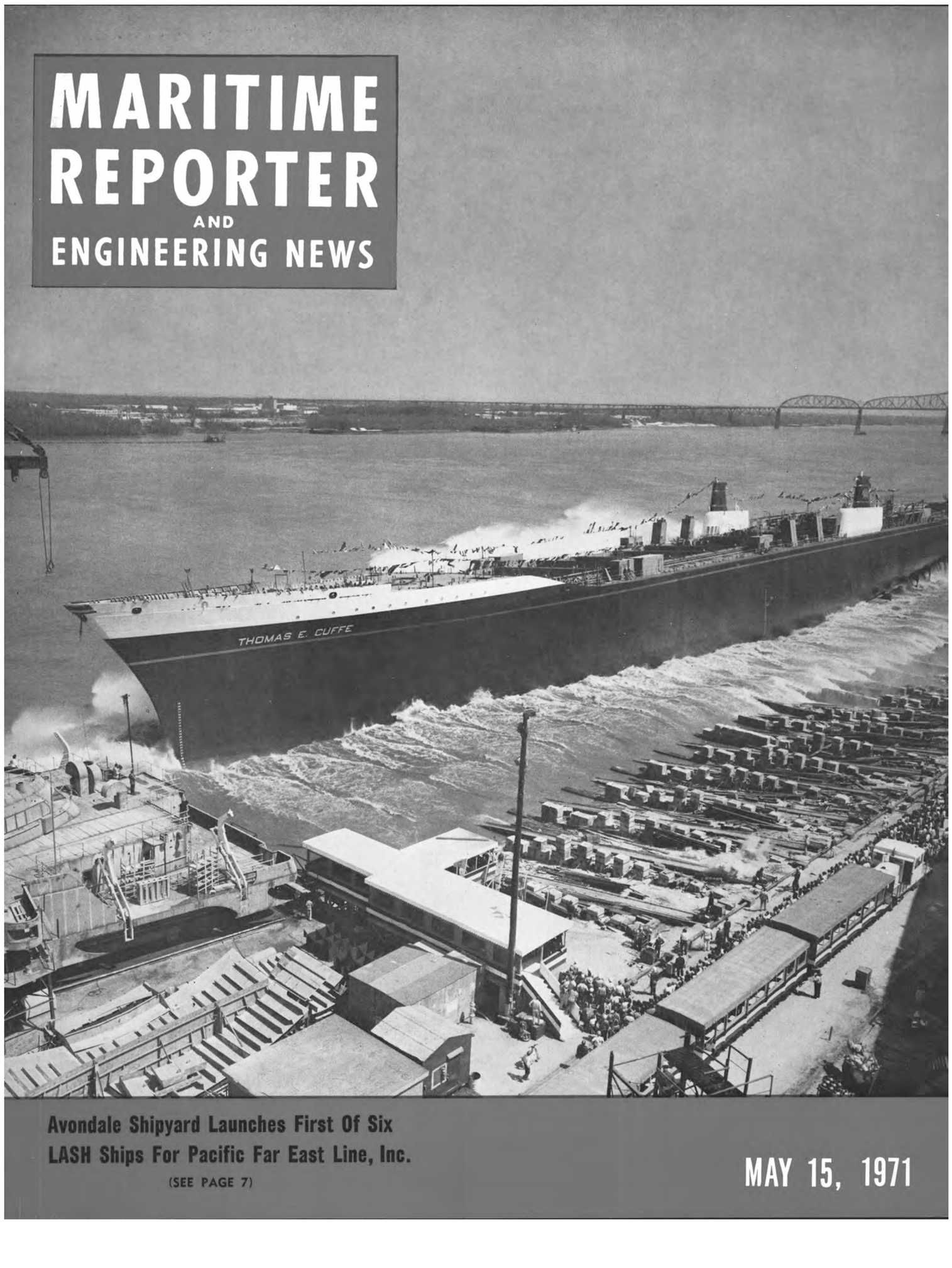
# MARITIME REPORTER
AND
# ENGINEERING NEWS




**Avondale Shipyard Launches First Of Six LASH Ships For Pacific Far East Line, Inc.**

(SEE PAGE 7)

MAY 15, 1971

# AMERICAN®
## SQUARE BRAIDED NYLON
# *Scores on a "technical" KO!*

## LET'S LOOK AT THE CARD...

| | AMERICAN® SQUARE BRAID NYLON | ROUND BRAID NYLON (braid over braid) |
|---|---|---|
| Round 1 — Lowest Cost | YES... as much as 18%. | * |
| 2 — Safer | YES... strand construction permits easy inspection for internal wear. | NO... "woven cover" construction conceals internal defects. |
| 3 — Easy Splicing | YES... anytime, by average deck hand. | NO... particularly difficult after use due to hardening and fusing of fibers. |
| 4 — Sheds water and dirt | YES... water and foreign materials pass between the strands. | NO... traps water and dirt causing freezing and internal wear. |
| 5 — Non-kinking | YES... defies kinking and hockling. Minimizes need for special handling. | NO... the internal yarns become twisted inside the cover. |
| 6 — Physically Fit | YES... sturdy working strands even out the working stresses. | NO... when the cover yarns go, the rope is finished. |
| 7 — Stronger | YES... American's special 8-strand nylon rope provides highest breaking strength. | * |
| 8 — Longer Life | YES... by far. | * |
| 9 — Easy to Handle | YES... sheds moisture and remains light. | NO... picks up extra weight when wet. Freezes. |

*NO CONTEST

What's more, our AMERICAN® 3-STRAND TWISTED ROPE will also take on all comers... and LET YOU BE THE JUDGE because AMERICAN ROPES have more going for them in every way.

AMCO

**AMERICAN**
MANUFACTURING COMPANY, INC.
Noble and West Streets, Brooklyn, New York 11222
ROPE • TWINE • OAKUM • STRAPPING

Mid-Western Division: ST. LOUIS CORDAGE MILLS, St. Louis, Mo. 63104
SALES OFFICES: BOSTON • CHICAGO • HOUSTON • NEW ORLEANS • PHILADELPHIA • SAN FRANCISCO

# Cristoforo Colombo discovers the new McAllister.


## Docking and undocking now faster, more efficient than ever.

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

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

## Mac has the knack.

## LeTourneau To Build $9.5 Million Rig For Fluor Drilling Services

**Ross McClintock,** senior vice president of Fluor Corporation and president of Fluor Drilling Services, Inc., has announced the signing of a contract with LeTourneau Offshore, Inc., for construction of a 300-foot, self-elevating jack-up drilling rig costing $9.5 million.

The new rig is being designed to operate in 300-foot water depths and is initially scheduled to work in the Gulf of Mexico. Diesel-electric power will supply a total of 8,800 hp, the greatest horsepower yet installed in a rig of this type. Construction will start immediately at LeTourneau's Vicksburg, Miss., yard. The rig is scheduled to be operational in May 1972.

Fluor Drilling Services is the international drilling subsidiary of Fluor Corporation.

## Newport, R.I. Shipyard Offers Two Brochures

Newport Ship Yard, Inc., of Newport, R.I., has announced that the 137-year-old firm has two recently produced brochures available to those in the marine industry interested in their facilities and services.

Famous as the "Home of America's Cup Defenders and Challengers" since the 1930s, the shipyard has dynamically faced the ever-increasing needs of commercial, military and pleasure craft customers. An expansion program has enabled Newport Ship Yard recently to establish a Custom Boatbuilding Division with capability in aluminum, steel and wood.

Those desiring the company brochures may write to 379 Thames Street, Newport, R.I. 02840.

## Blue Water Marine Publishes New Bulletin

An eight-page, two-color Bulletin 571 describing the services and lines of equipment and supply is available from Blue Water Marine Supply, Inc., P.O. Box 5457, Houston, Texas 77012.

Major categories included in the bulletin containing 22 photographic illustrations are specialty and pollution control items, towing, fishing, dredging and work boat equipment and supplies, and equipment packaging for offshore operations. Also featured is a table showing anchor chain, wire rope and cordage sizes required for given breaking loads of from 25 to 1,200 tons.




**MARITIME REPORTER AND ENGINEERING NEWS**

No. 10 Volume 33

**107 EAST 31st STREET**
**NEW YORK, N. Y. 10016**

MUrray Hill 9-3266, 3267, 3268, 3269

ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc., with executive, advertising and editorial offices at 107 East 31st Street, New York, N. Y. 10016; publishing office at 41 First Street, Hoboken, New Jersey 07030

Controlled Circulation postage paid at Hoboken, New Jersey 07030

Member BPA Business Publications Audit of Circulation, Inc.

# Dravo tank barges are custom-designed for a long, hard life.

Dravo tank barges are engineered and constructed to meet time-proven requirements for long service life. They are ruggedly built to stand up under constant heavy usage.

And when individual requirements or specifications call for modifications, Dravo has the capability and experience to custom build a tank barge that will move your liquids faster and at a lower operating cost.

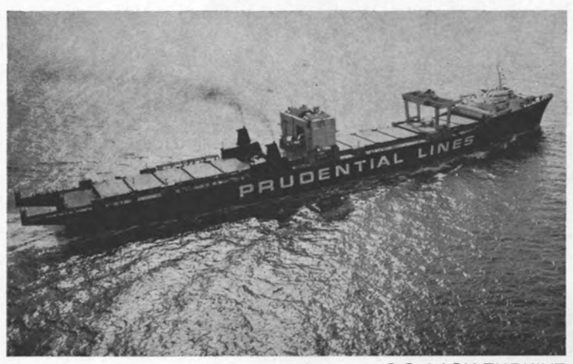
If you're in the market for tank barges, write for our new brochure. It will tell you why Dravo tank barges are your best investment. Write to N. B. Mortimer, Dravo Corporation, Marine Sales Department, Neville Island, Pittsburgh, Pa. 15225.

Dravo

A company of uncommon enterprise

# The LASH fleet grows

M.V. ACADIA FOREST




S.S. LASH TURKIYE

M.V. ATLANTIC FOREST

S.S. LASH ITALIA

You're looking at the first four LASH ships in active service. Eleven more are under construction. And construction negotiations for many more are underway. It is estimated that a new LASH ship will enter active service every 60 days for the next several years, providing service for all principal trade routes. Truly, this is the decade of the LASH ship. Contact us for particulars.

**LASH SYSTEMS, INC.**

*SUITE 1414, 225 BARONNE ST., NEW ORLEANS, LOUSIANA, U.S.A.*

# The SS Thomas E. Cuffe

## Pacific Far East Line Celebrates Its Silver Anniversary Year With The Launching Of The First Of Six LASH Ships For Use In The Pacific

The traditional bottle of champagne recently launched Pacific Far East Line's revolutionary SS Thomas E. Cuffe, the first of six LASH ships that will make a new wave in Pacific Ocean cargo shipping. The Thomas E. Cuffe also added a big lift to Pacific Far East Line's celebration of its silver anniversary.

At ceremonies at Avondale Shipyards, New Orleans, La. **Mrs. Mary Cuffe Walker,** daughter of the late founder of PFEL, **Thomas E. Cuffe,** sent the ship splashing into the Mississippi River in a side-launch when she broke the champagne bottle against the bow of the 820-foot vessel. Matron of honor was **Mrs. Claire E. Cuffe,** Mr. **Cuffe's** widow.

**Henry Zac Carter,** president and chairman of the board of Avondale Shipyards, Inc., served as master of ceremonies during the launching. **Leo C. Ross,** president, Pacific Far East Line, spoke briefly on the shipping line's future plans. **Thomas E. Cuffe,** son of the late **Thomas E. Cuffe,** delivered the dedication speech.

The SS Thomas E. Cuffe will be the first of a fleet of six LASH ships sailing the Pacific Ocean from West Coast ports to ports in the Orient. The entire fleet will be owned and operated by Pacific Far East Line, a rapidly expanding San Francisco-based steamship firm which earlier this year purchased the luxury liners Mariposa and Monterey, the freighters Sonoma and Ventura in the South Pacific service, and the assumption of shipyard contracts for two containerships from Matson Navigation Company.

LASH, an acronym for Lighters Aboard Ship, represents a bold innovation in cargo shipping. The huge, LASH ships move cargo in 61-foot seaworthy lighters (barges). The lighters, with their cargo, are lifted from the ship by an onboard crane and released in the water to be moved either to docks or inland ports, making the ship completely self-sustaining. To load the ship the procedure is reversed. An entire LASH ship with a capacity of 1.3 million bale cubic feet of cargo space can be loaded in a period of 24 hours.

Following fitting out at Avondale, the Thomas E. Cuffe will be delivered to PFEL in July of this year. After this ship will be five LASH sisterships with names carrying the traditional word "Bear" for PFEL ships: Golden Bear, Pacific Bear, Japan Bear, China Bear, and Philippine Bear.

Principals at the launching of the Thomas E. Cuffe were, left to right: **Henry Zac Carter,** president and chairman of the Board of Avondale Shipyards; **Thomas E. Cuffe,** dedication speaker and son of the founder of Pacific Far East Line for whom the ship was named; **Mrs. Mary Cuffe Walker,** sponsor, and **Leo C. Ross,** president, Pacific Far East Line.

With the Thomas E. Cuffe in the background, **Jerome L. Goldman** (left), of the New Orleans naval architectural firm of Friede & Goldman, Inc., and inventor of the LASH System, discusses some of the features of the ship with **Leo C. Ross,** PFEL president, and **Mrs. Mary Cuffe Walker,** sponsor and daughter of the late **Thomas E. Cuffe.**

Ships of the lighter-aboard-ship variety operate on a totally new concept that uses water to move, not only the lighter-filled "mother" ship, but the 61-foot lighters. International shipbuilders, owners and shippers are watching the new LASH concept in the knowledge that a revolutionary era in maritime history may well be at hand. LASH vessels are considered as a possible solution to world-dock congestion problems that have lengthened turn-around time for ordinary freighters. The PFEL Lash ships, with a service speed of 23 knots and a gross tonnage of 26,400 tons, make the new ship one of the largest and fastest freighters in the world.

**Principal Characteristics**

| | |
|---|---|
| Length overall | 820 feet |
| Length bet. perps. | 724 feet |
| Breadth, molded | 100 feet |
| Draft, design | 28 feet |
| Lightship weight, approx. | 14,786 L. tons |
| Gross tonnage | 26,406.5 tons |
| Net tonnage | 18,706 tons |
| Total deadweight, design draft | 17,686 L. tons |
| Total deadweight, summer draft | 29,820 L. tons |
| Displacement, design draft | 32,650 L. tons |
| Displacement, summer draft | 44,606 L. tons |
| Cargo capacity: | |
| 49 barges @ 19,562 cu. ft. | |
| 334 containers @ 1,050 cu. ft. | |
| Total capacity | 1,309,238 cu. ft. |
| Shaft horsepower | 32,000 |
| Sustained speed, design draft | 22.5 knots |

Beyond that, the PFEL LASH ships will use an advanced system for loading and unloading. The operation will take place through a rectangular open bay at the stern. Barge-like lighters, each holding 415 tons of cargo, will be floated into the bay. They will be lifted to deck level by a 500-ton deck-straddling crane. The crane will then carry a lighter to an open hold and deposit it and return for another pick-up.

Working at a deliberate pace, the lighter crane is capable of loading or unloading lighters at a rate of four per hour, or the potential of moving 1,660 tons of cargo in 60 minutes. This massive traveling crane will be supplemented by a gantry crane of 35-ton capacity for handling standard containers. The gantry crane works over the ship's side independently and without interfering with the lighter crane.

A LASH "mother" ship, working both lighter crane and gantry crane, can be loaded to capacity in 24 hours. Conventional ships take 10 days to load an equivalent amount of cargo.

The time a ship spends in port, considered a necessary evil by shippers, will be greatly reduced for LASH ships. Tugboats, available night and day, will move the floating lighters directly to piers immediately upon arrival of the ship. Lighters that have been preloaded will be brought to the ship and put aboard. In a fraction of the time it would take normal ships, the LASH ship completes its work and sails off to its next port of call.

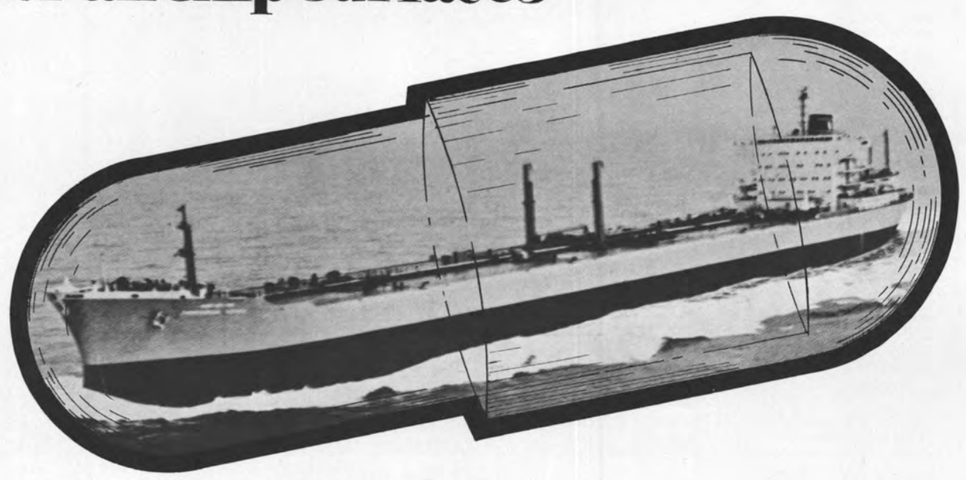
With a price tag in excess of $23 million each, Pacific Far East Line considers its investment in the LASH fleet a wise one. The company has calculated six LASH ships will carry more tonnage in a year than 10 conventional freighters, and will do so with a schedule of arrivals and departures as neat as a passenger liner.

The design of the LASH ship, beyond its unusual stern, is of single-deck construction with large hatches and wing tanks, built much like the economical bulk carrier. Navigational facilities are forward on the ship and will be equipped with modern instruments.

The LASH lighters are all-welded steel box barges that perform the function of being floating containers. The holds themselves are

(Continued on page 9)

# Specify Carboline!
# ONE SOURCE total protection for all ship surfaces



## The most complete line of protective coatings in the world - plus worldwide servicing!

Over the last 25 years, Carboline has developed and marketed a complete line of marine coatings. These high quality materials — and Carboline's expert technical servicing are available in major ports all over the world. Ship owners and operators now can protect their vessels — keel to mast tip, bow to stern with coatings from one reliable source — **Carboline.**

Carboline coatings have been **proven** throughout many years of marine exposure on all types of ship areas. For example:

On hulls, weather decks and superstructures, Carboline's inorganic zinc, epoxy and chlorinated rubber systems are highly resistant to severe salt atmosphere . . . and hard, tough, epoxy tar hull systems withstand sea water attack, erosion and abrasion.

Carboline's subsidiary, Admiral Paint Co., manufactures marine alkyd enamels — long recognized for their excellent quality and economy.

For tanks, Carboline's inorganic zinc, modified phenolic, epoxy and polyester linings prevent steel loss and protect against product contamination — whether high purity or corrosive cargoes are being shipped.

On surfaces where high cavitation occurs; rudders, bow thruster tunnels, etc., Carboline flake glass polyester is the surest solution to the problem. The complete Carboline line also includes caulking compounds, adhesives, hull smoothing compounds, high temperature and anti-foul coatings — all of proven quality and dependability.

This combination of a complete selection of marine coatings and expert technical servicing in major foreign and domestic ports gives ship owners and operators the advantage of one simple answer to any protective coating problem.

carboline®

328 HANLEY INDUSTRIAL CT., ST. LOUIS, MISSOURI 63144


**WRITE FOR TOTALLY NEW MARINE GUIDE:**

This newly prepared manual is the most comprehensive guide on protective coatings ever developed in the industry. Illustrated throughout, it lists specific coating recommendations for specific areas, describes systems for both new construction and maintenance. Tank lining charts and foreign servicing data are included. Request your copy now.

## SS Thomas E. Cuffe

(Continued from page 7)

perfectly clear rectangular spaces, completely free of pillars, frames or brackets. Their hatches are of steel, quick-acting weather-tight, and suitable for inland harbor and river towing. The lighters are 61 feet long, 31 feet wide, 13 feet deep, and have approximately 20,000 bale cubic feet of space.

The LASH crane is mounted on heavy-duty rails on deck over heavy longitudinal bulkheads. It has four independent gantry drives which move it back and forth. The crane hoists its loads with four drums and four pairs of blocks. Eash hoist is driven by its own electric motor. Even if two of its drives and two of its hoists went out of service, the crane would be capable of operating, but at a slower pace.

The design and manufacturing criteria for the crane, according to LASH inventor **Jerome L. Goldman,** president of LASH Systems, Inc., is of an order of reliability superior to the ship's main powerplant — which is a steam-turbine, single-screw, 32,000-shp unit.

The crane has a constant-tension feature that eliminates the danger of the hoisting cables being alternatively slack and snapped tight. Motion between the ship and lighter up to four feet in periods as brief as five seconds can be accommodated. Because of this kind of engineering, a LASH ship can successfully operate in semi-protected and even open-water conditions.

Pacific Far East Line's confidence in the LASH system comes from the knowledge that these ships do not have to conform to conventional shipping patterns. The lighters can be preloaded while the "mother" ship is at sea and during off-peak hours, thus reducing if not completely eliminating the possibility of delays due to labor shortages. Because LASH ships can handle their cargo of lighters and containers alongside a pier or at any appropriate anchorage within the port harbor area, cargoes will not be delayed by port congestion—a problem becoming more commonplace with conventional ships as trade in the Pacific increases.

San Francisco is building a 48-acre LASH terminal at Pier 98 at a cost of $21.5 million for this service. Completion of the pier and supporting facilities is scheduled for late this year.

As to labor shortages and their effect on cargoes, the relatively fewer number of persons required for specialized stevedore operations should substantially reduce this risk to near zero.

Avoiding cargo-transfer delays from labor or pier-space shortages permits the LASH ship to proceed to its next port of call with regularity and strict adherence to schedules.

Pacific Far East Line anticipates other savings and advantages to itself and its customers once the new ships are fully in operation and procedures are firmly established.

Operating under a standard lighter-container complement, a LASH vessel offers shippers the options of:

1. Lighters towed to his loading site that can be loaded or unloaded at his convenience; all can be ventilated or dehumidified onboard ship.
2. Containers for over-the-road, door-to-door delivery of any type of cargo.
3. Loose general cargo or bulk cargo in virtually any amount.
4. 1,000 tons of liquid cargoes shipped in four stainless-steel tanks with their own pump and piping systems.
5. On-deck shipping of excessively large cargo—machinery, piling, etc.
6. Palletized or unitized cargoes, industrial or consumer goods, foodstuffs or raw materials.
7. Underdeck LASH lighter bills of lading may be issued as soon as the shipment is loaded at the lighter freight station, permitting suppliers to negotiate letters of credit several days earlier than usual and importers to know that custody of the goods has been taken over by the steamship company.

Artist's rendering of the world's first LASH terminal being built in San Francisco for Pacific Far East Line. This view shows: 1. lighter storage basin, 2. two heavy-lift cranes of 50-ton capacity each, 3. lighter maintenance yard, 4. service building, 5. lighter freight station, 6. administration building, 7. container freight station, 8. container yard, 9. container crane, and 10. tug pushing seaworthy lighter. Cost of terminal is $21.5 million.

### Silver Anniversary

That the San Francisco-based steamship company enters a silver anniversary year in 1971 could class Pacific Far East Line as a youngster compared to companies who trace their lineage to the days of square riggers. But rather than follow a traditional path of normal growth, PFEL has displayed the vigor and optimism of youth, and has used the technology of this century to move with new concepts in shipping. PFEL was a pioneer in containerized cargo service to countries in the Orient.

The firm also was the first company to contract for the construction of the large, fast Mariner-class ships. With the Mariners, PFEL introduced new cargo-handling methods, including: automatic hatch covers, bulk-cargo unloaders, tripling of refrigerated-cargo capacity, air conditioning, and luxurious accommodations for cargo-liner passengers.

Pacific Far East Line, whose colors are blue and gold and the stack insignia is the California Bear, was formed in July 1946 to provide trans-Pacific American-flag steamship service. Operations were begun with ships chartered from the U.S. government. A year later five C-2 type cargo vessels had been purchased to supplement the chartered fleet.

In a period of four years PFEL was sailing some 50 vessels.

In the same time PFEL service had been extended to the Indian Ocean, the Persian Gulf and, for a time, to the Near East—a temporary service of hauling steel, pipe and construction material for the trans-Arabian pipeline.

During the 1950s PFEL purchased more vessels and on January 1, 1952 was awarded an operating-subsidy contract on Trade Route 29 by the government. This contract with the U.S. government committed the company to a multi-million dollar ship replacement program, with all ships to be built in the United States.

The shipping firm immediately contracted for the purchase of three Mariner ships then under construction in Bethlehem Steel Company's San Francisco shipyard. These three ships—the Golden Bear, Japan Bear and Korean Bear—were modified from the standard Mariner class at the request of PFEL.

The firm further modified its new ships for efficient handling of cargo in vans. During the following two years more than $1.5 million was invested in the containerization program. Containers with capacities of from five to 20 tons and for carrying dry and refrigerated cargoes were developed. Cattle vans were designed and built to better move livestock across the ocean.

Pacific Far East Line took action in 1955 to move from private to public ownership by offering $3 million in preferred and common stock to the public. This additional financing was invested in the company's accelerated ship-replacement program.

In 1967 PFEL committed itself to a vessel-replacement program with the LASH ships at a total cost of approximately $100 million.

Cooperating in this move is the Port of San Francisco with the construction of the world's first LASH terminal. This specially designed and constructed terminal to expedite PFEL's LASH cargo lighters and standard containers will be completed at San Francisco's India Basin this fall. The $21.5 million terminal will be the home base for PFEL's fleet.

The 48-acre land portion of the terminal will contain ample acreage for standard container storage, a 300,000 square foot transit shed with 18 lighter cargo stations, a 10-acre lighter storage basin, and two large berths with prestressed wharves. The site is designated as future Pier 96 of the Port of San Francisco.

Another of the firm's recent strides in fleet and service expansion was the purchase of Matson Navigation Company's South Pacific passenger and freight service. Included in the purchase were the luxury liners Mariposa and Monterey, the freighters Ventura and Sonoma, and the assumption of the contracts with Bethlehem Steel Company's Sparrows Point shipyard of two 22,400-ton Enterprise-class containerships.

