm. The main unit also prints out on tape the same information together with the actual time of the alarm.

The five-bladed propeller, made of nickel-aluminum-bronze and supplied by Kobe Steel, has a diameter of 28 feet 2½ inches and weighs 48.4 tons.

Special Features

The navigating bridge deck only has width of 104 feet 4 inches, thus making it necessary to have long bridge wings. Each bridge wing is 32 feet 10 inches long and 3 feet 3 inches wide. The bridge house has a combined wheelhouse and chartroom. In addition to a complete range of modern aids to navigation, it has details in excess of the normal. Most striking are three conductor-type seats, adjustable in all directions, placed at the starboard forward radar PPI, at the steering section of the maneuvering console, and at the folding desk on the port side. A loudspeaker for music and an Italian expresso coffee machine also are permanently installed in the bridge house.

The electronic means of communications were chosen with great care. The main transmitter, of Dansk Radio A/S latest single sideband type, is provided with a novel high-precision tuning device using only one basic crystal for all frequencies. There are Elcon-type com-

The engine room main control console is located in the machinery control room on the intermediate platform.

munal aerial systems for both radio and TV. Each room has an outlet for AM/FM receivers. From the entertainment receiving set programs can be relayed to all recreation rooms and officers' quarters. Two tape recorders facilitate simultaneous relaying and recording. The TV receiving system includes two turntable communal aerials securing equal reception on both sides, and a video tape receiver by which TV programs can be recorded for later use. The automatic telephone exchange can be connected to shore via a manual exchange in the deck office.

Safety precautions against the outbreak of fire include among other things an LME automatic fire-alarm system with thermo detectors in the entire accommodation space, and Cerberus-type smoke detectors in the engine room.

The navigation equipment includes two Kelvin Hughes/Cie ETNA radar sets and echo sounder, Burk Sohne electric-clock system, BEN electro-magnetic log, Patek Philippe SA crystal chronometer which constantly supplies correct Greenwich Mean Time, and Kockums supplied acoustic signals and Loadmaster computer cargo distribution instrument.

The Jade has been coated with Hempel products throughout except for the initial shop primer of International Nuplate A. Externally there has been applied a four-coat chlorinated rubber paint system, while plain epoxy coatings have been applied to the slop tanks, and a three-coat system of conventional properties to internal steel surfaces.

American Bureau Of Shipping Reports Growth Of 40 Percent In Tonnage Classed

Andrew Neilson

The year 1970 was of great significance to the American Bureau of Shipping. Reporting to the annual meeting of the classification society, held in New York on March 16, **Andrew Neilson,** the retiring chairman and chief executive officer, said that in gross tonnage classed there had been an increase over 1969 of approximately two-million tons, a growth of about 40 percent.

Vessels under contract to be built to Bureau classification of December 31, 1970 were 1,729, with a gross tonnage of 17,741,000—a tonnage increase of 13 percent over 1969. On January 1, 1971, there were under Bureau classification 2,846 active seagoing and Great Lakes vessels over 1,000 gt, for a grand total of 47,200,000 gt.

Saying that the new generation of vessels were far more complex than their predecessors, Mr. **Neilson** continued: "The whole classification world is changing. This makes necessary increased educational and experience qualifications for the younger men who are coming into our organization, and the continuous introduction of new techniques in the handling of our plan review processes. A great deal of the responsibility for this lies on the shoulders of our technical staff, and particularly, the Research and Development Division. This department has been greatly strengthened.

"Several years ago, we instituted a feasibility study for the hull structure of large tankers, particularly those of 500,000 deadweight tons. The scope of this project has recently been altered to include a 750,000 and a 1,000,000-dwt design, as it is very likely that these may be the next steps which the industry will take in its constant effort to develop the most economical ship."

Mr. **Neilson** said that in mid-1970 the Bureau had received a request for classification for the world's largest tanker, a 367,000-dwt vessel for Tokyo Tankers. Since then, classification requests had been received for two 469,000-dwt tankers to be built in Japan for Globtik Tankers of London. "In addition, there is a strong possibility that two 500,000 tonners will be built to Bureau classification. Plans are now being considered by owners for tankers in the 750,000-dwt class. The Bureau has had the honor of being the pioneer in the classification of ships of ever-increasing size, and it is a source of great satisfaction to us that owners of vessels in this category are still looking to us for classification services."

Vessels, which are in some respects even more complicated than the very large tankers, are the new large high-speed container vessels building for Sea-Land Service, Inc. The Bureau, with the cooperation and assistance of Sea-Land, is engaged in examining the problem of torsional characteristics of the hull at sea, using the most advanced methods of analytical calculations, model testing, and instrumentation of the ship itself. A 17-foot model, to be tested at the University of California, will be subjected to combined longitudinal and torsional loads, and will be analyzed by the finite-element method. This will provide the results for a three-point attack on the hull-strength problem: (1) sophisticated computer analysis, (2) model testing, and (3) instrumentation of the ship itself.

"One of the most interesting developments in the contemporary picture," said Mr. **Neilson,** "has been the increased demand for liquefied natural gas carriers. Of the 11 vessels now in existence, nine are classed by the American Bureau of Shipping. The Bureau staff last year reviewed designs for LNG carriers totaling more than twice the existing tonnage. The largest LNG vessel in existence has a capacity of 71,000 cubic meters, but the Bureau has already reviewed and approved proposals for vessels up to 160,000 cubic meters."

On invitation from the National Aeronautics and Space Administration, the Bureau was represented at two Space Station Utilization Conferences. The Bureau is participating with other non-Government organizations in considering the features that should be included by NASA in planning the Space Station so that there will be a high degree of flexibility for accommodating research experiments in space.

On the Great Lakes, a tug-barge combination, in which a pusher-type tug is rigidly attached to the barge, has been designed for construction at Erie Marine to Bureau classification. It has a combined length of 1,000 feet, the barge being 960 feet by 104 feet by 46 feet for the carriage of ore and other bulk cargoes. This will be the largest operating barge on the Great Lakes, and may be the largest anywhere.

The container certification program, initiated by the Bureau some time ago, continues to grow at a gratifying rate, said Mr. **Neilson.** A total of 34,000 containers have been built or contracted for, representing an increase of 19,600 units over the total at the end of 1969. Authority to conduct Customs certification was granted to the Bureau in July 1970 by the United States Coast Guard, and an additional 14,600 units, representing 36 different designs, have been ordered for this certification under Bureau survey. In view of the large number of containerships scheduled for delivery, the Bureau intends to expand its work in the container field.

In 1970, the Bureau opened exclusive offices in Caracas, Venezuela; Valparaiso, Chile; Seoul, Korea; Galatz, Rumania, and now has offices in 94 countries. A development instituted some time ago was that of assigning surveyors to carry out surveys while a vessel continues her voyage. This option was particularly welcomed by owners of tankers, with which in-port time is greatly restricted.

One of the topics on which the International Association of Classification Societies, of which the American Bureau of Shipping is a member, has concentrated recently, is the maximum size of cargo tanks for tank vessels. Mr. **Neilson** commented: "It was the position of the Bureau that we should be very careful about establishing limits on tank size which might inhibit technological development. The other members of IACS had come to the conclusion that a reasonable tank size would be 50,000 cubic meters for the center tanks and 30,000 cubic meters for the wing tanks, and we agreed to this tank size limitation as an interim measure. Last month the Subcommittee on Design and Equipment of IMCO tried to resolve this problem on the basis of the possible outflow of oil rather than tank size, but were unable to agree and have referred the matter to the Maritime Safety Committee, the major technical committee of IMCO, which is meeting this week in London.

"While the Bureau continues to feel that technological development should ideally be allowed to proceed at its own pace, it is also convinced that a hands-off attitude on our part would be a disservice to the maritime community. As in the past, we are working closely with the U.S. Coast Guard, the State Department and industry in formulating our national policy on this sensitive and important subject."

Two Appointments At General Steamship

General Steamship Corp. of San Francisco, Calif., has named **Michael P. Williams,** who has been manager of operations, to the new position of manager of administrative services.

Also announced was the appointment of **Karl Minnigerode** as container control department manager. Mr. **Minnigerode** was formerly with States Marine Lines.

Dravo Names Three To Engineering Posts

Howard H. Hobson

Robert C. Brossart

David S. Heindel

Dravo Corporation has announced the appointments of **Howard H. Hobson** as assistant chief engineer, **Robert C. Brossart** as principal mechanical engineer, and **David S. Heindel** as principal structural engineer in the engineering department of the company's Engineering Works Division.

Mr. **Hobson,** who joined Dravo as a junior engineer in 1962, previously held the post of project engineer with the division. He holds a B.S. degree in civil engineering from Union College and is attending Carnegie-Mellon University's Graduate School.

Mr. **Hobson** is a member of the American Society of Civil Engineers and the American Society for Testing and Materials and is a registered professional engineer in the State of New York.

Mr. **Brossart** most recently served as project engineer with the division. He joined Dravo as a junior engineer in 1964, after graduation from Purdue University with a B.S. degree in mechanical engineering.

Mr. **Brossart** is an associate member of the American Society of Mechanical Engineers and is a registered professional engineer in the state of Pennsylvania.

Mr. **Heindel** holds a B.S. degree in civil engineering from the University of Illinois and an M.S. degree in civil engineering from Carnegie-Mellon University. He joined Dravo as a junior engineer in 1958 and most recently held the post of computer engineer with the division.

Mr. **Heindel** is a member of the American Society of Civil Engineers and an associate member of The Society of Naval Architects and Marine Engineers. He is a registered professional engineer in Pennsylvania.

Dravo's Engineering Works Division designs and builds inland and coastal waterway marine equipment, heavy bulk materials handling equipment and specialized heavy machinery and equipment.

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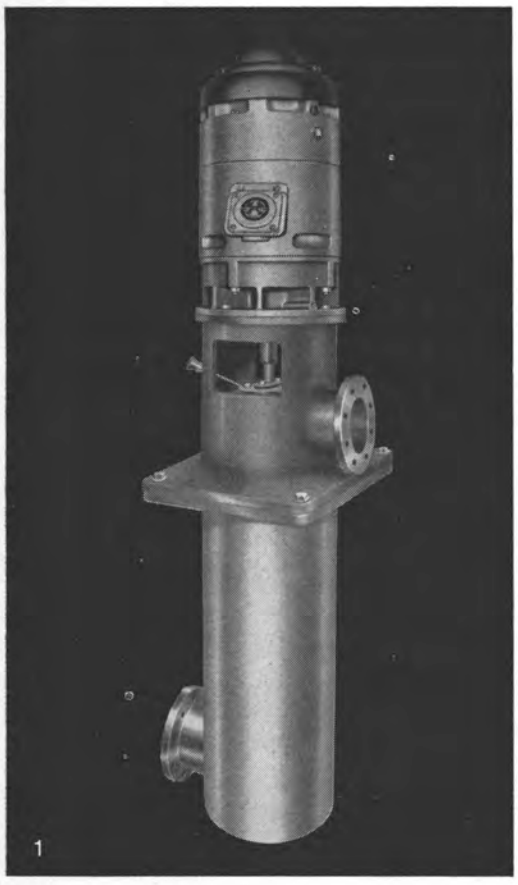
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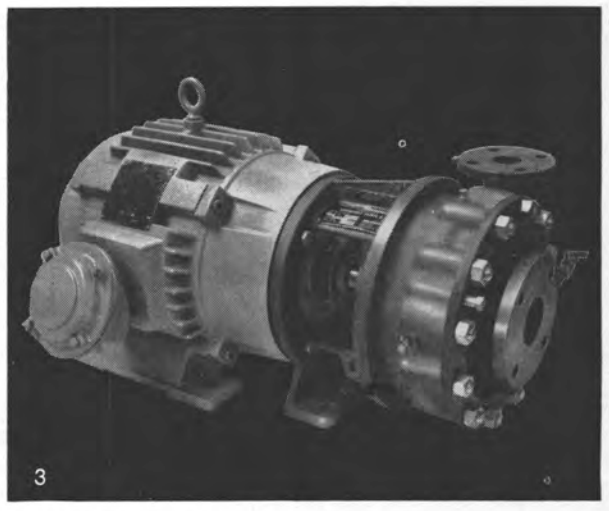
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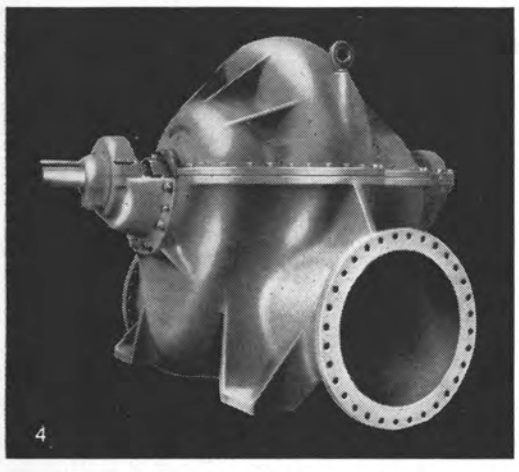
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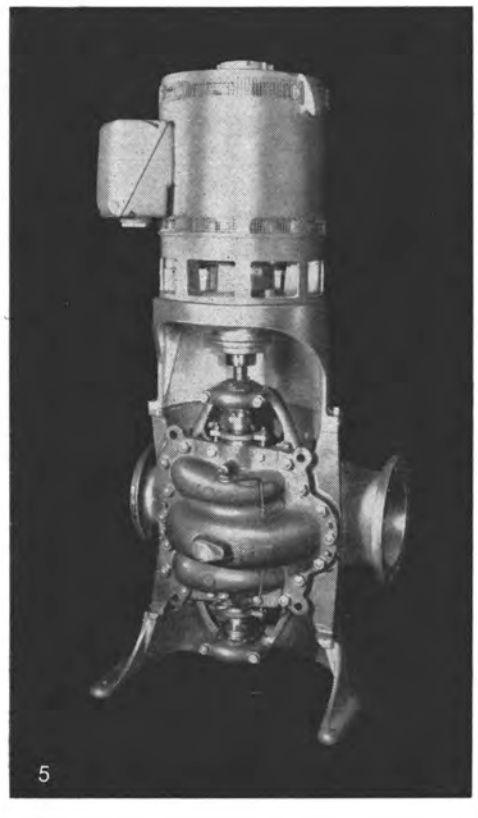
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Colt Industries

Caribbean Trailer Express Appoints Danoff President

Stuart S. Danoff has been named president of Caribbean Trailer Express, 42 Broadway, New York, N.Y. 10004, operator of ocean shipping services between New York and Jamaica and the Dominican Republic. The announcement was made by Sir **Rupert Speir,** chairman of Common Brothers Limited, Newcastle-upon-Tyne, England, of which Caribbean Trailer Express is a subsidiary.

Sir **Rupert** said Mr. **Danoff's** appointment "signals the company's intent to reinforce its Western Hemisphere activities and move towards stronger participation in the steadily growing Caribbean trade area."

In addition to heading Caribbean Trailer Express, Mr. **Danoff** will direct all Western Hemisphere interests of the Common Brothers Group, which consist of Common Brothers Limited and Common Brothers (Management) Ltd., all based in Newcastle. This is the first time in its more than 80-year history that the English firm has had a resident top officer of this stature in the United States. Mr. **Danoff's** predecessor as president of Caribbean Trailer Express was **G.A. Common,** who is headquartered in England.

The Common Brothers Group is engaged in a broad variety of shipping activities throughout the world, including chartering and ships management, as well as direct operation of its own vessels. Publicly owned, the firm's shares are traded on the London Stock Exchange.

Stuart S. Danoff

Mr. **Danoff,** who is an American, recently returned to the United States after several years of residence in Holland and England, where he represented major U.S. shipping and container lines. He was most recently vice president and general manager in the United Kingdom for Seatrain Lines. Mr. **Danoff** participated heavily in the expansion of Seatrain's container services between the U.S. East Coast and Puerto Rico.

A native New Yorker, Mr. **Danoff** is an alumnus of New York University and Long Island College, where he majored in international trade.

Dravo Corp. Promotes Roy A. Behling Jr. In Engineering Works Div.

Roy A. Behling Jr.

Dravo Corporation has announced the appointment of **Roy A. Behling Jr.** as chief engineer for the proposal and development department in the company's Engineering Works Division.

Mr. **Behling,** who joined Dravo in 1960 as a design engineer, most recently served as chief mechanical design engineer with the division. He holds a bachelor of mechanical engineering degree from Cornell University and is a member of the National Society of Professional Engineers, the National Management Association, and is a committee member of the American Society for Testing and Materials. Mr. **Behling** is a registered professional engineer in Pennsylvania.

Dravo's Engineering Works Division designs and builds inland and coastal waterway marine equipment, heavy bulk materials handling equipment, and specialized heavy machinery and equipment.

Mobil Oil Corporation Names William J. Yopp Manager Marine Sales

William J. Yopp

William J. Yopp has been named manager of Mobil Oil Corporation's marine sales department.

Mr. **Yopp** received his B.A. degree in petroleum engineering in 1956 from the Colorado School of Mines, and his M.S. degree in that subject from Tulsa University in 1960.

He joined Mobil in 1959 in Midland, Texas, as a petroleum engineer. In 1960, he was transferred to New York as a crude oil analyst, and in 1962, he became supervisor of the operating section of Mobil Petroleum, a predecessor company. He was appointed manager of products trading in the corporate supply and distribution department in 1967, and general manager of supply and marine with Mobil Sekiyu K.K. in Tokyo in 1969.

Philadelphia Section To Hold 21st Annual Dinner-Dance May 15

The Philadelphia Section of The Society of Naval Architects and Marine Engineers will hold its 21st annual spring dinner-dance on May 15, 1971, at the Marriott Motor Hotel on City Line Avenue, Philadelphia, Pa.

The affair will be held in the new and luxurious Commonwealth Ballroom, a magnificent addition to the Marriott's Convention Center.

People attending who will require room reservations for overnight accommodations should contact the Philadelphia Marriott Motor Hotel, City Avenue and Monument Road, Philadelphia, Pa. 19131, prior to May 1, 1971.

Tickets are available by contacting **Joseph J. Kleschick,** c/o General Electric Co., 3 Penn Center Plaza, Philadelphia, Pa. 19102.

Equitable To Build Blast And Paint Facility

Equitable Equipment Co., Inc., New Orleans, La., is to build a $1-million blast and paint facility to do work on LASH and SEABEE barges. The first of its type in the United States, the facility will be capable of blasting steel surfaces of marine hulls and steel structures up to 110 feet long, 50 feet wide and 200 gt.

Central Gulf Steamship Lines has already awarded Equitable a contract to blast and coat its 420 LASH barges.

Prudential-Grace Lines Appoints Connolly Executive VP-Finance

James J. Connolly, former senior vice president, finance, of United States Lines, has been appointed executive vice president, finance of Prudential-Grace Lines, **Spyros S. Skouras Jr.,** president and chief executive officer of the line, has announced.

Mr. **Connolly** joined Prudential-Grace Lines last month, after serving as a senior vice president of United States Lines. From June 1959 until March 1969, he was associated with the accounting firm of Price Waterhouse & Co.

Mr. **Connolly** began his maritime career as a graduate of the John Brown School Ship, a New York City vocational high school, in 1950. During the next five years, he worked his way up through the hawse pipe from ordinary seaman to third officer of the Grace Line freighter Santa Theresa. He also served in the Navy as a quartermaster aboard submarines.

Mr. **Connolly** is a member of the Financial Executives Institute, the Downtown Athletic Club and Sigma Nu Fraternity. Several of his articles on the use of computers in banks and in steamship and industrial companies have appeared in professional journals.

Todd And APL Sign $32.5 Million Contract

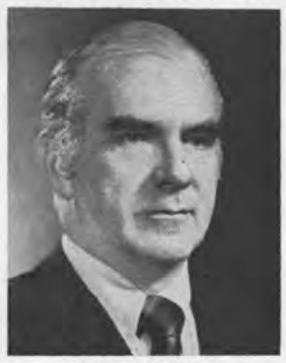
Todd Shipyards Corporation, New York, N.Y., signed a $32.5 million contract on March 29 with American President Lines, Ltd. and the Maritime Administration, U.S. Department of Commerce, for the conversion of five C-4 "Seamaster" freighters to full containerships.

Under Maritime's construction-differential subsidy program, the Government will pay 41.5 percent, or $2,698,375, per ship for the conversion costs, which represents the difference between Todd's bid and the estimated cost of performing the work in a West Europe shipyard. The 41.5 figure is well below the 45 percent Government construction aid ceiling set for 1971 in the Merchant Marine Act of 1970.

The five "Seamasters," which were constructed for American President Lines in 1967, include the Presidents Fillmore, Grant, McKinley, Taft, and Van Buren. Upon conversion, which will require from 345 to 525 days, APL will utilize the vessels in its U.S. Atlantic, Gulf, and Pacific/Indonesia, Malaysia, and Singapore service. The line has announced plans to convert three more conventional freighters to containerships in the near future.

Todd will do the conversion work, consisting mainly of the addition of a 90-foot midbody and container guides in each hold, in its Los Angeles, Calif., and Seattle, Wash., yards.

Daniel J. Kane Joins McAllister Brothers, Inc.



Daniel Kane

Gerard M. McAllister, executive vice president of McAllister Brothers, Inc., has announced that **Daniel Kane,** formerly associated with Massachusetts Port Authority, has joined the sales staff of the McAllister organization.

A graduate of Fordham University and the Academy of Advanced Traffic, Mr. **Kane** has had long experience in the many varied phases of transportation. Mr. **Kane** will concern himself with increased development of the McAllister interests in towing and barge transportation along the East Coast, embracing the ports of Philadelphia, Norfolk, and New York.

Newport Ship Yard Inc. Names John Romanelli Operations Supervisor

John N. Romanelli, a retired Navy lieutenant commander and former Coordination Director of Overhaul and Conversion for the United States Navy at the Electric Boat Division, General Dynamics Corporation of Groton, Conn., has been named operations supervisor at the Newport Ship Yard, Inc., Newport, R.I.

Following Officers' Training School, Mr. **Romanelli** became assistant repair officer on the submarine repair ship USS Bushnell prior to becoming chief engineer on the fleet submarine USS Seacat. In 1956, he became division engineer of the Submarine Division 121, followed a year later by assignment as machinery and hull officer at the United States Submarine Base at New London, Conn., until 1969, when he carried out his last military assignment at Groton.

