MARITIME REPORTER
AND
ENGINEERING NEWS

Daniel D. Strohmeier | RAdm. George H. Miller, USN | Helen Delich Bentley | Andrew E. Gibson | VAdm. Charles S. Minter Jr., USN

79th Annual SNAME Meeting Held In New York Hilton Hotel

(SEE PAGE 7)

DECEMBER 15, 1971

Telling it like it was...and is

As it was in the beginning (1946)
Excerpts from Marine Engineering and the New York Times

TRUMAN REMOVES ALL PRICE AND WAGE CONTROLS

Don't Sell Our Merchant Marine Short!

By R. S. Neblett

If the United States follows its usual policy of appeasement after this war as it did after World War I, our harbors will soon be filled with rusting hulks of ships that cost our taxpayers in the neighborhood of fifteen billion dollars. We will also sink a large portion of our Navy, dismantle our shipyards and then borrow money from our citizens to loan to foreign nations for the upbuilding of competitive fleets.

American Shipyards Complete War Task of Building 50,000,000 dwt of Merchant Ships and 8,300,000 Tons of Naval Vessels

Maritime Unions Ask 22-35c Rise And a 40-Hour Week at Parley

During the four war years, American shipyards produced 4889 steel merchant vessels of over 2000 gross tons each with a total deadweight capacity of 52,875,603 tons. In addition, a total of 110,965 Navy vessels were turned out including 1323 combatant and 109,642 auxiliary types.

65c BASE PAY PLAN DOOMED IN SENATE

55c Proposal Has Support

Eleven Steamship Companies Plan to Obtain 89 New Passenger Ships

Try to Hurl Rocket Slugs Into Space, Free of Earth

CONTACT WITH MOON ACHIEVED BY RADAR IN TEST BY ARMY

"We Must Not Fumble with Our Merchant Marine"

In an address at the National Maritime Day Dinner of the Propeller Club in New York, Vice Admiral Earle W. Mills, U.S.N., assistant chief of the Bureau of Ships, Navy Department, warned that twice the United States was seriously unprepared on the eve of war as regards ships and shipyards. A third failure, he declared, will be inexcusable and could mean disaster for us all!

Rockets to Climb 130 Miles Planned by Army Air Force

Our 25th Anniversary

1946 was the year that Ralph R. Bailey launched his first company to serve the marine industry, in an office smaller than a stateroom. He established a policy of providing the best merchandise at a fair price, but most important, rendering a fast, efficient service that few could match.

From an organization that originally served only the New York waterfront, Bailey now operates from headquarters in Brooklyn, N.Y. and three strategically located branches in the U.S., and makes shipments to ports and shipyards in almost all parts of the world.

Three companies now specialize in different phases of refrigeration and air conditioning, not only in the marine industry but in the industrial and commercial fields as well. A fourth company supplies all types of marine furniture.

1971 As we approach the quarter century mark with Ralph Bailey at the throttle, we continue at "full speed ahead." If your plans include a complete new system, a conversion, alteration or repair... or if you require emergency service at any hour, flash your SOS to Bailey.

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Gunderson Yard Gets $40-Million Contract To Build RR Cars

The largest manufacturing order ever placed by private industry with an Oregon firm was announced at Portland by Governor **Tom McCall.** The order, he declared, is for more than $40 million and has been placed by the Southern Pacific with Gunderson, Inc., Portland, Ore., for delivery of 2,375 freight cars over the next seven months.

Nearly all of the cars are being built for the forest products industry and include 2,000 wide-door box cars and 350 wood chip cars, plus 25 air-operated gondola cars for moving copper concentrates.

The announcement was made in the office of **C. Bruce Ward,** president of the Portland shipyard and railcar firm, where the Governor and Southern Pacific officials toured an assembly line already at work on the record order.

George E. Scholibo, Pacific Northwest traffic manager for Southern Pacific, said the new record order increases SP's contracts to Gunderson to a dollar volume of nearly $200 million for 12,840 cars since 1963.

Field International And Caspary-Wendell Apply For Title XI

Two applications for Title XI mortgage and insurance loans have been received by the Maritime Administration. Both requests are in connection with offshore semisubmersible drilling vessels.

The first application is for a barge rig with an overall length of 320 feet, and a 22-foot draft fully loaded. Field International Corp., 930 Milam Building, San Antonio, Texas, has made the request, and as yet no construction award has been granted.

The second, a twin-hulled column-stabilized vessel, the Santa Fe Mariner 2, has been applied for by Caspary-Wendell Inc., 4141 North Freeway, Houston, Texas. Levingston Shipbuilding Co. will construct the vessel.

Navy Adds $24 Million To General Dynamics Conversion Contract

General Dynamics Corp., which previously received a Navy contract for the conversion of the nuclear-powered missile submarine George Washington Carver (SSBN-656) from the Polaris weapon to the Poseidon, has been awarded a $24.5-million addition to the contract.

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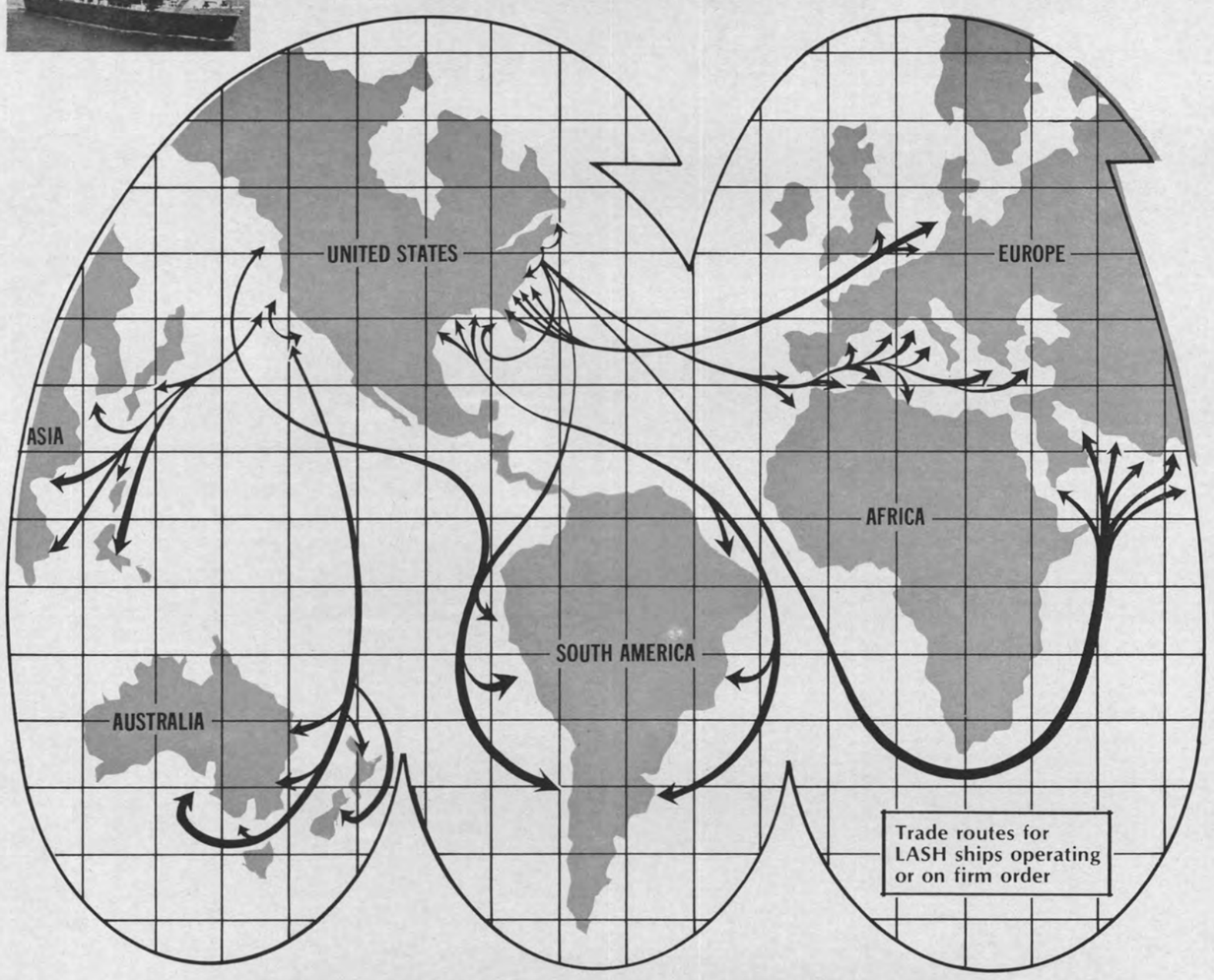
LASH

A world-wide trade route network takes shape



A LASH trade route network, linking major world ports, has been established less than two years after the first ship began operations. The 22 LASH ships operated or ordered by seven ship operators will serve principal ports in North America, South America, Europe, Asia, Africa and Australia.

Establishment of world-wide LASH service offers greater benefits for shippers and LASH operators, because the standard dimensions of LASH lighters permit efficient interchange from ship to ship, trade route to trade route.

LASH offers ship operators maximum flexibility and many other proven advantages.

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79th Annual SNAME Meeting—

Ship Design Technology Keeps Pace With The Times

ON THE COVER: Shown on the cover are the honored guests at the Annual Banquet who spoke during the affair. Left to right are: SNAME President **Daniel D. Strohmeier;** principal banquet speaker Rear Adm. **George H. Miller,** USN; **Mrs. Helen Delich Bentley,** chairman, Federal Maritime Commission; **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs and Maritime Administrator, and Vice Adm. **Charles S. Minter Jr.,** USN, Deputy Chief of Naval Operations (Logistics).

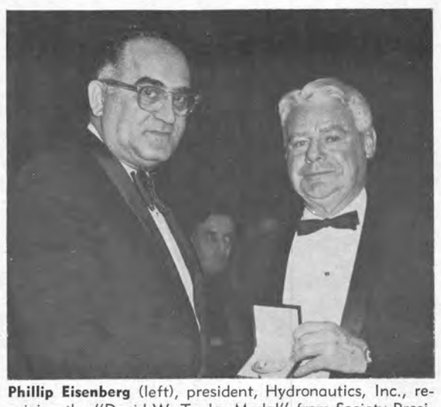
The 79th Annual Meeting of The Society of Naval Architects and Marine Engineers, held in the New York Hilton Hotel in mid-November, brought together industrial and governmental leaders in the marine industry, and naval architects and marine engineers from all parts of the world. Each year these meetings have more of an international flavor than the year before, thus attesting to the great influence the Society and the American marine industry has throughout the world.

Daniel D. Strohmeier, president of the Society, opened the meetings with his annual report to the members. He reported that the Society's membership has nearly reached the 10,000 mark and, also, that the Society's finances are in good shape.

After giving his annual report, Mr. **Strohmeier** remarked as follows:

"A year ago, with the enactment of the Merchant Marine Act of 1970, optimism for an improved era in shipping and shipbuilding filled most segments of the industry.

"Today that optimism is somewhat guarded. The current world market for shipping is depressed. Shipping today that is still profitable is largely based on charters fixed earlier at favorable rates. Dry-cargo ships are being pushed aside by containerization and on many routes, particularly the North Atlantic, containerization is suffering from over capacity. There have been some shipping wring-outs and there will be more with survival going to the strongest. U.S. passenger ships have already disappeared from the Atlantic.