The Mariposa and Monterey come to PFEL from a long and distinguished heritage of the finest that life at sea has to offer. The sleek white ships sail the South Pacific, to Alaska, and ports in Hawaii and Mediterranean under a PFEL flag, and in the exact tradition of luxury afloat that has characterized cruising through the years.

The rapid rise to become a leading carrier in the American Merchant Marine, and the many innovations contributed to the shipping industry, are indicators of progressive and sound management. PFEL executives have well earned the reputation as a management team of innovators.

Making the silver anniversary year a memorable one for the firm was the launching of the Thomas E. Cuffe and the future launchings this year of the Golden Bear and the Pacific Bear.

## International Mineral Transport Symposium To Be Held In Vancouver October 20-23

The volume of minerals transported by truck, railroad, barge, pipeline, and ocean carrier is accelerating annually. Mineral producers, carriers, and receivers are realizing the increasing importance of streamlining methods and adopting systems to reduce shipping costs and minimize losses.

Because of increasing interest in this heretofore neglected sector of the world's mineral industry, World Mining and affiliated shipping groups are sponsoring an International Symposium on the Transport and Handling of Minerals, October 20 through October 23, 1971, in Vancouver, British Columbia. Vancouver has been selected as the site for the symposium because of the great variety of mineral products shipped to and through the greater harbor area and to many parts of the world.

Papers will be presented by experts in the following fields: (1) "Integrated Transport Systems and New Methods of Shipment," subjects will include slurry transport (overland and marine), bone-dry shipment, containerization; (2) "Preparing Concentrates To Fit New Systems," subjects will include new drying methods, agglomeration techniques, and advantages for long distance transport; (3) "Problems in Minerals Transport," subjects will include autogenous heating, prevention of cargo shifting, high tonnage on-highway haulage, handling and transshipment in Japan; (4) "Modern Bulk Terminal and Port Operation," and (5) "Commercial and Contractual Arrangements," subjects will include legal considerations, commingling of mineral products, sampling techniques.

A special feature of the symposium will be field trips to mineral handling installations and marine terminals in the greater Vancouver harbor area, which ship base metal concentrates, coal, potash, and sulphur.

Further details can be obtained by contacting the Symposium Secretary, 1596 Esquimalt Avenue, West Vancouver, British Columbia.



## Newport News Ship Names Equal Opportunity Coordinator

James N. Harris

Sylvester H. Newsome

The appointment of a new equal opportunity coordinator on the general manager's staff, and promotion of the former coordinator to general foreman has been announced by Newport News Shipbuilding, Newport News, Va.

**James N. Harris** joins the staff of shipyard general manager **R.S. Plummer,** replacing **Sylvester H. Newsome,** who has been named general foreman in the riggers department. In his new position, Mr. **Harris** will be involved with the Tenneco subsidiary's affirmative action program.

A native of Courtland, Va., Mr. **Harris** graduated from George P. Phenix High School in Hampton in 1954. He has attended Norfolk State College for the past three years, majoring in industrial arts education. Currently, he is working toward a degree in business administration.

Mr. **Harris** joined Newport News Shipbuilding in March 1957 as a shipfitter. In October 1969, he transferred to the industrial engineering division, where he worked as a time study analyst until his present appointment.

Mr. **Newsome,** a native of Hampton, also graduated from Phenix High School in 1954. He majored in physical education at Norfolk State College, where he is now studying business administration.

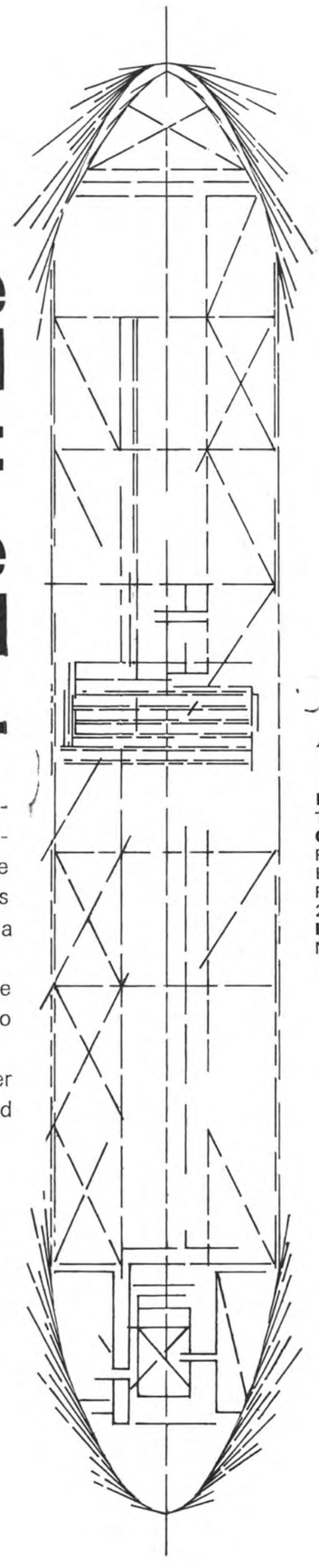
Mr. **Newsome** joined the riggers department at the shipyard in 1960 and was promoted to supervisor in 1967. He took over the duties of equal opportunity coordinator in June of last year.

## Skagit Corporation Builds Shallow Draft Towboat

Pull-And-Be-Damned, a 31-foot towboat (shown above), was recently completed and launched by the Skagit Corporation, a subsidiary of The Bendix Corporation. Weighing 17 tons, the towboat's corten steel hull and aluminum pilothouse were fabricated in the company's Sedro Woolley, Wash., assembly shops, and truck transported to the launch site over 20 miles away. The Pull-And-Be-Damned was designed by Robert Allan, Ltd. of Vancouver, British Columbia, for Dunlap Towing Company, La Conner, Wash., and will see service in the Swinomish Channel and Puget Sound areas for rafting and towing logs. Drawing just four feet, the Pull-And-Be-Damned marks a first in the 75-year history of the firm, which is noted for its manufacture of logging equipment, construction hoists and marine deck machinery. The vessel was named after a landfall point on the Swinomish Indian Reservation, located on the shores of Puget Sound where the vessel will operate.

# we've integrated electronically:

# we've computerized shipbuilding.



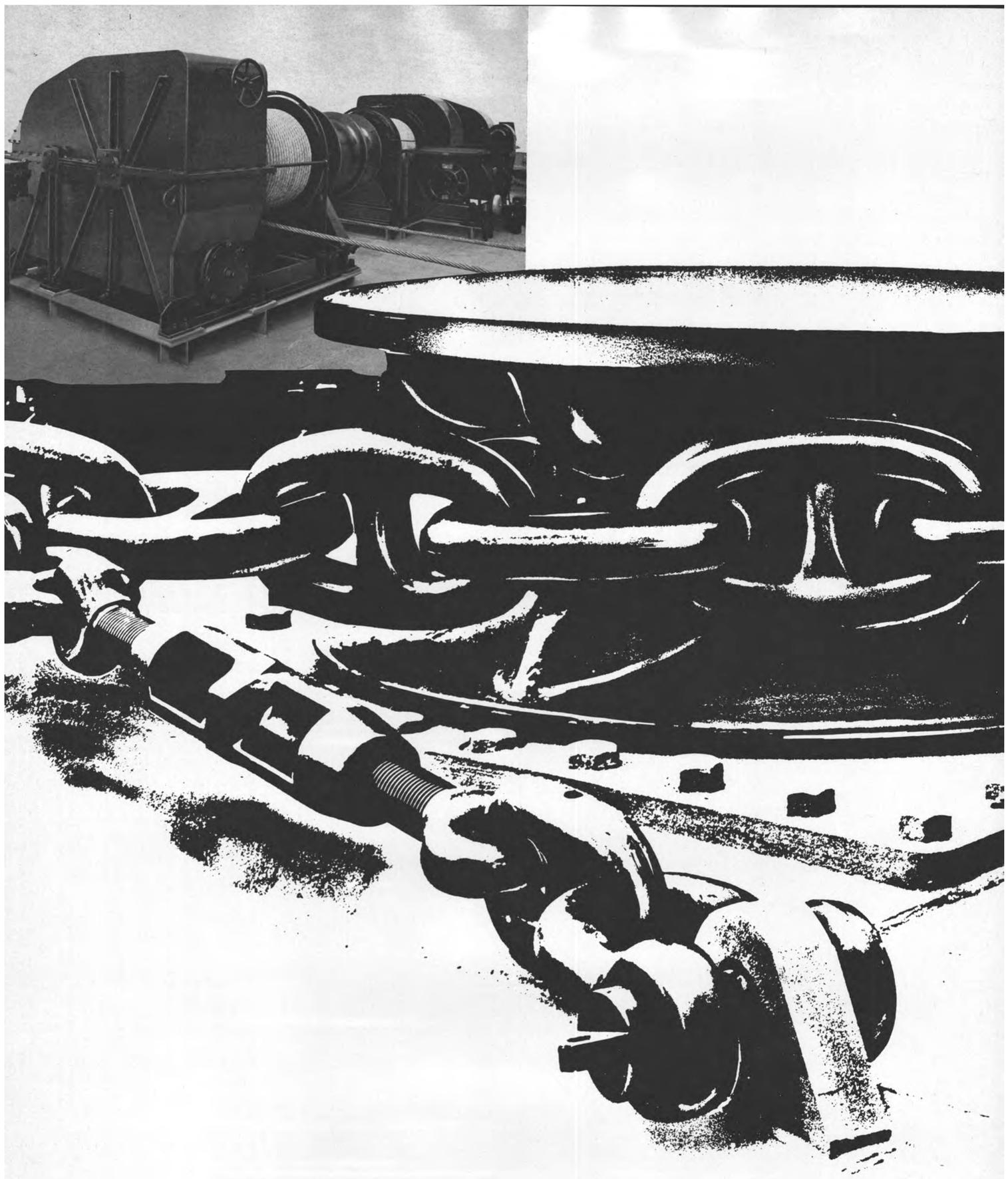
Computers help a lot to rationalize the procedures in shipbuilding. We use them in the process of designing, production and schedule control, material distribution, and the various other essential steps necessary for building a fine vessel.

The results are quite remarkable: absolute precision is a matter of routine, and things go faster than ever before.

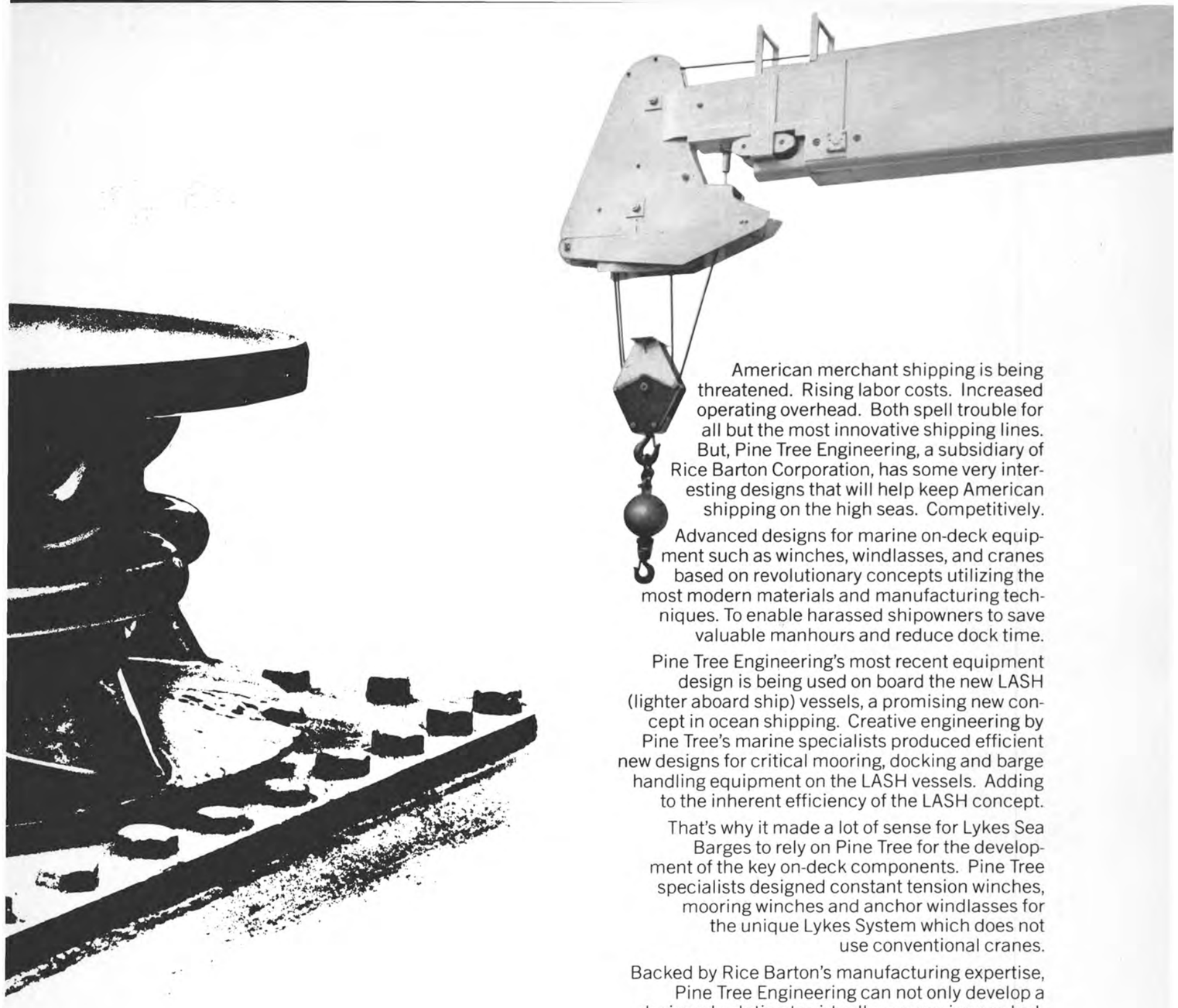
And what goes for the ships, goes for power plants and machinery. Trust an integrated company to do an integrated job.

**MITSUBISHI HEAVY INDUSTRIES, LTD.**

**Head Office:** 5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan Phone: Tokyo 212-3111 **New York Office:** 277 Park Ave., New York, N.Y. 10017, U.S.A. Phone: 826-2188 **London Office:** Bow Bells House, Bread Street, (Chapside). London, E.C.4, England. Phone: 248-8821 **Oslo Representative:** Tollbugata 28, Oslo, Norway Phone: Oslo 41.30.89 **Hong Kong Representative:** 6th Floor, St. George's Building, No. 2, Ice House Street Hong Kong Phone: 231275



**Pine Tree Engineering has designs**





American merchant shipping is being threatened. Rising labor costs. Increased operating overhead. Both spell trouble for all but the most innovative shipping lines. But, Pine Tree Engineering, a subsidiary of Rice Barton Corporation, has some very interesting designs that will help keep American shipping on the high seas. Competitively.

Advanced designs for marine on-deck equipment such as winches, windlasses, and cranes based on revolutionary concepts utilizing the most modern materials and manufacturing techniques. To enable harassed shipowners to save valuable manhours and reduce dock time.

Pine Tree Engineering's most recent equipment design is being used on board the new LASH (lighter aboard ship) vessels, a promising new concept in ocean shipping. Creative engineering by Pine Tree's marine specialists produced efficient new designs for critical mooring, docking and barge handling equipment on the LASH vessels. Adding to the inherent efficiency of the LASH concept.

That's why it made a lot of sense for Lykes Sea Barges to rely on Pine Tree for the development of the key on-deck components. Pine Tree specialists designed constant tension winches, mooring winches and anchor windlasses for the unique Lykes System which does not use conventional cranes.

Backed by Rice Barton's manufacturing expertise, Pine Tree Engineering can not only develop a designed solution to virtually any marine on-deck equipment problem, but also construct the actual equipment. Efficiently. Dependably. To find out what a Pine Tree design can hold for the future of your project, contact: Mr. Roger M. Luke, president, Pine Tree Engineering, subsidiary of Rice Barton Corporation, P.O. Box 654, Brunswick, Maine 04011. Telephone: (207) 725-4333.

**Pine Tree Engineering**

A SUBSIDIARY OF
RICE BARTON CORPORATION

# on the future of American Shipping

## $60 Million LNG Terminal To Be Built At Port Of Savannah

Construction of a $60-million liquefied natural gas (LNG) terminal in the Port of Savannah is expected to begin next year. It will be a major link in a system planned by the Southern Natural Gas Co. of Birmingham, Ala., for the importation of the liquefied natural gas from Algeria. The system will cost a total of about $600 million and will supply natural gas to seven southern states.

Cryogenic tankers, equipped to carry natural gas at a temperature so low—it liquefies 260 degrees below zero—will load the product at the Algerian Port of Arzew. The 900-foot tankers will be the largest vessels ever to enter the Port of Savannah.

The tankers, with a draft of 36 feet and a beam of 140 feet, will dock every four or five days at the terminal to be built on an 800-acre site at Elba Island, about five miles east of the city of Savannah, on the Savannah River. The liquefied product will be discharged in storage tanks there and returned to its natural state by a warming process just before it enters the pipelines.

The Algerian gas and the LNG tankers will be owned by the El Paso Natural Gas Co., and Southern will serve as the distributor.

The LNG ships, now under construction in a French shipyard, will be the equivalent in capacity of 100,000-barrel tankers. Their cargo will be converted into 500-million cubic feet of natural gas per day for the Southern pipelines, according to present plans, and officials of the utility say this figure may be increased to one-billion cubic feet.

The Savannah Port Authority, which functions largely in the area of industrial development, made the arrangements for obtaining a site for the LNG terminal. The port agency said two general benefits may result from the new facility: first, the availability of this new source of energy will make Savannah a more attractive location for industry and, second, the additional traffic will strengthen future requests of the port for federally-financed harbor improvements.

First deliveries of the gas converted from LNG are expected in 1975. The purchase contract is said to be the largest of its kind in the history of the United States.

Construction of the Savannah LNG terminal will provide an estimated 1,000 jobs. Operation of the terminal itself, however, will require only about 50 workers.



## Olsen And Ewig Name Overseas Enterprises

**Carl F. Ewig** and **Magnus Olsen** have announced that Overseas Enterprises, Inc. will handle their steamship and related maritime interests and will also act as agents for Great Lakes Transcaribbean Line, Deutsche Africa Line, India Steamship Co., D.G. "Neptun," and Sea Containers, which is an independent container leasing firm specializing in chassis, refrigerated containers, tanks, feeder containerships and container cranes.

**Magnus Olsen,** president, Overseas Enterprises, Inc. also announced the appointment of **Thomas F. Ewig** as executive vice president of the firm, and stated that **Carl F. Ewig** is a member of the board of directors.

Overseas Enterprises, Inc. has for years specialized in worldwide transport of bulk liquid and gas, and act as general agents for DS-Tankers, Bremen, who maintain regular chemical tanker service from U.S. Gulf of Mexico ports to the Caribbean and South America.

## Pancontinental Marine Names Riebensahm VP

Capt. **Knut Riebensahm** has been promoted to vice president of Pancontinental Marine, Inc., New York, N.Y., according to **J.R. Kirsten,** president of the company.

Captain **Riebensahm** joined Pancontinental Marine, Inc. in 1969 and was appointed assistant vice president in 1970. He is in charge of Pancontinental's activities as shipyard representatives, and sale and purchase brokers.

## Moore-McCormack Elects James Barker

James R. Barker

Moore and McCormack Co., Inc., New York, N.Y., elected a new corporate head for itself and its ship line subsidiary and reported a net income of $1,269,000 for the quarter ended March 31.

**James R. Barker** was elected chairman, president and chief executive officer of the firm and its subsidiary, Moore-McCormack Lines, Inc. Mr. **Barker** succeeds **William T. Moore,** who will become chairman of the parent company's executive committee. In addition, **Lawrence F. Fiske,** formerly president, was elected vice chairman of the board.

The action by the board of directors preceded the annual stockholders meeting, which reported a substantial improvement in the ship line operations in South America and in South Africa.

Last year the company sustained losses of some $17 million. In reporting its financial statement, income included a $61,000 loss from operations in the first quarter, but a gain of $1,330,000 from the sale of vessels.

The subsidized Moore-McCormack Lines, Inc. now operates 14 cargo ships from East Coast ports to Eastern South America and South and East Africa. In reporting the net income gain, the company said that it compared with a net loss of $128,000 in the same quarter last year.

## Kinsman Marine Buys Two Bulk Carriers From Republic Steel

The Kinsman Marine Transit Company, a subsidiary of The American Ship Building Company, has announced the purchase of two Great Lakes bulk carriers from Republic Steel Corporation.

The two vessels, the Harry L. Allen and the Peter Robertson, are expected to go into service under the Kinsman flag early in the current season. Both ships will continue to sail under their present names according to **George M. Steinbrenner III,** chairman and chief executive officer of American Ship.

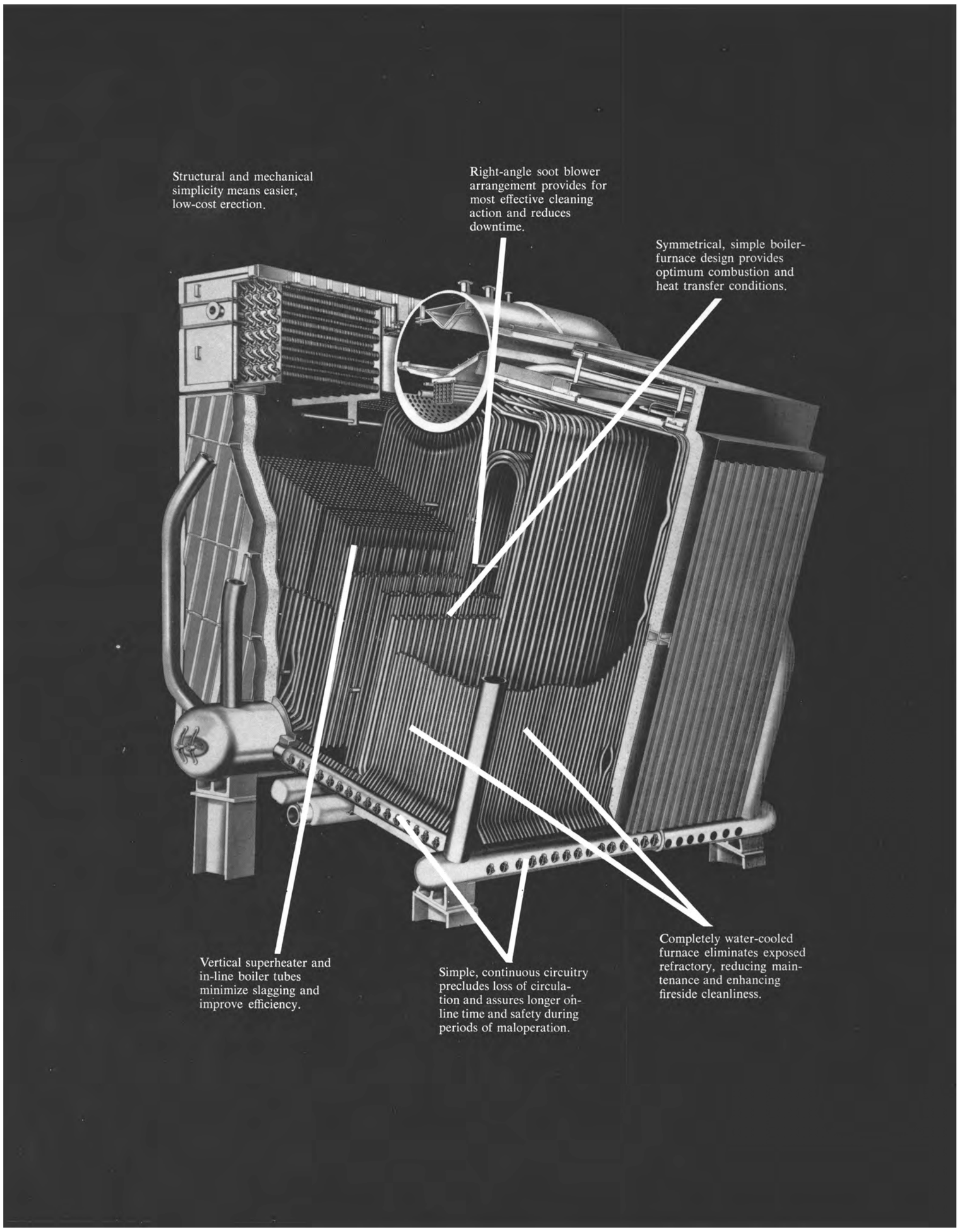
The Harry L. Allen is listed at 6,945 gross registered tons, with a carrying capacity of 11,900 tons. She has an overall length of 545 feet and a beam of 58 feet. The Peter Robertson is rated at 6,798 gross registered tons, is 569-feet long, has a beam of 56 feet, and carries 11,400 tons.

## MarAd Details New Subsidy Plan

The Maritime Administration has tentatively worked out a new construction subsidy estimating system based on ship types and is seeking industry comment before adopting it. Since the new 10-year promotional program extends construction subsidy to almost any kind of ship for foreign trade, a new method for calculating construction subsidy had to be devised.

Initially, the Maritime Administration would use seven ship types ranging from tankers up to 100,000-dwt to the reconstruction of break-bulk cargo ships into containerships. For each type, foreign costs would be calculated along with estimates of the fair and reasonable estimate of U.S. costs.

MarAd explained that the rate applicable, within the declining ceiling going down from 45 percent to 35 percent over the next five years, for each type will be figured by dividing the difference between the estimates of domestic and foreign construction costs . . . by the estimate of domestic construction costs. The rate developed for each type "shall then be applied to the domestic construction price established" for each ship by competitive bidding or negotiation, MarAd said.


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.

## American Ship To Build 680-Ft. Self-Unloader Costing $13 Million

The American Ship Building Company, Cleveland, Ohio, has received a contract from American Steamship Co. of Buffalo, N.Y., for construction of a new 680-foot self-unloader for American Steamship's Boland & Cornelius Great Lakes fleet.

Announcement of the approximately $13 million contract was made jointly by **George M. Steinbrenner III,** chairman and chief executive officer of American Ship; **C.T. Shen,** chief executive officer; and **Adam E. Cornelius,** president of American Steamship.

The new vessel will have a beam of 78 feet and a rating of 26,000 deadweight tons. She will be capable of unloading 6,000 tons per hour through a single conveyor running the length of the ship and a 250-foot aft-pivoted deck boom.

The new self-unloader will be built in American Ship's Toledo, Ohio, yard, with delivery scheduled for the opening of the 1973 Great Lakes navigation season.