In announcing the appointment, Newport Ship Yard president, **Neil C. Peirson,** stated that Mr. **Romanelli** would play an important part in the expansion plans at the facility that has seen an increase in Government contract work in recent years, as well as in the expected activity of the newly-created Marine Industries Division and Custom Boat Building facility.

Born in Philadelphia, Pa., Mr. **Romanelli** joined the Navy in 1947 and served on submarines as an enlisted man for 12 years.

Fred Sherman Elected Chairman Of AIMS

Fred S. Sherman

A key shipping executive who has long been active in the promotion and development of the U.S.-flag merchant marine, has been elected chairman of the board of the American Institute of Merchant Shipping (AIMS).

Fred S. Sherman, president of Calmar Steamship Corporation, a subsidiary of Bethlehem Steel Corp., headquartered at Sparrows Point, Md., is the new chairman of the board. Change in AIMS' leadership was announced by outgoing board chairman **Frank A. Nemec,** president, Lykes Bros. Steamship Co., and president, Lykes-Youngstown Corp., following AIMS' annual meeting at the Whitehall Club in New York City.

According to the announcement, **Thomas J. Smith,** president of Farrell Lines, Inc., New York, N.Y., will be the new chairman of the AIMS Liner Council, comprised of lines operating under Government subsidy contracts. Mr. **Smith** succeeds **Leo C. Ross,** president, Pacific Far East Line, San Francisco, Calif. Continuing as chairman of the AIMS Tanker Council, will be **H.A. Steyn Jr.,** manager, relations division, marine transportation department, Mobil Oil Corp., New York.

Mr. **Sherman,** who is also vice president of the Marine Division and Great Lakes Steamship Division of Bethlehem Steel, has been president of Calmar Steamship Corp. since 1965. Calmar operates a fleet of dry cargo ships in the coastal and intercoastal trades.

As board chairman of AIMS, Mr. **Sherman** assumes the leadership of an association which was organized in 1969, through the merger of three steamship trade associations. Representing the nation's largest association of American-flag shipowners, AIMS is comprised of 32 companies operating roughly 500 tankers and subsidized and nonsubsidized dry cargo ships in the foreign, coastal and intercoastal trades. These vessels represent about two-thirds of all active privately owned ships registered under the U.S. flag, and aggregate over eight-million tons.

New AIMS board members, along with Mr. **Smith** of Farrell Lines, are **James A. Cole,** general manager, marine department, Texaco, Inc., New York, who will fill out the unexpired term of **John I. Mingay,** vice president of Texaco's marine department; **Thomas B. Crowley,** chairman, Alaska Hydro-Train, San Francisco; **J.R. Dant,** president, States Steamship Co., San Francisco, and **Joseph T. Lykes,** board chairman of Lykes, replacing Mr. **Nemec.**

Continuing as board members for 1971, in addition to Mr. **Sherman,** are: **W.C. Brodhead,** vice president, transportation, Marine Division, Gulf Oil Corporation, New York; **Everett S. Checket,** vice president, Mobil Oil Corp.; **J.W. Clark,** president, Delta Steamship Lines, Inc., New Orleans; **Russell C. Curtis,** general manager, Humble Oil and Refining Company, Houston; **Manuel Diaz,** vice chairman of board and chairman of executive committee, American Export Isbrandtsen Lines, Inc., New York; **Lawrence C. Ford,** president, Chevron Shipping Company, San Francisco; **Worth B. Fowler,** president, American President Lines, Ltd., San Francisco; **Charles Kurz,** president, Keystone Shipping Company, Philadelphia, and **Eugene Yourch,** vice president, Marine Transport Lines, Inc., New York.

AIMS officers reelected for the year by the board were **James J. Reynolds,** president, **Albert E. May,** vice president, and **Parker S. Wise,** secretary-treasurer. **Philip Steinberg** was elected vice president of AIMS' Pacific Regional Office, San Francisco.

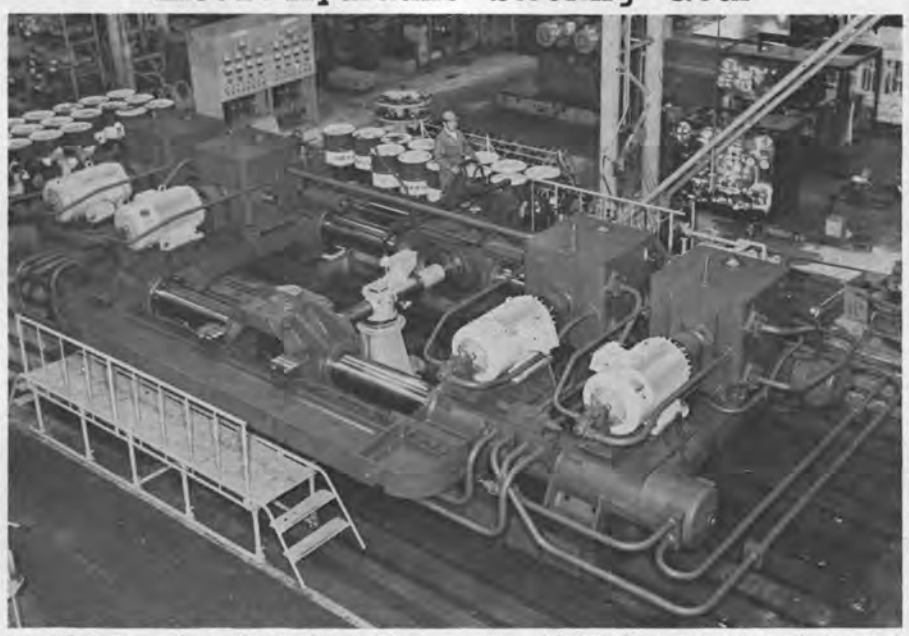
Marine Coatings Conference Scheduled For May 5-6 In N.Y.

The Eleventh Annual Marine Coatings Conference will be held May 5-6, 1971, in New York City.

The theme of the conference, sponsored by the National Paint, Varnish and Lacquer Association, Washington, D.C., is "Marine Industry—Total Concept." Three conference sessions will bring together marine coatings manufacturers, and other representatives of Government and the marine industry, to discuss new developments, future trends, and common problems.

The sessions will be held at the Waldorf-Astoria Hotel, beginning May 5 at 9:30 a.m. and concluding May 6, with a luncheon featuring a prominent guest speaker.

Kawasaki Builds World's Largest Electro-Hydraulic Steering Gear



World's largest electro-hydraulic steering gear assembled in Kawasaki Heavy Industries' shop for testing. The overall width of the unit is 33 feet 11 inches and it measures 17 feet 4 inches in the fore-and-aft direction. Its height is 6 feet 5 inches.

Kawasaki Heavy Industries, Ltd., of Japan has completed and delivered the world's largest electro-hydraulic steering gear. The unit can produce a maximum torque of 784 tons. This large unit will be installed in the 372,400-dwt tanker Nisseki Maru. This ship is under construction at the Kure Shipyard of Ishikawajima-Harima Heavy Industries for Tokyo Tankers, Ltd., and will be delivered this fall. The Nisseki Maru has a rudder 46 feet long, 36 feet wide and 5 feet 6 inches thick, weighing 208 tons.

Kawasaki has received orders for many large steering gears. Orders were placed with the firm for 80 sets of steering gears for ships of over 100,000 dwt, of which 40 units have been delivered. In addition, the firm has received an order for a huge electro-hydraulic steering gear with a torque of 1,029 tons for installation aboard a 477,000-dwt tanker scheduled to be completed in February 1973 and delivered to Globtik Tankers, Inc. of the United Kingdom.

The unit for the Nisseki Maru has four hydraulic pumps. Three pumps are normally used for steering. These can move the rudder from 35 degrees on one side to 35 degrees on the other side at a rate of 65 degrees in 28 seconds (classification rule requirement). For faster steering, all four of the pumps are operated. For selective steering while at sea it is necessary to operate only one or two pumps, depending upon sea conditions.

The high-pressure oil pumps of the axial-plunger type are housed in the oil tank and produce the necessary oil pressure. The precision mechanism controlling the pump discharge and the piping and couplings, all housed in the oil tank, are maintenance free due to their having ample lubrication. The oil check valve fitted to the pressure oil piping prevents the pumps from turning in reverse, which could be caused by the load coming from the tiller arm or other causes while the pumps are stopped.

Don Ray Promoted At Willamette Tug & Barge

Don Ray has been appointed assistant vice president and general manager of Willamette Tug & Barge Co., a division of Willamette-Western Corporation, according to **R.J.Hasler,** vice president-general manager of the marine services group, Willamette-Western is a Portland-headquartered diversified service, marine and heavy construction company.

Mr. **Ray** has been marine operations manager at Willamette Tug & Barge since 1959, when he joined the organization. The firm operates a fleet of 29 tugs, 17 water cranes, and 53 cargo barges from its base in Portland. Its primary activities include ship assisting, ship and industrial oil barging, river and harbor towing, oil spill cleanup, marine salvage, and equipment charter.

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

Dart Containerline Appoints Giudice

Henry X. Diercxsens, vice president, container services of Dart Containerline Incorporated, New York, N.Y., has announced the appointment of **Anthony J. Giudice** as traffic manager for Dart Containerline's United Kingdom services.

Mr. **Giudice** was formerly with Barber Lines and Texas Transport and Terminal Company, after having served as traffic manager for Cunard Steamship Company Limited for many years.

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The estimated cost to clean up the San Francisco Bay oil spill last January is $4 million. The cost to the environment is incalculable. Yet the cost of the Sealdboom is only a few thousand dollars.

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UNIROYAL

Three Appointments To AmShip Division

John S. Smutko

Joseph M. LaNasa

Matthew E. Clark

The American Ship Building Company, Cleveland, Ohio, has announced the appointment of two new vice presidents and a new director of purchasing for its rapidly expanding AmShip Division. The announcement was made by new division president **Gordon Stafford.**

John S. Smutko and **Joseph M. LaNasa,** both of whom have been with the company since 1942, have been named vice president, materials, and vice president, purchasing, respectively; while **Matthew E. Clark** becomes director of purchasing. All three are based at American Ship's main shipyard in Lorain, Ohio, but will also have responsibility for the Toledo and Chicago yards.

Mr. **Smutko** has been serving as manager of materials, Mr. **LaNasa** as director of purchasing, and Mr. **Clark** as chief expediter since the formation of the AmShip Division two years ago.

Mr. **Stafford** took the occasion of the announcement to predict more expansion for the division. "The start of construction on two new prototype self unloaders for Great Lakes and up-river traffic, together with the continuing work on the U.S. Steel super ore carrier, has touched off an expansion program which should keep this division growing for several years," he said.

Jack Calhoun Named ABS Senior Surveyor New Orleans District

Jack Calhoun

Jack Calhoun, of the American Bureau of Shipping, was recently appointed as senior surveyor of the New Orleans District, it was announced by **Robert T. Young,** ABS president.

Mr. **Calhoun** joined the New Orleans office of the American Bureau of Shipping in 1957. Since that time he has served assignments in the Far East, headquartered in Tokyo, Japan; Mobile, Ala., and New Orleans, La. For the last year, Mr. **Calhoun** has been in charge of the ABS office at Avondale Shipyards, which is presently building 11 of the newly-designed LASH vessels.

Prior to joining ABS, Mr. **Calhoun** was chief engineer with Ingall's Shipbuilding Corporation, Pascagoula, Miss., and served as an engineering officer in the merchant marine during World War II.

Mr. **Calhoun** has served on many state committees, having appointments on the Governor's staff in Mississippi, Alabama and Louisiana. He is also active in many civic and fraternal organizations.

1971 Container Ship Register Now Available

A/S Shipping Consultants, a consultancy firm especially established to serve shipowners, shipbrokers, charterers, industrial companies, port authorities, transport organizations and other parties concerned, is annually publishing the Container Ship Register, which is a survey of existing container vessels, newbuildings under construction or on order, conversions on order, and ships projected or planned. Containership operators are listed, with details of their services, fleets, and future plans, together with a biography of the lines. In addition to addresses, both of owners and operators, the Register also enumerates member companies of the various consortia. Additionally, the 1971 issue also contains a complete survey of the container trades of the world.

In the Register are given, for each ship: its name and, if applicable, its previous name, flag, classification society, service speed, operator, manager, owner and port of registry; whether motor, steam, turbine, turbo-electric, or gas turbine; type of containership, whether open or closed shelter-decker, number of decks, length of poop, bridge and forecastle; year of build or conversion; position of bridge and machinery, number of engines, with horsepower, number of screws, tonnages, dimensions, capacities, number and size of hatches; whether fitted with stern or bow ramps, bow or stern thruster, cranes or derricks; number of containers above deck, number of containers below deck, number of refrigerated containers, type of container securings above deck, type of container securings below deck, and type of stabilizing system.

The Register will be of use to all concerned with containers, namely shipping companies, shipbrokers, manufacturers of containers and container handling equipment, freight forwarders, agents, port authorities, shipbuilders and ship repairs, marine consultants, railway companies, and others.

The Container Ship Register is compiled and published by A/S Shipping Consultants, Fridtjof Nansensplass 6, Oslo 1, Norway, and may be obtained at $25 per copy.

Order For Two Drilling Platforms To Beth-Beaumont

Two drilling platforms, one for Marine Drilling Co., Corpus Christi, Texas, and one for Storm Drilling Co., Houston, are to be built by Bethlehem Steel-Beaumont. Delivery is scheduled for later this year. Both of the platforms will be capable of operating down to 250-foot depths.

IHI To Build Two Large Containerships

IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.) of Japan recently received orders for two large containerships from leading Japanese shipping companies—one from Nippon Yusen Kaisha (NYK), and the other from Japan Line Ltd.

NYK placed an order with IHI for a 26,200-dwt containership capable of carrying about 1,800 standard 8-foot by 8-foot by 20-foot containers. The approximate measurements of the ship will be 794 feet in length, 105 feet in breadth, 64 feet in depth, and 35 feet in draft. To be powered by two 34,800-bhp IHI-Sulzer 12RND90 type diesel engines, it will run at a speed of 25.3 knots.

Japan Line ordered a 21,300-dwt containership with a maximum capacity of about 1,300 containers of 8 feet by 8 feet by 20 feet. The vessel will be, approximately, 705 feet long, 105 feet wide, 62 feet deep, and 32 feet in draft. It will be fitted with a 50,000-shp IHI turbine, developing a speed of 25.1 knots.

National Marine Service Announces Expansion Of Houston Facilities

The board of directors of National Marine Service recently met in Houston in recognition of the growing importance of Houston in their company's future. Based in St. Louis, Mo., the company engages in barging operations, terminalling and storage, and marine repair, and manufactures safety watch and control systems for the protection of diesel-powered vessels.

Speaking for the company, **David A. Wright,** president said: "While our operations cover the East Coast, the Mississippi System, as well as the Gulf Coast, we realize the need for a larger commitment to the petroleum and chemical industry centered in Houston. That is why we are currently expanding our facilities here."

This summer, both office and enlarged warehouse space will be opened at a new location in Brook Hollow to accommodate the transportation, engineering and marine systems activities of the company. This will permit National Marine to increase their towboat and barge services for movement of crude oil, residuals, clean petroleum products and chemicals. Local bunkering and tankerman services will also be controlled from this office. Marine equipment repair and parts activities will be housed in the new warehouse space to service diesel towboat and barge operations, as well as offshore activities.

Gulf area sales and service offices for TUGMONITOR and TUGALERT Safety Watch and Control Systems have recently opened in Houston. These systems, the most widely accepted for marine diesel service, have been installed on tugs of the U.S. Navy, as well as commercial vessels throughout the country.

The expansion of facilities is expected to aid in servicing vessels operating along the Canal, as well as vessels of the offshore oil industry.

MATSON 50-ACRE CONTAINER TERMINAL: The $10-million, 50-acre Matson container facility on Terminal Island shown above was officially turned over to Matson Navigation Company on February 26 by the Port of Los Angeles. **Gordon Bart,** president of Matson terminals, officially accepted the new terminal on behalf of the shipping line. While hosts and guests were marking the occasion with a lunch, two ships were working container cargo at the almost 1,600-foot slip, Berths 207, 208 and 209. Computer control linked with a high-speed electronic communications network make the new Matson yard one of the world's newest and most up-to-date. The cranes on the port's East Basin dominate the 50-acre complex. The "big" one stands 200 feet tall, weighs 400 tons; the other is 168 feet tall and 360 tons.

Don Mechling, Vice President
A. L. Mechling Barge Lines, Inc.

"We bought a HYDRODYNE towboat because of its efficiency, handling ability, and thrust! It's the greatest, most vibration free towboat I've ever been on. There are no towboats in this horsepower range that can compare with the M/V Daniel Webster's performance, as a line haul towboat, over the past three years". (Mechling has purchased three St. Louis Ship Hydrodynes).

Earl Rose, Chairman
Rose Barge Lines, Inc.

"Our two HYDRODYNE towboats are the best workhorses on the river. In our opinion, they'll outpush any other two 5000 h.p. towboats by 20% or more. We are *convinced* that beauty of both design and appointments, *and* maximum operating efficiency do go together". (Mr. Rose made this statement after his barge line had thoroughly tested the M/V American Beauty and M/V Crimson Glory).

Ray Eckstein, President
Wisconsin Barge Line, Inc.

"You make money with PUSH, and our 3 HYDRODYNE towboats give up to 20% more push, with terrific steering ability. The M/V Rose Tranchita, was built by St. Louis Ship from the same blueprints drawn for our M/V Kathryn Eckstein and M/V Penny of Cassville. We didn't change a thing". (Wisconsin Barge has purchased a total of four Hydrodynes).

Walter F. Hagestad, Exec.V.P.
Canal Barge Co.

Canal Barge Co. owns two St. Louis Ship HYDRODYNES. The M/V Joseph M. Jones, one of the first Hydrodynes, began setting records of all kinds immediately after delivery. On the strength of these and succeeding records, St. Louis Ship designed and built the M/V Elaine Jones, which except for increased horsepower, is a sister ship of the pacesetting Joseph M. Jones.

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Leading barge line executives, responsible for the efficiency of their extensive operations, know HYDRODYNE. Let us show you how our exclusive Hydrodyne concept provides greater thrust, as well as handling and steering ability superior to any other towboat. St. Louis Ship towboats are widely known for quality, performance and low maintenance costs. We'd like to design *your* next towboat to work harder and increase your profit.
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How do you take the measure of a back-up capability that stretches to 485 world ports?

How do you weigh the uniform quality of lubricant and fuel performance that a Texaco single-source contract assures?

Or the lifelong dedication of over one hundred career professionals that stands behind each contract?

What's "on-time" dependability that one-source responsibility imparts to tight turn-around schedules mean?

Actually, there *is* no way you can put a price on such things.

But then again, it's this priceless capability that makes all the difference in the world.

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TEXACO

MARINE FUELS AND LUBRICANTS

National Marine Service Captain Cited For Heroism

Making the presentation, left, is **David A. Wright,** president of National Marine Service, Inc. Captain **Howell,** right, was accompanied by his wife at the reception.

At a Houston, Texas, reception held in his honor, Capt. **D.H. Howell Jr.** was presented with a citation for the heroic part he played in averting a major disaster at Port Arthur, Texas, last September.

While navigating the narrow passage of the West Port Arthur Bridge, the stern of one barge in Captain **Howell's** tow was cut open by the steel fenderwork of the bridge, and the gasoline cargo caught fire. Surrounded by flames in the pilothouse, the captain remained at the controls of his burning tow and maneuvered it clear of tankers loading at the huge refinery on Texaco Island. This devotion to duty averted what could have been a disaster of major proportions. After his tow had cleared the refinery area, Capt. **Howell** ran it aground in a safe location. He then jumped from deck to deck of the burning vessel to make sure all members of his crew were off, and only then did he abandon the boat himself, having suffered a broken foot in his search.

In making the presentation, **David A. Wright,** president of National Marine Service Incorporated, owner of the boat, said: "Captain **Howell's** actions were in the best tradition of seafarers everywhere, inland and oceangoing. They reflect great credit on him and are a source of pride to his shipmates and to National Marine Service Incorporated."

Captain **Howell,** 42, has spent his entire career on the waterways, having been pilot and captain on inland vessels for 20 years, a profession also followed by his grandfather before him. Now fully recovered from his injuries, Captain **Howell** has returned to duty with National Marine.

ABS-USCG Study Underway To Eliminate Duplication Of Effort In Approving Ship Plans

The Coast Guard and American Bureau of Shipping are conducting a joint study aimed at identifying and eliminating duplication in their approval of plans for new merchant ships which are both ABS classed and USCG certificated. The announcement was made by Adm. **C.R. Bender,** Commandant of the Coast Guard, and **Andrew Neilson,** chairman of the board of the American Bureau of Shipping.

As one of the major components of the Department of Transportation, the Coast Guard enforces Federal laws and international treaties governing the design and inspection of merchant ships. The Coast Guard's merchant marine safety program includes technical offices which approve ships in blueprint stage, and inspection offices which inspect ships under construction and periodically thereafter.

The ABS is an international classification society which establishes and implements rules for building and surveying various types of merchant ships. The surveys and assigned classification of ABS are used by the shipping fraternity as a certification of ship condition.

Since the Coast Guard and ABS have many similar objectives—in particular safe hulls and reliable machinery—the heads of the two organizations expressed confidence that progress would be made in reduction of any duplication of effort in the approval of plans for American-flag ships which are both ABS classed and Coast Guard inspected.

Florida's Secretary Of State Proposes Use Of Syncrolift For Cross-Florida Canal

A barge in a portable tank is being transported overland in Belgium. A similar method is proposed to complete the Cross-Florida Barge Canal utilizing the Syncrolift System.

Florida's Secretary of State, **Richard (Dick) Stone,** recently proposed a plan to the State Cabinet which he said would enable the Cross-Florida Barge Canal to be completed, and yet leave Florida's ecology unharmed.

