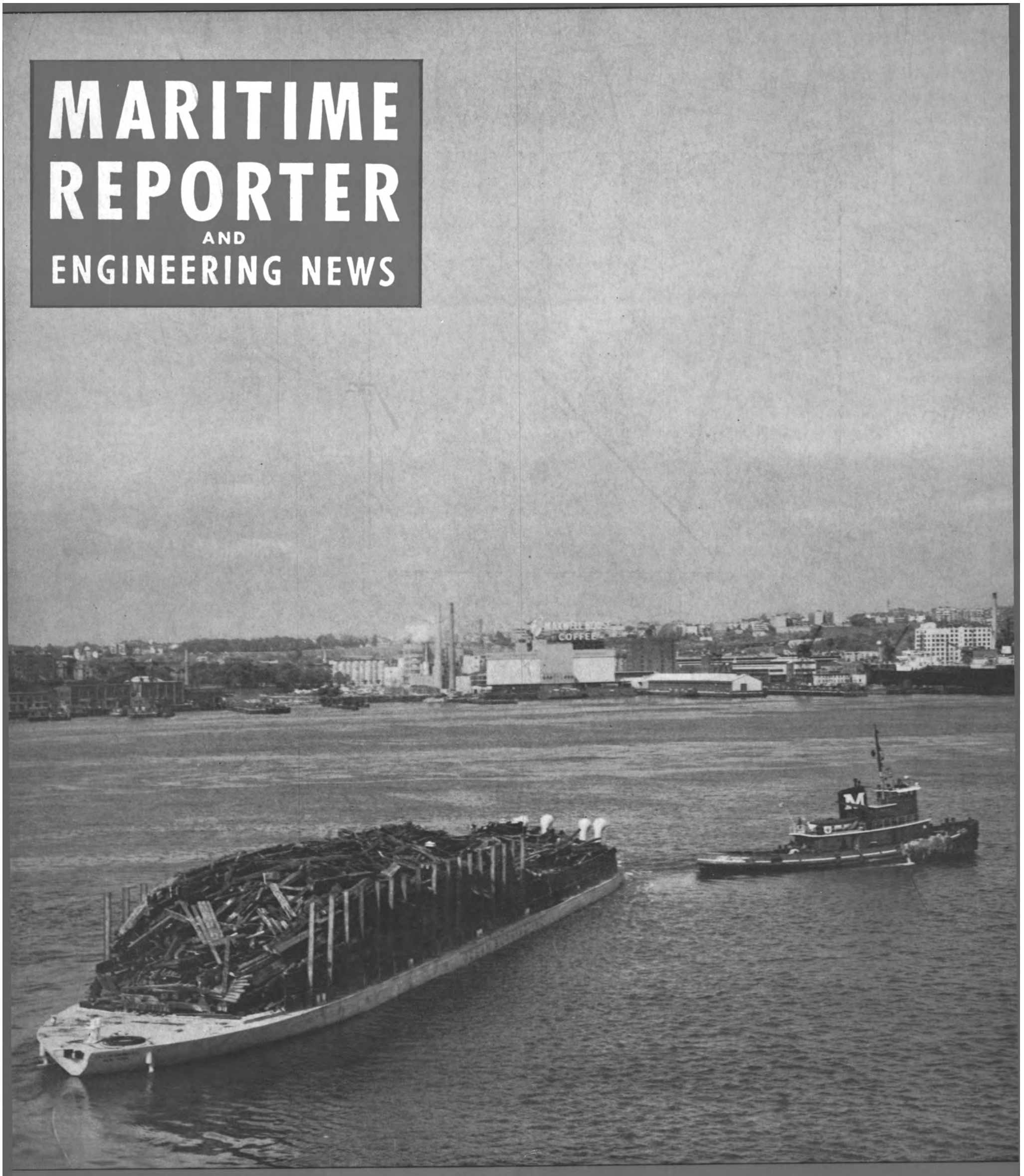
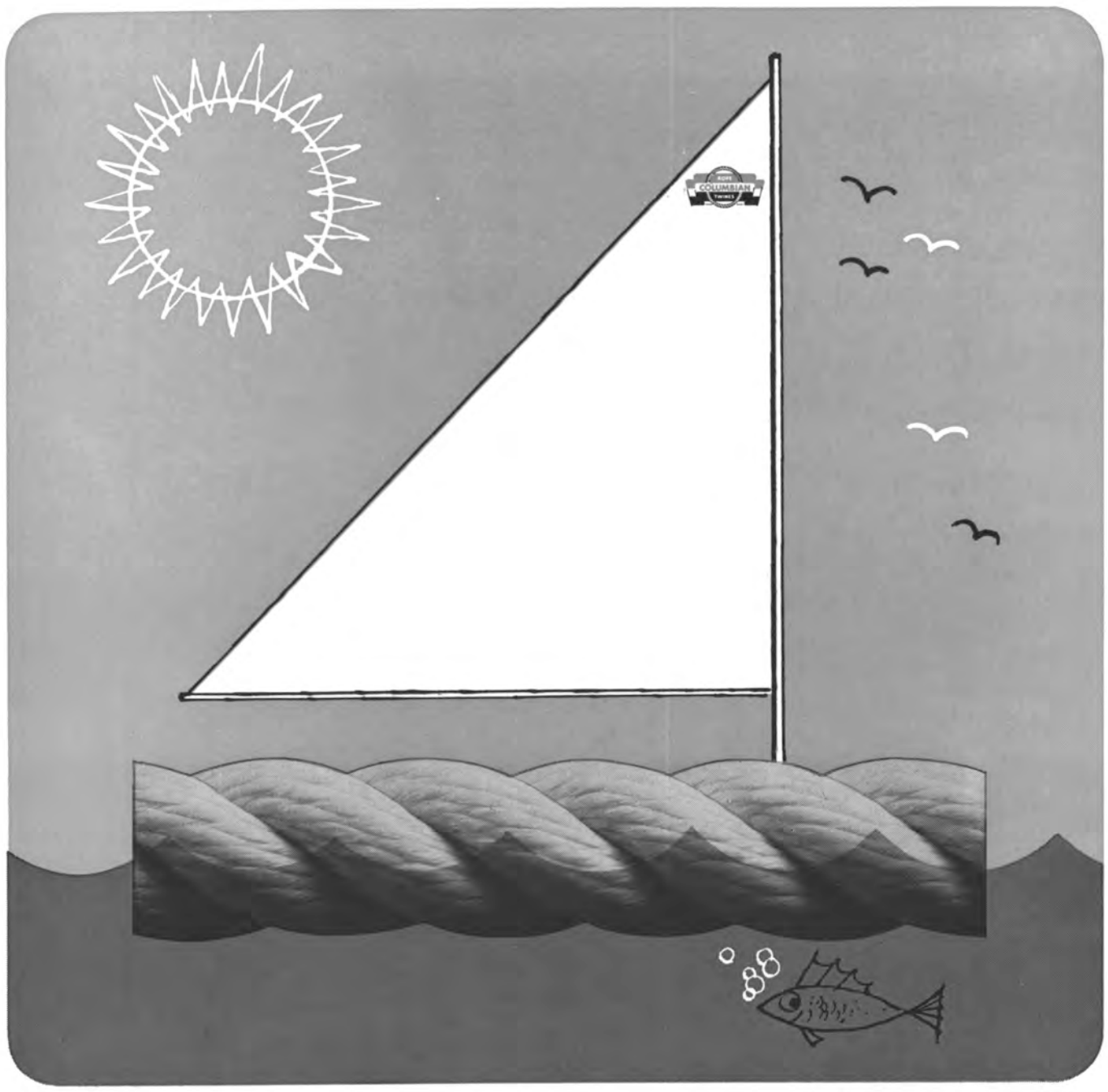
MARITIME REPORTER
AND
ENGINEERING NEWS



Waste From Dismantled Structures Taken Out To Sea For Burning By Hughes Bros., Inc. Subsidiary

(SEE PAGE 6)

FEBRUARY 1, 1968



NOTABLE FLOATABLE

To its assigned tasks, each marine rope brings a number of characteristics that contribute to superior performance on the job. Exceptional light weight—so light that it will float indefinitely—is an outstanding quality of . . .

COLUMBIAN POLYPROPYLENE ROPE

Light, yet right for arduous marine service, this sturdy synthetic is stronger and slightly more elastic than Manila . . . and retains its flexibility and strength in all temperature ranges. It's 5% stronger wet than dry and can be stored safely wet.

A clean line, polypropylene is smooth in appearance, smooth in performance. It's available in colors and color combinations . . . which enhance its applicability and visibility as a barrier, decorator or small boat rope. Strength, light weight and flexibility are prized in mooring lines, trawl hoisting and other heavy marine applications as well as fish net rope and pot warp. Resistance to rot, fungus and chemicals and good dielectric properties add long life and versatility.

More than notably floatable, polypropylene is available at Columbian dealers in 3-strand or Pli-moor 8-strand construction, up to 12″ circumference.

ROPE COLUMBIAN TWINES

COLUMBIAN ROPE COMPANY

Auburn "The Cordage City" New York 13021

Pacific Far East Line To Convert Two C-4s

A bill (HR12638) has been signed by President **Johnson** which allows Pacific Far East Line, Inc., San Francisco, Calif., to trade two vessels in exchange for C-4s, the General R. L. Howze and the General A. W. Greely, which are presently owned by the Maritime Administration.

The ships will be converted into cargo ships at a total cost of $14-million. They are to be used exclusively on trade routes between the United States West Coast and Guam.

MA To Receive Bids Feb. 13 On Sixth U.S. Lines Vessel

February 13 has been set as the date for receipt of bids by the Maritime Administration covering the construction of a sixth 32,000-ton full containership for the United States Lines.

Sun Shipbuilding & Dry Dock Company of Chester, Pa., is currently building five other full containerships for U.S. Lines. Each of the streamlined-hulled vessels will have a capacity of 1,335,000 cubic feet. They have an overall length of 700 feet 6 inches and 90-foot beam. A 20-knot service speed will be produced by a power plant of 27,300 shp.

Bids should be forwarded to the Maritime Administration, GAO Building, Washington, D.C.

Equitable Equipment Lowest Bidder On Line-Handling Vessels

Of bids received by Petroleiro Brasileiro S. A. (Petrobras) for the construction of two 52-foot line-handling vessels, Equitable Equipment Company, New Orleans, La., was the lowest bidder. They are to be used in assisting supertankers to moor at a monobuoy off the coast of Tramandai, Brazil.

George C. Meese, naval architects and marine engineers of Annapolis, Md., were design agents for these vessels. June 1968 is the projected delivery date.

Jeffboat Building Two Chemical Tank Barges

Two 2,400-dwt chemical tank barges are building at Jeffboat, Inc., Jeffersonville, Ind. The vessels, being built for stock purposes, will have dimensions of 248 feet by 50 feet by 11 feet 3 inches.

MARITIME REPORTER AND ENGINEERING NEWS

No. 3 Volume 30

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.

A PACECO Transtainer® Terminal System stores twice the containers – at less than half the cost!

Three major advantages over other dockside terminal systems:

Lower capital investment. A PACECO Transtainer system can do a better job than a straddle carrier system costing up to twice as much. Transtainers stack and load after trucks transport containers from the pier. As container volume increases, only additional trucks are required. Further savings can be realized with a Transtainer system that minimizes expensive yard preparations and pier reinforcements.

Greater operating flexibility. Transtainers stack, load and unload all types of vehicles, including railcars. Straddle carriers can only pick up and carry, while Transtainers handle all types, shapes and sizes of containers and trailers in four directions.

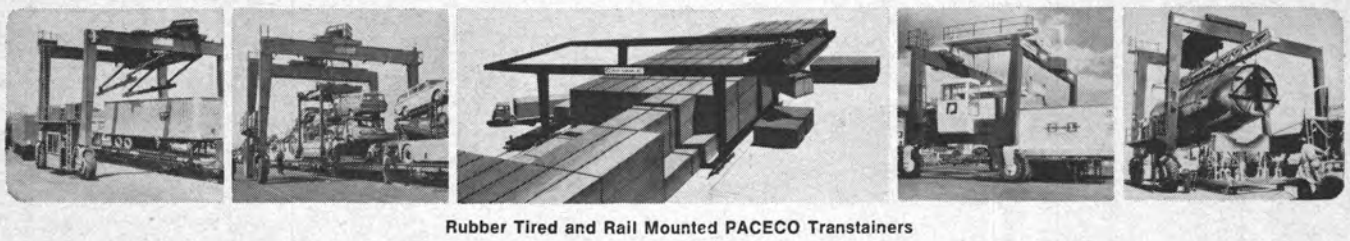
Greater space savings in storage areas. Transtainers stack containers flush—up to five high—and require fewer aisles. Straddle carriers store less than half the containers per acre as do PACECO long-span Transtainers, and the latter also offer random container accessibility.

For further Transtainer terminal information, give us a call. A team of PACECO engineers is available for consultation. For a copy of our Advanced Systems brochure, write to the address below.

PACECO
Materials Handling Division

Dept. 22 ■ Alameda, California 94501 ■ Telephone: (415) 522-6100 ■ Telex 03-3542

PACECO equipment is also built by the following: **Canada**—PACECO-CANADA, LIMITED **Europe**—PACECO-VICKERS LIMITED
Australia—VICKERS HOSKINS PTY. LIMITED **Japan**—MITSUI SHIPBUILDING & ENGINEERING CO. LTD.



Rubber Tired and Rail Mounted PACECO Transtainers

Ocean Burning I, operated by Ocean Burning, Inc., subsidiary of Hughes Bros., Inc., leaves New York Harbor in tow of a Moran tug. Destination—a burning site 30 miles offshore.

Hughes Bros., Inc.'s New Subsidiary

Ocean Burning, Inc.

New York may be showing the way for other major port cities to dispose of waste wood, which is becoming available in mountainous quantities.

Dumping grounds are filling up, and dump sites are becoming scarce. About 5,000 old buildings and houses are torn down each year in New York City, according to reliable estimates, and they are moving old wood—along with other wastes, of course—into the overloaded disposal systems of the city. Urban renewal will heighten the burden. Port clean-up programs will add additional tonnage to the waste wood problem as old piers are torn down. Dilapidated structures around the Port of New York constantly contribute timbers and splintered planking to the port's many tides.

The problem, which other ports share in varying degree, will grow with time, rather than diminish. The end-product of the air hammer, a vast effluence of dust and stone shards and great chunks of concrete, is not such a problem as wood, for it can be packed in as landfill, as it is in the current creation of new land along the Hudson River contiguous to the site of the World Trade Center.

For decades it could be hauled to sea on barges for dumping in deep water. But even this recourse is being closed to the rubble creators, and sea dumping is closely controlled. At present tugs are taking bargeloads of such clean rubble to specified areas where it is carefully laid to create attractive reefs for schools of fish. This is a conservation measure, and it contributes to the solution. But heavy wood is not so easy.

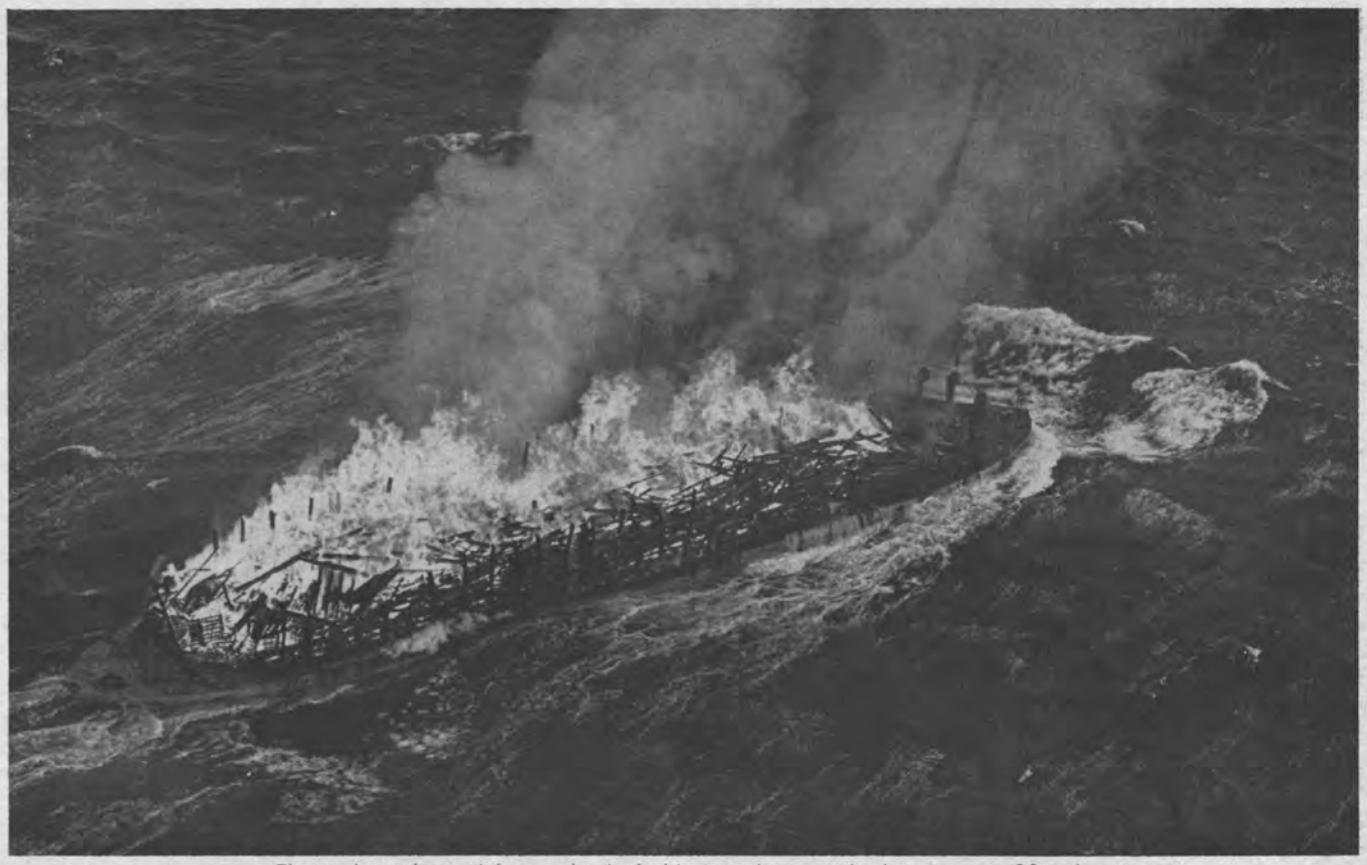
In the last few years a private company, Hughes Bros., Inc., through a subsidiary company, Burn-it, Inc., has been burning waste wood from the City of New York at the rate of 15-million board feet a year. This is a highly professional operation, and one that had been worked out carefully after tedious and costly experimentation.

This quantity of firm lumber deliberately destroyed by fire always brings the same reaction from those who sight the flames. They hurry to report a ship burning at sea.

"What a waste," says the countryman who has been scrounging around the countryside for good firewood.

But there is no alternative. You cannot cut it up and stack it in lengths for poor folks to use as heating fuel, as their forebears did. Poor folks will not bother to come get it. Moreover, fire departments

(Continued on page 8)



Flames leap skyward from a load of old pier pilings at the burning site 30 miles offshore. Scrap iron cnd ashes are returned to New York for salvage and disposal.

1,164 CRANKPINS and MAIN JOURNALS were ground in place in the past year by GOLTEN

Need we say more? Ordinarily no, but there are still some ship owners and operators who are not familiar with our world-wide patented process.

We not only grind, hone, lap and polish crankshafts, turbine shafts and thrust collars without dismantling the engine but guarantee that pins and journals will be concentric with the original centers. What's more, in most cases, we can start your job within 24 hours anywhere in the world and complete the job in days instead of the many weeks usually required.

While your journals or pins are being reground, bearings may be air-shipped to any one of our seven plants throughout the world. There, they will be rebabbitted by the patented Golten process and machined to suit new shaft conditions in record time.

The next time you have a crankshaft problem, it will pay you to consult the nearest Golten plant.

THE DIESEL CENTER

GOLTEN GM MARINE CO., INC.

160 VAN BRUNT STREET, BROOKLYN, N.Y. 11231
DAY & NITE SERVICE — TEL: 212/855-7200 • CABLE: SIGOMACOR, N.Y.

Affiliated Companies:

GOLTEN MARINE CO., INC., Los Angeles, Cal. • Tel. 213/834-5450
NORLANTIC DIESEL, INC., New Bedford, Mass. • Tel. 617/933-2631
ATLANTIC DIESEL A/S, Oslo, Norway • Tel. 68 90 80
GOLTEN SERVICE N. V. Rotterdam, Holland • Tel. 25 39 42
GOLTEN SERVICE CO., INC., Hong Kong • Tel. 800179
GOLTENS, North Shields, England • Tel. 71250

Typical of the debris in New York Harbor is this barge graveyard behind the Statue of Liberty. Timbers break away from these wrecks, creating a costly navigation hazard.

Ocean Burning—

(Continued from page 6)

do not like the stacking and storage idea. The Sanitation Department does not like it in their landfill areas. It causes latent fire hazards and difficult rodent problems.

So, the answer is: Burn.

It was Burn-it, Inc. that disposed of some 150-million feet of lumber since it started in 1958, and it was all set afire brightly within the confines of the lower bay area of New York Harbor. But the new awareness of air-pollution dangers has put a stop to outer-harbor burning. The Hughes team has had to take its operation to sea. This created a whole new set of problems for **William J.** and **Robert J. Hughes,** the owners of Hughes Bros., along with its operating staff. For some months Hughes burning experts have been experimenting on the new system, which calls for hauling tremendous loads to sea to a point some 30 miles below the entrance to Ambrose Channel.

The Coast Guard does not look with favor on chance-taking operations in setting off large loads like those being hauled to sea on a 327-foot former LST-type landing craft with more than a million feet of lumber stacked on her deck, over a 12-inch layer of sand. It insists on stringent controls.

How the new company, a subsidiary of Hughes Bros., finally found the best way to set a ship afire, is a current harbor saga. The Hughes men will probably be called upon in the future to advise men in other large ocean gateways where disposal is a problem.

The new company is Ocean Burning, Inc. Its new fireship is the Ocean Burning No. 1. Ocean Burning, Inc. is a contractor dealing with demolition concerns in the city who are required by the terms of their agreements to dispose of what they tear down.

The tank landing ship has been de-engined and equipped with a cluster of windscoops forward to gather air as the ship moves toward the burning place. Columns of heavy, upright steel H-beams are welded along the sides of the burning deck. The wood is safely contained between the columns.

The Ocean Burning has made several voyages to deepwater since early last fall. This series of test burnings has now produced an acceptable system. The Hughes team says that the experimental phase is over. The big problem was to work out an ignition system that was fool-proof, accident-proof and offering a fail-safe margin for contingencies.

"What we needed was a reliable firing system that could be considered safe by Coast Guard standards, one that could be set off from the control tug or one that could be fired through another device," **William Hughes** said.

Considering the number of dangerous arson cases known to the nation's leading fire marshals, the experimenters approached the job confidently. But they found that it was not easy.

They tried batteries, truck flares, triggers of various design. Electric cables riding between the tug stern and the bow of the fireship tended to rotate and then break. Flaming torches thrown from craft making a pass at the LST were dramatic but dangerous. The idea of a cross-bow firing a lighted arrow tip was rejected early in the game after the arrow landed near the stern of the tug.

Mr. **Hughes** explained that the the final system, which will be used on all future loads, is a very complex electrical device referred to by the crew as the 'Rube Goldberg' box. This firing system works well and meets with Coast Guard approval.

The Corps of Engineers, New York District, certificate all disposal vessels working in the Greater New York Harbor area. The Corps has more than a certification interest in the efforts of Hughes to establish an ocean-burning system for wood. It has been their duty to try to remove the great volume of floating timbers from the waters of New York Harbor. These timbers had previously been burned on Corps-owned anchored barges in the upper harbor. This method does not meet air-pollution standards. The Corps is considering the Hughes ocean burning as an alternate.

The Corps, under mandate of Congress, has made a study as to the feasibility of the removal of hundreds of wrecks that have been abandoned on the shores of the harbor. The report is purported to show how this continuing menace to navigation must be corrected. Ocean Burning can conceivably be the answer to this much larger harbor problem, for the ultimate disposal of the wood. In 1965 it has been estimated that floating timbers caused millions of dollars of damage to propellers of ships and hulls of pleasure craft. The problem is indeed a serious one for the Port of New York.

Belgian Line Appoints Asst. VP, Operations

The Belgian Line has announced the appointment of **Henri Diercxsens** as assistant vice-president in charge of operations. He was with the Armement Deppe Line in Antwerp up to 1963 and served with this company until he joined the Belgian Line, Inc. in New York in 1965.

Mr. **Diercxsens** graduated from the University of Antwerp and took postgraduate courses at the University of Wisconsin.

Greene Line Seeks Reprieve For Last Of Stern-Wheelers

William Muster, executive vice-president of Greene Line Steamers, Inc., announced that the company is asking a reprieve from Congress for its riverboat Delta Queen to operate beyond November 1968.

The Delta Queen is one of the last of the stern-wheelers to operate on America's inland waterways. A replacement for the vessel is being designed but it is unlikely that it will be completed by the start of the next cruising season beginning February 1969.

Mr. **Muster** indicated that passengers would miss the charm of a river cruise because the new boat will not be a steamer. He explained that a steamboat "just isn't practical in this day and age."

The Delta Queen is scheduled to start her 1968 season of 24 cruises February 17 when she heads from Cincinnati down the Ohio and Mississippi Rivers to New Orleans in time for Mardi Gras. Unless her reprieve comes through, the April 30 steamboat race will be the last of its kind.

Isthmian Lines Elects DeSmedt As President

A. Theodore De Smedt

A. Theodore De Smedt has been elected president of Isthmian Lines, Inc., ocean cargo operator providing worldwide service. He succeeds **Archibald E. King,** who is now board chairman of Isthmian. Both men are well-known throughout the industry as shipping operators.

Mr. **De Smedt** had dissolved his association with American Export Isbrandtsen Lines, Inc., where he was president and recently had been named to the executive committee as chairman.

Isthmian, a wholly owned subsidiary of States Marine Lines, operates 24 of its own ships in various trade routes, in addition to vessels handled under charter. States Marine operates 50 to 60 ships, either owned or chartered.

Isthmian's around-the-world service is operated westbound from U.S. ports to the Mediterranean, the Near East, Persian Gulf, Pakistan, India, Ceylon, Southeast Asia and the Hawaiian Islands.

Bolton Named To Humble Sales Post

John E. Bolton Jr., Hohokus, N.J, has been named manager of cargo and marine sales in Humble Oil & Refining Company's Major Reseller Sales Department with offices in New York City. He will be responsible for sales in the Maine to South Carolina area. The announcement was made by **William M. McCardell,** manager of the company's New England, New York and New Jersey eight-state Esso marketing area, with offices in Pelham, N.Y.

A graduate of Newark Academy in Newark, N.J., and The Lawrenceville School in Lawrenceville, N.J., Mr. **Bolton** attended Lafayette College in Easton, Pa., where he received his B.A. degree in 1943. He joined the company in 1945 as a clerk in Hackensack, N.J., and held positions in dealer and oil heat sales from 1946 to 1953, prior to being named assistant manager of the Newark District in 1954

He was appointed manager of that district in 1956. In February 1966 he was named service station operations coordinator for the northeastern states. From February 1967 until his present appointment, he served on special marketing assignments in the company's Houston headquarters.

The giant barge of 15,000 long tons capacity, shown under tow, was designed specifically to solve a bulk transportation problem and has proved to be a sound investment. Automated safety features coupled with careful design for the requirements of the service have achieved efficiency and economy of operation.

The tug is a Moran 3500 h.p. unit, one of many in the Moran fleet available for such specialized towing. It's the right tug for the job at hand. And that's the reason Moran can serve you better and save you money. By selecting the right tug the job is completed on schedule at the lowest possible cost.

Whatever your transportation needs—for petro-chemicals, iron ore, limestone, lumber, pulp, fertilizer, coal, cement or other bulk commodity—Moran can deliver it economically from market to market, coast to coast, country to country. We have the equipment or we'll design the equipment to do the job. And, most important, there's no charge for the know-how Moran has acquired during a century of experience.

You expect more when you call...

The Man from Moran

MORAN TOWING & TRANSPORTATION CO., INC.
17 Battery Place, New York, N.Y. 10004

Robert Mayer 1968 President Golden Gate Marine Exchange

With San Francisco Bay as a background and framing a ship's telescope, **Robert E. Mayer** (left), new president of the Golden Gate Marine Exchange, receives the congratulations of other new officers of the 118-year-old maritime service and development agency: **Chr. Blom** (second from left), president of Overseas Shipping Co.—1st vice-president; **E. L. Bargones,** president of Transpacific Transportation Co.—3rd vice-president, and **Peter N. Teige,** vice-president and general counsel, American President Lines—2nd vice-president. Not shown are **Rae F. Watts,** San Francisco port director, who was elected at the recent World Trade Club meeting of the Exchange's board as treasurer, and **Robert H. Langner,** secretary-manager.

Robert E. Mayer has been elected president of the 118-year-old Marine Exchange, San Francisco. Pacific Coast sales manager of Todd Shipyards Corporation, Mr. **Mayer** is a veteran of 25 years in the transportation industry.

Also selected to serve were **Chr. Blom,** president, Overseas Shipping Co.—1st vice-president; **Peter N. Teige,** vice-president and general counsel, American President Lines—2nd vice-president; **E. L. Bargones,** president, Transpacific Transportation Co.—3rd vice-president; **Rae F. Watts,** San Francisco Port Director—treasurer, and **Robert H. Langner,** secretary-manager.

Born in St. Paul, Mr. **Mayer** was admitted to the Minnesota Bar in 1938, prior to acquiring experience in railroad freight forwarding. Following five years' San Francisco duty during World War II with the Federal Bureau of Investigation, he joined the Pacific American Steamship Association, serving as its president, 1952-58.

Mr. **Mayer** is also a founding director and 1966-67 president of the Western Shipbuilding Association, a member of the State Board of Pilot Commissioners, vice-president of the Navy League, and past president of the San Francisco Maritime Museum.

In 1966, the new Exchange president headed up a policy review task force to evaluate Marine Exchange functions.

"Our six-months' study convinced me of the importance and unique value of the Exchange," he said. "Cutting red tape in ocean shipping and the harbor safety radio network are examples of two Exchange functions in which it has led the country. I hope I may contribute to its continued advance."

Directors of the Exchange are: **Lester H. Clark,** Graham & James; Captain **J. W. Dickover,** States Steamship Co.; **Hugh C. Downer,** Marcona Corp.; **Lawrence C. Ford,** Chevron Shipping Co.; **George J. Gmelch,** Pacific Far East Line; **Ben E. Nutter,** Port of Oakland; **George B. Plant,** Diablo Service Corp.; **Chris Redlich,** Marine Terminals Corp.; **John L. Stewart,** Fireman's Fund American Insurance Companies; **Vincent Van Riper,** American Bureau of Shipping; **William F. Ward,** Bank of America; **Lloyd M. Westphal,** Port of Stockton.

Mitsubishi Names Ichikawa New York Liaison Manager

Katsuhito Ichikawa has succeeded **Gordon Takahashi** as manager of the New York office of Mitsubishi Heavy Industries, Ltd. Mr. **Takahashi** is returning to Japan following completion of his nine-year ten-month assignment in the United States.

Mitsubishi Heavy Industries offices are located at 277 Park Avenue, New York, N.Y. 10017.

Martinolich To Build Two Twin-Screw Tugs For Foss

Martinolich Shipbuilding Corporation of Tacoma, Wash., is building two twin-screw tugboats for Foss Launch & Tug Co., also of Tacoma. Each tug is to be 85 feet long, with a 24-foot beam and 12-foot depth. They will be powered by 2,000-total-bhp diesels.

485 Ships prove Mobil Marine Paints can really take it!

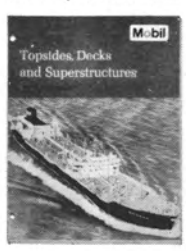
How do we know Mobil Marine Paints can really take it? We test them on one of the largest tanker fleets in the world—our own fleet. Improve them. Retest them. Take out all the "bugs" on our own ships. You get all the benefits of our on-the-sea research—paints that protect through years of typhoons and hurricanes, blistering sun and gale winds.