American Steamship recently awarded a similar contract for a 680-foot self-unloader to Manitowoc Shipbuilding, Inc., Manitowoc, Wis.

These new vessels are in addition to the two 630-foot upriver type self-unloaders presently being built by American Ship for use in hauling taconite pellets for Jones & Laughlin Steel Corporation.



## Matson Navigation Names R.J. Pfeiffer Executive Vice Pres.

Robert J. Pfeiffer

**Robert J. Pfeiffer** has been named executive vice president of Matson Navigation Company by the company's board of directors, it was announced by **Malcolm H. Blaisdell,** president.

Mr. **Pfeiffer** has been senior vice president, operations since last June. Prior to that, he had been vice president in charge of Matson's Far East operations and president of Matson Terminals, Inc. He is presently chairman of the board of Matson Terminals, Inc.

He has been associated with the maritime industry since 1937, when he joined Inter-Island Steam Navigation Company, Ltd., in Honolulu. Mr. **Pfeiffer** was president of the United States National Committee of the International Cargo Handling Coordination Association, Inc., from 1963 to 1968.

## Stal-Laval, Inc. U.S. Representative For Thrige-Nakskov

Announcement has been made in Denmark of the merger of The Thomas B. Thrige Co. and Nakskov Machine Works Ltd. to form a new combination to be known as Thrige-Nakskov Machine Works Ltd.

The new company will manufacture Thrige deck machinery, with special emphasis on the electro-hydraulic units utilizing high torque hydraulic motors and steam units equipped with the Nakskov steam engine. Electric deck units with ASEA solid state or Ward Leonard Controls and ASEA electric motors and disc brakes will continue to be supplied and serviced.

The Thrige-Nakskov units feature twin drums with separate reeling devices for synthetic mooring lines and split drums for steel ropes.

The Thrige-Nakskov Machine Works Ltd. will also produce remote controlled valves for bilge, ballast and cargo pumping and spreaders for containers of any size.

All Thrige-Nakskov equipment will be handled in the U.S. through Stal-Laval, Inc., 400 Executive Boulevard, Elmsford, N.Y. 10523. A new capability brochure on the Thrige-Nakskov products is available on request.

# We don't just sell marine fenders.

# We sell complete engineered fendering systems.

We want to be certain our fenders do the job for you.

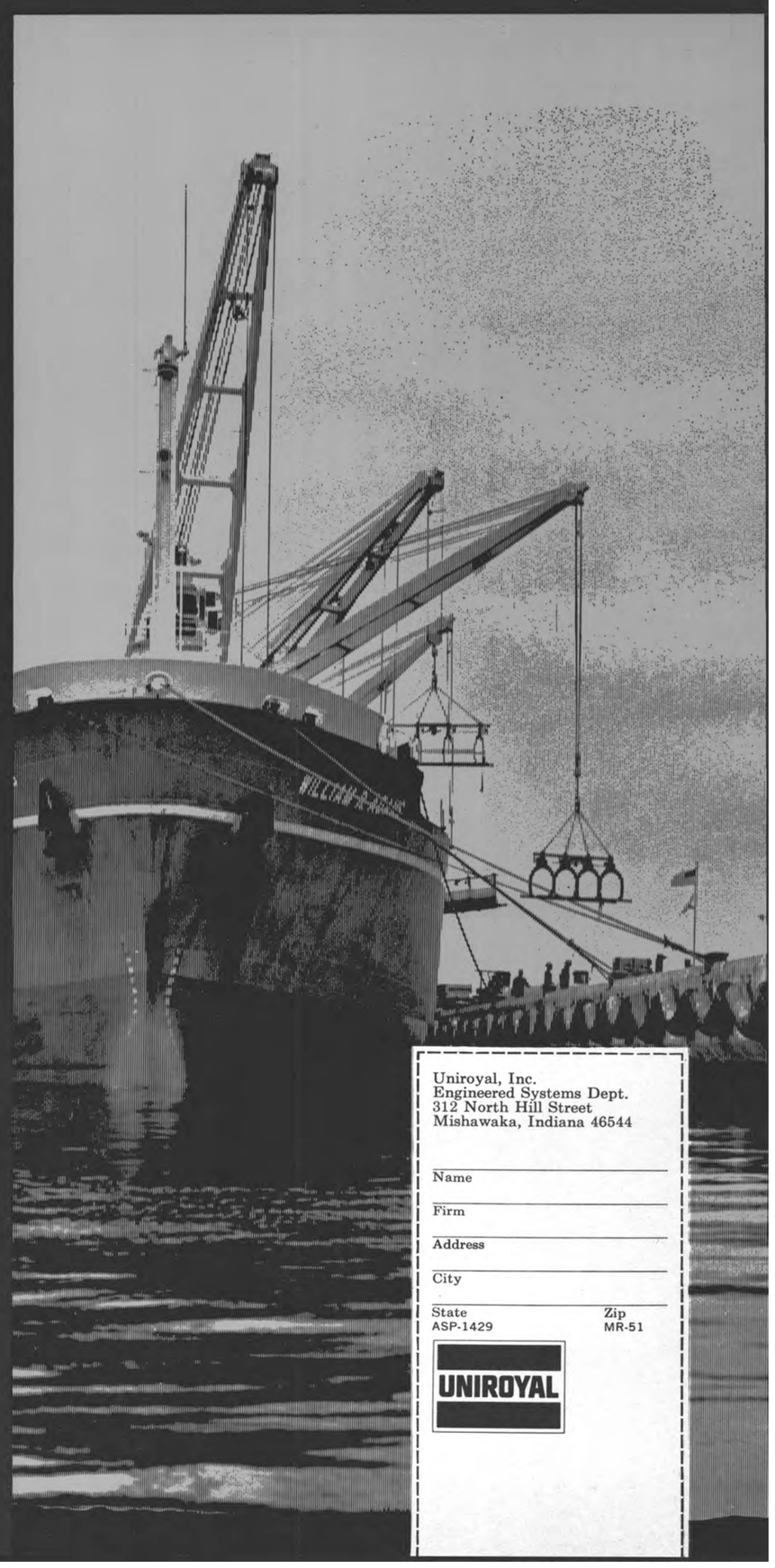
So before we'll even sell you a fender, we set our engineer design specialists to work.

Our specialists take all the facts, like expected loading, water currents, docking speeds and angles, and type of dock, to come up with a design proposal to suit your specific needs.

Then, if you go for the proposal, we hope you'll buy the fenders.

Check around. We've got our engineered fender systems at work in Miami, Jacksonville, and Philadelphia, in addition to off-shore installations in South America, the Mid East, and the Pacific.

Fill in and mail the coupon. We'll send you a Uniroyal representative to talk over the details.



Uniroyal, Inc.
Engineered Systems Dept.
312 North Hill Street
Mishawaka, Indiana 46544

Name

Firm

Address

City

State ASP-1429 Zip MR-51

UNIROYAL

## Marcona Corp. Elects Kenneth E. Merklin Senior VP-Development

**Kenneth E. Merklin** has been elected senior vice president-development for Marcona Corporation, according to an announcement by **C.W. Robinson,** president.

Mr **Merklin** has served as vice president-development of the San Francisco-based resource development, shipping and mining firm since 1964. He joined the company in 1963 as general manager, process development, for its Peruvian subsidiary, Marcona Mining Company.

Mr. **Merklin's** professional background spans almost 30 years of engineering management responsibility, including positions as chief metallurgist for Pickands Mather & Co., Hibbing, Minn., engineering sales manager for Western Machinery Company, San Francisco, and process development and materials inspection for the Boeing Aircraft Company, Seattle. He earned a bachelor's degree in metallurgy from the University of Washington in 1944.

Under Mr. **Merklin's** direction, Marcona's Development Division has expanded into a series of worldwide enterprises, and currently includes four major departments: plant engineering and construction, product development, process development, and mineral resources development.



## Oglebay Norton Names Joseph B. Milgram Jr.

**Joseph B. Milgram Jr.**

Oglebay Norton Company, Cleveland, Ohio, has announced the appointment of **Joseph B. Milgram Jr.** as director of corporate planning and development.

Mr. **Milgram** holds degrees in business administration from the University of Pennsylvania Wharton Graduate School, and in chemical engineering from Polytechnic Institute of Brooklyn, N.Y.

Prior to joining Oglebay Norton Company, Mr. **Milgram** was in the corporate finance and research departments of the Cleveland investment banking firm of McDonald & Company. Earlier, he had been manager of corporate planning of Diamond Shamrock Corporation.

Mr. **Milgram** is active in several national professional societies, including American Chemical Society, Commercial Development Association, and Chemical Marketing Research Association.

## Kings Point Receives Grant From Texaco

The United States Merchant Marine Academy has received an unrestricted grant of $6,000 from Texaco, Inc., it was announced by **Milton G. Nottingham,** president of the Kings Point Fund, Inc. **Augustus C. Long,** Texaco's executive committee chairman and chief executive officer, said the gift, which is payable in three annual $2,000 installments, was made "in recognition of the valuable contribution which your academy has made in its field of maritime education."

Mr. **Nottingham,** whose organization solicits and administers funds to assist the Academy and its midshipmen in many areas of training not reached by Federal appropriations, welcomed Texaco's contribution and praised the company for its recognition of industry's need for highly-skilled well-rounded nautical specialists.

A check for $2,000, representing the first installment of the grant, was recently presented to Capt. **Victor E. Tyson,** assistant Academy superintendent and a director of the Kings Point Fund, by **James Cole,** an executive of Texaco's United Kingdom office and an Academy alumnus in the Class of 1943.

## Jacksonville Port Auth. Opens N.Y. Office —Ray Wieland Named

Ray Wieland

The Jacksonville Port Authority of Jacksonville, Fla., has opened a trade development office in New York City at 30 Church Street. **Ray Wieland,** formerly with Rollins International Inc., has been appointed to head the office.

**Mr. Wieland** will provide information on matters pertaining to water-related industrial development of the Authority's 1,600-acre Blount Island, general cargo facilities at Talleyrand, and the new $7,000,000 container terminal which will be completed in the fall of 1971. **Mr. Wieland's** vast experience is expected to add a new dimension to Jacksonville's promotional activities.

## Western Tug & Barge Appoints Rees Williams

**Rees B. Williams Jr.** has been appointed vice president and manager of Western Tug & Barge Co., a division of Willamette-Western Corporation, according to **Robert 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. **Williams** has been assistant manager for the Port of Astoria for 4½ years. He was earlier with Shaver Transportation Company for 14 years. A graduate of the University of Portland in industrial administration, Mr. **Williams** began his marine transportation career with Coastwise Lines.

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

## Seatrain, Hapag-Lloyd Equipment Interchange Approved By FMC

The approval of an agreement between Hapag-Lloyd and Seatrain Lines, which provides for the interchange of containers and related equipment between them in their operations between ports in the United States and Europe, has been announced by the Federal Maritime Commission.

## Global To Construct And Operate 600-Ft. Deepsea Mining Ship

A 600-foot deepsea mining vessel, to be used as a prototype for ocean mining operations, will be built and operated by Global Marine, Inc., for the Hughes Tool Co. of Houston, Texas, it has been announced by **R.F. Bauer,** Global Marine president. Global Marine, based in Los Angeles, Calif., has had extensive experience in deepwater mining studies with its two drilling vessels Glomar II and Glomar Challenger.

The projected ship, to be designed by Global Marine, will displace approximately 35,000 tons and will accommodate a crew of more than 100. The ship will be capable of operating in depths of more than 10,000 feet. Approximately two years will be needed to design, build and test the ship, according to Mr. **Bauer.**

The Hughes organization is presently in the second phase of a program begun last year in deepwater mining exploration and study.

The company had announced earlier that if its current studies prove favorable, it could lead to the processing and sale of minerals obtained from the ocean bottom on a commercial basis.

## Maritime Fruit Carriers Combines Service With Refrigerated Express

Maritime Fruit Carriers Company Limited and Refrigerated Express Lines announced that they have agreed in principle to coordinate their services to offer complete unit load and palletized facilities for the Australian export trade to the East Coast of North America and Great Lakes.

Refrigerated Express Lines and Maritime Fruit Carriers Company, Limited, which last year carried an aggregate of more than 100,000 tons of frozen meat to North America, have tested and proved this concept and will combine their resources to provide this updated service to North American importers and their overseas clients. Implementation of the agreement is subject to approval by the U.S. Federal Maritime Commission and the boards of directors of both companies.



## Bethlehem Beaumont Shipyard Launches 235,000-BBL Barge For Sabine Towing

Among those attending the launching were the following officials of Sabine Towing and Transportation Co., Inc., owners of the barge: (left to right) **James Holton,** member of the board of directors; **Joe Staggs,** executive vice president; **R.W. Williams,** president; **O.B. Hartzog,** board member; **Craig Stevenson,** chief executive officer, and **Harley Eddingston Jr.,** board member.

The Chromalloy I, a 28,000-dwt ocean service barge, was launched on April 8 by Bethlehem Steel Corporation's Beaumont yard.

Built for the Sabine Towing and Transportation Co., Inc., of Port Arthur, Texas, a subsidiary of Chromalloy American Corp., the huge barge has a length of 520 feet, beam of 85 feet and depth of 40 feet. The Bethlehem-designed seagoing barge has a capacity of 235,000 barrels at a draft of 32 feet in salt water.

With almost twice the capacity of the conventional T-2 tanker, this barge will carry Grade A petroleum products from Gulf Coast refineries to East Coast ports. A deep notch with adjustable skegs is provided at the stern of the craft to permit both pushing and towing.

Present at the launching of the barge, in addition to **J.O. Crooke,** general manager of the Bethlehem yard, were the following Sabine officials: **R.W. Williams,** president; **Craig Stevenson,** chief executive officer; **Joe Staggs,** executive vice president; **O.B. Hartzog, Harley Eddingston Jr.,** and **James Holton,** members of the board of directors; and **George Cortez,** traffic manager.

To be certified by the U.S. Coast Guard for the transportation of Grade A petroleum products, the Chromalloy I will be classed by the American Bureau of Shipping for A-1 Ocean Service.

The Sabine barge has three U.S. Pump Co. automatic prime deep-well pumps rated at 4,500 gpm at 328-foot head, driven by General Motors radiator-cooled diesel engines developing about 550 hp at 1,800 rpm. For handling of small quantities of mixed cargo, one pair of tanks is divided into four smaller tanks by an additional transverse bulkhead. These tanks will be serviced by two interconnected 2,250 gpm U.S. Pump Co. automatic prime deep-well pumps driven by General Motors radiator-cooled diesel engines.

Cargo boom winches, as well as the eight Patterson mooring winches, anchor windlass and capstan, will be operated by a Tyrone hydraulic pump driven by a General Motors 6-71 diesel engine. A 150-pound Quincy air compressor will be clutched to this engine and sized to use its full power. A 5-hp 150-pound electric-driven air compressor will also be installed. Electric power will be furnished by a 20-kw General Motors diesel engen driven generator.

All pump engines and other machinery will be enclosed in suitable houses on deck. The paint system will include coating the interior of tanks.

The Chromalloy I sliding down the ways of Bethlehem Steel's Beaumont, Texas, shipyard.

## Leonard F. Nichols Named Finance Officer MarAd Eastern Region

Leonard F. Nichols

**Leonard F. Nichols,** former vice president and treasurer of United States Lines, Inc., has been named Region Finance Officer, it was announced by Capt. **Thomas A. King,** Eastern Region Director of the Maritime Administration, U.S. Department of Commerce.

In his new position, Mr. **Nichols** will be responsible for the performance of all financial programs in the Eastern Region of the Maritime Administration, an area extending from Maine to the east coast of Florida, and including Puerto Rico. These programs are comprised of accounting, external auditing and the maintenance of general financial relationships with the maritime industry.

Acceptance of this office marks Mr. **Nichols's** return to the Maritime Administration where, prior to his employment with U.S. Lines, he had previously served with distinction as Personnel Officer in New York, and later as Budget Officer and Comptroller in Washington. As Comptroller he also served as a member of the Maritime Subsidy Board.

A native of Oswego, N.Y., he received his early education there and later attended Syracuse University and New York University.

## Pearlson Appoints Vaillancourt And Long

**Jerome J. Vaillancourt** and **James M. Long** have been appointed vice presidents of Pearlson Engineering Company at Miami, Fla. The announcement was made by **Raymond Pearlson,** president, at a dinner party hosted by the company.

Mr. **Vaillancourt** joined Pearlson Engineering Company in 1966 as an electrical engineer. In his new position, Mr. **Vaillancourt** will head the entire electrical engineering department and assume responsibility of all design works.

Mr. **Long** joined Pearlson Engineering in 1969 as a sales engineer and now has charge of sales of Syncrolift drydocks, a patented product of Pearlson Engineering Company.

To date, more than 60 Syncrolift drydocks are operating in 26 countries, and both Mr. **Long** and Mr. **Vaillancourt** will be visiting shipyards throughout the world where new Syncrolift installations are in progress.

## Pine Tree Engineering Awarded Contract By Bath Iron Works

Pine Tree Engineering, Brunswick, Maine, a subsidiary of Rice Barton Corporation and a leading design and engineering firm for marine on-deck equipment, has been awarded a contract by Bath Iron Works, Bath, Maine, for the design and manufacture of three 30-inch capstans for American Export Lines, it was announced recently by **Roger M. Luke,** president of Pine Tree Engineering.

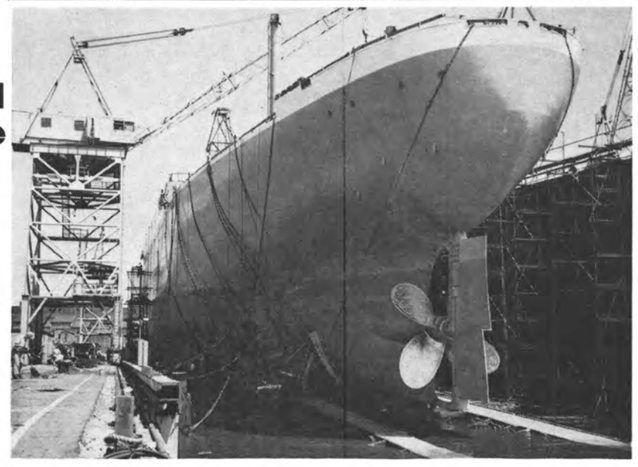
Under the terms of the contract, Pine Tree Engineering will be responsible for the design of the equipment, while the parent company, Rice Barton, will undertake the manufacture. Delivery is scheduled for late 1971.

According to Mr. **Luke:** "This contract represents a big step forward for Pine Tree and Rice Barton, as it is the first major contract awarded to the company since our recent merger. It's the start of a new era in growth and prosperity for the two companies."

Rice Barton Corporation is a leading designer and manufacturer of machinery for the pulp and paper, textile and chemical industries.

**If you want your ships tied up here**

**instead of here**



## you'll use WIDE SPECTRUM.

Fouling by "grass" can cost you plenty. In increased hull resistance. In loss of vessel speed. In heavy fuel costs. In drydock tie-ups. That's why smart owners insist on "WIDE SPECTRUM", the antifouling by International Red Hand Marine Coatings. "WIDE SPECTRUM" has been designed, developed and proved in service. It works where conventional antifoulings won't. In harbors where fresh water mixes into the sea and salinities are low and often accompanied by sewage effluents. Yet, it offers superior protection at sea. It gives freedom from fouling, maintains corrosion control and eliminates drydocking for periods of up to two years. Let us tell you how. Contact our nearest office, today.

International Red Hand Marine Coatings
A Division of International Paint Company, Inc.

World's Largest Marine Paint Makers/21 West Street, New York, N.Y./S. Linden Ave., S. San Francisco/3915 Louisa St., New Orleans

## Eaton Consolidates Six Operations— Raymond Mack Named

A new Industrial Drives Division has been formed through the consolidation of six former Eaton Yale & Towne Inc. divisions, **John V. Eakin,** who heads the company's Industrial Products Group, has announced.

The plants and their locations are: the Airflex Plant, Cleveland, Ohio, formerly the Fawick Airflex Division; the Cleveland Plant, Cleveland, Ohio, formerly the Cleveland Worm & Gear Division; the Dynamatic Plant, Kenosha, Wis., formerly the Dynamatic Division; the Gear Plant, Richmond, Ind., formerly the Eaton Gear Division; the MPT Plant, Kenosha, Wis., formerly the Mechanical Power Transmission Division, and the Industrial Drives Division, Scarborough, Ontario, Canada, formerly the Fawick Canada Division of Eaton Yale & Towne Canada Limited.

At the same time, PTS Marketing, the consolidated sales arm for power transmission systems products, will become part of the new division and will be headquartered at the Airflex Plant in Cleveland.

**Raymond E. Mack,** general manager of the former Fawick Airflex Division, will become general manager of the new division, which will be headquartered at the Airflex Plant in Cleveland.

Mr. **Mack** was named general manager of the division in 1968 and was general sales manager of Fawick Corporation before it was merged into Eaton Yale & Towne on April 1, 1968. Prior to being named general sales manager in 1966, he served seven years as sales manager, preceded by seven years as the company's sales representative in New York City.

Raymond E. Mack

A graduate mechanical engineer from Stevens Institute of Technology, he is on the board of directors of the American Metal Stamping Association, a member of the Cleveland Yachting Club and Lakewood Country Club.

The new division, which has a total employment of approximately 1,900, will manufacture a wide range of mechanical and electrical adjustable speed drives, controls, clutches, brakes and speed reducers, as well as power transmission system components, press drives and special gearing.



## Fourth Starporter Container Crane For Port Of Seattle

Star Iron & Steel Co., Tacoma, Wash., has been awarded a contract for the construction and installation of a fourth Starporter container crane for the Port of Seattle, it was announced by **Charles Allen,** president of Star Iron & Steel.

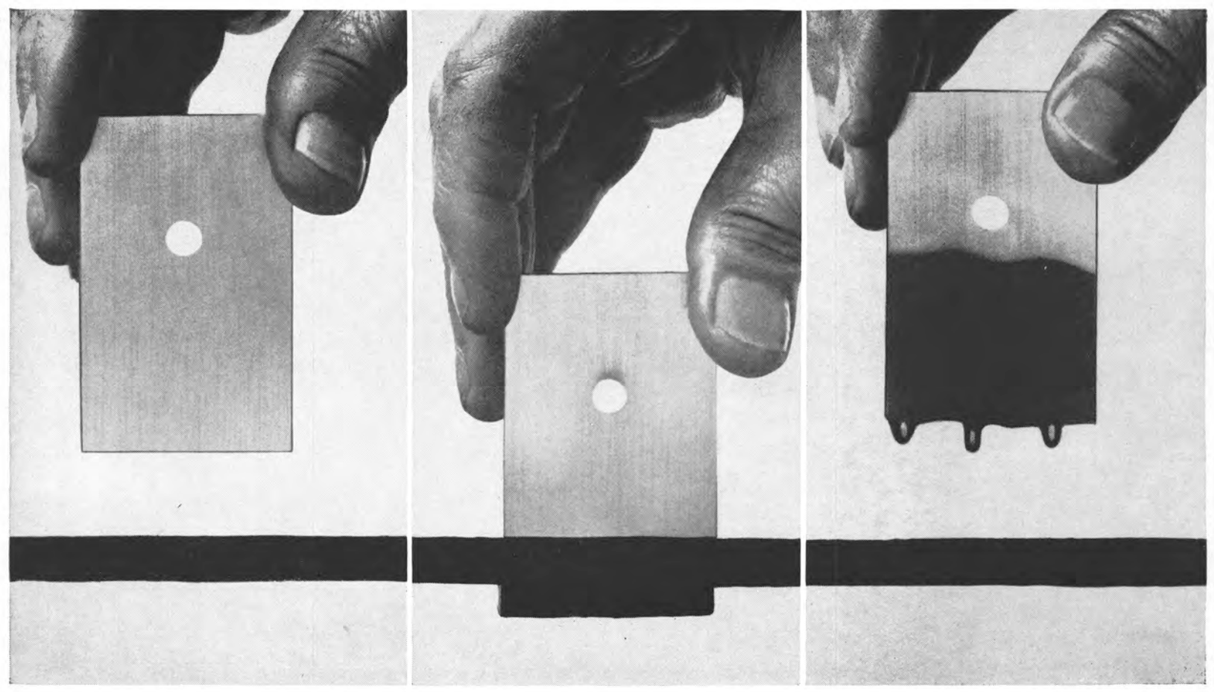
Star was awarded the contract for the first two 40-ton capacity cranes in August of last year. In January of this year, they made the award for the third crane and accelerated delivery of the first crane by two months. The fourth crane will be identical to the first three, as previously reported. The order is in line with the Port of Seattle's continuing expansion program to make it the finest and most efficient container port on the Pacific Coast.

## Two Board Members Elected At AEIL

Admiral **John M. Will,** chairman and president of American Export Isbrandtsen Lines, Inc., has announced the election of **A.R. Gale** and **Michael J. Esposito** to the board of directors of the company.

Mr. **Gale** is senior vice president and a member of the board of directors of American Export Industries, the parent company of AEIL, and Mr. **Esposito** is a vice president and treasurer of AEIL.

# Because Mother Nature works cheap, you can save up to 75% in rust prevention costs.



| COST COMPARISON CHART | | | |
|---|---|---|---|
| TYPE PROTECTION | SQ. FEET | APPROX. COST INCLUDING INSTALLATION AND/ OR APPLICATION | COST PER SQ. FOOT |
| ANODES | 300,000 | $ 39,300 | $.131 |
| ZINC COATING | 300,000 | $240,000 | $.80 |
| FLUID COATING A | 300,000 | $ 16,800 | $.056 |
| FLUID COATING B | 300,000 | $ 15,600 | $.052 |
| FLOATCOAT | 300,000 | $7,654 | $.026 |

*You* don't apply Floatcoat.

The ballast water does.

Floatcoat floats on the surface of the ballast water.

Each time you raise or lower the ballast water level, you automatically apply a new coat of rust-proofing.

No surface escapes Floatcoat.

Not even hidden corners or pockets.

To keep ballast tanks, cofferdams, and rudder interiors really rust-free, remember this: you float, we coat.

Ask your local Texaco Marine Engineer about it.

Or send for the free booklet: "Texaco Floatcoat."

Write: Texaco, Inc., International Marine Sales Dept., 135 East 42nd Street, New York, New York 10017.

TEXACO
WORLD WIDE
MARINE FUELS AND LUBRICANTS

## St. Louis Ship Delivers The 198-Foot Leslie Ann

The triple-screw Leslie Ann, latest addition to the Upper Mississippi Towing Corporation fleet, is the 206th towboat built at St. Louis Ship.