Phillip Eisenberg (left), president, Hydronautics, Inc., receiving the "David W. Taylor Medal" from Society President **Daniel D. Strohmeier.** This award is given for notable achievement in naval architecture.

"Delays in resolving the Alaskan pipeline have had an unsettling effect on tanker ordering.

"Ship repairing activity generally reflects the health of shipping and so this has not been a banner year for most ship repairers.

"Shipbuilding remains at a reasonable level in many yards but new orders are not keeping pace with the working off of backlogs. U.S. yards are not immune from the inflation plaguing all shipbuilding activity the world round.

"No one has worked harder in the face of these facts of life than **Andrew Gibson,** Assistant Secretary of Commerce, Maritime Administrator, and one of the architects of the Merchant Marine Act of 1970.

"Mrs. Helen Bentley, chairman of the Federal Maritime Commission, has been an articulate voice toward improving the atmosphere for a renewal of our proper maritime role.

"Admiral **Zumwalt** has spoken for the Navy and has had to maintain a stiff upper lip in the face of a steady decline in naval strength.

"This brings me to the subject of pollution

(Continued on page 8)

E. Scott Dillon (left), chief, Office of Ship Construction, Maritime Administration, receiving the "Vice Admiral E.L. Cochrane Award" from **Matthew G. Forrest,** past president of the Society, for his outstanding SNAME Section paper.

Daniel D. Strohmeier (right), SNAME president, receiving the "Vice Admiral 'Jerry' Land Medal" from Rear Adm. **Albert G. Mumma,** USN (ret.), past president of the Society, for outstanding accomplishment in the marine field.

Lt. Comdr. **David L. Greene,** USN, (left), receiving the "Graduate Paper Honor Prize" from Society President **Strohmeier.**

Daniel D. Strohmeier, president of the Society of Naval Architects and Marine Engineers, presiding at the Annual Banquet.

Vice Adm. **Charles S. Minter Jr.,** USN, deputy chief, Naval Operations (Logistics), introducing the principal banquet speaker.

Andrew E. Gibson, Assistant Secretary of Commerce for Maritime Affairs, co-introduced the principal speaker at the banquet.

Rear Adm. **George H. Miller,** USN, special assistant to the Maritime Administrator, was the principal speaker at the banquet.

Waldo L. Kraemer (left) and **Edwin L. Stewart** (center) being awarded 50-year membership certificates by President **Strohmeier.** Five certificates were awarded in absentia.

Jack W. Lewis (left) and **Vincent W. Ridley** (right) receiving the "Captain Joseph H. Linnard Prize" from **Donald A. Holden,** past president of the Society.

Hugo P. Pomrehn (left) and **C. Gale Moore** (center) being awarded the "Graduate Paper Award" by President **Strohmeier** for a paper presented at Los Angeles Section.

Annual SNAME Meeting—

(Continued from page 7)

—not the usual kind that fouls our physical environment, but political pollution that stands in the way of our proper destiny and possibly even our survival.

"This pollution erodes the incentive for intellectual honesty, our capacity to admit mistakes, our pride in a job well done, a resolve to live within our means, our productivity, the simple art of putting first things first and, in short, all the homely virtues one learns at his mother's knee.

"All of the 9,900 members of this Society are engaged in the technological improvement of our ships or our shipping. But what good is this vast and dedicated effort if the ships can't load or can't sail because some untouchable in the labor movement dictates it so? This situation is clearly out-of-hand and calls for prompt, vigorous and courageous leadership at the very top."

Awards

At the Annual Banquet the following awards were made to members for notable and outstanding accomplishments in the marine field.

The 32nd award of the "David W. Taylor Medal" was made to **Phillip Eisenberg** "for notable achievement in naval architecture." Mr. **Eisenberg** has had a distinguished career in both government and industry. His engineering and research work in naval hydrodynamics at the David Taylor Model Basin, the Office of Naval Research and finally as president of his own firm, Hydronautics, Inc., has won him an international reputation for excellence. He has served the Society in many ways; guiding the periodical "Journal of Ship Research" to its highly respected and acclaimed status, serving on the Executive Committee, the Council and as vice president.

The 20th award of the "Vice Admiral 'Jerry' Land Medal" to **Daniel D. Strohmeier** "for outstanding accomplishment in the marine field" was presented by Rear Adm. **Albert G. Mumma,** USN (ret.) in the absence of Admiral **Land** who generally makes this presentation. Mr. **Strohmeier** guided the Bethlehem Steel Corporation's shipbuilding activities as vice president since 1948 until his retirement early this year. During his tenure, Bethlehem built more than 200 ships and 900 other craft and he has represented the shipbuilding industry on numerous government and industry committees and commissions.

At the banquet, left to right: Rear Adm. **William F. Rea III,** USCG, chief, Office of Merchant Marine Safety; Rear Adm. **Albert G. Mumma,** USN (ret.), past president of the Society; **Robert T. Young,** chairman and president, American Bureau of Shipping, and Rear Adm. **Ellis L. Perry,** USCG, president, The American Society of Naval Engineers, Inc.

Attending the annual banquet, left to right: **Arthur E. Farr,** president of the Propeller Club of the United States and president, Northwest Marine Iron Works; **James R. Maumenee,** president, Alabama Dry Dock and Shipbuilding Company; **Ellis B. Gardner,** president, American Export Industries, Inc.; **Paul E. Atkinson,** president, Sun Shipbuilding and Dry Dock Company; **W. Tilford Smith,** senior vice-president, Newport News Shipbuilding and Dry Dock Company; **Arnold P. McIlwain,** president, Maryland Shipbuilding and Dry Dock Company; **Martin L. Ingwersen,** executive vice-president, Lockheed Shipbuilding & Construction, and **James F. Goodrich,** president, Bath Iron Works, Inc.

Receiving the "Undergraduate Paper Honor Prize" were, left to right: **James C. Sandison Jr., Thomas A. George** and **Charles Steven Yates** from President **Strohmeier.**

The "Captain Joseph H. Linnard Prize" was presented dually to **Vincent W. Ridley,** a member of the Society since 1947, for his paper entitled "Designing Reliability into Marine Steam Power Plants" and to **Jack W. Lewis,** a member of the Society since 1965, and **Roderick Y. Edwards Jr.,** a member of the Society since 1966, for their paper entitled "Methods for Predicting Icebreaking and Ice Resistance Characteristics of Icebreakers." This prize is given to the author or authors of the best paper contributed to the proceedings of the Society at its Annual Meeting the preceding year.

The "Vice Admiral E.L. Cochrane Award" for 1971 was presented to **E. Scott Dillon,** a member of the Society since 1942, in recognition of his paper "Ship Design Aspects of Oil Pollution Abatement" delivered at the March 17, 1971 meeting of the Chesapeake Section.

The "Graduate Paper Honor Prize" for students for 1971 was awarded to **David L. Greene** for his paper entitled "Superconducting Electrical Machines for Ship Propulsion" delivered at the Society's New England Section on May 8, 1970.

The "Graduate Paper Award" for students for 1971 was awarded jointly to **C. Gale Moore** and **Hugo P. Pomrehn** for their paper entitled "Technological Forecast of Marine Transportation Systems 1970 to 2000" delivered at the Society's Los Angeles Metropolitan Section on February 11, 1971.

The "Undergraduate Paper Honor Prize" for students for 1971 was awarded jointly to **Thomas A. George, James C. Sandison Jr.** and **Charles Steven Yates** for their paper entitled "Flipping Oil Rig (FLOR)" delivered at the Society's Gulf Section on May 7, 1971.

Two Fifty-Year Membership Certificates were presented to **Waldo L. Kraemer** and **Edwin L. Stewart.** Five Fifty-Year Membership Certificates were presented in absentia to **Roland H. Baker, Charles H. Bateman, William F. Dunning, Frederick D. Hesley** and **Lloyd Swayne.**

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Papers Nos. 1 and 2, left to right: presiding officer **Hollinshead de Luce,** Shipbuilding Division, Bethlehem Steel Corporation; assisting officer **Joseph J. Cuneo,** president, John J. McMullen Associates; authors **J.P. Hooft** and **Haruzo Eda;** presiding officer Rear Adm. **Ralph K. James,** USN (ret.), past president of the Society.

Papers Nos. 3 and 4, left to right: presiding officer **Thomas M. Buermann,** vice-president, Gibbs & Cox, Inc., assisting officer **John J. Nachtsheim,** chief, Office of Research and Development, Maritime Administration; authors **Edward V. Lewis, Fred C. Bailey, Joseph D. Porricelli, Virgil F. Keith** and **Richard L. Storch;** presiding officer Rear Adm. **William F. Rea III,** chief, Office of Coast Guard Merchant Marine Safety, and assisting officer **Charles Zeien,** vice-president engineering, Sun Shipbuilding and Dry Dock Company. Paper No. 4, prepared by members of the U.S.C.G. Merchant Marine Technical Division, discussed tankers and ecology. Paper No. 3 dealt with ships' bending moments.

Annual SNAME Meeting—

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Annual Banquet

Over 1,500 members attended the membership banquet held on Thursday evening. Mr. **Strohmeier,** the Society's president, presided during the banquet and introduced the members who presented the awards for outstanding achievement.

Rear Adm. **George H. Miller,** USN, special assistant to the administrator, Maritime Administration, was the principal speaker. He was introduced by Vice Adm. **Charles S. Minter Jr.,** USN, deputy chief, Naval Operations (Logistics), and **Andrew E. Gibson,** Assistant Secretary of Commerce for Maritime Affairs and Maritime Administrator.

Admiral **Miller** entitled his remarks "Build Ships or Perish." He deplored the massive evidence that "the United States—clearly a sea power by geography—has allowed its merchant marine and Navy to grow obsolescent, and diminish in size, while other things are given higher priority."

The speaker recounted historical developments of U.S. and Soviet seapower and reemphasized basic missions of the American merchant marine as:

1. To provide commercial interchange with other nations,
2. To transport essential fuels and basic raw materials,
3. To furnish "naval logistic support, naval combat augmentation and military sealift,"
4. To further U.S. foreign policy and national security by peaceful means.

But, Admiral **Miller** warned, merchant ships flying the American flag "have virtually been cast loose from the national security structure to make their way in the international market place under government policies less favorable than those which apply to many other essential defense industries."

Paper No. 5, left to right: presiding officer Capt. **Jack A. Obermeyer,** USN (ret.), Texaco Inc.; authors **Reuven Leopold** and **Wolfgang Reuter,** and assisting officer Prof. **Harry Benford,** chairman, Department of Naval Architecture and Marine Engineering, University of Michigan.

Paper No. 6, left to right: presiding officer **Robert T. Young,** chairman and president, American Bureau of Shipping; authors **Richard Nielsen, Pin Yu Chang** and **Laurent C. Deschamps,** and assisting officer **Frederick P. Eisenbiegler,** General Electric Company, West Lynn, Mass.

His conclusions were: "Our country's influence in the world, our military security, and the health of our civilian-industrial base depend on having enough ships, Navy and commercial. In World War I, we built two thousand three hundred ships. In World War II, we built five thousand six hundred ships. In future emergencies, with no allies to protect us while we prepare (as in World Wars I and II), the ships needed must be on hand at the outset, to rally the resources and populations of unconquered areas and bring them to bear against the aggressor.

"Ships are the long lead-time items. Other things can usually be produced and mobilized more quickly. The U.S. merchant marine is more than just another form of surface transportation. It is a main pillar of our entire national security and international relations structure—an indispensable instrument of national policy.