Basic systems for tailor-made hull protection:

Four-Coat Vinyl System—the S/S MORMACVEGA, as pictured above, is coated with our Four Coat Vinyl System from Keel to Rail. She recently broke the North Atlantic westbound cargo liner speed record. We like to think our smooth vinyls contributed in attaining this speed record.

Inorganic Zinc/Vinyl System—The Mobil fleet has standardized with our Inorganic Zinc/Vinyl System for Topsides, Decks and Superstructures. Mobilzinc 7, an inorganic zinc ethyl silicate, similar to cold galvanizing, is the foundation of this system.

Zinc Rich Epoxy/Epoxy System—This system is currently being applied to the entire exterior of over 1,000,000 D.W.T. of ships in Japan. Mobilzinc 4, an organic zinc rich epoxy, is used as a shop primer in conjunction with automatic blasting.



Learn all about additional Mobil Marine Coatings in our free booklet, Topsides, Decks and Superstructures. Write for it today! Mobil Chemical, Maintenance and Marine Coatings Department, Edison, New Jersey.

Mobil Chemical

MARINE FUELS • MARINE LUBRICANTS • MARINE COATINGS
WORLDWIDE MARINE SERVICE

Edison, New Jersey/Chicago, Illinois
Beaumont, Texas/Los Angeles, California

160 B

The U.S. Shipyard Industry In 1967 —Outlook For 1968

By **Edwin M. Hood**
President, Shipbuilders Council of America

The United States private shipyard industry experienced one of its better years in 1967. Preliminary estimates made by the Business and Defense Services Administration place the value of work performed by the industry at nearly $2.8-billion—a peacetime record.

During the year, 14 large merchant vessels and 21 naval ships were delivered. At year's end, 135 naval ships and 58 merchant vessels were under construction or on order. It is estimated that this work backlog exceeds $2.5-billion—another peacetime high.

While the backlog of naval ship tonnage in hand on January 1, 1968, was down slightly from the January 1, 1967, total, merchant ship tonnage under construction or on order was up sharply—clearing the 1-million-gross-ton mark for the first time since early 1960.

The latest available figures of the Bureau of Labor Statistics revealed that 137,000 workers were employed in the private yards in September 1967, as compared to 141,400 in January 1967. This downturn reflects labor disputes which were experienced during the third quarter of the year. It is expected that the year-end figures will show employment back in the 141,000 range.

Future Outlook

The workloads gravitating to American shipyards are predominantly influenced by government defense and maritime policies. Although some deferment of the U.S. Navy's present and forthcoming ship programs may result from the administration's efforts to reduce federal spending to accommodate rising Vietnam expenditures, it is expected that naval ship construction will continue to approximate current levels well into the 1970s. This prediction is based upon the fact that while the U.S. Navy possesses some of the most modern and most powerful warships ever designed, nearly two-thirds of the fleet still consists of ships built during World War II. Replacement must be undertaken within the next five to ten years if the United States is to assure control of the high seas.

There are strong signs that merchant shipbuilding orders, which, in recent years have averaged less than 20 ships annually, will experience an upsurge in the future. During 1967, legislation was introduced in both the Senate and House which calls for a five-year federal program to provide financial assistance for the construction of 35 to 40 merchant ships per year. This action culminated several years of debate over the future direction of the nation's maritime policies. Importantly, administration proposals to have some U.S.-flag merchant vessels built in foreign countries were rejected by the Congress.

Although the legislation was introduced too late in the first session of the 90th Congress to receive floor action, consideration is expected early in the second session. There appears to be considerable support for the measures on Capitol Hill, and favorable action is being forecast.

Another significant development in 1967 was the announcement by a Great Lakes shipyard that it will construct a 45,000-dwt bulk carrier for one of the major steel producers—the first such order placed since 1960. This is said to be the forerunner of a large number of contracts to upgrade the U.S.-flag Great Lakes fleet. Currently, the fleet is composed predominantly of relatively small, slow-speed vessels averaging more than 40 years of age.

Industry Developments

During the year, virtually every major private shipyard was engaged in forward-looking plant improvement programs to increase efficiency and reduce costs. Included in the multi-million-dollar projects underway are the construction of new shipbuilding ways, rearrangement of existing facilities to improve material flow and production, and the installation of automated plate-handling and fabrication equipment.

The industry's continuing efforts to improve production efficiency has offset substantial increases in labor and material costs incurred during the past ten years. Shipbuilding price ranges last year generally remained below 1957 levels.

During 1967, there were further signs that multi-year ship procurement contracts, calling for series production of relatively large numbers of identical vessels, will figure importantly in future naval and merchant ship construction programs. Late in the year, a contract for the construction of eleven LASH (Lighter Aboard Ship) merchant vessels for two subsidized steamship lines was awarded to a single shipyard. The government's share of the cost of this contract is being funded from Fiscal Years 1967 and 1968 appropriations.

The U.S. Navy, which in 1966 awarded multi-year contracts for 20 destroyer escorts and 17 landing ship tanks (LST) to two contractors, made no awards of this magnitude in 1967. However, it initiated a project (DX/DXG/DXGN) which eventually is expected to result in the series production of as many as 100 new escort vessels by one or more shipbuilding firms.

This project also calls for 'total-package' procurement, whereby the shipyards will compete for development of the vessels' designs as well as construction. The Maritime Administration, which oversees the award of subsidized merchant ship construction contracts, last year announced that it would like to see the 'total-package' concept utilized in subsidized shipbuilding programs.

It is generally found that when shipyards are involved in design development they can eliminate many unnecessary cost elements. Additionally, contracts of sufficient size to permit the yards to tool up for series production of identical ships also permit significant reductions of shipbuilding costs.

1967 Production

The nation's privately owned shipyards began 1967 with 48 large merchant vessels (of 1,000 gross tons and over), aggregating 601,400 gross tons, under construction or on order. During the year, orders were placed for 24 additional merchant ships, totaling 638,700 gross tons. Interestingly, 13 of the ships ordered are being built by non-subsidized operators and require no outlays of federal funds.

Deliveries in 1967 totaled 14 ships, aggregating 166,600 gross tons. This resulted in a January 1, 1968, backlog of 58 ships, totaling 1,073,500 gross tons, under construction or on order. (As a point of reference, in 1966, 16 new ships totaling 244,400 gross tons were ordered, and 13 ships totaling 161,100 gross tons were delivered.)

Naval ships under construction or on order in private yards on January 1, 1967, numbered 147 large vessels totaling 744,987 light displacement tons. During the year, nine additional naval vessels, aggregating 102,720 displacement tons, were ordered. Delivered during 1967 were 21 vessels totaling 108,880 tons.

Thus, the backlog of naval ships under construction or on order in private yards on January 1, 1968, totaled 135 vessels aggregating 738,827 displacement tons. (In contrast, the 1966 naval orders encompassed 54 ships aggregating 246,014 tons. Deliveries for that year totaled 13 ships of 74,299 tons.)

Lykes Bros. Appoints Assistant Vice-Pres.

William J. Squicciarini of New York has been elected assistant vice-president—Eastern Division of Lykes Bros. Steamship Co., Inc., as announced by Lykes Chairman **Joseph T. Lykes Jr.**

A veteran member of the Lykes Lines Traffic Division, Mr. **Squicciarini** has been general traffic manager in New York since 1964. He first joined the Lykes organization in 1943 and was assigned to the New York office. He has remained in the Eastern Division ever since and has assumed new and broader responsibilities as he has advanced from one assignment to another.

Moran Towing Elects Martin J. Carroll VP

Martin J. Carroll

Thomas E. Moran, president of Moran Towing Corporation, New York, N.Y., has announced the election of **Martin J. Carroll** as a vice-president of Moran Towing Corporation and Moran Towing & Transportation Co., Inc.

Mr. **Carroll,** who joined the Moran organization in 1956, and who has been assistant to the president of Moran Towing Corporation since 1965, was born into a family with a long background in the marine towing field. His father, the late **Edmund J. Carroll,** was president of Amboy Towboats, Inc., a well-known company for many years in the Port of New York.

B&W Signs To Build Six Fish Factories— Firm's Largest Contract

Burmeister & Wain, Copenhagen, Denmark, closed the year 1967 by signing the largest contract in the firm's history.

The contract—involving six 2,500-dwt fish-factory vessels for V/O Sudoimport—was signed in Moscow. **L. A. Razin,** president of Sudoimport, and **Niels Munck** and **Per Schroeder** of Burmeister & Wain, signed the pact. Delivery of the ships is scheduled for 1969-70.

Three of the vessels will be ordinary fish factories; the others, in addition to being fish factories, will be equipped also as training ships, similar to two others being constructed for Russia by B&W.

Over a period of time, Burmeister & Wain has built a series of fish-factory vessels for the U.S.S.R.

Our welders are an insurance adjuster's best friends.

An insurance adjuster doesn't get paid to be chummy. His job is to be demanding, even tough—to make sure that any repair job his client has to live with is done the very best way, at the lowest possible cost.

Todd welders get some (maybe most) of the toughest repair jobs around. Yet fussy adjusters love 'em to a man. And the friendship's been going on for fifty years. Contact Todd's executive offices: One Broadway, New York, N. Y. 10004. Or telephone (212) 344-6900 • Cable "Robin" New York.

TODD
SHIPYARDS CORPORATION
SHIPYARDS: Brooklyn • New Orleans • Galveston
Houston • Los Angeles • San Francisco • Seattle

Pott Industries Promotes Three Executives

Arthur R. Parsons

Edward Renshaw

Noble C. Parsonage

Herman T. Pott, board chairman of the newly organized Pott Industries, Inc., St. Louis, Mo., parent company of St. Louis Shipbuilding & Steel Company, Federal Barge Lines, Inc., and Gulf-Canal Lines, Inc., has announced three promotions.

Arthur R. Parsons, formerly president of St. Louis Ship, has been named board vice-chairman of Pott Industries.

Edward Renshaw has been promoted to the presidency of St. Louis Shipbuilding & Steel Company. He formerly served as executive vice-president, shipbuilding operations.

Noble C. Parsonage is now president of Federal Barge Lines and Gulf-Canal Lines. Since 1964 he had served as executive vice-president of both companies.

Mr. **Parsons** began his career with St. Louis Ship in 1933 as a draftsman. In 1938 he became chief engineer, vice-president in 1953, and president in 1956. He is a native of St. Louis, where he studied engineering at Washington University. He formerly had been employed at Builders Engineering Company.

He is a member of the Lay Advisory Board of Alexian Brothers Hospital, the Firms and Corporations Council of St. Louis University, the Presidents Council of St. Louis University, and is a director of the St. Louis Metropolitan Chamber of Commerce.

Mr. **Renshaw** joined St. Louis Ship in 1950, assuming direction of design and engineering of towboats and barges. In May 1967 he was elected president of Paducah Marine Ways, Inc. and Caruthersville Shipyard, Inc., both wholly owned subsidiaries of St. Louis Ship.

He attended Rensselaer Polytechnic Institute, Troy, N.Y., and graduated from Webb Institute of Naval Architecture and the advanced management program of Harvard University Graduate School of Business Administration. His affiliations include The Society of Naval Architects and Marine Engineers (SNAME), the American Society of Mechanical Engineers (ASME), and the Engineers Club of St. Louis. He also is a past president of the Propeller Club, Port of St. Louis, and regional vice-president of the National Propeller Club. Mr. **Renshaw** has authored and co-authored several papers for the SNAME and ASME organizations.

Mr. **Parsonage** was appointed executive vice-president of St. Louis Ship in May 1967. He began his career with Federal Barge Lines in 1953 as treasurer.

Mr. **Parsonage** is a graduate of St. Louis University School of Commerce and Finance and is a certified public accountant in Missouri. He has served as chairman of the Accounting Committee of the Common Carrier Conference of Domestic Water Carriers.

His clubs include the national organization of the American Institute of Certified Public Accountants, Missouri Athletic Club, Noonday Club and the Algonquin Country Club.

MITSUI DELIVERS 112,000-DWT TANKER: Mitsui Shipbuilding & Engineering Co., Ltd. recently delivered its second ship to General Shipping Company, Ltd., the 112,000-dwt tanker, Gohko Maru—largest vessel ever built at the Tamano Works. It has a length (b.p.) of 807 feet, molded breadth of 129 feet, and molded depth of 73 feet. A Mitsui B&W diesel, Model 1084VT2BF-180, with maximum continuous output of 23,000 bhp at 114 rpm, produced a trial speed of 16.86 knots. The tanker is equipped with advanced systems for cargo handling and mooring. Cargo holds were kept to the minimum permitted by classification rules (NK, NS*, MNS*), and in consideration of the various conditions and cargo-handling facilities available at the ports of call. There is automation of the main engine, remote control and centralized watch systems from the engine control stand in the engine room. With a complement of 39, the Gohko Maru will be placed in service between Japan and the Persian Gulf. (Mitsui's first ship for General Shipping Company was the 47,000-dwt LPG carrier, Gohshu Maru.)

Ridge Tool Introduces Internal Tool Cutter

A unique tool designed to cut copper water tube from the inside out without leaving a burr, is now available from The Ridge Tool Company.

The #102 RIDGID Internal Tube Cutter cuts ½-inch and ¾-inch water tubing in extreme close quarters, such as tubing close to joists or tubing close together where a full turn of a standard cutter is impossible.

An adjustable collar sets the cutting edge for depth of the cut. It will cut inside the tube to a depth of 4⅜ inches with the collar removed.

Smooth and easy cutting action is provided by a ratchet handle which requires very little operating space. The turning handle is fitted with a comfortable plastic grip.

After the internal cut is made, no reaming or chamfering is necessary because the lathe-type tool bit cuts without burr, either inside or outside. Fittings slip easily over the cut end of the tube. A large knurled knob feeds and retracts the tool bit.

Easy entry into out-of-round tube or tube burred by other types of cutters, is provided by a reamer on the end of the RIDGID Internal Tube Cutter.

Additional information may be obtained by writing to The Ridge Tool Company, 400 Clark Street, Elyria, Ohio 44035.

Vickers Division Issues Brochure

International facilities and capabilities offered by Sperry Rand's Vickers Division are covered in a new 12-page brochure available from this leading producer of fluid power components and systems.

Vickers has established an extensive international organization to support its customers—one which provides warehousing of parts and units, manufacturing, sales and service, repair and overhaul, and full product support throughout the world.

Bulletin E-5502B includes an easy-to-read chart listing all of the support services offered to customers in each of 31 countries.

Another table lists the numerous Vickers products which are available for a wide variety of applications in the aerospace, industrial, marine and mobile equipment markets. A directory of both overseas and domestic office addresses is included.

Copies of the booklet are available from: Vickers Division of Sperry Rand Corporation, Administrative and Engineering Center, Troy, Mich. 48084, U.S.A.

Nabrico Building Two 3,000-Dwt Oil Barges

Two 3,000-dwt oil barges are being constructed by Nashville Bridge Company (Nabrico), Nashville, Tenn., for undisclosed interests. The vessels, designated Hull Nos. 1935 and 1936, will each have a length of 264 feet, beam of 50 feet and depth of 10 feet 3 inches.

BLACK BOXES AND BREAD AND BUTTER: Three types of highly sophisticated U.S. Navy electronics auxiliary ships can be seen in this late December 1967 view of Bethlehem Steel's Hoboken, N.J., ship-repair yard, as well as the usual 'bread and butter' types of merchant vessels. Here, left to right, are: the Ezra Sensibar, diesel-electric suction dredge; the USNS Compass Island, experimental research and systems testing ship; the SS Robin Kirk, freighter; the MS Valente, freighter; the USNS Mercury, Apollo manned moonflight space tracking ship, and the USNS Dutton, oceanography survey ship. At the extreme upper right, alongside the yard's land-based tanker cleaning plant, is the stern of the Mobil tanker SS Wapello. Backing out of the yard, following repairs, is Sea-Land's containership, the Houston. Work on these vessels ranged from normal voyage repairs to complete overhaul, including modification and expansion of some of man's most sophisticated communications and telemetry systems.

Your Lady's never too young for Essomarine.®

Our service begins long before her arrival. Sometimes before the first plans are drawn.

We work with designers. Give advice on fuels and lubricants. Perhaps enlarge our facilities for bunkering. Or for bulk delivery of lubes.

We work with engine builders. If needed, develop new products. And have them ready when your ship comes down the ways.

We work with petroleum itself. Our research people constantly search for ways to make Esso products even better.

When your new lady of the sea is ready, we will be too.

ESSO

FUELS AND LUBRICANTS

Where in the world do you nee

Name your port: Vantug will go there

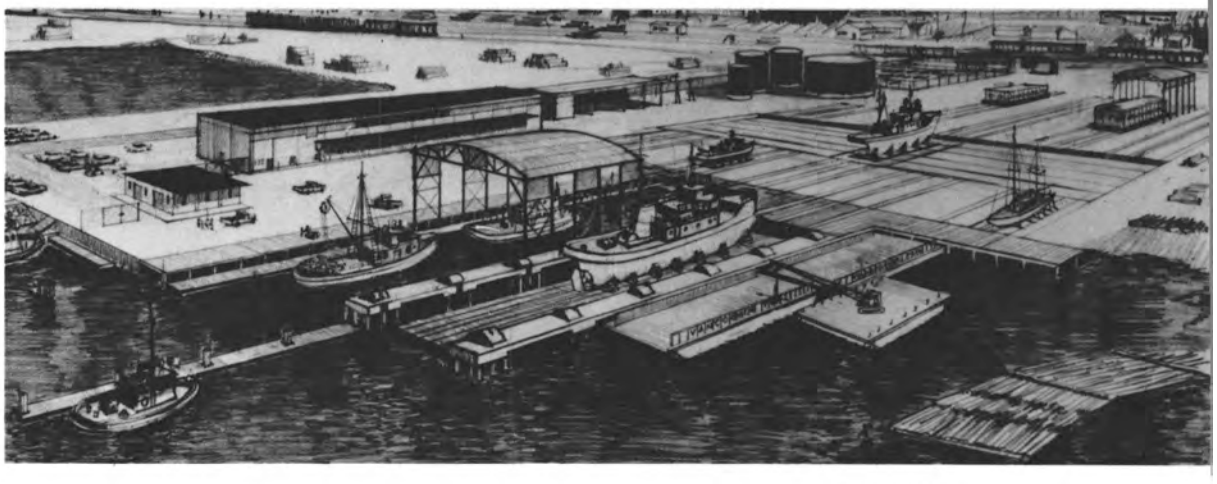
We built the "Harold A. Jones" for service on the open sea, and in her first year, she logged 45,000 barge-miles. That's almost twice around the world with bulk cargo loads of up to 10,000 tons.

She's a versatile, automated tug with 3500 shaft horsepower ready for a cruising range of 9,000 miles non-stop. And she's built to make short work of the heaviest open sea or the trickiest coastal inlet.

At Vancouver Tug, she's just one of many. Now there's the 1800 horsepower Le Mars just off the ways, another larger tug on the

l tug service?

way for 1968, and a full fleet serving a hundred industries from Mexico to Alaska. Last year, the fleet moved more than 5 million tons of cargo over 1 million sea miles.
And now, to back up our fleet and keep it service-ready, we've opened a 14-acre tug terminal and shipyard on the north shore of Vancouver harbour. The shipyard is operated by Vancouver Shipyards Co. Ltd. and includes a Syncrolift capable of drydocking vessels of up to 300 ft. in length. Enquiries are invited from the marine industry generally for drydock and repair services.



VANCOUVER TUG BOAT CO. LTD.

Radio and Cable Address:
Vantuco,
Vancouver, British Columbia
Canada

11413

Pearl Harbor FORACS Project Manager Speaks At Meeting Of The SNAME Hawaii Section

At the head table, left to right: **J. R. Gauthey,** moderator of the discussion period; **Walter L. Burns,** author-speaker; **H. David Swanson,** Section vice-chairman; **B. A. Wann,** 1967 membership chairman, and **Clarence P. Wilmington,** secretary-treasurer.

A regular dinner meeting of the Hawaii Section, The Society of Naval Architects and Marine Engineers, was held December 5, 1967, in the Lehua Room of the Ala Moana Banquet Hall, Honolulu. Dinner was followed by the presentation of the technical paper and a moderated discussion.

Walter L. Burns, FORACS II Project Manager, Combat Systems Division, Pearl Harbor Naval Shipyard, presented his paper, "Fleet Operational Readiness Accuracy Check Site."

FORACS test ranges, one of which is established in Hawaii on the Island of Oahu, are operated to provide aid in improving the accuracies of technique and instrumentation used in navigational and fire-control operations on ship. Mr. **Burns** discussed the development of equipment, determination of appropriate test methods, conducting measurements, and the use of automatic data processing for quickly obtaining accurate final data.

Three past chairmen of the Hawaii Section chat during Aloha time. From the left: **Roy W. Ahrens,** assistant head design engineer for Hull, Pearl Harbor Naval Shipyard; **Loring W. Schutz,** head design engineer, PHNS, and Commander **Fred C. Munchmeyer,** USCG (ret.), professor, University of Hawaii.

In the early part of this decade, the accuracies of techniques and instrumentation used in navigational and fire-control operation attained by the ships of our fleet came under serious question, Mr. **Burn's** paper brought out. To answer this question, the Fleet Operational Readiness Accuracy Check Site (FORACS) ranges were developed.

Establishing the FORACS test ranges, development of equipment, and determining appropriate test methods required a united effort from different activities across the country. Conducting measurements and collecting data are only a downpayment on the answer. The payoff comes with automatic data processing and standardized analysis techniques. Today, Mr. **Burns** reports, our ships can have this question answered within 24 hours following a FORACS range test. Tomorrow, the accuracies of our ships will be a certainty.

Lieutenant Commander **J. R. Gauthey,** USN, introduced the speaker and conducted the discussion period. Lieutenant Commander **H. David Swanson,** USN, vice-chairman of the Hawaii Section, chaired the meeting. Both men are from Pearl Harbor Naval Shipyard, where Commander **Swanson** is the design superintendent and Commander **Gauthey** is production engineering officer.

Oral discussers of the paper included Naval officers Captain **Arthur S. Chapman,** Commander **H. A. Hoffman** and Commander **John Drew;** Pearl Harbor Shipyard Design Division engineers **Roy W. Ahrens, Dale T. Trenhaile,** and **Eilly A. Wann; Fred Munchmeyer,** professor, University of Hawaii, and **Frank Kearton** of the Kapalama Shipyard in Honolulu.

Some of the current SNAME-Hawaii officers, from the left: **H. David Swanson,** vice-chairman; **Frederick C. Munchmeyer,** director; **B.A. Wann,** membership chairman; **Grant J. O'Donnell,** director; **Daniel H. Carstensen,** meetings chairman; **C. P. Wilmington,** secretary-treasurer, and **Dale T. Trenhaile,** public relations chairman. Messrs. **Wann** and **Trenhaile** are members of the SNAME National Committee.

B&W Names Two In Diesel Sales Division

Burmeister & Wain, Copenhagen, Denmark, has appointed **Jens Egelund** director of its Diesel and Engineering Sales Division. Mr. **Egelund** had been chief sales manager.

Under this division a new sales promotion department has been formed, directed by **N. E. Rasmussen,** assistant sales director.

Mr. **Egelund** joined Burmeister & Wain in 1946 and was appointed chief sales engineer in 1962.

Mr. **Rasmussen** joined B&W in 1947. From 1951 to 1965 he was responsible for the establishment and management of the firm's subsidiary company in Norway.

Newport News Ship Appoints D.C. Petty

D. C. Petty

The appointment of **D. C. Petty** to assistant to the general manager of Newport News Shipbuilding and Dry Dock Co., Newport News, Va., has been announced by vice-president and general manager, **F. C. Davis.**

Mr. **Petty** has been assistant superintendent of the company's hull outfitting division since 1939. His new duties will involve outfitting production control.

Mr. **Petty** was first employed by the company in the superintendent's office in 1917. He received a degree in mechanical engineering from Virginia Polytechnic Institute and rejoined the shipyard in 1928, in the riggers department. He served as a quarterman there from December 1928 to January 1929, and was a staff supervisor from 1930 to 1939 before being appointed assistant superintendent.

Motorola Names Marine Communications Reps

William L. Alt

David C. Gosse

Robert E. Hall

Motorola has appointed three marine communications representatives to work with shipbuilders, owners and operators in the East, Midwest and South. The announcement was made by **Lawrence Pickholtz,** national marine sales manager.

William L. Alt of Motorola's Glenside, Pa., office now calls on East Coast accounts from Maine to Florida.

David C. Gosse of the St. Louis office covers inland rivers, waterways and lakes.

Robert E. Hall of the Metarie, La., office is the representative on the Gulf Coast and Lower Mississippi River.

Mr. **Alt** is a former marine sales engineer for Tidewater Oil and Mobil Oil. He is a graduate of Wagner College, Staten Island, N.Y., and holds a master's degree in business administration from New York University. He is a member of The Society of Naval Architects and Marine Engineers, the Rudder Club and the Propeller Club.

Mr. **Gosse** was national marine sales manager for Foster Refrigeration Corporation before he joined Motorola last summer. A native of Brooklyn, N.Y., he is a graduate of Fordham University, where he received a B.S. degree in marketing in 1958. He, too, is a member of The Society of Naval Architects and Marine Engineers, and the Propeller Club. His accounts include towboat companies, shipyards, oil companies, grain companies, and various government entities.

Mr. **Hall** was with 3M Company and Superior Oil Company before joining Motorola. He is a native of Houston and graduated from Lamar State College of Technology in nearby Beaumont, Texas.

SNAME Providing New Scholarship Awards For Grads And Undergrads

Scholarships in both the graduate and undergraduate levels are again being provided by The Society of Naval Architects and Marine Engineers to encourage young men to pursue studies in the naval architectural and marine engineering or closely related fields. For the graduate study program, application forms have been forwarded to ship-operating and shipbuilding companies, affiliated trades and to universities located in all sections of the country.

Applications for graduate scholarships for the fall of 1968 should be filed with the secretary of the Society at 74 Trinity Place, New York, N.Y. 10006.

The maximum value of the scholarships is equal to the cost of tuition at the college selected, plus living expenses in the amount of $2,100. The Scholarships Committee will determine in each case the exact value of the graduate scholarship award. Successful candidates may select the institution for their advanced studies subject to the approval of the Scholarships Committee.

Factors considered in making the selection include scholastic ability, the candidate's capacity to pursue advanced study, his ambition, personality and other factors indicative of prospective leadership status in the marine industry.

In addition to the graduate program, 12 undergraduate scholarships of $1,000 each are made available by the Society at the Massachusetts Institute of Technology, the University of Michigan and the University of California at Berkeley. Those interested should contact the above institutions directly and not the Society since the award decisions on the undergraduate program have been assigned to them.

Moran Appoints Nielson Manager, Construction

N. Howard Nielsen

John S. Bull, president of Moran Towing & Transportation Co., Inc., New York, N.Y., has announced the appointment of **N. Howard Nielson** as manager of construction and repair for the world's largest fleet of tugs.

Peter J. Rea, who recently joined the Moran organization, was named assistant manager of construction and repair.

Mr. **Nielson** has been assistant to the manager of construction and repair for the Moran fleet since 1955. He received his first license as engineer in steam in 1932, served as chief engineer on tugs of the Dauntless Towing Line until 1936 when he joined the Cooper Bessemer Engine Company, on its diesel erection floor. He returned to Dauntless as chief engineer in diesel, serving on the company's newest tugs. In 1945 Mr. **Nielson** was appointed port engineer, a position he held until the firm was acquired by Moran in 1955.

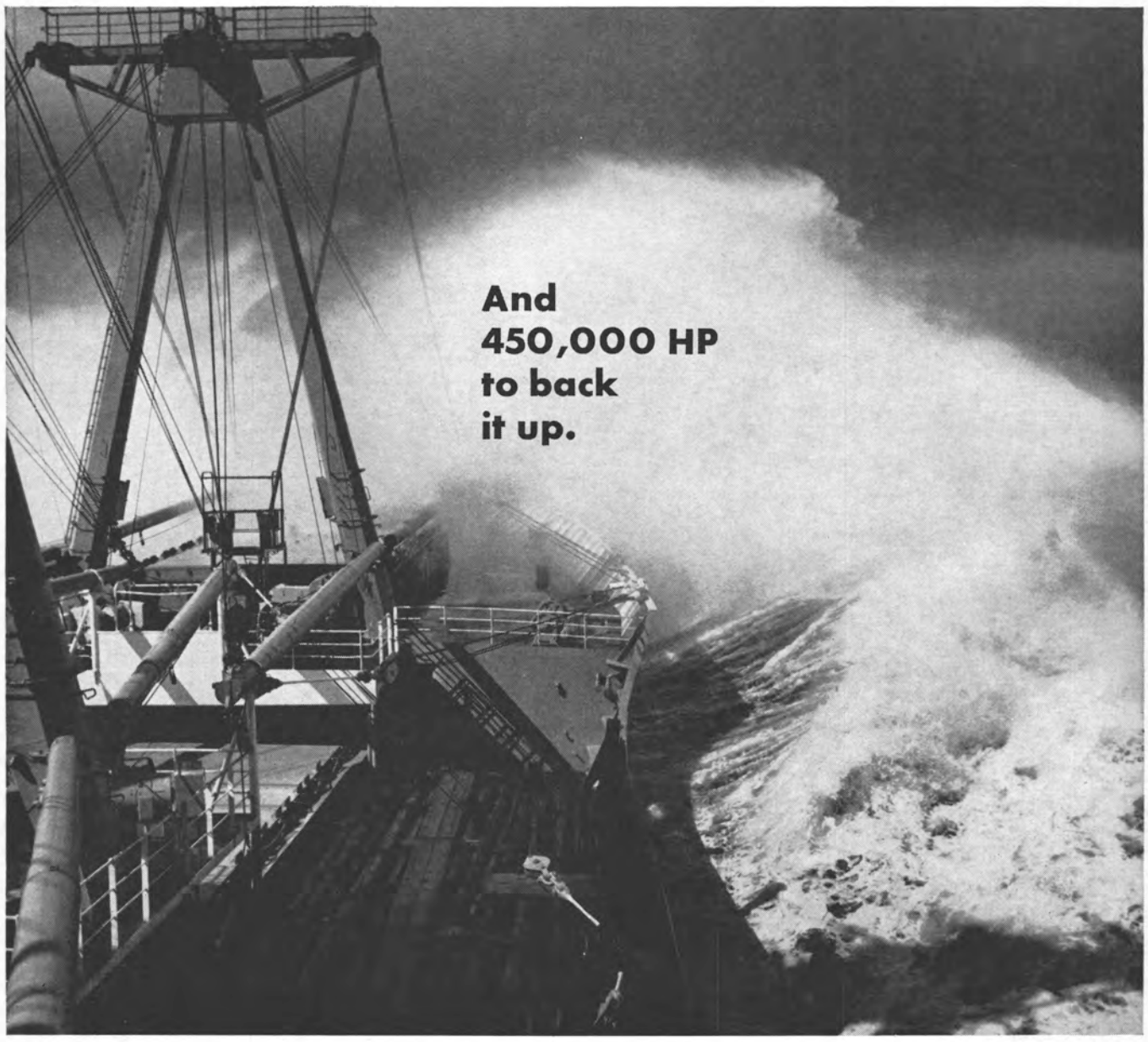
NSSC Accepting Bids On 40 Landing Craft

Competitive bids are being accepted by the Naval Ship Systems Command, Washington, D.C. 20360, for the construction of 40 mechanized aluminum landing craft (LCM-8). The vessels will have a length of 74 feet, beam of 21 feet 1 inch, and will weigh 100,000 pounds each.

St. Louis Ship To Build 3,200-Dwt Oil Barge

St. Louis Shipbuilding-Federal Barge, Inc. of St. Louis, Mo., has been contracted by Prairie Corp., Houston, Texas, for the construction of a 3,200-dwt oil barge. The vessel will be 298 feet in length, 52 feet 6 inches in width, and have a depth of 12 feet.