Designed and built by St. Louis Ship, St. Louis, Mo., the new Leslie Ann, one of the most powerful triple-screw towboats on the inland river waters, has been delivered to Upper Mississippi Towing Corporation.

**Miss Leslie Ann Baskerville,** daughter of **Walter Baskerville Jr.,** vice president, and granddaughter of **Walter Baskerville Sr.,** president of Upper Mississippi Towing Corporation, broke the traditional champagne bottle as the christening was witnessed by other officers of Upper Mississippi Towing Corporation and St. Louis Ship, and by many local and out-of-town guests. **Mrs. Walter Baskerville Jr.** served as matron of honor for her daughter, while **Leslie's** two-year-old sister, **Andrea Lynn,** served as mini-maid of honor.

The 7,500-hp triple-screw Leslie Ann is the 206th towboat built at St. Louis Ship. The hull is a Hydrodyne, the 28th delivered since this St. Louis Ship concept of hull configuration was extensively tested and proven to provide greater thrust, as well as superior handling and steering ability.

Fuel oil capacity is 210,800 gallons (about three weeks' supply) carried in eight tanks. Lubricating oil capacity is 6,450 gallons, wash water storage 5,000 gallons, and drinking water 5,200 gallons.

View of the upper main engine room. Propulsion is supplied by three General Motors Model 16-645 E5 diesels each developing 2,500 hp at 800 rpm.

Propulsion power is furnished by three General Motors Model 16-645 E5 marine diesel engines each developing 2,500 hp at 800 rpm through Lufkin Model RS 3626-28VC vertical offset reverse reduction gears with Fawick clutches. The engines are cooled with clear water circulated through a St. Louis Ship designed skin cooling system. The engines are started from the engine room only and controlled from the pilothouse by means of Mathers Controls, Inc. pneumatic control equipment.

In addition to the conventional engine room gage boards installed in all towboats, the Leslie Ann is equipped with a monitoring system which features an alarm panel in the pilothouse and in the engine room. All primary and auxiliary systems are continuously monitored and any abnormal temperature, pressure, or liquid level will manifest itself on the engine room and pilothouse panels by both visual and audible alarms.

The propellers are Coolidge 109-inch diameter, five-blade, stainless steel turning in St. Louis Ship designed stainless steel lined Kort nozzles. The Leslie Ann has nine rudders, three for steering, and six for flanking. Two powerful hydraulic systems provide power to turn the rudders hard over to hard over in 20 seconds at full rpm. Two pumps are provided, with either pump capable of operating both the steering and flanking systems continuously with the second pump for standby service.

Two Schoellhorn-Albrecht 10-hp motor-driven double-barreled capstans and two Beebe 10-hp motor-driven winches are located on the forward deck. Two Beebe 7½-hp motor-driven winches are located port and starboard on the side decks. A davit with electric hoist is located aft port and starboard, on the roof of the main deckhouse, to handle supplies and the vessel's three work boats.

Fenders of reinforced ⅝-inch steel plate run full length on the sides. Bow corners are built out to fair with the fenders. The tow knees and head log are special heavy-design, faced with one-inch plate. Wire rope reels, each with a capacity of 600 feet of one-inch wire rope, are mounted between each pair of knees.

Five staterooms on the second deck provide for the chief engineer, assistant engineer, mates, and four guests. The captain and pilot are quartered on the third deck, with an office for the captain, and a general storage room.

The pilothouse is unusually large, 21-feet wide and 18 feet fore and aft. All windows are heavy safety glass, set in rubber moldings. The pilothouse is raised seven feet above the fourth deck, making the pilot's eye level about 40-feet above water level. The room below the pilothouse is used to house electronic equipment for the radars, automatic pilot, searchlight rectifiers, etc.

Navigating and communicating equipment includes two Raytheon radars, two Raytheon depth indicators, RCA swing indicator, RCA V.H.F. marine radiotelephone, Motorola V.H.F. radiotelephone, Motorola five-channel Public Correspondence radio, Johnson Messenger C.B. radio, RCA single side-band radio, five Hallicrafter AM and short wave receivers for use in the pilothouse, guest rooms, crew's lounge and galley, an eight-station battery operated dial telephone system, and a three speaker talk back public address system.

# Fort Schuyler Forum Discusses Shipboard Maintenance Programs

Taking part in the Fort Schuyler Forum were, left to right: Standing, Prof. **J. Mathieson,** author; Capt. **Maurice J. Gross,** author; **Thomas R. Schiller,** author; **Frank J. Dugan,** author; Prof. **A. Kramer,** author; Prof. **N. Gleicher,** author; **G.J. Timmer,** committee member, and **Joseph Thelgie,** chairman of the Port Engineers' Board of Directors. Seated, **Philip A. Donahue,** 1st vice-president of the Port Engineers; Adm. **E.J. O'Donnell,** USN (ret.); **John C. Fox Jr.,** president of the Port Engineers, and Prof. **J.J. Foody,** co-chairman of the forum committee.

The need and requirements for advanced shipboard maintenance programs were discussed at the 19th Annual Meeting of the Fort Schuyler Forum sponsored by The Society of Marine Port Engineers, New York, N.Y. Inc., and the State University of New York Maritime College. The all-day session was held in the College's Science and Engineering Building.

Prof. **John J. Foody,** chairman, Department of Engineering, State University of New York Maritime College, presided over the morning sessions and set the tone of the meetings with a short introduction to the forum, based on the theme, "Shipboard Maintenance Programs."

Adm. **E.J. O'Donnell,** USN (ret.), president of the State Maritime College, welcomed those attending the meetings and spoke briefly on the role of the maritime colleges in preparing the future shipboard officers for their roles in an increasingly technical industry of ship design and operation.

**John C. Fox Jr.,** ship group manager, Esso International Tankers, presided over the afternoon session.

The four papers presented were:

1. "Quality Control and Planned Maintenance for Marine Equipment" by Capt. **Maurice J. Gross,** USMS, head, Department of Engineering (acting), U.S. Merchant Marine Academy, Kings Point, N.Y.; **Edwin T. Cangin,** Cushing and Nordstrom, Inc., and **Thomas R. Schiller** of Thomas R. Schiller Associates.

2. "Application of Vibration Analysis and Deviation Concept for Improved Shipboard Maintenance and Economic Performance (VIDEC)" by **Eugene St. Germaine,** project engineer, Maritime Administration, and Professors **N. Gleicher, A. Kramer, J. Mathieson** and **S. Pergament,** New York State Maritime College.

3. "Instruments and Test Equipment" **by Frank J. Dugan,** instrument engineer, Herman H. Sticht Company, Inc., New York, N.Y.

4. "Marine Maintenance Management and Information Systems" by **Frank P. Herrmann,** Corporate Organization and Planning Department, Combustion Engineering, Inc.

Captain **Gross** described the research program currently being handled by the U.S. Merchant Marine Academy for the Maritime Administration which has as a goal the increasing of production of American-flag shipping. He advised that his co-authors were also involved in this research project.

Under the section dealing with quality control, Captain **Gross** divided the subject between design and engineering, and shipbuilding. He stated, "As a first step to reasonable assurance of quality control in design and engineering, it is necessary to check the credentials of the engineering group which is to perform certain engineering functions." The first step to be performed by this group, under the author's analysis, is to provide a feasibility study which will give adequate assurance that the vessel will perform satisfactorily.

The process of actual design, continued the author, involves, "The marine designer using internal checks for each phase of the design to insure that the original mission and feasibility requirements are satisfied. Such procedures entail duplication of effort, i.e., for every line that is drawn or for every calculation that is performed, someone must review what has been done." He advised that "a reasonable average of time spent spot checking by a department head would be about one hour of checking for each eight hours of work performed." However, he indicated that the cost of quality control in the design stages is completely offset by multiplied savings if errors are avoided and corrected prior to the construction stage.

In describing the quality control methods in shipyards, Captain **Gross** outlined three factors which govern the extent of the quality control procedure. "The customer sets quality control requirements," he advised, and added, "Classification society standards will be followed during the design and construction and the shipyard operates under self-imposed quality control procedures."

The author warned that, "It is a fallacy to believe that a complete quality control program in a shipyard consists of an individual in a hard hat carrying a clipboard poking his way around the fabrication shops and assembly yard or drydock. Quality control begins with proper planning and design; continues through the accurate estimating, ordering proper material, control of material after delivery and finally, proper assembly."

In the paper on VIDEC the authors described the system as "a program of periodic measurements of engine-room rotating machinery, employing portable vibration analysis instruments, to determine the importance of a vibration data acquisition and analysis system to the ship's preventive maintenance program." An initial program was completed last year, according to the authors, and now is being followed with a second generation project to determine whether maintenance planning can effectively reduce M & R direct/indirect costs through:

a. Elimination of ship down time resulting from equipment failure.

b. Providing economic criteria for maintenance decision making.

c. Better utilization of ship's personnel.

"The VIDEC system," the authors advised, "is a real time, computerized, implementation of the 'Deviation Concept', in the form of heat cycle and vibration analysis. VIDEC is earmarked for deployment aboard merchant ships, with the aim of improving maintenance scheduling and overall economic performance."

In conclusion, the authors stated: "An answer to maintenance and maintenance scheduling of ships machinery, a requirement, if increased ship availability and profitability is to be realized, has long been sought. Many ideas, concepts and methods have been attempted with results being of some questionable value. Most have relied on data communication between ship and shore and in most instances the data has been inaccurate, sparse or non-existent. In some cases the existing data was analyzed statistically, in an attempt to predict mean time between failures and apply these results to all machinery on all ships, but only limited success has been achieved to date. It is the contention of this team that each ship has its own unique characteristics even within ships of the same class. Therefore, a logical maintenance program should determine what the operating characteristics of the ship are, when relatively new, and then compare the machinery with respect to this reference characteristic on a continuous basis."

Mr. **Dugan** in his paper on instruments and test equipment stressed the requirement "to have a proper complement of instruments and test equipment to be used for periodic checking and trouble shooting. The personnel using this equipment should make it a point to become knowledgeable on both the instrumentation and the equipment that will be maintained and tested."

The author went on to describe the considerations for instrument selection and the features of various instruments.

In the paper entitled "Marine Maintenance Management", Mr. **Herrmann** set the line of his reasoning by stating, "It is common to talk of 'Maintenance and Repair' as one term. However, maintenance is of primary concern, for repair is necessitated only when maintenance procedures breakdown or when machinery is improperly designed or operated. Any well-planned maintenance program will provide for the handling of repair, since repair is inevitable, but it must not be built upon the premise that repair is the lead function."

"In developing the marine maintenance management system," Mr. **Herrmann** advised, "one must keep in mind that the maintenance and repair system is nothing new, it is simply a formal method of forecasting, scheduling, and controlling the maintenance work that is presently being performed. The system also separates repair work from preventive maintenance while preserving single-ship responsibility for all work.

"Repair work cannot be forecasted and will continue to be scheduled on a priority basis as established by the port engineer. Maintenance work can be forecasted and scheduled in advance and it is the responsibility of the port engineer to monitor this work. The administrative function of the maintenance management system should prepare work schedules, insure parts availability and assign repair contractors to specific jobs. Final approval of combined maintenance and repair work schedules should be made by the port engineer to insure compatibility of work crews. The administrative function should maintain records of all preventive maintenance work done and furnish data to port engineers as needed."

The 1971 Forum Committee was under the co-chairmanship of Professor **Foody** and **Matthew Carroll,** Port of New York Authority. Committee members were: **Bernard W. Seile,** Bull & Roberts, Inc.; Capt. **H.O. Travis,** U.S. Merchant Marine Academy; Mr. **Fox; Joseph Thelgie,** Marine Transport Line; **G.J. Timmer,** Consolidated Edison Company; **Paul S. Farr,** Glo Klen Company of New York, and **Edward English,** Atlantic Repair Company.

KNOWN 'ROUND THE WORLD

# THE BOSTON METALS CO.

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

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

## TURBO GENERATOR SETS

1 

WESTINGHOUSE 440/3/60 200 KW UNIT

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

2 

WESTINGHOUSE 60 KW 120 VDC M-20-EH

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

3 

300 KW WORTHINGTON-MOORE CROCKER-WHEELER UNITS

AP2 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

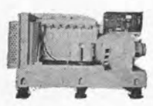
440# — 740°F — 5930 RPM — 2A-9794-15-16-17—coupling non-recessed on steam end of pinion—5¾". GENERATOR: Westinghouse 300 KW—120/240 DC—1250 amps—1200 RPM—C.B. 208.4.

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 

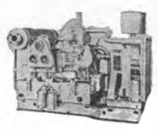
G.M. 6-71 DIESEL GENERATOR SET

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—12¾"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

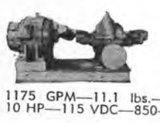
Bronze—14"—top discharge—capacity 2500 GPM—20 PSI. Bilge service—oil service—2400 GPM—75 PSI. Reduction gear. ENGINE: Cummins JN-130M—6 cylinder—4⅛ x 5—130 HP—air starting.

**36**

### UNUSED BOILER FEED PUMP

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

**37**



### UNUSED WARREN BRONZE PUMP

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

**38**

### NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

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

**39**

### NEW—UNUSED BRONZE VERTICAL LST BALLAST PUMP

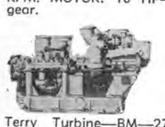
1500 GPM—56' head or 25 lbs. — 8" suction — 6" discharge. MOTOR: Century 30 HP—230 VDC—110 amps—1750 RPM — 40°T rise — stab. shunt—BB drip proof —controls available.

**40**

### EXCELSIOR MOLASSES PUMP—SIZE 5½"

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

**41**



### UNUSED SIZE 4 BUFFALO FEED PUMPS

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

**42**

### COFFIN MODEL F BOILER FEED PUMP—VICTORY OR T2

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

**43**

### BRONZE 14x14x12 CARGO STRIPPING PUMPS

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

## WINCHES AND WINDLASSES

**44**

### VICTORY UNIT WINCHES

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

**45**

### MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES

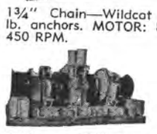
50 HP—230 VDC—reconditioned.

**46**

### HYDE NO. 7 WINDLASS

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

**47**



### NEW—UNUSED LINK BELT WINDLASS

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

**48**

### IDEAL WINDLASS—UNUSED

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

**49**

### UNUSED 70 HP McKIERNAN-TERRY WINDLASSES

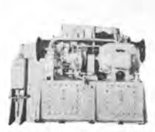
2¾" Chain and two 10640 lb. anchor & 30 fathoms chain @ 30 FPM. 70 HP—230 volts—shunt DC motors—233 amps—550 RPM—55°C rise. Wildcat centers 47½". Base 9'5" wide x 11' long. Weight 36,000 lbs.

**50**

### LCT-6 JAEGER GASOLINE DRIVEN WINCH

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

**51**



### 4 SINGLE DRUM ELECTRIC HYDRAULIC WINCHES

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

## MISCELLANEOUS

**52**

### VICTORY AP2—WESTINGHOUSE MAIN PROPULSION GEAR

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

**53**

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

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

**54**

### 1 PAIR OF 300 HP UNION DIESEL ENGINES

Port and starboard—model 06—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**

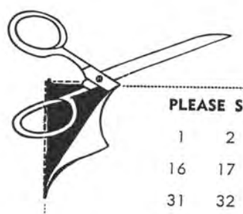
### DOUBLE INPUT—SINGLE OUTPUT DIESEL REDUCTION GEARS

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) 5/15/71

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |
| 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | | |

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

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

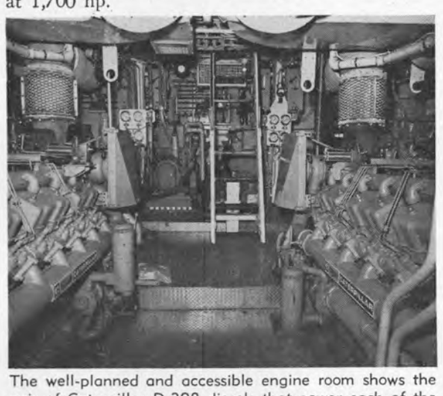
CITY..... ZONE..... STATE.....

## Seaspan International Ltd. Adds Sister Tugs To Fleet

The Le Beau and La Garde, shown running free in Vancouver Harbor, each have three stations for navigation.

The sister tugs La Garde and Le Beau recently joined the expanding fleet of Seaspan International Ltd., Vancouver, British Columbia, Canada.

The twin-screw tugs, measuring 84 feet in length overall by 24 feet 6 inches in breadth with a 14-foot draft, are powered by two D-398 Caterpillar main engines driving through 4.033 to 1 Western reduction gears. The Stone Manganese cp propellers are enclosed in Kort type nozzles, giving each tug an estimated 60,000 pound thrust at 1,700 hp.



The well-planned and accessible engine room shows the pair of Caterpillar D-398 diesels that power each of the new Seaspan twin-screw tugs.

La Garde, built by Vancouver Shipyards Ltd., and Le Beau, constructed at Star Shipyards, are equipped with the most modern navigational and control systems located at three stations: the wheelhouse, top wheelhouse, and aft boat deck. This allows the master the optimum of facility in making up tows, yarding and towing.

The Cove Hatfield designed tugs comply to the latest C.S.I. regulations for automated engine rooms. In addition, the Burrard towing winch is equipped with an automatic towline abort system. The Western machine hydraulic towing pin assembly has an automatic hydraulic hold-down arm.

The tugs, now in service, have demonstrated an ease of maneuverability, good sea-keeping qualities and excellent service speed.

## Matson Names Warren Bean General Counsel And Secretary

**Warren Bean** has been named general counsel and secretary of Matson Navigation Company and its subsidiary companies, it was announced by **Malcolm H. Blaisdell,** president.

Mr. **Bean** served as Matson's senior counsel in San Francisco, Calif., for the past year. He joined Matson in 1952, shortly after graduation from Yale Law School, and has been a member of the company's law department since it was established in 1962. He is a member of the State Bar of California and the San Francisco Bar Association.

## Burmeister & Wain Engines For Three Esso Tankers Ordered By Canadian Yard

Burmeister & Wain Engineering Co., Ltd. of Denmark announced that it has received an order from the Canadian shipyard of Saint John Shipbuilding and Dry Dock Co., Ltd. for three main engine plants for tankers of about 30,000 deadweight tons. The three engines are for three vessels which the yard is to build for Esso Tankers Inc. of New York. The engines are scheduled for delivery in January 1972, July 1972 and February 1973.

## Ocean Transport Consulting Offers Analysis Services For Medium Size Operator

Ocean Transport Consulting Services, 555 Fifth Avenue, New York, N.Y. 10017, announces the development of a generalized charter rate and shipping investment analysis for shipowner's use. This analysis is a computer program initially developed with National Shipping & Trading Corporation for use on their office computer system.

The program projects future time charter rates based on current capital recovery requirements, debt service conditions, and daily operating costs. It also generates a cash flow for a given time charter rate which is discounted to determine the interest rate of return for the investment. Under the present development, the program is capable of three modes of capital recovery, two modes of debt service, and automatically escalates operating costs. It may be expanded to fit individual requirements subject to computer size limitations.

The small and medium size shipowner may now have the capability for fast, accurate, consistent analysis of charter and investment opportunities. The program is adaptable for use on time-sharing and proprietary computer facilities.

## Robert L. Wendt Heads Unit Of New Sperry Division

**Robert L. Wendt** of Woodbury, N.Y., has been appointed vice president of the Sperry Systems Management Division. His appointment was announced by **Salvatore A. Conigliaro,** president of the Sperry Rand Corporation's Sperry Division, of which Systems Management is a unit.

Formation of the Sperry Division was recently announced by Sperry Rand. The new division groups three formerly autonomous divisions of the corporation whose activities complement each other. These include the Systems Management Division, the Sperry Gyroscope Division, both in Great Neck, N.Y. and the Sperry Marine Systems Division of Charlottesville, Va.

Prior to his appointment, Mr. **Wendt** was group manager, military systems, in the Systems Management Division. His career with the company spans more than 30 years, during which he has progressed through positions in engineering, marketing and administration.

Systems Management Division, of which Mr. **Conigliaro** was vice president and general manager prior to being named Sperry Division president, is engaged in both military and civil programs. The division is the systems manager for the U.S. Navy's Polaris/Poseidon submarine navigation complex. It also provides systems engineering and management for ship, submarine and aircraft weapons systems. The division's marine civil and industrial areas include ship navigation and collision avoidance systems. Other civil areas include computerized traffic controls, health care systems, financial systems for brokerage back offices and law enforcement systems.

**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.

# unanimous hydrodyne

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.
Call us at (314) 638-4000

**ST. LOUIS SHIP**
DIVISION OF POTT INDUSTRIES INC.
611 EAST MARCEAU STREET, ST. LOUIS, MO. 63111

New York, Chicago, Kansas City, New Orleans, Memphis, Minneapolis, Houston and Mobile.

## IRD Mechanalysis, Inc. Elects Dr. Singleton —Eugene Hart Retires

IRD Mechanalysis, Inc., Columbus, Ohio, subsidiary of H.H. Robertson Company, Pittsburgh, Pa., announces the retirement of its president, **Eugene G. Hart,** from active management. Mr. **Hart,** president since 1960, will continue as a member of the board of directors.

Mr. **Hart's** retirement closes out a 28-year association with the H.H. Robertson Company, where he served with distinction in marketing management. Under his leadership, IRD Mechanalysis, Inc. has gained worldwide recognition as a leading manufacturer of vibration and noise measurement, analysis, monitoring and dynamic balancing equipment.

Dr. **Fred G. Singleton,** senior vice president of the parent company, has been elected president of the subsidiary, and **Glen H. Thomas** will continue as executive vice president and chief operating officer.

## Raytheon Names Lovett Marketing Manager For Manchester Operation

**J. Leonard Lovett** has been named marketing manager for Raytheon Company's Manchester, N.H., Operation. The operation produces Sorensen power supplies and controlled power products, Weldpower precision welding products, ultrasonic impact grinders, ultrasonic measuring instruments, and a full line of marine electronic equipment for navigation, communications, and safety.

Mr. **Lovett** has had nearly 40 years of experience in marine electronics. He has served at sea aboard tuna clippers as a radio operator and navigator and has installed and serviced radar and sonar equipment aboard naval vessels. For 10 years he served as the company's West Coast regional commercial sales manager, directing area sales of the company's power supplies, industrial, marine and communications equipment. Subsequent to that, he was marketing manager for marine products and manager at the company's Marine Products Operation at South San Francisco, Calif.

Mr. **Lovett** is chairman of the Electronics and Instruments Section of the National Association of Engine and Boat Manufacturers. He attended the University of California at Los Angeles.

## Scariano Boats, Inc. To Build Survey Boat For Corps Of Engrs.

The Corps of Engineers, New Orleans, La., has awarded Scariano Boats, Inc., also of New Orleans, a contract to build a diesel-powered twin-screw survey boat. The vessel will be 55-feet long and cost $157,000.

## Symposium Discusses Role Of Computer In Ship Analysis

A newly developing method of ship analysis involving computer technology and higher mathematics promises to play an increasingly important role in the study of future ship design, an audience of engineers active in shipbuilding around the world was told recently.

The method, called finite element analysis, was the subject of a symposium jointly sponsored by the American Bureau of Shipping and the University of Arizona, March 29-April 2, in Tucson, Ariz.

Sixty-eight persons, 16 representing shipbuilding and ship design organizations in Canada, England, France, Japan, Holland and Sweden, heard Prof. **Hussein A. Kamel** of the aerospace and mechanical engineering department of the university, and **Donald Liu,** senior surveyor of the bureau, discuss the history and application of the finite element method, and saw demonstrations of computer solutions of structural problems using the method.

**R.S. Little,** vice president of the bureau, said that the bureau technical staff members have been using the finite element method for some time in their analyses of ship structural plans.

## North American Turbine Receives Contract Totaling $1.6 Million

Phillips Petroleum Company, as operator for the Phillips Norwegian Group, has awarded a $1.6 million contract to North American Turbine Corporation (NATCO) of Houston, Texas, it was announced. The contract is for 10 gas turbine generator sets to be installed on platforms in the Ekofisk field in the North Sea.

1,250-kw NATCO Viking gas turbine generator sets will provide all electrical power for crude oil pumping, oil processing, natural gas cooling, communications and navigation, as well as power for the 150-man crew quarters.

Total cost of the Phillips Ekofisk facilities will exceed $50 million. Included will be two production platforms about three miles apart, and a field terminal platform midway between.

According to **Robert L. Kietzman,** president of the Houston firm, NATCO is to deliver all 10 turbine generator sets by December of 1971. "All generator set design, engineering, assembly packaging and full performance testing will be carried out by NATCO in our Houston facilities," he said.

The turbines will be located approximately 100 feet above sea level on the platforms. Solid state electronic control systems will control the electrical power output of the 1,250-kw generator sets.

NATCO is a joint venture company in which the Viking gas turbine developer, Kongsberg of Norway, is a major shareholder. With headquarters in Houston, NATCO is responsible for sales, manufacturing, packaging and service support for the Viking gas turbine line in North America and other selected countries in the Western Hemisphere.



## Raymond Dirksen Named Manager Airflex Plant

Raymond R. Dirksen

**Raymond R. Dirksen** has been named general plant manager of the Industrial Drives Division's Airflex Plant, **Raymond E. Mack,** division general manager, announced.

Mr. **Dirksen** was formerly sales manager of the Fawick Airflex Division of Eaton Yale & Towne Inc. The Airflex Division was recently consolidated with six other Eaton operations into an Industrial Drives Division, and at that time became the Airflex Plant.

Mr. **Dirksen,** who was named sales manager of the Fawick Airflex Division in 1968, was formerly district manager of the Chicago office, a position he held since 1958. Prior to joining the Fawick Corporation, he spent eight years with the Dynamatic Division as assistant sales manager. Mr. **Dirksen** is a graduate of Michigan Technological University, with B.S. degree in electrical engineering, and holds an M.B.A. degree from the University of Chicago.

## Dravo Corp. Appoints Richard Collins To Engineering Works Div.

**Richard Collins** has been named a principal design engineer in the proposal and development engineering department of Dravo Corporation's Engineering Works Division. Mr. **Collins,** who holds B.S. and M.S. degrees in civil engineering from Purdue University, joined Dravo in 1967 as an assistant engineer. He most recently served as design engineer with the division.

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.

## Two French Firms Sign Service Agreement With Burmeister & Wain

Burmeister & Wain's chain of service stations for B&W-engined ships has been extended to include the maritime center of Marseilles, where the two companies, La Societe Sud-Marine, and Societe Provencale des Ateliers Terrin, both members of the same concern, have entered into a service agreement with Burmeister & Wain, Copenhagen, Denmark.