"So, let us today, while there is still time, profit from our own experience in previous emergencies. America must build ships or perish."

Seated on the dais at the banquet were 11 top executives from shipbuilding firms and three from ship-operating companies, together with educators, officers of the Society and chairmen of the various Sections. **Mrs. Helen Delich Bentley** and **Andrew E. Gibson** were among the other honored guests on the dais and each spoke briefly to the members.

Technical Meetings

Twelve outstanding papers by technical authorities from the United States, The Netherlands, Norway, and Sweden were presented during the two days of the technical sessions.

The Papers Committee, under the chairmanship of **Jack A. Obermeyer,** were praised by the Society's president and many members for arranging an outstanding technical program. The members of the committee were: **Harry Benford, John P. Breslin, William A. Brockett,**

(Continued on page 12)

Papers Nos. 7 and 8, left to right: assisting officer Dr. **Alfred A.H. Keil,** head, Department of Naval Architecture, Massachusetts Institute of Technology; authors **F. Everett Reed, J.B. Hadler** and **E. Nadine Hubble;** presiding officer Rear Adm. **James M. Farrin,** USN, (ret.), Aerojet-General Corporation, and assisting officer Dr. **John P. Breslin,** director, Davidson Laboratory, Stevens Institute of Techology, Hoboken, N.J.

Paper No. 11, left to right, presiding officer **Douglas C. MacMillan,** vice-president of the Society; authors **Bjorn Svenning, Stig Broman, Daniel E. Shaw** and **Robert O. Butcher,** and assisting officer Rear Adm. **William A. Brockett,** USN (ret.), president, Webb Institute of Naval Architecture. Paper dealt with the periodically unattended engine room on the TT Thorshammer and reported the shipyard and turbine manufacturer's part.

"When that storm hit, I thought I'd lost my tow for sure —any other rope would have parted."

When the McAllister Towing Company first decided to use new blue-tinted Super 707 nylon rope, they didn't know what was in store for them. Captain Frank Bradley was to make a routine trip hauling two heavily laden mud dumpers. Out at sea, a sudden storm caught the captain and his tow. The load put on the Super 707 rope was so great that the heavy-duty-steel thimble was bent. Yet the line held. And everybody and everything got back safely.

The large lines of Super 707 nylon now available are the strongest ever made per unit of weight. In a recent test, the breaking strength of a 3-inch-diameter rope of Super 707 exceeded the Military Spec (MIL-R-17343-D) for nylon by *twenty tons*—although it contained less nylon than permitted by that spec.

And what that means to you is a tougher, more reliable rope. A longer-lasting rope—with greater resistance to abrasion.

So get Super 707 nylon rope. It's the tough one—tinted blue so you'll know it. For more information, write: Du Pont Company, Room 31H1, Wilmington, Delaware 19898.

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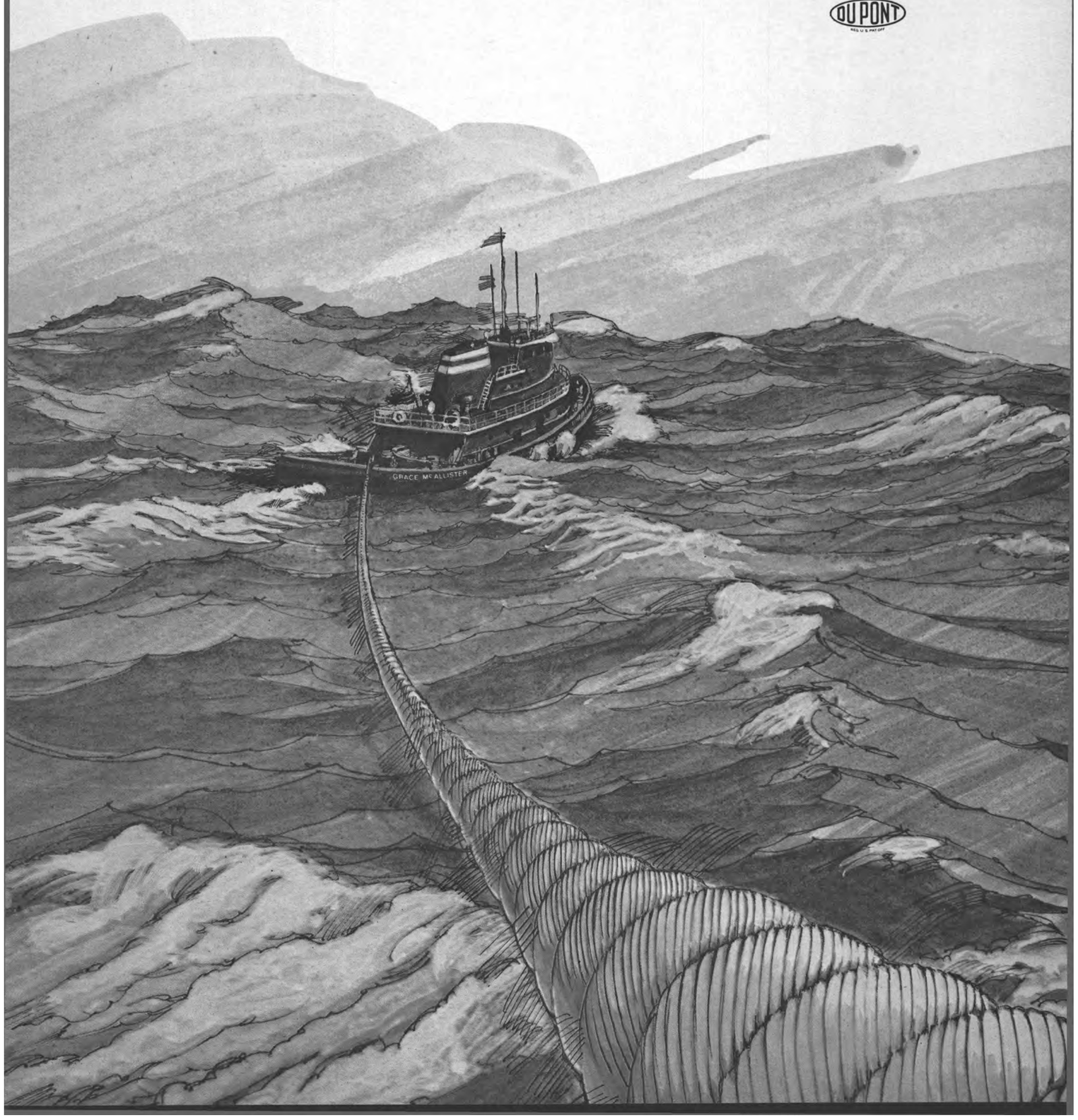

Paper No. 9, left to right: assisting officer Capt. **Henry P. Rumble,** USN (ret.); author **William Watson,** and presiding officer **E. Scott Dillon,** chief, Office of Ship Construction, Dept. of Commerce, Maritime Administration.

Annual SNAME Meeting—

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Joseph J. Cuneo, Frederick P. Eisenbiegler, Keith P. Farrell, Alfred A.H. Keil, John J. Nachtsheim, Perry W. Nelson, Henry P. Rumble, John Vasta, Charles Zeien and **William E. Zimmie.**

The 12 technical papers presented, together with their authors and the presiding and assisting officers at each session, were:

Paper No. 1—"A Mathematical Method of Determining Hydro-dynamically Induced Forces on a Semisubmersible" by **J.P. Hooft,** assistant managing director, Netherlands Ship Model Basin. **Hollinshead de Luce** served as presiding officer, assisted by **Joseph J. Cuneo.**

Paper No. 2—"Directional Stability and Control of Ships in Restricted Channels" by **Haruzo Eda,** research scientist, Davidson Laboratory, Stevens Institute of Technology. Rear Adm. **Ralph K. James,** USN (ret.), was presiding officer and **John Vasta** was assistant presiding officer.

Paper No. 10, left to right: assisting officer Capt. **Keith P. Farrell,** Royal Canadian Navy; authors **Alfred H. Schwendtner** and **William duBarry Thomas,** and presiding officer **Donald A. Holden,** past president of the Society. Paper was on current state of the art for LNG carriers.

Paper No. 3—"A Statistical Study of Wave-Induced Bending Moments on Large Ocean-going Tankers and Bulk Carriers" by **Robert S. Little,** vice president, American Bureau of Shipping, and **Edward V. Lewis,** research professor, Webb Institute of Naval Architecture and technical advisor to the American Bureau of Shipping, with an appendix by **Fred C. Bailey,** president, Teledyne Materials Research, Inc. **Thomas M. Buermann,** served as presiding officer, assisted by **John J. Nachtsheim.**

Paper No. 4—"Tankers and the Ecology" by Lt. Comdr. **Joseph D. Porricelli,** USCG; Lt. Comdr. **Virgil F. Keith,** USCG, and **Richard L. Storch,** all with the Merchant Marine Technical Division of the Coast Guard. The presiding officer was Rear Adm. **William F. Rea III,** USCG, assisted by **Charles Zeien.**

Paper No. 5—"Three Winning Designs—FDL, LHA, DD-963: Method and Selected Features" by **Reuven Leopold,** technical director and deputy division director, Ship Concept Design Division, NAVSEC, Navy Department (previously, director, Ship Engineering & Analysis Directorate, Litton Ship Systems, Inc.), and **Wolfgang Reuter,** manager, Naval Architecture Department, Litton Ship Systems, Inc. Presiding officer was Capt. **Jack A. Obermeyer,** USN (ret.), assisted by Prof. **Harry Benford.**

Paper No. 6—"A Simple, Approach to the Strength Analysis of Tankers" by **Richard Nielsen,** president; **Pin Yu Chang,** director of special projects, and **Laurent C. Deschamps,** director of engineering, Com/Code Corporation. **Robert T. Young** served as presiding officer, assisted by **Frederick P. Eisenbiegler.**

Paper No. 7—"The Design of Ships to Avoid Propeller-Excited Vibrations" by **F. Everett Reed,** president and technical director, Littleton Research and Engineering Corporation. Presiding officer was **John B. Letherbury,** vice president-engineering, National Steel and Shipbuilding Corporation, assisted by Dr. **Alfred A.H. Keil.**

Paper No. 8—"Prediction of the Power Performance of the Series 62 Planing Hull Forms" by **J.B. Hadler,** head, Ship Dynamics Division, and **E. Nadine Hubble,** naval architect, Naval Ship Research and Development Center. Rear Adm. **James M. Farrin,** USN (ret.), served as presiding officer, assisted by Dr. **John P. Breslin.**

Paper No. 12, left to right: presiding officer **Richard Lowery,** president, Davie Shipbuilding Ltd. and Canadian Shipbuilding and Engineering Ltd.; author **Donald P. Courtsal,** and assisting officer **William E. Zimmie,** W.E. Zimmie, Inc. The paper was about the marine business on the waterways.