**We have
a powerful claim
of superior performance
for Gulf
Veritas Cyloil®**



Each week there are more ships putting Gulf Veritas Cyloil® 40 and 50 to the performance test. (At last count their combined engine brake horsepower came to 450,000.)

One reason for this growth is that during the last two years vessels using Gulf Veritas Cyloil exclusively have had excellent results. When cylinder heads were removed and wear rates determined, that's when performance was judged.

Gulf Veritas Cyloil was specially developed for marine diesels which use heavy sulphur-bearing residual fuels (up to 3,500 seconds Redwood #1 at 100°F.). Those producing strong acids on combustion.

For engines burning distillate or intermediate fuels requiring the same product for both crankcase and cylinder lubrication, Gulf Veritas DPO® (Dual Purpose Oil) 30 and 40 are available.

The fact is that we have a Gulf marine lubricant to meet any test your engines must face. Indeed, both Gulf Veritas Cyloil and Gulf DPO Oils have earned their reputation in the area of specific requirements and applications.

Better marine lubricants are just one part of the growing world of Gulf.

Gulf®

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

Gotaverken Sets New European Record

Delivery of the 90,800-dwt tanker, MV Pappas Thessaloniki, on December 22 was the final vessel from Gotaverken's facilities for the year 1967.

Deliveries from Gotaverken in 1967 included 12 ships totaling 787,750 deadweight tons—the highest figure reached by a European yard in that year and setting a new European record. Including its subsidiary, Oresundsvarvet in Landskrona, deliveries from the Gotaverken Group totaled 19 ships aggregating 1,028,000 deadweight tons, the highest mark reached by any European shipbuilding group. Gotaverken also topped the European shipyard production record in 1965 and 1966.

The MV Pappas Thessaloniki, last in a series of three motor tankers ordered from Gotaverken by **John C. Pappas,** Boston, U.S.A., was handed over to her owner, Eleni Corporation of Liberia, Monrovia, at a combined christening and delivery ceremony at the Arendal Shipyard. The trials, as is the Arendal practice, had taken place a week earlier.

The ship was christened by **Mrs. Rut Svensson,** wife of the managing director of Gotaverken, Dr. **Nils Svensson.** The owners were represented by **George L. Paidas, T. Iatropoulos** and others, and the yard by members of the board and management.

All three sisterships were delivered in 1967. Mr. **Pappas** now has a tanker of 228,000 dwt on order at Gotaverken, which will be delivered towards the end of 1969. As with the three sisterships, it will be paid for in cash.

Originally ordered as 81,000-tonners, the first of the sisterships, the MT Bessie A. Pappas, was delivered early in March 1967. It has a deadweight capacity of 82,150 tons on a draft of 41 feet. According to the new load line convention, the draft of the other two ships in the series was increased to 44 feet 3⅝ inches, giving a deadweight tonnage of 90,800.

The MT Pappas Thessaloniki, built to the highest class of the American Bureau of Shipping, has an overall length of 846 feet 5½ inches, molded breadth of 128 feet, and molded depth of 58 feet 4 inches. She has a gross tonnage of 43,231. Total capacity of the cargo tanks is 3,616,200 cubic feet, and the ballast tanks, 610,600 cubic feet.

Mrs. Rut Svensson, left, christened the new tanker. Shown with her, from the left, are her husband, Dr. **Nils Svensson,** managing director of Gotaverken, and **Mrs. and Mr. George L. Paidas,** representing the owner, Eleni Corporation of Liberia, Monrovia.

The ship has Esso's bulbous bow, and the forepeak and forward deeptank are arranged as drytanks. There are four center tanks and eight wing tanks—No. 2 wing tanks P & S are intended for ballast only.

The pump room is situated immediately forward of the engine room. All accommodations are placed aft. The tank divisions comprise two flush longitudinal bulkheads and vertically corrugated transverse bulkheads. In accordance with Gotaverken's standard practice, the longitudinal bulkheads extend through the engine room. The sub-division of the tanks is designed to afford flexibility in distributing cargoes in various proportions.

The 90,800-dwt tanker, MV Pappas Thessaloniki, is the third of a series ordered by **John C. Pappas** of Boston.

Deck machinery includes six 20-ton automatic mooring winches and one 6-ton cargo winch for the hose derricks amidships. The mooring winches are located two on the forecastle head (combined with the windlass) and four on the upper deck. A hatch for handling engine parts has been provided at the aft end of the first poop deck. This hatch is served by two 6-ton derricks. Cargo hoses are handled by two 10-ton derricks amidships.

All the usual modern navigational aids are on the Thessaloniki—radio with V.H.F., radar, gyro compass, echo sounder, and Sal log. A Gotaverken Lodicator load distribution instrument also is provided.

The bridge is located aft, above the accommodations. All crew cabins, as well as the messes and other public rooms, are air conditioned by a high-velocity zone system.

Gotaverken 'large-bore' engines for the three tankers

The Pappas Thessaloniki is equipped with a 9-cylinder diesel of Gotaverken's large-bore type. The engine has a bore of 850 mm, a stroke of 1,700 mm and develops 19,800 bhp at 115 rpm. The sisterships all have engines of the same type—with a speed of 16.25 knots, fully loaded.

The generator plant comprises two 8-cylinder, 4-stroke diesels of Bergens Mekaniska Verksted's type, each coupled to an a.c. generator rated at 700kW and a 600-kW steam turbine-driven generator.

Steam for the cargo oil pumps, tank heating, etc., is supplied by two marine water tube boilers of Gotaverken-Babcock & Wilcox type M6, each generating 24 tons/hr. An exhaust-gas boiler of Gotaverken's own design with a heated surface of 7,582 square feet is installed to supply steam at sea for the turbine-driven generator and for fuel preheating and other services. Steam returned from cargo oil pumps, deck machinery and other users is passed to one condenser having a cooling surface of 4,850 square feet and the ancillary cooling water and condensate pumps, and air extractor.

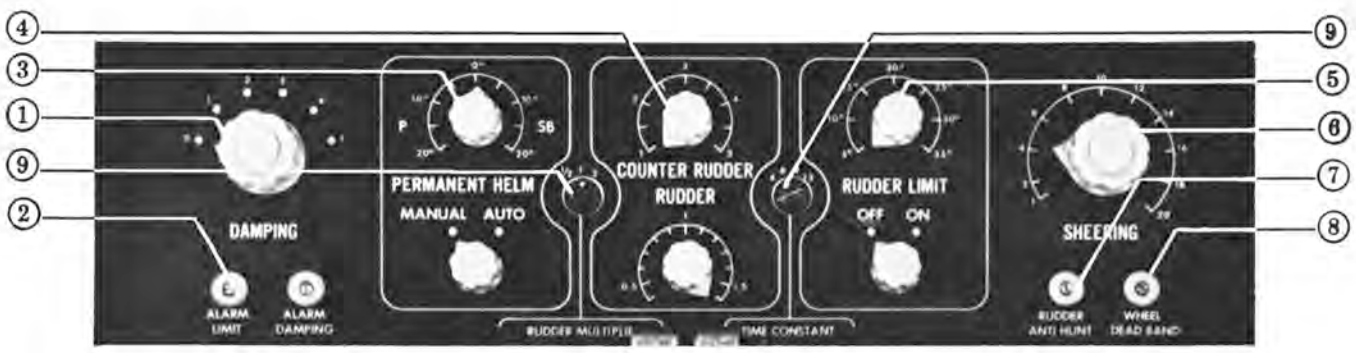
Fresh water is supplied by a fresh-water generator with a capacity of 21-25 tons/24 hours, which utilizes the heat from the main engine cooling water.

Two Gotaverken starting air compressors each delivers 6 cu.m. free air per minute (212 cfm) at 875 rpm.

The pump room contains three turbo-driven vertical cargo oil pumps of centrifugal type, each with a capacity of 2,500 tons water/hr. The turbines driving these pumps are placed in the engine room. Also fitted in the pump room are two steam-driven vertical duplex pumps for stripping, with a capacity of 300 tons water/hr., and one 1,200-ton/hr. centrifugal pump serving the water ballast tanks amidships and forward.

Remote control of cargo oil pumps and suction valves in cargo oil and stripping lines is arranged from a control room at the front of the superstructure where there also are reading instruments for levels in cargo oil tanks.

This is a human brain...



...and this is an "Arkas" brain*

The Decca "Arkas" is the only autopilot that *thinks*. It is programmed to automatically steer your vessel, light or loaded, in any sea state, in any wind force. It gives you extra speed and saves fuel by using fewer rudder movements. It also gives you precise electronic steering under any maneuver.

* *The control panel shown above enables you to set the pilot for your vessel regardless of its size or steering gear.*

THIS IS HOW THE "ARKAS" DOES IT:

1. DAMPING CONTROL. In heavy weather this imposes a time delay, in seconds, on the autopilot.
2. ALARM LIMIT (Screwdriver setting). Set to give off-course alarm, gyro or power failure.
3. PERMANENT HELM CONTROL. MANUAL/AUTO. In 'Manual' it sets the amount of 'Weather Helm'. When 'Auto' is selected the ARKAS senses the correct amount needed and sets it automatically.
4. RUDDER & COUNTER RUDDER CONTROLS are set to adjust amount of 'Rudder' and 'Counter Rudder' to suit the vessel's load condition.
5. RUDDER LIMIT (ON/OFF). A variable control which sets a limit in actual degrees on the amount of rudder used by the autopilot. Provides controlled 'rate turns' when altering course.
6. SHEERING CONTROL. This is a sensitivity control that sets the amount of permitted yaw in actual degrees.
7. RUDDER ANTI-HUNT SCREW. Provides an electronic adjustment to compensate for rudder overshoot.
8. WHEEL DEAD-BAND SCREW. Adjusts the sensitivity of the manual steering when ARKAS electric 'Follow-up' is installed.
9. The 'Rudder Multiplier' and 'Time Constant' controls are screwdriver settings set by the technician on installation to bring the autopilot in accordance with ship's characteristics.

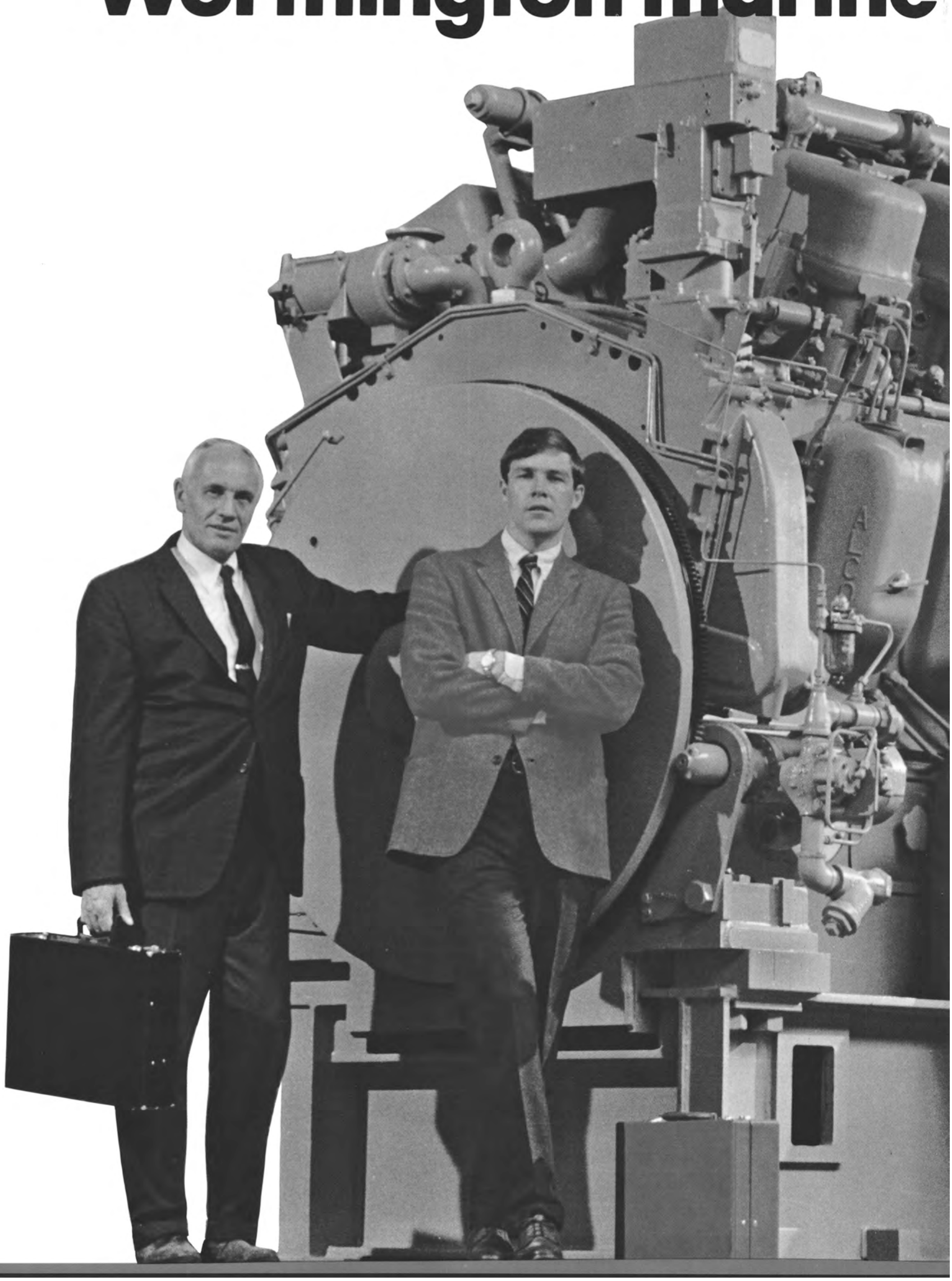
ELECTRONIC STEERING
by
DECCA "ARKAS"

Send for our illustrated catalog.

Decca Radar, Inc. 386 Park Avenue South, New York, N.Y. 10016 • Tel.: 212/685-5157

See Decca navaids live on the ship's bridge in our New York Showroom . . . or ask for one of our Vista Van demonstrations

A great new power team: Worthington marine



specialists and Alco Diesel

The reliability and economy of Alco Mar
Diesels is nothing new to old hands in the
and dredge business. But now that Alco
joined forces with Worthington, someth
new has been added to Alco servi
Worthington marine specialis

These are the same maritime-minded n
who have so long supplied you v
Worthington compressors, turbir
pumps, and other rugged mar
auxiliaries. Now, with Alco, they give
a marine-diesel team unsurpasse
knowledge, ability, and resource
single source for propulsion a
auxiliary equipment—including
performance-proven 251 A
diesel engi

Lightweight and powerful, the 25
available in the in-line 6, V-12, V-16, a
the new V-8. And these reliable mod
are ideal for marine propulsion, sh
service power generation, and pumpi

No matter what your power needs-
sea or in the yard—see Worthing
and get the benefit of more than
years of diesel experience. Mar
Dept., Worthington Corporati
Box 106-73, Harrison, N. J. 070

WORTHINGTON

This self-contained mobile oil-drilling platform, shown in elevated position during jacking trials, operates in water depths to 125 ft. Our Beaumont Yard has built such rigs capable of operating year-round in water depths to 250 ft.

This sister rig to that on the left shows the drilling platform elevated 42 ft above the huge foundation mat. The mat imparts excellent stability to these rigs in a wide range of bottom conditions.

Bethlehem at Beaumont

The Gulf Coast's most experienced shipyard for the planning, engineering, construction, outfitting, rig-up, and protective coating of marine oil-field drilling, production, storage, and transportation facilities. We have the capacity to handle the biggest jobs, and the capability to perform the most complex.

Marine Oil Field Facilities Drilling Barges Mobile Offshore Drilling Platforms • Underwater Storage Units • Tank Battery Barges • Compressor Barges • Drilling Tenders • Deck Cargo Barges • Bulk Oil Barges • Refrigerated and Pressure Type LPG Barges

SHIP REPAIR YARDS
Boston Harbor — New York Harbor
Baltimore Harbor — Beaumont, Texas
Los Angeles Harbor — San Francisco Harbor

SHIPBUILDING YARDS
Sparrows Point, Md. — Beaumont, Texas

FOUNDRY & PROPELLER PLANT
Staten Island, New York

BETHLEHEM STEEL
Shipbuilding

GENERAL OFFICES: 25 BROADWAY, NEW YORK, N. Y. 10004

Telephone: 212 DIgby 4-3300 Cable Address: BETHSHIP

Some Aspects Of Nuclear Safety And Ship Design

George L. West Jr. and E. J. Roland*

Nuclear power generation has become an economic reality for the production of electrical energy. It is our belief that nuclear power also will become a reality for the propulsion of ships.

In order for a nuclear fuel to provide economically competitive ship propulsion, it will be necessary to reduce the various plant costs, one at a time. At the present time there is little to gain by further economic studies, for we must attack the problems which are the root of nuclear power's current economic disadvantage. This means that the marine industry should build and operate nuclear ships now.

Nuclear safety is one of the major costly features of nuclear power, but it is not the purpose of this report to make an analysis of the cost of safety. The intent of this paper is to point out the various areas of extra costs due to the safety requirements now imposed, and to question the need for such stringent regulations.

It is our opinion that nuclear ships could be economically competitive overnight. This could be done by simply doing away with the many design and operational safety requirements which are now part and parcel of nuclear power. This would eliminate many of the first cost items such as containment and filtration systems, warning and back-up systems. It would eliminate additional crew members and extra operational procedures.

From Figure 1, it is reasonable to assume that the containment costs for the NS Savannah were in the $100/Kwe range. Is this cost above practical requirements?

It seems that the European community is inclined to take a somewhat less pessimistic view of nuclear safety. It must be recognized that it is likely that other countries will take a somewhat less restrictive attitude toward safety and thus obtain economic advantage over the United States. Let us clearly understand that safety costs money and make every attempt to assure ourselves that our safety measures are meaningful and necessary.

Reactor Safety

Two aspects of nuclear ship design which set it apart from the conventional design are collision protection and containment. Every vessel, no matter how well built and operated, is under continuous threat of being struck by another vessel less diligently operated. Very few accidents are caused by machinery failures such as steering malfunction.

The design of the NS Savannah brought into focus the very difficult problems inherent in accounting for ship collisions. Up to that time, little was known of the internal and external mechanics of ship impact, and even less of the stochastic aspects. Protection had to be built into the Savannah because of the danger of breeching the primary coolant system in the course of an accident.

There is much work to be done in the realm of structural analysis of collisions. Designs incorporating the very best collision protection features are needed because of the increasingly larger and higher speed vessels which are inevitably to be collision partners with nuclear ships. Integration of internal ship structure with containment and shielding appears to offer a means of increasing collision resistance along with reducing overall cost.

The criterion presently used to measure the degree of safety of a reactor system is its ability to withstand what is termed the "maximum credible accident" (mca) without significant radiation damage to the biological surroundings. The mca is a hypothetical accident which stretches credibility to the limit.

There are several different types of reactors available, and for each type, a specific mca is postulated. There is no doubt that the problems involved with nuclear safety analysis and projection of an mca are not completed understood. Because of this, there exists a void in regulatory bureau standards for prediction of an accident, and not a well-defined sequence of events following an accident.

To date, application of reliable pressure vessel codes have placed the rupture of the reactor vessel in the realm of incredible. However, in a letter of December 1965, from the Advisory Committee on Reactor Safeguards to the Atomic Energy Commission, it was suggested that the splitting open of the pressure vessel might be given consideration as the credible accident. If this suggestion is adopted, it will have a significant effect on reactor safety system design.

Any system can operate at the wrong time or fail to operate. If this system is a safety system, as in the case of the Savannah's quick closure system, it should have a high reliability. Furthermore, the consequences of spurious operation should not initiate a plant accident. However, any time the plant is required to respond to some sudden stress, there is always the possibility that there will be a malfunction. Therefore, the safety system can itself cause a failure. In evaluating the safety system, the protection it affords must be weighed against its probability as being the cause of a failure.

Emergency Propulsion

It is unusual to provide emergency propulsion capability for an oil-fired ship. This should not become an automatic requirement for a nuclear vessel.

Briefly, it is worthwhile to examine the rationale for the emergency propulsion system. The safety of nuclear ships falls into two broad categories—the protection of the public, and the protection of the ship and its crew. Since ships have been operating for hundreds of years they have established in a broad way an acceptable level of safety. While the safety of ships has been continually improving, it has not been done by imposing unusually restrictive or costly requirements on operation and design. It seems reasonable that a nuclear ship should provide the same level of protection for ship and crew as does the conventional ship.

The emergency propulsion system does provide some measure of safety for the crew. Furthermore, it is just as important for the oil-fired ship as the nuclear ship. Thus we are arguing for a single standard of crew safety, regardless of the type of fuel used by the ship. The emergency propulsion system also may be used to protect the public. It seems reasonable to assume that some day there will be a sizeable fleet of nuclear ships. In order for this to happen, the world must accept the idea that sooner or later a nuclear ship will sink. And, in fact, it may be argued that a hazardous ship at sea that can make its way to port using its own emergency propulsion is increasing the public hazard. From the public's point of view, it would be better if the ship were to sink at sea. Therefore, there are only two situations in which the emergency propulsion system can offer the public protection, namely, (1) entering port, and (2) while in port. In normal operation entering and leaving port involves only a small part of the ship's operating time.

In considering the long-range situation, nuclear ships should not be limited to only a few ports. Central power station reactors are being built near high population areas. It is hoped that nuclear ships may do the same. Presumably the theory is that the ship will be able to reach a safe anchorage before the fuel elements have time to melt. This seems to be a questionable concept. To some extent this is recognized since the Savannah does not travel to those ports where it must pass through a mechanically opened bridge.

We urge re-evaluation of those criteria which apply to nuclear ship safety. Furthermore, those features of engineered safeguards which lessen the consequence of an accident should be recognized in the determination of the hazards to crew and public.

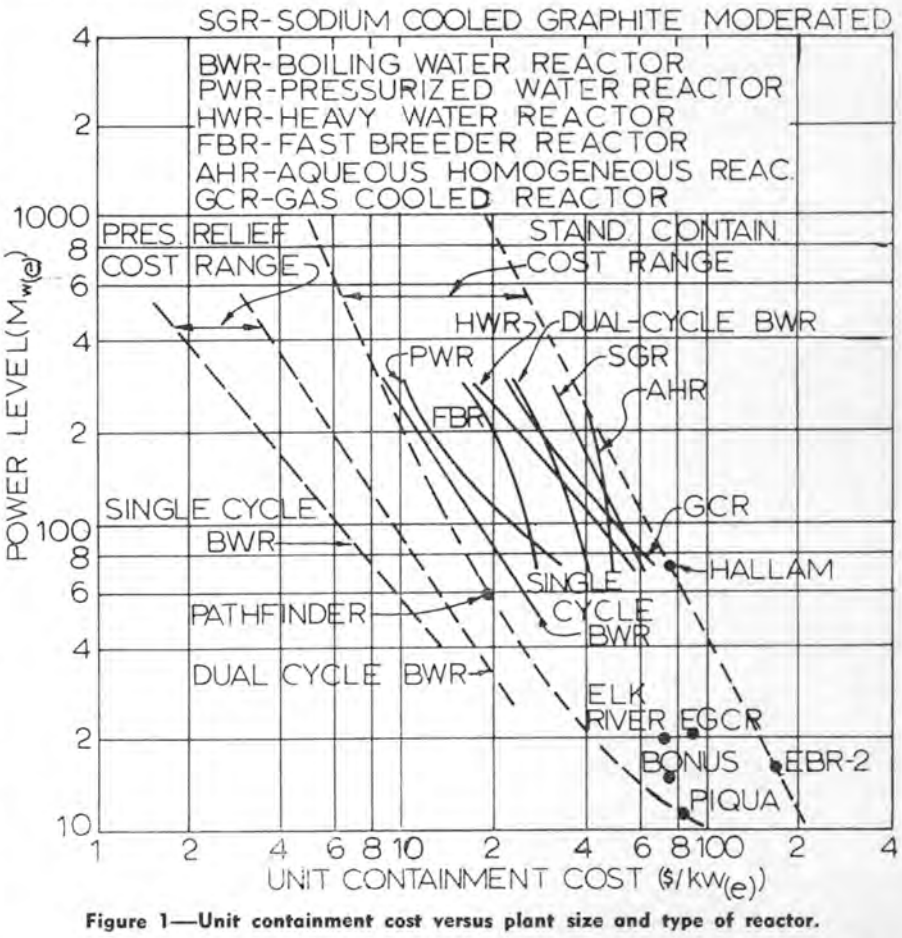


Figure 1—Unit containment cost versus plant size and type of reactor.

*Professor **West,** Marine and Nuclear Engineering, The University of Michigan, and Lieutenant **Roland,** U.S. Coast Guard, presented the paper condensed here before the recent Annual Meeting of The Society of Naval Architects and Marine Engineers.

$30-Million Navy Destroyer Salvaged By Murphy Pacific Using Urethane Foam System

Chemists and salvage engineers have developed a new way of recovering sunken ships from Davy Jones's locker that utilizes urethane foam.

Urethane foam chemicals are fed under pressure into the hulls on the seabottom or on reefs. The chemicals react and quickly expand into rigid floats of great buoyancy—30 pounds per pound of urethane. These foamed-in-place floats help to lift the vessels to the surface and to float them back to port.

The technique was developed and patented by the Polytron Department of Olin Mathieson Chemical Corporation in conjunction with Murphy Pacific Salvage Company of Emeryville, Calif., one of the nation's largest and best-known salvagers. The salvager utilizes Polytron's Autofroth I, the world's only aerosol packaged polyurethane foam system.

"Ever since we became aware of foam in the early 1950s, we've been intrigued with the possibility of capitalizing upon its buoyancy for salvage," **J. Philip Murphy,** president of Murphy Pacific, declared. "However, it wasn't until the development of the Autofroth I system that we were able to find a practical way of using the foam."

The Polytron system requires the pressurizing of two basic urethane components in separate cylinders. The materials are fed through temperature compensating flow chambers and then expelled through a static mixing chamber. No longer under pressure, the materials react and expand. Curing into rigid material takes only a few minutes.

One of the most difficult tasks undertaken by Murphy Pacific was to float the USS Frank Knox. For its success, the company was commended by the U.S. Navy.

The vessel was impaled on the treacherous Pratas Reef in the South China Sea two years ago with at least 20 of its forward compartments flooded and the hull so ripped that patching was impossible.

It seemed that the 2,420-ton destroyer was lost. The forward section of the 391-foot vessel lay high on the reef at low tide and the ship began to sag under the crushing weight of the water in her hull. It appeared as if the ship must break up and sink.

Murphy Pacific's first step was to arrange for tons of material and ten Autofroth I systems to be flown to the Philippines on a high-priority basis. Everything was loaded on a Navy ship and rushed to the stricken destroyer.

Having the deck of the USS Knox above water helped in the ship's rescue. Working rapidly, Murphy Pacific technicians and Navy crewmen established what undoubtedly was the first urethane foam plant ever located on the deck of a Navy ship. It took but an hour for the Murphy Pacific specialists to train the Navy divers in foaming techniques. The Navy was ready to make a last attempt at salvage.

Navy divers, working along the hull under water, discharged foam into drilled holes. An Autofroth I system was hauled into the flooded compartments where foam was released and where it displaced the encroaching waters.

In two weeks nearly 80 tons of urethane foam were used and 17 of the ship's flooded compartments became buoyant and watertight. It took two more days of careful effort to 'bounce' the ship free from the reef. She was then towed to Formosa for emergency hull repairs.

Today the USS Knox is back in service and the taxpayers were saved the $30-million it would have cost to replace her.

Salvage by foam is so new that few are familiar with it as yet.

Murphy Pacific officials have so little doubt about its success that they predict freely that it will take only a few years before the use of foam becomes a basic weapon in man's arsenal to cheat the sea of victims.

Joe Spivey Joins New Div. Of Standard Oil Company

Joe L. Spivey, advertising manager of Humble Oil & Refining Company, will join Standard Oil Company (New Jersey) in New York City, effective March 1, as manager of the parent Jersey Standard's newly created Private Transport Market Division.

Mr. **Spivey** was manager of the Central region in Humble's Marketing Department before his transfer to the Houston headquarters staff last June as advertising manager for the oil company, largest U.S. refiner and marketer of petroleum products.

His new assignment in New York is in the parent company's Marketing Coordination Department. Humble is Jersey Standard's largest operating affiliate.

Mr. **Spivey** has been in marketing since he joined Humble in Houston nearly 20 years ago. After serving as California area marketing manager, he transferred to Midland, Texas, as area marketing manager and later served in Houston as acting marketing manager of Humble's Southwestern region and as assistant region manager.

Appointed pricing manager in the headquarters Marketing Department in January 1966, he was named Central region manager in Chicago in September of the same year.

Mr. **Spivey** is a native of Waco, Texas, and a 1948 graduate of Baylor University, Waco, with a degree in business administration. He was in the Navy during World War II, serving in the South Pacific.

Todd Shipyards Corporation Appoints Nesbitt And Crutcher To Destroyer-Escort Staff

Richard J. Nesbitt

William R. Crutcher

Todd Shipyards Corporation has named two deputies on its DX Project Management staff. Rear Admiral **L. V. Honsinger,** Todd's vice-president for shipbuilding, and the DX Project manager, announced the appointment of **Richard J. Nesbitt** as technical director and **William R. Crutcher** as administration director.

Mr. **Nesbitt** has been vice-president of Gibbs & Cox, naval architects, New York City, and most recently, vice-president of operations of Lockheed Shipbuilding in Seattle.

Mr. **Crutcher** has been with Todd two years as assistant to the shipbuilding vice-president, and assigned to the company's destroyer-escort program. Prior to joining Todd, he was director of Undersea Warfare Development at Navy headquarters.

In the proposed program, the Navy is starting design competition for the eventual production of a new fleet of destroyers. Todd Shipyards is one of six firms qualified by the Navy to submit design proposals. The new destroyers would be designed and built in accordance with advanced systems management and ship production techniques, emphasizing life-cycle costs and reliability. Todd has teamed with Sperry Rand's Sperry Systems Management Division which will develop and integrate the weapons, electronics and communications systems in the combined effort. George G. Sharp, Inc., naval architects, New York, and Hydronautics, Inc., hydrodynamicists, Laurel, Md., will develop the ship design.

Todd presently is building 14 destroyer escorts and plans improvements at its Los Angeles and Seattle yards to facilitate large shipbuilding projects, such as DX.

Garmatz Endorses Plans For Container Exposition

Representative **Edward A. Garmatz,** chairman of the Committee on Merchant Marine and Fisheries of the United States House of Representatives, has endorsed plans for the Second International Container Services and Equipment Exposition scheduled for the Port of Baltimore during the last week of October 1968.

Mr. **Garmatz,** a veteran of over 20 years in Congress as the representative of Maryland's Third Congressional District, cited the "great importance" of the exposition to "the American and international transportation industries and allied activities."

In a recent letter to **LoRee B. Rommel,** manager of the Baltimore office of Mack-Brooks Exhibitions Ltd., organizers of the container services show, Congressman **Garmatz** said he was also happy that Baltimore had been chosen as the site of the exposition. "In view of its location, its modern facilities and its leading position as one of the top American ports, you have made an excellent selection," he said.

At the same time, Mr. **Garmatz** accepted an invitation to serve as a member of the Steering Committee which will plan the symposia scheduled to run concurrently with the exposition at the Civic Center at Lombard and Baltimore Streets, in Baltimore. The symposia will be held daily at the Civic Center and will deal with all aspects of the rush to containerization.

The exposition is set to get underway on Monday, October 28, and run through Friday, November 1. In addition to a broad range of displays at the Civic Center, guests will have an opportunity to view a series of demonstrations and moving displays at an open-air display area at the Dundalk Marine Terminal, one of the newest and most modern marine terminals on the East Coast, operated by the Maryland Port Authority.

The exposition also has been endorsed by the manager of the International Group of the Chamber of Commerce of the United States. In a letter to **C. B. Schley,** president of Trade Development International and consultant to the Mack-Brooks organization, **Jay H. Cerf** called the program "a tremendous contribution" to the field of international trade.