According to this agreement, des Ateliers Terrin and Sud-Marine will act as authorized workshops and suppliers of spare parts to B&W-engined ships calling at Marseilles or other French ports. The repair work will be carried out by personnel specially trained in the maintenance of B&W engines, and all replacement parts and spare parts supplied will either be original B&W products or parts manufactured by Burmeister & Wain's three Licensees in France.

La Societe Provencale des Ateliers Terrin is the largest repair yard in France. Founded in 1891, it handles an annual average of some 500 vessels and possesses facilities for boiler work, as well as mechanical, electrical and electronic work. The firm has about 2,000 employees. Sud-Marine, founded in 1949, has 400 employees, and it is the largest French company engaged in the service and repair of diesel engines, turbochargers, and gas turbines.

The Terrin organization is represented in the United States by **Robert M. Catharine Jr.,** 11 Broadway, New York, N.Y. 10004.



## Bailey Meter Company Appoints H.D. Vollmer

H.D. Vollmer

**H.D. Vollmer** has been appointed chief application engineer, systems department, at Bailey Meter Company, Wickliffe, Ohio. He will use his wide experience to solve complex control problems and will assist the systems and marketing organizations in solving customers' specific control problems.

Since joining Bailey in 1942, Mr. **Vollmer** has acquired an extensive background in power and marine applications. He has held several positions from sales service engineer to manager, marketing development.

Mr. **Vollmer** earned a B.S. degree in chemical engineering from Virginia Polytechnic Institute and holds patents relating to boiler controls. He has written several technical papers and is a member of the Instrument Society of America.

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

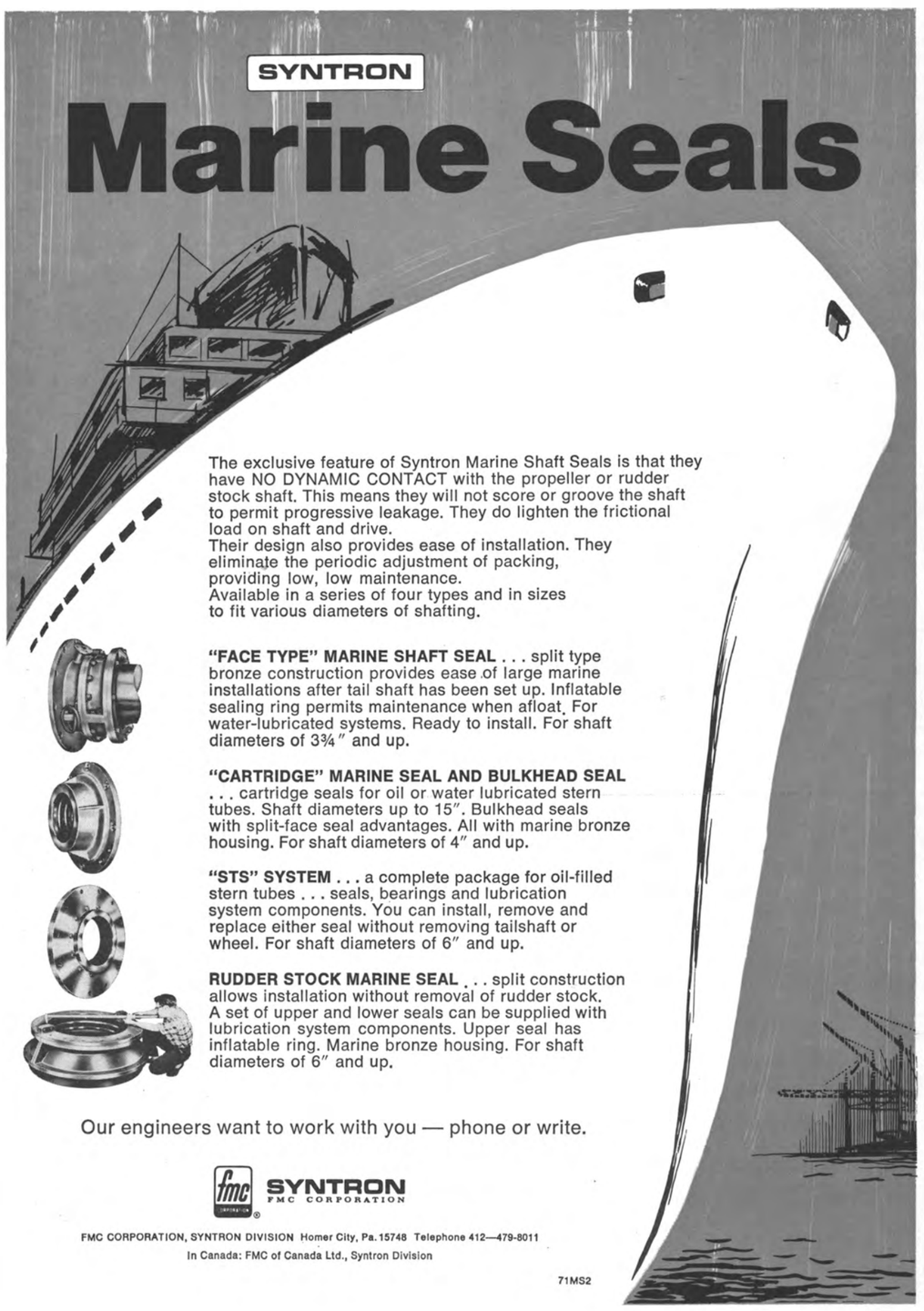
## Newly Formed HALNAV Named Northeast U.S.A. Agents For Combi Line

**S. van der Pol,** general freight manager for the Holland-America Line, has announced the formation of HALNAV, Inc., 17 Battery Place, New York, N.Y. This corporation is a joint operation by the Holland-America Line and the United States Navigation, Inc. HALNAV, Inc. has been appointed sales and marketing agents for the Northeastern U.S.A. territory for Combi Line, a combined service of Hapag-Lloyd AG and Holland-America Line, between the Gulf and South Atlantic ports and northern Continental Europe.

**S. van der Pol** is president of HALNAV, Inc. and is stationed in New Orleans, La. The New York officers are **John W. Oelsner,** secretary-treasurer; **Paul F. Ware,** vice president; and **John F. Dubbelman,** vice president.

SYNTRON

# Marine Seals



The exclusive feature of Syntron Marine Shaft Seals is that they have NO DYNAMIC CONTACT with the propeller or rudder stock shaft. This means they will not score or groove the shaft to permit progressive leakage. They do lighten the frictional load on shaft and drive.
Their design also provides ease of installation. They eliminate the periodic adjustment of packing, providing low, low maintenance.
Available in a series of four types and in sizes to fit various diameters of shafting.



**"FACE TYPE" MARINE SHAFT SEAL** . . . split type bronze construction provides ease of large marine installations after tail shaft has been set up. Inflatable sealing ring permits maintenance when afloat. For water-lubricated systems. Ready to install. For shaft diameters of 3¾" and up.



**"CARTRIDGE" MARINE SEAL AND BULKHEAD SEAL** . . . cartridge seals for oil or water lubricated stern tubes. Shaft diameters up to 15". Bulkhead seals with split-face seal advantages. All with marine bronze housing. For shaft diameters of 4" and up.



**"STS" SYSTEM** . . . a complete package for oil-filled stern tubes . . . seals, bearings and lubrication system components. You can install, remove and replace either seal without removing tailshaft or wheel. For shaft diameters of 6" and up.



**RUDDER STOCK MARINE SEAL** . . . split construction allows installation without removal of rudder stock. A set of upper and lower seals can be supplied with lubrication system components. Upper seal has inflatable ring. Marine bronze housing. For shaft diameters of 6" and up.

Our engineers want to work with you — phone or write.

SYNTRON
FMC CORPORATION

FMC CORPORATION, SYNTRON DIVISION Homer City, Pa. 15748 Telephone 412—479-8011
In Canada: FMC of Canada Ltd., Syntron Division

71MS2

## National River Academy Holds Annual Meeting

Pictured above are the officers of The National River Academy of the United States of America for the year 1971-72. They are, from left: **Sheldon G. Held,** Rivers and Gulf Marine, Inc., Helena, Ark., educational committee chairman; **John M. Donnelly,** Ingram Barge Company, New Orleans, La., vice president; **Pierre R. Becker,** director; **Floyd A. Mechling,** A.L. Mechling Barge Lines, Joliet, Ill., president; **B.D. (Doug) Brandon,** Arkansas State Representative, Little Rock, Ark., secretary-treasurer; **Liz Ashcraft,** assistant secretary-treasurer, and **William J. Wolter,** Waterfront Services Company, Cairo, Ill., membership committee chairman. Not pictured is **James E. (Jim) Walden,** Helena Marine Service, Inc., Helena, Ark., building and site committee chairman.

**Floyd A. Mechling,** chairman of the board of directors of The National River Academy of the United States of America, has announced that five new regular and five new associate and affiliate members were elected to the board of directors at its annual meeting held March 25, 1971, at the Holiday Inn in Helena, Ark.

The National River Academy is an incorporated nonprofit educational institution that is for the inland waterway industry. It is financed by contributions and membership fees of members of the industry, related industries and friends of the industry.

The following officers for 1970 were reelected by acclamation: **Floyd A. Mechling,** president; **John M. Donnelly,** vice president; and **B.D. Brandon,** secretary-treasurer. A new office, that of assistant secretary-treasurer, will be filled by **Mrs. Liz Ashcraft.** Capt. **Pierre R. Becker,** Chief, Manpower Development, Maritime Administration, Crofton, Md., has been granted a leave of absence by **Andrew E. Gibson,** Assistant Secretary of Commerce, Maritime Affairs, Maritime Administration, to fill the position of director of the academy. He has been serving as acting director.

The new regular members elected to the board are: **Lea Brent,** vice president, Brent Towing Company, Inc., Greenville, Miss.; **Howard G. King,** president, Arrow Transportation Company, Sheffield, Ala.; **M.E. Midgley,** executive vice president, Nilo Barge Line, Inc., St. Louis, Mo.; **Noble C. Parsonage,** executive vice president, Pott Industries, Inc., and **William J. Wolter,** president, Waterfront Services, Cairo, Ill.

The new associate and affiliate members elected to the board are: **William L. Hankins,** manager, Western District, Plymouth Cordage, Division Columbia Rope Company, Chicago, Ill.; **Sheldon G. Held,** president, Rivers and Gulf Marine, Inc., Helena, Ark.; **Gene Raff,** admiralty attorney, Helena, Ark.; **L.E. Thompson,** executive vice president, Pine Bluff Terminal Warehouse Company, Pine Bluff, Ark., and Capt. **Louis DeLong,** marine consultant, St. Louis, Mo.

The 1970 regular members reelected to the board of directors are: **Gale H. Chapman Sr.,** vice president, operations, Upper Mississippi Towing Corporation, Minneapolis, Minn.; Capt. **Noble Gordon,** president, Mid-South Towing Company, Tampa, Fla.; **Alvan D. Osbourne,** vice president, operations, Union Barge Line Corporation, Pittsburgh, Pa.; Capt. **James E. Walden,** Helena Marine Service, Helena, Ark., and Capt. **Jack Wofford,** vice president, operations, American Commercial Barge Line Company, Jeffersonville, Ind.

The 1970 associate and affiliate members reelected to the board of directors are: **T.F. Ellis Jr.,** president, Ellis Towing and Transportation Company, Galveston, Texas; **Francis L. Thompson,** chairman of board, Phillips National Bank, Helena, Ark., and Dr. **Bart Westerlund,** University of Arkansas I.R.E.C., Little Rock, Ark.

**H.K. Thatcher,** executive vice president, Ouachita Valley Association, Camden, Ark., was named honorary director of the board.

Mr. **Mechling** appointed the following members to serve as chairman on the following committees: Mr. **Donnelly,** finance and rules and by-laws; Captain **Walden,** building and site; Mr. **Wolter,** membership, and Mr. **Held,** educational.

## New Joint Venture Formed By Bailey And Japanese Firm

Bailey Meter Company and Kyokuto Boeki Kaisha officials in Tokyo forming a new joint venture, Nippon Bailey KK. The new plant will initially engineer and manufacture Bailey analog control systems with the Japanese firm handling the sales in Japan. In the photograph are, clockwise from top left: **Y. Anzai; R. Takahashi; Y. Hirata;** president **S. Shimizu** of Kyokuto Boeki Kaisha, Ltd., and **C.H. Barnard,** vice president of international operations for Bailey Meter Company.

Bailey Meter Company and its representative, Kyokuto Boeki Kaisha, Ltd. (KBK), have formed a joint venture in Japan. The new company will be known as Nippon Bailey KK, with a new plant located in Mishima, about 100 miles from Tokyo.

The firm will engineer and manufacture control systems and products from Bailey components produced in the United States and Canada. Marketing in Japan will be done by Kyokuto Boeki Kaisha, Ltd., and elsewhere by Bailey. KBK has served as Bailey's marketing representative in Japan since 1951.

The board of directors for Nippon Bailey KK will be chairman of the board **T. Okita** of KBK, **Y. Hirata,** president of Nippon Bailey KK, **C.H. Barnard** of Bailey, and **R.J. Cantwell** of Bailey's parent company, Babcock & Wilcox. In addition, **P.P. Weidinger** of Bailey will relocate to Japan to become vice president of planning and marketing for the new organization.

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

## Crossocean Shipping Appoints Marko Zaja

Crossocean Shipping Co. Inc., the New York based firm which serves as United States general agents for Jugolinija and other maritime companies in Yugoslavia and Pakistan, has announced the appointment of **Marko Zaja** as its new president.

Prior to coming to the United States, Mr. **Zaja** was director of Indian Ocean services for Jugolinija in Rijeka, Yugoslavia, and earlier he served for six years as owner representative in Buenos Aires.

## Kenner Shipyard Elects James Bleke Senior Vice President

James H. Bleke

Kenner Shipyard, Inc. of St. Louis, Mo., and New Orleans, La., has announced the election of **James H. Bleke** as senior vice president and as a member of its board of directors. Mr. **Bleke** will office at the Kenner, La. yard. Kenner Shipyard, a wholly-owned subsidiary of Rose Barge Line, Inc., St. Louis, provides barge maintenance and repair services in the Port of New Orleans area.

**W.R. Murphy,** president of Kenner and Rose, said that Mr. **Bleke** will be in charge of all Gulf port operations and activities of Kenner, and Kenner Bend Fleet Division. Mr. **Murphy** added that **Hugh L. Hammond** will continue as general manager of the shipyard division, and that **Harold L. Brewick** will remain in charge of fleeting at Kenner Bend Fleet Division as port superintendent.

Mr. **Bleke** was formerly manager of Continental Grain Company's grain elevator at Westwego, La., one of the largest export grain facilities in the nation. After joining Continental Grain in 1966, Mr. **Bleke** was assistant to the vice president of operations and engineering, and was then promoted to corporate manager of operations.

Previously, Mr. **Bleke** was senior project engineer for Central Soya Company, Ft. Wayne, Ind., where he was responsible for design and construction of several major building facilities. A registered professional engineer, Mr. **Bleke** was graduated from Purdue University in 1952 with a degree in mechanical engineering.

## Shell Oil Honored At Offshore Conference

Shell Oil Co. has received the first Offshore Technology Conference Distinguished Achievement Award for development of important offshore drilling techniques and equipment. Shell was selected from among the nation's leading organizations engaged in ocean technology, science and research.

The 1971 O.T.C. Distinguished Achievement Award was presented to Shell at the Third Annual Offshore Technology Conference in Houston, Texas, by **M.L. Rizzone,** chairman of the conference executive committee. **Denis B. Kemball-Cook,** president of Shell Oil Co., accepted the award on behalf of his company.

## J. Ray McDermott Elects Richard Lietz VP

**Roger W. Wilson,** president of J. Ray McDermott & Co., Inc., New Orleans, La., has announced the election of **Richard T. Lietz** as a vice president of the firm.

Mr. **Lietz** serves as general manager of McDermott's Harvey Division Group, which includes the Marine Pipeline, Dredging, Inland Service and Dick Evans Divers Divisions. He succeeds the late **L.E. Stewart,** former vice president and general manager of the Harvey Division Group, who passed away on April 7 after a prolonged illness.

An employee of 13 years, Mr. **Lietz** joined McDermott as a salesman in Harvey in the fall of 1957. From 1958 to 1960, he was in charge of sales for McDermott's Venezuelan operations, and from 1960 to 1970, served as manager of Middle East operations.

Born in Breckenridge, Texas, Mr. **Lietz** is a 1947 graduate of Texas A&M University and holds a B.S. degree in civil engineering. Prior to joining McDermott, he was employed with Gulf Oil Corporation, having responsibility for all construction activities in southwest Louisiana.

A veteran of World War II, he served in the European Theater, with the rank of captain in the Corps of Engineers.

## Mitsubishi Delivers Ore Carrier 'Moslane'

Mitsubishi Heavy Industries, Ltd., recently delivered the Moslane, an 83,140-dwt ore carrier, for Mosvold Shipping Company at its Yokohama Shipyard & Engine Works.

The new vessel has an approximate length bp of 742 feet, a molded breadth of 117 feet, and a molded depth of 65 feet. She is powered by a Mitsubishi Sulzer diesel engine, Model 7RND90, with a maximum output of 20,300 hp at 122 rpm providing a service speed of 15.4 knots.

One ore hold is located between the two parallel longitudinal bulkheads. Water ballast tanks and fuel oil tanks are arranged on both sides. In order to unload ore more efficiently, the ore hold has no transverse bulkheads inside. It has eight sets of hatches which are provided with the Mitsubishi type side rolling hatch covers. The water ballast tanks, which are filled in normal ballast condition, are painted with "tar epoxy" paint in the ranges of approximately five feet under the deck and five feet above the bottom. Cathodic protection is applied to the other range. An impressed current system is provided on the shell plating, and all deck machinery is of the electro-hydraulic type.







## Thos. C. Wilson, Inc. Appoints James Harrell

James M. Harrell

**Charles Hanley,** president, Thomas C. Wilson, Inc., Long Island City, N.Y., has announced the appointment of **James M. Harrell** as marketing manager.

Thomas C. Wilson, Inc., founded in 1927, is a manufacturer of pneumatic tools, tube cleaners, tube expanders and auxiliary equipment used in the manufacture and repair of heat exchangers, boilers and other tubular products.

Mr. **Harrell** graduated from the U.S. Merchant Marine Academy, Kings Point, N.Y., and the University of Houston. Previous positions held by him included those of national sales manager for Carf Laminating Research, manager of ITT Henze Service (Environmental Products Division of ITT), and market supervisor, southern California, for Owens-Corning Fiberglas Corp.

Mr. **Harrell's** military experience includes U.S. Navy service on submarines and surface ships as commander, serving as engineering officer, executive officer, and commanding officer.

## Clearkin Chemical Appoints John Conley

John P. Conley

**John P. Conley** has been appointed sales manager by the Clearkin Chemical Corporation of Philadelphia, Pa.

Mr. **Conley** will oversee the sales of Corrosion Battler in the United States and make periodic visits to the firm's offices in London, Rotterdam and Oslo.

Mr. **Conley** graduated from Villanova University's School of Business Administration in 1960 and has, until the present, been a manufacturer's representative, handling several diversified lines of products.

## ACT Names Woods Marketing Manager

James J. Woods

**James J. Woods** has been appointed manager of marketing for Associated Container Transportation (ACT) in North America, it was reported by **Michael B. Northen,** president of the container consortium.

Mr. **Woods** will also have the responsibility for marketing functions for Pacific America Container Express, a combined service operating between ports on the East Coast of North America, and Australia and New Zealand.

He was previously sales training manager at United States Lines, Inc. for several years, and was charged with overall manpower development and the direction of a number of marketing and management programs. He was also responsible for conducting international sales meetings.

## M.A.N. Machine Repairs Diesels Aboard Ship Without Disassembly

M.A.N. has developed a bedplate and top plate milling machine for marine diesel engines. It is suitable for machining both contact surfaces aboard ship, i.e. the diesel engine need not be dismantled.

As diesel engines must have a perfect fit on their foundations, shims are fitted between bedplate and top plate. These shims transmit the weight and the forces to the hull. A firm connection of the engine with the hull depends on the accuracy of the contact surfaces.

Due to various influences, mostly from outside, these shims may work themselves into the contact surfaces. Wear is increased by fretting corrosion and slight relative displacements caused by hull deformations while the ship is at sea. This will reduce the tightening force of the foundation bolts, which may finally become completely loose. Unless this fault is detected in time and the foundation bolts re-tightened, the contact surfaces will be badly damaged.

Space conditions below the bedplate do not allow repairing of the damaged surfaces by hand. Hence, it was necessary to lift the whole engine from the top plate in order to repair the contact surfaces if they were damaged. This is an insoluble problem with a large diesel engine unless the engine is disassembled.

The milling tool developed by M.A.N. is only about 1.6 inches high and can be inserted between bedplate and top plate. For this purpose, one has only to remove the fitted shims section by section. The milling tool must then be inserted into the gap, where it is firmly clamped by means of pressure screws.

After machining of the part, e.g. the top plate, the slide is taken out of the frame together with the milling tool and is replaced by an upward-working slide. After completion of the milling, which can be done by a single worker, new shims are fitted. This working sequence is repeated on every pair of contact surfaces. The contact surfaces can be machined conically in order to suit the tapered shims, and the feed screw and the milling tool can be driven both by compressed air and electrically.

Necessary repairs on the top and bedplates of marine diesel engines, which have so far caused weeks of docking time to the vessels, can now be carried out by this foundation milling machine aboard ship in a relatively short time. For carrying out repairs on the top and bedplate of a motorship according to the old method, a working time of 42 days was estimated in a particular case. With the new milling machine, these repairs could actually be carried out aboard ship within two weeks.

## Beth Steel's Hoboken Yard Adopts 'Mobile Yard' Concept

A mobile ship repair yard unit, comprising two house-type trailers, two mini-buses and a pickup truck, preparing to leave Bethlehem Steel's Hoboken, N.J., yard for the Port Authority Terminal at Elizabeth, N.J.

When the 7,800-dwt containership S/S Gateway City reached Port Elizabeth, N.J., on March 28, she bore witness to one of the worst Atlantic storms of the season. Her foredeck had a foot-long crack, her forepeak and chain locker were flooded, and many of her handrails had been washed away by the heavy seas. Nevertheless, 23 hours after her arrival she departed the port on schedule, and with her damages repaired.

This fast turnaround of the Gateway City was made possible by a new "mobile yard" concept developed by Bethlehem Steel's Hoboken, N.J., shipyard, and close cooperation between the shipowner's operating and port engineering personnel and the shipyard's technicians.

Pier side and anchorage repairs are not new. But of necessity, they involve considerable shuttling of manpower, tools, machines and materials between the owner's berth and the repair yard. To reduce this shuttling to the minimum and make available to the shipowner key shipyard personnel who can quickly respond to his needs, Bethlehem developed the new mobile unit system to complement its normal pier side and anchorage repair services. In explaining the new concept, **Joseph D. Ingham,** general manager of Bethlehem's Hoboken yard said, "if a ship can't come to the yard, we'll bring the yard to the ship."

The new "mobile yard" program is designed for active ship berthing areas, like the Elizabeth, N.J., Port Authority Terminal. Here, one can generally find as many as 10 ships daily in the process of taking on or discharging cargo. Because most of these vessels are containerships, fast turnaround is essential. One of Bethlehem's "mobile yard" units is located at the Port Authority Terminal. It consists of two 50-foot house-like trailers, two minibuses, and a pickup truck.

One of the trailers is a round-the-clock office which houses three supervisory officials of the Bethlehem yard. The other is a combination tool and supply room. This trailer also houses a complete pipe shop for anything up to two inches in diameter. Portable welding, burning, air compressor and pumping equipment are also on hand. The mini-buses transport craftsmen from the shipyard to the terminal, which is only 30 minutes from the Hoboken yard—one of the largest and most modern ship repairing plants on the East Coast. The pickup truck carries both men and equipment.

The key to the new concept is the fact that the three Bethlehem shipyard supervisors assigned to the mobile unit are stationed at the terminal rather than at the yard. Thus, if a shipowner suddenly decides a repair job is necessary or wants to extend a scheduled one, he phones the office trailer and talks to a ship repair expert who is only minutes away from the ship. There is no necessity to phone the yard and request that an engineer come to the terminal to discuss the repairs and set up work schedules. There is no shuttling of key personnel to and from the yard. The experts are there at the terminal, on a 24-hour basis if necessary, and man power is only half an hour away. Generally, here's how the system operates.

When an inbound containership is two days out, it radios the port captain with a list of requested pier side repairs. The captain and his port engineers then process these work requests into item form. This information is passed on to the Bethlehem mobile unit project superintendent, **Walter H. Williams.**

Mr. **Williams** began working at the Hoboken yard in 1933 as an apprentice pipe fitter. Since then, he has been a supervisor, estimator, negotiator and contract administrator.

Mr. **Williams** discusses the necessary work with ship superintendents **Ray Costello** and **Walter Shade Jr.,** who are also stationed at the terminal. Their job is to assure that man power and material are available when the vessel arrives, and that a speedy repair is completed without interference to discharge or loading operations.

Mr. **Costello** is a long-time Bethlehem employee with extensive experience in pier side repair. Mr. **Shade,** a 1969 graduate of the University of Maryland, was a member of that year's Bethlehem training program for college graduates, and was assigned to ship repair.

When a repair job is beyond the capability of the mobile unit, the defective part is dispatched to the Hoboken yard where full machine shop services are available. Discussing the Elizabeth Port operation, Mr. **Williams** said: "Containerships are successful because of fast loading and unloading. By necessity, repair time must be short and we must be able to act quickly, and we do."

The Gateway City, for instance, arrived in the port at about one o'clock in the morning. Waiting to greet her and prepared to go to work at once, were the Bethlehem yard craftsmen necessary for the job, as well as the required tools, machines, and materials. From then on out, it was a race against the clock. With key Bethlehem personnel and Sea-Land's experienced port engineers on hand to supervise, inspect and check the progress of the work, the race was won and the Gateway City sailed on schedule.

## New Name Approved For Dept. Naval Architecture And Marine Engineering At M.I.T.

Massachusetts Institute of Technology reports that on April 2, 1971, the Executive Committee of M.I.T. Corporation formally approved a change in the name of the Department of Naval Architecture and Marine Engineering to "Department of Ocean Engineering."