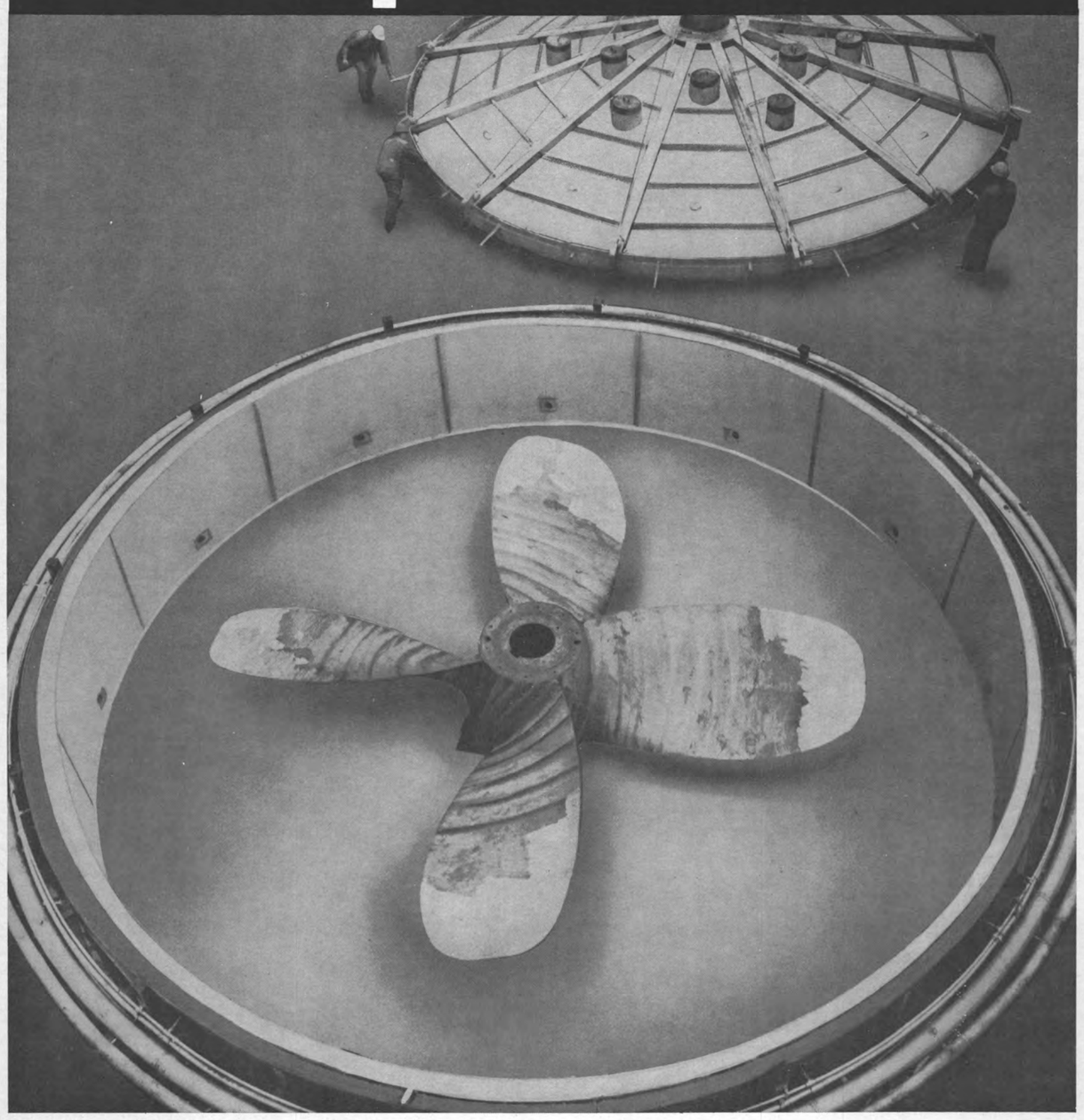
Paper No. 9—"The Design, Construction, Testing, and Operation of a Deep-Diving Submersible for Ocean Floor Exploration" by **William Watson,** chief staff engineer, Sun Shipbuilding and Dry Dock Company. The presiding officer was **E. Scott Dillon,** assisted by Capt. **Henry P. Rumble,** USN (ret.).

Paper No. 10—"LNG Carriers: The Current State of the Art" by **William duBarry Thomas** and **Alfred H. Schwendtner,** both naval architects with the J.J. Henry Co., Inc. **Donald A. Holden** served as presiding officer, assisted by Capt. **Keith P. Farrell,** RCN.

Paper No. 11—"The Periodically Unattended Engine Room on the TT Thorshammer" by **Bjorn Svenning,** technical director, A/S Thor Dahl, Norway; **Stig Broman,** manager, Machinery Design Department, Uddevallavarvet AB, Sweden, **Daniel E. Shaw,** senior system engineer, Marine and New Products Unit, Drive Systems Product Department, General Electric Company, and **Robert O. Butcher,** manager, Propulsion Systems Development Unit, Marine Turbine and Gear Department, General Electric Company. The presiding officer was **Douglas C. MacMillan,** assisted by Rear Adm. **William A. Brockett,** USN (ret.).

Paper No. 12—"The Marine Business in the Central United States" by **Donald P. Courtsal,** chief marine engineer, Engineering Works Division, Dravo Corporation. **Richard Lowery** served as presiding officer, assisted by **William E. Zimmie.**

Avondale's own Superdome.



Here is a super dome designed for fabrication, not entertainment. This dome is a mammoth stress relieving furnace, whether it be for propellers or other weldments and castings. Its inside diameter measures 28' 10", its walls 5' 3", and 8' 10" in the center. 12 Maxon burners distribute heat evenly up to 1,500°F. (maintained by a Honeywell controller). Accessible by truck or barge (via the Harvey Canal) and normally serviced by a 50 ton shore based crane, this stress relieving dome offers the usual Avondale super service.

HARVEY
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P. O. Box 116, Harvey, Louisiana, Phone 341-4211
A DIVISION OF AVONDALE SHIPYARDS, INC.

U.S. Shipbuilders Invited To Bid On Three Ferries

The Delaware River and Bay Authority, owner and operator of the Cape May-Lewes ferries, will receive bids early in 1972 for the construction, outfitting and delivery of three ferries to the Authority. The new ships, designed by Coast Engineering Company, naval architects, Norfolk, Va., are especially engineered to operate in the shoal crossings between Cape May, N.J., and Lewes, Del., in the water of Delaware Bay.

The hulls will have tunnel sterns to allow the vessels to operate at a full load draft of 7 feet, with a speed of 16 knots. Space for 95-100 autos and trucks and 800 passengers will be provided.

The vessels will be of steel construction, twin-screw, single deck and superstructure, with diesel engines. Vehicles will be transported on the main deck and passengers on the upper and boat decks. A bow thruster to assist in docking the ships will be installed.

The following are the approximate particulars of the ships: overall length, 320 feet; breadth, over main deck, 70 feet; depth, amidships at side to main deck, 16 feet 6 inches; displacement, 2,200 tons; number of propellers, 2; number of engines, 2; horsepower (total), 4,000; electric system 120/240/440 VAC, 60 Hz, 3 phase; classification, ABS A-1, USCG—(Lake, Bay, Sound).

Information concerning bidding data, proposals, plans and specifications is available from: **William J. Miller Jr.**, Director, Delaware River and Bay Authority, P.O. Box 71, New Castle, Del. 19720.

Interested shipyards are invited to participate in the bidding for these vessels. Construction is limited to shipbuilders in the United States.

Independent Petroleum Appoints Cunningham Ass't. Vice President

Ernest E. Cunningham Jr.

Ernest E. Cunningham Jr. has been appointed assistant vice president of the Independent Petroleum Supply Company (IPS), a subsidiary of the Natomas Company. Mr. **Cunningham** has been with IPS since 1967, functioning as manager of marine fuel sales. Formerly, he was with Shell Oil Company and Asiatic Petroleum Corporation. His new activities will continue to include bunker marketing, cargo sales and trading, as well as operations assistant to **Edmond J. DuSesoi,** IPS vice president.

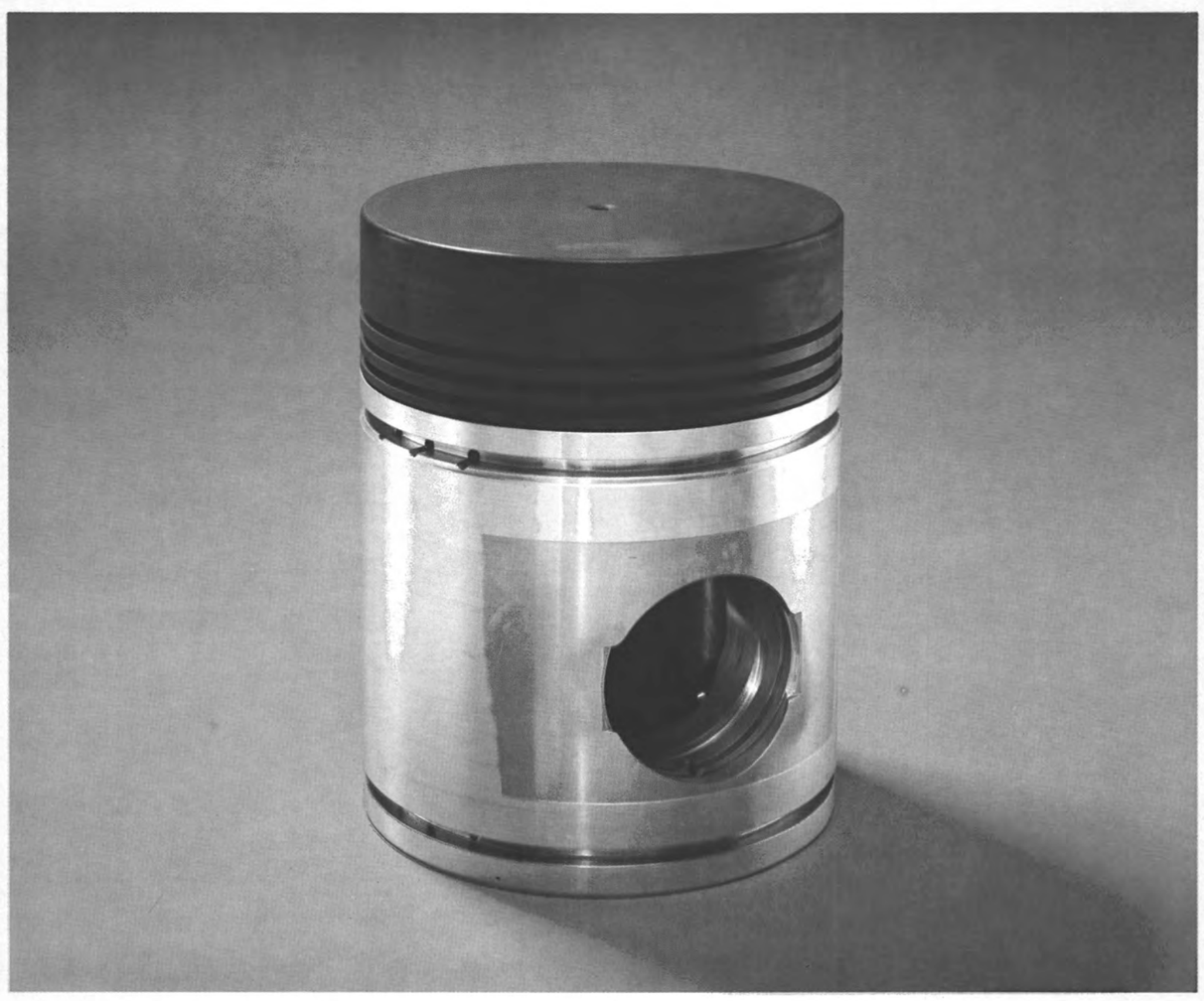
Mr. **Cunningham** attended Adelphi University and Pace College, and is a member of the Knights of Columbus.