"Both in my experience as manager of the National Chamber's international activities and as an official of the Department of Commerce," he said, "it has become increasingly clear to me that the biggest single problem in export promotion is what one might call the 'How-To-Do-It Gap.' The exposition you plan for Baltimore frontally addresses this vital need in a most effective and promising way."

According to **Robin E. Stupples,** director of sales for Mack-Brooks, the Second International Container Services and Equipment Exposition has qualified for listing under the Department of Commerce's Trade Fair Act of 1959 and under the British Board of Trade's International trade-show program.

Exposition headquarters in the United States are in Suite 440 of the Lord Baltimore Hotel, Baltimore, Md.

De Laval Names Cook Marketing Vice-President

Hans G. Bauer

Barton B. Cook Jr.

Hans G. Bauer, senior vice-president of De Laval Turbine, Inc., Trenton, N.J., has announced the election of **Barton B. Cook Jr.** as marketing vice-president of the company, a manufacturer of turbines, pumps, and compressors.

Mr. **Cook** succeeds Mr. **Eauer,** who continues in overall management in charge of corporate sales activities. Mr. **Bauer** said the advancement was being made prior to his normal retirement date late this year "in order to insure the greatest degree of continuity in the transfer of this executive responsibility."

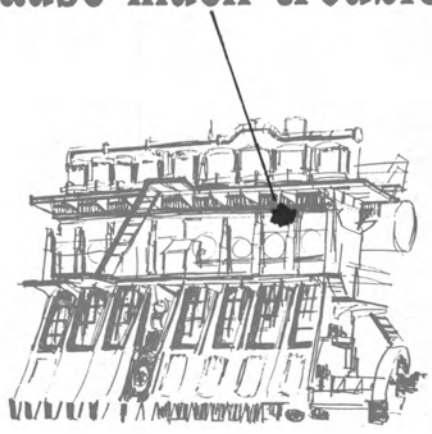
Mr. **Bauer** has served De Laval since 1937, steadily assuming increasing responsibilities through management of the Turbine Division of the company and, more recently, senior vice-president on the corporate staff in charge of all De Laval marketing, and as a member of the board of directors.

Mr. **Cook** has served in various executive capacities with De Laval since 1955. While his early service was primarily related to design and application of marine propulsion systems, his most recent assignment was manager of engineering for the Turbine Division, where he gained exposure to the industrial products of the company prior to assuming his new overall marketing responsibilities.

William J. Holcombe, president of De Laval, said Mr. **Bauer** will continue as the senior marketing representative for De Laval until his retirement date, at which time it is anticipated he will continue as a director, while his day-to-day efforts will become advisory in nature.

THE EXPANDING FLEET of Union Barge Line Corporation welcomes another addition as the 5,000-hp towboat Northern slides into the Ohio River from the ways of Dravo Corporation's shipyards at Neville Island, Pa. The twin-screw diesel vessel is the ninth towboat in UBL's present fleet, which includes more than 380 barges. The expansion and modernization program also calls for the construction of ten liquid cargo barges to be completed in 1968. UBL is one of the largest common and contract carriers on the inland waterways, furnishing complete service throughout the Mississippi and Ohio River systems and the Gulf Intracoastal Waterway. The Northern measures 168 by 40 by 11 feet and is powered by two 2,500-hp, 16-cylinder, turbocharged engines. The vessel is equipped with a full complement of modern navigation and communications equipment, including radar, swing indicator, fathometer, and radiotelephone. The crew's quarters, dining room, engineer's control room and pilothouse will be air conditioned.

One speck of carbon in a diesel engine can't cause much trouble.



Trouble is, it's never just one speck.

Unfortunately, specks of carbon become layers of carbon. Before you know it, you've got a cranky, inefficient diesel engine. The villain? Deposits of carbon on pistons, rings, valves and other vital parts. Now you can get rid of carbon deposits fast with AMEROID CARBON REMOVER, a combination of highly active, fast penetrating solvents with selected detergents and corrosion inhibitors. It's great for dissolving varnish, hard carbonized deposits and other gummy substances. Ameroid Carbon Remover also serves as an excellent paintstripper.

If you've got a problem with a speck or an engine load of carbon, we've got a solution. It's dark brown and it comes in 5 gallon pails and 30 gallon drums.

For additional information write to Marine Division, Drew Chemical Corporation, 522 Fifth Avenue, New York, N.Y. 10036

DREW CHEMICAL CORPORATION
MARINE DIVISION
AMEROID®

Drew Chemical Corporation 522 Fifth Avenue New York, New York 10036, U.S.A.
Main European Office Drew Chemical Nederland, N.V. Scheepmakershaven 60, Rotterdam 1
Regional Offices Drew Chemical (Deutschland) GmbH Borsenbrucke 4, 2000 Hamburg 11
Drew Chemical (U.K.) Ltd. 196/204 Bermondsey St., London S.E.1

National Propeller Club Executive Committee Approves 1967-68 Objectives

In his first official action as the newly elected national president of The Propeller Club of the United States, **Floyd H. Blaske** has announced his program objectives for the club for the forthcoming year.

Mr. **Blaske,** who is board chairman of American Commercial Lines, Inc. of Jeffersonville, Ind., one of the largest inland waterways firms, said:

"These objectives merely refine and implement the primary objective of The Propeller Club in the promotion of the American merchant marine. Further implementation will be taken at the national level and at the local port level to continue to improve the effectiveness of all our programs. These are already highly commendable."

Mr. **Blaske** continued, "The Propeller Club stands unashamedly and patriotically for the development of our merchant marine to the proportions adequate for our national security and economic welfare. We will call on all segments of our industry on the sea coasts, the Great Lakes and the inland waterways and all industries associated and allied with waterborne commerce to support us in efforts to insure the rebuilding of our merchant fleet to its necessary level of numbers, capacity and utilization.

"With improved support The Propeller Club can intensify its efforts to bring the story of the plight of our merchant shipping to the 'grass roots' where public opinion will prevail to bring about the proper solution. I believe that our program objectives for the year are realistic and capable of attainment."

Program Objectives

1. To improve through national public relations and educational programs, public, congressional and governmental awareness that a strong, modern and well-balanced American-flag merchant marine is essential to the national interest of the United States.

2. To improve through national public relations and educational programs the public awareness that adequate active, efficient, privately-owned facilities for the construction and repair of both merchant and naval vessels are essential to the national interest of the United States.

3. To bring to the attention of manufacturers, dealers, distributors and shippers in foreign trade the advantages and importance of using American-flag shipping.

4. To stimulate the use of waterborne shipping in coastal and intercoastal service, on the Great Lakes and the inland waterways.

5. To establish specific Propeller Club positions on important issues affecting the maritime and marine industry during the year and to promptly make such positions known to the appropriate members of Congress, the Executive Branch of the government and, through the press, to the general public.

6. To furnish timely information concerning events, problems and developments of interest to the maritime and marine industry to all ports in order that the membership may be kept informed.

7. To improve and expand the scope and effectiveness of Propeller Club programs.

8. To increase membership and financial support from all segments of the industry by programs designed to establish new Propeller Club ports, improve membership in local ports and increase national business memberships.

9. To work toward the development of concepts and objectives which will be mutually advantageous to the National and all Propeller Club ports located in countries other than the United States.

The first meeting of the National Executive Committee of The Propeller Club under Mr. **Blaske's** leadership was held in New York City in December. At the meeting his objectives were officially endorsed by the committee, whose members consist of singularly distinguished and high-placed business executives.

"I'VE DEVELOPED A NEW PRODUCTION TECHNIQUE BUT I HAD TO THROW THE BOOK OUT THE WINDOW!"

98,000-Dwt Tanker Launched By Astilleros De Cadiz, S.A.

The La Rabida, largest vessel built in any Spanish yard, slides down the launching ways at Cadiz Bay.

A 98,000-dwt tanker, the La Rabida, was launched in early December at the Cadiz, Spain, yard of Astilleros de Cadiz, S.A. It is the first of a new series of such vessels begun at the yard.

The La Rabida—largest vessel launched to date by any Spanish yard—was christened by the **Marchioness of Villaverde,** accompanied by **Aureo Fernandez Avila,** president of Astilleros de Cadiz. Representatives of maritime, shipbuilding and economic interests attended the ceremony, including **B. R. Dorsey** and **E. D. Brockett,** Gulf Oil Corporation executives.

Compania Maritima Rio Gulf, S.A. ordered the highly automated tanker, which has an overall length of 874 feet 8½ inches; breadth of 127 feet 11½ inches; depth of 60 feet 8¾ inches, and draft of 46 feet 7 inches. The cargo tank capacity measures 4,334,541 cubic feet.

A Sulzer supercharged engine, model 9RD90, of 20,700 bhp powers the new tanker. The engine was built at the Manises (Valencia) Works of Astilleros de Cadiz under a Sulzer license. Auxiliary deck gear also was produced at the Manises Works. Under an Aalborg license, the boilers were manufactured at the Cadiz shops.

The Cadiz facilities of Astilleros de Cadiz, S.A. were founded in 1891. The yard is capable of building vessels up to 250,000 dwt. The Manises Works at Valencia produces engines up to 45,000 bhp.

Transicold Adds One-Piece Diesel Electric Units For Seagoing Containers

A new series of diesel-electric nosemount models for use on over-the-road trailers and seagoing containers has been announced by Transicold Corporation, Montebello, Calif.

The Model 6004 transport refrigeration-heating series encompasses eight versions, easily installed and applicable to highway service, as well as marine models.

"The use of diesel power on the road, and the fuel and maintenance savings of electric power while at dockside or aboard ship make the 6004 models among the most economical to operate," states **Jack Sell,** general sales manager. "Everything necessary to diesel-electric operation is included in an integral one-piece design that requires no generator set or additional equipment."

Units operate at high capacity whether in diesel or electric operation. The new Transicold units also have an advantage in the handling of frozen and low-temperature loads in the dependability of the diesel operation.

Simplicity of the engine design and a new, improved belt-drive system permit easy overhaul, and servicing at almost any maintenance shop or garage.

Electric standby is offered in 220-volt, 3-phase operation, drawing less than 30 amps; or 440-volt, 3-phase operation drawing less than 15 amps. The three-phase electric motor is fully protected against overloading and single-phasing.

Marine container units operate on ship's power at sea and diesel power on the road. The seagoing models are designed with marine coatings and special components for maximum resistance to the weathering effects of salt water, and come equipped with nosemounted fuel tank.

Features of the 6004 Series include automatic defrost on both diesel and electric operations; all all-tubular frame. The one-piece construction with a standard-size nosemount evaporator, an integral part of the unit, simplifies installation as new or replacement equipment.

The new units are available in choice of Perkins Model Four/99 or Four/108 4-cylinder water-cooled engines, and 6-cylinder Carrier Model O5DA compressor with 36.6-cubic-inch displacement.

A new feature for all Transicold transport refrigeration units is the inclusion of an 18-quart oil pan as standard equipment. The large size oil pan not only safeguards against oil depletion, but extends the life of the bearings through additional cooling effect with the increased volume of oil in the sump during operation.

For further information, write Transicold Corporation, 1100 S. Taylor Avenue, Montebello, Calif.

KNOWN 'ROUND THE WORLD

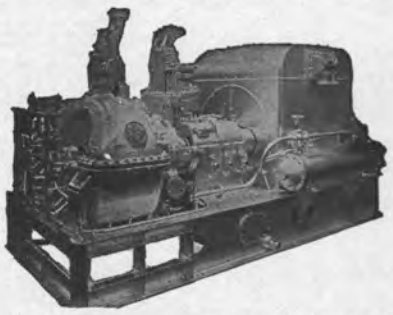
THE BOSTON METALS CO.

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

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

New York Office: 11 Broadway, New York, N.Y. 10004—(212) 943-2640

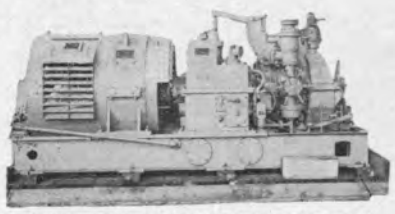
TURBO GENERATOR SETS



1

G.E. 1000 KW A. C. TURBO GENERATOR

TURBINE: FN4-FN-30 — 525 PSI — 850° — 9268 RPM—typical serial 53727. Reduction gear 9268/3600. A.C. GENERATOR: 1250 KVA—1000 KW—450 volts—3-phase—60 cycle—80% PF—3600 RPM—form HL— exciter volts 120—armature amps 1605—field amps 85—50° continuous—serial 5596570. DC EXCITER: 10 KW—120/240 volts—85 amps—type ED-7—frame 73. DIMENSIONS: OAL 180"—OAW 78"—OAH 90". This unit has been reconditioned. Suitable for large tanker, new construction, emergency repair replacement, etc.

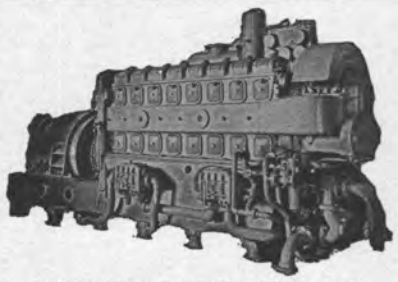


UNUSED WESTINGHOUSE 750 KW D.C. TURBO GENERATOR SETS

2

TURBINE: 440 PSI—283° superheat—8027 RPM. GEAR: 8027/900 RPM. GENERATOR: 750 KW—120/240 volts DC—shunt wound—3125 amps—900 RPM. Complete with balance coil, rheostat and spares.

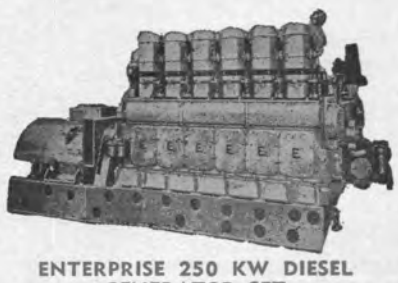
DIESEL GENERATOR SETS



200 KW G.M. 8-268A A.C. 440/3/60/1200 DIESEL GENERATOR SETS

3

G.M. diesels with 6½" bore—7" stroke—1200 RPM—driving Westinghouse 200 KW generators producing 440/3/60 output at 321 amps —0.80 P.F. at 1200 RPM. Complete with switchgear.



ENTERPRISE 250 KW DIESEL GENERATOR SET

4

450 HP Enterprise DSG-6 diesel engine—4 cycle 6 cylinder; with air starting; direct-connected to G.E. 250 KW 3-wire compound wound 120/240 DC generator. 450 RPM—ex C1-MAV-1. 206" long—60" wide—105" high—47,000 lbs

ELLIOTT 250 KW DIESEL GENERATORS

5

Elliott 250 KW generator—120/240 VDC—1042 amps—450 RPM—compound wound. ENGINE: Enterprise DSG-6—12x15—6 cylinders—450 HP @ 450 RPM.

DIESEL ENGINES

6

FAIRBANKS-MORSE 38D8 ⅛ O.P. DIESEL ENGINE

(4) 10 cylinder—2-cycle—1800 HP @ 800 RPM. 8⅛ x 10—air starting—reversible. Complete with Harrison coolers, sylphon valves, strainers, filters, etc. For immediate delivery.

WINCHES AND WINDLASSES

NEW ABOVE-DECK HYDE CAPSTANS

7

Size 15—7½ HP—230 volts DC—complete with all electrical controls. Capacity 2500 lbs. at 50 FPM. DIMENSIONS: 4'5" x 2'6". Barrell 15".

8

OTHER CAPSTANS IN STOCK

- **Victory Ship capstan—35 HP 230 VDC motor. Deck plate under deck gearing and shaft. With motor and control.**
- **Large 60 HP 440 volt AC capstans**

VICTORY TYPE UNIT WINCHES

9

50 HP—230 volts DC—Westinghouse, G.E. or Crocker-Wheeler. U-1, U-3 single speed—7450 lbs. @ 223 FPM; U-2, U-5 double speed —19,000 lbs @ 96 FPM. We have both right and left hand. Send for flyers on these.

LINK BELT ANCHOR WINDLASS

10

For below-deck mounting. Double wildcat—1⅝" chain—driven by 50 HP 230 volt DC motor. Single speed operation. DUTY: 52000 lbs at 42' per minute.

2¼" ANCHOR WINDLASS

11

2 New 2¼" McKiernan Terry windlasses for 16,000 lb anchors. 70 HP—230 volt DC motors and controls. 47½" center-to-center.

T-3 ANCHOR WINDLASSES

12

2⅜" American Engineering 13x14—spur geared. Capacity (2) 13,000 lb anchors and 60 fathoms of chain @ 35 FPM. Chain speed gear ratio 34:1 OAL 15'2"—width 11'8"—wildcat centers 6'7". 3 Units available. Suitable for 2 5/16" or 2 7/16" chain. Equal to new condition.

13

HYDE #12 WINDLASS

For 29,000/33,000 TON TANKERS

2 11/16"—spur geared. Capacity 2 anchors—16,350 lbs each on a 2 11/16" chain from 30 fathoms @ 30 FPM. Steam engine 12x14—w.p. 125-150 lbs. Width 15'5" over heads—7'9" long bedplate—11'2" wide on bedplate—wildcat centers 4'8". Steam inlet 3½" on 9" flange.

MISCELLANEOUS

14

GRISCOM-RUSSELL 8000 & 12000 GALLON L.P. DISTILLING PLANTS

Soloshell—complete with all pumps and accessories. Salinometers, mixing tanks, test tanks, interconnecting piping, valves and fittings, 6 complete units available. All pumps 440/3/60. Can substitute 230 volts DC. Like-new condition.

15

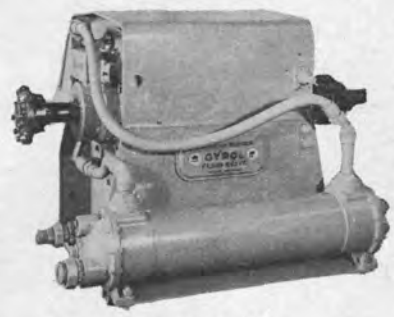
NEW — UNUSED CONDENSERS 1135 SQUARE FEET SURFACE

Wheeler—mfg for US Navy. 2-pass steel shell —60" high to exhaust flange—20" exhaust inlet—9" water inlet & outlet. Bronze water box—Cupro-Nickel tubes and tube sheets. Tubes 9'2" x ⅝". 9300 lbs steam/hr.—1175 GPM circulating water. Dry weight 7500 lbs. 12'4" OAL—complete with air ejector.

16

ALSO AVAILABLE

- **(1) 2200 sq ft C.H. Wheeler condenser with air ejector. Built for U.S.N.**
- **(3) 725 sq ft C.H. Wheeler condenser with air ejector. Built for U.S.N.**
- **(1) 1500 sq ft auxiliary condenser—T2 tanker**
- **(4) 3300 sq ft—main D.E.**
- **(4) 400 sq ft D.E. auxiliary condensers**



17

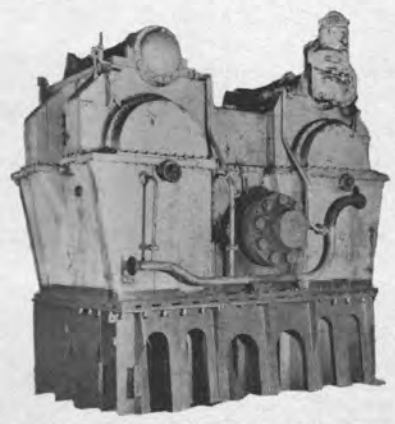
GYROL FLUID DRIVE

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

18

LARGE COOLER FOR REDUCTION GEARS

Graham—2360 sq. ft.
New York Ship—1260 sq. ft.
Victory Ship reduction gear type—625 sq. ft.

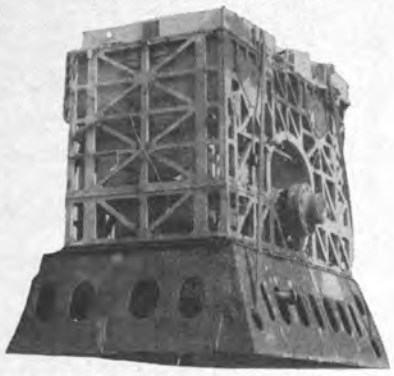


19

AP2 VICTORY SHIP REDUCTION GEAR

Westinghouse 6000 HP double reduction gear. RPM: HP pinion 5410—LP pinion 3907. Propeller output 100 RPM. Serial A-1620. Location Baltimore.

FROM C3-S-A1 VESSELS
SEATTLE-TACOMA



20 FALK REDUCTION GEAR

8500 HP normal—9350 HP maximum nested double reduction. No. 152-400. HP pinion RPM 5004—LP pinion RPM 4289—HP & LP intermediate gear and pinion 665.3 RPM—main gear 85 RPM.

21 ALSO AVAILABLE

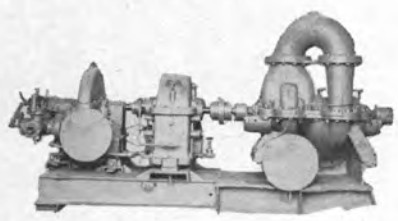
- **Flexible couplings—HP & LP**
- **Quinby Vertical Lube Oil Pumps**
- **Air Compressor Motor—40 HP—230 volts DC**
- **Model 574 Nash Priming Pump**

CALL FOR ALL OTHER ITEMS

PUMPS

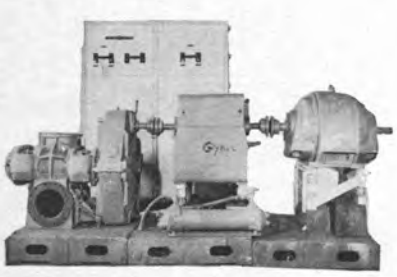
22 NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP

For emergency use on passenger ships, etc. PUMP: JAS—264 GPM—171' head—two 6" inlets—one 5" outlet. MOTOR: 40 HP— 230 volts DC—149 amps—75°C rise—stab. shunt wound—type CDMKO5Y—with G.E. controller. Has air dome for motor.



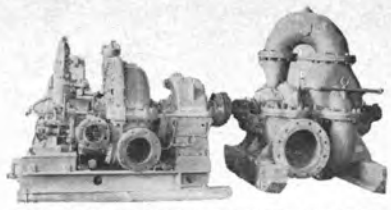
23 BRONZE TURBINE-DRIVEN CARGO PUMPS

Ingersoll 10-GT cargo pumps—size 14 x 12—3500 @ 350' head or 4400 GPM @ 280' head, amounting to approx. 4000 barrels/hour. —1750 RPM. TURBINE DRIVE: Geared Turbine type 2DYR—400 HP—400 PSIG—500 TT—exhaust pressure 10 lbs—4550 RPM—gear C3—4550/1750 RPM. 2 Available.



24 WATEROUS 1406 CARGO PUMPS WITH GYROL DRIVE

1400 GPM @ 100 PSI—268 RPM. Gyrol drive, as shown. Pump is type VS—equipped with cooler and relief valves—1700/200 RPM range — suitable for pumping molasses. Very good condition as removed from T-2 Tankers. 5 Gyrol drices available.

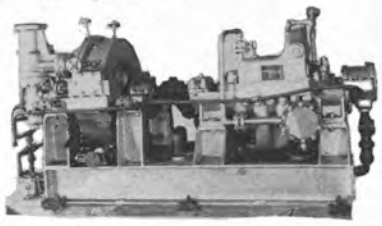


25 TURBINE DRIVEN CARGO PUMP

Pump: Ingersoll-Rand—3500 GPM @ 350' head or 4400 GPM @ 280' head or approx. 4000 barrels/hr—type 10GT — #0341215 — 1750 RPM GEARED TURBINE: G.E. type D-60-25—single stage—400 HP—5662 RPM—325# inlet pressure—exhaust 10 absolute. Serial 48122—reduction gear 1750 RPM.

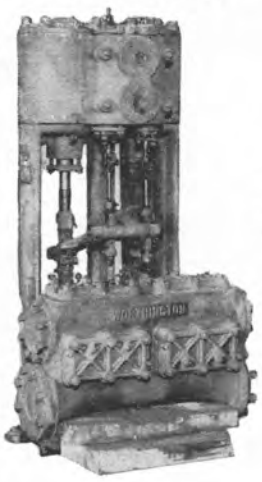
26 NEW—UNUSED KINNEY MOTOR-DRIVEN 2-SPEED GEARED ROTARY OIL PUMPS

Model A-14731—gear type—horizontal design —834 gallons/minute. 319 RPM—150 PSI discharge pressure. Flange type—10" inlet—8" outlet. Base-mounted with totally enclosed 2-speed Westinghouse electric motor—440 volts —3-phase—60 cycle—130/65 HP 1770/885 RPM—Link Belt 1770/319 RPM speed reducer. Federal stock number 4320-368-3301. Weight approx. 9500 lbs.



27 UNUSED NAVY SURPLUS TURBINE-DRIVEN MAIN FEED PUMPS

Worthington radial flow horizontal design—3-stage—4½" x 4"—350 GPM—1675' head—255 HP—590 PSI WP—weight 4000 lbs.



28 T-2 TANKER BILGE, BALLAST AND FIRE PUMP

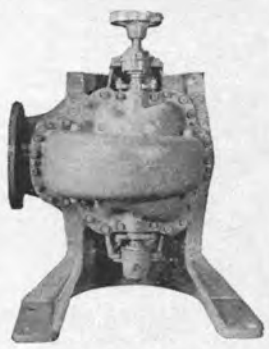
Bronze—10" x 7" x 10" — vertical duplex. Steam pressure 150# G — exhaust 10# G — discharge pressure 100# G—300 G.P.M.

29 LUBE OIL SERVICE PUMPS

For Seattle Tacoma C3-S-A1 Vessels. Quimby #5-vertical —400 GPM—43 lbs. MOTOR: Allis-Chalmers—vertical—25 HP—230 VDC—575/1150 RPM.

30 COFFIN FEED PUMP — MODEL F

T-2, Victory, C3 etc.—control valve 1¼"—Form VI—constant pressure regulator—type C —150 HP—200 GPM—discharge pressure 575 PSI—7200 RPM—turbine 440 PSI 500°F—10 lb PSI exhaust pressure. Consumption 4280 lbs/hr—2 units available.



31 VICTORY SHIP AUX. CIRCULATING PUMP

3000 G.P.M.—10.9 PSI—reconditioned with ABS certificate. Model 12LAS Worthington. Immediate delivery. Vertical motor for this pump—25 HP 230 volts DC—650/875 R.P.M. New impeller available.

32 MAIN CIRCULATOR & MOTOR FOR AP2 VICTORY SHIP

Ingersoll-Rand 18VCM Bronze Pump—20" suction—18" discharge—vertical. Flanges opposite each other—distance flange to flange 4'5". Suction bolt circle 25"—Discharge bolt circle 22¾". Suction (20) ¼" holes—Discharge (16) ¼" holes. Pump weight 5100 lbs—motor 5700 lbs. Motor: Allis-Chalmers—75 HP—230 VDC —500/670 RPM—Frame E.Bu-162—Drawing No. 31099.

WILL SELL PUMP OR MOTOR SEPARATELY
SPARE ARMATURE ALSO AVAILABLE

33 VICTORY SHIP MAIN CONDENSATE PUMP

For AP2 or AP3 Victory—reconditioned to ABS. Motor-driven pump—Ingersoll-Rand 2-VHM—For AP2 120 GPM @ 85 PSI. 5" Suction—2" discharge—1610 RPM. FOR AP3: Capacity 150 GPM—198' head—1650 RPM. Pump weighs 1800 lbs. MOTOR: 15 HP—230 volts DC—1610/1650 RPM—Westinghouse or Reliance. Standby Turbine Driven. Also new pump impellers available.

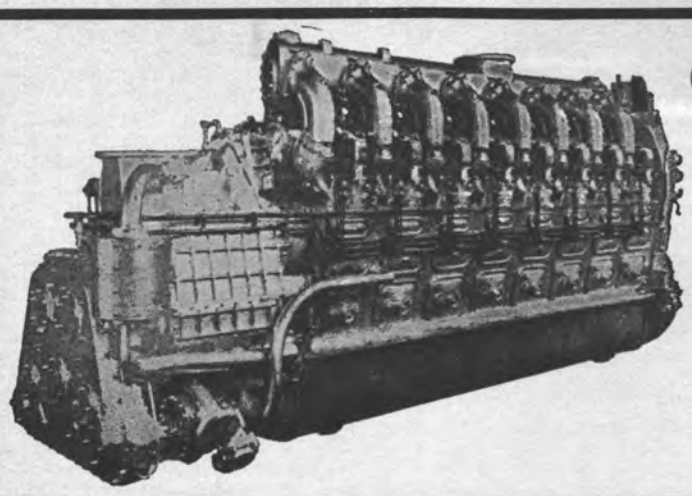
SEE NEXT PAGE

FOR MANY MORE BOSTON METALS BARGAINS

PLEASE SEND INFORMATION ON THE FOLLOWING: 2/1/68

☐ 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 Next Page Items (Circle) A B C D E F G H I J
K L M N O P Q R S T U V

NAME.....COMPANY.....
ADDRESS..... POSITION..... PHONE.....
CITY..... ZONE..... STATE.....



A

G.M. MAIN PROPULSION

1700 BHP G.M. 16-278A DIESEL ENGINES

16 CYLINDER—2 CYCLE V-TYPE 8¾" BORE X 10½" STROKE

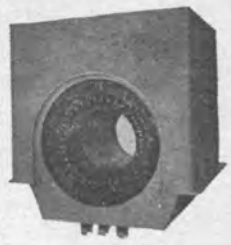
Air starting diesel engines, complete with Harrison coolers, Fulton valves, flexible exhaust pipe, commercial filters, strainers, pyrometer panel. 1440 HP @ 720 RPM—1700 HP @ 750 RPM. Choice of large selection of port & starboard engines.

ALSO: CRANKSHAFTS ONLY FOR IMMEDIATE DELIVERY

T2-SEA-1 TANKER MAIN STEAM & AUXILIARY EQUIPMENT

B MAIN TURBINE ROTORS
Large Turbine Rotors—Lynn
Large Turbine Rotors—Schenectady
Elliott Turbine Rotors—Fit G.E. small Schenectady turbine

C G.E. MAIN PROPULSION GENERATOR REVOLVING FIELD
G.E. reconditioned—June 1967

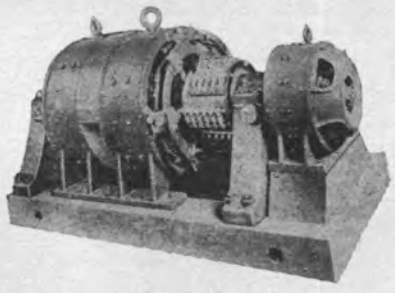


D G.E. MAIN GENERATOR STATORS

E WESTINGHOUSE MAIN PROPULSION GENERATOR REVOLVING FIELD
Westinghouse reconditioned—May 1967

F WESTINGHOUSE MAIN GENERATOR STATOR WITH OR WITHOUT COOLER

G T-2 TANKER WATER BOXES
Graham or Westinghouse, with ABS certif. In stock, for immediate delivery.



H WESTINGHOUSE EXCITER SETS
110 KW—28 KW—5 KW available

I 75 KW—55 KW ARMATURE ASSEMBLIES FOR G.E. 525 KW GENERATORS

J PROPELLOR
Reconditioned by Baldwin in 1957 and since that time has been carried by Esso on deck, on pedestal, as emergency spare.

K WINDLASSES UPPER RUDDER STOCK RUDDERS

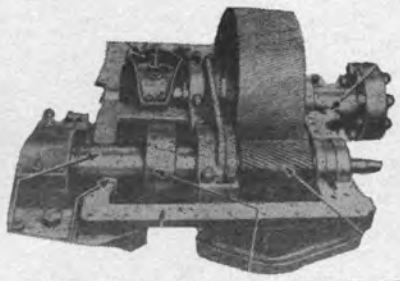
L TERRY TYPE Z FEED PUMP TURBINE
Will interchange with G.E. feed pump turbine. It is 1" higher at center of shaft. Steam exhaust same side—steam inlet opposite side.

M MAIN CIRCULATING PUMP MOTOR
125 HP—Westinghouse—Frame 876C—type CS—squirrel cage — 440/3/60 — 585 RPM. Reconditioned to ABS. Ready to go immediately.