The plan would utilize the unique "Syncrolift" system to lift the barges floating in portable tanks completely out of the water, then transport them overland on railroads across a 55-mile route through the Ocala National Forest. This location was recommended by conservationists for the canal route when the Cross-Florida Barge Canal first came up.

The system basically consists of a "Syncrolift" marine elevator which raises a floating vessel out of the water in an open-top rectangular tank. The tank is supported on wheeled carriages which have standard-type railroad wheels. The tank, with vessel afloat, is towed across the land on a railroad track to a terminus, where another "Syncrolift" lowers it into the water, and the vessel proceeds under its own power. Railroad officials have been consulted about the idea. They say it is feasible and could work, Mr. **Stone** said. He described them as enthusiastic about the proposal.

The proposal means the state could use the portion of the canal which has been completed, and leave untouched the remaining uncompleted portion. The Secretary said: "It is my feeling that this project will be acceptable to Barge Canal proponents and opponents alike. This new system will allow many inland cities to enjoy the lower prices of bulk items, such as fuel oil, etc., that seaports presently enjoy."

Since the Secretary's proposal, interested businessmen, industrial coordinators, and members of the Department of Natural Resources have visited Port Everglades Shipyard to inspect a 6,000-ton "Syncrolift" drydock in operation. It exemplifies the feasibility and practical aspects of lifting and transferring heavy vessels on rails to shore areas.

E. Canadian Section, SNAME Hears Paper On Arctic Voyage Of The Research Ship Hudson

Shown above at the meeting in Montreal, left to right, are: **R.F. Swain,** guest; Capt. **K.P. Farrell,** RCN, Section chairman, and Dr. **C.R. Mann,** author.

Dr. **C.R. Mann** of the Atlantic Oceanographic Laboratories, Bedford Institute, department of energy, mines and resources, was guest speaker at a recent meeting of the Eastern Canadian Section of The Society of Naval Architects and Marine Engineers in Montreal.

Dr. **Mann's** paper, titled "The Arctic Voyage of the Research Ship 'Hudson,'" was presented to a group of approximately 40 members and guests. The research vessel sailed from Halifax in November 1969, voyaging completely around South and North America, returning to Halifax in October of 1970. During the voyage, scientists from all the disciplines—biology, chemistry, geology, geophysics, physical oceanography, and hydrography—took part in the expedition. During the evening, Dr. **Mann** described the work performed by the scientists and the unusual nature of the supporting role of the ship's crew.

At the conclusion of the paper, a film was shown which illustrated much of the work undertaken by the expedition. This was followed by an interesting and lively discussion from the floor.

Containerization Said To Save Puerto Rican Manufacturers About $26.7 Million Annually

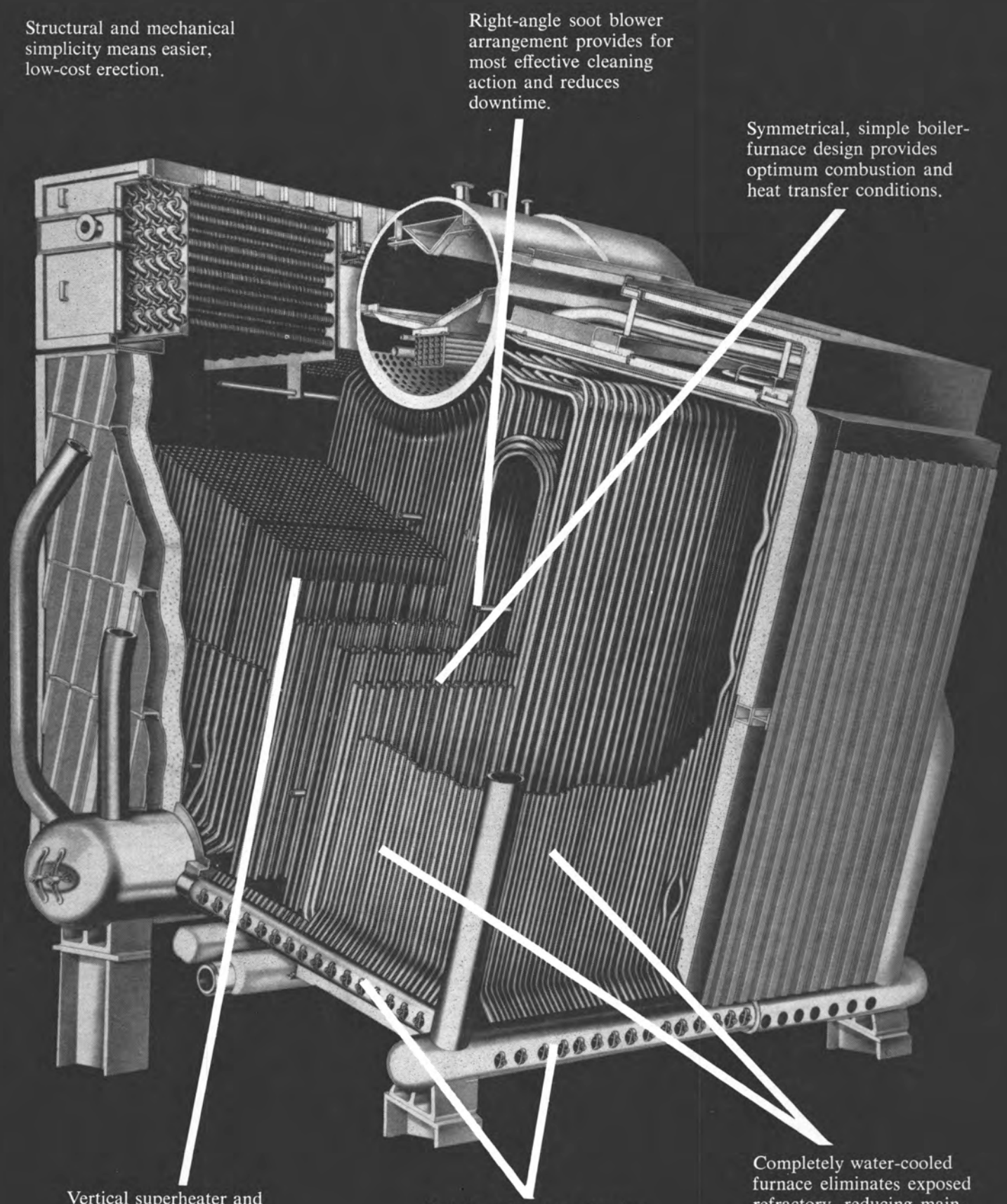
The efficiency of containerization is saving manufacturers in Puerto Rico about $26.7 million a year, according to **Richard J. Gage,** chairman of the Puerto Rico Ocean Service Association (PROSA).

Addressing a PROSA sponsored public meeting of shippers in the Puerto Rican trade on March 16 at the Plaza Hotel, New York City, Mr. **Gage** said savings are made possible by lower costs of insurance, handling, transportation and packaging, all inherent in the containerization method.

According to research estimates, an estimated 13,825 jobs have been created directly and indirectly due to the cumulative savings resulting from containerized service to the manufacturing sector in Puerto Rico, Mr. **Gage** told the shippers.

Noting that the Puerto Rico Planning Board estimates that for every dollar of extra income generated in manufacturing, $1.25 of additional income is generated in all the sectors of the economic system, Mr. **Gage** said that this means, for example, that containerization has generated $7.6 million in indirect income to the wholesale and retail sector of the island Commonwealth, and in the process creating 1,934 jobs.

He added that under this "multiplier effect" principle, it is estimated that the additional income to the Puerto Rican economy resulting from containerization has generated some $66.7 million in bank assets and $52.5 million in bank deposits.


Structural and mechanical simplicity means easier, low-cost erection.
Right-angle soot blower arrangement provides for most effective cleaning action and reduces downtime.
Symmetrical, simple boiler-furnace design provides optimum combustion and heat transfer conditions.
Vertical superheater and in-line boiler tubes minimize slagging and improve efficiency.
Simple, continuous circuitry precludes loss of circulation and assures longer on-line time and safety during periods of maloperation.
Completely water-cooled furnace eliminates exposed refractory, reducing maintenance and enhancing fireside cleanliness.

Twelve Technical Papers To Be Presented At SNAME Spring Meeting May 26-28

Twelve technical papers by leaders in the marine field will be presented at the Annual Spring Meeting of The Society of Naval Architects and Marine Engineers at the Princess Kaiulani Hotel in Honolulu, Hawaii, May 26-28, 1971. The theme of the meeting, hosted by the Hawaii Section, is "Oceanics Hawaii."

The papers to be presented on Wednesday, May 26, are: "Problems of Ocean Platforms," by **M. St. Denis** and **E. Allmendinger;** "Seakeeping Characteristics of a Multi-Unit Ocean Platform," by **M.K. Ochi** and **R.M. Vuolo;** "The Design and Operation of a Prototype Deep-Ocean Mining Ship," by **R. Kaufman** and **J.P. Latimer;** "Fishing Vessel Development," by **D.J. Doust,** and "The Construction Assistance Vehicle (CAV), an Underwater Pickup Truck," by **S. Halpern** and **S.A. Black.**

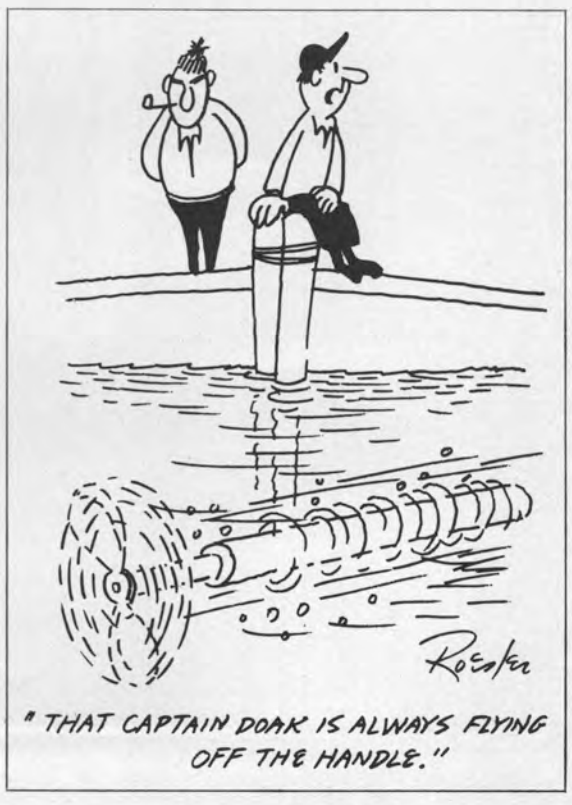
To be presented Thursday, May 27, are the following papers: "An Underwater Buoyancy Transport Vehicle (BTV)," by **N.B. Estabrook** and **A.T. Strickland;** "Propulsion and Maneuvering Systems for Deep Submersibles," by **R.W. Peach** and **F.C. Munchmeyer;** "Analysis of Jet Propulsion for Deep Submergence Vessels," by **T.P. Torda** and **D.W. Kos,** and "Lightweight Syntactic Foam as Buoyancy Material for a 20,000-Ft. Deep-Sea Vehicle," by **H. Bernstein** and **M. Krenzke.**

The last three papers, to be read on Friday, May 28, are: "Rapid Analysis of Marine Structures," by **P.Y. Chang** and **W.D. Pilkey;** "The Design of Thick-Walled Unstiffened Cylinders Subjected to Uniform External Pressure," by **S.R. Heller Jr.,** and "Structural Analysis of Deep Submergence Pressure Hulls," by **L.N. Gifford Jr.** and **R.F. Jones Jr.**

The social events on Wednesday, May 26, include a men's luncheon, a ladies' tour of Paradise Park, with luncheon and a fashion show, and the president's reception that evening. Speaking at the luncheon will be Dr. **John P. Craven,** dean of marine programs at the University of Hawaii and the state of Hawaii's executive director for marine affairs, on the subject "The Naval Architect and the Design of Cities on the Sea."

On Friday, May 28, a luncheon and tour of Oceanic Institute and Sea Life Park is planned.

A Luau banquet on Friday evening will conclude the program for the Society's 1971 Spring Meeting.



"THAT CAPTAIN DOAK IS ALWAYS FLYING OFF THE HANDLE."

Todd Houston Yard To Build Self-Propelled Bunkering Vessel For West Indies Oil Co., Ltd.

Independent Petroleum Supply Company (IPS), on behalf of its affiliate, The West Indies Oil Company, Limited (WIOC), Antigua, West Indies, has announced the award of a contract to Todd Shipyards, Houston, for construction of a 42,000-barrel capacity self-propelled bunkering vessel for use by WIOC at Antigua, West Indies.

Specifically designed for bunkering services, the vessel will be named M/V Bunker Antigua. It will carry all grades of marine bunker fuels and potable water. Pumping rates in excess of 5,000 barrels per hour will reduce bunkering time at Antigua to a minimum. The vessel, measuring 304 feet overall is powered by twin engines and is expected to be one of the largest of its type in the world.

The M/V Bunker Antigua will enter bunkering service later in 1971 to augment West Indies Oil Company's two self-propelled bunkering tankers, one bunkering barge, offshore product pier and sea berth.

Independent Petroleum Supply Company (IPS), a Natomas Company subsidiary with offices in New York, London, San Francisco and Tokyo, is the exclusive bunker sales agent for WIOC.

Boston Metals Announces Two Executive Appointments

John D. Schapiro, president of The Boston Metals Co., 313 East Baltimore Street, Baltimore, Md., has named **Lee D. Miller** executive vice president in charge of operations, and **Harold B. Chait** executive vice president in charge of sales. Both Mr. **Miller and** Mr. **Chait** have been active with the company for many years.

The Boston Metals Co. is one of the oldest and foremost specialists in ship dismantling, with operations in Baltimore and Los Angeles.

Bath Iron Works Orders Six B&W Boilers For Three AEIL Containerships

Bath Iron Works has ordered six two-drum marine boilers from the Babcock & Wilcox Company for three containerships being built for American Export Isbrandtsen Lines.

The boilers, valued at over $1.5 million, are similar to six B&W boilers ordered by American Export in 1966 for their containerships Sea Witch, Lightning and Stag Hound.

Each boiler will supply 66,000 pounds per hour steam at 870-psig superheater outlet pressure and 955-F superheat temperature. They will each be equipped with a superheater, B&W stud-tube economizer, steam air heater and two Racer-type steam atomizing oil burners.

Boiler cleaning equipment will be provided by Diamond Power Specialty Corp. Automatic controls governing the turbine throttle and monitoring the drum level, oil temperature, flame stability, steam pressure and fuel pressure will be provided by Bailey Meter Co. Bailey will also supply an electric digital data logger and bell logger. Both firms are B&W subsidiaries.

Each of the three new ships is rated at 17,500 shaft horsepower with a cruising speed in excess of 20 knots. Each will have a displacement of 22,000 tons, a beam of 78 feet, design draft of 27 feet and a length of 610 feet. They are designed to carry 928 standard 20-foot containers or an equivalent mix of 20 and 40-footers.

The boilers will be erected at the Bath Iron Works shipyard at Bath, Maine. Delivery of the first boiler components is scheduled for next month. Sea trials will begin in mid-1972.

Senior Officers Elected At ABS Annual Meeting

Robert T. Young was elected chairman and president of the American Bureau of Shipping at the Bureau's annual meeting held in New York on March 16. He succeeds **Andrew Neilson,** who has retired.

Robert T. Young

Also elected at the meeting were **Charles J.L. Schoefer** to senior vice president, and **Kenneth D. Morland** to vice president. Other officers of the Bureau were reelected.

Mr. **Young** has been with the Bureau for 33 years, serving in a variety of positions in the United States, Argentina, Belgium and Great Britain. He received his B.S. degree from Tufts College Engineering School and did graduate work in naval architecture at M.I.T.

Mr. **Schoefer** joined the Bureau's New York surveying staff in 1941, and for the past 30 years has filled a variety of posts in the United States, the Philippines and Japan. He graduated from Webb Institute of Naval Architecture and did postgraduate work at New York University. Mr. **Morland** has been a Bureau man for 29 years; before returning to New York to take over his new position, he spent seven years in Genoa as principal surveyor for the Mediterranean area. He received his master of science degree in civil engineering from the University of Illinois.

Elected to the board of managers at the annual meeting were: **Christian F. Beukema.** vice president, United States Steel Corporation; **Basil P. Goulandris,** Global Chartering & Brokerage Co.; **Joseph Kahn,** chairman of the board, Seatrain Lines, Inc.; **Charles M. Lynch,** manager, marine transportation, Atlantic Richfield Company; **M.R. McEvoy,** chairman, Sea-Land Service, Inc.; **Y.K. Pao,** governing director, The World-Wide (Shipping) Ltd., and **C.Y. Tung,** Island Navigation Corporation Ltd.

The board of managers is the governing body of the Bureau, an international ship classification society which establishes standards for the construction and maintenance of merchant vessels. The membership of the Bureau is composed of shipowners, shipbuilders, marine underwriters and other persons prominently identified with maritime commerce.

Twenty-four men were elected as new members of the Bureau. They are: **Howard F. Andrews,** vice president, marine services, The Hanna Mining Company, Cleveland, Ohio; **Mauro Bella,** marine engineer, Fiat S.p.A., New York, N.Y.; **P.B. Binsted,** president, Gulf Oil Corporation-Transportation, Pittsburgh, Pa.; **S.D. Campbell,** president, Foss Launch & Tug Co., a division of Dillingham Corp., Seattle, Wash.; **J.B. Cecil,** vice president, Transportation, Continental Oil Company, New York, N.Y.; **James A. Cole Jr.,** general manager-marine department, Texaco, Inc., New York, N.Y.; **Kenneth J. Creber,** president, William H. McGee & Co., Inc., New York, N.Y.; **Lawrence F. Fiske,** president, Moore-McCormack Lines, Inc., New York, N.Y.; **H.J. Frederic,** manager, Marine Division, supply & transportation department, Phillips Petroleum Company, Bartlesville, Okla.; **Edward J. Heine,** president, United States Lines, Inc., New York, N.Y.; **Leon Hess,** chairman and chief executive officer, Amerada Hess Corporation, Woodbridge, N.J.; **Barry Hunsaker,** assistant vice president, El Paso Natural Gas Company, El Paso, Texas; **Milton Karr,** general manager-engineering, American Bridge Division, United States Steel Corporation, Pittsburgh, Pa.; **Donald Laing Jr.,** vice president-Marine Division, Amerada Hess Corporation, Woodbridge, N.J.; **Henry J. Luck,** general manager, marine transportation, Mobil Oil Corporation, New York, N.Y.; **J.W. McGiffin,** chairman of the board, Canada Steamship Lines Ltd., Montreal, Canada; **Thomas E. Moran,** president, Moran Towing Corporation, New York, N.Y.; **Victor L. Preisser,** president, Litton Great Lakes Corporation, Cleveland, Ohio; Rear Adm. **William F. Rea III,** USCG, Chief, Office of Merchant Marine Safety, United States Coast Guard, Washington, D.C.; **Ravi N. Tikkoo,** chairman and managing director, Globtik Tankers Ltd., London, England; **Gengo Tsuboi,** vice president, Tokyo Tanker Co., Ltd., Tokyo, Japan; **Michael Tzur,** managing director, The Israel Corporation, Ltd., Tel Aviv, Israel; **W.F. Williams,** vice president, Bethlehem Steel Corporation, shipbuilding department, New York, N.Y., and **Frank E. Zusi,** manager, Operations Division, Esso International, Inc., New York, N.Y.

Newport News Ship Appoints A.C. Burris Jr.

A.C. Burris Jr.

A.C. Burris Jr. has been appointed superintendent of the pipe coverers department at Newport News Shipbuilding and Dry Dock Co., a Tenneco company.

A native of Albemarle, N.C., Mr. **Burris** joined the shipyard as an apprentice in 1951. He entered the pipe coverers department in 1955 and was transferred to the atomic power division in 1958.

Returning to the pipe coverers department in 1961, he was promoted to general foreman in 1967, a post he held until his recent promotion to superintendent. In his new post, Mr. **Burris** reports to **D.T. Van Liere,** manager of the shipyard's machinery division.

Mitsubishi To Build Tankers For Subsidiary Of Cities Service

Cities Service Company recently announced that its subsidiary, Grand Bassa Tankers, Inc., has signed a contract for the construction of two 261,000-dwt tankers, each with a capacity of approximately 1.8 million barrels.

The vessels will be constructed by Mitsubishi Heavy Industries, Ltd., at Nagasaki, Japan. One vessel is scheduled for delivery in mid-1974, and the second is scheduled for delivery in early 1975.

Farrell Lines Names Capt. Franklin Riley

The appointment of Capt. **Franklin K. Riley** to director, labor relations, for Farrell Lines Incorporated, was announced by **Thomas J. Smith,** president and chief executive officer.

Captain **Riley** joined Farrell Lines in January 1956, as junior third mate aboard the S/S African Lightning. In 1959, he received his master's license, and his first assignment as captain was aboard the S/S African Star in 1960. Capt. **Riley** came ashore in 1961, serving as assistant port captain, manager-labor relations, safety director, and assistant director, labor relations.

NavSec Promotes William J. Boylan

William J. Boylan

William J. Boylan has been promoted to the position of Head of Machinery Systems Department, Naval Ship Engineering Center, Philadelphia Division. Prior to his promotion, he had been the Head of the Hull and Deck Machinery Branch, a position he held since its organization in 1967.

Mr. **Boylan** has been with the Naval Ship Engineering Center since 1957. In 1966, he received the Naval Ship Engineering Center, Philadelphia Division, Publication Award for his paper on Marine Application of Dental Couplings, which was presented at the 1966 spring meeting of The Society of Naval Architects and Marine Engineers.

Mr. **Boylan** is a graduate of Villanova University, with a degree in Mechanical engineering.

Cleveland Maritime Elects Officers For 1971

The Cleveland Maritime Association, Inc. announces the election of the following officers for 1971: President, **Ray W. Luzar,** manager of Norton, Lilly & Co., Inc.; vice president and treasurer, **Allen Marcus,** manager of Furness, Withy & Co., Ltd., and secretary, **Les W. Jockers,** manager of Great Lakes Overseas, Inc.

The Association is comprised of steamship lines and agents serving the port of Cleveland.