IPS has offices in New York City, San Francisco, London and Tokyo, from which it services its marketing, tanker transportation and petroleum consulting activities.

ARCTEC Releases New Brochure On Ice Model Basin

Model experiments in simulated ice-covered waters of marine transportation systems and Arctic offshore structures is the subject of ARCTEC Incorporated's new four-page brochure. ARCTEC describes their cold regions laboratory, including the special features built into the model basin. These features include the capability to control ice thickness, ice strength, elastic modulus and the simulation of uniform ice sheets, hummock ice fields, pressure ridges, mush ice, clogged channels, and pressure within the ice sheets. Many of the pictures shown depict various experiments in progress, including the measurement of key ice properties.

Copies of the brochure are available by writing to ARCTEC, Incorporated, Suite 255, Wilde Lake Village Green, Columbia, Md. 21043.



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More Cargoes Sought For U.S. Flag Ships

James J. Reynolds, president of the American Institute of Merchant Shipping (AIMS) and former Under Secretary of Labor, delivered the principal address at the annual dinner of the American Institute of Marine Underwriters on November 18, in the Grand Ballroom of the Hotel Pierre, New York City.

As AIMS president, Mr. **Reynolds** has for the past two years been the principal spokesman for private American-flag shipping. His organization comprises 34 companies operating approximately two-thirds of all active merchant vessels registered under the United States flag.

Mr. **Reynolds** discussed the importance to marine underwriters and the nation at large of intensified cargo promotion in connection with the merchant marine replacement program.

"We must get more cargoes for U.S. ships," said Mr. **Reynolds** . . . "the time has come for the United States to assure more ocean cargoes for this nation's merchant marine through the use of bilateral trade agreements with other countries."

He said the United States is the only country whose policies have permitted foreign vessels to carry all but a minute share of our overseas trade tonnage. All the other great powers carry substantial shares of their own foreign commerce.

Mr. **Reynolds** went on to say "it is time that our nation thinks of itself," and added that AIMS is currently actively engaged in getting legislation that will increase the freight share of American ships.

Matson Navigation Appoints Shearer

Burt A. Shearer

Burt A. Shearer has been named Pacific Northwest area manager for Matson Navigation Company, it was announced by **Dudley W. Burchard,** vice president, marketing. Mr. **Shearer** will succeed **R.L. Kingsbury,** who will retire January 1, 1972. Mr. **Shearer** has been Matson's regional marketing manager in Hawaii for the past year. Prior to that he was regional manager in Taiwan for Matson's former Far East freight service.

Mr. **Shearer,** a graduate of the United States Merchant Marine Academy at Kings Point, N.Y., joined Matson in 1946 after two years as a deck officer in the merchant marine. He was named regional freight traffic manager in Honolulu in 1962, after holding various freight department posts in San Francisco. He served as freight operations manager in Honolulu from 1965 until 1968, when he was named assistant operations manager in San Francisco. Mr. **Shearer** was assigned to the Far East post in November 1969.

First Tanker Subsidy Approved By MSB

The Maritime Subsidy Board has approved—subject to conditions—its first construction subsidy for a tanker under the new program to rebuild all segments of the merchant marine. The 230,000-dwt vessel is to be built by Hase Shipping Corp. for ultimate charter to Standard Tankers (Bahamas) Co., Ltd.

The conditions to be met by the Seatrain Lines' subsidiary were: Seatrain must provide $9.2 million to Hase as equity capital; Seatrain must furnish Hase a $3.4-million letter of credit; Seatrain must provide the Maritime Subsidy Board financial assurance that its shipyard, in the old Brooklyn Navy Yard, can build the vessel, and Hase must agree to "dedicate a portion" of the ship's useful life to the foreign trade of the United States.

Limited foreign-to-foreign service is permitted subsidized ships under the new program.

Hydrofoil Design Contract Awarded To Boeing Company

A contract that will lead to the construction of at least two hydrofoils has been awarded to The Boeing Company by the U.S. Naval Ship Systems Command.

Under the award, Boeing will immediately begin the design phase of the PHM, an advanced missile-carrying high-speed hydrofoil. The program will be carried out in several stages and will extend over several years.

PHM, which stands for Patrol Hydrofoil Guided Missile Ship, will have a speed in excess of 40 knots and a crew of about 20. It will provide improved high-speed all-weather surface offensive capability.

The $5.6-million contract award announced November 24 will begin with a design effort that will lead into a later contract for the construction of at least two lead ships. It is expected that these two ships will be the forerunners of a class of PHM ships.

Boeing plans PHM production at its facilities in Seattle, Wash. A small build-up of technical personnel is expected immediately.

The PHM will be patterned after the successful Tucumcari, the Boeing-built 60-ton hydrofoil delivered to the Navy in 1968.

The Tucumcari, now operational with the U.S. Navy, is jet propelled. Its hydrofoils are underwater wings which raise the hull clear of the surface of the water, resulting in a smoother ride at higher speeds despite rough weather conditions.

Oil Terminal In Newfoundland Will Accommodate Tankers Of Up To 500,000 Dwt

One of the world's largest oil refinery terminal wharfs is under construction at Come By Chance, Newfoundland. The wharf is being constructed by the Department of Public Works of Canada to serve a petroleum refinery complex which is rising on the Come By Chance site at Placentia Bay. The refinery is being built by Newfoundland Refining Company Limited, a subsidiary of Shaheen Natural Resources Co., Inc. of New York.

The oil refinery terminal wharf will accommodate tankers of any tonnage presently afloat, or planned, in the world—up to 500,000-dwt tons. The wharf is being constructed in depths of water between 90 and 100 feet.

The wharf, which is being constructed by the Department of Public Works of Canada, will employ two berths. Crude oil will be off-loaded at the wharf from Berth No. 1 through four 16-inch fully automated loading arms at a rate of 100,000 barrels per hour. Berth No. 2 will load refined products through six 8-inch and 10-inch load arms into tankers up to 67,000 dwt. Road access will be via a 2,700-foot-long causeway, 40-feet wide and built to an elevation of 18 feet, consisting of quarry run rock plus armor stone. From the end of the causeway, a 600-foot-long trestle will be constructed.

According to the Department of Public Works of Canada, plans call for the trestle to terminate at the service dolphin, which will accommodate bow mooring lines and which will also provide an area for fire-fighting equipment and electrical services. From the service dolphin, the main dock will extend a distance of 1,520 feet and involve three additional mooring dolphins, two breasting dolphins and the main loading platform.

The main loading platform will have a concrete deck measuring 270 feet by 150 feet and will be constructed at an elevation of 25 feet. The main loading platform will contain the loading arms, metering station, a meter prover, a blending station, and the associated piping and valving to automatically load specific products through designated loading arms. An elevated operations building will be constructed which will provide automatic controls for all operations on the loading platform.

Also under construction adjacent to the oil terminal wharf is a tug berth capable of accommodating four tugs which will be used to bring in the largest tankers.

According to **Homer White,** president of Newfoundland Refining Company Limited, the refinery is due to be completed in approximately one year, with the first crude unit start-up scheduled for December 1972. Construction of the refinery is about 43 percent complete and on schedule, Mr. **White** said.

The refinery is the first unit of an industrial complex projected for the site. With the completion of the fuels refinery, workers will begin constructing a companion 100,000 b/d chemical refinery adjacent to the fuels refinery. The third unit in this major industrial complex, which will be one of the largest in the Western Hemisphere, will be a pulp and paper mill projected to be on-stream in 1974.

SNAME San Diego Hears Paper On Engine Room Automation

Shown above at the San Diego Section meeting, left to right: **David R. Rodger,** secretary-treasurer; **George A. Uberti,** vice chairman; **R.M. Svendsgaard,** speaker; **T.S. Hand Jr.,** chairman, and **Melvin Good,** papers chairman.

The regular monthly meeting of the San Diego Section of The Society of Naval Architects and Marine Engineers was held at the Royal Inn at the Wharf on November 17, 1971.

Following a social hour and dinner, **R.M. Svendsgaard,** of the Bailey Meter Company, presented a paper entitled "Engine Room Automation."

Automation of shipboard machinery is no longer fantasy and practically every merchant ship of substantial size now under construction is being equipped with an automation system to allow steaming with an engine room watch of no more than two men. Of these, most are designed for a one-man watch and are expandable to an unmanned engine room in the near future. Yet only six years ago, the first U.S.-flag steamship, the S/S Hawaiian Monarch, automated with a two-man engine room watch, was to enter service in Pacific coastal waters.

A question and answer period conducted by Mr. **Svendsgaard** after the presentation of his paper showed the great interest of the attending members and their guests.

Kawasaki To Build Two 300,000-Ton Esso Tankers

Contracts have been signed between Esso Tankers Inc., an affiliate of Standard Oil Company (New Jersey) and Kawasaki Heavy Industries for the construction of two 300,000-dwt tankers.

The tankers will be built by Kawasaki in Japan for delivery between late 1974 and mid-1975. The vessels will have the following characteristics: length, about 1,066 feet; breadth, about 183 feet; draft, about 73 feet, and an operating speed of 15.6 knots. The vessels will be propelled by 36,000-shaft-horsepower steam turbines and will be used in Esso's fleet in international tanker service.

Litton Awards $4-Million Contract To Nelson Electric

A multi-year subcontract with a potential value of four million dollars has been awarded to Nelson Electric Division of Sola Basic Industries, Tulsa, Okla., by Litton Industries to design and manufacture integrated combat system switchboards for the U.S. Navy's new Spruance-class destroyers.

The initial award is for $500,000 and covers the fabrication and qualification of the first production switchboard in the series of nine ships that Congress has funded to date. These vessels are part of a planned fleet of 30 advanced multimission U.S. Navy destroyers. They are being funded on a five consecutive fiscal year procurement program, which is subject to the approval of Congress.

The award of this subcontract to Nelson is the largest ever made to a switchboard manufacturer for this type of equipment. The equipment to be built by Nelson will provide for distribution of command and control data to the ship's weapons systems.

The switchboards will receive data from numerous systems on-board ship such as radar, sonar, ship's attitude, and electrical power, and transmit the data to computers on-board for analyzation.

Canada And Conoco Plan $60-Million Supertanker Terminal In New Brunswick

Plans for a North American supertanker port and terminal to supply low-sulfur Middle East oil for East Coast markets have been announced in New Brunswick by Canadian officials and Continental Oil Company (Conoco).

The $60-million terminal, which will be owned by Conoco and other participants, is being built at the invitation of the New Brunswick Development Corporation. The terminal will include docking, unloading and loading facilities, onshore storage and elaborate safeguards for environmental protection. Conoco is also studying the feasibility of eventually constructing a refinery near the terminal.

Construction of the terminal is expected to begin early in 1972 and should be completed in 1973. Ultimately, the terminal will have a throughput capacity of 300,000 barrels per day. The complex will function as a transfer point —unloading supertankers (up to 300,000 deadweight tons) from overseas and reloading crude into smaller tankers, which can serve major ports along the East Coast of Canada and the United States. Currently, no U.S. port can handle tankers larger than 50,000-60,000 tons.

John Kelly, vice president of Conoco's Western Hemisphere Petroleum Division, assured Saint John residents that Conoco is making extensive plans to safeguard the environment during every step of the project, from construction through ultimate operation. "We were invited into Canada," he said, "and we fully intend to be good neighbors worthy of that invitation." Mr. **Kelly** said the deep water and the adequate harbor size were two key factors that led to selection of Saint John for the terminal.