N LORIMER EMERGENCY GENERATOR ENGINE AND GENERATOR PARTS

O G.E. GEAR TYPE PUMP
Used with reduction gears on 525 KW generator

P AUX. TURBO-GENERATOR THROTTLE VALVE
G.E. for 525 KW generators



Q G.E. AUX. TURBO-GEN. REDUCTION GEARS
Bull gear & pinion. With ABS.

R WESTINGHOUSE AUXILIARY GENERATOR REDUCTION GEARS AND BEARINGS

COOLERS

S MAIN MOTOR AIR COOLER
Westinghouse—ABS—ready to ship

T MAIN GENERATOR AIR COOLER
Westinghouse — reconditioned with ABS—ready to ship

U ANADALE OIL COOLERS FOR AUXILIARY GENERATORS

V **G.E. MAIN GENERATOR COOLER**
type G4—bronze heads—AL brass tubes

FOR FURTHER INFORMATION

use handy coupon on preceding page

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

New York Office: 11 Broadway, New York, N.Y. 10004—(212) 943-2640

Kings Point Groups Appoint Mitchell To Publicity Post

C. Bradford Mitchell

John W. Tiernan, president, U.S. Merchant Marine Academy Alumni Association, and **Charles H. Preusch,** president, Kings Point Fund, announced that they have retained the services of **C. Bradford Mitchell** as public relations adviser to their organizations.

Mr. **Mitchell,** a free-lance writer and public relations consultant, has been active in the New York and national shipping community for the past 15 years, having been director of information for the American Merchant Marine Institute until his retirement last year. Earlier he served as historian to the Maritime Administration, Department of Commerce. A former editor-in-chief of Steamboat Bill, quarterly journal of the Steamship Historical Society of America, he is a frequent contributor to it and other periodicals. His most recent title, "Pride of the Seas," a historical essay on American shipping, appeared in American Heritage magazine for December 1967.

The Alumni Association, with a nationwide membership of over 13,000, conducts programs to inform the public concerning the U.S. Merchant Marine Academy and, more broadly, the national need for education of merchant ship officers, a need highlighted by the skilled maritime manpower shortages disclosed by the Vietnamese war.

The Kings Point Fund, incorporated ten years ago this January, is supported by alumni and friends of the Academy, and by an expanding group of corporate donors. It exists to supply and round out the many legitimate and desirable functions of the Academy as a collegiate community which are not covered by the annual federal appropriations for maritime training. These include an extracurricular activities program, a midshipman loan program to aid worthy students, athletic programs, a sailing program, and improvements to buildings and facilities.

While assisting primarily with the work of the Alumni Association and the Fund, Mr. **Mitchell** will coordinate closely with the Academy's Alumni Office and with Rear Admiral **Gordon McLintock,** Academy superintendent.

AWO Region 3 Names Vice-Pres., Directors

Harry J. Collins was elected vice-president in Region 3 of The American Waterways Operators, Inc. at the annual meeting of members in New Orleans on January 10. (Region 3 encompasses the Gulf Coast and Lower Mississippi areas.)

Mr. **Collins,** president of Collins Towing Company, Inc , Westwego, La., is serving the second year of a two-year term as a director in Region 3. He succeeds **L. K. Burton,** board chairman, Canal Barge Company, Inc., New Orleans, as Region 3 vice-president. Mr. **Burton** also has served the last two years as a director in Region 3.

Five new directors of the association were elected in Region 3 and one was re-elected.

The new directors elected to two year terms are: **Furman T. Ainsworth,** manager, Southern Region, Distribution and Traffic, The Dow Chemical Company, Freeport, Texas; **Marvin Bacon,** president, Bacon Towing Company, Inc., Houston; **E. L. Hukill Jr.,** vice-president, Ingram Barge Company, New Orleans, and **Bilbo E. Williamson,** secretary-treasurer, Marine Welding & Repair Works, Greenville, Miss.

E. W. McCarthy, vice-president, Gulfport Shipbuilding Company, Port Arthur, Texas, was elected to fill a one-year unexpired term.

John Buursema, vice-president-operations, G. B. Zigler Company, Jennings, La., was re-elected to a two-year term.

Four directors of the association in Region 3 continue in office for another year. In addition to Mr. **Collins,** they are: **D. L. Mechling,** vice-president-operations, A. L. Mechling Barge Lines Inc., New Orleans; **William B. Patton,** William B. Patton Towing Company, Friendswood, Texas, and **M. I. Summerlin,** Marine Department, Texaco, Inc , Port Arthur, Texas.

Following the annual business meeting of members in Region 3, a navigation conference was held in cooperation with the Army Corps of Engineers and the U.S. Coast Guard. Representatives of the Corps of Engineers included Colonel **Thomas J. Bowen,** New Orleans District Engineer, and Colonel **Felix R. Garrett,** Vicksburg District Engineer, and members of their staffs; and **Ed Wallace,** chief, Projects Operation Branch, Mobile District Army Corps of Engineers. Representing the Coast Guard was Admiral **Ross P. Bullard,** Eighth District Commander, and members of his staff.

In the afternoon, the AWO Safety Committee, under the chairmanship of **Ralph A. Guffey** of A. L. Mechling Barge Lines Inc., Joliet, Ill., met with members of the association and several guests to discuss ways to improve the association's accident-prevention program.

Beth-San Francisco Appoints Hamilton Ship Repair Supt.

William Hamilton

The appointment of **William Hamilton** as superintendent of ship repairs at Bethlehem Steel Corporation's San Francisco shipyard has been announced by **W. C. Brigham,** general manager. Mr. **Hamilton,** formerly administrative assistant to the general manager, will be responsible for all drydocking and ship-repair contracts.

A native of Belfast, Ireland, Mr. **Hamilton** is a graduate of Queens University in Belfast with a bachelor of science degree in naval architecture. He is also a graduate of Belfast College of Technology. In 1949 he immigrated to Montreal, Canada, and was employed by Canadian Vickers, Ltd. There he held various managerial positions in ship design, new construction and conversion.

In 1957 Mr. **Hamilton** joined Bethlehem's San Francisco shipyard. He spent six months in the yard's design office, then was assigned as production planner on conversion of the USS Oklahoma City from a light cruiser to a guided-missile vessel. He was subsequently made chief draftsman on two 1040 class destroyer escorts which were built by the yard. He was responsible for the final outfitting and sea trials on the second of these ships.

In 1964 Mr. **Hamilton** was made project superintendent on the conversion and repairs of an ore carrier to a C-4 type troopship. In 1966 he was appointed administrative assistant to the general manager, the position he held at the time of his new appointment.

Bath Iron Works Group Bidding For Navy DX Contract

Bath Iron Works Corp., Bath, Maine; National Steel and Shipbuilding Co., San Diego, Calif.; Hughes Aircraft Co., Fullerton, Calif., and Gibbs & Cox, Inc., naval architects, New York, N.Y., have teamed together as a maritime combine to bid for the new federal contract for the design and construction of a new class of Navy destroyers.

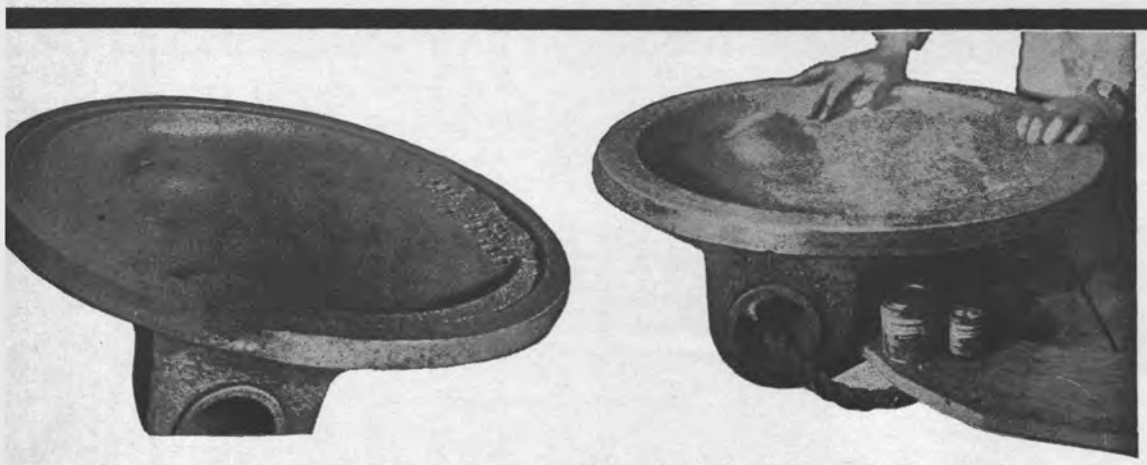
The announcement of the formation of the team was made by **James F. Goodrich,** president of Bath Iron Works, the company slated to be the prime contractor for the group.

The vessels to be built under the contract are DX destroyers, which are designated by the Navy for anti-submarine and advanced general purpose. The new ships will replace the Navy's World War II destroyers, about 25 percent of which were built by Bath, and will be part of the fleet in the 1970s.

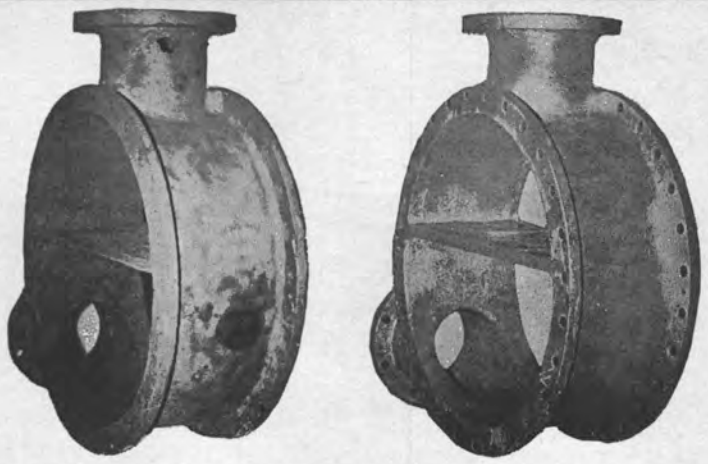
"JUST WHO INSTALLED THIS ENGINE ROOM CONTROL CONSOLE?"

CORDOBOND®

FOR FAST, ECONOMICAL REPAIRS



25" clapper valve for a Navy vessel repaired by Cordobond Strong-Back method.



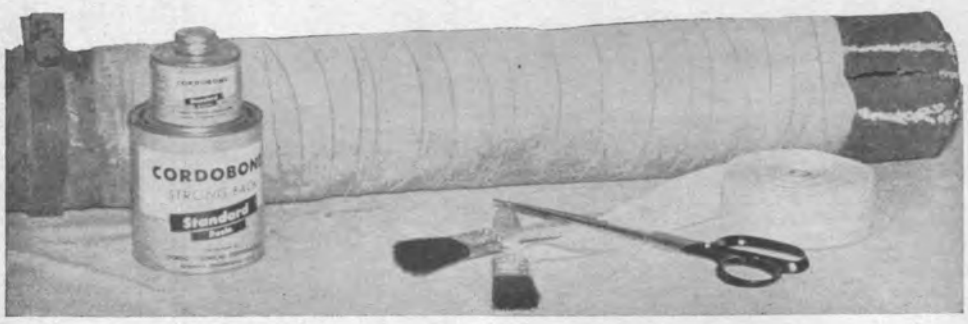
This auxiliary condenser water box offers just one more example of the excellent results obtained with the Cordobond Strong-Back Method. Holed through area was repaired by Cordobond Strong-Back method using Cordobond Strong-Back putty.

First proven under the most difficult conditions by the Navy, the Cordobond Strong-Back Method offers a fast and easy method of repair both aboard ship and ashore. Applied quickly by ship or maintenance personnel, Cordobond Strong-Back products are used extensively to repair and/or line:

Water Boxes	**Tanks, Bulkheads and Decks**	**Condenser Covers**
Ventilators	**Sea Valves and Chests**	**Cooler Heads**
Pumps	**Cargo Winch Control**	**Housings**
Ducts	**Machinery Castings**	**Pipes**

The Cordobond Strong-Back components, when used according to directions, will repair anything from a pin hole to a complete break with a patch of great strength that clings tenaciously and lastingly.

This cracked water manifold was prepared for welding BUT—due to the pressure of time the vee'd cracks were filled with Cordobond Strong-Back Steel Putty (in lieu of welding). Repair time 4 hours including curing, and testing to 3 times the working pressure.



This deck steam pipe was repaired by CORDOBOND method. After one year the pipe was renewed as it fractured beyond repaired part, and the repaired part was still sound for pressure service.

Damaged Liberty hull was sealed with CORDOBOND resins and fibre glass prior to refloating—Costly gas freeing was eliminated.

CORDOBOND STRONG-BACK PRODUCTS

Standard Resin • Leveling Compound • Strong-Back Putty • Strong-Back Sealer • Steel Putty • Cordobond • Repair Kits

THE LEADER IN PLASTICS FOR THE MARINE INDUSTRY

Hubeva Marine Plastics, Inc.

390 Hamilton Avenue **Brooklyn, New York 11231**

Phone: TR 5-6178 or your local agent

SOLE DISTRIBUTORS OF CORDOBOND STRONG-BACK PRODUCTS

AGENTS THROUGHOUT THE WORLD

Trained applicators available for repairs or instruction

AGENTS*

ALABAMA Mobile
CALIFORNIA San Francisco, Wilmington
FLORIDA Jacksonville, Tampa
LOUISIANA New Orleans
MAINE Portland
MARYLAND Baltimore
OREGON Portland
PENNSYLVANIA Philadelphia
TEXAS Galveston, Brownsville, Corpus Christi
WASHINGTON Seattle
CANADA Montreal, Toronto, Halifax, N. S.
BELGIUM Antwerp
DENMARK Svendborg
HOLLAND Rotterdam
ITALY Genoa, Naples
JAPAN Yokohama
HONG KONG Hong Kong
NORWAY Oslo
SPAIN Bilbao
SWEDEN Stockholm
WEST GERMANY Hamburg
TRINIDAD Port-of-Spain
MALAYA Singapore
SOUTH AFRICA Capetown

*ALL HUBEVA AGENTS HAVE TRAINED PERSONNEL TO APPLY, INSTRUCT OR ADVISE IN THE APPLICATION OF CORDOBOND STRONG-BACK MATERIALS

Electric Boat Division Year-End Report Shows '67 Payroll Of $121-Million

Captain **Harry A. Jackson,** USN, Supervisor of Shipbuilding, Conversion and Repair, signs acceptance of the nuclear attack submarine, Pargo, from **Joseph D. Pierce,** general manager of the Electric Boat division of General Dynamics. Commander **Steven A. White,** USN, commanding officer of the ship, watches.

Delivery of four new nuclear submarines to the Navy and the return of two overhauled and updated Polaris submarines to fleet duty highlighted marine systems activities at the Electric Boat division of General Dynamics, Groton, Conn., during 1967.

Probably the most significant delivery was that of the Will Rogers, the 41st Polaris submarine, which brought the Navy's Fleet Ballistic Missile submarine force to its authorized strength.

Also delivered during the year were the nuclear attack submarines Sturgeon, Greenling and Pargo. The attack submarine Gato was commissioned on January 25, 1968.

The division launched the nuclear attack submarine Narwhal and continued work on six other attack submarines in varying stages of construction.

In other marine systems activities, Electric Boat division joined with its sister Convair division to build Buoy Two Alpha for the United States Coast Guard. Electric Boat division fabricated the 40-foot-diameter hull of the navigational buoy while Convair division provided its instrumentation. The buoy will serve as a navigation aid and ocean-data station at the southern approach to New York Harbor.

The division's two research submarines, Star II and Star III, were active throughout the year. Star III was leased by the United States Navy to explore a 2,000-foot depression in waters off Key West, Fla., and then joined Star II for dual operations off Nassau for the New Providence Development Corp., Ltd.

Star II carried out research missions in Lake Michigan for the University of Michigan and in the Gulf of Mexico for several oil companies.

At present Star II is at the company's Marine Technology Center in San Diego, Calif., for further operations while Star III is in Groton for modifications and certification by the Navy.

Electric Boat division is currently building three new research submarines for the United States Navy: Autec I, Autec II, and NR-1. The Autec vehicles are two-man craft designed to dive to 6,500 feet. NR-1 will be the first nuclear-powered research submarine.

Facilities expansion, a continuing program, saw a new 610-foot graving dock, capable of accommodating two Polaris submarines simultaneously, placed in operation as part of a modernized overhaul and refueling complex. The complex includes a graving dock built in 1963, a new valve and pump repair facility and an enlarged graving dock support building.

At the end of 1967 employment at Electric Boat division totaled approximately 14,000 and the year's payroll amounted to $121-million.

Antigua Deepwater Harbour Project Nears Completion

Antigua, West Indies, lies in the northeast Caribbean and has been the site of substantial development in recent years.

A new bunker terminal was opened there by The West Indies Oil Company, Limited in March 1966. Today this bunker terminal is one of the busier in the Caribbean because of its strategic location on many direct trade routes between U.S. ports and the East Coast of South America and/or Africa.

Then in March of 1967, The West Indies Oil Company, Limited's refinery went on-stream and is now producing a full line of products. While most of these products are consumed on Antigua, some cargoes have been exported on the world market.

Antigua has been a great tourist attraction for many years and thousands of people arrive at this tropical paradise annually by both plane and ship. Antigua has, of course, been a port of call for cruise ships for many years.

The Deepwater Harbour Project is designed to provide berthing facilities for cruise ships and cargo vessels with a channel depth of 35 feet. The dredging operation, which was begun in mid-1967 by National Bulk Carriers, Inc., is currently being completed. The pier's administrative buildings and roadways are well underway and it is expected that these will be completed in time for the 1968-69 cruise season.

Increased growth and investment on the island indicate rapidly expanding general cargo traffic to accommodate these new ventures. Ships calling at Antigua or working cargo in the area have bunkering facilities available either at The West Indies Oil Company, Limited's Sea Island just north of St. John's Harbour or at berths in St. John's Harbour via barge.

Bunkers are obtained through the Independent Petroleum Supply Company, 277 Park Avenue, New York, N.Y. 10017, the international bunker sales headquarters for The West Indies Oil Company, Limited.

Five Groups In Canada Form Shipping Chamber

Following months of discussion in the industry, the formation of a Canadian Chamber of Shipping has been announced. **W. J. Fisher,** general manager of the Canadian Shipowners Association, is the new organization's acting manager.

Headquartered in Ottawa, the association will represent its member groups at the national and international levels, present their views to the government and to international shipping bodies. It marks the first time the various associations have joined to speak as one.

Founding members include: the Chamber of Shipping of British Columbia, the British Columbia Maritime Employers Association, the Shipping Federation of Canada, the British Columbia Towboat Owners Association, and the Canadian Shipowners Association. Interest has been indicated by other associations.

Nineteenth Annual Institute on Foreign Transportation and Port Operations

Sponsored by the Graduate School of Business Administration, Tulane University

April 22-26, 1968

Tulane University's Institute on Foreign Transportation and Port Operations was the recipient of the 1963 National Defense Transportation Award—the only organization in the history of the Association to receive this award. The next Institute will be held at the University Center, Tulane University, New Orleans, Louisiana, on April 22-26, 1968. A registration fee of $125.00 includes four special luncheons and one dinner session.

The Institute conducts an educational program on handling exports and imports, designed to improve the competence of executives (present and prospective) including junior executives in charge of actual operations and senior executives responsible for planning and directing of operations. Topics to be covered are:

1. **The fundamental steps in handling export and import traffic by sea and air.**
2. **The methods of expediting shipments through ports of export and import.**
3. **The relation of one agency to others.**
4. **The relation of one department of a firm to the other department in handling foreign traffic.**
5. **Solving particular problems of management and operations.**
6. **Problems involving military traffic.**

A copy of the program may be obtained writing to the Institute on Foreign Transportation and Port Operations, Norman Mayer Building, Tulane University, New Orleans, Louisiana 70118.

Avondale Shipyards Launches First Of Five Cargoliners For States Steamship Company

Principals at the launching, from the left: **J. R. Dant,** president of States Steamship Company; **Miss Lowry Thurston Collins,** maid of honor; **Mrs. Barret H. Collins,** daughter of Mr. **Dant** and sponsor of the SS Colorado, and **Henry Zac Carter,** president, Avondale Shipyards.

The SS Colorado, first of five new advanced-design cargoliners being built by Avondale Shipyards for States Steamship Company, was launched December 16, 1967, at the builder's main yard in New Orleans.

Principals at the launching included **Henry Zac Carter,** president of Avondale, and **J. R. Dant,** president of States Steamship Company. **Mrs. Barret H. Collins,** daughter of **Mr. and Mrs. Dant,** christened the vessel, assisted by her maid of honor, **Miss Lowry Thurston Collins.**

Like her sisterships, the 24,000-shp SS Colorado has a length of 579 feet and a beam of 82 feet. Her design speed of 23 knots places her among the fastest cargo ships in the world.

Designed by George G. Sharp, Inc. of New York City, the new-class vessels will be the only cargoliners in the Pacific equipped with gyro-controlled flume stabilizers to minimize the rolling of the ship at sea. This device can dampen roll as much as 75 percent.

Containing a fully automated engine room with bridge control, the vessel operates with a crew of 45. The Colorado is a seven-hatch vessel with cubic bale of 855,000 feet. Its new design will allow handling of breakbulk, containerized or unitized cargoes with equal efficiency.

The Colorado's design includes equipment to control temperature and humidity in all cargo compartments; and stainless steel deep tanks. Refrigeration will include both built-in compartments and portable reefer vans. The vessel will carry 12 passengers in eight luxurious staterooms and an elegant lounge.

Advance-design facilities will enable her to be self-sustaining in the handling of both dry and reefer cargo containers up to 20 feet in length and 20 tons in weight. The vessel is equipped with a 60-ton Stulken-type heavy-lift boom which will serve two hatches.

Built at Avondale's main yard, New Orleans, the SS Colorado is the largest ship ever launched into the Mississippi.

States Line's present 13-vessel fleet serves all Pacific Coast ports from Vancouver, British Columbia, to San Diego, with trade routes to Hawaii, Japan, Korea, Okinawa, Taiwan, The Philippines, Hong Kong, Saigon and Thailand.

Avondale was awarded the contract to build the five States ships at a cost of $73,368,060 and a delivery of the first ship 810 calendar days from the contract signing date of May 20, 1967. Subsequent delivery of the other ships—SS Idaho, SS Michigan, SS Montana and SS Wyoming—is to be every 90 days after delivery of the SS Colorado.

The SS Colorado is the largest ship ever built in the State of Louisiana and the largest ever launched into the Mississippi River.

Drew Marine Division Appoints Sales Rep.

The Marine Division of Drew Chemical Corporation, New York, N.Y., has announced the appointment of **David Ochinero** as a sales representative.

Mr. **Ochinero** has a B.S. degree in marine engineering from the United States Merchant Marine Academy and holds a marine engineering officer's license aboard merchant vessels of several U.S.-flag shipping companies.

Riddle To Head Operations For Lykes Lines Agency

Fred W. Riddle, London, vice-president in charge of European operations of Lykes Lines Agency, Inc., has returned to the United States to become executive vice-president of Lykes Lines Agency, with headquarters in New Orleans, where he will direct the worldwide operations of the wholly-owned subsidiary of Lykes Bros. Steamship Co., Inc., and its agents.

In making the announcement, **Joseph T. Lykes Jr.,** chairman of Lykes Bros. Steamship Co., said that Lykes Lines Agency's Continental European operations will be supervised by Continental Director **J. G. Tompkins III** from his headquarters in Antwerp, Belgium; the United Kingdom operations by United Kingdom Director **Joseph F. A. Barnett,** with headquarters in London, and the Mediterranean Area by Mediterranean Director **A. W. Hietala** from his Genoa, Italy, headquarters.

Mr. **Riddle** has been vice-president of Lykes Lines Agency since January 1, 1960. He is a veteran of European shipping operations and joined the Lykes Lines organization in 1945 in Bremen, Germany. He became assistant European general manager in 1954 and moved to Antwerp. In 1959 he transferred to London as European general manager.

Messrs. **Tompkins, Barnett** and **Hietala** are all seasoned members of the Lykes organization. Mr. **Tompkins** is a graduate of the U.S. Merchant Marine Academy and the Georgetown University School of Foreign Service. He was transferred to Europe in 1961 following previous assignments in New Orleans, Brownsville, and Durban, South Africa. He was named continental director in 1963.

Mr. **Barnett,** whose family has been identified with shipping for a great many years, first joined the Lykes staff in the United Kingdom in 1940. He transferred to New Orleans in 1951 and returned to Liverpool in 1952, and became manager of the Liverpool office in 1961. He was named United Kingdom director in 1963.

Mr. **Hietala** is a graduate of Columbia University. He first joined the Lykes organization in New Orleans and in 1958 was transferred to Genoa, Italy. In 1961 he shifted to Liverpool and returned to Genoa in 1964. He was made Mediterranean director in 1967.

FAHM Control Suitable For Diesels In Parallel

Simplified bridge console of the FAHM type gives the deck officer full control of the main propulsion plant.

Recently two dry cargo ships were delivered which incorporated the latest designs in bridge control of the main engines. Both ships are propelled by two reversible Pielstick diesel engines driving the single propeller through couplings and reduction gearing. The bridge control system for each ship was manufactured by Svenska Ackumulator Aktiebolaget Jungner of Stockholm, Sweden.

The system, called FAHM, is electrical. During bridge control operation, the desired rpm ahead or astern is selected on the telegraph. The order is conveyed by a synchronous motor to another synchronous motor which controls the servomotor of the Woodward regulator and increases the speed according to a preset acceleration program. In case the regulator settings do not correspond with the selected rpm on the bridge telegraph, there is a feedback to the electronic control center that in turn sends signals to the servomotors on the regulators until the desired rpm is obtained.

Since both engines in the plant must operate at the same speed, there is a cross connection in the servo-mechanism which synchronizes the two engines. The electronic control center supervises the change in speed and the adjustment of speed without manual operations from the bridge.

In order to simplify fast maneuvers in port it is possible to select a so-called harbor program. In this position one engine is kept idling ahead and the other idling astern. Through this mode of operation the propulsion machinery is kept in the highest alert for ahead as well as astern maneuvers. For normal sea operation a sea maneuver program is connected wherein both engines are operating in the ahead position.

The first automatic bridge control system was developed by Svenska Ackumulator AB Jungner in 1964. Since then over 70 systems have been furnished or are on order. They have been installed on ships using Burmeister & Wain, Sulzer and M.A.N. engines of either slow or medium speed besides the Pielstick installation described previously. The manufacturer also states that this system is readily adaptable to steam turbines.

Dravo Corporation Appoints Chidester And White

Dravo Corporation, Pittsburgh, has announced the appointments of **Robert J. Chidester** as manager, public relations, and **Donald F. White** as manager, product advertising.

Mr. **Chidester** will be responsible for the firm's public relations, corporate advertising and promotion and internal communications. He has been employed at Dravo since 1963 and had served as supervisor, editorial services.

Mr. **White** will be responsible for all product and service advertising of the company's divisions and subsidiaries. He previously was manager, corporate advertising, at Rockwell Standard Corporation.

Tatco-Marinette Team Cooperates In Producing New Navy Landing Craft

In Wisconsin—Marinette built the all-aluminum craft, complete, and then removed the large bow ramp and sawed the vessel in half lengthwise. The entire craft was then loaded on three flatcars and shipped to Tatco Shipbuilding in San Diego, Calif.

A landing craft recently delivered to the U.S. Navy by Tatco Shipbuilding, San Diego, and Marinette Marine Corporation of Wisconsin may have a vital influence on the shipbuilding economy of the San Diego area.

Designated LCM-8, the craft, while the same as that which carried U.S. troops to European and Pacific theaters during World War II, is really all new.

It's all aluminum and as such is shorter. It holds more and weighs considerably less. The former, comparable landing craft was 74½ feet long, weighed 134,000 pounds, and carried up to 120,000 pounds. The new aluminum craft is three feet shorter, weighs only 78,000 pounds and can hold 130,000 pounds of cargo.

The Navy awarded the prime contract for 88 of the new landing craft to Marinette Marine Corporation about a year ago. Delivery of the boats in San Diego was something the Wisconsin yard had to work out by itself. Weather problems made the use of the Great Lakes waterways a doubtful solution in December, so Marinette got in touch with Tatco, with its San Diego facilities, and worked out a plan for shipping the craft in two chunks—split down the middle—by rail to San Diego.

Tatco sub-contracts for the final assembly—a meticulous new aluminum welding technique—final testing and delivery to the Navy.

Richard Tatus, Tatco executive vice-president, said the sub-contracting work was going smoothly and that no difficulties had been encountered on the first boat, delivered December 22.

Harold Derusha, president of Marinette Marine, who was in San Diego supervising final assembly, said Tatco had proved to be the right place on the West Coast for him.

"We're all fortunate to be working together," said **Carl Tatus,** chief executive officer of Tatco. "We started Tatco with Navy contracts on the old-style landing craft in 1963, and we're specialists in this field. We've saved the Navy over a half-million dollars since we've been in business."

The firm did a total of $262,000 in business during its first 12 months beginning in 1963. Total sales at this time will top $2-million, as the yard expands its physical plant.

"Other shipbuilding firms may have grown faster, but seldom has growth of this magnitude been as solid from the ground up; most of our 100-man workforce here has been with us from the very start. Every man has an interest in his work and is as anxious to do a good job and to meet a delivery deadline as we are. This attitude is typical of the men we call the 'new generation of shipbuilders,'" Mr. **Tatus** said.

At San Diego—When the two sections of the landing craft are aligned, they are welded together by pairs of welders, starting at the craft's center and progressing at the same rate in opposite directions. New shielded aluminum arc-welding equipment insures excellent penetration at rapid welding rates.

Diamond Mfg. Launches Ocean Barge For Transport Of B&W Nuclear Reactors

An oceangoing deck barge, specially designed to transport giant nuclear reactors, was launched January 5 at Savannah, Ga.

Built by Diamond Manufacturing Company, Inc. of Savannah, it will be chartered for operation by S. C. Loveland Co., Inc., Philadelphia, Pa.

The barge represents a cooperative effort of S. C. Loveland Co. and Babcock & Wilcox Company, a leading supplier of nuclear steam systems. Babcock & Wilcox will use the barge to move reactors from its Mt. Vernon, Ind., works to nuclear power plant installations on the East Coast.

Named Loveland 25, the barge is owned by Inter-American Shipping Services, Inc., a shipping firm formed in 1946 by the late Rear Admiral **Howard A. Flanigan** and **S. C. Loveland Jr.** It is the third oceangoing barge of this type designed for especially heavy loads that has been built for use by S. C. Loveland Co. in the last two years.

Mrs. T. E. Jasin, wife of the general traffic manager of Babcock & Wilcox Company, christened the barge. A reception and luncheon in honor of **Mrs. Jasin** was held at the Savannah Yacht Club following the launching.

"TALK ABOUT SOUPY WEATHER!"

Paul Semack Named Director Of TTT Sales And Traffic

Paul Semack

The appointment of **Paul Semack** to the position of director of sales and traffic for Transamerican Trailer Transport, Inc. (TTT) has been announced by **R. D. Carter,** TTT executive vice-president.

A veteran container shipping executive, Mr. **Semack** joined TTT a year ago as special assistant to the TTT executive vice-president. Previously, he served with Grace Line for ten years as manager of container sales and of the Container Coordination Department.

In his new position with TTT, Mr. **Semack** will be responsible for national cargo sales, particularly in connection with TTT trailer equipment. Last month, TTT ordered approximately 900 dry cargo and refrigerated trailers from REALCO for use on its express service from New York to Puerto Rico utilizing the $18-million SS Ponce de Leon, the world's fastest and largest trailership, which will start operating this year.

In announcing Mr. **Semack's** promotion, Mr. **Carter** explained that TTT clients may use either TTT trailers or any kind of equipment they prefer, since the new supership will be able to handle any kind of trailer equipment that rolls on U.S. highways or railroads piggyback today.