Virginia Port Authority Names Admiral Holmes Executive Director

Adm. **Ephraim P. Holmes,** USN (ret.), has been named executive director of the Virginia Port Authority. The appointment of the former Commander in Chief, U.S. Atlantic Fleet, was announced at the regular meeting of the VPA board of commissioners. The Admiral assumed his executive duties on April 1.

Admiral **Holmes,** who retired in September 1970 after 40 years of active naval duty, fills the post vacated by **Blair P. Wakefield,** whose resignation from the top Port Authority position became effective November 30, 1970.

The Admiral became the twelfth Commander in Chief U.S. Atlantic Fleet on June 17, 1967, at which time he also assumed command of the unified Atlantic Command and two NATO commands, Commander in Chief Western Atlantic, and Supreme Allied Commander Atlantic, making him the fifth highest ranking officer in the world's most powerful navy.

Admiral **Holmes** was in Pearl Harbor during the Japanese attack on December 7, 1941, serving on the staff of Commander, Battleships, Battle Force as aide and flag lieutenant. He later took part in the supporting action during the battles of Coral Sea and Midway.

His first command was the Destroyer USS Stockham, a duty which he assumed upon the Stockham's commissioning in February 1944. For his leadership in that command, he was awarded the Silver Star, the Bronze Star with Combat "V", and the Gold Star in lieu of the second Bronze Star, also with the Combat "V". In addition, Admiral **Holmes** has been awarded several other decorations during his distinguished career.

In July 1957, he was advanced to rear admiral while serving on the staff of the Chief of Naval Operations. He was promoted to vice admiral in February 1963, and assumed command of the Pacific Amphibious Force. In January 1964, he became Commander of the U.S. First Fleet. Before assuming command of the U.S. Atlantic Fleet, Admiral **Holmes** served as Director of Navy Program Planning in the Office of the Chief of Naval Operations.

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TURBO GENERATOR SETS

1

WESTINGHOUSE 440/3/60 200 KW UNIT

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

2

WESTINGHOUSE 60 KW 120 VDC M-20-EH

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

3

300 KW WORTHINGTON-MOORE CROCKER-WHEELER UNITS

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

4

VICTORY 300 KW WESTINGHOUSE TURBO GENERATOR SET

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

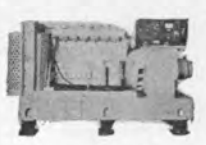
5

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

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

DIESEL GENERATOR SETS

6



G.M. 6-71 DIESEL GENERATOR SET

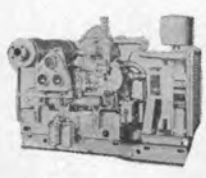
60 KW — 440/3/60 — 1200 RPM—with switchgear.

7

350 KW 120/240 VDC DIESEL GENERATOR SET

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

8



NEW—UNUSED 10 KW SUPERIOR GAB-2 DIESEL GEN.

4½ x 5¾—BHP 16—RPM 1200—radiator cooled. GENERATOR: Delco 10 KW 120 VDC—83.3 amps—75" OAL—57" OAW—57" OAH.

$1695.

9

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

ENGINE: Baldwin-DeLaverne 725 HP—12⅜"x15½"—8 cyl.—500 RPM—air starting. Dry weight 54050 lbs. GENERATOR: Allis-Chalmers 500 KW—120/240 VDC—500 RPM—550 RPM overspeed. 60°C rise—class B insulation — 3-wire — 25% unbalance—2083 amps—stab. shunt—open—drip-proof—self-ventilated—8-poles.

10

UNUSED 100KW SUPERIOR DIESEL GENERATOR SET

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

11

UNUSED 10 KW SUPERIOR DIESEL GENERATOR SET

GENERATOR: Delco 10 KW — 120 VDC — 83.3 amps — 1200 RPM. ENGINE: Superior diesel—2 cyl.—4½x5¾ — 15 HP — heat exchanger cooled.

TURBINE ROTORS

MAIN PROPULSION

12

19 STAGE WESTINGHOUSE H.P. ROTOR FOR AP2 VICTORY

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

13

SPECIAL!

COMPLETE TURBINE OR ROTORS

8500 HP G.E. C-3 Victory—Sun C-4's.

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

14

NEW L.P. BLADE RINGS

for large 8500 H.P. Victory

Joshua Hendy Westinghouse

15

NEW 8500 H.P. G.E. TURBINES

Large Victory or C-3

H.P. #72271 L.P. 72272

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

ALSO AVAILABLE

16

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

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

17

8500 H.P. G.E. — C-3 OR VICTORY

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

18

6000 H.P. G.E. — NORTH CAROLINA C-2

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

19

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

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

AUX. GEN. ROTORS

20

250 KW & 300 KW ALLIS-CHALMERS ROTORS

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

21

300 KW 5965 RPM JOSHUA HENDY

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

T-2 ROTORS, STATORS COOLERS, ETC.

22

ELLIOTT 10-STAGE MAIN PROPULSION TURBINE ROTOR

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

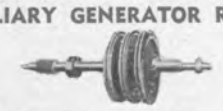
23

LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR

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

24

AUXILIARY GENERATOR ROTORS



DORV—325M—T-2 Tanker Aux. Generator.

25

WESTINGHOUSE MAIN PROPULSION REVOLVING FIELD

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

26

WESTINGHOUSE MAIN GENERATOR STATOR

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

27

G.E. MAIN GENERATOR STATOR

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

28

WESTINGHOUSE MAIN GENERATOR AIR COOLER

Reconditioned with A.B.S.

29

UNUSED G.E. MAIN GENERATOR AIR COOLER

PUMPS

30

VICTORY AP2 MAIN CIRCULATOR

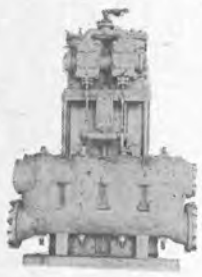
Ingersoll-Rand — 18 VCM—20" x 18"—10,500—10 lbs. MOTOR: 75 HP—Allis-Chalmers—230 VDC—670 RPM. Spare unused armature. Motor frame F.B.V.—162.

31

UNUSED 10x9x12 VERTICAL SIMPLEX FUEL OIL TRANSFER PUMPS

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

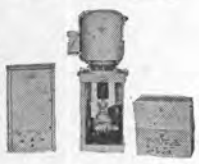
32



WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP

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

33



NEW BLACKMER FUEL OIL TRANSFER PUMP

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

34

UNUSED BLACKMER VERTICAL ROTARY PUMP

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

35

R-2418 WATEROUS CARGO PUMP

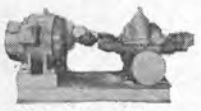
Bronze—14"—top discharge—capacity 2500 GPM—20 PSI. Bilge service—oil service—2400 GPM—75 PSI. Reduction gear. ENGINE: Cummins JN-130M—6 cylinder—4⅛ x 5—130 HP—air starting.

36

UNUSED BOILER FEED PUMP

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

37



UNUSED WARREN BRONZE PUMP

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

38

NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

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

39

NEW—UNUSED BRONZE VERTICAL LST BALLAST PUMP

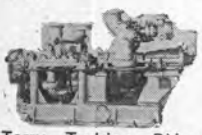
1500 GPM—56' head or 25 lbs. — 8" suction — 6" discharge. MOTOR: Century 30 HP—230 VDC—110 amps—1750 RPM — 40°T rise — stab. shunt—BB drip proof —controls available.

40

EXCELSIOR MOLASSES PUMP—SIZE 5½"

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

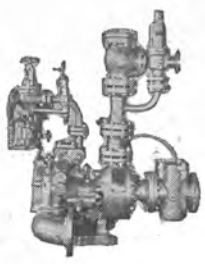
41



UNUSED SIZE 4 BUFFALO FEED PUMPS

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

42



COFFIN MODEL F BOILER FEED PUMP—VICTORY OR T2

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

43

BRONZE 14x14x12 CARGO STRIPPING PUMPS

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

WINCHES AND WINDLASSES

44

VICTORY UNIT WINCHES

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

45

MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES

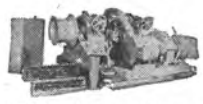
50 HP—230 VDC—reconditioned.

46

WATERMAN STEAM DECK WINCH COMPOUND GEARED

Compound-geared "Valle Type"—9½ x 10. 7000 lbs.—185 FPM—single geared. 12,800 lbs. 101 FPM —compound geared.

47



HYDE NO. 7 WINDLASS

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

48

NEW—UNUSED LINK BELT WINDLASS

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

49

IDEAL WINDLASS—UNUSED

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

50

UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

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

51

LCT-6 JAEGER GASOLINE DRIVEN WINCH

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

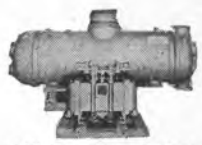
MISCELLANEOUS

52

VICTORY AP2—WESTINGHOUSE MAIN PROPULSION GEAR

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

53



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

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

54

1 PAIR OF 300 HP UNION DIESEL ENGINES

Port and starboard—model 06—300 HP at 350 RPM —4 cycle—direct reversible—11 x 15—overhauled 1966—in good condition. Just in from Navy.

55

MODEL O-2-D M&T RECONDITIONED UNITS

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

56

HYDE 30" DOCK CAPSTAN

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

57

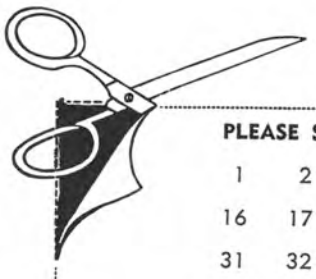
DOUBLE INPUT—SINGLE OUTPUT DIESEL REDUCTION GEARS

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

58

INGERSOLL-RAND MODEL 40 AIR COMPRESSOR

Two stage—135 CFM—7" x 6¼" x 5"—110 lbs.—870 RPM—inner cooler. MOTOR: Allis-Chalmers 40 HP — 230 VDC — 145 amps — 1750 RPM — Model EB121.



PLEASE SEND INFORMATION ON THE FOLLOWING: (Please circle items) 4/15/71

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

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

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

100th Gas Turbine Produced By Fiat

The 100th Fiat industrial gas turbine has been produced by the Grandi Motori section of Fiat's Marine Division. Designed for the "Ras Abu Aboud B," stationed in the Persian Gulf, it is the first of 35 units currently under construction.

Fiat started producing gas turbines after seeing their industrial potential. Fiat gas turbines are now produced in two of the company's plants, Grandi Motori (industrial gas turbines) and Motori Avio (aircraft gas turbines).

Industrial gas turbines with unitary power outputs ranging from 8,000 to 85,000 horsepower are manufactured. Production of gas turbines is carried out under a Fiat-Westinghouse technical agreement, which also covers the exchange of experience and know-how. Fiat is responsible for the design, research, development, and construction of gas turbines in its own plants.

Robert Tarr Resigns As DRT&S President; Remains As Consultant

Robert J. Tarr has resigned as president and director of Delaware River Terminal & Stevedoring Co., Inc., Philadelphia, Pa. He had served in these capacities since the formation of DRT&S two years ago, during which time he worked closely with the Philadelphia Port Corporation in the planning and design of the new Tioga Marine Terminal now leased to, and operated by, DRT&S.

Mr. **Tarr** plans to devote more time to his corporate consulting activities in New York as well as Philadelphia, including continued association with DRT&S on a consultant basis, with particular emphasis on the operations at Tioga Marine Terminal.

Mr. **Tarr** is also managing director of Rice, Unruh Co., and a director of DRT Industries, Inc., both of Philadelphia. He is an officer and director of several other corporations.

Shipping Leaders Join N.Y.C. Port Council

Dr. Ottone Empoldi

Joseph P. Miraglia

Thomas E. Moran

Three prominent shipping executives have been named members of the New York City Council on Port Development and Promotion, it was announced by administrator **Ken Patton,** of the City Economic Development Administration. They are: Dr. **Ottone Empoldi,** vice president, Costa Line Inc.; **Joseph P. Miraglia,** president, JPM Associates Inc., and **Thomas E. Moran,** president, Moran Towing Corporation.

The N.Y.C. Port Council now has a membership of 24 leaders in all branches of the maritime industry, representing foreign trade, freight forwarding, transportation and labor unions.

According to **Ronald Javello,** its new executive director, the group is now involved in a number of programs to maintain the preeminence of New York City as a world port. Recently, it joined the battle against Central of New Jersey and Baltimore & Ohio Railroads to block their efforts to eliminate lighterage service from New Jersey to New York City.

Dr. **Empoldi** is known as a master mariner, economist and maritime expert. A native of Trieste, he studied in Turin, Brussels and New York. He joined the Italian Line in 1947, and was named general manager for North America in 1966. He innovated the Caribbean cruise operations for the Italian Line.

Mr. **Miraglia,** a native New Yorker, enjoys a reputation as a maritime labor negotiator, an urban specialist in manpower training and minority economic development. From 1961 to 1964, he was Deputy Director, Industrial Relations, NASA. He is a member of the board of advisors of the U.S. Merchant Marine Academy.

Mr. **Moran,** a native of Brooklyn, entered the New York shipping field shortly after his service as ensign with the U.S. merchant marine in World War II. He was vice president of Marine Transport Lines from 1959 to 1964, then became president of Moran Towing. He is also a director of American Waterways Operators, Inc.

Port Of Le Havre Opens N.Y.C. Office

The Port of Le Havre Authority, Le Havre, France, has opened a trade development office in New York, located at 1350 Avenue of the Americas. The office provides information on matters pertaining to the development of the port, such as its container facilities, oil tanker terminals and wharfage. The New York office is headed by **Christian Guary.**

Le Havre achieved distinction by being one of the few places in the world able to berth the great ocean liners France and Queen Elizabeth II, and to take oil tankers of up to 250,000 deadweight tons. Among the planned developments is the world's largest lock, 1,316 feet by 226 feet, scheduled to be opened at Le Havre within a year. This will make it possible for bulk carrying vessels of up to 200,000 deadweight tons to enter a new port with complete shoreline industrial complexes. In addition, new offshore oil tanker facilities to handle the world's largest supertankers are scheduled for completion in 1973.

Le Havre, besides being France's second seaport in tonnage handled, is also the principal port for containerships. Ten lines operate regularly out of Le Havre, seven on trans-Atlantic routes to New York and the Eastern Seaboard.

Gibbs & Cox, Inc. Names T.M. Buermann

T.M. Buermann

Frederic H. Gibbs, president of Gibbs & Cox, Inc., a leading naval architectural and marine engineering firm, has announced the appointment of **T.M. Buermann** as executive vice president, succeeding **M.G. Forrest,** who continues with the company as senior consultant.

Other recent appointments include **J.J. Convy,** senior vice president, finance and administration; **J.P. Doyle,** vice president and chief engineer; **R.M. Ehrlich,** vice president and chief electronics engineer; **F.W. Haltenhoff,** chief electrical engineer; **M. Dick,** division head, Hull Division, and **P.H. Hadley Jr.,** vice president, contracts and marketing.

Columbian Rope Appoints Kirkpatrick

James F. Kirkpatrick

James F. Kirkpatrick has been appointed interplant manufacturing manager of Columbian Rope Company, Auburn, N.Y., it was announced by **Frank R. Metcalf,** president. Mr. **Kirkpatrick** moves to the home office of Columbian from the Plymouth, Mass. plant of Plymouth Cordage, a Columbian subsidiary, to assume his new duties.

In making the announcement, Mr. **Metcalf** stated: "The creation of this new position, and the installation of **Jim Kirkpatrick** in it, is a major step by Columbian toward increased efficiency in the manufacturing area."

Mr. **Kirkpatrick** has been associated with the textile and cordage industries for over 35 years. Prior to his present position, he served five years as interplant director of manufacturing for Plymouth Cordage and has been associated with Columbian Rope and its subsidiaries since 1941. Mr. **Kirkpatrick** is a graduate of Lafayette University, holding a bachelor of science degree.

Caterpillar Unveils New Marine Gears

An extensive research and development program that began several years ago at Caterpillar Tractor Co. in Peoria, Ill., has culminated in the introduction of two new marine gears. The 7261 and 7241 join existing 7251 to form a family of marine gears matched to engines in the 550 to 1,200 horsepower range.

The significant difference in the Caterpillar design is the use of planetary gearing, resulting in savings in weight and size in comparison to many other gears. The American Bureau of Shipping and Lloyds Register of Shipping have both approved the 7261 for 1,200 hp @ 1,200 rpm, the 7251 for 900 hp @ 1,200 rpm, and the 7241 for 1,170 hp @ 1,800 rpm and 700 hp @ 1,200 rpm.

Largest of the three gears, the 7261 is designed for the 1,125-hp D399 marine engine in ratios from 2.89:1 to 4.22:1 and deeper ratio requirements of the 8,510-hp D398. The 7241 is available in ratios ranging from 2.00:1 to 5.88:1 for the 565-hp D379, 725-hp D348 and 970-hp D349.

The new family of gears represents a continuing program at Caterpillar to develop dependable, compact marine gears to match a variety of applications from fishing to deepsea towing. Caterpillar first entered the marine gear market in the early fifties with the 3181, followed a few years later by the 3192 for larger, more powerful engines. The 3192 in turn was replaced by the improved 7251 gear in 1968. The 7251 is designed for all ratios behind the D379 and for shallow ratios behind the D398.

Initial installations of the 7251 gear were closely monitored by Caterpillar engineering and service personnel to analyze their performance and the effect of significant improvements made in design and construction over the former 3192 gear. Information and owner responses gathered from these early 7251 applications have been incorporated in the design and construction of the new gears.

With major design objectives of performance, long life and serviceability in mind, the basic planetary design of the field-proven 7251 was retained for the 7261 and 7241. This enabled Caterpillar, by drawing on its years of experience with planetary gearing, together with recent advances in technology, to develop a family of gears that offers significant benefits to marine users for a variety of applications.

First "Fortune" Ship Launched At IHI Tokyo Shipyard —Orders Received For 23

The Attica, a 21,500-dwt Fortune ship for the Faros Shipping Group, Greece, was launched March 5 at the Tokyo Shipyard of IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.) of Japan. The new ship is the first of a series of Fortunes to be mass-produced by IHI.

The multipurpose "Fortune" vessel is the second in a series of standard-type ships jointly developed by IHI and G.T.R. Campbell (International) Ltd., Canada. It can carry such varied cargoes as ore, coal, steel materials, automobiles, containers, and grain. To date, overseas shipowners have ordered 23 ships of this type from IHI.

The construction of the first Fortune ship was started in July 1970, and is scheduled to be completed in June this year. Construction en masse of the Fortunes will begin at the Tokyo Shipyard's No. 5 building berth in July this year, starting with the second ship, at the rate of 10 to 12 ships a year.

Outstanding features of the Fortune ship are: (1) Design breadth is approximately 75 feet, a restriction imposed by the width of the St. Lawrence Seaway itself. The double bottom and tank top of the cargo holds and the deck are designed to accept lumber or heavy cargoes; (2) The No. 3 cargo hold can be filled with ballast water to obtain adequate draft in ballast condition; (3) Each hatch is equipped with a set of 10-ton universal-type cargo gear specially designed for the Fortune, and (4) The main engine is an 8,000-ps Pielstick 16PC2V type diesel delivering a service speed of 15 knots. Output per cylinder at 500 ps is higher than the 427 ps of the Freedom ship.

Principal particulars and approximate measurements of the Attica are: length, bp 510 feet; breadth, molded, 75 feet; depth, molded, 45 feet and draft, molded, 32 feet. The service speed is 15 knots.

Avondale Shipyards Subsidiary Standard Paint And Varnish Co. Opens New Abrasive Plant

A view of crane offloading barges in Harvey, La., and depositing raw material on conveyor belt.

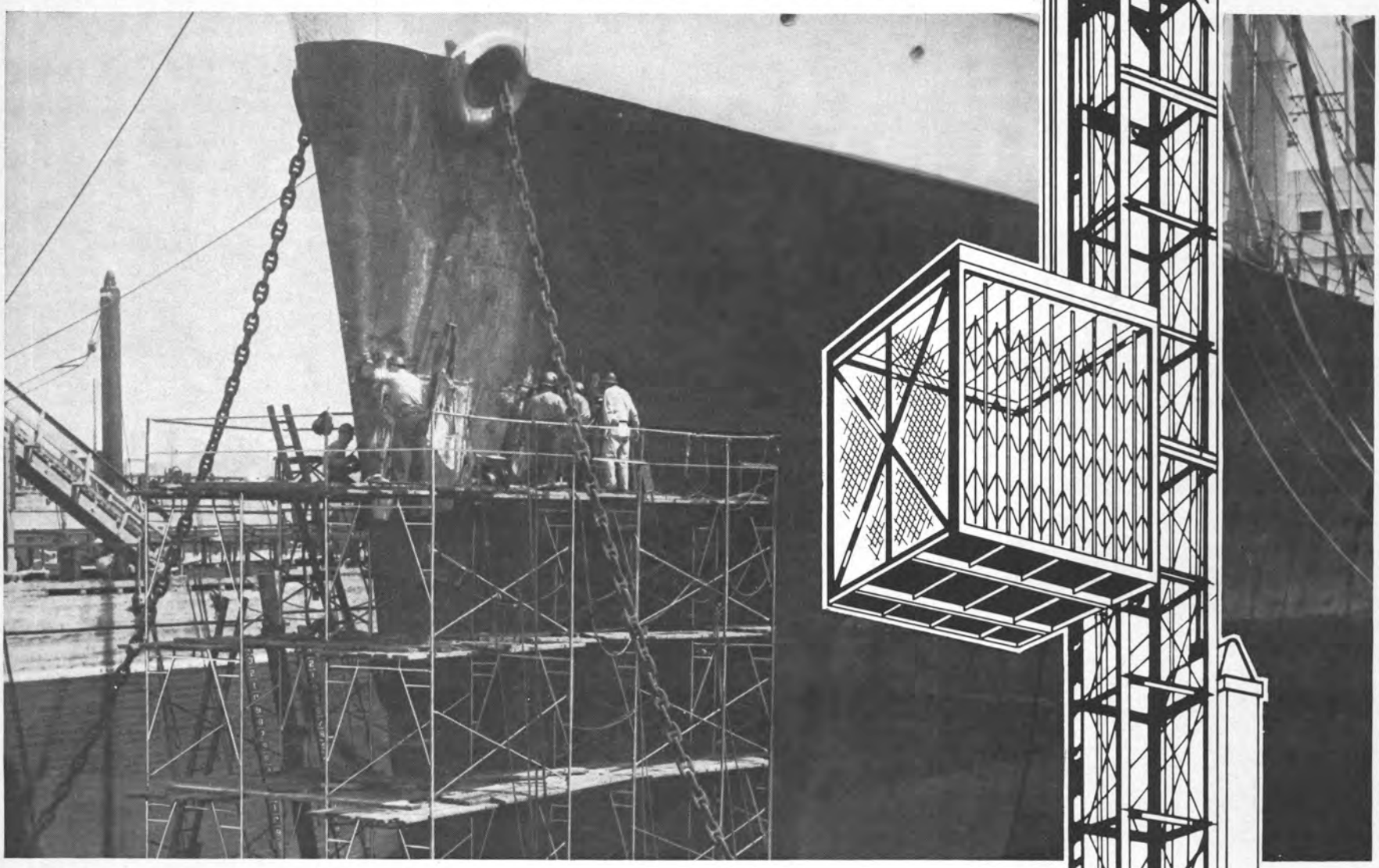
Standard Paint and Varnish Company, a wholly-owned subsidiary of Avondale Shipyards, New Orleans, La., is rapidly completing a new silica-free abrasive plant located on the west bank of the river at Harvey, La. The new plant, operating under the trade name of Stan-Blast, recently received its first barge load of raw materials, and is scheduled to go into full production this month. The barge, owned and operated by Gulf Coast Transit Company, is one of several under long-term contract to Stan-Blast to deliver 200,000 tons of raw material each year from the Tampa, Fla. area.