The installation will be about eight miles south of Saint John in a new 8,000-acre industrial park. Facilities will include an onshore tank farm with a storage capacity of 4½-million barrels, deepwater docking facilities about 900 feet from shore, and an open trestle or bridge between the docks and shore, containing roadways, walkways and pipelines. Three tanker berths will be constructed—one capable of serving supertankers and two for smaller ships only. Although the docking facilities will be relatively close to shore, the water depth will be about 105 feet.

The trestle and the largest of the three tanker berths will be funded by the New Brunswick Development Corporation, then amortized by Conoco.

Lykes Announces New Assignments For Four Staff Members

New assignments for four staff members of Lykes Bros. Steamship Co., Inc., to fill key posts in the company's Traffic Division, were announced by **Joseph T. Lykes Jr.**, chairman of Lykes board of directors. The new assignments are effective January 1, 1972.

F.L. Betz, New Orleans, SEABEE project manager, has been promoted to assistant vice president for SEABEE Services and will transfer to New York to strengthen the company's sales and marketing effort in its Eastern headquarters. A graduate of Lehigh University and with Lykes since 1957, Mr. **Betz** has held previous assignments in New York, Brownsville, Houston, and Chicago prior to taking the New Orleans SEABEE post in 1969. Lykes first intermodal SEABEE transport enters service in January.

Stewart A. LeBlanc Jr., of Mobile, assistant vice president for Lykes East Gulf Division, moves to New Orleans as assistant vice president of the SEABEE Division, replacing Mr. **Betz.** Mr. **LeBlanc,** a graduate of the University of Alabama, has been with the Lykes organization since 1946. In addition to his present Mobile assignment, he has held various posts in Houston and Galveston.

Robert N. Mackey, presently serving as manager of the Lykes office in Galveston, goes to Mobile to fill Mr. **LeBlanc's** post as assistant vice president for the East Gulf Division. Mr. **Mackey** is a graduate of Washington and Lee University and has been with Lykes since 1953. His previous posts have been in New Orleans, Galveston and Puerto Rico.

Capt. **Robert H. Nichols,** New Orleans, former vice president, operations, of Gulf and South American Steamship Co., Inc., a Lykes affiliate, takes up his new post as manager of the Galveston office, which promises to become a key terminal point in the operation of the Lykes SEABEE system. As a youth, Captain **Nichols** went to sea aboard sailing schooners out of Boston. He is a 1939 graduate of the U.S. Merchant Marine Academy, following which he served as a deck officer aboard ships of the American merchant marine until 1947, when he left the sea to undertake a series of shoreside assignments.

Paceco Appoints David C. Fulton

David C. Fulton

David C. Fulton has joined Paceco, Alameda, Calif., a Division of Fruehauf Corporation, as manager, contract administration. He was most recently general manager of Yuba Manufacturing Division. Prior associations include Westinghouse Electric Corporation and Atomics International, where he had charge of engineering analysis and design of nuclear power and space systems.

Mr. **Fulton** has a B.S.E.E. degree from Oregon State University and has spent a considerable part of his career in the Bay Area.

McDermott Subsidiary To Purchase Equipment From Ingram Corp.

Oceanic Contractors, Inc., a wholly owned subsidiary of J. Ray McDermott & Co., Inc., has announced its agreement to purchase from Ingram Corporation and certain of its subsidiaries the Ingram Companies' equipment used in foreign offshore construction for the oil and gas industry. The equipment, which is to be purchased for an undisclosed monetary consideration, was offered for sale by Ingram upon its having determined not to continue in this business. Oceanic said it would arrange to complete all contracts involving the purchased equipment.

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GULFPORT SHIPYARD
HENDRY DRY DOCK
HUNT TOOL
JACKSONVILE SHIPYARDS (ST. JOHNS & MAYPORT)
JEFFBOAT
KELSO MARINE
LITTON INDUSTRIES
MARYLAND SHIPBUILDING
J. RAY McDERMOTT SHIP REPAIR
NATIONAL MARINE SERVICE
NEWPORT NEWS SHIPBUILDING
PORT ALLEN MARINE SERVICE
ROCKPORT YACHT
PADUCAH MARINE
SEATRAIN SHIPBUILDING
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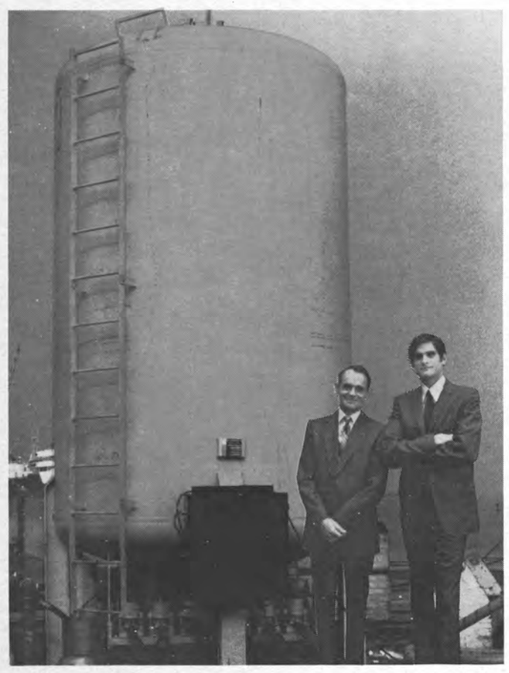

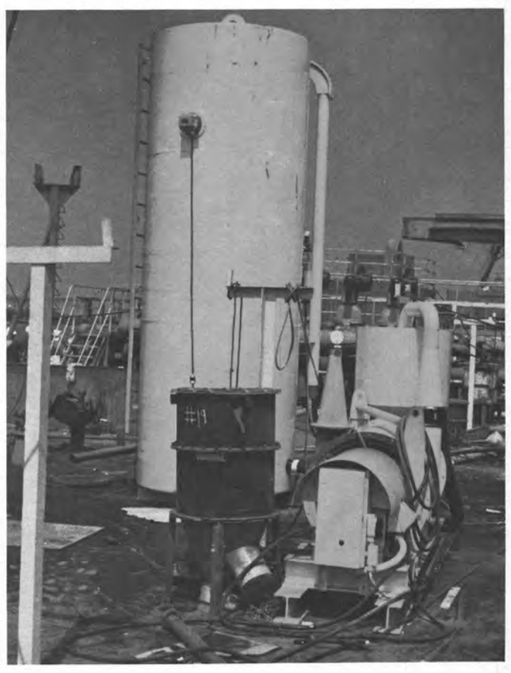

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Maritime Fruit Carriers Net Income Doubles

Maritime Fruit Carriers Company, Limited has reported record income for the nine month period ended September 30, 1971. Total income for the first nine months increased 86 percent to $32,317,000 as compared to $17,361,000 for the same period last year. Net income more than doubled for the nine month period to $4,753,000 compared to $2,287,000 for the similar period last year. Stated on a per share basis, primary earnings per share rose to $1.35 as compared to $0.75 for the same nine month period in 1970.

For the three month period ended September 30, 1971, total income was $11,076,000 compared to $6,085,000 over the like period the year before. Net income increased 85 percent to $895,000 compared to $483,000 for the similar three month period in 1970. Primary earnings per share were $0.24, an increase over $0.16 for the comparable period last year.

"The progress the company has made this quarter is on target with management's expectations," said **Yaacov Meridor** and **Mila Brener,** joint managing directors of Maritime Fruit Carriers Company Limited. "The company's growth in operating income is a good reflection of the continuous demand for refrigerated ships.

"In addition, the company's earnings have not thus far been adversely affected by the East and Gulf Coast port dock strikes. This is because the company took steps to secure this year's revenue and earnings objectives prior to the strikes," they said.

Maritime Fruit Carriers Company Limited is a multinational shipping company which specializes in refrigerated shipping and oil transportation, sales of maritime vessels, and related activities. Shares of the company's common stock are traded over-the-counter (NASDAQ-MARIF).

Raymond International Elects RAdm. Corradi As Board Chairman

Rear Adm. Peter Corradi

At a special meeting, the board of directors of Raymond International Inc., New York, N.Y., elected Rear Adm. **Peter Corradi,** CED, USN (ret.), chairman of the board effective January 1, 1972. Admiral **Corradi** will succeed **Henry C. Boschen,** who is retiring as chairman on December 31, 1971. Mr. **Boschen** will remain a member of the board. **Henry F. LeMieux** will continue as president and chief executive officer of the company.

Mr. **Boschen** was elected president and chief executive officer of Raymond International in 1960, and chairman of the board in 1968. He served as chief executive officer until 1970, when the duties of the chief executive were passed to Mr. **LeMieux.** He has been a Raymond director since 1946.

Mr. **Boschen** joined Raymond in 1928, and since that time has been involved in every phase of the company's development of foreign and domestic construction operations. Under his direction, overseas construction and subsidiary company operations expanded to encompass projects on six continents in more than 20 countries. Mr. **Boschen** was involved in the construction of naval air bases in the Pacific during World War II, and represented Raymond in a joint venture of several companies which has completed more than two billion dollars of engineering and construction work in South Vietnam.

Admiral **Corradi** joined Raymond in 1969 and was elected a senior vice president and director that year. In 1970, he was elected to the newly created post of executive vice president. Admiral **Corradi** retired from the Navy in 1965 and joined Gibbs & Hill as vice president and general manager. He was named president of that international engineering organization in 1966.

Admiral **Corradi's** Navy career included his appointment in 1962 as Chief of the Bureau of Yards and Docks and Chief of Navy Civil Engineers. During his 25-year Navy service, he served in a variety of civil engineering assignments with the Seabees and with the Civil Engineers Corps. During World War II, he directed Seabee units in the construction of bases for U.S. forces in the Pacific campaigns.

CANADIAN MARITIME SECTION MEETS: The first meeting of the 1971-72 season of the Canadian Maritime Section of The Society of Naval Architects and Marine Engineers was held in Saint John, New Brunswick, October 28, 1971. A paper entitled "Aspects of the use of Value Engineering and Work Study Design" was presented by **K. Bevan,** who is production control manager at the Saint John Shipbuilding & Dry Dock Co., Ltd. The paper was viewed from a shipbuilding aspect and considered the use of value engineering techniques to determine the overall feasibility of functional design as applied to naval ships. The paper then progressed to integrate the use of work study design to determine if the performance of the system can be achieved at a minimum economic cost. Section officers shown left to right: **R. McArthur,** Founder Member, Canadian Maritime Section; **E. Hinze,** vice chairman; **K. Bevan,** guest speaker; **W. Aves,** chairman; **D.J. Fraser,** secretary-treasurer, and **D.I. Jones,** chairman, Section public relations.

IRD Mechanalysis Appoints Sales Rep

IRD Mechanalysis, Inc., 6150 Huntley Road, Columbus, Ohio, has announced the appointment of Keizer Associates, 55 Mississippi Street, San Francisco, Calif. 94107, as its authorized sales representative to the marine industry in the Northern California-San Francisco Bay Area.

Keizer Associates has full responsibility for marketing all Mechanalysis equipment—portable vibration and noise analyzers, vibration monitors and balancing machines—to their marine customers. In addition, Keizer offers consulting service for immediate assistance in solving machinery problems—in-plant or aboard ship.