Mitsui Zosen Plans 400,000-Ton Tanker

Mitsui Shipbuilding & Engineering Co. Ltd. (Mitsui Zosen) is planning the construction of a 400,000-dwt tanker, as revealed in an article published in the company's magazine, "Progress in Review."

Manager of Mitsui's design department, **Takeo Takaynagi,** author of the article, states that a 1,990-foot-long ship—almost twice the length of the largest ship now in operation, the 210,000-dwt Idemitsu Maru (1,122 feet long)—is on the drawing boards. The design calls for a beam of 204 feet and a 110-foot depth, operable at a draft of 80 feet. The vessel will have twin-screw, twin-engine propulsion to provide a 15-knot service speed.

Since its 80-foot draft would be too deep for transit through the Strait of Malacca, between Sumatra and the Malay Peninsula, the new ship would not be suitable for Japanese owners. Its chief market would be among shipowners and oil companies operating to Europe, Mr. **Takaynagi** pointed out. He further stated that many problems, such as hull vibration and the relationship between the main engine output and the ship's speed still needed solution.

Research by a European shipowner, Mr. **Takaynagi** reported, indicates that if the Suez Canal were deepened to allow fully-loaded 200,000-ton vessels to pass through, then 400,000-ton tankers would have to be used on the Cape of Good Hope run in order to compete.

Around the Cape from the Persian Gulf to Northern European ports is about 4,500 miles longer than the Suez route of 6,500 miles. Before the Arab-Israel conflict when the canal was closed in June 1967, the canal had an operable 38-foot depth, permitting vessels of 80,000 tonnage to make the passage fully loaded. Tankers of 200,000 tons could use the waterway only on return trips in ballast, after using the Cape passage on their outbound leg.

Egyptian authorities announced earlier in 1967 plans to deepen the canal to 60 feet by 1975, which would allow many 200,000-ton tankers to use it fully loaded.

A study completed by Lloyd's Register of Shipping reports that 500,000-ton tankers can be built. Mr. **Takaynagi** said that Mitsui has a joint research project underway with Lloyd's, resulting in some major differences from the specifications reported early in 1967. Lloyd's sees a 500,000-ton tanker of 1,375 feet in length, breadth of 225 feet, depth of 112 feet, and draft of 80 feet.

Slater Boat Services To Use Dutch Diesels

Slater Boat Services of Belle Chasse, La., has purchased ten Stork RHO 218 K diesels—developing 660 continuous bhp at 700 rpm—for five new 165-foot supply boats now under construction. Delivery of the engines will be made over a period of 18 months, with the first set underway, according to **Charles Slater,** owner of the firm.

A most interesting feature of all Stork engines is that the pistons may be removed sideways without removing the cylinderheads—making it possible to inspect or change piston rings without difficult dismantling and in a fraction of the time usually required for such a job.

Stork-Werkspoor diesels are manufactured in the 36- to 36,000-bhp range.

In the Gulf area, service and parts are handled by Marine Engineering, Inc., New Orleans, La.

Herman Oosterhuis, Inc., New Orleans, La. 70130, (phone 529-2723), is agent for Stork.

Bobber Named To Head Underwater Sound Div., Naval Research Lab

Robert J. Bobber

Robert J. Bobber has been named head of the Naval Research Laboratory's Underwater Sound Reference Division in Orlando, Fla. Announcement of Mr. **Bobber's** appointment was made by Dr. **Alan Berman,** director of research at the Laboratory.

As head of the Underwater Sound Reference Division, Mr. **Bobber** will administer a program of research and development in the field of underwater acoustics.

A graduate of the University of Wisconsin where he received a B.S. degree in mathematics and an M.S. degree in physics, Mr. **Bobber** has been employed at the Orlando installation since 1947. His scientific interests are in acoustics, undersea warfare and technology, and electroacoustic transducers and measurements.

The new head of the Underwater Sound Reference Division spent four years as an engineering officer in the Marine Corps during World War II. He is a Fellow of the Acoustical Society of America and a senior member of the Institute of Electrical and Electronics Engineers. He has published numerous papers in the Journal of the Acoustical Society of America.

Dravo To Fabricate Operating Machinery For Hannibal Locks

Dravo Corporation, Pittsburgh, has been awarded a contract to fabricate all the operating machinery and valves for Hannibal Locks, under construction on the Ohio River near New Martinsville, West Virginia.

The contract is with Blount Brothers Corporation, Montgomery, Ala., which is building the locks for the U.S. Army Corps of Engineers.

Dravo will fabricate eight sets of miter gate-operating machinery, six sets of tainter valve-operating machinery and six tainter valves. Delivery is scheduled for late in 1968.

The locks at Hannibal and a dam to be constructed there under a separate contract are part of the Engineers' modernization plan for Ohio River navigation and flood control. This program will reduce the number of locks and dams from 46 to 19 larger and more effective facilities.

$2-Million Contract Awarded Halter Marine

Of bids received last September for the construction of three combination units, the U.S. Coast Guard awarded a $2,173,313 contract to Halter Marine Services, Inc., New Orleans, La., the lowest bidder. The combination units consist of 75-foot pusher towboats with 100-foot barges.

Newport News Ship Names W.J. Burns Asst. Gen. Manager

W. J. Burns Jr. has been appointed an assistant general manager of the Newport News Shipbuilding and Dry Dock Company, according to vice-president and general manager, **Fred C. Davis.**

Mr **Burns** moves to his post after serving as manager of the company's program division for the past year. Previously, he had served as assistant production engineer and production engineer.

In his new position, Mr. **Burns** will be responsible for material supply, production and budget control in the operating divisions.

He joined the company in 1939 after earning a B.S. degree in mechanical engineering from the University of Michigan. He also holds an M.S. degree in business administration from Columbia University.

During his shipyard career, Mr. **Burns** has also had experience in the engineering technical department and atomic power division.

Walter Christiansen Named By MAFI As U.S. Representative

Walter Christiansen

MAFI (MAFI - Fahrzeugwerk GmbH & Co. International) of Stuttgart, West Germany, well-known manufacturers of cargo- and container-handling equipment, has appointed Walter Christiansen Inc. as its U.S. representative.

Walter Christiansen Inc., a newly formed corporation affiliated with Mooney Brothers Corp., is located at 195 Paterson Avenue, Little Falls, N.J. The firm will be engaged in materials-handling equipment and systems. Engineering service is available in the United States and Europe by a competent group of professional engineers. Its personnel is available for consultation on all cargo-handling problems and special requirements.

The group has had considerable experience in heavy-lift systems material movement and participated in many projects, including the Atlantic Container Lines operation, the F.D.L. program and recent C-4 conversions for Vietnam service.

The name MAFI has gained prominence in all phases of material handling throughout Europe. It is engaged in various major industries, such as air and marine transportation, as well as the movement of material in freight terminals and industrial plants.

A 35-minute MAFI film on cargo-handling methods is available to any interested group. To arrange for a showing, call **Walter Christiansen** at (201) CL 6-6200; in New York City, phone LO 4-7677.

Bethlehem Appoints Assistant To VP

Daniel D. Strohmeier, vice-president-shipbuilding, Bethlehem Steel Corporation, has announced the appointment of **Harry H. Howard** as an assistant to the vice-president.

Mr. **Howard** joined the Bethlehem organization in 1937, and served as a technical assistant to the vice-president in charge of shipbuilding since 1942. Prior to that date he worked in the Compensation and Safety Division, Industrial and Public Relations Department, in the home office in Bethlehem, Pa., as a safety engineer for the corporation's former Brooklyn, N.Y., shipyards, and as supervisor of training for the organization's New York District shipyards.

A graduate of the University of Maryland, class of '35, with a B.S. degree in electrical engineering. Mr. **Howard** is a member of The Society of Naval Architects and Marine Engineers and of the Downtown Athletic Club. He is chairman of the Safety Committee of the Shipbuilders Council of America, and also a member of the Council's Industrial Relations Committee

Nuclear Service And Construction Appoints Haskell

John B. Haskell Jr.

John B. Haskell Jr., has been appointed assistant to the vice-president of Nuclear Service and Construction Co., Inc. (NSCCo), a subsidiary of the Newport News Shipbuilding and Dry Dock Company.

Mr. **Haskell** is general manager of the company's nuclear and Buckingham divisions. The latter, located near Arvonia, Va., is the site of the company's new shock test facility.

Certain equipment which is to be installed aboard Navy vessels first must be tested, according to Navy specification MIL-S-901C. Tests are performed by detonating underwater explosions beneath floating platforms on which the equipment is in simulated operation.

NSCCo's Buckingham test site has a depth capability of about three times that of any other existing facility, government or private.

Mr. **Haskell** joined the shipyard's atomic power department in 1955 and in 1961 was appointed associate engineer. He has been with NSCCo since its founding in 1965 and previously served as the company's superintendent. He holds a B.S. degree in marine engineering and naval architecture from the University of Michigan.

National Cargo Bureau Names Capt. Mithassel

National Cargo Bureau, Inc. has announced the appointment of Captain **T. A. Mithassel** as its Non-Exclusive Surveyor at San Diego, Calif.

Captain **Mithassel** is a former employee of the Bureau and will be available in San Diego. His mailing address is P.O. Box 1740, La Jolla, Calif. 92037; telephone (714) 459-6024.

National Cargo Bureau (99 John Street, New York, N.Y. 10038) is a non-profit membership organization dedicated to the safe stowage, securing and unloading of cargo on all vessels and to the safety of shipboard cargo-handling gear. At the request of industry, the Bureau has recently expanded its activities to provide a container inspection service throughout the country. It has representation in all major seaports in the nation.

Fredeman Calcasieu Building Stock Towboat

A twin-screw towboat is under construction at the Fredeman Calcasieu Locks Shipyard, Inc., Lake Charles, La. The vessel, to be powered by 1,100-total-bhp diesels, will have a length of 75 feet, beam of 24 feet, and depth of 10 feet. It is being built for stock purposes.

HILLMAN DELIVERS REACTOR-CARRYING UNIT: This special deck barge (shown just prior to launching) has been delivered by Hillman Barge & Construction Company to Mississippi Valley Barge Line Company of St. Louis for the transportation of nuclear-reactor components. The barge, designated MV-1, was designed in cooperation with Babcock & Wilcox Company, a leading supplier of nuclear steam systems. It was recently launched at Hillman's Brownsville, Pa., yard. It is 128 feet by 42 feet by 9 feet 6 inches, and has two longitudinal and six transverse bulkheads in conjunction with an arrangement of internal structural members to provide for the distribution of localized deck loads. The 'deck barge' design lends itself favorably to the transportation of these heavy units because it permits a direct horizontal discharge of the components without an initial lifting operation as would be the case with a 'hopper' type design. The barge is divided into 13 watertight compartments and each is provided with a flush type watertight manhole assembly and access ladder. Heavier plate sizes and the use of rub bars were incorporated in certain areas to meet the requirements of its intended service. The MV-1 is classified by the American Bureau of Shipping for use on the Great Lakes and the Gulf of Mexico as well as the inland rivers of the United States. The first cargo for the new barge will be an 800-ton reactor vessel to be shipped from Babcock & Wilcox Company, Mt. Vernon, Ind., works to Morris, Ill.

Luckenbach Appoints New Corporation Counsel

The appointment of **W. Mahlon Dickerson** of the law firm of Browne, Hyde & Dickerson, New York, as general counsel for Luckenbach Steamship Company, Inc., New York, has been announced by **Edgar F. Luckenbach Jr.**, president of the 118-year-old shipping company.

Mr. **Dickerson** will assist Luckenbach in its continuing expansion program in industries related to maritime activity on both the Atlantic and Gulf Coasts.

USMMA Seeks Applicants For Teaching Positions In Dept. Of Engineering

The United States Merchant Marine Academy is seeking applicants for two positions open in the Department of Marine Engineering.

Licensed marine engineers with three or more years of sea time, and graduates of an accredited engineering college, maritime college, or Federal Service Academy, are sought for positions as Assistant Professor of Engineering or Engineering Officer for the Academy's program of training afloat.

Applicants should apply to Captain **Lauren S. McCready**, U.S. Merchant Marine Academy, Kings Point, N.Y. 11024.

Four Gulfport Barges For Higman Towing Co.

Higman Towing Company, Orange, Texas, has ordered four 15,000-barrel-capacity oil barges from Gulfport Shipbuilding Corporation of Port Arthur, Texas. All barges will have 50-foot beams; two will be 190 feet long and two, 183 feet in length.

ASBESTOLITH®

EST. 1895

Interior DECKING Exterior

FIREPROOF COMPOSITION — DEX-O-TEX NEO-TEX

Sales & Installations

ASBESTOLITH MANUFACTURING CORP.

257 Kent Street Brooklyn, N.Y. 11222

Tel: EVergreen 9-5550

TRANSFORMERS

Single phase—3 per bank—450 volt primary—117 volt secondary

10 K.V.A. 15 K.V.A. 20 K.V.A.
25 K.V.A. 37 K.V.A.
Also 3 K.V.A. & 5 K.V.A.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

New Watertight Doors

FOR IMMEDIATE DELIVERY

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

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

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 ELgin 5-5050

WESTINGHOUSE 300 KW 120/240 DC VICTORY SHIP AUXILIARY TURBO GENERATOR SETS PARTS

Instruction book 8360. ARMATURE: for 300 KW—120/240 volts—1250 amps—1200 RPM—frame 208.4 GEAR: For turbine serial No. 5A-1125-53—5950 RPM—1200 RPM—gear and pinion.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

WATER BOXES—RETURN HEADS
MAIN AND AUXILIARY
ALL TYPES—ALL VESSELS
QUICK DELIVERY

GENERAL ENGINEERING WORKS

717-735 So. Front Street
Phila., Pa. — Phone Walnut 5-6750-6751

LESLIE PUMP GOVERNOR VALVE

New—in original crates. For U.S. Naval Vessels—type CT-HNS-3. For merchant vessels—type CTHS. Size 2". Typical serial 241-423. For immediate delivery.

$495

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

NEW — UNUSED

0.5 KVA HERTNER M.G. SETS

Type CHT-211761. INPUT: Motor 115 volts DC—9.0 amps—1800 RPM—1 HP. OUTPUT: 0.5 KVA—115 volts single phase 60 cycle—4.3 amps—.85 PF.

$127.50

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

NEW UNIVERSAL CHOCKS

6 Rollers—2 horizontal and 4 vertical. For fairleads in all directions—outboard and inboard. Strong construction—easy to maintain. Fulfills all requirements St. Lawrence Seaway, etc. Excellent for containerships.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

MOTOR GENERATOR SETS

BURKE: Unusued—5KW—Input 9.4 HP/120 volts DC/1800 RPM/71 amps. Output 5 KW 10 KVA—120VAC/1/60—52 amps—0.5 PF. With Ward Leonard speed controller.

CONTINENTAL: 3.7 KW—Input: 7½ HP 230 volts DC/28 amps/1800 RPM. Type D-324X—continuous. Output: Generator type DS-324XB 3.7 KW/7.5 KVA/120/1/60—62.5 amps—0.5 PF compound wound.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

RENT, LEASE OR SALE!

BARGE MOUNTED REVOLVING CRANE 50-Ton capacity, Barge dimensions: 57' wide x 190' long.
CRANES-WHIRLEYS: One American 1956 model R20 HHE heavy duty 50 Ton. One practically new American model 254 capacity 90 Tons at 50', 25 Tons at 140'. One Clyde model 24E 50 Tons at 45'.
CONTINUOUS LIBERTY SHIP DISMANTLING—Marine parts always available.
STEEL BARGES AVAILABLE IMMEDIATELY—180'x42'x12' and 150'x42'x12'—A.B.S. Newly Constructed. OTHER SIZES ALSO AVAILABLE.

SCHNITZER INDUSTRIES

American Ship Dismantlers, Inc.

3300 N.W. Yeon Avenue, Portland, Oregon 97210
Phone: (503) 224-4321 Cable: Schnitzerbro Telex: 503-224-1002
Ft. of Adeline St., Oakland, Calif. Phone: 415-444-3919

FOR T-2 TANKERS

(On the left) Full set of brass Butterworth plates.

(On the right) 3" Vacrel pressure vacuum relief valve. (Not shown) Quantity of T-2 Tanker suction bells and valve stands.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

NEW-UNUSED LIBERTY SHIP Troy-Enberg 20 KW Generators

WHILE THEY LAST

$695 CLOSE OUT PRICE

Factory Packages

120 volts DC—400 RPM—drip-proof marine type. 2-Wire direct connected set. Reciprocating 6 x 7 type E vertical self-oiling steam engine—plug & piston valve—220 lbs PSI—80 lbs. BP.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

AUTHORIZED MARINE DISTRIBUTOR FOR

WESTINGHOUSE TURBINE RENEWAL PARTS

MARINE RENEWAL PARTS for MOTORS, CONTROLS, WINCHES & OTHER APPLICATIONS

IN STOCK FOR IMMEDIATE DELIVERY

MERRIN ELECTRIC CO. INC.
162 CHAMBERS STREET, NEW YORK, N. Y. 10007
Telephone: (212) CO 7-8166

DUPLEX STRAINERS
in good condition

4" $289.00
22" x 3" between mounting holes

2" $189.50
15" x 3" between mounting holes

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

CONVERTIBLE HULLS

Four steel hulls 221' X 32' X 11' draft ideal for conversion to large harbor or sea-going tugs, tenders, supply vessels, or similar purposes. These are ex-fleet minesweepers with engines, propulsion machinery, and other equipment removed. They can be delivered complete with deck houses, or stripped down as customer desires.

For further information or inspection appointments write, call, or wire James Diefenthal:

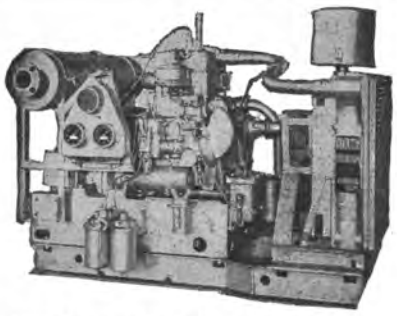
SOUTHERN SCRAP MATERIAL CO., LTD.
421 No. Carrollton Ave.
New Orleans, La. 70119
P. O. Box 19224 (504) 488-3761

HYDE 30" STEAM DOCK GYPSY

10" x 10" engines—steam—reverse valve—8000 lbs. @ 40 FPM—maximum capacity 20,000 lbs. line pull. 3" exhaust—2½" inlet. Dimensions: 6'1" wide x 6'9" long.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050



UNUSED 10 KW SUPERIOR DIESEL GENERATOR SETS

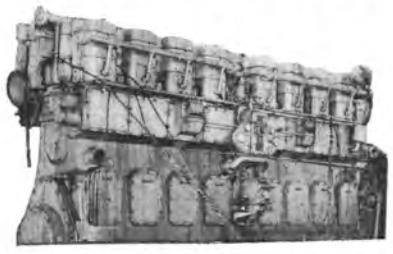
Radiator cooled units—120 volts DC—83.3 amps. ENGINE: Superior model GAB-2—4½" bore—5¾" stroke — 16 H.P. — equipped with Young radiator. Overall dimensions of unit—57" high—57" wide—75" long.

$1875.00

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

COOPER-BESSEMER DIRECT REVERSIBLE MAIN ENGINES



Type LS — 15½ x 22 — turbo-charged engine—BHP 1300 @ 270 RPM. Air starting @ 250 lbs. Complete with air tanks, heat exchanger and all accessories. Preserved in equal-to-new condition. Also spare pistons, cylinder liners, valves, etc. Still aboard Corps of Engineers vessel. Serial No. 2172—Buchi Turbo-charged.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

---

1 KVA M.G. SETS

SPECIAL—UNUSED SURPLUS BARGAIN

INPUT: 1.75 HP—115 Volts DC—17 amps—1800 RPM. OUTPUT: 1 KVA—115 volts—8.7 amps—60 cycle single phase—0.9 PF. Unit is self-excited and will carry load immediately on starting. Regulation ±5%. Complete with magnetic starter & spare parts. Units designed and built to rigid Navy specs. SIZE: 19.5" long—26.5" wide—16" high. Weight 285 lbs. SPARES: 85 lbs. CONTROL: 20"X15"X10"—75 lbs.

$2895.0

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

McDONOUGH MARINE SERVICE

Barges on the Spot
FOR CHARTER

STEEL DECK CARGO BARGES

100' x 28' 110' x 40' 150' x 34' 195' x 35'
110' x 30' 120' x 32' 190' x 50' 269' x 50'

HOPPER BARGES
195' x 35' Open

SPUD BARGES
110' x 30'

OFFSHORE DECK BARGES

120' x 32' 120' x 40' 165' x 50'

FOR SALE—DECK BARGES
150' x 34' x 8' 6"

P.O. Box 26206, New Orleans, La. 949-7586
Lafayette, La. CE 4-1052

1.24 KW G.E. M.G. SETS

G.E. Motor—3 HP—115 volts DC—1800 RPM. OUTPUT: G.E. Generator—1.24 KW—1.56 KVA—120/60/1—.8PF—14.2 amps—1800 RPM. With spare armature. Overspread trip on motor side.

$339.50

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

14" & 16" ALL-BRONZE PORTLIGHTS

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Lexington 9-1900 ELgin 5-5050

T-2 TANKER 24" OVERBOARD DISCHARGE VALVES

Reconditioned to ABS standards

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Lexington 9-1900 ELgin 5-5050

NEW — UNUSED
230 VOLT D.C.

AXIAL FLOW FANS

Navy size A12D2W5, American Blower, 12000 CFM @ 3" S.P. MOTOR: Westinghouse 10/4 HP, 230 volts DC, 1310/1750 RPM. DIMENSIONS: 32⅝" OD; 31¼" BC; 29¼" ID; 45⅞" length.

$775

Navy size A10D2W6—LaDel Co., 10,000 CFM @ 3" S.P. MOTOR: Reliance Motor Co.—7.5/3.1 HP, 230 VDC—1310/1750 RPM. DIMENSIONS: 32⅝" OD—31¼" BC—29¼ ID—40¾" length.

$675

Navy size A8D2W5—Buffalo Forge Co.—8000 CFM @ 3" S.P. MOTOR: G.E. 6/1.8 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 30 9/16" OD—29¼" BC—27¼ ID—37¾" length.

$550

AF80—Sirocco—8000 CFM @ 2" S.P. MOTOR Welco 4/1.9 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 30½" OD — 29¼ BC — 27¼ ID—37¾" length. U.S. Maritime type fan.

$495

AF100—Sirocco—10,000 CFM @ 2" S.P. MOTOR: Welco 5/2.2 HP—230 VDC—1310/1750 RPM. DIMENSIONS: 32½" OD—31⅛" BC—29¼ ID—40⅝" length. U.S. Maritime type fan.

$575

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

FOR SALE

200 TON FLOATING BARGE CRANE

May Be Seen In Operation — Complete Barge Size 155' x 75' x 14.40 Depth

80 TON WHIRLEY 80 TON
Aux. 5 Ton, 110' Boom
NEW 1957

Clyde Whirley Gantry Crane
50' Tower
All Electric Full Magnetic Air Controls
26' Track Gauge

40 TON WHIRLEY GANTRY CRANES
NEW 1953
74' Tower
Track Gauge 26'
All Electric Magnetic & Air Controls
Excellent Cond.

WRITE — WIRE — PHONE

Arnold Hughes Co.

6600 MT. ELLIOTT DETROIT, MICH. 48211
(313) 923-5055

AIR COMPRESSORS

DIESEL-DRIVEN INGERSOLL-RAND

Ingersoll-Rand compressor—315 cu. ft. at 125 lbs. —driven by International Harvester UD-18 diesel. Tank mounted on skid—radiator cooled—from Corps of Engineers salvage vessel.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

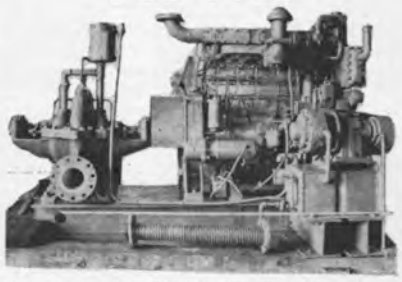
WINDLASS FOR 1" CHAIN

New—unused. Single wildcat—P.C. type—gypsy head 19" diam. x 12" high—driven by 7½ HP 120 volt DC motor, with all controls and spare parts, including spare motor armature. Mfg by McKiernan-Terry.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

1000 GPM DIESEL-DRIVEN FIRE PUMP



ENGINE: Buda 6LD468 6-cyl. 4-cycle—4¼"x 5½". 100 BHP—1850 RPM—9 qt lube oil capacity. Fresh water pump capacity 60 GPM @ 2000 RPM—sea water 43.5 GPM @ 2000 RPM. 24 Volt starting motor. Solid injection. PUMP: Gardner-Denver size 5 type D 1850 RPM—281' head —6" suction 5" discharge—split case—horizontal —1-stage all bronze. 1000 GPM (15 ft.)—900 GPM (25 ft. suction head)—280 ft. 125 lbs. pressure. ALSO 2 PUMPS AS ABOVE WITH G.M. 6-71 DIESEL DRIVE. ALSO SPARE BUDA FOR ABOVE.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

FOR SALE

Take your choice of 5 twin-screw, 500 H.P. steel model hull tug-boats—56-61 feet long, shallow draft, each powered by two 8-V71N Engines. All are rigged for pulling and pushing. All have two 25 ton Parker deck winches, rubber bow bumpers, 4 blade stainless steel propellers, 100 Watt marine radios, twin 14 in. searchlites, large airhorns, galleys, toilets and two bunk rooms. These boats are from 5 months to 48 months old. Each one is strongly built by a first class shipyard. All fully equipped. Many extras. They do not require one cent to put them in first class shape.
Cash, terms, or Charter. Owner will finance at reasonable rate of interest to reliable party. Photos, specs, and prices on request.

Eric Peterson
Bush, Louisiana 70431 Phone: 2521 or 2291

FOR NON-TRANSPORTATION USE

C1-MAV-1 Type "COASTAL SPARTAN"

Machinery aft, with quarters. Offered for dead storage, grain or cereal storage, or petroleum (estimated 50,000 barrels). Immediately available Hull in very good condition. Steel vessel—operated short time only. Three holds—total grain capacity 249,980 cubic feet—Bale 227,930. OAL 338' 8"—Beam 50'—Depth molded 29'.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Lexington 9-1900 ELgin 5-5050

SPECIAL 12" SIGNALING SEARCHLIGHTS

New—Unused, General Electric, or Westinghouse, 1000 watt, 115 volts, signaling shutter.

AL EPSTEIN, INC.

Most anything in Marine Supplies

525-5526 or 522-5141 P.O. Box 51569
1226 St. Thomas St. New Orleans, La. 70150

LSM STERN ANCHOR WINCH

powered by G.M. diesel

50,000 lb. line pull at 8/10 F.P.M. Declutchable free-wheeling drum—2 outboard gypsies. Mfg. by Jaeger. Levelwind—used with 1¼" wire rope. Drum size 25¾"; between flanges—25"; diameter of flange 50". Driven through torque converter by G.M. 6-71 diesel. Heat exchanger cooled. Can convert to radiator. Used very little. Guaranteed.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

T-2 Aux. Turbine Rotors

NEW OR EQUAL TO NEW

COMPLETE WITH A.B.S.

G.E. & Westinghouse available

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 ELgin 5-5050

MARINE DIVISION

VALVE DIVISION

WHAT'S NEW at ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody, Portland, Ore. 97201 • Phone 503/228-8691 (Telex 036-701)

HOT BUYS THAT CALL FOR *ACTION*

SALT WATER EVAPORATORS

Used, overhauled, Davis Engineering Company, or equal, Size 36-14, as originally designed to produce 25 tons per 24 hours, complete with A.B.S. and Coast Guard Certification.

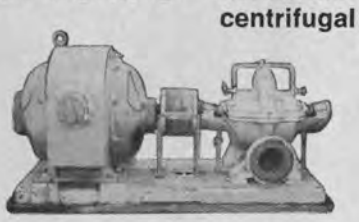
TURBINE GENERATOR

Worthington Steam Turbine, 440 PSI, 740°F, 6537 RPM, Serial #4989, with Reduction Gear, Form 15.5 x 12, ratio 5.447:1, with General Electric Generator, 600 KW, 440/3/60, Type ATI, 6 pole, 1200 RPM.

AIR COMPRESSORS

Worthington, high pressure, 4 stage, rated 20 CFH at 3000 PSI (17 CFH at 3500 PSI), with General Electric Motors, 50 HP, 440/3/60.

MOTOR PUMPS — horizontal centrifugal



Ingersoll-Rand, 3000 GPM, 250′ head, Size 8ALV, with Westinghouse Motor, 250 HP, 2200/3/60, Frame 875G, 1775 RPM. (Quantity-2)

Fairbanks-Morse, 1175 GPM, 324 TDH, 6″ discharge, Serial #5814, 1750 RPM, Type K2C807, with Fairbanks-Morse Motor, 150 HP 220/440/-3/60, Type QZK, Frame RS505S. (Quantity-1))

STEAM PUMPS — horizontal, duplex

Size 16 x 9 x 12—Buffalo
Size 12 x 8½ x 12—American Marsh
Size 10 x 10 x 12—Worthington
Size 10 x 10 x 12—Wagner
(**Many** other sizes available)

ANCHOR WINCHES

4 — Jaeger, single drum — capacity approximately 900′ of 1½″ wire rope, double gypsy, with 35 HP Motors, 230 Volts DC, complete with electricals.

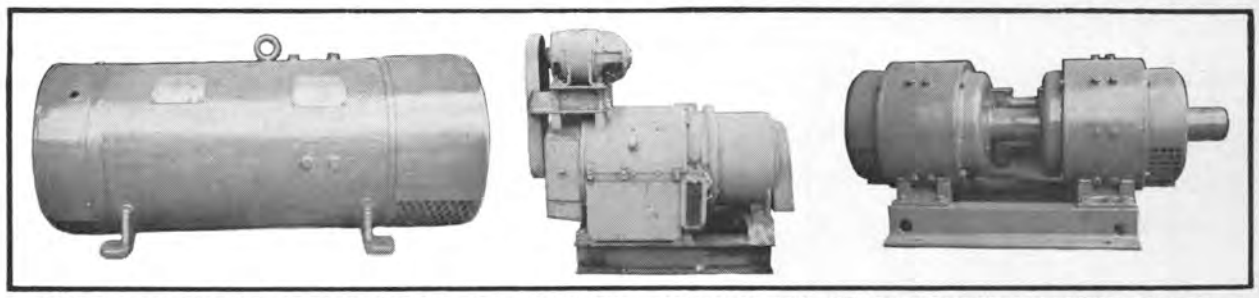
Costs Slashed on Used and Reconditioned Motor-Generator Sets . . . ready for service

DC to AC:

1—Star. Input: 125 HP, 230 DC. Output: 75 KW, 440/3/60
1—Ideal. Input: 40 HP, 115 DC. Output: 25 KW, 440/3/60
1—Hallett. Input: 25 HP, 230 DC. Output: 15 KW, 120/1/60
2—Burke. Input: 20 HP, 230 DC. Output: 12.5 KW, 120/1/60
2—Bogue. Input: 15 HP, 230 DC. Output: 12.5 KW, 120/1/60
2—Hobart. Input: 15 HP, 115 DC. Output: 10 KW, 120/1/60
1—Fidelity. Input: 15 HP, 230 DC. Output: 10 KW, 120/1/60
1—Electric Specialty. Input: 12 HP, 120 DC. Output: 5 KW, 440/3/60
1—Burke. Input: 9.4 HP, 115 DC. Output: 5 KW, 120/1/60
1—Continental. Input: 7½ HP, 230 DC. Output: 4 KW, 120/1/60
4—Star. Input: 7½ HP, 230 DC. Output: 3.75 KW, 120/1/60
26—Janette. Input: 1.75 HP, 230 DC. Output: 1 KVA, 440/3/60

AC to DC:

2—General Electric. Input: 125 HP, 440/3/60. Output: 75 KW, 120 DC
2—General Electric. Input: 85 HP, 440/3/60. Output: 60 KW, 120 DC
1—General Electric. Input: 75 HP, 220/440/3/60. Output: 50 KW, 230 DC
1—Westinghouse. Input: 60 HP, 220/440/3/60. Output: 40 KW, 120 DC
1—Delco. Input: 30 HP, 220/440/3/60. Output. 20 KW, 120 DC
1—Westinghouse. Input: 15 HP, 220/440/3/60. Output: 7.5 KW, 120 DC
1—Westinghouse. Input: 10 HP, 220/440/3/60. Output: 6 KW, 120 DC
1—Westinghouse. Input: 7½ HP, 220/440/3/60. Output: 5 KW, 120 DC



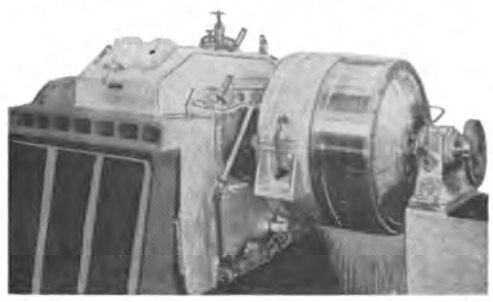
MORE THAN 200 M.G. SETS IN STOCK; FOR COMPLETE LISTING OF M.G. SETS, REQUEST BULLETIN MG-1-67

SPECIAL

FALK REDUCTION GEARS

Port and Starboard, interchangeable with T-3 Tanker Gears, Falk No. 148-300. Also interchangeable with Falk Gears on A051 Class Tankers (14 ships). Also on AO97 to AO100 Tankers. Gears are available as complete assemblies and/or rotating elements in sets. Gears offered with a current inspection report of condition by a representative of Falk Corporation.