The announcement was made by Dr. **Alfred H. Keil,** head of the department, who is also a director, M.I.T. Sea Grant Program.

This change reflects the systematic broadening of the scope of the department over the past few years through the development of many new facets relating to engineering for greater ocean utilization and engineering for the ocean environment, such as concept formulation of marine systems; production engineering of ship systems; applications of underwater acoustics; design of ocean engineering structures; materials engineering related to ocean applications; economics related to marine systems; marine decision-making under conditions of uncertainty; marine power systems; transportation of commodities by marine systems; development of marine resources, and public policy and law as it relates to the seas.

These developments, together with an expansion of the department's engineering science base, have provided the foundation for the development of ocean engineering and for the strengthening of naval architecture and marine engineering.

## Philadelphia SNAME Discusses Contract Types & Management

Shown above at the Philadelphia Engineer's Club, left to right: (standing) **W.O. Whitaker,** discusser; **B.B. Cook Jr.,** executive committee; **G.A. Johnson,** secretary-treasurer; (seated) **R.W. Williams,** discusser; **D.F. McMullen,** author, and **J.H. Klose,** J.J. Henry Co., Inc.

The Philadelphia Section of The Society of Naval Architects and Marine Engineers held their monthly meeting at the Philadelphia Engineer's Club, March 19, 1971.

During the technical session, a paper was presented by **David F. McMullen,** of the J.J. Henry Co., Inc., entitled "An Introduction to Contract Types and their Management." Seventy-two members and guests heard Mr. **McMullen** describe the 13 basic types of contracts in use today. The management of those contracts was reviewed with the aim of providing the naval architect and marine engineer with an acquaintance of contracts and their administration. The choice of the proper contract to suit a given set of conditions was also discussed from the viewpoint of both buyer and seller.

Discussions were presented by **R.W. Williams,** Sun Shipbuilding & Dry Dock Company; **W.O. Whitaker,** Nuclear Service & Construction Co.; **J.D. Frack,** Maryland Shipbuilding and Dry Dock; **S.S. Morse,** ARCO; and **R.F. Brunner,** Avondale Shipyards.

## Lloyd's Register Of Shipping Reports Shipbuilding Returns For First Quarter Of 1971

Lloyd's Register of Shipping reports that at the end of March there were under construction in the world 1,956 ships totaling 22,043,511 tons gross. This does not include those building in Communist China and Russia. This is 533,091 tons gross more than last quarter; it is the fifth consecutive quarterly increase and is the highest figure ever recorded.

The total order book which, apart from the ships now building, also includes those on order but which have not been commenced, stands at the record figure of 82,398,839 tons gross. Although this is 3,894,845 tons more than at the end of the previous quarter, only Japan, France and Norway show substantial increases to their order books. Japan's total now stands at 32,168,680 tons gross. The figure for the U.S.A. is 1,600,687 tons.

Of the ships under construction and on order, 48.9 percent are tankers and 33.1 percent bulk carriers. Container tonnage amounts to 3.2 million tons gross.

6,614,234 tons gross of the ships actually under construction are now being built under the supervision of Lloyd's Register.

# Port Of Galveston To Be West Gulf Terminal For Lykes SEABEE Barge-Carrying Ships

This architect's rendering shows the Port of Galveston's barge-carrying ship berth and covered barge terminal for loading/unloading and interchange, located on Galveston's Piers 34 and 35. Construction is under way on this facility and it will be ready to receive barges and ships later this year.

Lykes Bros. Steamship Co., Inc. and the Galveston Wharves announce the signing of contracts covering utilization by Lykes of new Galveston port facilities for their SEABEE barge-carrying ships.

At a joint press conference held at the Jack Tar Hotel in Galveston, **W.J. Amoss Jr.**, Lykes's executive vice president, and **C.S. Devoy,** Galveston port director, signed three contracts calling for expenditures well in excess of $1 million by the end of the year by the Wharves in new facilities. The first is a 10-year lease, providing first call on berth privileges for the SEABEE ships at a new deepwater dock to be constructed this year in Galveston. The second is a three-year lease, providing for first call on berth privileges for the SEABEE barges at a new covered barge loading, unloading, and interchange terminal, the first stage of which will be constructed this year in Galveston. The third is a three-year lease, providing for first call on berth privileges for the SEABEE barges at a new barge marshaling yard to be constructed on Pelican Island.

The berth for the 875-foot SEABEE ships will be constructed on the Pelican Island side of the Galveston channel. The concrete T-head facility will be connected by roadway to Pelican Island, and by catwalks to massive dolphins for berthing the superships. A 40-foot draft berth, 1,200 feet long, will be dredged to accommodate the SEABEEs. Dredging will be done adjacent to the berth on Pelican Island for the port's marshaling yard for barges.

The covered barge terminal concept designed by the Galveston Wharves provides all-weather working conditions under cantilevered covers extending 40 feet over the slip and 40 feet back over the Pier 35 apron and transit shed. Bridge cranes of up to 35-ton capacity are hung from the cantilevered cover. The first 180 feet of cover will be constructed this year to serve the SEABEE barges, to be carried by the S/S Doctor Lykes, the first of three SEABEE vessels which will be completed late this year. The covered facility will not only permit loading and unloading of barge cargoes, but also interchange of cargo from one barge to another. Mr. **Devoy** explained that future plans include provision of up to 750 feet of the covered barge terminal facility in the 34-35 Slip.

The Galveston Wharves performs all railcar and truck loading and unloading services in its facilities, as well as operating the 50-mile terminal switching railroad.

The covered barge terminal facility will be located within the port's present slip between Piers 34 and 35. This 750-foot by 200-foot slip is served by the 100,000-square-foot Pier 35 concrete, sprinkled warehouse. This existing facility represents an investment by the Wharves of over $5 million. Within the past year, the port has completed over $350,000 of bulkhead and apron rehabilitation work on both Piers 34 and 35. Contractors are presently removing sulfur storage facilities at Pier 34 and widening the open concrete apron to a 70-foot width, as well as hardtopping upland acreage for truck terminal facilities.

Mr. **Amoss** said Lykes has under construction three SEABEE barge-carrying ships at General Dynamics's yard in Quincy, Mass., at a cost of over $100,000,000. The first SEABEE is scheduled to be delivered to Lykes in December 1971.

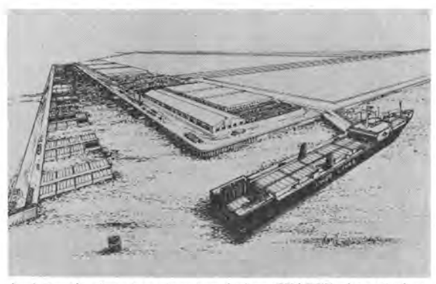
Lykes has recently concluded a contract for construction of 246 SEABEE barges with Equitable Equipment Company of New Orleans, La. SEABEE barges are 97½-feet long, 35-feet wide, and carry 850 long tons of cargo.

The Galveston Wharves purchased 256 acres of land on Pelican Island at a total cost of $336,800 in 1970, all of which will be used in the handling of SEABEE and LASH barges in Galveston, Mr. **Devoy** said. This will include 206 acres for a barge fleeting station, and up to 50 acres for a marshaling yard and support facilities. The initial Lykes operations will involve wharves, land, and improvements valued in excess of $7 million.

Mr. **Amoss** said the SEABEE fleet is expected to substantially increase the tonnage of shipments out of Galveston to European and United Kingdom ports. The new ships will be 3.5 times larger than the present Lykes vessels in this service and will complete their voyages in half the time now required. They are expected to serve Galveston on a 10-day frequency rate. Each SEABEE is 875 feet long, with a draft of 36 feet 10 inches when fully loaded.

"Galveston will be the West Gulf terminal for the barge-carrying SEABEEs, Mr. **Amoss** said. "Barges loaded in the West Gulf, from Brownsville to Lake Charles, will be brought to Galveston for loading on the mother ship."

Sometime ago, when Lykes named Galveston as its SEABEE terminal point for the West Gulf, Mr. **Amoss** attributed the decision to the action of the Galveston voters last year in putting through a "Save Our Port" campaign, resulting in a successful bond election, assuring future support of the port by tax funds.



Architect's drawing showing Lykes SEABEE ship tied up at its West Gulf Terminal on Pelican Island, Galveston, located on the north side of the Galveston ship channel. Barge marshaling yard at left. Construction contracts were signed between Lykes and Port of Galveston.

## National Cargo Bureau Elects Officers

The Twentieth Annual Meetings of Members and Directors of National Cargo Bureau, Inc. were held on Monday, April 12, 1971, at 99 John Street, New York, N.Y.

**G.C. Halstead,** president of Alcoa Steamship Company, Inc., was reelected president of the bureau. **R.A. Murphy,** director, Chubb & Son Inc., was reelected first vice president, and **T.J. Smith,** president of Farrell Lines, Inc., was reelected treasurer. Capt. **Hewlett R. Bishop,** executive vice president, and **Jerome P. Scully,** secretary, continue in their respective positions.

The members elected the following to the board of directors: Adm. **C.R. Bender,** Commandant, USCG; **G.G. Brown,** vice president, Crum & Forster; Vice Adm. **A.R. Gralla,** Commander, Military Sealift Command, USN; **L.C. Howard Jr.,** president, Hinkins Steamship Agency; **D.H. Miller,** president, Donald H. Miller, Inc.; **F.E. Prince,** president, W.J. Roberts & Co., Inc., and **T.J. Smith,** president, Farrell Lines, Inc.

G.C. Halstead

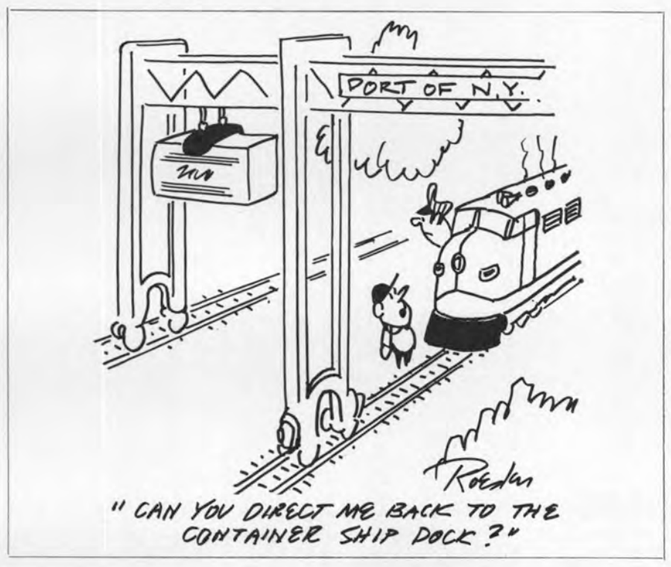
In his annual president's message, Mr. **Halstead** reported that the bureau had conducted over 31,000 inspections during 1970. Mr. **Halstead** also commented on the bureau's designation by the United States Coast Guard as a "certifying authority" for the inspection of containers for customs purposes and highlighted the bureau's activity, both domestic and foreign, including its liaison with various Government and industry regulatory bodies.

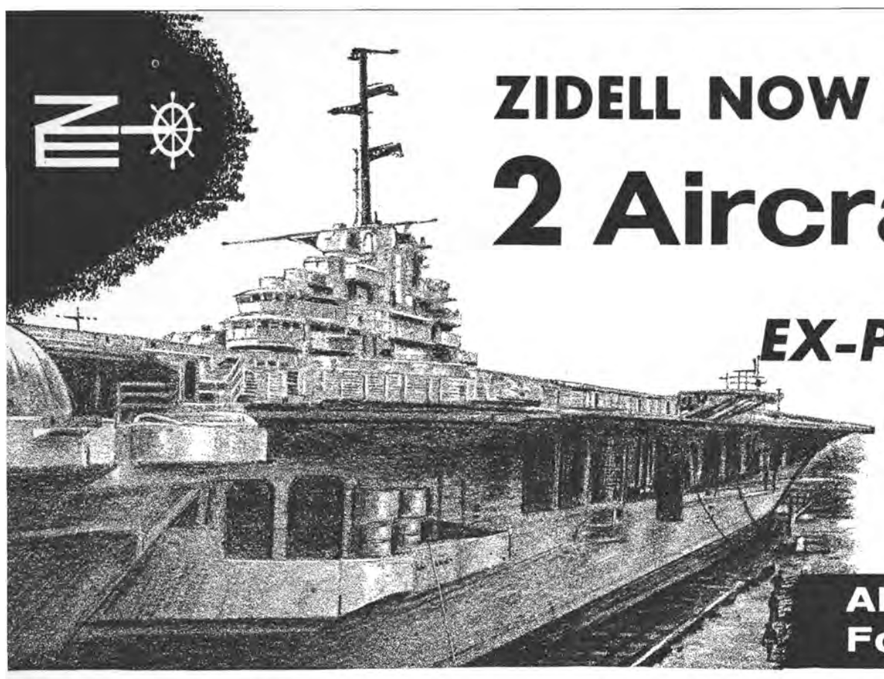
With regard to international activities, Captain **Bishop** reported on the International Container Conference to be held in 1972 in Geneva, Switzerland, under the auspices of the Inter-Governmental Maritime Consultative Organization, and the United Nations. This conference will cover, among other subjects, (1) safety agreements and (2) inspection, testing, and certification of containers. The bureau's participation is through the IMCO Sub-Committee on Containers and Cargoes, of which Captain **Bishop** is chairman, and which subcommittee had the responsibility of preparing the first draft of the container convention dealing with the above two subjects. Work on this draft will be continued by the Sub-Committee on Containers and Cargoes and will also be considered by the Inland Transport Committee of the Economic Commission for Europe. This procedure of drafting international regulations for safety of containers is revolutionary, since it is being done without the benefit of national requirements.

The carriage of timber deck cargoes will be the subject of a paper to be presented by the Canadian delegation to the meeting of the IMCO Sub-Committee on Containers and Cargoes in May, suggesting that the SOLAS 1960 Convention be amended accordingly. It is anticipated that these regulations will be put into effect in Canada in the near future.



**SUMITOMO BULK CARRIER:** Sumitomo Shipbuilding & Machinery Co., Ltd., recently delivered the M/V Maritime Reliance, a 25,731-dwt bulk carrier for Fidelity Navigation Co., Inc., of Panama, from its Uraga Shipbiulding Yard in Yokosuka. Specially equipped hatches, cargo holds, and cargo gear enable the vessel to transport any kind of bulk, such as grain, coal, ore, lumber, steel, etc. Built to ABS classification, the Martime Reliance has an approximate length bp of 499 feet, a molded breadth of 83 feet, and a molded depth of 48 feet. She is powered by a Sumitomo-Sulzer diesel engine 6RD76 with a maximum continuous rating of 9,600 hp at 119 rpm delivering a service speed of 14.5 knots. The Maritime Reliance is a sister ship of the previously delivered M/V Snow White and the M/V Princess Aurora.





# ZIDELL NOW DISMANTLING

# 2 Aircraft Carriers

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

BUILT 1945

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

BUILT 1946

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

## All Machinery and Equipment For *IMMEDIATE SALE!*

### TURBINES

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

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

TURBO GENERATOR

### TURBO-GENERATORS

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

### REDUCTION GEARS

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

### ANCHORS

**-4-**

**30,000 Lb. Stockless**

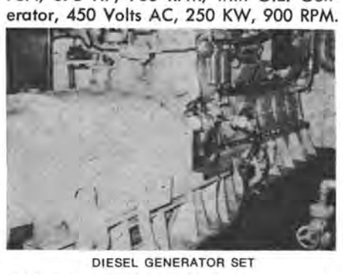
### ANCHOR CHAIN

**-Approx. 30 Shots-**
**3⅜" Anchor Chain**

Doors, Fans, Chocks and Cleats

### DIESEL GENERATOR SETS

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



DIESEL GENERATOR SET

### BOILERS

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

### CONDENSERS

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

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

DISTILLING PLANT

### DISTILLING PLANTS

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

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

### PUMPS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### MOTOR-GENERATOR SETS

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

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

GENERATOR SET

### WINCHES & WINDLASSES

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

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

### COMPRESSOR

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

### MACHINE TOOLS

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

### EJECTOR ASSEMBLY

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

*THOUSANDS OF OTHER ITEMS TO BE REMOVED*

## ZIDELL Explorations, Inc.

401 ALEXANDER AVE., TACOMA, WASH. 98421
Phone 206/Fulton 3-2701

3121 S.W. MOODY AVENUE, PORTLAND, ORE. 97201
Phone 503/228-8691
TELEX 36-701 · CABLE "Zidell"

## Duncan And White Appointed To Marketing Positions At GE Marine Turbine & Gear

Marvin H. Duncan

Paul V. White

**Marvin H. Duncan** has been appointed manager of product service and **Paul V. White** has been named manager of renewal parts sales for the marine turbine and gear department of the General Electric Company in Lynn, Mass., according to an announcement by **Hughes W. Ogilvie,** manager of marketing for the department.

In his new position, Mr. **Duncan** will be responsible for the after-sale service requirements of GE marine steam turbines and gears for ship propulsion and for the department's line of high precision, high performance industrial gears.

A native of Norfolk, Va., Mr. **Duncan** is a 1950 graduate of Virginia Polytechnic Institute, with a B.S. degree in mechanical engineering. He was formerly manager of installation and warranty service for the marine turbine and gear department.

Mr. **White** joined the General Electric Company in 1939 and is a graduate of GE's Apprentice Training Program. Following a number of increasingly responsible assignments at several locations throughout the United States, Mr. **White** joined the marine turbine and gear department in 1968. He was previously manager of customer maintenance service.

In his new position, Mr. **White** will be responsible for the sales of all renewal parts for marine steam turbine-gear ship propulsion, as well as for the department's line of precision industrial gearing.

**TWO FIREBOATS FROM GRAFTON: John F. Koopman,** naval architect of John W. Gilbert and Associates, owners representatives, watches as the hull of the new 6,000-gpm fireboat for the city of Boston is moved to the river bank for launching at the yard of Grafton Boat Co., Inc., Grafton, Ill. This boat and a larger craft, 78 feet in length, for the Massachusetts Port Authority, are being designed and built by the Grafton firm, which is a subsidiary of Continental Boiler and Sheet Iron Works, Inc., of St. Louis. Grafton Boat president **Edward D. Fry** expects the boats to leave Grafton this fall for their long voyage to Boston via the Great Lakes and St. Lawrence Seaway. Both craft have two G.M. Detroit diesels for propulsion, and two identical engines for their De Laval fire pumps. The vessels feature the latest in fire-fighting apparatus including foam, an articulated water tower and an under-wharf monitor.

**CANADIAN MARITIME SNAME HAS VISITORS:** The March meeting of the Canadian Maritime Section was held in St. John, New Brunswick. The Section was honored by the presence of **Daniel D. Strohmeier,** SNAME national president, **Monroe D. Macpherson,** chairman, committee on Sections, and **Robert G. Mende,** national secretary, who were introduced to member and guests by **John Shepherd,** chairman of the Canadian Maritime Section. Following the introductions and dinner, a technical paper entitled "Shore Tests of the DDH-280 Gas Turbine Propulsion System" was presented by guest speakers **H. LeGallais,** United Aircraft of Canada Ltd., and Cmdr. **E. Healey,** RCN. After the presentation, the guest speakers answered questions from members. Pictured during the meeting are, left to right: **E. Hinze,** secretary-treasurer, Canadian Maritime Section; Commander **Healey;** Mr. **Macpherson;** Mr. **Strohmeier;** Mr. **Mende;** Mr. **LeGallais;** Mr. **Shepherd; A.A. MacArthur,** general manager, Saint John Shipbuilding & Dry Dock Co., Ltd., and **R. MacArthur,** assistant general manager, Saint John Shipbuilding.

## M. Rosenblatt & Son, Inc. And NCEL Win Engineering Award

The catamaran-type hulls on the vehicle are fabricated of ASTM A36 steel plate of 26-inch diameter.

M. Rosenblatt & Son, Inc., naval architects of New York and San Francisco, and the Naval Civil Engineering Laboratory, Port Hueneme, Calif., have won the 1970-71 Design In Steel Award for Best Engineering of Transportation Equipment, for their entry of an underwater construction assistance vehicle. The design was led by **Stephen Halpern,** chief engineer of the Western Division of Rosenblatt. The vehicle performs the duties of an underwater "pickup truck."

The Design In Steel Award Program is sponsored by the American Iron and Steel Institute to give recognition to designers, architects, engineers and artists for their imaginative use of steel. The current program attracted more than 1,000 entries in 14 categories.

The experimental craft, a free-flooding electro-hydraulically-powered wet submersible, provides scuba divers with a means of carrying up to 2,000 pounds of wet-weight cargo and equipment. It can operate to depths of 120 feet at 2½ knots.

The 27-foot-long craft's catamaran-type hulls are fabricated of ASTM A36 steel plate of 26-inch diameter. These hulls are joined by two steel transverse tubes of the same size forward, and two 12¾-inch steel tubes aft. Main ballast tanks provide buoyancy for surface handling and act as landing skegs. The vehicle has a beam of 10 feet, a draft of 4 feet, and is equipped with a 4-foot by 11-foot cargo bed.

More than 90 percent of the nine-ton vehicle is carbon steel. Stainless steel appears in some of the hydraulic fittings. The designers used only commercially available components.

## Rudder Club To Hold 33rd Annual Dinner-Dance June 5

The Rudder Club, Inc., Brooklyn, N.Y., has announced that its 33rd Annual Dinner-Dance will be held at the Hotel Commodore, New York City, on June 5, 1971.

Proceeds of the affair enable the Rudder Club to provide educational grants to the most deserving students attending the United States Merchant Marine Academy, Kings Point, Long Island, N.Y., New York State Maritime College, Fort Schuyler, Bronx, N.Y., and the Seamen's Church Institute, New York City.

## Adelaide Steamship Builds Australian Tugboat Fleet —Operates In Eight Ports

Australia's largest tug, the Warrawee, just prior to her launching from Adelaide Ship Construction Birkenhead yards in South Australia.

Australia's largest tug operator and builder is applying science to the industry to obtain maximum results from its vessels. The Adelaide Steamship Company Limited group now manages more than 20 tugs based at eight major ports in New South Wales, South Australia and Western Australia.

The International Tug Conference held in Britain last year recognized the Australian tug industry as one of the most efficient in the world. Compared with other countries, Australia is able to provide a top-line service with generally smaller, less powerful tugs, despite the advent of supertankers and bulk carriers.

Adelaide Steamship Company Limited diversified into the tug building industry in 1957, when a shipyard was established at Birkenhead, South Australia, for the construction of tugs and other smaller ships.

A division of the parent company, Adelaide Ship Construction, in 13 years, has become the leading builder of tugs in Australia, and is also recognized as playing a significant part in the overall development of the country's small ship industry. The company has already launched 65 vessels, embracing a wide variety of types. Adelaide Ship Construction, employing the most up-to-date techniques, has reorganized its entire shipyard. Originally organized for traditional methods of welded ship construction, using only a small degree of prefabrication, the company now uses maximum prefabrication methods. Consequently, there is a saving in time and cost.

The yard also employs an automatic plate handling, shot blasting and marking off system with a power roller drive bed. Associated with the optical marking off system is a one-tenth scale lofting system which largely dispenses with traditional mold loft practices. Once cut to shape, the steel plates are fabricated into subassemblies ready for transfer to one of the shipbuilding berths within the yard proper, or an adjacent berth under lease.

Concurrent with technique is the company's ability to readily adopt improved ship designs. A comprehensive series of sea trials is carried out for each vessel before hand over. Before embarking on these, however, a basin trial is completed for each vessel at a wharf adjacent to the shipyard. During these preliminaries the machinery is thoroughly tested to ensure the vessel is in a fit condition to put to sea. Sea trials normally occupy two full days. They start with the compass being adjusted, followed by anchor trials, and a series of speed runs at various revolutions. The all-important test with tugs is that of pulling power. Bollard pull is measured through an 80,000-pound dynamometer at various propeller revolutions.

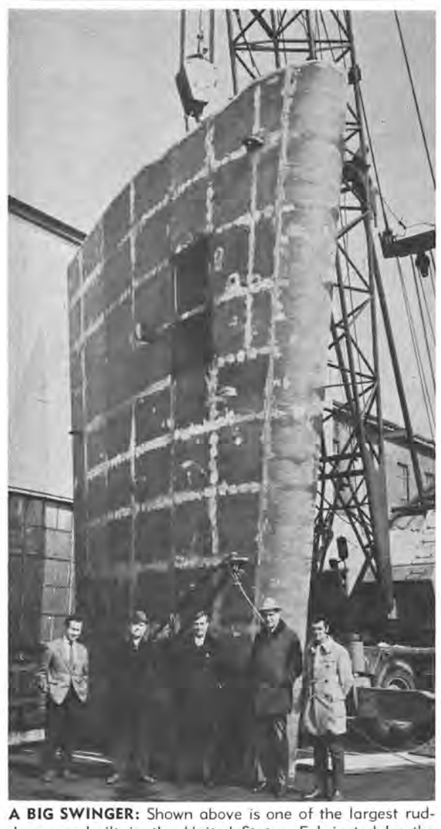
Adelaide Ship Construction recently launched the largest tug yet built in Australia. Displacing 970 tons, the vessel named Warrawee, develops 3,920 brake horsepower and has a Bollard pull in excess of 59 tons. The vessel is also designed to undertake fire-fighting and salvage assignments, and act as an auxiliary offshore rig supply ship. It is air-conditioned throughout, and has a maximum free running speed of 13.5 knots. The Warrawee is based at the port of Sydney.

Adelaide Ship Construction also manufactures other types of conventional vessels. The yard has turned out a unit-container cargo vessel, lines launches, tuna boats, special low draft craft for work on the River Murray, and has played a significant role in building special vessels connected with the offshore oil industry. Adelaide Ship Construction is located on Dunnikier Road, Birkenhead, South Australia 5015.

## Philadelphia Maritime Exchange Holds 96th Annual Meeting

Seven directors whose terms were expiring, were unanimously reelected to the board of The Philadelphia Maritime Exchange, according to an announcement made at the conclusion of the 96th Annual Meeting held April 22.

The following directors were reelected for three year terms: **William T. DeWitt,** Lavino Shipping Company; **John J. Gibbons,** Delaware River Terminal and Stevedoring Company; **Maylin H. Greaser,** American Dredging Company; **Lloyd E. Long,** Merchants Warehouse Company; **T. Rowland Marshall,** Pilots' Association for the Bay and River Delaware; **Francis H. Muldoon,** J.A. McCarthy, Inc., and **William G. Soden,** Sun Oil Company.