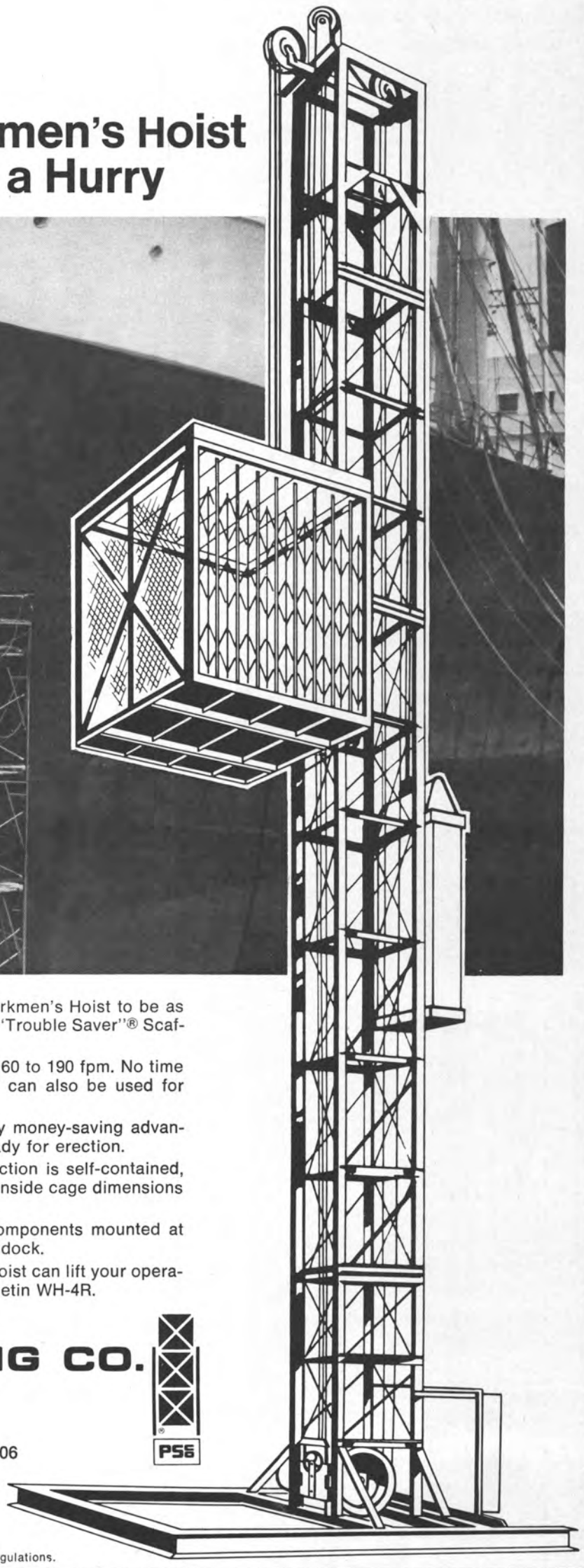
Constructed at a cost in excess of one-million dollars, the new facility is another of Avondale's contributions to ecology. The product, a silica-free abrasive, is used in lieu of sand in the sandblast operations. It reduces air pollution tremendously, and is not a health hazard, such as is found with sand.

There are two grades of the silica, one for surfaces with very heavy rust, and another for new steel products. The silica is also very economical in that it is reuseable, faster cutting, and uses less air.

Along with the new plant, Stan-Blast will also operate a new modern fleet of trucks for delivery of the product in bulk and bag form throughout the South.

Use the PE-5000T Workmen's Hoist to Get Men Topside . . . in a Hurry





Shipyards and dry docks are finding PSCo.'s Model PE-5000T Workmen's Hoist to be as rugged, versatile and economical as its famous "TubeLox"® and "Trouble Saver"® Scaffolding.

The PE-5000T takes up to 30 men topside at speeds from 60 to 190 fpm. No time wasted in climbing, and no fatigue from climbing. The PE-5000T can also be used for hoisting materials — up to 5,000 lbs., to heights up to 400 ft.

The design and erection procedure of this Hoist offer many money-saving advantages, since it is shipped to the job site assembled, wired and ready for erection.

It can be erected with or without a crane, and each 6′8″ section is self-contained, complete in one piece requiring only four bolts for installation. Inside cage dimensions are 9′4″ x 5′4″.

Hoists also are available and in use with motor and other components mounted at the top, rather than at bottom, in case it is desired to flood the dry dock.

There's a boatload of reasons why this PSCo. Workmen's Hoist can lift your operations to new levels of productivity and profitability. Write for Bulletin WH-4R.

PATENT SCAFFOLDING CO.

A DIVISION OF
Harsco
CORPORATION

11-11 34th Avenue, Long Island City, New York 11106

PSCo

Photo is illustrative only. Products must be used in conformity with safe practices and applicable codes and regulations.

M/V New Shoreham Launched At Blount Marine Corporation —Sister Ship To Mount Hope

Blount Marine Corporation, Warren, R.I., has launched the 122-foot M/V New Shoreham, which will join her sister ship Mount Hope in a unique inland cruising service.

The M/V New Shoreham, named after a famous New England steamer, was christened on February 27, 1971 by **Miss Julie Blount,** the youngest daughter of **Luther H. Blount,** designer and builder of the vessel and president of American Canadian Line, Inc.

The New Shoreham will be attractively outfitted on all three decks, air-conditioned, and quiet running, with wall-to-wall carpeting. Capacity will be 60 passengers in 30 comfortable two-bed staterooms. Next spring, she will join the 110-foot, 42 passenger Mount Hope in 12-day and 14-day cruises along coastal and inland waterways from Canada to Florida.

Providing the only such extended American-flag cruising schedules, the New Shoreham will augment "mini-cruise" service inaugurated by the Mount Hope in 1969. To date, the Mount Hope has carried a total of 2,200 passengers on 60 cruises covering 100,000 nautical miles throughout the rivers, lakes and canals of North America.

Upon completion of her current winter cruises out of St. Petersburg, Fla., the Mount Hope will return from Florida via the 1,500-mile Atlantic Intracoastal Waterway in May. On June 6, she will begin a summer schedule of 12-day cruises through the Hudson River, Lake Champlain and St. Lawrence River with Montreal, Quebec and the Saguenay River as alternate destinations.

The New Shoreham will join the service in early 1972, with cruises tentatively scheduled to include the Maine coast, Canada, the Great Lakes and Florida.

Both vessels are powered with acoustically engineered soft-mounted diesel engines, tunneled propellers, elevating pilothouse, and other features, permitting the navigation of limited dimension canals and waterways. Passenger accommodations include "Vista-View" lounges, swimming platforms and novel retractable bow ramps, permitting passengers to step directly onto beaches.

Peter Furbush And Don Tilton Promoted By Sky Climber, Inc.

Peter F. Furbush

Don Tilton

Peter F. Furbush, former Western regional sales manager of Sky Climber, Inc., at Gardena, Calif., has been appointed national merchandising manager of the manufacturer of powered swing stages and hoists. Succeeding Mr. **Furbush** at Gardena headquarters is **Don Tilton,** formerly assigned to sales in the Camden, N.J. Sky Climber office.

Mr. **Furbush,** who holds degrees in business administration and marketing from California State Polytechnic College at Pomona, Calif., will be responsible for advertising, public relations, trade shows, product coordination, sales promotion, and related duties. He will report to **Boris Ivanofsky,** national sales manager.

HIGH LEVEL DELIVERY LAUNCHES GIANT JUMBO: Frank Murphy of New York City (right), vice president, transportation of American Trading and Production Corporation, provides personal delivery of $4,100,000 to **L.C. Ackerman,** president of Newport News Shipbuilding, a Tenneco company. The progress payment, witnessed by **Gardiner Symonds** of Houston, chairman of the board of Tenneco, is for work on the Baltimore Trader, biggest jumboizing job ever done by the shipyard. The transaction took place March 5, at the launching of the new 625-foot forebody. Newport News jumboized two other ships for the line, American Trader and Texas Trader. Baltimore Trader, to be delivered later this year, is being increased from 25,241 to 54,000 deadweight tons. Her length will increase from 575-feet to 800-feet.

Mitsubishi Nagasaki Yard Delivers Mammoth Tanker To World-Wide (Shipping) Ltd.

S. Suenaga, general manager of the Nagasaki shipyard of Mitsubishi Heavy Industries, Ltd., watches as **Mrs. Wataru Tajitsu,** wife of the chairman of Mitsubishi Bank Ltd., cuts the tape as sponsor of the World Mitsubishi.

World-Wide (Shipping) Ltd., Hong Kong-based shipping enterprise headed by **Y.K. Pao,** recently accepted delivery of the mammoth tanker World Mitsubishi, built at the Nagasaki shipyard of Mitsubishi Heavy Industries, Ltd., Japan.

This newest addition to the World-Wide fleet was sponsored by **Mrs. Wataru Tajitsu,** wife of the chairman of Mitsubishi Bank Ltd., Japan.

The 233,200-dwt World Mitsubishi has an overall length of 1,053 feet, a molded beam of 171 feet 11 inches, and a molded depth of 84 feet 3¾ inches.

Classified Tanker Deep Sea by Bureau Veritas, the new mammoth tanker is powered by a Mitsubishi Westinghouse, impulse, two-cylinder cross compound marine, steam turbine with locked train type, double reduction gear; maximum continuous and normal service rating 34,000 ps x 90 rpm, delivering a service speed of 15.8 knots.

The vessel will carry Grade B petroleum. The seven-story living quarters give good forward visibility from the wheelhouse. Gas detecting and alarm systems are provided in the accommodation spaces. Higher tensile steel has been used for the longitudinal members of the deck and bottom, resulting in a larger cargo deadweight.

Three powerful steam turbine-driven cargo oil pumps are capable of discharging 13,500 tons of oil per hour, and one water ballast pump with a capacity of 3,000 tons of water per hour. Cargo control system has been provided for the purpose of centralized control of cargo oil and water ballast handling. The cargo vent system and the three 600 mm diameter cargo mains are designed to deal with the full cargo in 17 hours. One of the main problems confronting operation of modern tankers is tank cleaning. This vessel is equipped with a closed cycle tank cleaning system capable of driving 10 portable-type tank cleaning machines simultaneously. A firemain system is provided, having branch lines and hose couplings capable of supplying two jets of water simultaneously in any accessible part of the vessel, and a foam fire extinguishing system is provided for the engine room, main pump room, and deck surface in way of cargo oil tanks.

Classed by Bureau Veritas, the World Mitsubishi has a service speed of 15.8 knots.

The ship's complement is 50 officers, petty officers and ratings, and the accommodation is in accordance with the World-Wide Group's high standard. The senior officers have handsomely furnished suites; the crew are accommodated in single and double cabins, and there is a well-equipped hospital.

The spacious navigating bridge is well equipped with all the latest navigation aids. There are two long-range 12-inch display radar units, and other equipment includes a gyrocompass, steering control, electromagnetic log, echo sounder, radio direction finder and weather facsimile. A full range of radio equipment is fitted.

Three Steamship Companies To Operate Joint Service Under Euro-Pacific Flag

Hapag-Lloyd, Hamburg, CTG (French Line), Paris, and Holland-America Line, Rotterdam, have announced their intention, subject to Federal Maritime Commission approval, to operate a joint service to and from the United States and the Canadian Pacific Coast under the name of Euro-Pacific. This joint service will operate with 18 fast semi-container vessels.

The head office of the Euro-Pacific Line will be in Hamburg, with an extensive agency organization throughout Europe, the United States, and Canada. General agents for the service in the U.S. and Canada will be Balfour Guthrie and Co. Limited, which is headquartered in San Francisco.

Halter Marine Services Delivers Three New Towboats To Warrior & Gulf Navigation

The hull configuration of the Tombigbee, shown above, and her sister towboats is of special design to insure optimum maneuverability on the rivers of Alabama.

Three new and identical river towboats have been built and delivered by Halter Marine Services, Inc., New Orleans, La., to the Warrior & Gulf Navigation Company, Mobile, Ala. The new vessels are the Alabama, Tombigbee, and Muskogee. They are in operation on the Warrior-Tombigbee rivers system and Gulf Intracoastal Waterway of Alabama.

Each new towboat is powered by two General Motors 16149NA diesel engines with 7:1 Twin Disc MG540 reduction gear. Two 4-blade stainless steel 80-inch-diameter propellers of special design to permit efficient and full absorption of horsepower in astern, as well as ahead conditions, turn on 7½-inch-diameter forged steel propeller shafts with Damon Ceramalloy liners. The towboats are each equipped with hydraulic steering with full follow-up for two steering and four flanking rudders manufactured by Skipper, Inc.

The vessels are each equipped with 40-ton electric towing and barge connector winches manufactured by Beebe Bros. The winches are controlled by remote control from the pilothouse, or manually on deck.

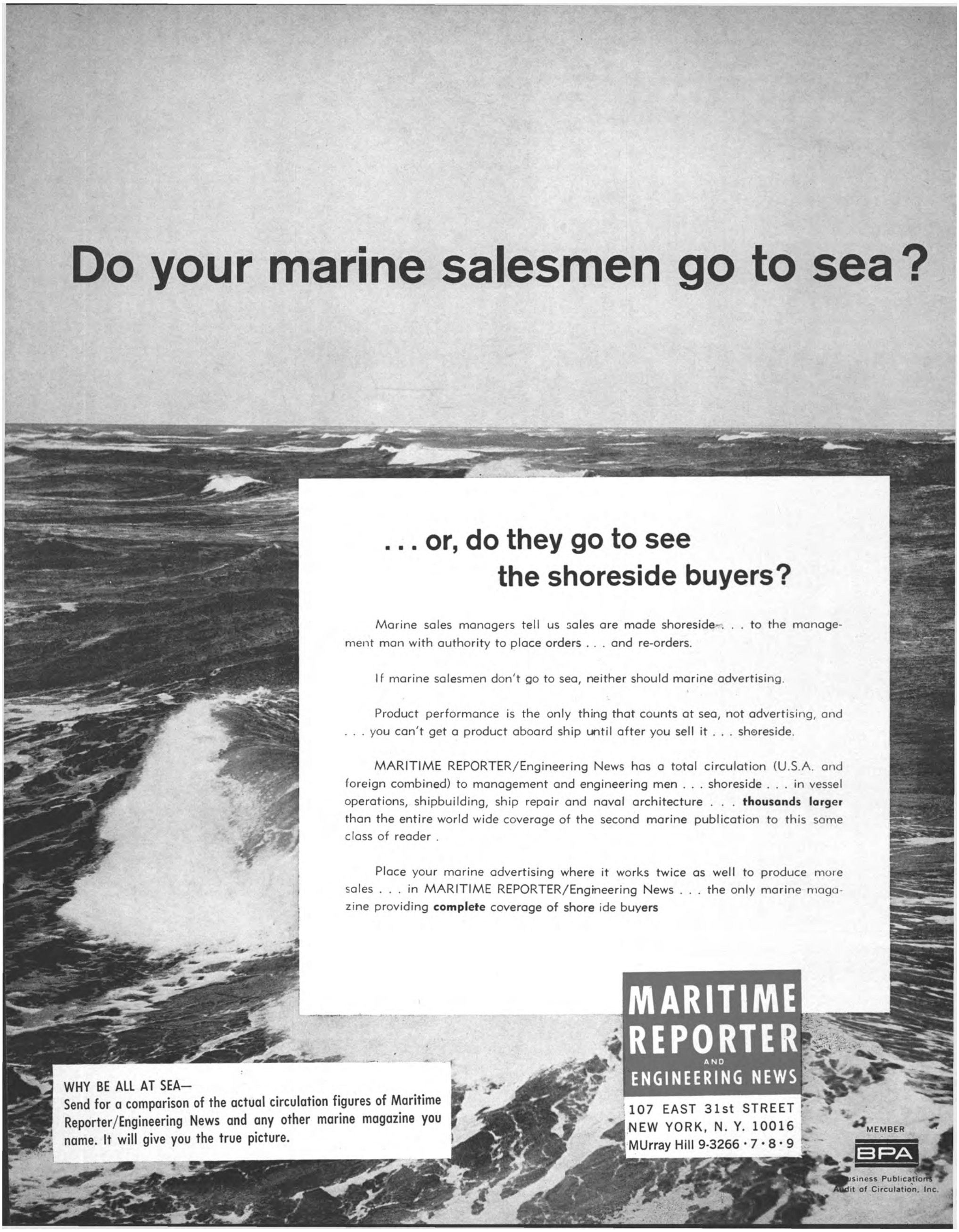
Construction of the towboats is of steel, transversely framed and with double chines. Thickness of plating for the deck and side is ⅜-inch, of headlog is ⅝-inch, of corners is 1-inch, and of bottom is ½-inch and ⅜-inch.

The vessels are also equipped with Konel KR33BB and KR 150 radios, Decca RM916 radar, intercom systems, two each 14-inch carbon arc Carlisle Finch searchlights, and one each Kahlenberg T-1 horn with whistle light.

Halter Marine shipbuilding facilities are in New Orleans, La.; Moss Point, Miss., and Lockport, La.

Warrior & Gulf Navigation Company is headquartered in Mobile, Ala., and operates towboats on the Warrior and Tombigbee river system in Alabama and on the Gulf Intracoastal Waterway.

HUGE OBO FROM SUMITOMO: Sumitomo Shipbuilding & Machinery Co., Ltd., recently delivered the M/V Avon Bridge, a 142,000-dwt ore/bulk/oil carrier, from its Uraga Shipbuilding Yard in Yokosuka, to H. Clarkson and Company Limited of the United Kingdom. The new vessel measures approximately, 846 feet in length, 144 feet in breadth (molded), and 80 feet in depth (molded), and carries Lloyd's UMS (Unattended Machinery Space) qualification. She is powered by a Sumitomo-Sulzer Diesel Engine 10 RND 90 MCR 29,000 bhp at 122 rpm, providing a service speed of 15.55 knots. Besides this Avon Bridge, Sumitomo Shipbuilding & Machinery Co., Ltd., has orders for three OBO carriers, totaling about 430,000-dwt, from the Seabridge Group.



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Shipbuilding Executive Predicts U.S. Entry Into World Market By 1980

Ellis B. Gardner

A Litton Industries executive said that American shipbuilding is undergoing a "renaissance" which will result in fewer but better U.S. shipyards capable of competing effectively in the world market by 1980.

In a speech to senior officers on March 17 at the Naval War College, Newport, R.I., **Ellis B. Gardner** predicted that the 1970s will be "a decade of dramatic change and strange anomalies" for U.S. shipbuilding.

Mr. **Gardner,** a senior vice president of Litton and head of the company's Marine Group, said the 1970s will be a period when "U.S. ship contracts and appropriations will be higher than at any time since World War II . . . Nonetheless, some shipyards may well go out of business . . .

"Continued rapid advance in military weapons systems which, by their very nature, will create a configuration management problem of immense proportions . . . Foreign shipyards will be too full to accept orders; but the ships required, which might be ordered in the U.S., will be so large that only a handful of U.S. yards will be able to handle them, and at least two of that handful will have too large a backlog to consider them . . .

"The results of the contract definition form of procurement to improve cost and schedule control won't even be seen before detractors begin seeking a return to a procurement system which seemed unworkable in the past . . .

"Additionally, Mr. **Gardner** said, "it will be a period which will result in cost parity among U.S., European and Japanese yards, thus enabling those American shipbuilders who survive the decade to compete effectively in the world market in the 1980s."

Mr. **Gardner** said that American shipyards cannot compete in world markets today "principally because of the rising price we have had to pay for maintaining a high American standard of living" and "not, as some have said, because of inherent deficiencies or inefficiencies in American shipyards."

Mr. **Gardner** said American shipbuilders are currently paying the highest wage rates in the world in addition to the high prices charged for U.S.-made materials required in American ships.

"Today," Mr. **Gardner** said, "US.-made components and other materials account for more than 50 percent of the cost of an American ship. However, foreign shipbuilders can purchase similar products made elsewhere in the world at prices from 10 percent to 70 percent lower than those charged in the U.S.

"By and large, we cannot use these lower cost non-U.S. products because, by law, the overwhelming percentage of construction materials needed on U.S. Navy ships must be of U.S. origin and manufacture. At the same time, insofar as it is practical, 100 percent of what goes into Maritime Administration subsidized ships must be 'Bought American.'"

Mr. **Gardner** said that American shipbuilders must content themselves with the domestic market until cost parity in world shipbuilding is achieved. "Happily," he said, "there are indications that cost parity for U.S., European and Japanese shipbuilders will occur sometime in this decade, certainly by 1980."