FARREL-BIRMINGHAM Reverse-Reduction Gears



1-port, 1-starboard, ratio 2.292:1, rated 2000 HP, with Fawick Clutches.

2 Only-CLYDE Model 17-DE-90 WHIRLEY CRANES

LIFTING RATE: 25 TONS at 50 Foot 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 volts DC

HOIST: 3-drum (ea. 16 x 16) 90 HP, 11,000 lb. single line pull at 250 FPM

GANTRY: 70′ tail swing clearance

WHIRLEY RPM: 1¼

PORTAL: 22 feet

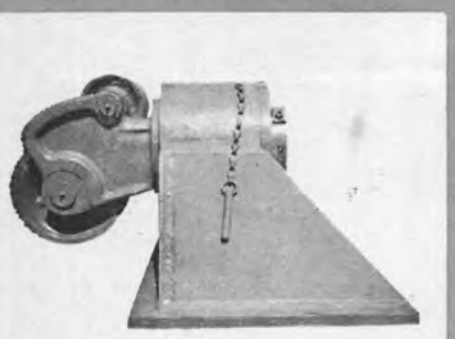
POWER: Diesel Electric (DC)

LOCATION: On property adjacent Bethlehem Steel's Patapsco Yard, Fairfield, Maryland

When you need it now, contact ZIDELL EXPLORATIONS...Ralph E. Ingram 503/228-8691

Another Zidell Explorations SCOOP!

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 of maintenance.

At This One Low Price $995 each

DISTILLING PLANTS

Used, good condition, Griscom-Russell, Soloshell, low pressure, two effect Distilling Plants designed for conversion of sea water into fresh water. Two (2) units available, rated 12,000 GPD with 440 Volts AC Pumps.
Used, good, ditto 8000 GPD unit, 230 D.C.

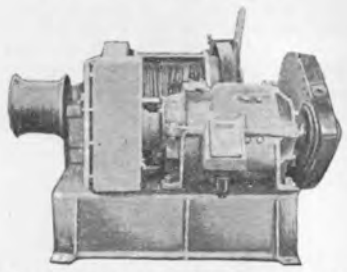
CAPSTAN WINDLASSES

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.

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.

CARGO WINCHES



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

Type 66—single speed, single drum
7450# at 218 FPM
3720# at 287 FPM

Type 67—two speed, single drum
14430# at 107 FPM
7450# at 220 FPM
3700# at 284 FPM

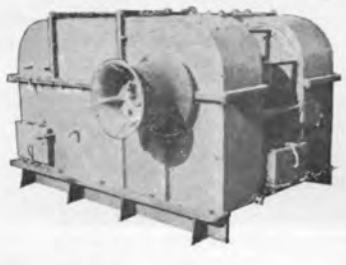
STEAM TOWING WINCH

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

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, repeater panel, and repeaters with mounts.

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

STOCKLESS ANCHORS

USED GOOD

3,000 pound size 4,000 pound size
8,000 pound size

ANCHORS

Unused, surplus, 3000# size, Danforth.

ANCHOR CHAIN

Used—good—with or without test certificate
1½" size 2-1/16" size
1⅝" size 2¼" size

ANCHOR WINDLASS

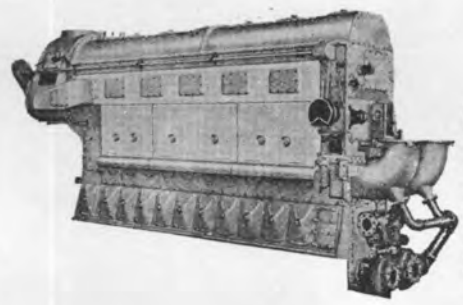
1—LIDERWOOD horizontal Anchor Windlass, double wildcat—for 2-1/16" Chain, double gypsy, with 50 HP motors, 230 volts DC, complete with controls.

ANCHOR WINDLASSES

8—American Hoist and Derrick Company, horizontal, double wildcat—for 2¼" chain double gypsy, 70 HP, 230 Volts DC, with electric controls.

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 Contactor Panel, Resistors, and Master Switch.

MARINE DIESEL ENGINES and GENERATORS



1—PORT; 2—STARBOARD FAIRBANKS-MORSE Model 38D8- ⅛

Diesel Engines, used condition, 1800 HP, 800 RPM, 2 cycle, 8½" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio—with hydraulic coupling.

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

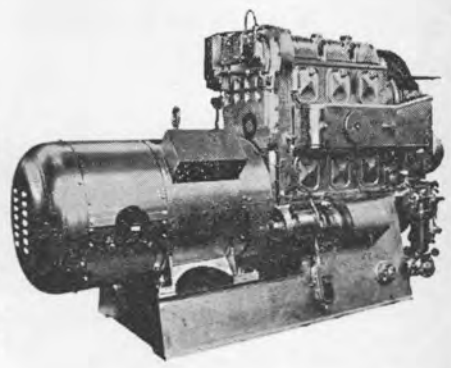
1—McINTOSH-SEYMOUR, 1000 HP, 740 RPM.

GENERAL MOTORS DIESEL GENERATORS

GENERAL MOTORS Diesel Generator Sets, Model 3-268A, 152 BHP, 1200 RPM, heat exchanger cooled, with 100 KW Generators, 450 volts AC, 3 phase, 60 cycles.

GM 8-268A radiator cooled, air start, coupled to Fairbanks-Morse Generator, 300 KW, 440/3/60, complete with Generator Control Switchboard.

GM 8-268A, radiator cooled, air start, with Westinghouse Generator, 250 KW, 440/3/60, complete with switchboard.



DIESEL GENERATORS

FAIRBANKS-Morse, radiator cooled, 25 KW Continental Generator, 120/208/3/60.

BUDA, radiator cooled, 15 KW, 120/240 Volts DC.

HERCULES, 10 KW, 120/240 Volts DC, radiator cooled.

SUPERIOR GBD-8, 100 KW, 125 DC.

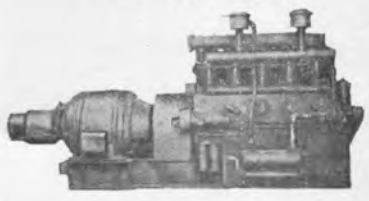
GM 3-71, 30 KW, 120 DC
Hercules DJXC, 25 KW, 120 DC
Cummins A1, 30 KW, 120 DC

DIESEL GENERATORS

CATERPILLAR DIESEL ENGINE, Model D17000, 167 HP, 900 RPM, Heat Exchanger cooled, with Louis-Allis Generator, 85 KW, 220/3/60.

GENERAL MOTORS DIESEL ENGINES, Model 8-278, with 500 KW Generators. 115/230 DC.

LORIMER DIESEL GENERATORS



LORIMER, 100 KW, 450/3/60.

MURPHY, Model ME66, radiator cooled, 75 KW, 120/240 Volts DC.

GM-3-268A, 100 KW, 240/120 Volts DC.

SUPERIOR GBD-8, 100 KW, 240/120 Volts DC.

SUPERIOR, Model IDB-8, 100 KW, 450/3/60.

BUDA 6DHG691, 60 KW, 120 Volts DC.

HYDRAULIC PUMPS (STEERING)

Hele Shaw, Type JLP 12, 1000 PSI, 850 RPM.
Northern radial piston, Size 5430, 44 GPM, 1500 PSI, 850 RPM.

PROPELLERS AND PROPELLER SHAFTS

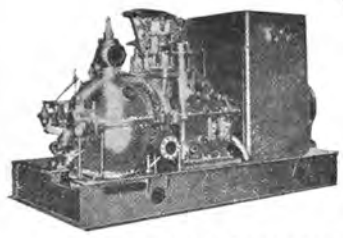
Liberty Ship Propellers
Liberty Ship Propeller Shafts
CIB Vessel Propeller Shafts
LST-Propeller Shafts

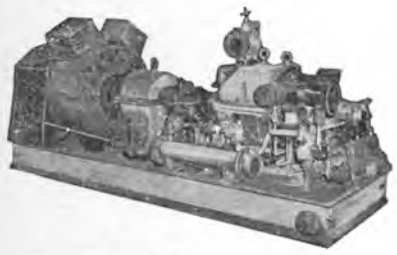
VERTICAL CAPSTAN WINDLASS

McKiernan—Terry, Single Wildcat—for ⅜" chain, Single Gypsy, with underdeck drive with Star Motor, 7-½ HP, 115 DC, with Electrical control equipments.

TURBINE GENERATORS

GENERAL ELECTRIC Turbine, Type FN3-FN24, Steam 265# G., Serial 54110, with G.E. Generator, 750 KW, 440/3/60, Frame 985 Y, Serial 5840447.





WESTINGHOUSE Turbines, 440 PSI, 740° F, with Westinghouse Generators, 250 KW, 120/240 DC.

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

WESTINGHOUSE Turbines, 200 PSI, with Westinghouse Generators, 75 KW, 120 Volts DC.

TURBINE GENERATORS

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

JOSHUA HENDY TURBINES, 300 PSI, temperature 550°F. with Westinghouse Generators, 300 KW, 120/240 Volts, DC.

WORTHINGTON Turbines, Form S-4, 440 PSI, 740° F, driving on same common shaft a 250 KW Generator, 440/3/60, and a 90 KW Generator, 125 Volts DC.

WORTHINGTON Turbines, Form S-4. 440 PSI, 740° F, with Crocker-Wheeler Generators. 300 KW, 120/240 Volts DC.

Machinery & Equipment

from AMERICAN LIBERTY SHIPS

S4-SE2-BD1 TRANSPORT C2-S-B1 CARGO SHIPS

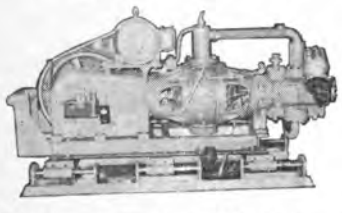
C1-B CARGO SHIPS

including:

Pumps	Propeller Shafts	Cargo Booms
Winches	Generators	Blocks
Propellers	Boilers	Condensers
	Turbines	

"If it's on the above mentioned Ships—we have it"

AIR COMPRESSORS



JOY Air Compressors, Class WG82, 2-stage, rated 100 CFM at 300 PSI, water cooled, size 7" x 3¾" x 7", Typical Shop #75652, with Reliance motor, 30 HP, 220/440 AC/3/60.

WORTHINGTON, 4 stage, 20 CFH, 3000 PSI, with G.E. Motors, 50 HP, 440/3/60.

WORTHINGTON, 60 CFM, 110 PSI, with 15 HP Motor, 440/3/60

WESTINGHOUSE Air Brake, 246 CFM, 140 PSI, with 50 HP Motors, 440/3/60.

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

Ingersoll Rand, 50 CFM, 150 PSI, with G.E. Motor, 25 H.P. 440/3/60

REDUCTION GEARS

Farrel-Birmingham (as originally used with GM 16-278A Engines on PC Vessels),, 1 Starboard, 1 Port, rated 2,000 HP, ratio 2.292:1, with Fawick Clutches.

Farrel-Birmingham; as originally used on Two 1375 HP Electric Motors, in submarine, 2 pinions, Single Output Gear, Pinion RPM 1302. Gear RPM 280, ratio 4.65:1.

Twin Disc Marine Reverse—Reduction . . . Model 1 MG201, ratio 1.96:1.

STEEL WATERTIGHT DOORS

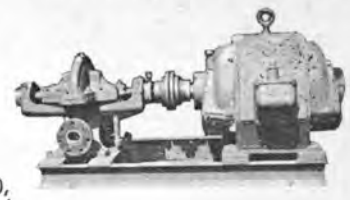
Quick Acting and Dogged Types. Good stock on hand. Immediate delivery.

See Zidell ad following page for details.

AXIAL FLOW FANS

LaDel, Sturtevant, etc.—in 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Rebuilt and guaranteed.

PUMPS for Every Maritime Purpose



AC PUMPS
Horizontal Centrifugal

2-GOULDS, 2000 GPM, 470' head, 8 x 10, with Westinghouse Motors, 350 HP, 2300/3/60 Volts AC.

1—WORTHINGTON, 400 GPM, 150 PSI, 5½" suction, 4½" discharge, with G.E. Motors, 73 HP, 440/3/60, 3550 RPM.

3—GOULDS, 300 GPM, 336' head, 3" suction, 2" discharge, with G.E. Motors, 50 HP, 440/3/60, 3550 RPM.

2—WORTHINGTON, 80 GPM, 60 PSI, 2½" suction, 2" discharge, with G.E. Motors, 8 HP, 440/3/60, 3420 RPM.

2—WORTHINGTON, 200 GPM, 100 PSI, 3½" suction, 3" discharge, with Star Motors, 25 HP, 440/3/60.

6—ALLIS-CHALMERS, 35 GPM, 100' head, 2" suction, 1½" discharge with Allis-Chalmers Motors, 3 HP, 440/3/60, 3500 RPM.

AC PUMPS
Vertical Centrifugal

8—WORTHINGTON, 275 GPM, 56.6 PSI, 8½" suction, 3½" discharge, with G.E. Motors, 22.9 HP, 440/3/60, 1180 RPM.

4—WORTHINGTON, 100 GPM, 40 PSI, 5" suction, 3" discharge, with G.E. Motors, 7.37 HP, 440/3/60, 1750 RPM.

6—DAYTON-DOWD, 1160 GPM, 15 PSI, 10" suction, 8" discharge, with 10 HP Wagner Motors, 440/3/60.

AC PUMPS, Horiz. Rotary

3—NORTHERN, size 7020, 10 GPM, 200 RPM, for fuel oil, with G.E. Motors, 5 HP, 440/3/60. 1720 RPM.

4—WARREN, 175 PSI, 197 GPM, with Electro-Dynamics Motor, 30 HP, 440/3/60, 1750 RPM.

DC PUMPS, Vertical Rotary

1—DE-LAVAL-IMO,250 GPM, 40 PSI, for lube oil, with G.E. Motors, 15/20 HP, 230 volts, 1310/1750 RPM.

4—WORTHINGTON Fuel Oil Transfer Pumps, Type 4-GRVS, 225 GPM, 35 PSI, with G.E. Motors, 15/20 HP, 230 Volts DC.

DC PUMPS
Vertical Centrifugal

2—WORTHINGTON Circulating Pumps, vertical volute, Type 16"-LAS-2, 5600 GPM, 10 PSI, with G.E. Motors, 20/40 HP, 230 Volts D.C.

2—INGERSOLL-RAND, 4" suction, 3" discharge, 450GPM, 15 PSI, with G.E. Motor, 10/15 HP, 230 Volts DC.

DC PUMPS, Horizontal Rotary

NATIONAL TRANSIT, fuel oil transfer, 3" suction, 2½" discharge, 50 GPM, 50 PSI, 3 HP, 230 Volts DC.

DC PUMPS
Horizontal Centrifugal

7—GARDNER-DENVER, 400 GPM, 100 PSI, with 40 HP Crocker-Wheeler Motors, 230 DC, 1750 RPM.

4—WEIL, 400 GPM, 100 PSI, with 40 HP Motors, 230 D.C.

4—GARDNER-DENVER, 900 GPM, 30' head, with 10 HP Crocker-Wheeler Motors, 230 DC, 1150 RPM.

2—Westco, 2" suction, 2" discharge, 100 GPM, 100 PSI, with Imperial Motors, 10 HP, 120 Volts DC.

1—ALLIS-CHALMERS, 750 GPM, 30.3' head, with Star Motor, 10 HP, 230 Volts DC, 1750 RPM.

2—WESTCO, 20 GPM, 50 PSI, with Century Motors, 1½ HP, 115 DC.

See following page for additional pumps!

CENTRIFUGES

SHARPLES OIL PURIFIERS —Diesel oil and lube oil types, 1½ HP, various voltages: 440 AC, 120 DC, 230 DC.

BRASS STEERING STANDS

Complete with RUDDER ANGLE INDICATOR ON TOP, used, 11" base diameter by 35½" high, and with 42" overall, 8 - spoke brass steering wheel.

Price $149.50

ELECTRO-MECHANICAL STEERING GEARS

SPERRY No. 1—2 HP, 115 Volts DC, with control panel, and non-followup steering controller (lever type).

DIESEL ENGINE DRIVEN FIRE PUMPS

BUDA, Model 6-LD-468, Diesel Engines, 6 cylinders, 100 BHP, with Gardner-Denver horizontally split case, Type D, Centrifugal Pumps, 1000 GPM, 280' head, 6" suction, 5" discharge.

Contact Ralph E. Ingram

ZIDELL EXPLORATIONS, Inc.

3121 S.W. Moody, Portland, Ore. 97201 • Phone 503/228-8691
Telex 036-701

TACOMA OPERATION: 401 Alexander Avenue, Tacoma 1, Wn., Phone: FUlton 3-2701

Contact Zidell Explorations, Inc.

3121 S.W. Moody, Portland, Ore. 97201 • Phone 503/228-8691 (Telex 036-701)

for all your maritime equipment needs . . .

these 4 pages are just a partial list!

Used ★ Good STEEL WATERTIGHT DOORS

"Quick-Acting-Wheel Type" and "Dog Type"

As removed from reserve "mothballed" vessels. Huge inventory of practically all sizes and types ready for immediate delivery . . . and more on the way. These dors have the frame trimmed and are suitable for re-use. Doors are available in 4, 6, 8 and 10 dog types; many are "Quick-acting-wheel controlled.

Save over new replacement costs as shown in the "Typical Price" listing below . . .

26"x48"—4 dog type .....$60.00 ea.
26"x66"—6 dog type .....$85.00 ea.
26"x66"—Quick Acting .....$150.00 ea.
Other sizes and prices quoted on request.

POPULAR DEMAND PUMPS

For Victory Ships, C1 Ships, C2 Ships, Etc.

Ingersoll-Rand Main Circulating Pumps, size 18 VCM, vertical centrifugal, 8500 GPM, with 20/40 HP Electro Dynamics Motors, 230 DC.

Worthington Main Condensate Pumps, size UZS-3, vertical volute, type 1½", 70 GPM, 75 PSI, with 5/7.5 HP G.E. Motor, 230 DC.

J. C. Carter Horizontal Centrifugal Pumps, stainless steel, 365 GPM, 250' head, 3" suction, 3" discharge, with enclosed 25 HP Motor, 220/440 AC.

Worthington Vertical Simplex Fire and General Service Pump, steam, size 12 x 11 x 18, 400 GPM, 125 PSI, steam pressure 150 PSI.

Warren Vertical Simplex Boiler Feed Pump, steam, size 12 x 8 x 24, 180 GPM, 545 PSI, steam pressure 375 PSI.

ELECTRIC MOTORS

SURPLUS

WESTINGHOUSE, 50 HP, 230 Volts DC, 600 RPM, compound wound, Type CK, Frame 9, 181 Amperes.

ALLIS-CHALMERS, 50 HP, 230 Volts DC, 600 RPM, 180 Amperes, Model MDS-11975, compound wound.

3000 PSI HYDRAULIC CYLINDERS

Bore	Stroke	Rod Diameter	Overall 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

ANCHOR WINDLASS

Horizontal, of German manufacture, double wildcat—for use with 3" Anchor Chain, double gypsy, with 230 Volts DC Motor, complete with electrical control equipment.

STEAM AIR COMPRESSORS

Westinghouse Air Brake Company, Size 11 x 11 x 12, vertical, rated 66 CFM at 100 PSI (2 available).

HYDRAULIC PUMPS

Warren, horizontal, rotary, 190 GPM, 175 PSI, 30 HP, 440/3/60
Berry, rotating piston type, 240 GPM, 300 PSI, 40 HP, 440/3/60
Dennison, axial piston type, GPM, 500 PSI, 5 HP, 440/3/60
Vickers, axial piston type, 13.5 GPM, 3000 PSI, 30 HP, 440/3/60
Dennison, variable displacement, single piston, 20 GPM, 3250 PSI, 40 HP, 440/3/60
Dennison, variable displacement, single piston, 90 GPM, 3500 PSI, 150 HP, 440/3/60

MISCELLANEOUS PUMPS

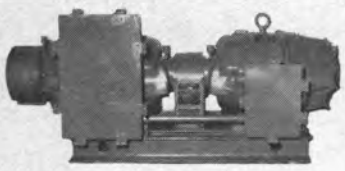
Worthington, Size 20-LAL-18, vertical centrifugal, 10500 GPM, 20' head, driven by Whiton Steam Turbine, 95 HP.
Worthington, Size VZS-1, vertical centrifugal, 150 GPM, 173' head, 6½" suction, 3½" discharge, 15 HP, 230 DC
Worthington, vertical centrifugal, 340 GPM, 36.6' head, 6" suction, 3" discharge, 15 HP, 230 DC
De Laval, horizontal centrifugal, 3 stage, 300 GPM, 525 PSI, 4" suction, 2½" discharge, with De Laval Turbine, 135 HP
De Laval-IMO, vertical rotary, for lube oil, 300 GPM, 45 PSI, 6" suction, 6" discharge, with De Laval Turbine, 14.1 HP.
De Laval, vertical screw type, for fuel oil, 250 GPM, 150 PSI, 7" suction, 6" discharge, with De Laval, Turbine, 35 HP.
De Laval, vertical gear, for fuel oil, 50 GPM, 350 PSI, 3½" suction, 3½" discharge, with De Laval Turbine, 14.4 HP.
De Laval, horizontal screw type, 15 GPM, 350 PSI, 2½" suction, 2½" discharge, 10 HP, 230 DC.
Worthington horizontal centrifugal, 500 GPM, 150 PSI (1000 GPM, 60 PSI), 5½" suction, 4½" discharge, with Whiton Turbine, 72.9 HP.

"VALVE MODIFICATION" PRINCIPAL SPECIALTY AT ZIDELL VALVE DIVISION

Monel, Stellite, Bronze or Stainless, whatever your specific requirements may be, Zidell is geared to do the job. Our Seventy Highly Skilled Machining Craftsmen turn the complexities of Valve Trim Changes into a routine assignment. The result being Faster Than Factory Deliveries at Lower than Factory Costs. We take pride in being able to say VALVE MODIFICATION IS OUR PRINCIPAL SPECIALTY . . . Not an Accommodation Sideline.

For a Brochure describing the advantages of prime surplus valves and fittings plus a description of Zidell's Specialty Engineering services, or quotes on specific items, contact Jim Myers, Valve Division, Zidell Explorations, Inc., 3121 S. W. Moody Ave., Portland, Ore. 97201.

MOTOR GENERATORS



Unused, Surplus, in original boxes, JANETTE M-G SETS. Input: 1.75 HP, 230 Volts DC, 7.2 Amperes, 1800 RPM. Output: 1 KVA (.85 KW), 115/1/60. 4 Ball Bearing, with Speed Regulator, and with Radio Noise Filters. Navy Type CJM—211151, continuous duty, net weight 435#, dimensions 44″ L, 19½″ W, 18⅝″ H. Instruction Book and Parts List Included.

• ***Contact: Ralph E. Ingram***

ZIDELL EXPLORATIONS, INC.
3121 S.W. Moody Ave., Portland, Ore. 97201
Phone: (503) 228-8691

LIBERTY TAILSHAFTS
Reconditioned by Maritime Commission
$2250.00
THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
ELgin 5-5050 LExington 9-1900

ROLLER CHOCKS

for large tankers, ore carriers 29,000 tons and up

ALL ARE CAST STEEL & BRASS FITTED

TRIPLE ROLLER CHOCKS
Base: 34″ wide — 8′2″ long. Top diameter: 17″. Center diameter: 13″. Height of rollers: 10⅜″. Centers of rollers: 29″

DOUBLE ROLLER CHOCKS
Base: 21″ wide — 66″ long. Top diameter: 17″. Center diameter: 13″. Height of rollers: 12½″. Centers of rollers: 31″.

SINGLE ROLLER CHOCKS
Base: 21″ wide — 7′4″ long. Rollers: 12½″ high. Top diameter: 17″. Center diameter: 13″. Opening: 38″. Center of roller to opening: 19″.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

NEW CARGO BOOMS

Liberty type—5-ton cap'ty—tubular taper—55′4″ long. Center O.D. 15.3″—O.D. ends 8″ to 8.6″—standard fittings **$465.00 EA.**
Victory type steel cargo booms—5-ton—48′9″—tubular taper—VC2-AP2 type ..... **$397.50 EA.**

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Maryland 21202
539-1900 (Area Code 301) 355-5050

NEW — UNUSED
1 KVA JANETTE MG SETS

2-Bearing Sets—type D.E.—3L. MOTOR INPUT: 2 HP—115 volts DC—3.5 amps—1800 RPM. OUTPUT: type C.E.I.—120 volts 60 cycle single phase. 8.3 amps—40°C Temp rise—0.8 P.F.

$239.50

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

NEW — UNUSED
ROSS COOLERS

FOR LUBE OIL SERVICE

Screw connections — copper jacket — cupro-nickle tubes. 8″ diameter x 6′3″ length—84 sq. ft. surface. Water inlet 3″—outlet 3″. Oil inlet 2½″. Two Pass. Complete with zinc plugs.

$695

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

NEW—UNUSED
12″ SIGNALING SEARCHLIGHTS

In original crates. G.E. type 95313—clamp-mounted—shockproof—waterproof, with filter assembly. Self ventilating steel housing. Mogol base —1000 watt—30 or 115 volts. Signaling shutter. Also, Westinghouse, same as above. Acceptable to Coast Guard. Built to Federal Stock No. 6230-295-2830. Shutter is filtered.

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

AXIAL FLOW FANS

D.C. — NEW — UNUSED
20000 C.F.M. — 115 & 230 volts
16000 C.F.M. — 115 & 230 volts
10000 C.F.M. — 115 & 230 volts
5000 C.F.M. — 115 & 230 volts (explosion-proof)
4000 C.F.M. — 115 & 230 volts

A.C. — RECONDITIONED
A1A4W5 to A16A4W5—with starter—440/3/60

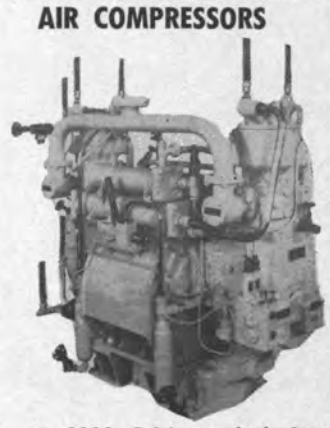
1000 C.F.M.	6000 C.F.M.
2000 C.F.M.	8000 C.F.M.
3000 C.F.M.	10000 C.F.M.
4000 C.F.M.	16000 C.F.M.

Reconditioned by Westinghouse or Equal

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

T-2 TANKER MAIN TURB. ROTOR
GENERAL ELECTRIC
ABS CERTIFICATION
PROMPT AVAILABILITY
NICOLAI JOFFE CORP.
Shipdismantlers
9171 Wilshire Blvd. Beverly Hills, Calif.
Phone (213) 878-0650

WORTHINGTON HIGH PRESSURE AIR COMPRESSORS



7½ C.F.H. at 3000 P.S.I.—vertical 3-stage—600 RPM. Motor 22.5 HP—440/3/60—600 RPM—drip-proof self-ventilated—squirrel cage—ambient temp. 50°C. Good condition—little use—as removed from Naval vessels.

$795

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

MARINE EQUIPMENT

YOU CAN DEPEND ON PECK

FUEL HANDLING PUMPS

TRANSFER

500 GPM @ 492' Head—Barnes Model CE4PA, Horizontal, Centrifugal, 4-Stage, 4" Suction x 4" Discharge. Engine, Continental, Model T42T, 6 Cylinder, Gasoline.

300 GPM @ 375' Head—Delaval "IMO", Turbine, Vertical, Centrifugal, 8" Suction x 6" Discharge. Steam: 575 PSI, 4900 RPM, 37.4 HP.

250 GPM @ 345' Head—Delaval Model 816A32N, "IMO," Horizontal, Centrifugal, 7" Suction x 6" Discharge; 450/230/220/150 RPM. Motor: 47/27/20/13/5 HP, 440/3/60, 1785/1185/890/590/290/RPM

100 GPM @ 250' Head—Worthington, Vertical, Reciprocating, Simplex, 4" Suction x 3½" Discharge, 9 x 7 x 12; Steam: 400 PSI, 560 Lbs/Hour.

50 GPM @ 120' Head—Blackmer, Vertical, Rotary, Gear, 2" Suction x 2" Discharge; 1750 RPM; Motor: 5 HP, 440/3/60, 550 RPM

SERVICE

400 GPM @ 120' Head—Blackmer, Vertical, Rotary, Gear 4½" Suction x 4" Discharge; 420 RPM; Motor: 25 HP, 440/3/60, 1760 RPM.

14 GPM @ 850' Head—Worthington, Vertical, Reciprocating, Duplex, 2½" Suction x 2" Discharge, 5½ x 2¾ x 6; Steam: 400 PSI, 390 Lbs/Hour

14 GPM @ 850' Head—Delaval Model A31PX, "IMO," Turbine, Vertical, 2" Suction x 1½" Discharge; Motor: 10 HP, 440/3/60, 1750/875 RPM.

FIRE and FLUSHING PUMPS

1200 GPM @ 280' Head—Allis Chalmers Model SKH, Turbine, Horizontal, Centrifugal, Single Stage, 6" Suction x 5" Discharge, 3500 RPM; Steam: Coppus Model 22-2-½, 275 PSI, 120 HP.

300 GPM @ 500' Head—Dayton Dowd Model 247, Horizontal, Centrifugal, Single Stage, 5" Suction x 4" Discharge, 2500 RPM; Engine: Continental Model M330, 6 Cylinder Gasoline, Twin Ignition.

200 GPM @ 250' Head—Ingersoll Rand Model RVH, Size 1½, Horizontal, Centrifugal, 2 Stage, 3½" Suction x 3" Discharge; 3500 RPM; Motor: 25 HP 440/3/60, 3500 RPM, TEFC.

200 GPM @ 250' Head—Worthington Model 2UB-1, Horizontal, Centrifugal, 2-Stage, 3½" suction x 3" Discharge, 3500 RPM; Motor: 25 HP, 440/3/60, 3500 RPM, TEFC.

200 GPM @ 250' Head—Worthington, Vertical, Reciprocating, Simplex, 8½" Suction x 3" Discharge, 9 x 7 x 12; Steam: 400 PSI, 1080 Lbs/Hour.

DREDGE PUMPS

50,000 GPM—Mobile Pulley and Machine, Built in 1962 for Army Corps of Engineers Dredge "Goethals." Consists of: 2 Pumps 42" Suction x 32" Discharge; 6 Each 32" and 2 Each 42" Hydraulically Operated Gate Valves With Stainless Steel Trim; Approximately 200 Feet of 42" and 32" Pipe Sections. This Unit is available complete or as separate components.