'Weser' Shipyards Moves N.Y. Office

"Weser" Shipyards, Inc. has moved its offices to One World Trade Center, Suite 2841, New York, N.Y. 10048, according to an announcement by **Magnus Olsen,** president.

"Weser" Shipyards, Inc. are representing the United States interests of one of the largest German shipbuilders, A.G. "Weser," with newbuilding facilities located at Bremen and Bremerhaven.

The firm also announced that a limited supply of a condensed 1970 Annual Report of A.G. "Weser" is available in English upon request.

Reynolds Offers Guide For Finishing Of Aluminum Hulls

A "Marine Guide For Finishing of Aluminum Hulls," the first in a series of publications on various technical aspects of the marine application of aluminum, has been prepared by Reynolds Metal Company.

The brochure, which deals with both original finished and maintenance, is available without charge from Marine Market Manager, Reynolds Metals Company, Box 27003, Richmond, Va. 23261.

Newport News Ship Elects Plummer VP

R. Spencer Plummer

R. Spencer Plummer has been elected a vice president of Newport News Shipbuilding, a Tenneco Company, it has been announced by **L.C. Ackerman,** president and chief executive officer. The action was taken by the shipyard's board of directors at its meeting held in Houston.

A native of Newport News, Va., Mr. **Plummer** is a graduate of Virginia Polytechnic Institute, with a B.S. degree in mechanical engineering. He became affiliated with Newport News Shipbuilding in 1935. Mr. **Plummer** was appointed assistant superintendent of the machinery division in 1955, and was named superintendent of the division in 1964. He became assistant general manager in 1966, and in 1968 was named general manager. He is also a graduate of the executive training program at the University of Pittsburgh.

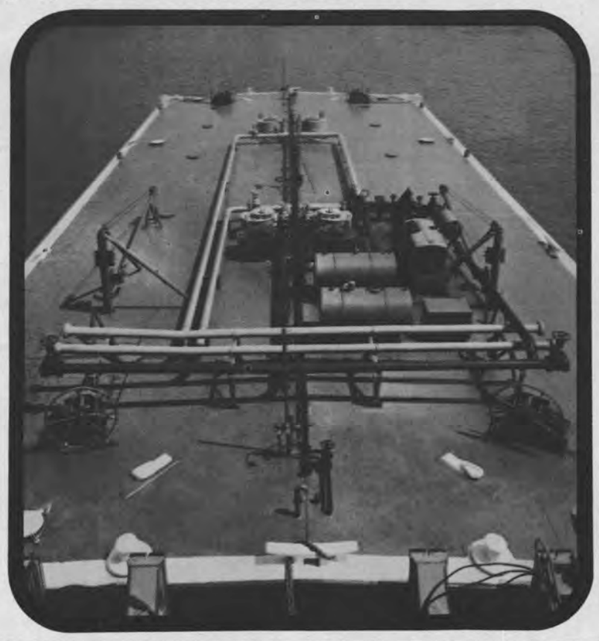
Mr. **Plummer** is a member of The Society of Naval Architects and Marine Engineers, American Society of Naval Engineers, the Engineers Club of the Virginia Peninsula, and The Propeller Club, Port of Newport News.

Litton Industries Names Dr. R.L. Roderick To Corporate Staff

Dr. **Robert L. Roderick,** Litton Industries vice president, has been appointed to the corporate staff with responsibilities for corporate planning and the development of trade relationships with Eastern European countries, it was announced by **Roy L. Ash,** Litton president.

Dr. **Roderick,** formerly president of Litton Ship Systems Division, joined Litton in 1968 and was elected a corporate vice president in 1970. Previously, he was associated with Hughes Aircraft Co. and was program manager for Surveyor I, whose flight in June 1966 established a major space milestone. Dr. **Roderick** received a B.S. degree in electrical engineering from the Illinois Institute of Technology in 1948, and a Ph.D. in applied mathematics from Brown University in 1951.

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



Prof. J.B. Blood Receives W. Selkirk Owen Award At Webb Annual Banquet

Pictured at the alumni banquet, left to right: **Robert G. Mende,** president of the Webb Alumni Association; **Mrs. Jeremy B. Blood;** Prof. **Jeremy B. Blood,** recipient of the W. Selkirk Owen Award; **Mrs. Roger Luke,** daughter of **William Selkirk Owen,** and **Thomas H. Bond,** chairman of the Webb Alumni Fund.

The Webb Institute of Naval Architecture Alumni Association held its annual banquet recently at the Summit Hotel in New York City. A reception and dinner preceded an especially interesting program which featured the presentation of the sixth W. Selkirk Owen Award to Prof. **Jeremy B. Blood.**

Thomas H. Bond, chairman of the Webb Alumni Fund, delivered the official introduction prior to the presentation of the Award to Professor **Blood** by **Mrs. Roger Luke,** daughter of **William Selkirk Owen.**

The W. Selkirk Owen Award is given in recognition of outstanding achievement and service to the marine engineering and naval architectural profession and to the alma mater. The recipient represents those qualities esteemed in a graduate of Webb Institute of Naval Architecture.

2 Hitachi Companies Join To Build Gas Turbines For Ships

Hitachi, Ltd., and Hitachi Zosen (Hitachi Shipbuilding and Engineering Co., Ltd.) have agreed jointly to start the production of gas turbines for ships. Hitachi, Ltd. has built and sold 80 general purpose gas turbines since 1964. These were primarily used for stationary power generation purposes. This experience will now be combined with the shipbuilding technology of Hitachi Zosen.

The joint agreement will provide gas turbines for vessels to be built by Hitachi Zosen and also to fulfill orders expected from other domestic Japanese and foreign shipbuilders. Considerable demand is expected for use of the turbines in LPG tankers, container vessels, ferryboats, etc. Marketing will also be jointly handled by Hitachi, Ltd. and Hitachi Zosen.

For further information contact Secretary Office, Hitachi, Ltd., New Marunouchi Building, No. 5-1, 1-chome, Marunouchi, Chiyoda-ku, Tokyo 100, Japan.

P And O Group Names Sidey

The world's largest shipping and transport group, P and O, announced in London that **J. MacNaughton Sidey** has been appointed deputy chief executive of the group's European and Air Transport Division (EATD).

The division—formed from the former P and O Transport Holdings and the Coast Lines and General Steam Navigation groups—is one of five operating divisions which began operations last month and were formed after a major review and reorganization of P and O group activities by the management consultants McKinsey and Co.

Dravo Engineering Works Div. Names Seddon And Thompson To Newly Created Positions

James H. Seddon

John H. Thompson

James H. Seddon and **John H. Thompson** have been appointed to the newly created positions of general structural superintendent and general maintenance and outfitting superintendent for Dravo Corporation's Engineering Works Division, Pittsburgh, Pa.

Mr. **Seddon** will be responsible for the activities of the division's machine shop, structural shop and mold loft. Mr. **Thompson** will supervise the electric, carpenter and pipe shops, the mechanical department, labor department and tool room, as well as oversee the outfitting of marine equipment.

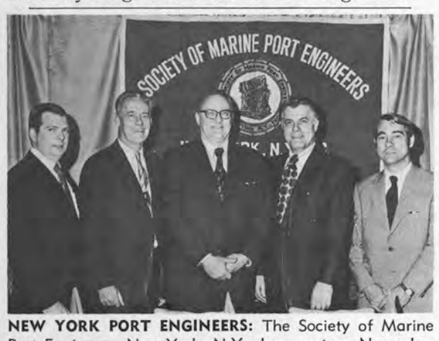
Mr. **Seddon,** who previously served as superintendent of the division's structural shop, joined Dravo as a production engineer in 1952. He holds a B.S. degree in mechanical engineering from the University of Pittsburgh and is a member of the American Welding Society. Mr. **Thompson** joined Dravo in 1937, and for the past five years has served as superintendent of the division's machine shop.

Dravo's Engineering Works Division is engaged in the design, fabrication and marketing of a complete range of marine and bulk materials handling equipment and specialized heavy machinery.

Pancontinental Appoints Spille Chartering Mgr.

The appointment of **Wolf Spille** as chartering manager of Pancontinental Overseas Company, New York, N.Y., was announced by **J.R. Kirsten,** president of Pancontinental Overseas.

Mr. **Spille,** who holds a master's license for oceangoing vessels, has previously been associated with Naess Shipping Company, Inc., Labash, Inc., and All Seas Tanker Chartering, Inc., all of New York, and has been active in both dry cargo and tanker chartering.



NEW YORK PORT ENGINEERS: The Society of Marine Port Engineers, New York, N.Y., Inc., met on November 17, 1971, at the Commuters Cafe, New York City. Cocktails and dinner preceded the meeting. **Gerrit J. Timmer,** Champion Construction & Contracting, sponsored a paper entitled "Chemical Treatment and Design Considerations for High Pressure Boiler Systems," which was authored and read by **William J. Noon,** division engineer, Consolidated Edison Co. of N.Y., Inc. Shown above at the meeting, from left to right: **Bernard W. Seile,** Bull & Roberts, Inc., who presented a discussion on the paper; Mr. **Noon,** speaker; **John C. Fox,** Esso International, president of the Society; Mr. **Timmer,** and **Percy C. Overman,** assistant secretary of the Society.

Steamship Authority Asks Bids To Design And Build Ferry

The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority is inviting sealed proposals to be received on or before December 29 for the design and for furnishing all labor and materials and performing all work required for the construction of (1) One Passenger Ferry, and/or (2) One Vehicle and Passenger Ferry. Qualified Builder and/or Builder and Designer are invited to submit a fixed price proposal for the design, construction and delivery to the Woods Hole, Massachusetts Terminal of the Authority of the above vessel or vessels. It is anticipated that vessels having the approximate characteristics and operating capabilities listed in Articles 1 and 2 will be acceptable.

Article 1. Passenger Ferry—(a) Length OAL: 125-149 Feet; (b) Beam (Guards): Approx. 36 Feet; (c) Draft—Loaded: 6 Feet 5 Inches to 9 Feet; (d) Capacity: Bidders are requested to include in their proposal the passenger capacity of the vessel; (e) Speed—Max., Loaded: 16 to 18 knots.

Article 2. Vehicle and Passenger Ferry—(a) Length OAL: 125-149 Feet; (b) Beam (Guards): Approx. 36 Feet; (c) Draft—Loaded: 6 Feet 5 Inches to 9 Feet; (d) Capacity—Cars: 4 to 6 Fifty-foot Tractor Trailer Trucks weighing 40,000 gross lbs., or 12 to 16 Automobiles, without trucks; Passengers: Bidders are requested to include in their proposal the passenger capacity of the vessel: (1) when carrying vehicles (2) when not carrying vehicles; (e) Speed—Max., Loaded: 14 to 16 knots.

All inquiries with respect to this Invitation should be addressed to: Woods Hole, Martha's Vineyard and Nantucket Steamship Authority, P.O. Box 284, Woods Hole, Mass. 02543. Attention: **John J. McCue,** General Manager. Telephone: (617) 548-5011.

KNOWN 'ROUND THE WORLD

THE BOSTON METALS CO.

313 E. BALTIMORE ST. • BALTIMORE, MD. 21202

Main Office: (301) 539-1900 Marine Dept.: (301) 355-5050

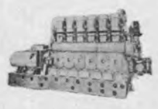
DIESEL GENERATOR SETS

1 

G.M. 6-71 DIESEL GENERATOR SET
60 KW— 440/3/60 — 1200 RPM—with switchgear.