Mr. **Gardner** urged American shipbuilders to concentrate efforts on upgrading existing facilities, to become specialists, and to adopt more sophisticated methods of construction "in order to effectively meet the near-term challenge and opportunity posed by the renaissance we now see taking place in American shipbuilding."

"In the next 10 years," Mr. **Gardner** said, "we can expect to see the U.S. Navy's requirements call for a variety of ships costing an average of $3 billion a year. At the same time, President **Nixon's** plan to rejuvenate the American merchant fleet with 300 new ships will generate another $500 million a year in business. In both cases, Congress has determined that such ships will be built in the U.S. by American shipbuilders.

"Those who effectively meet this challenge will also be in a very good position to meet the future and even more imposing challenge of the world market. Those who do not—and there will be some—will not be around to care."

Litton Industries, headquartered in Beverly Hills, Calif., is a major multinational corporation specializing in products, systems and services for business, defense, marine, industrial and professional markets.

Midland Appoints James P. Craig Vice Pres., Operations

James P. Craig

James P. Craig has been named to the newly-created post of vice president of operations of the companies of the Midland Insurance Group.

Mr. **Craig** joined the New York based firm in 1968. He was elected a director of the Midland Insurance Company the following year, when he assumed his most recent position as vice president customers' services. Before joining Midland, he served as an assistant secretary of the North Star Reinsurance Corp. His earlier experience encompassed a broad range of assignments in company and agency ranks.

Jakobson To Double Capacity Of Drydock

Jakobson Shipyard, Inc. of Oyster Bay, Long Island, N.Y. has announced plans to double the capacity of their marine railway drydock from the present 500 tons to 1,000 tons. Childs Engineering Corporation of Medfield, Mass., waterfront and structural engineers, is presently preparing working plans for the new facility, which should be in operation this summer.

According to **George J. Hossfeld Jr.,** president, "Our drydock, which was built in 1942, has given us excellent service but is now, after almost 30 years, in need of a major overhaul. Before proceeding with repairs, we took a close look at our present business and then tried to foresee our future. The majority of work done in this drydock is the launching and repairing of vessels which are getting heavier as new classes are developed. We looked into various types of haul-out facilities and decided that since we had a sizeable portion of the drydock still in good condition, the most economical solution would be to enlarge our existing facilities."

Starrett Corp. Appoints Matthew T. Dailey

Matthew T. Dailey

Matthew T. Dailey has been appointed sales manager of diesel products for the Starrett Corporation of Tampa, Fla. Well known in the diesel industry, Mr. **Dailey** brings to Starrett many years of experience in all phases of the engine business.

In his new position, Mr. **Dailey** will be responsible for the sales of current diesel products as well as the introduction of new products, including generator sets and industrial engines.

Numerical Size Of United States Navy Continues To Slide

In testimony before the Senate Appropriations Committee released on March 17, 1971, Navy Secretary **John H. Chafee** warned that "currently planned shipbuilding programs will not arrest obsolescence" of some portions of the U.S. naval fleet.

He said: "Even with the retirement of 463 ships in the FY '69 through FY '72 period, 133, or over one-fifth of our planned active fleet ships, including two carriers, will be 30 years old or older by the end of FY '76. At present, the only fleet ships that old are five support ships. At the end of FY '72, the average age of our carriers will be 18 years, the average age of support ships 20 years—and this average will continue to increase in the next several years."

Secretary **Chafee** also noted that, in present fiscal year (FY '71), "active ship levels will decline from 769 to 710 ships," lowest since 1950. A drop to 658 ships in FY '72, a 28 percent decline since FY '64, is now seen.

By way of explanation, the Navy Secretary referred to the "number of hard decisions" involved in budget making. He said: "During the past few years, we have reduced the numerical strength of our Navy in order to buy as many modern ships, aircraft, and weapons as our budgets would permit. During the same period, the Soviet Navy has achieved significant qualitative improvement, as well as quantitative advances in sophisticated ship types, including nuclear-powered submarines and missile-equipped surface combatants. These factors, combined with the increased employment worldwide of their maritime power, is cause for great concern as we pursue the strategy of realistic deterrence."

Before the same committee, Adm. **Elmo R. Zumwalt Jr.**, USN, Chief of Naval Operations, detailed Russia's latter-day development of sea power, and had this to say about Soviet shipbuilding and naval capabilities: "Estimated Soviet expenditures for ship construction reached the all-time high of $3 billion in 1970. This was $1 billion more than the average for previous years, and exceeded U.S. shipbuilding outlays for that year by $900 million. In addition, the Soviets are spending annually an estimated $1.7 billion for new merchant and fishing ships as compared to our FY 1969 and 1970 merchant programs of $334 million and $253 million, respectively. If maritime modernization is measured in terms of shipbuilding expenditures (naval and merchant), the Soviet Union in 1970 was modernizing at almost exactly twice the annual rate of the U.S. ($4.7 billion in 1970 vs 2.353) . . .

"From 1966 to 1971, the Soviets built over 200 general purpose combatant and amphibious ships as compared to our production of 88 in that period. The Soviet annual program includes major units that will carry surface-to-surface and/or surface-to-air missiles. About 45 percent of the Soviet minor combatants will be equipped with long-range surface-to-surface missiles. We estimate the Soviet Navy will equal the U.S. Navy in total major combatants in 1972."

APL Appoints Larkin Manager Safety Section

Carl Larkin, veteran maritime executive, has been appointed manager, safety section, for American President Lines, San Francisco, Calif., according to APL president **Worth B. Fowler.** Mr. **Larkin** returns to APL from the post of operating manager for Marine Terminals Corporation in Long Beach.

During the Korean War, he joined American President Lines and served as a ship's officer until 1958, after which he served for three years as mate and master of a deepsea tug for the Red Stack Tow Boat Co.

Rejoining APL in 1961, Mr. **Larkin** became a chief officer and was captain of the S/S President Harding for 16 months. As chief officer of the S/S President Wilson, he commanded the lifeboat which rescued 27 crewmen from a sinking Greek freighter during a gale in mid-Pacific. This operation gained him the U.S. Maritime Commission's Meritorious Service Medal, and the S/S President Wilson a Gallant Ship Award. For the difficult rescue, the New York Board of Trade designated Mr. **Larkin** "Seaman of the Year." At the time, Mr. **Larkin** credited success of the rescue "to the emphasis placed on consistent education and drill aboard ship before the actual emergency occurred." He stressed that "the antidote to panic is knowledge."

Carl Larkin

Mr. **Larkin** began the shoreside phase of his career in 1966 as assistant port captain for APL in San Francisco. In 1967, he joined Marine Terminals Corporation as safety superintendent. In this capacity he received national recognition for innovative policies and procedures.

Spee-Flo Introduces Airless Spray Unit For Applying Solids

The Spee-Flo Company has introduced a new airless spray unit capable of applying up to a gallon a minute of 98 percent solids glass-filled polyester resin. One major barge coating program with the new Commander Special Model 713-314 was recently completed by C.W. Engineers, New Orleans, La.

Jack Boynton, president of the maintenance firm, reports successful spray application of the first 1,000 gallons of glass with the Spee-Flo Commander Special with no measurable equipment wear. "It provides smooth, continuous application at 25 to 30 mils coating thickness." Mr. **Boynton** reported high production speed with the patented airless H-GUN, adding that the gun is extremely easy to control.

A barge in Harvey, La., being coated with 98 percent solids glass-filled polyester resins using a Spee-Flo Commander Special model.

The Spee-Flo Commander is the only airless unit on the market presently handling coatings of this type without special modification, according to the manufacturer. Because of its unrestricted gun flow and freedom from pump clogging, the unit is also ideal for epoxy mastic and zinc rich materials.

For complete information, contact the Spee-Flo Company, 4631 Winfield Road, Houston, Texas 77039, or branches and distributors in principal cities.

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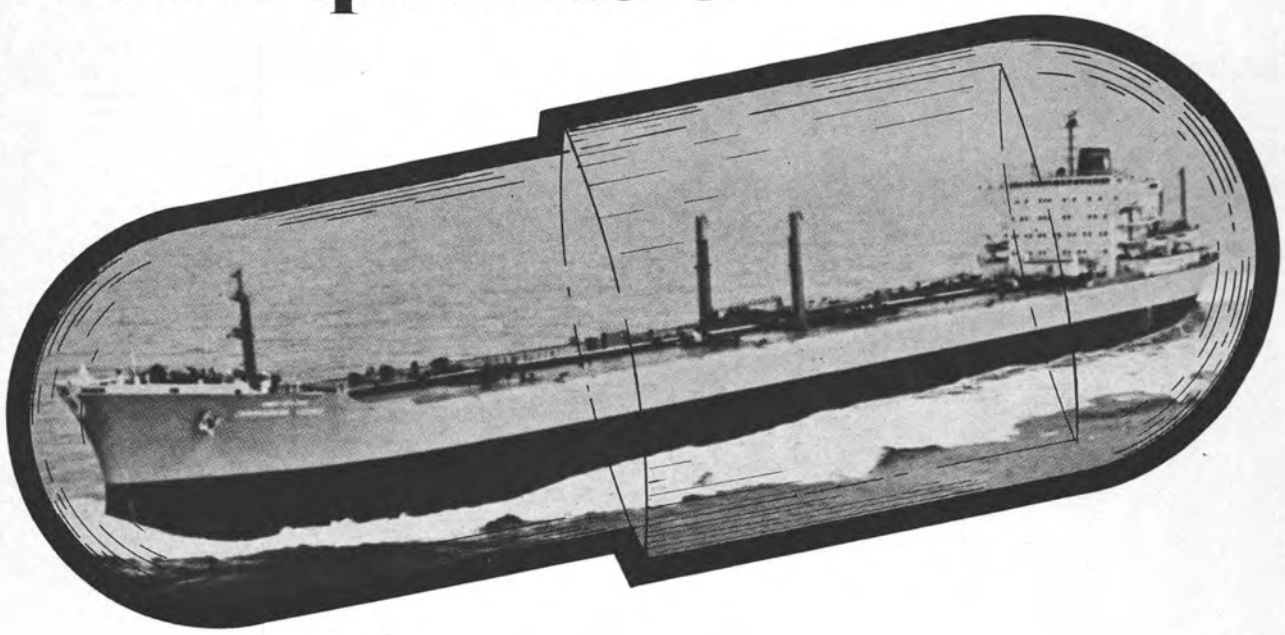

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Communication Associates Introduces Automatic Single-Sideband Marine Radio

Les Yoder (left) and **Steve Sulik** (right) of the Atlantic Richfield Company's Telecommunications Department inspect the new 80-channel, 1,000-watt single-sideband communication system designed to their specifications by Communication Associates. **Gerry Gutman, CAI** director of marketing, shows program card that automatically programs the frequency and mode for each marine channel.

Communication Associates, Inc., (CAI), recently combined the opening of its new facilities with the introduction of a 40-channel single-sideband, marine communications system which features an automatic frequency and mode selection.

This new marine unit, Model CA-35MS, has a pre-programmed control unit and an integrated circuit digital frequency synthesizer. The system covers a frequency range of 2.0 through 30.0 MHz. It contains three basic units—programmable control unit, frequency synthesizer and single-sideband transceiver. The user picks the channel by the turn of a thumbwheel selector. A punched metallized card, pre-programmed to a particular frequency, is in turn decoded by the built-in optical card reader. The frequency and mode selection is thereby automatically accomplished.

The control information is then fed into the frequency synthesizer. A built-in laboratory-grade temperature compensated crystal oscillator is used as the primary frequency standard.

CAI has designed the unit to provide:

First, as long as the unit is operated within the temperature range of –40°C to 85°C, the transceiver is on frequency the moment the unit is turned on. This reduces the warm-up time to approximately one minute.

Second, by using a pre-programmed synthesizer that automatically provides the correct frequencies, the need for a trained radio operator is minimized. The operator merely selects a given channel, without any control over actually varying the assigned channel frequency.

Third, since all frequencies required by the transceiver are derived from a single standard, there is a reduction in frequency maintenance. Depending upon the standard selected, the system offers high stability in the order of ½-part-per-million or better.

View of programmable control unit, showing some of the 40 punched metallized cards pre-programmed for particular frequencies. Cards can be changed in minutes, even at sea.

Fourth, frequency changes can be made within a given band without the services of a special technician. By a change of the channel program card, a change of frequency may be accomplished at sea.

Fifth, the synthesizer can be used for half-duplex telephone operation by providing separate transmit and receiver frequencies. This is made possible by the ability of the unit to lock on a new frequency with loop acquisition time of less than 100 milliseconds.

Providing 150-watts peak envelope power output in a single-sideband or AME modes, the transceiver offers 10 bands over its 40 pre-programmed channels. They may be used for either simplex or half-duplex operation.

The CA-35MS has been designed to comply with FCC type-acceptance requirements for harmonic and spurious emission, without the need for auxiliary filters, couplers or other external device.

The new plant of Communication Associates, Inc., at 200 McKay Road, Huntington Station, N.Y. 11746, is now in full operation, producing communication equipment and systems for the marine and aviation industries.

Todd Galveston Delivers First Of Nine Jumboized Ships For Lykes Bros. Steamship

This is how the newly lengthened ships of the fleet of Lykes Bros. Steamship Co., Inc., look after adding a new 97-foot mid-body section. Todd Shipyards in Galveston are converting the ships at a cost of $30 million.

The first of nine ships of Lykes Bros. Steamship Co., Inc., to be "jumboized" in a $30,000,000 program to convert them to combination breakbulk and containerships recently went into service on a voyage from U.S. Gulf ports to Continental Europe and the United Kingdom.

Lykes officials announced that the S/S Zoella Lykes' discharge ports in Europe will include Bremen, April 21; Bremerhaven, April 22; Hamburg, April 23; Rotterdam, April 24; Antwerp, April 26; LeHavre, April 28, and Southampton, April 30.

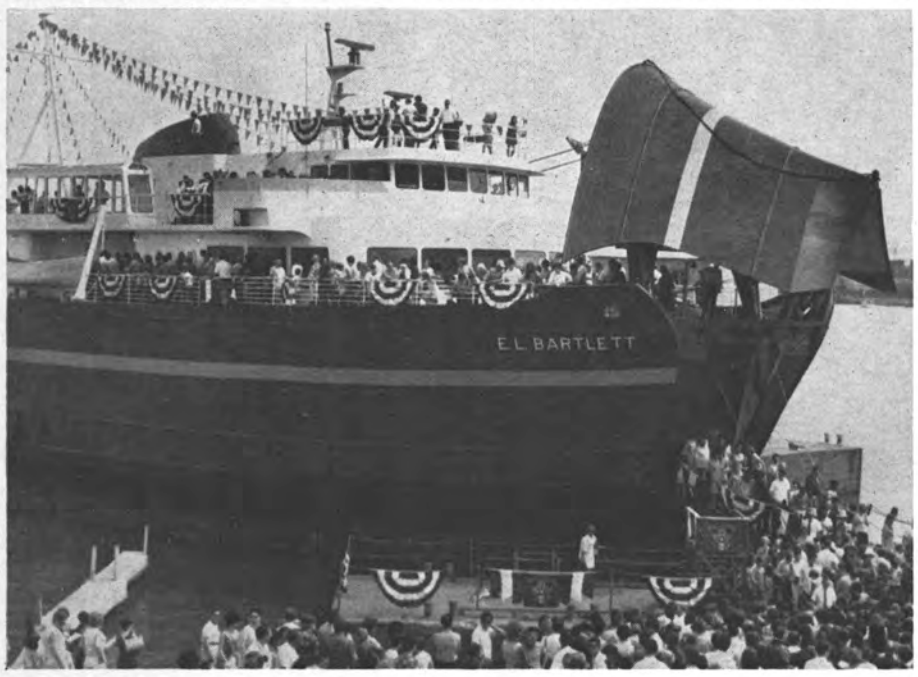
The ship is expected to lift a full load of 158 containers, in addition to its other breakbulk cargo. The new 97-foot mid-body section, added just forward of the main deckhouse, makes it possible for the vessel to carry 60 containers under deck and 98 on deck, two tiers high. New cargo gear installed at the new container hold can handle lifts up to 35 tons.

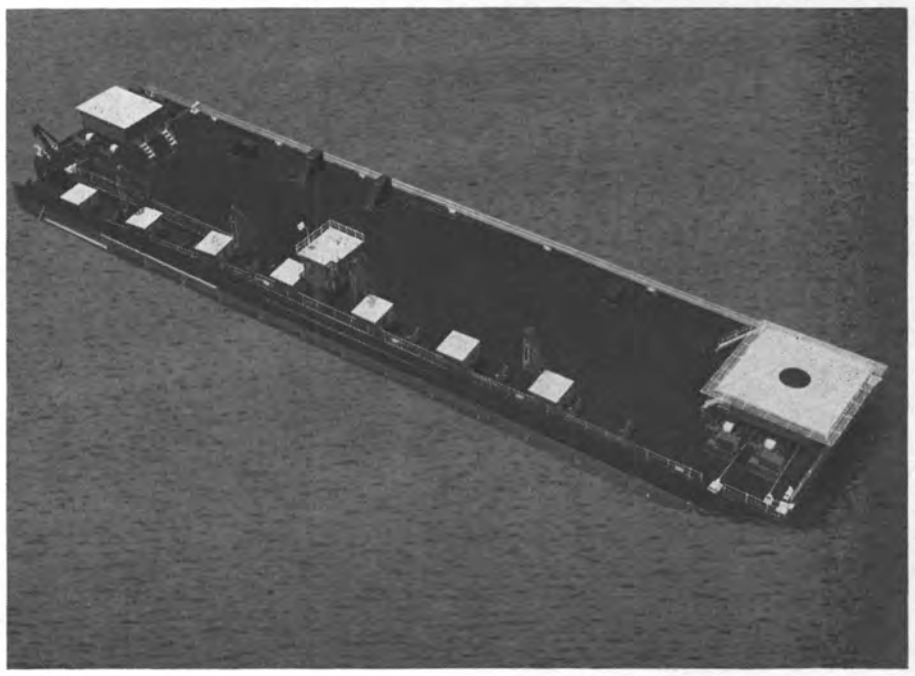
In addition to the new container facilities, side ports have been installed in the ship to permit fork lift trucks to operate between ship and dock for improved loading and discharging of unitized and palletized cargo. An 800-horsepower bow thruster has also been installed to provide for improved maneuvering of the ship in port areas.

The conversion was done in the Galveston yard of Todd Shipyards Corporation. The vessel was lengthened from 495 feet to 592 feet. All nine ships involved in the conversion program are comparatively new units of Lykes' Gulf Pride Class and the nine ships will hereafter be known as the Gulf Pacer Class.

The other eight vessels are slated for conversion and re-delivery to the Lykes fleet at 60-day intervals. The stretching of the ships adds more than 40 percent to the cargo capacity of each vessel. The total for the nine ships adds a total of about 2,000,000 cubic feet of cargo space to the Lykes fleet, or the equivalent of three new ships.

In addition to the Zoella Lykes, the other ships to be jumboized are the James Lykes, Joseph Lykes, John Lykes, Thompson Lykes, Solon Turman, Nancy Lykes, Jean Lykes and Leslie Lykes.





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SNAME San Diego Discusses Reverse Osmosis Treatment Of Water And Wastewater

Principals shown above at the San Diego Yacht Club, left to right, are: **T.S. Hand Jr.,** vice chairman of the San Diego Section; **J.E. Cruver,** speaker; **C.S. Sinclair,** Section chairman; **D.R. Rodger,** papers chairman, and **G.A. Uberti,** secretary-treasurer.

The regular monthly meeting of the San Diego Section of The Society of Naval Architects and Marine Engineers was held at the San Diego Yacht Club on March 17, 1971.

Following dinner, a technical paper entitled "Reverse Osmosis Treatment of Water and Wastewater" was presented by **James E. Cruver** of Gulf Environmental Systems Company. Reverse osmosis is a continuous, reliable demineralization and concentration process that requires very little operating attention. The key component is a semipermeable membrane which passes water, but retains all suspended matter and most of the dissolved salts and organic substances in water. Reverse osmosis is being applied to high purity water production, waste stream concentration for pollution control, water reclamation, and food and pharmaceutical processing. It offers significant advantages over some other desalination techniques. Question and answer periods during Mr. **Cruver's** presentation showed the great interest in the subject by all attending members and guests.

John Angles, chairman of the nominating committee, presented the nominations for elective offices for the 1971-72 term. Nominated were: **T.S. Hand Jr.,** machinery department, Naval Ship Engineering Center, San Diego, for chairman; **George A. Uberti,** chief marine engineer, National Steel and Shipbuilding Company, San Diego, for vice chairman, and **David R. Rodger,** assistant marine engineer, National Steel and Shipbuilding, San Diego, for secretary-treasurer. Ballots will be sent to the members of the San Diego Section of The Society of Naval Architects and Marine Engineers to vote on these nominations.

Oceanic Is First Company To Enter Construction Fund Agreement Under New Act

Title to the freighter Sonoma was transferred by The Oceanic Steamship Company to Pacific Far East Line, Inc., which terminated Oceanic's operating differential subsidy agreement. Oceanic entered into an interim capital construction fund agreement with the Secretary of Commerce under the Merchant Marine Act of 1970, **M.H. Blaisdell,** president of Oceanic, announced.

Mr. **Blaisdell** said Oceanic, a subsidiary of Matson Navigation Company, was the first steamship company to enter into such an agreement under the new act.

As a result of these moves, Oceanic has withdrawn and will not deposit capital and special reserve fund deposits and accruals of $12,200,000, and incurred a tax liability of $2,800,000. This will be reflected in the first three months' earnings of the Matson group.

Oceanic also transferred an additional amount of $9,200,000 to its new interim capital construction fund as provided by the Merchant Marine Act of 1970, to provide a base for construction or acquisition of new vessels.

Mr. **Blaisdell,** also president of Matson Navigation Company, said Matson has under study various programs for the replacement of older vessels of its fleet in recognition of the trends in the handling and movement of ocean-borne cargo.