**A BIG SWINGER:** Shown above is one of the largest rudders ever built in the United States. Fabricated by the Bromfield Shipyard of East Boston, Mass., the rudder was shipped by barge in March to the General Dynamics Quincy Shipbuilding Division. The Bromfield yard is building a total of three of these huge rudders for installation on the Lykes barge-carrying SEABEEs currently under construction in Quincy. Shown left to right are: **Morton Bromfield,** vice president of Bromfield Shipyard; **John Davidson,** hull inspector of Lykes Steamship Company; **Joseph Sanchez,** vice president and general manager of Bromfield Shipyard; **John Ennis,** principal surveyor of American Bureau, and **Neil Rand.**

## Stauff-Pipe Clamps Receive Approval Of ABS And USCG

Buderus Steel Corporation, 120 Wesley Street, South Hackensack, New Jersey 07606, has received the approval of the American Bureau of Shipping and the U.S. Coast Guard for its Stauff-Pipe Clamps, a unique system for fastening hydraulic tubing and piping using non-marring, dimensionally stable plastic. The Stauff-Pipe Clamps, ranging in size from ¼-inch to 8-inches, have also been approved by Germanischer Lloyd, the regulating agency covering ship installations in Germany.

The Clamps, which are shock, vibration and sound absorbing, are also inert to oil, water, most chemicals and can stand temperatures up to 212° F.

The manufacturer claims that mounting is 40 percent faster than with other units and that both in terms of installation cost and elimination of all maintenance, the Stauff-Pipe Clamps represent a considerable dollar saving. They may be attached by means of single welding plates, group welding plates or support rails and can also be mounted top on top.

The Stauff-Pipe Clamps, patented in 1962, are available in two groups—the Standard Models which take hydraulic pressures up to 2,850 lbs./sq. in. and the Heavy Duty Models which are designed to withstand higher hydraulic pressures and oil velocity in the pipeline of more than 20 ft./second.

A fully illustrated brochure detailing all features may be obtained by writing to the company at the South Hackensack address.

**MONTHLY MARINE SPECIALS**

**FOR SALE**

A. **STEEL DIESEL TS TUG**—115x32x17. 3600 HP. Built 1969. $940,000

B. **STEEL DIESEL TUG**—96x23x11. 1200 HP. Rebuilt 1943. $50,000

C. **STEEL SEA GOING BARGE**—308x68x24 Rebuilt 1960. $425,000

D. **THREE STEEL DECK BARGES**—90x30x9 Built 1950. Each $12,500

E. **THREE STEEL DECK SCOWS**—80x30x8.5 Built 1940. Each $7,500

**MOWBRAY'S**
TUG & BARGE
SALES CORP.
21 WEST ST. NEW YORK N.Y. 10006
TELEPHONE (212) 422-2067

# Machinery Superintendent

Responsible for the installation and testing of main engine turbines, boilers and other mechanical equipment and machinery required aboard ships under construction. Will supervise over 200 (foremen and craftsmen) in the machinist, sheetmetal, ventilation and pipefitting trades. Degree or Marine Technical School or Apprenticeship required plus minimum of 10 years construction experience including 5 years at supervisory level in a major shipyard. Must have the ability to lead, motivate and particularly, train a large number of employees.

*Send details in confidence with salary history & requirement*

**Box 516 Maritime Reporter/Engineering News**
**107 East 31 Street New York, N. Y. 10016**
*An equal opportunity employer*

**DESIGN ENGINEERS**
**in**
**Hull Design, Steel & Outfitting**

To assume position of responsibility requiring at least three years' experience in the marine field.

**Write: Vice President-Engineering**
**The American Ship Building Co.**
**400 Colorado Ave.**
**Lorain, Ohio 44052**

**PORT ENGINEER**
**POSITION OPEN**

Located New York Area Major American Company Academy or Schoolship Graduate preferred. Extensive experience or Chief's License not necessary. Must belong MEBA good standing.

**Box 517 Maritime Reporter/Engineering News**
**107 East 31 Street New York, N. Y. 10016**

Jones, Bardelmeier, Clements & Co., Ltd. (Ocean Bulk Shipping Consultants) requires for its headquarters in Nassau, Bahamas young man, naval architect or with technical background involving new buildings and conversions. Minimum five years shore experience preferably with company operating tankers and/or bulk carriers. Send resume to Private Mail Bag 90, Nassau, Bahamas.

**PAINT SALESMAN WANTED**

Rapidly expanding world-wide marine paint service company needs a top flight marine salesman who has established contacts with steamship owners. Paint background not essential. The man we want will be able to recognize a real growth opportunity and won't be afraid to work to achieve it. Salary, bonus and commission.

**Call M. E. Schickler Comerica, Inc.**
**(212) 242-1750 1123 Broadway, N.Y.C.**

**POSITION WANTED**

Over thirty years experience in the marine industry covering all phases of new construction and ship repairs. Man desires position in supervisory capacity either in new construction or ship repairs or both. Prefer either Gulf Coast area or Great Lakes. Minimum starting salary $14,000.00 per year. Resume sent on request.

**Box 501 Maritime Reporter/Engineering News**
**107 East 31 Street New York, N.Y. 10016**

# TURBINES

**ROTORS DIAPHRAGMS**
**GOVERNORS REDUCTION GEARS**
**MISC. PARTS**

**With A.B.S. Certificates**

| | |
|---|---|
| G.E. DORV 325 | 525 KW |
| G.E. DORV 325 | 300 KW |
| G.E. DS 60 | 300 KW |
| Worthington | 300 KW |
| De Laval | 300 KW |
| Hendy (Terry Design) | 300 KW |
| Westinghouse (Victory type) | 300 KW |
| Westinghouse | 250 KW |
| Worthington | 150 KW |
| Westinghouse CA 20 | 100 HP |
| G.E. Main Turbine Rotor T2 | 6000 HP |
| G.E. HP & LP Turbine C2 | 6000 HP |
| G.E. HP & LP Turbine | 8500 HP |
| Westinghouse Turbine & Gear C4, C3 Some AP3 | 8500 HP |

**Complete Inventory List Free Upon Request**

**NICOLAI JOFFE CORPORATION**
**San Francisco Branch**
**P. O. Box 2445 445 Littlefield Ave.**
**South San Francisco, California**
**Phone (415) 761-0993**

# ANCHORS

**Specially Priced**

Unused 6,000 lbs. Navy Stockless.

One $450.00, ten or more $395.00 ea.

Loaded on conveyance Portsmouth, Va.

Also other sizes and anchor chain.

**AL EPSTEIN, INC.**
**MOST ANYTHING IN MARINE SUPPLIES**
**JA 5-5526 or JA 2-5141 — P.O. Box 51569**
**1226 St. Thomas St., New Orleans, Louisiana 70150**

# OS & D RUBBER HOSE

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

**ZIDELL EXPLORATIONS, INC.**
3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: 228-8691, Code 503 — Telex: 36-568

# REAL ESTATE

Staten Island, N.Y., 10 acres deepwater site with 1400 foot frontage on the Kill Van Kull opposite Bayonne, N.J. 23,000 square feet of buildings. M3-1 heavy industrial zone. Good transportation and Rail on site.

**August Alholm, Jr. Realtor**
**(212) 698-3828**

# NOW! Conrad built barges

**SPECIALLY PRICED FOR IMMEDIATE DELIVERY**
**120' x 30' x 7'3"**
**140' x 40' x 8'6"**

Brand new heavy duty deck cargo barges, suitable for sand, gravel and pulpwood as well as general oilfield and construction work. Call Parker Conrad.

**CONRAD**
INDUSTRIES, INC
P. O. BOX 790/MORGAN CITY, LA. 70380
TELEPHONE/AREA CODE 504-384-3060

**PRICE REDUCED**

1100 passengers, 92 gross tons, three decks, 2 lounges, 165' x 36' x 5'5" draft loaded, speed 14 knots with two 6-71 Quads total 1320 hp. Generators (2) 3-71 20kw 120 volt DC, Decca 303 radar, Fathometer, Sperry steerer. Vessel built 1944, with major widening and conversion 1959 and 1966.

**Nantucket Boat, Inc.**
**Ocean Street Dock Hyannis, Mass. 02601**
**617-775-1885**

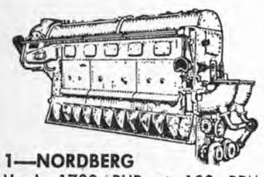
**FOR SALE F/S TYPE VESSEL**
**M/V "PELICAN STATE"**
**148'.4" x 32' x 11'.8"**
**Twin Screw PTD-8 Superiors**
**Two Hatches, Approx. 20,000 cu. ft.**
**Recently Drydocked & Audiogauged**
**Located Morgan City, Louisiana**
**Price $65,000.**
**DELTA MARINE EQUIPMENT CO., INC.**
**1145 Annunciation St., New Orleans, La.**
**504-523-3002**

# ZIDELL EXPLORATIONS, INC.

Contact: Ralph Ingram
3121 S.W. Moody · Portland, Ore. 97201 · Phone 503/228-8691 · Telex 36-701

# Marine Equipment VALUES 3 BIG PAGES PACKED FULL!

## 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.

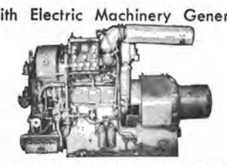
**3—COOPER-BESSEMER, Model LS-8-DR**
1300 HP, 277 RPM, direct reversing, turbo charged.

## MARINE DIESEL GENERATORS

Used, Good — Will Overhaul

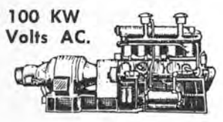
1—DeLavergne, 448 BHP, 400 RPM, 6 cylinders, with Westinghouse Generators, 300 KW, 120/240 DC.
1—DeLavergne, 560 BHP, 514 RPM, 6 cylinder, with Electric Machinery Generators, 375 KW, 450/3/60.

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.

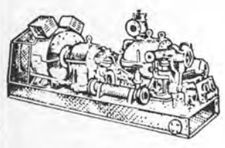
**LORIMER 100 KW 450/3/60 Volts AC.**

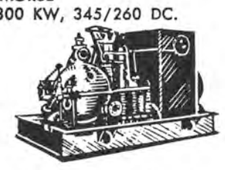


COOPER-BESSEMER
FS6, 250 KW, 440/3/60.
GM, 8-268, 300 KW, 345/260 DC.
GM, 6-278A, 300 KW, 120/240 DC.

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

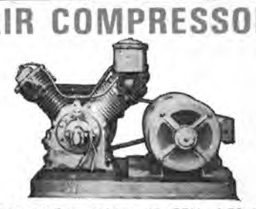
## TURBINE GENERATORS





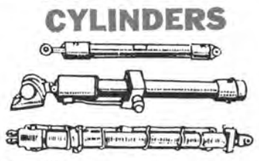
ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 120/240 DC.
ALLIS-CHALMERS, 440 PSI, 740°F, with Allis-Chalmers Generators, 300 KW, 240/240 DC.
TERRY, Type TM5, 440 PSI, 740°F, with Crocker-Wheeler Generators, 300 KW, 120/240 DC.
DE LAVAL, 450 PSI, 750°F, with Crocker-Wheeler 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.

## AXIAL FLOW FANS

**Rebuilt Guaranteed LaDel, STURTEVANT etc.**

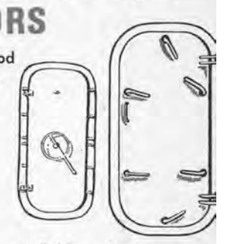
In 440 AC, in 115 DC, and in 230 DC, and i nsizes 1 HP through 20 HP. Completely reconditioned.

EXAMPLE LISTING:

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

## 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.

## PROPELLER SHAFTS

From C3M Vessel
From C3-S1-A3 Vessel,
C2-S-B1 Vessel (Moore Built,
AP2 & AP3 Victory
and Liberty Ships

**ALL ITEMS LISTED ARE OFFERED "FOR IMMEDIATE SALE" Contact Ralph Ingram, Zidell Explorations - More - Turn Page**

*Fast Service*
**on any and all inquiries**

# ZIDELL EXPLORATIONS, INC.

*Contact: Ralph Ingram*
3121 S.W. Moody • Portland, Ore. 97201 • Phone 503/228-8691 • Telex 36-701

## 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.

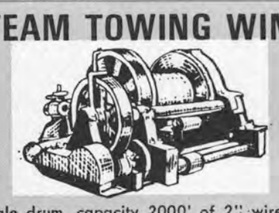
3—HESSE-ERSTED, horizontal, double wildcat, 2⅛" chain, 60 HP, 230 DC.

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

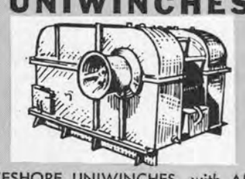
2—JAEGER, single drum—capacity approximately 900' of 1½" wire rope, double gypsy, with 35 HP Motors, 230 Volts DC, complete with electricals.

## 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

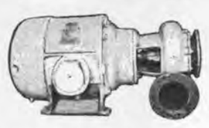
5 ton rated, Steel, as removed from surplus ships. Manufactured by: Young, Draper, etc., 12" & 14" sizes.

**$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

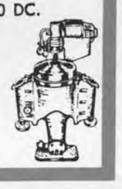
**Horizontal Rotary**

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**

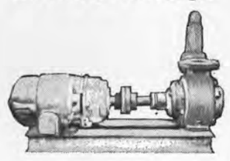
1—DE LAVAL, 550 GPM, 50 PSI, with G.E. motor, 27.4 HP, 440/3/60.

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.

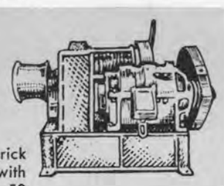
2—WARREN, Size 5, 600 GPM, with Electro-Dynamics motor, 8/4.5 HP, 230 DC.

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.

**THIS IS ONLY A SMALL PORTION OF "ZIDELL'S OVERALL INVENTORY"... Contact Ralph Ingram On All Your Need**

# 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.

## STOCKLESS ANCHORS

**USED, GOOD QUALITY . . . SAVE!**

**2,000 pound size**
**3,000 pound size**
**8,000 pound size**
**12,000 pound size**

## FAIRLEADS

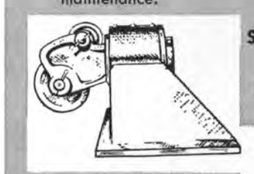
**Designed and Manufactured by ZIDELL EXPLORATIONS, INC.**

To Give You These Features:

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**

*PRICES ARE F.O.B. PORTLAND, ORE.*

## FIRE PUMPS

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

## CLYDE 17-DE-90 WHIRLEY CRANE

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

TRACK CENTERS: 20'—Engine: Cummins HBIS 601, 180 HP supercharged, elec. start

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

POWER: Diesel electric (DC)

## FORGED STEEL LINE SHAFTING

1000 Tons of miscellaneous line shafting — Call on your requirements.

**We also have . . .**
**Machinery & Equipment**

From: AP2 & AP3 VESSELS
C2-SB1 VESSELS
C3-S1-A3 VESSELS
AND LIBERTY SHIPS

CABLE CODE: "ZIDELL" PORTLAND

## SALT WATER EVAPORATORS

**OVERHAULED—TESTED**

Used, Davis Engineering or equal, with ABS and/or Coast Guard certification. 5 sizes available:

**SIZE 48-23** **SIZE 26-8**
**SIZE 36-17** **SIZE 20-5**
**SIZE 36-14**

PROMPT QUOTATIONS & DELIVERY

## ANCHOR CHAIN

Used, good, with or without test certificate .....



**1-3 / 8" size**
**1-1 / 2" size**
**1-1/16" size**
**2-1 / 4" size**

CALL ZIDELL EXPLORATIONS, INC., 503/228-8691 . . . TELEX 36-701 . . . 3121 S.W. Moody, Portland, Ore. 97201

# BARGES ON THE SPOT

**FOR CHARTER**

*Hopper Barges*

175' x 26' Open — 195' x 35' Open

*Spud Barges*

100' x 48' — 110' x 30'

*Offshore Barges*

120' x 32' — 120' x 40' — 120' x 45'

140' x 34' — 160' x 50'

*Oil Barges*

7,000 to 10,000 Bbl.

***Also available: various deck barges***

**FOR SALE**

100' x 28' x 6' Inland Deck Barge

**McDONOUGH MARINE SERVICE**

P. O. BOX 26206
NEW ORLEANS, LOUISIANA 70126/504-949-7586
BRANCH OFFICE: P. O. BOX 233 CHANNELVIEW, TEXAS 77530
PHONE HOUSTON 713-622-9977

## 400 KW TURBO-GENERATORS

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

**Gear:**
S 193 Form A—10059/1200 RPM

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

**6 Available — Excellent Condition**
**Suitable for Upgrading to 600 KW**

**NICOLAI JOFFE CORPORATION**
**San Francisco Branch**
**445 Littlefield Ave. (P.O. Box 2445)**
**South San Francisco, Calif. 94080**
**Phone (415) 761-0993**

***Ship After Ship:* they use Loeffler's**

ACCESS BOXES • DECK DRAINS • STRAINERS • BELLS • HATCH COVERS • SCUPPER VALVES • BRONZE RUDDER • DECK FILLING CONNECTION • SOUNDING TUBE DECK PLATES • VALVES GATE • VALVES GLOBE 2" to 8" • ALSO CHECK VALVES

Write or phone (215) 757-2404

**JOS. M. LOEFFLER**
U.S. Hwy 1, Penndel, Pa.
MARINE BRASS & BRONZE WORKS

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

For Sale or charter seagoing Deck Barge, 308' x 68' x 24', 6500 DWT, ABS & USCG Certificates for ocean service, now available Gulf Coast. For information call 601-762-3172 or 205-478-3970.

Whirley Gantry yard-dock cranes, 20 to 75 tons (5). Locomotives: GE, ALCO, diesels, 45, 65, 80, 100, 115 ton. Dredges, hydr. 12"-24". Crawler cranes, 1½ to 5 yds. Derricks, stiffleg, 20 to 250 tons.* Tug 72', $9,900. Manitowoc 150 ton barge-pier crane, diesel 90' bm. Draglines, 10 yd., diesel and elec., Walker & crawler.

**FOR SALE, CONTACT H. Y. SMITH CO.**
**759 N. Milwaukee St. Milwaukee, Wis. (276-3830)**

WANTED MARINE PRODUCTS/ SERVICES/REPRESENTATIONS IN CALIFORNIA.

**MASTERS MARINE SERVICES**
440 N. Marine Ave., Wilmington, Calif. 90744

**FOR SALE TRAILER STEEL FREIGHTER**

226' x 49' x 15' Vehicle clearance 11' rebuilt to trailers 1953 at cost of $400,000.00. Last few years over $200,000.00 spent upgrading. Owner's suite—20 private staterooms for crew plenty bath facilities—Fine galley and dining area for 32 men if needed—F.M.OP 1600HP with one third of factory recommended time for overhaul on new engine. 2 ea. Cummings 60KW 440AC-20KW-DC plants—12.7 knots cruising—Large trailers 30 mixed load 36 trailers Sperry Electric steering —RCA 20 mile radar—Sonar 160 Watt telephone—2 each anchor winches electric—4 ea. 4" bilge fire utility pumps—U.S. Radiator heating plant throughout—take it away $100,000.00.

**Contact: OAKSMITH BOAT SALES, INC.**
**Seattle, Wash. 98119 Phone 283-1000**

## NEW 7" RADIUS PANAMA CHOCKS

**(Meet Panama Regulations)**
**With Extended Legs for Welding to Deck**
**IMMEDIATE DELIVERY FROM STOCK**

**Clear opening 10" x 14"— 7" radius. Use as double or single bow chock. OAL 28" on base — OAW 14¾" — cast steel.**

**THE BOSTON METALS COMPANY**
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

## UNUSED BITTS

**Single bitts—6" diameter— 24½" long—8" wide. Not shown is 90° bracket. While they last.**

**BUY IN QUANTITY**
**$19.95 EACH**

**THE BOSTON METALS COMPANY**
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

## STORES DAVIT

**NEW — UNUSED**

**Mfg by Welin—with hand winch & rotary winch. Welin davit H-20 — hand winch 1750 lbs working load. Drum 7½" diameter — 1¼" flange — 9" drum width. Equipped with hand brake. Height 15' 3" — radius 5' 6".**

**THE BOSTON METALS COMPANY**
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

## GRAY MARINE ENGINES

**Government reconditioned Gray Marine 64-HN9 (6-71) — rated 225 HP — with Twin Disc Gear — 1.54:1.**

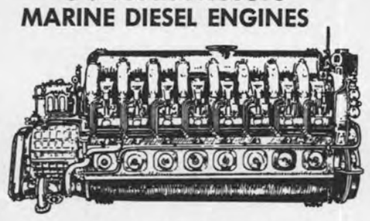
**THE BOSTON METALS COMPANY**
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

**AXIAL FLOW FANS**
115 & 230 VDC—440 AC—ALL SIZES

**THE BOSTON METALS COMPANY**
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

# POWER UP BECAUSE THE DIESEL PRICE IS DOWN

**2—General Motors MARINE DIESEL ENGINES**

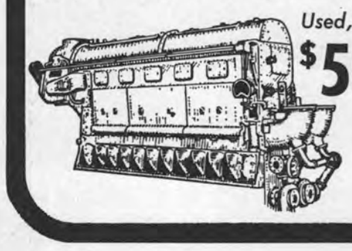


2—G.M. Model 16-278, 16 Cylinders, 1600 H.P., 750 RPM
Used, Very Good **$3950 ea.**

***Contact: Ralph Ingram***

**2—Fairbanks-Morse MARINE DIESEL ENGINES**

Model 38D8 - ⅛, 10 Cylinders, 1600 H.P., 720 RPM, 8⅛" Bore, 10" Stroke, Air Start. Condition:



*Used, Very Good*
**$5000 ea.**

**ZIDELL EXPLORATIONS, INC.**
3121 S.W. Moody • Portland, Ore. 97201
Phone: 503/228-8691
Telex: 36-701

# Guaranteed ready to use

**The items advertised on this page are ready for your use. Most have been completely reconditioned, many are ABS certified, all have been carefully inspected to assure their serviceability. If it's listed here, you can depend on it . . . today . . . when you need it. Call Jeff Feder for fast answers on your replacement needs.**

### C3 RUDDER
Reconditioned with A.B.S. Certificate
Ingalls Hull #267

### STEERING UNIT PUMPS
Hele-Shaw Pump, Size 11P12, RPM 850
Pressure 1000, Westinghouse Motor
Type CS 440 Volt, 35 HP 880 RPM
49 Amps, 3 Phase 60 Cyl.

### TOPPING WINCHES
Lakeshore Type T Model 5D
Single Speed, General Electric 5 HP,
Model 5AR254960, 440/3/60,
1100 RPM

### CARGO WINCHES
Single Drum, Single Speed,
General Electric, COM-1830-AEY,
230 Volt DC Motor

### GENERATOR SETS
General Electric, 440 Volt AC/230 Volt DC, G.E. Model 6PC2096A1,
Motor Type K, Frame 405S, 1770 RPM

### FUEL OIL PUMPS
Quimby Pump, Size 2½, RPM 1150,
GPM 15, Press 325, General Electric,
Model 5KF364PPI, 440 Volt 7½/3¾ HP,
1160/580 RPM

### C-4 S1A TURBINE
Bethlehem 17,500 SHP
Low Pressure, Complete
Falk Reduction Gear, 17,500 Shaft HP,
102 RPM Output, Complete with spares

### GENERAL ELECTRIC
Rebuilt Starter Boxes, 440 Volts,
From 2 HP to 50 HP

### MAIN CONDENSATE PUMPS
Ingersoll Rand, Type 2 VHM, 180 GPM,
Westinghouse Motor, 440 Volts 25 HP,
1750 RPM 32-5 Amps

### T-2 NEW • UNUSED
General Electric, 6000 HP, AC Motor
New-unused, Type TSM-HL-80,
Synchronous Type, 2300 Volts, 60 Cycles, 3 Phase, 1160 Amps 90 RPM

### MAIN PROPULSION TURBINE ROTORS
Reconditioned with A.B.S. Certificate

### C-2 SB1 BRONZE PROPELLER

### C-2 SB1 RUDDERS

### 5, 10 AND 30 TON BOOMS

### CARGO WINCHES
Nine pair, Single Drum, Single Speed,
General Electric, COM-1830-AEY,
230 Volt DC Motor

### GENERAL ELECTRIC 300 KW. DC
TURBO GENERATOR
Generators: 300 KW DC, 120/240 Volts, 1200 RPM, 1250 Amps, Type MPC, Model 24G869, 3 Wire, Compound Wound
Turbines: Type DS 60-25, 5636 RPM, 440 PSI, 40 F.
Reduction Gears: Ratio: 5636/1200 RPM
Completely rebuilt, A.B.S. Certificate

### GENERATOR SETS
General Electric, Seven Each,
440 Volt AC/230 Volt DC,
G.E. Model 6PC2096A1, Motor Type K,
Frame 405S, 1770 RPM

### CIRCULATING PUMPS
Warren Main, Type 24 MFP,
18,000 GPM, 690 RPM, 16 Foot TDH,
Vertical with 150/38 HP
440/3/60 Motor with Spare Parts

Call Collect Area Code (213) 775-3321

**National Metal AND STEEL CORP.**

691 New Dock Street, Terminal Island, California 90731
Area Code (213) 775-3321 Telex: TWX 213 548-0990

### CONDENSATE PUMP
Warren Main, Type 4-2CVP-10,
325 GPM, 50 RPM, 180 Foot TDH,
Vertical with 25 HP, 440/3/60 Motor

### SUPERHEATER HEADERS
For Port-Boiler, CE Type V2M (two each)
For Starboard-Boiler,
CE Type V2M (two each)

### BOILER HEADERS
For Port-Boiler, CE Type V2M
(three each)
For Starboard-Boiler (three each)

### TURBINES
Dorv 325/525 KW, G.E. 325/300 KW
Worthington 300 KW
Main Turbine Rotor for T-2 (6000 HP)

### ANCHOR WINDLASS
Manufactured by Webster Brinkley Co. Model WNE-5 Vertical Type $2^{3}/_{16}$" Die Lock Chain. Two Wildcats. Two Capstans
Electric Powered 75 HP 230 Volt DC Motor with controls and motor brakes
Capstans designed for 10" circumference rope 90 FPM under load of 20,000 lbs
Each wildcat and capstan can be operated simultaneously or separately
Electrical and Mechanical spares included

Fairbanks Morse Model 38D 1/8 1600 HP diesel engines with common Farrell-Birmingham gear 2.677:(270 RPM). Complete with all accessories, including heat exchangers, air compressors, air tanks, mufflers, filters, strainers, etc. Bearings and auxiliary generator sets also available
Few hours since engines fully rebuilt at cost of approximately $125,000
Engine logs available

# BUYERS DIRECTORY

**AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION**
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Carrier Air Conditioning Co., Carrier Parkway, Syracuse, N.Y. 13201
Union Carbide Corp., Linde Div., 270 Park Ave., N.Y., N.Y. 10017

**ANCHORS AND ANCHOR CHAINS**
Baldt Anchor, Chain & Forge, P.O. Box 350, Chester, Pa. 19016
Lockstadt Co., Inc., 179 West 5th St., Bayonne, N.J. 07002

**BEARINGS**
BJ Marine Bearings, a Borg-Warner Industry, P.O. Box 2709, Terminal Annex, Los Angeles, Calif. 90054
Glacier Metal Co. Ltd., Alperton, Wembley, Middlesex, England.
Johnson Rubber Co., Marine Division, Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186

**BOILERS**
Babcock & Wilcox Co., 161 E. 42nd Street, New York, N.Y. 10017
Combustion Engineering, Inc., Windsor, Connecticut 06095

**BOW THRUSTERS**
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171

**BUNKERING SERVICE**
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y. 10019
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017
The West Indies Oil Co., Ltd., St. John's Antigua, W. I.