8" Heavy-Duty Portable Dredge. Recently overhauled and found to be surplus to requirements. Mounted on a Steel Barge 16' x 42' x 4'. Pump is powered by a G.E. 200 HP, 440/3/60, 585 RPM Motor, Type HI-17A 200 600. Cutter Head is driven by a G.E. 30 HP, 440/3/60, 900 RPM Motor.

8" Sand Pump, coupled to GM 6-71 radiator cooled diesel. Includes a twin-disc 3:1 reduction gear. The complete unit is mounted on a rubber tired trailer and is available less trailer if desired.

CIRCULATING PUMPS

5900 GPM @ 23' Head—Allis Chalmers Model SD, Turbine, Horizontal, Centrifugal, Single Stage, 16" Suction x 14" Discharge, 690 RPM; Steam: 275 PSI, 2840 RPM; 45 HP.

650 GPM @ 20' Head—Worthington, Horizontal, Centrifugal, Single Stage, 6" Suction x 6" Discharge, 1750 RPM; Motor: 6 HP, 440/3/60, 1750 RPM.

135 GPM @ 90' Head—Warren Model 3CV10, Vertical, Single Stage, 6½" Suction x 3½ Discharge, 1750 RPM; Motor: 6 HP 440/3/60, 1750 RPM.

AIR HANDLING EQUIPMENT

AIR COMPRESSORS

7.5 CFH @ 3000 PSI—Worthington 3-Stage, 4-Cylinder, Vertical Motor: 22.5 HP, 440/3/60, 600 RPM.

50 CFM @ 150 PSI—Ingersoll Rand Type 30, Class R, 2-Stage, 3-Cylinder, Vertical Motor: 20 HP 440/3/60, 1800 RPM.

350 CFM 100 PSI—Worthington, Single Stage, Simplex, Reciprocating; Steam: 100 PSI.

FANS and BLOWERS

24,000 CFM @ 17" Static Pressure—Studevant Size 24, 108 HP, 400 PSI.

15,000 CFM @ 16" Static Pressure—Clarage Type W, Size 2, 15/50 HP, 275 PSI.

12,000 CFM @ 10" Static Pressure—Buffalo Size AL, 15 HP 230 Volts DC.

10,000 CFM @ 2" Static Pressure—American Blower Size 7, 25 HP, 275 PSI.

GENERATING UNITS

15,000 KW—13,800 Volts, 3/60, Westinghouse, 3600 RPM Steam: 650 PSI, 825°F, 3600 RPM.

4,600 KW—2,700 Volts, 3/93.3, General Electric Steam: 410 PSI, 740°F.

3,600 KW—7,200/12,500 Volts or 21,600/37,500 Volts 3/60 General Electric Steam: 410 PSI, 740°F.

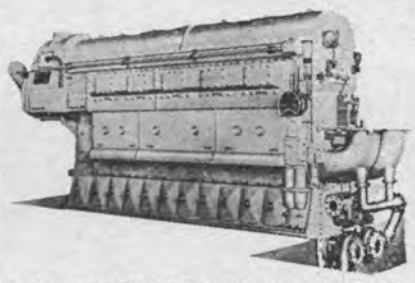
1,800 KW—2,400 Volts, 3/60, General Electric Steam: 410 PSI, 740°F.

1,333 KW—2,400/4,160 Volts, 3/60 General Electric; Steam: 410 PSI, 740°F.

300 KW—450 Volts, 3/60, General Electric, Steam: 410 PSI, 740°F.

300 KW—120/240 Volts DC, Worthington Steam: 275 PSI, 565°F.

PROPULSION ENGINES



1800 **HORSEPOWER.** Fairbanks Morse Model 38D8-⅛, 10 Cylinder, Opposed Piston. **DIRECT REVERSIBLE;** 750 RPM Port or Starboard Available. Removed from U. S. Navy Vessels and Preserved to Government Specifications. **LOW HOURS—NOT RAILROAD TYPE!** Accessories include: Starting Compressors, Sylphon Valves, Heat Exchangers, Strainers, Transfer and Booster Pumps, Silencers.

ALWAYS IN STOCK! WINCHES • ANCHORS • ANCHOR CHAIN • AXIAL FLOW AND TURBINE FANS • PORTLIGHTS • WATERTIGHT DOORS • AC AND DC MOTORS • VALVES

PECK EQUIPMENT COMPANY

3500 ELM AVENUE, PORTSMOUTH, VA. 23704

PHONE 703 399-4079

Nationwide Parts and Equipment Procurement Service

NEW LST TAILSHAFTS

1 to 542 Class—Federal stock number H2010-352-0417

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 ELgin 5-5050

NEW-UNUSED

30,000 C.F.M.
230 VOLT D.C.

AXIAL FLOW FANS

30,000 CFM @ 2.75" S.P.—LaDel Co. MOTOR: Reliance Electric Co.—19 HP—230 volts DC—1320/1750 RPM. DIMENSIONS: 43½" OD; 41½" BC; 40" ID; 51¼" length.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

REDUCTION GEARS

1.81 3200 HP REDUCTION GEARS MFG BY FARRELL-BIRMINGHAM DOUBLE INPUT — SINGLE OUTPUT

3200 HP twin input—capable of handling (2) 1600 HP engines at 720 RPM input, with a single output of 3200 HP at 402 RPM. Unit equipped with hydraulic coupling mfg by American Blower—size K-117R. Remote control console. Gear 20° horizontally offset—2 pinions—single reduction.

SUITABLE FOR DREDGE PUMP DRIVES—PORT OR STARBOARD UNITS—EX-D.E. UNITS

FARRELL-BIRMINGHAM HEAVY-DUTY REDUCTION GEARS

Double input—single output—3.435:1 ratio. Can handle up to (2) 1600 HP FM OP engines or G.M. 16-278A engines, producing up to 3200 HP output. Pinions in line.

SPECIAL!

GEARS FOR DREDGES, SEA-GOING TUGS OR SELF-PROPELLED VESSELS

Farrell-Birmingham—4000 HP

For main propulsion. 2.677:1 ratio. Both input pinions on same plane. Mfg by Farrell-Birmingham. Double input—single output. Will handle two FM engines or two GM 16-278A engines.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
LExington 9-1900 (301) ELgin 5-5050

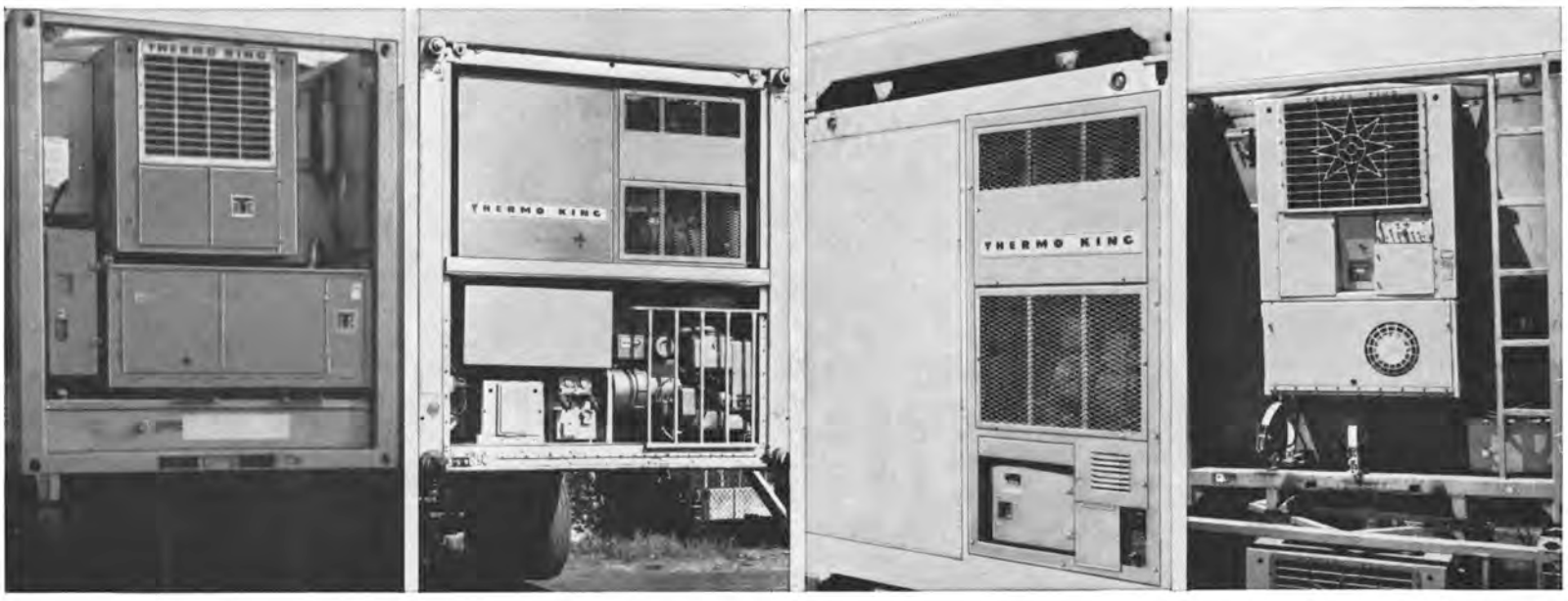
BUYERS DIRECTORY *for* ADVERTISERS

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
ANCHORS
Baldt Anchor, Chain & Forge, P.O. Box 350, Chester, Pa. 19016
Blue Water Marine Supply, Inc., 2102 69th St., Houston, Tex. 77011
ANCHOR CHAINS
Baldt Anchor, Chain & Forge, P.O. Box 350, Chester, Pa. 19016
BEARINGS
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
BOILERS
Combustion Engineering, Inc., Windsor, Connecticut 06095
Foster Wheeler Corp., 666 Fifth Ave., New York, N.Y. 10019
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., 277 Park Ave., N.Y. 10017
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.
CARGO CONTAINERS—Components
Fruehauf Trailer Div., FruehaufCorp.,10940HarperAve.,Detroit32,Mich.
CATHODIC PROTECTION
Engelhard Industries, Inc., 850 Passaic Ave., E. Newark, N.J. 02029
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013
CLUTCHES, GEARS & BRAKES
Wichita Clutch Co., Inc., Wichita Falls, Texas 76307
COATINGS—Protective
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Enjay Chemical Company, 60 West 49th St., New York, N.Y. 10020
USS Chemicals (Div. of U. S. Steel), P. O. Box 86, Pittsburgh, Pa.
CONTAINER HANDLING SYSTEM
Clyde Iron Works, Inc., P.O. Box 370, Duluth, Minn. 55801
Lighter Aboard Ship, Inc., 225 Baronne St., New Orleans, La. 70112
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
RPC Corp., Marine Sales, 200 Park Ave., New York, N.Y. 10017
Star Iron & Steel Co., 336 Alexander Ave., Tacoma, Wash. 98421
CONTAINER LASHINGS
American Forge & Mfg. Co., Box 20, McKees Docks, Pa. 15136
CONTROL SYSTEMS
Lake Shore Electric Corp., 205 Willis St., Bedford, Ohio 44014
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231
CORROSION CONTROL
Anti-Rust Corp., 268 54th St., Brooklyn, N.Y. 11220
CRANES—HOISTS—DERRICKS—WHIRLEYS
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 147 E. 50th St., N.Y. 10022
Clyde Iron Works, Inc., Duluth 1, Minnesota
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
Star Iron & Steel Co., 326 Alexander Ave., Tacoma, Wash. 98401
Wiley Mfg. Co., Box 97, Port Deposit, Md. 21904
DECK COVERS (METAL)
Dover Supply Co., Inc., 45-22 Pearson St., L.I. City, 11101
Marine Moisture Control Co., 39 Redfern Ave., Inwood, L.I., N.Y.
DECK MACHINERY—Cargo Handling Equipment
ASEA Marine, Rep. in U.S.A. by Stal-Laval, Inc., 147 E. 50th St., N.Y. 10022
Clyde Iron Works, Inc., P.O. Box 370, Duluth, Minn. 55801
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.
Smith-Berger Mfg. Corp., 3236 16th Ave.S.W., Seattle, Wash. 98134
Western Gear Corp., 21st & Norton, Everett, Wash. 98201
DECKING
Asbestolith Mfg. Corp., 257 Kent St., Brooklyn, N.Y. 11222
Metropolitan Floor Covering, Inc., Div. of Drehmann Paving & Flooring Co. 2101 Byberry Rd., Philadelphia, Pa. 19116
DEPTH SOUNDERS—Depth Recorders—Echo Sounders
Radio Corporation of America
Radiomarine Products Dept., Bldg. 15-5, Camden, N.J. 08102
DIESEL ACCESSORIES
Kiene Diesel Accessories, Inc., P.O. Box 216, Franklin Park, Ill. 60131
DIESEL ENGINES
Burmeister & Wain, 2 Torvegade, Copenhagen K, Denmark
Electro-Motive Division General Motors, La Grange, Illinois 60525
Fairbanks Morse Power Systems Div. of Colt Industries, 701 Lawton Ave., Beloit, Wis. 53512
Fiat, Turin, Italy, U.S.A. 375 Park Ave., New York, N.Y. 10022
M.A.N. Maschinenfabrik Augsburg-Nurnberg AG, Werk Augsburg, West Germany
H. O. Penn Machinery Co., Inc., Caterpillar dir., 140th St. & East River, New York, N.Y. 10454
Stewart & Stevenson Services, Inc., 4516 Harrisburg Blvd., Houston, Texas 77011
DIESEL ENGINE MUFFLERS
Marine Products & Engineering 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
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150
Oceanic Electrical Mfg. Co., Inc., 148 Perry Street, N.Y., N.Y. 10004
Pauluhn Electric Mfg. Co., Inc., 422 Broome St., New York 10013
Worthington Corp., 401 Worthington Ave., Harrison, N.J. 07029
EVAPORATORS
Aqua-Chem, Inc., 225 N. Grand Ave., Waukesha, Wis. 53186
Bethlehem Steel Corp., Shipbuilding, 25 B'way, N.Y., N.Y. 10004
Watermaker Div., Douglas Aircraft Co., Inc., Santa Monica, Calif. 80405
FITTINGS & HARDWARE
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
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
HEAT EXCHANGES
Aqua-Chem. Inc., 225 N. Grand Ave., Waukesha, Wis. 53186
HEATERS—Ship
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231
HYDRAULICS
Vickers, Inc., 172 E. Aurora St., Waterbury, Conn. 06720
INSULATION—Marine
Bailey Carpenter & Insulation Co.,Inc.,74SullivanSt.,Bklyn,N.Y.11231
LIFEBOATS AND LIFE RAFTS—SURVIVAL EQUIPMENT
Protection Equipment Co., 100 Fernwood Ave., Rochester, N.Y. 14621
R.F.D., Inc., Richwood, West Virginia 26261
Welin Davit and Boat Division, 500 Market Street, Perth Amboy, N.J. 08862
LORAN
Radio Corporation of America
Radiomarine Products Dept., Bldg. 15-5, Camden, N.J. 08102
MACHINE SHOP—TROUBLE SERVICE
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
MARINE DRIVES—GEARS
Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa. 19406
Western Gear Corp., 21st & Norton, Everett, Wash. 98201
MARINE EQUIPMENT
Owesen & Co., Inc., 315 Notre Dame, New Orleans, La. 70130
Pacific Coast Eng. Co., P.O. Drawer E, Alameda, Calif. 94506
Wallace Supplies Mfg. Co., 1806 Cornelia Ave., Chicago, Ill. 60657
Worthington Corp., 401 Worthington Ave., Harrison, N.J. 07029
MARINE FURNITURE
Rex Cabinet & Linoleum Co., 531 23rd St., Union City, N.J. 07087
MARINE INSURANCE
Adams & Porter, Cotton Exchange Bldg., Houston, Texas
MARINE PROPULSION
Combustion Engineering, Inc., Windsor, Connecticut 06095
De Laval Turbine, Inc., 853 Nottingham Way, Trenton, N.J. 08602
Foster Wheeler Corp., 666 Fifth Ave., New York, N.Y. 10019
General Electric Co., 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., 147 E. 50th St., New York, N. Y. 10022
NAVAL ARCHITECTS AND MARINE ENGINEERS
Coast Engineering Co., 711 West 21 St., Norfolk, Va. 23517
Consultec, 1725 K St., N.W., Washington, D.C. 20036
Crandall Dry Dock Engineers, Inc., 238 Main St., Cambridge 42, Mass.
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 44 Whitehall St., New York, N.Y. 10004
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
Morris Guralnick, Associates, Inc., 74 New Montgomery St., San Francisco, Calif. 94105
J. J. Henry Co., Inc., 21 West St., New York, N.Y. 10006
L. K. Homyer, Box 408, Corona Del Mar, California 92625
James S. Krogen, 1460 Brickell Ave., Miami, Fla. 33131
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 the Americas, N.Y., N.Y. 10036
Rudolph F. Matzer & Associates, Route 1 - Box 314 D, Jacksonville, Fla. 32211
John J. McMullen Associates, Inc., 17 Battery Pl., New York, N.Y.
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Robert W. & Robert C. Morrell, 170 John St., New York, N.Y. 10038
Gunnar Nelson, 2185 Lemoine Ave., Ft. Lee, N.J. 07024
Pearlson Engineering Co., Inc., 3298 Mary St., Miami, Florida 33133
Research & Design Corp., 405 Lexington Ave., New York, N.Y. 10017
Philip L. Rhodes, 369 Lexington Ave. ,New York, N.Y. 10017
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 216 Market St., San Francisco, Calif.
Sanders & Thomas, Inc., 1st-Federal Bldg., Pottstown, Pa. 19464
George G. Sharp, Inc., 100 Church St., New York, N. Y. 10007
George Slifer, 1422 Lakewood Rd., Jacksonville, Fla. 32207
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, Inc., 17 Battery Pl., New York, N.Y. 10004
NAVIGATION INSTRUMENTS
National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo.
RF Communications, Inc., 1680 University Ave., Rochester, N.Y. 14610
Radio Corporation of America
Radiomarine Products Dept., Bldg. 15-5, Camden, N.J. 08102
Sperry Piedmont Co., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
OCEANOGRAPHERS
Ocean Recovery Corp. of America, 80 Park Ave., N.Y. 10016
OIL & POLLUTANT DISPOSAL
Ocean-Wide Marine Supply Co., P.O. Box 827, Huntington, N.Y. 11743
Spentonbush Fuel Transport Service, 500 Fifth Ave., N.Y. 10036
OIL PURIFIERS—Repair
Norse Electric Mfg. Co., Inc., 57-59 Commerce St., Bklyn, N.Y. 11230
OILS—Marine—Additives
Esso International Inc., Esso Bldg., 15 West 51 St., New York, N.Y.
Gulf Oil Trading Co., 1290 Ave. of the Americas, New York, N.Y.
Mobil Oil Co., Inc., 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
Amercoat Corp., 201 N. Berry St., Brea, Calif. 92621
Devoe & Raynolds Co., Inc., Marine Division, Newark, N.J. 07105
International Paint Co., 21 West St., New York, N.Y. 10006
Mobil Chemical Company, Metuchen, N.J. 08840
PETROLEUM SUPPLIES
Independent Petroleum Supply Co., 277 Park Ave., New York 10017
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
The West Indies Oil Co., Ltd. St. John's, Antigua, W. I.
PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
PROPELLERS
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Baldwin-Lima-Hamilton Corp., Phila., Pa. 19142
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Federal Propellers, 150 Buchanan Ave., S.W., Grand Rapids, Mich. 49502
PROPELLER REPAIRS AND RECONDITIONING
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
PUMPS
De Laval Turbine, Inc., 853 Nottingham Way, Trenton, N.J. 08602
RADAR AND RADIO EQUIPMENT
Collins Radio Co., M/S 416 - 118, Dallas, Texas 75207
Communication Associates, Inc., 1208 Third Ave., New Hyde Park, N.Y. 11040
Decca Radar, Inc., 386 Park Ave. So., New York, N.Y. 10016
RF Communications, Inc., 1680 University Ave., Rochester,N.Y. 14610
Radio Corporation of America
Radiomarine Products Dept., Bldg. 15-5, Camden, N.J. 08102
RATCHETS
American Forge & Mfg. Co., McKees Rocks, Pa. 15136
W. W. Patterson Co., 830 Broket St., Pittsburgh, Pa. 15233
REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Frigitemp Corp., 329 Herzl St., Brooklyn, N.Y. 11212
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., Auburn, N.Y. 13022
Hawkins & Tipson, Marlow House, Lloyds Ave., London E.C. 3.
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Plymouth Cordage Company, Plymouth, Mass. 02364
Tubbs-Great Western Cordage, 200 Bush St., San Francisco, Calif.
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
RUDDER ANGLE INDICATORS
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
RUST PREVENTATIVES
Rust-Oleum Corp., 2425 Oakton St., Evanston, Ill. 60204
SEALS
Syntron Company, 398 Lexington Ave., Homer City, Pa. 15748
SEARCHLIGHTS
Portable Light Co., Inc., 67 Passaic Ave., Kearny, N.J. 07032
Snelsen Oilfield Lighting Co., 1201 E. Daggett St., Fort Worth, Texas 76104
The Carlisle & Finch Co., 4562-64 W. Mitchell Ave., Cincinnati, Ohio 45232
SEWAGE DISPOSAL
Youngstown Welding & Engineering Co., 3708 Oakwood Ave., Youngstown, Ohio 44509
SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. 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
SHIPBUILDING—Repairs, Maintenance, Drydocking
Albina Engine & Machine Works, 2100 N. Albina Ave., Portland, Ore. 97227
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros de Codiz, S.A., Zurhono 72, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bender Ship Repair, Inc., 265 So. Water St., Mobile, Ala. 36602
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Brewer Dry Dock Co., Mariners Harbor, Staten Island, N.Y.
Ira S. Bushey & Sons, Inc., 764 Court St., Brooklyn, N.Y. 11231
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Crandall Dry Dock Engineers, Inc., 238 Main St., Cambridge, Mass. 02142
Dravo Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., 410 Camp St., New Orleans, La. 70130
Gotaverken American Corp., 39 Broadway, New York 6, N.Y.
Halifax Shipyards, Ltd., P.O. Box 640, Halifax, Nova Scotia, Canada
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Hillman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
Hitachi Shipbuilding Co., 25Nakanoshima2-chomeKitaku,Osaka-Japan
Ishikawajima-Harima Heavy Industries Co., Ltd., 50 Broad Street New York, N.Y. 10004
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla.
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Lone Star Marine Salvage Co., 7200 S. Harbor Drive, Houston, Texas 77001
Mitsui Shipbuilding & Eng. Co., Ltd., Nihonbashi-Muromachi, Chuo-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville 1, Tenn.
National Steel & Shipbuilding Corp., San Diego 12, Cal.
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Nippon Kokan Kabushiki Kaisha, 2, 1-chome, Otemachi, Chiyoda-ku, Tokyo, Japan
Pacific Coast Engineering Co., P.O. Drawer 6, Alameda, Calif. 94506
Pearlson Engineering Co., 2825 Oak Ave., Miami, Fla.
Perth Amboy Dry Dock Co., Perth Amboy, N.J.
Puerto Rico Drydock and Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
Rodermond Industries, Foot of Henderson St., Jersey City, N.J. 07302
St. Louis Shipbuilding—Federal Barge, Inc. 611 East Marceau, St. Louis 11, Mo.
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Sociedad Espanola De Construccion Naval Sagasto, 27, Madrid 4, Spain
Tampa Ship Repair & Dry Dock Co., Inc., P.O. Box 1277, Tampa, Florida 33601
Terrin Agency, Inc., 17 Battery Place, New York, N.Y. 10004
Todd Shipyards Corp., 1 Broadway, New York City
Vickers Ltd., 222 London Rd., St. Albans, Herts England
AG Weser Seebeckwerft, Bremerhaven, Germany
Wiley Mfg. Co., Port Deposit, Md.
Wyatt Industries Inc., Port Houston Shipyard Div., P.O. Box 3052, Houston, Texas 77001
SHIP MODELS
Boucher-Lewis Precision Models, Inc., 36 E. 12 St., N.Y., N.Y. 10003
SHIP OPERATORS
Moore-McCormack Lines, 2 Broadway, New York 4, N.Y.
SHIP STABILIZERS
John J. McMullen Associates, Inc., 17 Battery Pl., N.Y., N.Y. 10004
STEAM GENERATING EQUIPMENT
Combustion Engineering, Inc., Windsor, Connecticut 06095
STEVEDORING
M. P. Howlett, Inc., 415 32nd St, Union City, N J
Luckenbach Steamship Co., 120 Wall St., New York 5, N.Y.
SWITCHBOARDS
Hose McCann Telephone Co., Inc., 524 23rd St., N.Y. 10011
SYNTHETICS
E. I. Dupont De Nemours & Co., Inc., Textile Fibers Dept., Wilmington, Delaware
TANK CONTAINERS
Freuhauf Trailer Div., Fruehauf Corp., 10940 Harper Ave., Detroit, Mich. 48232
TELEPHONES—Marine—Sound Powered—Radiotelephone
Communication Associates, Inc., 1208 Third Ave., New Hyde Park, N.Y. 11040
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Motorola Communications & Electronics, Inc., 4935 W. LeMoyne Ave., Chicago, Ill. 60651
RF Communications, Inc., 1680 University Ave., Rochester, N.Y. 14610
Radio Corporation of America
Radiomarine Products Dept., Bldg. 15-5, Camden 2, N.J.
TOWING—Lighterage, Transportations, Barge Chartering
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore 2, Md.
Henry Gillen's Sons Lighterage, 99 Wall St., N.Y., N.Y. 10005
James Hughes, Inc., 17 Battery Pl., New York, N.Y.
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y.
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, N.Y.
Pace Marine Service, Route 6, Box 1321, New Orleans, La. 70129
Red Star Towing & Transportation Co., 500 Fifth Ave., N.Y. 10036
L. Smit & Co., 11 Broadway, New York 4, N.Y.
Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
M. & J. Tracy, Inc., 1 Broadway, New York, N.Y.
Turecamo Coastal and Harbor Towing Corp., 1752 Shore Parkway, Brooklyn, N.Y.
Twenty Grand Marine Service, Inc., Offshore OilCenter,MorganCity,La.
Vancouver Tug Boat Co., Ltd., 10 Pemberton Ave., No. Vancouver, B.C., Canada
VALVES AND FITTINGS—Hydraulic—Safety Flanges
Hooper Valve & Engineering Corp., 24th St. & Virginia Ave., Newport News, Va.
Hubeva Marine Plastics-Lining, 435 Hamilton Ave., Brooklyn 31, N.Y.
Hydrasearch Co., Inc., Riva Rd., Annapolis, Md. 21401
Marine Moisture Control Co., 39 Redfern Ave., Inwood 96, L.I., N.Y.
Mechanical Marine Company, 45-15 37th St., Long Island City, N.Y.
Todd Products, Div. of Todd Shipyards Corp., Halleck St., Brooklyn, N.Y. 11231
VAN CONTAINERS—Insulated, Refrigerated, General Commodity
Fruehauf Trailer Div., Fruehauf Corp., 10940 Harper Ave., Dertoit 32, Mich.
WEATHER ROUTING
Weather Routing, Inc., 90 Broad St., New York 4, N.Y.
WIRE ROPE
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, Pa. 18018
ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

First on land...

First on sea...

First in the hearts of containermen!



THERMO KING REFRIGERATION UNITS for CONTAINERS

Take it from those who know, Thermo King container refrigeration units are the right answer for cool profits in shipping and handling perishables. That's why so many top container shippers choose Thermo King to protect their valuable fresh or frozen cargoes.

As the world leader in transport refrigeration, Thermo King, working in close cooperation with container manufacturers and shippers since 1950, has designed these units to meet specific requirements, and built them with know-how unmatched in the industry.

Shown here are but a few of many variations of Thermo King container units and unit combinations available. No matter what your specific requirements may be, Thermo King can provide the proper equipment for your application.

For container refrigeration that insures superior performance and long life at lowest cost, depend on Thermo King . . . the progressive pioneer in transport refrigeration.

WORLD LEADER IN TRANSPORT REFRIGERATION

THERMO KING corporation

MINNEAPOLIS, MINNESOTA 55420

A partial list of users of Thermo King container refrigeration

Alaska Steamship Co.
American Express, Inc.
American President Lines
Atlantic Container Lines, Ltd.
Coordinated Caribbean Transport, Inc.
Garrison Fast Freight
Knutsen Line
Matson Navigation Co.
Moore-McCormack Line
Pacific Far East Line
Sea Land Service, Inc.
South Atlantic & Caribbean Lines
Tropical Shipping Co.
United States Lines

What's so SPECIAL about...

Amercoat®

MARINE COATINGS

MORE CARGO TANKS have been protected by Amercoat's Dimetcote, the original inorganic zinc coating, than with all other materials combined.

Amercoat entered the marine coatings field during World War II at a time when little or no improvement in paints had been made for about a century . . . Amercoat entered with new concepts and new materials to protect ships . . . coating systems designed to really reduce metal loss, maintenance and to prolong vessel life.

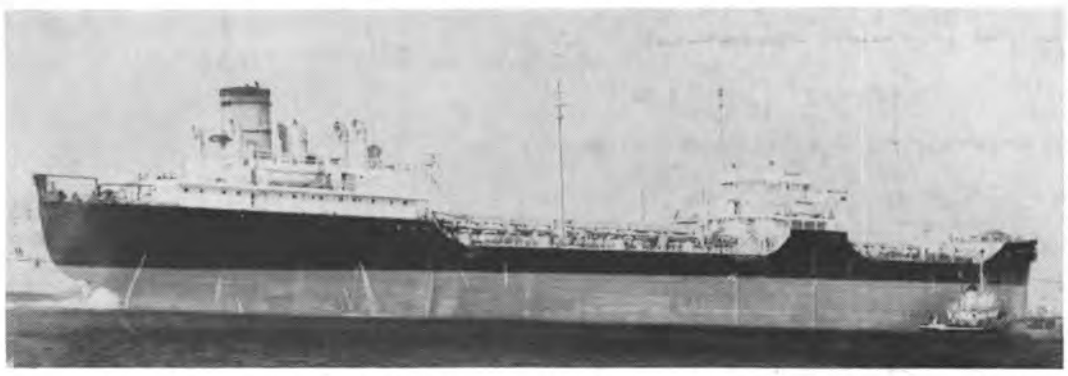
Today, these "innovations" are standards, backed by 20-year success records. They are utilized throughout the world together with still newer products of Amercoat's continuing research.

Today — as 20 years ago — Amercoat is *the* source for modern, scientifically-formulated coatings with the *proved* ability to reduce your corrosion losses.

SMALLER VESSELS, *like this tuna clipper, have also benefited from Amercoat's superior products . . . from long-life coatings which have slashed maintenance costs, and from anti-foulings which offer proved protection for as much as 24 months!*

WHOLE FLEETS OF PASSENGER/CARGO VESSELS *have standardized on the use of Amercoat vinyl coatings for hulls, decks and superstructures after once experiencing the outstanding benefits of these superior coatings.*

AMERCOAT TANK LININGS *have given new cargo capabilities to hundreds of barges, enabling them to carry highly-corrosive chemicals and also to maintain product purity . . . without resorting to costly alternatives such as stainless steel.*



Amercoat-protected, the deck of this vessel has gone 12 years without even a touchup. Based on such experience, new vessels rely on Amercoat to provide ***10 years or more without maintenance.***

Amercoat® CORPORATION
BREA, CALIFORNIA

LIKE TO KNOW HOW MODERN COATINGS CAN SLASH YOUR MAINTENANCE COSTS?

Then contact the nearest Amercoat District Office or write directly to: Amercoat Corporation, Brea, California.

BREA, Calif. / **OAKLAND,** Calif. / **SEATTLE,** Wash. / **HOUSTON,** Texas / **NEW ORLEANS,** La. / **EVANSTON,** Ill. / **JACKSONVILLE,** Fla. / **PITTSBURGH,** Pa. / **CHERRY HILL,** N.J. / **NEW YORK,** N.Y.

Foreign Affiliates: **Amercoat of Canada Limited,** Fort Erie, Ontario; **Amercoat Europa N.V.,** Geldermalsen, The Netherlands; **Amercoat Mexicana, S.A.,** Mexico City, Mexico