Canadian Yards Awarded Large Ship Orders From Esso, Burnett & Vardinoyannis

In less than four months since the Canadian Government's shipbuilding temporary assistance program was announced, export orders for a total value of more than $110-million (Canadian) have been received, Industry, Trade and Commerce Minister **Jean-Luc Pepin** has announced.

Two of these orders were negotiated with construction and long-term export financing from the Export Development Corp., Mr. **Pepin** said.

The three export orders were a $25-million order from Burnett Steamship Co., Ltd., of Newcastle-upon-Tyne, England, received by Port Weller Dry Docks Ltd. for two 14,500-dwt newsprinting and automobile carriers; a $53-million order from the N.J. Vardinoyannis Group of companies, Piraeus, Greece, for three 80,000-dwt tankers to be built by Davie Shipbuilding Co. Ltd. of Lauzon, Quebec, and an order for three 30,000-dwt petroleum product carriers from Esso Tankers Inc. of New York, received by Saint John Shipbuilding and Dry Dock Co., Ltd., Saint John, New Brunswick.

These tankers measuring approximately 616 feet in length, 84 feet in beam, and 35 feet in draft, will have an operating speed of 15 knots. They will be propelled by 11,400-bhp, and will be utilized in Esso's international tanker service.

Financing agreements were signed by EDC with Burnett Steamship Co., as well as the Vardinoyannis Group in Greece. In addition, Port Weller Dry Docks Ltd. and Davie Shipbuilding will receive shipbuilding grants from the Government.

On the three petroleum product carriers ordered by Esso Tankers from Saint John Shipbuilding, the financing arrangement was made by the two companies concerned, but the shipbuilder will receive a Federal Government grant.

Mr. **Pepin** also announced Government assistance of more than $25 million would be extended on domestic orders received by two other Canadian shipyards in the past two months.

These are an $18-million order for a drilling rig received by Halifax Shipyards Division of Hawker-Siddeley Canada Limited from Southeastern Commonwealth Drilling Ltd. of Calgary, and $23-million orders for two self-unloading Great Lakes bulk carriers received by Collingwood Shipyards.

A 30,000-dwt vessel is being built by the Collingwood yards for Canada Steamship Lines, and a 23,500-dwt vessel for Algoma Central Railway.

The temporary shipbuilding assistance program announced last November 27, applies only to vessels of more than 500 gross tons for the export market. Level of Government support is a 17 percent grant based on audited costs for vessels below 25,000 tons. These levels of support apply only to new orders signed not later than September 30, 1971.

After September 30, the levels of support decline gradually until June 29, 1972, when they disappear altogether for new orders. However, for orders signed on or before June 29, 1972, grants will be paid for ships completed up to October 31, 1975.

LASH VESSEL AWARDS: LASH System inventor and designer **Jerome L. Goldman** (left) and Central Gulf Steamship Corporation president **Erik F. Johnsen** (right), operator of the world's first LASH vessels, are the recipients of the 1970 C. Alvin Bertel Award for their role in "keeping the Port of New Orleans competitive." Shown with them are U.S. Assistant Secretary of Commerce and Maritime Administrator **Andrew E. Gibson** (second from right), principal speaker at the awards luncheon, and awards chairman **Franklin M. Schilling.** The award was presented on March 23 by the New Orleans Traffic and Transportation Bureau in behalf of its 13 constituent bodies.

San Diego Marine Orders Six 3,600-Hp Alco Engines To Power Fast Tuna Seiners

San Diego Marine Construction Company, San Diego, Calif., has just delivered the largest of a series of all-steel tuna seiners, the City of Lisbon, to the owners.

A sister ship, the Mary S, was launched in February and will be completed and ready for sea trials this month.

These 214-foot seiners are the fastest ships in the tuna fleet, fulfilling a demand by the fisherman for faster ships to reduce the travel time to and from the fishing grounds.

San Diego Marine has just awarded the Alco Engine Division a contract for six 18-cylinder Model 251F diesel engines rated at 3,600 horsepower for main propulsion to power the present class of tuna seiners. With these engines, speeds in excess of 16 knots are expected to be consistently maintained under fully-loaded conditions.

P&O Group Shipbuilding Orders Total Over $417 Million

P&O (Peninsular & Oriental), the world's largest independent shipping group, has placed an order for a 260,900-dwt tanker with Mitsubishi, the Japanese shipbuilders. The vessel will be the largest ever to join the P&O fleet, and will bring the company's combined oiler fleet to 19 ships totaling 1.75-million deadweight tons. The new tanker will be chartered to British Petroleum.

P&O now has on order 29 ships worth $314.4 million, and together with other joint shipbuilding ventures costing a further $103.2 million, the total outlay of $417.6 million is the largest order book in the group's history. Eleven vessels are due for delivery later this year.

Singapore Operator Orders Nine Equity Water Taxis

Behring South Ports Shipping Inc. arranged for the transportation of the Locolina II to Singapore.

A new Equity Standard 65-foot Water Taxi, was recently shipped to Singapore on board the freighter M/V Hoegh Orchid. Owned by Locolina Shipping Inc. of Liberia, the Locolina II is the second of a series of nine Equity water taxis scheduled for operations in the Straits of Malacca and the South China Sea. The vessels will be operated by Robin Shipyard (Pte.) Ltd. of Singapore.

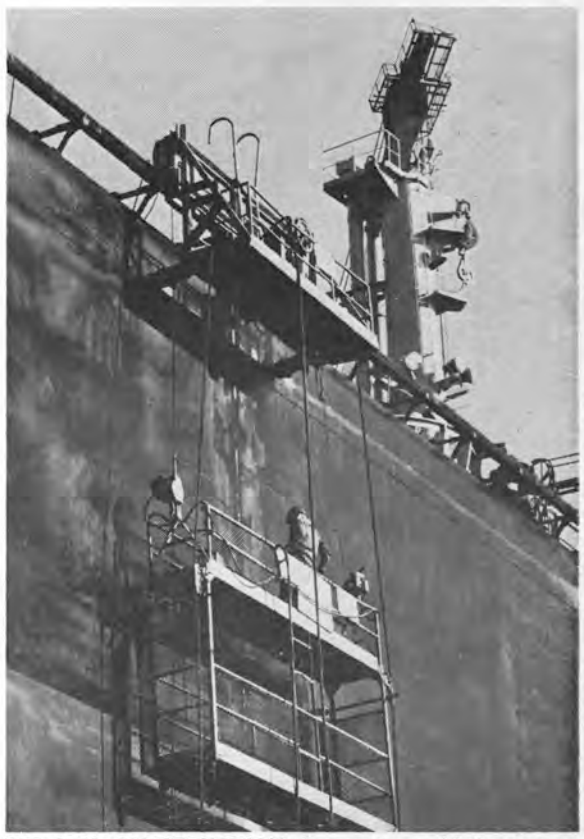
When the nine-boat program is completed in late summer of this year, Robin will be operating a fleet of nine homogeneous steel craft of proven design. Five of the boats will be the well-known Equity 59-footers. The other four will be the increasingly popular Equity 65-foot water taxis.

By standardizing their fleet, the operators will have the advantage of almost complete interchangeability of parts, enabling them to conduct sustained operations on a virtually uninterrupted basis.

Locolina II is powered by two GM 12V71 turbo-charged engines which give it an operating speed of 25 miles per hour. The vessel is air-conditioned and equipped with radar, radiotelephone and Fathometer. Seating is provided in the cabin and lounge for 44 passengers.

Equitable Equipment Company, Inc.'s main office and yard are located at 4325 France Road, New Orleans, La. 70126.

GOLDEN QUILL AWARD: Thomas W. Gleason, president of the International Longshoremen's Association, A.F.L.-C.I.O., is shown receiving The Rudder Club's "Golden Quill Award" in recognition of his contributions to world trade. The affair, which was the seventh Annual International Maritime Night Dinner, was held in the Grand Ballroom of the Statler Hilton Hotel. Approximately 1,000 guests that attended also honored executives of both American and foreign-flag steamship lines serving the Port of New York. Shown, from left to right, are: Comdre. **James L. Bailey,** traffic manager of Wedemann & Godknecht; Mr. **Gleason;** the Honorable **Helen Delich Bentley,** Chairman of the Federal Maritime Commission, and **Thomas J. Giardino,** traffic manager of the Marchessini Steamship Lines and general chairman of the affair.



FOR SHIP CONSTRUCTION: Examining welded seams or doing all the other jobs on the sides of today's great ships would be major time-consuming tasks if it were not for these types of suspended platforms and powered hoists, shown on a 210,000-ton tanker in the Yokohama yard of Ishikawajima-Harima Heavy Industries in Japan. Structure on main deck rail above is used to traverse platform along length of ship. Air or electric-powered work platforms and hoists, manufactured by Sky Climber, Inc., Gardena, Calif., a subsidiary of Western Gear Corporation, transport workmen and materials to many job assignments both inside and outside ships and land structures.

MONTHLY MARINE SPECIALS

FOR SALE

A. **STEEL TS TUG**—115x32x17.
3000 HP. Built 1969. Price on request

B. **27 INCH STEEL SUCTION DREDGE**—
(50 Foot Cutting Depth). Price $800,000

C. **STEEL CRANE BARGE**—160x50.
Built 1956 With 6 Yard Dragline.
Crane Equipped. Price $175,000

D. **STEEL DIESEL TUG**—90x23x10.8.
950 HP. Built 1942. Price $75,000

E. **66 FOOT STEEL DIESEL TUG** (Excellent)—
500 HP. Rebuilt 1954. Price $40,000

F. **TWO STEEL DECK SCOWS**—90x30x8.
Built 1950. Price $12,500 each

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Gear:
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Company is fast growing leader in its field with patented and exclusive coverage.
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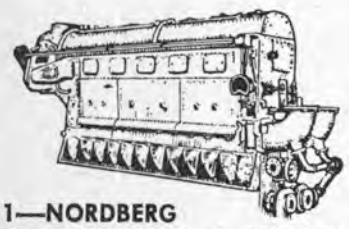
MARINE DIESEL ENGINES



1—NORDBERG
Used, 1700 BHP at 180 RPM, 2 cycle, Type TSM, Model 32112, 6 cylinders, 21-½" bore, 29" stroke, (Removed from C1-M-AV1 ship).

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

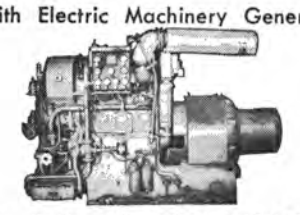
3—COOPER-BESSEMER, Model LS-8-DR
1300 HP, 277 RPM, direct reversing, turbo charged.

MARINE DIESEL GENERATORS

Used, Good — Will Overhaul

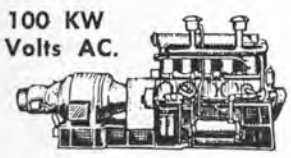
1—DeLavergne, 448 BHP, 400 RPM, 6 cylinders, with Westinghouse Generators, 300 KW, 120/240 DC.
1—DeLavergne, 560 BHP, 514 RPM, 6 cylinder, with Electric Machinery Generators, 375 KW, 450/3/60.

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



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

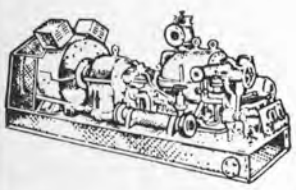
LORIMER 100 KW 450/3/60 Volts AC.

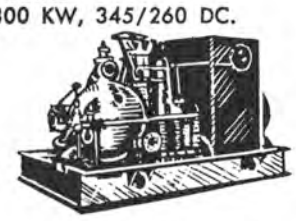


COOPER-BESSEMER
FS6, 250 KW, 440/3/60.
GM, 8-268, 300 KW, 345/260 DC.
GM, 6-278A, 300 KW, 120/240 DC.

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

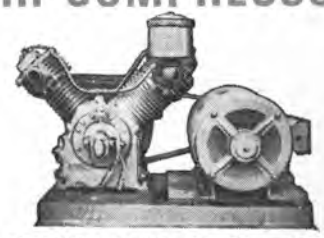
TURBINE GENERATORS





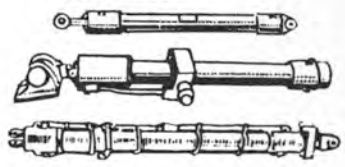
ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 120/240 DC.
ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 240/240 DC.
TERRY, Type TM5, 440 PSI, 740°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.
DE LAVAL, 450 PSI, 750°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.
WORTHINGTON, Form S4, 440 PSI, 740°F, with Crocker-Wheeler Gen., 300 KW, 120/240 DC.
JOSHUA HENDY, 300 PSI, 550°F, with Westinghouse Generator, 300 KW, 120/240 DC.
WORTHINGTON, Form S4, 440 PSI, 740°F, coupled to two Westinghouse Gen., 250 KW, 440/3/60 and a 90 KW, 120 DC.
GENERAL ELECTRIC, Type FN3-FN24, Steam 265#G, with G.E. Generator, 750 KW, 440/3/60.
WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 300 KW, 120/240 DC.
WESTINGHOUSE, 410 PSI, with Westinghouse Generators 200 KW, 450/3/60.
WESTINGHOUSE, 440 PSI, 740°F, with Westinghouse Generators, 300 KW, 240 DC.
GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 200 KW, 450/3/60.
WESTINGHOUSE, 590 PSI, 487°F, with Westinghouse Generator, 540 KW, 120/240 DC.
GENERAL ELECTRIC, 410 PSI, with G.E. Generator, 200 KW, 450/3/60.
GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 450/3/60.
GENERAL ELECTRIC, 525/618 PSI, with G.E. Generators, 438 KVA, 450/3/60.
WORTHINGTON, 225 PSI, 397°F, with Westinghouse Generator, 150 KW, 120 DC.
WESTINGHOUSE, 200 PSI, with Westinghouse Generators, 60 KW, 120 DC.

AIR COMPRESSORS



INGERSOLL-RAND, 50 CFM, 150 PSI, 20 HP, 440/3/60.
SULLIVAN, 60 CFM, 110 PSI, 15 HP, 440/3/60.
WORTHINGTON, 60 CFM, 110 PSI, 15 HP, 230 DC.
INGERSOLL-RAND, 50 CFM, 600 PSI, 15 HP, 230 DC.
CHICAGO-PNEUMATIC, 161 CFM, 100 PSI, 40 HP, 230 DC.
WORTHINGTON, 175 CFM, 125 PSI, 50 HP, 440/3/60.
JOY, 100 CFM, 300 PSI, 30 HP, 220/440/3/60.
INGERSOLL-RAND, 150 CFM, 600 PSI, 75 HP, 230 DC.
INGERSOLL-RAND, 60 CFM, 125 PSI, 15 HP, 230 DC.
WORTHINGTON, 142 CFM, 100 PSI, 20 HP, 230 DC.
HARDIE-TYNES, 30 CFH, 3000 PSI, 75 HP, 230 DC.
HARDIE-TYNES, 30 CFH, 3000 PSI, Steam Turbine Drive.
INGERSOLL-RAND, 30 CFH, 3000 PSI, Steam Turbine Drive.
WORTHINGTON, 30 CFH, 3000 PSI, Steam Turbine Drive.
WESTINGHOUSE AIR BRAKE, 246 CFM, 140 PSI, 50 HP, 440/3/60.
GARDNER-DENVER, 850 CFM, 100 PSI, 200 HP, 440/3/60.

HYDRAULIC CYLINDERS



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

SPERRY GYRO COMPASSES

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

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

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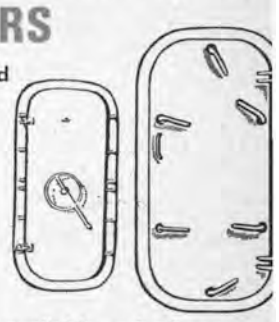
Steel Watertight DOORS

Used, Good Condition, Trimmed Frames.



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

26"x48"-4 Dogs-**$60.00 ea.**
26"x57"-6 Dogs-**$80.00 ea.**
26"x60"-4 Dogs, 6 Dogs-**$86.00 ea.**
26"x66"-6 Dogs, 8 Dogs-**$100.00 ea.**
26"x66"-Q.A. Type-**$175.00 ea.**

REDUCTION GEARS

DE LAVAL Reduction Gear from S/S Texas a C3M ship, Type Double Reduction, 8500 HP size, HP Pinion 5015 RPM, LP Pinion 3461 RPM, low speed gear, 85 RPM.

WESTINGHOUSE Reduction Gear from S/S Montrose, an AP3 ship, size 8500 HP, Gear RPM 85, HP Pinion 5238 RPM, LP Pinion 4422 RPM.

FARREL-BIRMINGHAM, as orig. used on two 1375 HP electric motors in submarine, 2 pinions, single output gear, pinion RPM 1302, Gear RPM 280; ratio 4.65:1.

WESTINGHOUSE, as orig. used on two 1362 HP electric motors in submarine, 2 pinions, single gear.

FALK Reduction Gears—Port & Starboard, Interchangeable with T-3 Tanker Gears, Falk No. 148-300. Also interchangeable with Falk Gears on AO51 Class Tankers (14 ships). Also on AO97 to AO100 Tankers.

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From C3-S1-A3 Vessel,
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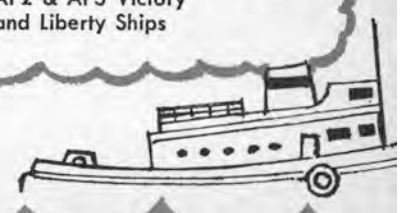
AP2 & AP3 Victory
and Liberty Ships



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CAPSTAN WINDLASSES

Model CWP-3, Vertical 24" Planetary Capstan Windlasses, Single Wildcat — using 1¼" Anchor Chain, Single Gypsy with 20 HP motor, 230 volts DC, complete with Contactor Panel, Master Switch, and Resistors.

3—HESSE-ERSTED VERTICAL, Single Wildcat—for 1⅜" Anchor Chain, single gypsy, with 35 HP General Electric Motor, 230 Volts DC, complete with Controller equipment.

HYDE, VERTICAL, Single Wildcat, for 1⅛" Anchor Chain, single gypsy, with 20/5 HP Motor, 440/3/60.

ANCHOR WINDLASSES

1—LIDGERWOOD horizontal Anchor Windlass, double wildcat—for 2 1/16" Chain, double gypsy, with 50 motors, 230 volts, DC, complete with controls.

1—HORIZONTAL, of German Mfg., double wildcat—for use with 3" anchor chain, double gypsy with 230 VDC motor, complete with electrical control equipment.

AMERICAN ENGINEERING, horizontal, double 2⅛" Chain, 65 HP, 230 DC, complete.

4—AMERICAN HOIST AND DERRICK COMPANY, horizontal, double wildcat—for 2¼" chain double gypsy, 70 HP, 230 Volts DC, with electric controls.

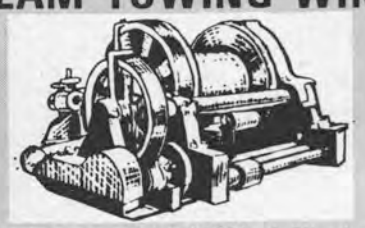
3—HESSE-ERSTED, horizontal, double wildcat, 2⅛" chain, 60 HP, 230 DC.

1—HYDE HORIZONTAL ANCHOR WINDLASS double wildcat—for use with 2⅛" Anchor Chain, and with General Motors Electric Motor, 60 HP, 230 volts DC, 560/1700 RPM, Type CDM 18831 AE. Complete with Contractor Panel, Resistors, and Master Switch.

ANCHOR WINCHES

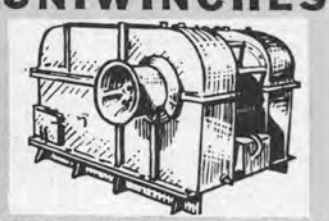
2—JAEGER, single drum—capacity approximately 900' of 1½" wire rope, double gypsy, with 35 HP Motors, 230 Volts DC, complete with electricals.

STEAM TOWING WINCH



Single drum, capacity 2000' of 2" wire rope, cylinder size 9" bore by 10" stroke.

UNIWINCHES



LAKESHORE UNIWINCHES, with Allis-Chalmers Motors, 50 HP, 230 Volts DC, complete with Control Equipment.

Single speed, double drum, 7450 # at 220 FPM.

Single speed, single drum, 7450 # at 220 FPM.

Two speed, single drum, 7450 # at 220 FPM, 14400 # at 105 FPM.

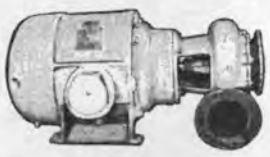
CARGO HOISTER BLOCKS

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

$34.50 ea.

39.50 each with pull test certificates

AC PUMPS
Horizontal Centrifugal



1-GOULDS, 2000 GPM, 470' head, size 8 x 10, Westinghouse Motor, 350 HP, 2300/3/60.

1—WORTHINGTON, 400 GPM, 150 PSI, 5-½" suction, 3-½" discharge, G.E. Motor, 75 HP, 440/3/60.

1—GOULDS, 300 GPM, 336' head, 3" suction, 2" discharge, G.E. Motor, 50 HP, 440/3/60.

5—J. C. CARTER, 365 GPM, 250' head, Aluminum Alloy, 3" suction, 3" discharge, with 25 HP motors, 220/440/3/60.

5—BUFFALO, Class CCS, 250 GPM, 100 PSI, 4" suction, 3-½" discharge, Westinghouse motor, 25 HP, 440/3/60.

6—WORTHINGTON, 200 GPM, 100 PSI, 3-½" suction, 3" discharge, Wagner motor, 25 HP, 440/3/60.

2—WORTHINGTON, 80 GPM, 60 PSI, 2-½" suction, 2" discharge, G.E. motor, 8 HP, 440/3/60.

6—BUFFALO, 875 GPM, 7-½" suction, 6-½" discharge, motor, 7.7/4.3 HP, 440/3/60.

7—WORTHINGTON, 650 GPM, 9 PSI, 6" suction, 6" discharge, with Star motor, 6 HP, 440/3/60.

1—WORTHINGTON, 175 GPM, 20 PSI, 3-½" suction, 3" discharge, with G.E. motor, 3.74 HP, 440/3/60.

4—WORTHINGTON, 60 GPM, 22 PSI, 3-½" suction, 2" discharge, with G.E. motor, 3 HP, 440/3/60.