**BURNERS—Oil**
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231

**CABLE ELECTRIC MARINE**
Anixter-Harbor, Inc., 1050 Aladdin, San Leandro, Calif. 94577
Anixter-New York, 300 Executive Blvd., Elmsford, N.Y. 10523
Anixter-New Orleans, 315 Notre Dame, New Orleans, La. 70130
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150

**CLUTCHES, GEARS & BRAKES**
Amarillo Gear Co., 517 No. Polk St., Amarillo, Texas 79105
Fawick Airflex Div. Power Transmission Systems, 9919 Clinton Rd., Cleveland, Ohio 44111
Wichita Clutch Co., Inc., Wichita Falls, Texas 76307

**COATINGS—Protective**
Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144
Devoe & Raynolds Co., Inc., Subsidiary Celanese Coatings Co., 414 Wilson Ave., Newark, N.J. 07105
Enjay Chemical Company, 60 West 49th St., New York, N.Y. 10020
Farboil Company, 90 West St., N.Y., N.Y. 10006
Intercoastal Corp., 2320 Edgewater Ave., Baltimore, Md. 21222
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Porter Paint Co., Louisville, Ky. 40201
Spee-Flo Co., 4631 Winfield Rd., Houston, Texas 77039

**CONTAINERS—CONTAINER HANDLING SYSTEMS**
Ameron Corrosion Control Div., Brea, Calif. 92621
Lighter Aboard Ship, Inc., 225 Baronne St., New Orleans, La. 70112
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
RPC Corp., Marine Sales, 200 Park Ave., New York, N.Y. 10017
Star Iron & Steel Co., 326 Alexander Ave., Tacoma, Wash. 98421

**CONTAINER LASHINGS & COMPONENTS**
American Engineered Products Co., Box 74, McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Brocket St., Pittsburgh, Pa. 15233
Pro Par Div. Fruehauf Corp., 10940 Harper Ave., Detroit, Mich. 48232
Seasafe Transport AB, Torstenssonsgaton 3, S 114 56 Stockholm, Sweden

**CONTROL SYSTEMS**
Galbraith-Pilot Marine Corp., 600 Fourth Ave., Brooklyn, N.Y. 11215
General Electric Industry Control Dept., Salem, Virginia
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

**CORROSION CONTROL**
Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144
Corrosion Dynamics, 1100 Walnut St., Roselle, N.J. 07203
Intercoastal Corp., 2320 Edgewater Ave., Baltimore, Md. 21222
Radiator Specialty Co., 1400 Independence Blvd., Charlotte, N.C. 28205

**CRANES—HOISTS—DERRICKS—WHIRLEYS**
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Conrad-Stork, Div. Stork-Werkspoor, P.O. Box 134, Haarlem, Holland
Hoffman Rigging & Crane Service, 560 Cortlandt St., Belleville, N.J. 07109
Kocks Pittsburgh Corp., Four Gateway Center, Pittsburgh, Pa. 15222
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
Star Iron & Steel Co., 326 Alexander Ave., Tacoma, Wash. 98401

**DECK COVERS (METAL)**
Lockstad Co., Inc., 179 W. 5th Street, Bayonne, New Jersey 07002
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696

**DECK MACHINERY—Cargo Handling Equipment**
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Blackburn Marine Equipment, 6105 England St., Houston, Tex. 77021
Garrett Corp., 9851 Sepulveda Blvd., Los Angeles, Calif. 90009
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
Pacific Pipe Co., 49 Fremont St., San Francisco, Calif. 94080
Pine Tree Engineering, Subsidiary Rice Barton Corp., P.O. Box 654, Brunswick, Maine 04011
Red Fox Machine & Supply Co., P.O. Drawer 640, New Iberia, La. 70560
A. G. Weser, Seebeckwerft, 2850 Bremerhaven 1, Germany
Western Gear Corp., Heavy Machinery Div., Everett, Wash. 98201

**DIESEL ACCESSORIES**
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Kiene Diesel Accessories, Inc., P.O. Box 216, Franklin Park, Ill. 60131

**DIESEL ENGINES**
Bruce GM Diesel, Inc., 180 Route #17 S. at Interstate 80, Lodi, N.J. 07644
Caterpillar Tractor Co., Industrial Div., 100 N.E. Adams St., Peoria, Ill. 61602
Colt Industries Inc., Power Systems Div., Beloit, Wisc. 53511
Electro-Motive Division General Motors, La Grange, Illinois 60525
Fiat, Turin, Italy, U.S.A. 375 Park Ave., New York, N.Y. 10022
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany.
H. O. Penn Machinery Co., 1561 Stewart Ave., Westbury, N.Y. 11590

**DIESEL ENGINE MUFFLERS**
Marine Products & Engrg. Co., 20 Vesey St., New York, N.Y. 10007

**DOORS—Watertight—Bulkhead**
Overbeke-Kain Co., 209 Aurora Rd., Bedford, Ohio 44014
Walz & Krenzer, Inc., 20 Vesey St., New York, N.Y. 10007

**ELECTRICAL EQUIPMENT**
Arnessen Electric Co., Inc., 335 Bond St., Brooklyn, N.Y.
Galbraith-Pilot Marine Corp., 600 4th Ave., Brooklyn, N.Y. 11215
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Pauluhn Electric Mfg. Co. Inc., P.O. Box 12805, Houston, Tex. 77017

**EVAPORATORS**
Bethlehem Steel Corp., Shipbuilding, 25 B'way, N.Y., N.Y. 10004
Mechanical Equipment Co., Inc., 861 Carondelet St., New Orleans, La. 70130

**FITTINGS & HARDWARE**
hi-shear Corp., 2600 Skypark Drive, Torrance, Calif. 90509
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

**FLOATING EQUIPMENT—Steel—Aluminum Pontoons**
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.

**GALLEY RANGES**
Elisha Webb & Son Co., 136 So. Front St., Philadelphia, Pa. 19106

**HEATERS—Ship**
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231
Valad Elec. Heating Co., 71 Cortlandt St., Tarrytown, N.Y. 10591

**HYDRAULICS**
Bird Johnson Co., 883 Main St., Walpole, Mass. 02081
Bond Hydraulic Equip. Service, Inc., 117 Monroe St., Hoboken, N.J. 07030
Universal Hydraulics, Div. of Ohio Brass Co., 4500 Beidler Road, Willoughby, Ohio 44094
Vickers, MGO Div., Troy, Mich. 48084

**INSULATION—Marine**
Bailey Carpenter & Insulation Co.,Inc.,74SullivanSt.,Brklyn,N.Y.11231

**LININGS**
Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144

**MACHINE SHOP—TROUBLE SERVICE**
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231

**MACHINERY MONITORS**
IRD Mechanalysis, Inc., 6150 Huntley Rd., Columbus, Ohio 43229

**MARINE DRIVES—GEARS**
Hydro Drive Corp., 4420 - 14th Ave. N.W., Seattle, Wash. 98107
Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa. 19406
Western Gear Corp., Industrial Products Div., P.O. Box 126, Belmont, Calif. 94003

**MARINE NAVIGATION EQUIPMENT & AIDS**
American Hydromath Co., 55 Brixton Rd., Garden City, N.Y. 11530
Dynel Electronics Corp., 75 Maxess Road, Melville, N.Y. 11746
Edo Western Corp., 2645 So. 2nd St., W. Salt Lake City, Utah 84115
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
ITT Mackay Marine, 133 Terminal Ave., Clark, N.J. 07066
Marquardt Corp., 16555 Saticoy St., Van Nuys, Calif. 91406
National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo.
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., 6500 Tracor Lane, Austin, Texas 78721

**MARINE EQUIPMENT**
Adsco Div., 34 Milburn St., Buffalo, N.Y. 14212
Beaver Tool & Machine Co., P.O. Box 94717, 525 S.E. 29th St., Oklahoma City, Okla. 73109
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Kearfott Marine (Div. of The Singer Co.) 21 West St., New York, N.Y. 10006
Chas. Lowe Co., 6340 Christie Ave., Emeryville, Calif. 94608
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
Stow Mfg. Co., 225 Shear St., Binghamton, N.Y. 13902
Vokes Filter Div. (Cardwell Machine Co.), Cardwell and Castlewood Rd., Richmond, Va. 23221

**MARINE FURNITURE**
Bailey Joiner Co., 115 King Street, Brooklyn, N.Y. 11231

**MARINE INSURANCE**
Adams & Porter, Cotton Exchange Bldg., Houston, Texas
Midland Insurance Co., 29 Broadway, New York, N.Y. 10006

**MARINE LIGHTS**
Natale Machy. & Tool Co., Box 95, Carlstadt, N.J. 07022

**MARINE PROPULSION**
Buehler Corp., 9000 Precision Drive, Indianapolis, Ind. 46236
Combustion Engineering, Inc., Windsor, Connecticut 06095
De Laval Turbine, Inc., 853 Nottingham Way, Trenton, N.J. 08602
General Electric Co., Gas Turbine Dept., Schenectady, N.Y. 12305
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Western Gear Corp., Precision Products Div., P.O. Box 190, Lynwood, Calif. 90262

**MARINE RADIO COMMUNICATIONS EQUIPMENT**
Collins Radio Co., M/S 416-118, Dallas, Texas 75207
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
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
Raytheon Marine Products Operation, 213 East Grand Avenue, South San Francisco, California 94080
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101

**NAVAL ARCHITECTS AND MARINE ENGINEERS**
BG Marine Services, Div. of Genge Industries, Inc., 4419 Van Nuys Blvd., Sherman Oaks, Calif. 91403
Best & Associates, 9870 S. W. 81 St., Miami, Florida 33143
Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Commercial Radio Sound Corp., 652 First Avenue, N.Y., N.Y. 10016
Crandall Dry Dock Engrs., Inc., 238 Main St., Cambridge, Mass. 02142
Cushing & Nordstrom, 50 Trinity Place, New York, N.Y. 10006
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Christopher J. Foster, 17 Battery Place, New York, N.Y. 10004 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 21 West St., New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
Morris Guralnick, Associates, Inc., 583 Market St., San Francisco, Calif. 94105
J. J. Henry Co., Inc., 90 West St., New York, N.Y. 10006
L. K. Homyer, Box 408, Corona Del Mar, California 92625
C. T. Ilariucci & Associates, Tourism Pier #3, San Juan, Porto Rico 00902
James S. Krogen, 1460 Brickell Ave., Miami, Fla. 33131
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Applications Co., Inc., P.O. Box 167, Mineola, N.Y. 11502
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 1180 Ave. of Americas, N.Y., N.Y. 10036
Marine Design Associates, P.O. Box 2674, Palm Beach, Florida
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
Philip L. Rhodes, Inc., 369 Lexington Ave., New York, N.Y. 10017
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver 10, Canada
Philip F. Spaulding & Associates, 65 Marion St., Seattle, Wash. 98104
R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler, 44 Court St., Brooklyn, N.Y. 11201
H. M. Tiedemann & Co., Inc., 74 Trinity Pl., New York, N.Y. 10006
H. Newton Whittelsey, 17 Battery Pl., New York, N.Y. 10004
Alan Winkley, 6420 Colby St., Oakland, Calif. 94618

**OIL PURIFIERS—Repair**
Peck Equipment Co., 3500 Elm Avenue, Portsmouth, Virginia 23704

**OILS—Marine—Additives**
Esso International Inc., 15 West 51 St., New York, N.Y. 10019
Ethyl Corp. Marine Div. Perolin Co., New York, N.Y. 10001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
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**
**Shell Oil Co., 50 W. 50 St., New York 10020**
**Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017**

**PAINT—Marine—Protective Coatings**
Ameron Corrosion Control Div., Brea, Calif. 92621
Carboline Co., 328 Hanley Industrial Court, St. Louis, Mo. 63144
Devoe & Raynolds Co., Inc., Subsidiary Celanese Coatings Co., 414 Wilson Ave., Newark, N.J. 07105
**Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020**
Farboil Company, 90 West St., New York, N.Y. 10006
Intercoastal Corp., 2320 Edgewater Ave., Baltimore, Md. 21222
**International Paint Co., 21 West St., New York, N.Y. 10006**
**Mobil Chemical Company, Metuchen, N.J. 08840**
Patterson-Sargent, P.O. Box 494, New Brunswick, N. J.
Woolsey Marine Industries Inc., 201 E. 42nd St., New York, N.Y. 10017

**PETROLEUM SUPPLIES**
Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
**Refineria Panama, S. A. 277 Park Ave., New York, N.Y. 10017**
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.**

**PLASTICS—Marine Applications**
Ameron Corrosion Control Div., Brea, Calif. 92621
**Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231**
**Philadelphia Resins Co., 20 Commerce Dr., Montgomeryville, Pa. 18936**
Rotocast Plastic Products, Inc., 6700 N.W. 36th Ave., Miami, Florida 33147

**POLLUTION CONTROL**
**Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020**
Hemisphere Marine Chemicals Co., Inc., 300 Main St., Orange, N.J.
Uniroyal, Inc., 10 Eagle St., Providence, R.I. 02901

**PORTS**
Port of Galveston, P.O. Box 328, Galveston, Texas
Jacksonville Port Authority, 2701 Tallyrand Ave., Jacksonville, Fla.

**PROPELLERS: NEW AND RECONDITIONED**
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
**Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004**
**Bird-Johnson Co., 883 Main Street, Walpole, Mass. 02081**
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

**PUMPS**
Coffin Turbo Pump/FMC Corp. 326 So. Dean St., Englewood, N.J. 97631
**Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City, Kansas 66110**
M. T. Davidson Co., 1010 3rd Ave., New York, N.Y. 10021
**Goulds Pumps, Seneca Falls, N.Y. 13148**
Houttin-Pompen N. V. Sophialaan 4, Utrecht, Holland
Worthington Corporation, Harrison, New Jersey 07029

**RATCHETS**
American Engineered Products Co., Box 74, McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Brocket St., Pittsburgh, Pa. 15233

**REFRIGERATION—Refrigerant Valves**
**Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231**
**York Corp., Grantley Road, York, Pa. 17405**

**ROPE—Manila—Nylon—Hawsers—Wire**
**American Mfg. Co., Inc., Noble & West Sts., Brooklyn, N.Y. 11222**
**Cating Rope Co., 309 Genesee St., Auburn, N.Y. 13022**
Columbian Rope Co., 309 Genesee St., Auburn, N.Y. 13022
**Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604**
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**

**RUBBER PRODUCTS—Dock Fenders, Hose, Life Preservers**
**Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004**
Schuyler's Engineered Products Co., Box 87, Staten Island, N.Y.
Yokohama Rubber Co. Ltd., P.O. Box 46, Shiba, Tokyo 105, Japan

**RUDDER ANGLE INDICATORS**
**Electric Tachometer Corp., 68th & Upland Street, Phila., Pa. 19142**
Galbraith-Pilot Marine Corp., 600 Fourth Ave., Brooklyn, N.Y. 11215
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
**Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011**
**Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.**

**SCAFFOLDING**
Patent Scaffolding Co., 11-11 - 34th Ave., Long Island City, N.Y. 11106

**SEALS**
**Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231**
Syntron, Div. FMC Corp., 398 Lexington Ave., Homer City, Pa. 15748

**SEARCHLIGHTS**
Snelson Oilfield Lighting Co., 1201 E. Doggett St., Fort Worth, **Texas 76104**

**SEWAGE DISPOSAL**
Seapax, Inc., 3645 Warrensville Center Rd., Cleveland, Ohio 44122
**Youngstown Welding & Engineering Co., 3708 Oakwood Ave., Youngstown, Ohio 44509**

**SHAFT REVOLUTION INDICATOR EQUIP.**
**Electric Tachometer Corp., 68th & Upland Sts., Philo., Pa. 19142**
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

**SHIPBREAKING—Salvage**
**The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202**
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

**SHIPBUILDING—Repairs, Maintenance, Drydocking**
**Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042**
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
**Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004**
**Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885**
**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
**Greignard Shipyards, P.O. Box 829 Colbert, Marseilles, France.**
Ganderson 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**
Industrial Steel & Mach. Works, Inc., P.O. Box 2217, Gulfport, Miss. 39501
**Ishikawajima-Harima Heavy Industries Co., Ltd., 15 William St., New York, N.Y. 10005**
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla. 32203
**Jeffboat, Inc., Jeffersonville, Ind. 47130**
**Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan**
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Kockums Malmo, Fack, Malmo, Sweden
**Levingston Shipbuilding Co., P.O. Box 968, Orange, Texas 77630**
**LISNAVE, P.O. Box 2138, Lisbon, Portugual**
**Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230**
**Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134**
Maryland Shipbuilding & Drydock, P.O. Box 537, Baltimore, Md. 21203
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsubishi Heavy Industries, Ltd., 5-1 Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan
**Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan**
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
**Newport News Shipbuilding and Dry Dock Co., Newport News, Va.**
**Nippon Kokan Kabushiki Kaisha, 2, 1-chome, Otemachi, Chivoda-ku, Tokyo, Japan**
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
Nuclear Service & Construction Co., Inc., 9296 Warwick Blvd., Newport News, Va. 23607
**O.A.R.N. (officine Allestimento e Riparazioni Navi) Genoa, Italy**
Paceco, Div. Fruehauf Corp., P.O. Drawer E, Alameda, Calif. 94501
**Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Fla. 33156**
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
**Rodermond Industries, Foot of Henderson St., Jersey City, N.J. 07302**
**St. Louis Shipbuilding—Federal Barge, Inc.**
611 East Marceau, St. Louis, Mo. 63111
**Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan**
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Teledyne Sewart Seacraft, P.O. Box 108, Berwick, La. 70342
Todd Shipyards Corp., 1 Broadway, New York, N.Y. 10004

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

**SHIP MODEL BASIN**
Hydronautics, Incorporated, Laurel, Maryland 20810

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

**SHIP STABILIZERS**
Lidgerwood Mfg. Co., (Superior Lidgerwood Mundy Corp.), 1010 Third Ave., New York, N.Y. 10021
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
John J. McMullen Associates, Inc., 110 Wall St., N.Y., N.Y. 10005
**Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.**

**STEAM GENERATING EQUIPMENT**
**Combustion Engineering, Inc., Windsor, Connecticut 06095**

**STEVEDORING**
Luckenbach Steamship Co., 120 Wall Street, New York, N.Y. 10004
M. J. Rudolph Corp., 8 Sackett St., Brooklyn, N.Y. 11231

**SWITCHBOARDS**
Hose McCann Telephone Co., Inc., 524 West 23 St., N.Y., N.Y. 10011

**TOWING—Lighterage, Transportations, Barge Chartering**
American Waterways, 1250 Connecticut Ave., Washington, D.C. 20036
M. J. Batty & Co., P.O. Box 2316, Singapore, 1
**Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002**
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
**Henry Gillen's Sons Lighterage, 140 Cedar St., New York, N.Y. 10006**
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
**Jackson Marine Corp., P.O. Box 1087, Aransas Pass, Texas 78336**
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
**McDonough Marine Service, P.O. Box 26206, New Orleans, La.**
**P. F. Martin, Inc., Mall Bldg., 325 Chestnut St., Philadelphia, Pa.**
Moran Towing & Transportation Co., Inc., 17 Battery Place, New York, N.Y. 10004
L. Smit & Co., 11 Broadway, New York, N.Y. 10004
**Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002**
M. & J. Tracy, Inc., 1 Broadway, New York, N.Y. 10004
**Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y. 11214**

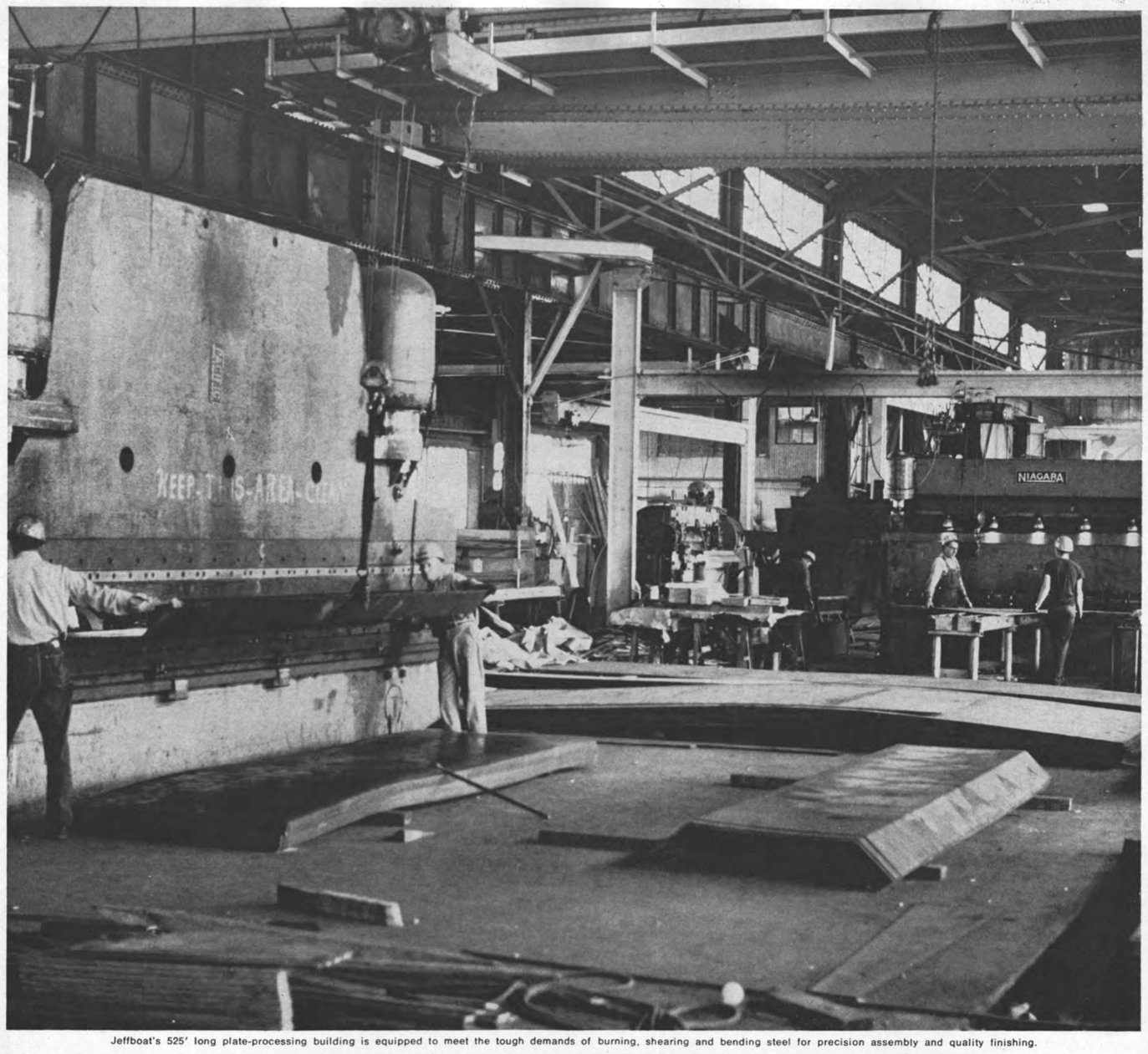
**VALVES AND FITTINGS—Hydraulic—Safety Flanges**
Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn, N.Y. 11231
Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., Inc., 900 Fairmount Ave., Elizabeth, N.J. 07207

**WINCHES**
Skagit Corp., Box 151, Sedro Woolley, Wash. 98284

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

**WIRE ROPE FITTINGS**
Esco Corp., 2132 N.W. 25th Ave., Portland, Ore. 97210

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




Jeffboat's 525′ long plate-processing building is equipped to meet the tough demands of burning, shearing and bending steel for precision assembly and quality finishing.

## A major chemical company wanted two highly specialized chemical barges

## . . . they selected America's largest inland shipbuilder

One of these 195′ by 35′ barges required stainless steel cargo tanks, the other a special tank treatment. Both needed sophisticated external coating systems for exposure to a salt atmosphere. Jeffboat construction will provide the ruggedness and durability that delivers long service under rigorous product and environmental conditions. Jeffboat is fully equipped to handle your special marine requirements, too—design, construction or repair. Call us. (812) 283-3551. Jeffersonville, Indiana 47130.

**JEFFBOAT**

A division of Texas Gas Transmission Corporation

tock,tick,tock,
tick,tock,tick,
tock,tick,tock,
tick,tock,tick,
tock,tick,tock,
tick,tock,tick,
tock,tick,tock,
tick,tock,tick.

## When you switch to Mobilgard 445, it's a lot longer between changes.

Mobilgard® 445 is making everybody involved with marine engines happy—except maybe filter manufacturers. Specifically designed for medium-speed diesels in towboat service, Mobilgard 445 has stretched oil filter life to the maximum allowed by current filter materials.

And that's not all. In repeated tests, Mobilgard 445 has completely eliminated the need to clean oil coolers between major overhauls. And overhaul intervals themselves can be extended by months.

Finally, Mobilgard 445 doesn't need to be drained *between* overhauls—and tests show that it keeps the engine cleaner than competitive oils that are drained regularly. And as you know from your own experience, cleaner engines last longer—a *lot* longer.

Mobil Oil Corporation, 150 E. 42nd Street, New York, N.Y. 10017.

Mobil®

Marine Fuels • Marine Lubricants
Worldwide Marine Service