3—ALLIS-CHALMERS, 35 GPM, 100' head, 2" suction, 1-½" discharge, with Allis-Chalmers motor, 3 HP, 440/3/60.

1—ALLIS-CHALMERS, 65 GPM, 80' head, 1-½" suction, 1-½" discharge, with Allis-Chalmers motor, 3 HP, 440/3/60.

2—WORTHINGTON, 13 GPM, 51 PSI, 1-½" suction, 1-½" discharge, with G.E. motor, 2.64 HP, 440/3/60.

4—WORTHINGTON, 30 GPM, 30 PSI, 1-½" suction, 1-½" discharge, with G.E. motor, 1.75 HP, 440/3/60.

11—WARREN, 6 GPM, 36 PSI, 1-¼" suction, 1" discharge, with G.E. motors, 1.25 HP, 440/3/60.

AC PUMPS
Vertical Centrifugal

6—WORTHINGTON, 275 GPM, 56.6 PSI, 8-½" suction, 3-½" discharge, with G.E. motor, 440/3/60.

4-WORTHINGTON, 490 GPM, 35 PSI, 7" suction, 4-½" discharge, with G.E. motor, 440/3/60.

6—CHICAGO PUMP CO., submersible, 400 GPM, 6# suction, 30# discharge pressure, with Wagner Motor, 15 HP, 440/3/60.

7—DAYTON-DOWD, 1160 RPM, 15 PSI, 10" suction, 8" discharge, with Wagner motor, 10 HP, 440/3/60.

6—ALLIS-CHALMERS, 68 GPM, 114' head, 3" suction, 1-½" discharge, with Wagner motor, 7-½ HP, 440/3/60.

3—WORTHINGTON, 100 GPM, 40 PSI, 5" suction, 3" discharge, with G.E. Motor, 7.37 HP, 440/3/60.

4—WARREN, 135 GPM, 35 PSI, 6" suction, 3" discharge, with G.E. Motor, 6 HP, 440/3/60.

1—WORTHINGTON, 35 GPM, 62.4 PSI, 3" suction, 2" discharge, with G.E. motor, 5.83 HP, 440/3/60.

3—WORTHINGTON, 350 GPM, 11.1 PSI, 10" suction, 3-½" discharge, with G.E. motor, 5 HP, 440/3/60.

9—ALLIS-CHALMERS, 10 GPM, 2" suction, 2-½" discharge, with 3 HP motor, 440/3/60.

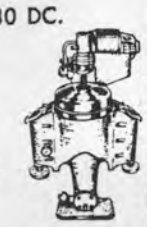
AC PUMPS
Horizontal Rotary

4—WARREN, 197 GPM, 175 PSI, with Electro-Dynamic motor, 30 HP, 440/3/60.

CENTRIFUGES

SHARPLES PURIFIERS

150 GPH—400 AC,—230 DC.
350 GPH—230 DC.
600 GPH—230 DC.



ALSO: De Laval, size 55-N13, 1-½ HP, 440 AC.

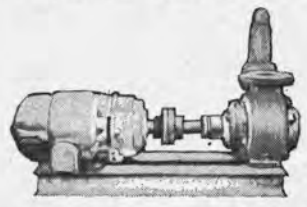
AC PUMPS
Vertical Rotary

1—DE LAVAL, 550 GPM, 50 PSI, with G.E. motor, 27.4 HP, 440/3/60.

5—QUIMBY, size 2-½, 10/6 GPM, 350 PSI, 2-½" suction, 1-½" discharge, with Wagner Motor, 6/3 HP, 440/3/60.

4—BLACKMER, 50 GPM, 35 PSI, 420 RPM, with G.E. geared motor, 2 HP, 440/3/60.

DC PUMPS
Horizontal Centrifugal



6—WORTHINGTON, Size 8L1, 2100 GPM, 138.5 TDM, with Westinghouse motor, 100 HP, 230 DC.

6—WORTHINGTON, Size 12LA1, 4000 GPM, 67.3 TDM, with Westinghouse motor, 100 HP, 230 DC.

6—WORTHINGTON, Size 3UB1, 400 GPM, 280' head, with Westinghouse motor, 50 HP, 230 DC.

6—WORTHINGTON, Size 4L1, 400 GPM, 83' head, with Westinghouse motor, 15 HP, 230 DC.

1—ALDRICH, 8" suction, 6" discharge, with G.E. motor, 12/25 HP, 115 DC.

3—WARREN, 1175 GPM, 11.2 PSI, with Reliance motor, 10 HP, 230 DC.

1—WESTCO, 100 GPM, 100 PSI, with Imperial motor, 10 HP, 115 DC.

2—YEOMANS, 135 GPM, 115' head, 3" suction, 3" discharge, with Kimble motor, 10 HP, 230 DC.

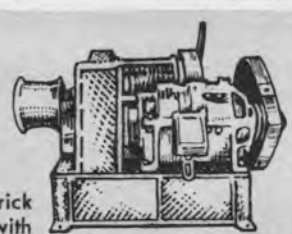
2—WARREN, Size 5, 600 GPM, with Electro-Dynamics motor, 8/4.5 HP, 230 DC.

1—WARREN, 5" suction, 4" discharge, with Reliance motor, 7-½ HP, 115 DC.

1—DAYTON-DOWD, 3" suction, 2-½" discharge, with Crocker-Wheeler motor, 5 HP.

3—INGERSOLL-RAND, Size IMVR, 50 GPM, with Electro Dynamics motor, 3.9 HP, 230 DC.

CARGO WINCHES



American Hoist and Derrick Company Winches with Westinghouse Motors, 50 HP, 230 Volts DC, complete with Contractor Panels, Master Switches, and Resistors.

Single Speed, Single Drum
Two Speed, Single Drum

UNIT WINCHES

American Hoist and Derrick Company

U3H—SINGLE DRUM, Single speed (4)
Line Pull: 7450# - 223 FPM, 6360# - 237 FPM, 3720# - 287 FPM.

U6H—DOUBLE DRUM, Single speed (2)
Line Pull: 7450# - 223 FPM, 6360# - 237 FPM, 3720# - 287 FPM.

U5 -SINGLE DRUM, Two speed (2)
High Speed line Pull: 7450# - 224 FPM, 6360# - 238 FPM, 3720# - 288 FPM,
Low Speed Line Pull: 1100# - 114 FPM, 19000# - 96 FPM (third layer of rope).

Motor: Westinghouse, 50 HP, 230 Volts DC, 1900 RPM, Model 288212, 183 Amperes, compound wound, Frame 9 UW, horizontal.

Unit Winches complete with Contactor Panels, Resistors, Master Switches.

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TERRIFIC INVENTORY... AC & DC

Marine Pumps

1 — FAIRBANKS-MORSE, 250 GPM, 13' head, with Fairbanks-Morse motor, 3.72 HP, 230 DC.

2—WESTCO, 20 GPM, 50 PSI, with Century motors, 1-½ HP, 115 DC.

2—WORTHINGTON, 60 GPM, 23.7 PSI, 2-½" suction, 2" discharge, with Diehl motors, 1.43 HP, 230 DC.

5—WARREN, 4 GPM, 38 PSI, 1-½" suction, 1" discharge, Century motors, 1.25 HP, (3) 230 DC, (2) 115 DC.

3—ALLIS-CHALMERS, 180 GPM, 81' head, 2-½" suction, 2" discharge, with Allis-Chalmers motor, 7-½ HP, 230 DC.

4—ALLIS-CHALMERS, 650 GPM, 29' head, 5" suction, 5" discharge, with Allis-Chalmers motor, 7-½ HP, 230 DC.

2—ALLIS-CHALMERS, 55 GPM, 51' head, 2-½" suction, 2" discharge, with Allis-Chalmers motor, 2 HP, 230 DC.

2—ALDRICH, brine overboard, 30 GPM, 34.5 PSI, 1-¼x1, with 2 HP motor, 230 DC.

1—WORTHINGTON, 30 GPM, 22 PSI, 1-¼x1, with 1 HP motor, 230 DC.

DC PUMPS Vertical Centrifugal

1 — GOULDS, Fig. 3090, 13000 GPM, 24.5' head, size 20, with Reliance motor, 100 HP, 230 DC.

1 — WORTHINGTON, Type 20LAS-1, 13000 GPM, 11.5 PSI, size 20, with Westinghouse motor, 100 HP, 230 DC.

2—ALLIS-CHALMERS, Type LS-V, 12, 550 GPM, 20' head, 20" suction, 20" discharge, with Allis-Chalmers motor, 100 HP, 230 DC.

1—WORTHINGTON FIRE & BUTTERWORTH, size 3UBS, 400 GPM, 300 PSI, with Westinghouse motor, 75 HP, 230 DC.

2—ALLIS-CHALMERS, Type BU-V, 400 GPM, 280' head, 4x3, with Allis-Chalmers motor, 50 HP, 230 DC.

3—WORTHINGTON, size 3UBS, 400 GPM, 280' head, with Westinghouse Motor, 50 HP, 230 DC.

2—BUFFALO, size 3SAV, 400 GPM, 125 TDH, with Electro-Dynamics motor, 50 HP, 230 DC.

1—ALLIS-CHALMERS, Type SE-V, 2820 GPM, 29.2' head, 12" suction, 12" discharge, with Allis-Chalmers motor, 40 HP, 230 DC.

1—DE LAVAL, size 14", 5900 GPM, 25'8" head, with Electro-Dynamics motor, 25/50, 230 DC.

1—DE LAVAL, 400 GPM, 127 PSI, with Electro-Dynamics motor, 25/50 HP, 230 DC.

1—GARDNER-DENVER, 1500 GPM, 56' head, 8" suction, 6" discharge, with Century motor, 30 HP, 230 DC.

1 — INGERSOLL-RAND, size 18VCM, 8500 GPM, with Electro-Dynamics motor, 20/40 HP, 230 DC.

2 — WORTHINGTON, Type 16LAS-2, 5600 GPM, 10 PSI, with G.E. Motor, 20/40 HP, 230 DC.

1 — WORTHINGTON, size 10SLHV, 1500 GPM, with Reliance motor, 25 HP, 230 DC.

1—WORTHINGTON, size 12-LAS-1, 3000 GPM, 25 PSI, with Reliance motor, 25 HP, 230 DC.

1—WORTHINGTON, 8-LS-1, 1800 GPM, 13 PSI, with Westinghouse motor, 20 HP, 230 DC.

4—ALLIS-CHALMERS, Type SGV, 600 GPM, 30 PSI, 5" suction, 5" discharge, with Allis-Chalmers motors, 20 HP, 230 DC.

1—INGERSOLL - RAND, 1050/2000 GPM, 10" suction, 10" discharge, with G.E. motor, 20 HP, 230 DC.

2—WORTHINGTON, submersible, size 5", 600 GPM, 30 PSI, with 20 HP motor, 230 DC.

2—ALLIS-CHALMERS, Type CF-2V, size 6" x 3-½", 170 GPM, 208' head, with Allis-Chalmers motor, 20 HP, 230 DC.

4—WORTHINGTON, size 5LS-1, 415 GPM, 78.5' head, with 20 HP motor, 230 DC.

1—WORTHINGTON, Type 2-½UZS-1, 170 GPM, 75 PSI, with Westinghouse motor, 16.8 HP, 230 DC.

2—WORTHINGTON, 340 GPM, 33.6' head, 6" suction, 3" discharge, with G.E. motor, 15 HP, 230 DC.

1—INGERSOLL-RAND, size 2VHM, 150 GPM, 85 PSI, with Reliance motor, 15 HP, 230 DC.

6—WORTHINGTON, size 2-½UZ1, 120 GPM, 208 head, 15 HP, 230 DC.

1—WORTHINGTON, 5LS, 600 GPM, 18 PSI, with Westinghouse motor, 15 HP, 230 DC.

2—INGERSOLL-RAND, 450 GPM, 15' head, 4" suction, 3" discharge, with G.E. Motor, 10/15 HP, 230 D.C.

2—BUFFALO, size 3SLV, 425 GPM, 35' head, with Electro-Dynamic motor, 7-½/15 HP, 230 DC.

2—ALLIS-CHALMERS, Type CF-2V, 30 GPM, 208' head, with Allis-Chalmers motor, 7-½ HP, 230 DC.

1—DE LAVAL, 1600 GPM, 27' head, with Electro Dynamic motor, 7-½/15 HP, 230 DC.

2—DE LAVAL, 425 GPM, 28' head, with Electro Dynamic motor, 7-½/15 HP, 230 DC.

2—INGERSOLL-RAND, size 8VCM, 1400 GPM, with Electro-Dynamic motor, 5/10 HP, 230 DC.

2—WORTHINGTON, size 8LS-1, 1400 GPM, 10 PSI, with G.E. motor, 5/10 HP, 230 DC.

2—DE LAVAL, 80 GPM, 75 PSI, with Electro-Dynamics motors, 5/10 HP, 230 DC.

2—INGERSOLL-RAND, size 1-½ VBM, 70 GPM, with Electro-Dynamics motor, 5/10 HP, 230 DC.

1—DAYTON DOWD, 30 GPM, 85 PSI, Mod. VHM, with Continental motor, 5 HP, 230 D.C.

2—WORTHINGTON, Type 1-½UZS-3, 20 GPM, 75 PSI, with G. E. Motor, 5 HP, 230 DC.

1—WARREN, size 1-½-2CV-6, 30 GPM, 196' head, with Continental motor, 5 HP, 230 DC.

2—WORTHINGTON, 400 GPM, 13.5' head, 5x4, with Westinghouse motor, 5 HP, 230 DC.

1—DE LAVAL, 25 GPM, 75 PSI, with Electro-Dynamics motor, 2.5/5 HP, 230 DC.

2—WEIL, 20 GPM, 40 PSI, 1-½x1-¼, with G.E. motor, 3 HP, 230 DC.

2—INGERSOLL-RAND, size 1MVR, 20 GPM, with Electro-Dynamic motor, 3/1.5 HP, 230 DC.

DC PUMPS Horizontal Rotary

2—WORTHINGTON, size 5GES, 400 GPM, 50 PSI, with Westinghouse Motor, 20 HP, 230 DC.

1—DE LAVAL, 15 GPM, 350 PSI, 2-½ x2-½, with Diehl motor, 10 HP, 230 DC.

2—VIKING, Type EKK, 60 GPM, 70 PSI, 2x2, with Diehl motor, 5 HP, 230 DC.

2—NATIONAL TRANSIT, 50 GPM, 50 PSI, 34 HP, 230 DC.

DC PUMPS Vertical Rotary

4 — QUIMBY, size 5, 400 GPM, 60 PSI, 6x5, with Westinghouse motor, 30 HP, 230 DC.

2 — QUIMBY, size 5, 400 GPM, 48 PSI, 6x5, 25 HP, 230 DC.

3 — WORTHINGTON, Mod. 4GRVS, 225 GPM, 35 PSI, with G.E. motors, 15/20 HP, 230 DC.

2—DE LAVAL—IMO, 250 GPM, 40 PSI, 15 HP, 230 DC.

2—QUIMBY, size 4D, 225 GPM, 50 PSI, 15 HP, 230 DC.

2—DE LAVAL, 325 GPM, 40 PSI, 15 HP, 230 D.C.

1—QUIMBY, size 2-½, 20 GPM, 400 PSI, 10 HP, 230 DC.

1—DE LAVAL, 175 GPM, 42 PSI, 10 HP, 230 DC.

1—DE LAVAL, 225 GPM, 35 PSI, 7.5/15 HP, 230 DC.

1—QUIMBY, size 4, 175 GPM, with Electro-Dynamics Motor, 7-½/10 HP, 230 DC.

1—DELAVAL, 13 GPM, 400 PSI, with Westinghouse motor, 7.5 HP, 230 DC.

2—WORTHINGTON, Type 3GRVS, 90 GPM, 75 PSI, with Diehl motor, 7-½ HP, 230 DC.

1—DE LAVAL, 8 GPM, 400 PSI, with Electro-Dynamics motor, 5 HP, 230 DC.

1—WORTHINGTON, Type 2GRVS, 7 GPM, 400 PSI, with G.E. Motor, 2.5/5 HP, 230 DC.

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USED, GOOD QUALITY . . . SAVE!

2,000 pound size
3,000 pound size
8,000 pound size
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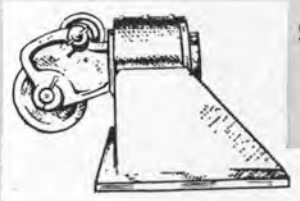
One size fairlead with universal type sheave to accommodate wire rope sizes 1" up to and including 2".

Self Aligning, Swivel Type Head.

Dependable and Ruggedly built to perform consistently year after year with minimum maintenance.



Standard Design $995 each

Deluxe Design $1250 each

Model Design $1350 each

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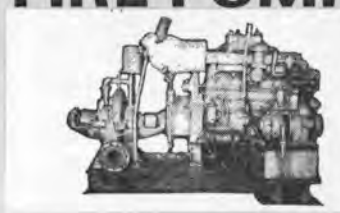
FIRE PUMPS



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LIFTING RATE: 25 tons at 50 Ft. Radius at 50 to 60 FPM.

BOOM: 80' to headblock (with 10' whip)

WHIP: 10 tons at 125 FPM—2 part line

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MOTORS: Each leg (4 tot.) 7½ HP, 230 DC.

POWER: Diesel electric (DC)

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120' x 32' — 120' x 40' — 120' x 45' — 140' x 34' — 160' x 50'

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Two Hatches, Approx. 20,000 cu. ft.
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Westinghouse (Victory type)	300 KW
Westinghouse	250 KW
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Westinghouse CA 20	100 HP
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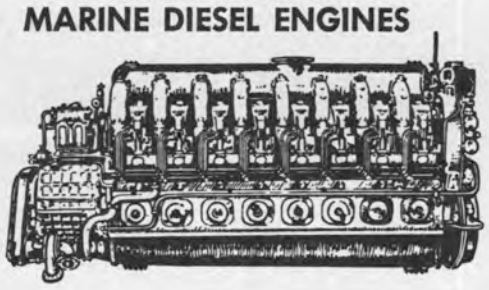

2–G.M. Model 16-278, 16 Cylinders, 1600 H.P., 750 RPM Used, Very Good **$3950 ea.**

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6 –Fairbanks-Morse
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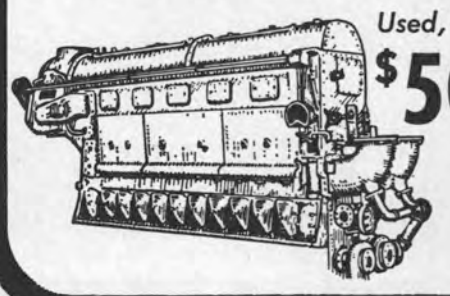

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Reconditioned with A.B.S. Certificate
Ingalls Hull #267

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Pressure 1000, Westinghouse Motor
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49 Amps, 3 Phase 60 Cyl.

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Bethlehem 17,500 SHP
Low Pressure, Complete
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102 RPM Output, Complete with spares

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From 2 HP to 50 HP

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1750 RPM 32-5 Amps

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General Electric, 6000 HP, AC Motor
New-unused, Type TSM-HL-80,
Synchronous Type, 2300 Volts, 60 Cycles, 3 Phase, 1160 Amps 90 RPM

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C-2 SB1 BRONZE PROPELLER

C-2 SB1 RUDDERS

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Farboil Company, 90 West St., N.Y., N.Y. 10006
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RPC Corp., Marine Sales, 200 Park Ave., New York, N.Y. 10017
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General Electric Industry Control Dept., Salem, Virginia
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Kongsberg Systems, Inc., 10 De Angelo Dr., Bedford, Mass. 01703
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

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Kiene Diesel Accessories, Inc., P.O. Box 216, Franklin Park, Ill. 60131

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ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
Paul J. Plishner, 45 West 45 St., New York, N.Y. 10036
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
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Humble Oil & Refining Co., Humble Building, Houston, Texas 77002
Mobil Oil Corp., 26 Broadway, New York, N.Y. 10004
Refineria Panama, S. A., 277 Park Ave., New York, N.Y. 10017
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Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
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Mobil Chemical Company, Metuchen, N.J. 08840
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
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Shell Oil Co., 50 W. 50 St., New York, N.Y. 10020
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.

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Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936
Rotocast Plastic Products, Inc., 6700 N.W. 36th Ave., Miami, Florida 33147

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Hemisphere Marine Chemicals Co., Inc., 300 Main St., Orange, N.J.
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Coolidge Propeller Co., 1608 Fairview Ave. E., Seattle, Wash. 98102
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
Ferguson Propeller, 1132 Clinton St., Hoboken, N.J. 07030

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Houttin-Pompen N. V. Sophialaan 4, Utrecht, Holland
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Samson Cordage Works, 470 Atlantic Ave., Boston, Mass. 02210
Tubbs Cordage Company, P.O. Box 709, Orange, Calif. 92669
Wall Rope Works, Inc., Beverly, N. J. 08010

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Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
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Youngstown Welding & Engineering Co., 3708 Oakwood Ave., Youngstown, Ohio 44509

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National Metal & Steel Corp., 1251 New Dock St., Terminal Island, Cal. 90731
Northern Metal Co., Minor & Bleigh Sts., Philadelphia, Pa. 19136
Peck Equipment Co., 3500 Elm Ave., Portsmouth, Va. 23704
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

SHIP BROKERS
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006
Oaksmith Boat Sales, Inc., Fisherman's Terminal, Seattle, Wash. 98119

SHIPBUILDING STEEL
Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh, Pa. 15219
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
Huntington Alloy Products, Div. International Nickel Co., Inc., Huntington, W. Va. 25720
International Nickel Co., 1 New York Plaza, New York, N.Y. 10004

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Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Dillingham Corp., P.O. Box 3288, Honolulu, Hawaii 96801
Drava Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gotaverken American Corp., 39 Broadway, New York, N.Y. 10006
Grafton Boat Co., Inc., Grafton, Ill. 62037
Groignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.
Gunderson Bros. Engrg. Corp., 4700 N.W. Front St., Portland, Oregon 97208
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hitachi Shipbuilding Co.,25 Nakanoshima2-chomeKitaku,Osaka-Japan
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