2 

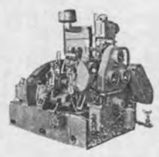
350 KW 120/240 VDC DIESEL GENERATOR SET
Ingersoll-Rand heavy duty type S engine—8 cyl.—505 HP—10½ x 12. GENERATOR: G.E. 350 K.W. 120/240—600 RPM—switchgear. Good condition—as removed from Grace Line ships.

3 

250 KW DIESEL GENERATOR SET
ENGINE: Enterprise 12 x 15 DSG-6—6 cyl.—450 RPM crank No. 50J. GENERATOR: Westinghouse 250 KW—120/240 DC—1040 amps—450 RPM. Typical serial No. 3S-10P-913. Complete with switch gear.
$12,500.

4 

UNUSED 100KW SUPERIOR DIESEL GENERATOR SET
GENERATOR: 120/240 VDC—417 amps—stab. shunt—1200 RPM. DIESEL: Superior GBD-8—8 cyl.—5½x7.

5 

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

6 

100 KW G.M. 3-268A DIESEL GENERATOR SET
Like new. ENGINE: G.M. 3-268A—3 cylinder—6½" x 7" bore and stroke. GENERATOR: General Electric—100 KW—440 volts—3 phase—60 cycle.

TURBO GENERATOR SETS

7 

WESTINGHOUSE 440/3/60 200 KW UNIT
GENERATOR: Westinghouse 200 KW—250 KVA—450/3/60—1200 RPM—80% PF—with 40 KW—120 VDC on same shaft. GEAR: 9989/1200 RPM—double helical. TURBINE: Westinghouse—540 PSI—superheat 322°F. Test 930 PSI 800°TT. Also operates 615 PSI—850°TT.

8 

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

9 

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

10 

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

11 **G.E. 600 KW GEARED TURBO GENERATOR SETS**

G.E. 600 KW geared turbo generator sets—525 lbs—825°F. **TURBINE:** Type FN3-FN-20—6-stage—882 HP—600 KW—525/565 lbs. G—superheat 355/371°F—exhaust pressure 1" abs. Test steam chest 850# G. 10033 RPM—6390 lbs steam flow per hour. **REDUCTION GEAR:** Single helix—single reduction—10033/1200. **GENERATOR:** G.E.—600 KW—450/3/60—1200 RPM—type ATI—0.8 PF—961 amps continuous—2 hours 25% overload—(750 KW) 1200 amps—5 minutes (900 KW) 1400 amps. Totally enclosed—water cooled—amb. temp. reg. 50°C. **EXCITER:** 7.5 KW—120 VDC—direct connected. Complete with rheostat type voltage regulator & motor operated generator field rheostat.

FURNISHED WITH ABS OR LLOYD'S CERTIFICATE

12 **WESTINGHOUSE MAIN GENERATOR LEVER OPERATED CONTROL CUBICLES**

— COMPLETE —

13 

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

14 **UNUSED**
GENERAL ELECTRIC 240 KW TURBO GENERATORS
TURBINE: DORV-518N — 10012 RPM — 410 lbs gauge—725°TT. GEAR: 10012/1200 RPM. GENERATOR: A/C—General Electric—200 KW—440/3/60—1200 RPM—D.C. exciter 40 KW 120 volts DC.

15 **UNUSED**
CROCKER-WHEELER 500 KW TURBO GENERATORS 120/240 VOLTS D.C.
Upgraded by U.S. Navy—rewound in glass. Generator Frame and Armature—Marine 500 KW type 3-1200——dripproof enclosure—base mount. Modified from Crocker-Wheeler generator frame 152HD—240/120 volts DC—2083/521 amps—1200 RPM. Ambient temperature 50°C—application—steam turbine modified for class C4-S-A1, C4-S-A3 and T-AP134 vessels.

16 **400 KW + 50 KW SHIP SERVICE TURBO GENERATORS**
Formerly for DD-692 Class Vessels
TURBINE: DORV 618N—6-stage—10059 RPM. GEAR: S-193 single helical 10059/1200 RPM. GENERATOR: A.C.—400 KW—450/3/60—1200 RPM—0.8 PF—6-pole—D.C. EXCITER: 50 KW—120 volts—1200 RPM—stab. shunt. Turbine working pressure 634 lbs—850°TT. NET WEIGHT OF SET 14,855 lbs.O.A.L. 10'10"—O.A.W. 4'10"—O.A.H. 5'10". 2" Steam inlet—17" I.D. exhaust. Steam flow at 400 KW 5100 #/hour.

WILL SELL ROTOR SEPARATELY

17 **GENERAL ELECTRIC 1250 KW TURBO GENERATORS**
GENERATOR: G.E. 1250 KW—440/3/60—3600 RPM. GEAR: 7938/3600. TURBINE: FSN—10-stage—525 lbs/825°TT. With switch gear.

TURBINE ROTORS

MAIN PROPULSION

18 

19 STAGE WESTINGHOUSE H.P. ROTOR FOR AP2 VICTORY
Reconditioned — balanced—with ABS. Serial 4A-2079—type B—19 stage reaction blades. Excellent—just out of shop. 13" Flange diameter with 14 bolts.

19 ***SPECIAL!***
COMPLETE TURBINE OR ROTORS
8500 HP G.E. C-3 Victory—Sun C-4's
L.P.—Serial 77943 H.P. Serial 77942
G.E.I. 16263

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

21 **NEW 8500 H.P. G.E. TURBINES**
Large Victory or C-3
H.P. #72271 L.P. 72272
10 BOXES SPARE PARTS, TOOLS & FITTINGS. WITH MANEUVERING VALVES.

ALSO AVAILABLE

22 **U.S.M.C. RECONDITIONED SET**
H.P. & L.P.
With 13 boxes spare parts. H.P. 77994—L.P. 77987—with maneuvering valves.

23 **9500 H.P. G.E. — C-3 OR VICTORY**
H.P.—8-stage—6159 RPM—serial 62043
L.P.—8-stage—3509 RPM—serial 62042
G.E.I. 16263

24 **6000 H.P. G.E. — NORTH CAROLINA C-2**
H.P.—8-stage—serial 78040
L.P.—7-stage—serial 78043
G.E.I. 16262

25 **VICTORY SHIP AP2 H.P. & L.P. TURBINES NEW — UNUSED — 6000 HP SETS**
G.E.—H.P. & L.P.—with throttle valve
Westinghouse—L.P.—with throttle valve
Allis-Chalmers—H.P. & L.P.—with throtle valve

AUX. GEN. ROTORS

26 **250 KW & 300 KW ALLIS-CHALMERS ROTORS**

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

27 **300 KW 5965 RPM JOSHUA HENDY**
Turbine—3H-69 Gear—52269
Turbine—3H-52 Gear—52252
Turbine—3H-62 Gear—52262

T-2 ROTORS, STATORS COOLERS, ETC.

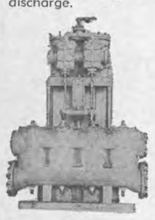
28 **ELLIOTT 10-STAGE MAIN PROPULSION TURBINE ROTOR**
#28702—Ex-Texas Trader—will interchange with large G.E. 1st Row—1 1/8" to shroud—1 3/16" O.A.H. 2nd Row—1 7/16" to shroud—1 9/16" O.A.H.

29 **UNUSED G.E. MAIN GENERATOR AIR COOLER**

PUMPS

30 **VICTORY AP2 MAIN CIRCULATOR**
Ingersoll-Rand — 18 VCM—20" x 18"—10,500—10 lbs. MOTOR: 75 HP—Allis Chalmers—230 VDC—670 RPM. Spare unused armature. Motor frame F.B.V.—162.

31 **UNUSED 10x9x12 VERTICAL SIMPLEX FUEL OIL TRANSFER PUMPS**
Furnished on some T-2 Tankers. 160 GPM Bunker C —viscosity 70 to 700 SSF 122°F @ 100 lbs. discharge pressure. WP steam 150 lbs.—exhaust 10 lbs. 1¼" steam inlet—1½" exhaust. 4" Pump suction—3½" discharge.



32 **WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP**
1400 GPM @ 110 PSI—suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction— 10" Discharge — 2½" Steam — 4" Exhaust. Overall width 6'8"—Overall height 9'11½"—depth 3'9½" —wt. approx. 10,000 lbs.

33 **NEW BLACKMER FUEL OIL TRANSFER PUMP**
Rotary—50 GPM—50 lbs.—2"—5 HP—440/3/60—with starter & spares.

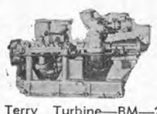
34 **UNUSED BLACKMER VERTICAL ROTARY PUMP**
4"—100 GPM—100 PSI—15 HP — 440/3/60 — gear head.

35 **R-2418 WATEROUS CARGO PUMP**
Bronze—14"—top discharge—capacity 2500 GPM—20 PSI. Bilge service—oil service—2400 GPM—75 PSI. Reduction gear. ENGINE: Cummins JN-130M—6 cylinder—4⅛ x 5—130 HP—air starting.

36 **UNUSED WARREN BRONZE PUMP**
1175 GPM—11.1 lbs.—8" x 8". MOTOR: Reliance 10 HP—115 VDC—850—RPM—76 amps.

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

38 **EXCELSIOR MOLASSES PUMP—SIZE 5½"**
6" Suction and discharge—210 GPM—45 PSI—125 RPM. MOTOR: 10 HP—230 VDC—Frame 67—with gear.



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

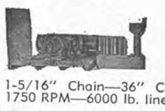
WINCHES AND WINDLASSES

40 **VICTORY UNIT WINCHES**
50 HP—230 VDC—U-1, U-2, U-4, U-5—reconditioned.

41 **MODEL U-6 DOUBLE DRUM WINCHES WITH GYPSIES**
50 HP—230 VDC—reconditioned.

42 **HYDE NO. 7 WINDLASS**
1¾" Chain—Wildcat centers 3'3"—Handles 3000 lb anchors. MOTOR: 8.7/35 HP—440/3/60—1800/450 RPM.

43 **NEW—UNUSED LINK BELT WINDLASS**
1⅝" and 7000 lb. anchors. 56" Centers—50 HP—230 VDC—spares.



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

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

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

MISCELLANEOUS

47 **VICTORY AP2—WESTINGHOUSE MAIN PROPULSION GEAR**
6000 SHP—Serial 4A—1620—Medina Victory.

48 **UNUSED 1135 SQ. FT. C.H. WHEELER CONDENSER**
20" Ex. inlet—⅝" Cu-Ni tubes—with or without air ejector.

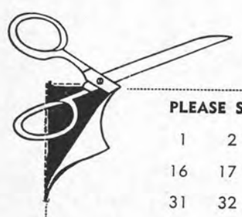
49 **1 PAIR OF 300 HP UNION DIESEL ENGINES**
Port and starboard—model 06—1300 HP at 350 RPM —4 cycle—direct reversible—11 x 15—overhaaled 1966—in good condition. Just in from Navy.

50 **MODEL O-2-D M&T RECONDITIONED UNITS**
Hydraulic starting steering, raising & lowering tailfin. Navy reconditioned 1965—fully checked out by us. Will demonstrate running. Wt. about 9500 lbs. PROPELLOR: 48"x24"—3 blade.

51 **HYDE 30" DOCK CAPSTAN**
10" x 10"—reversible—W.P. 125 lbs—2½" steam—3" exhaust.

52 **DOUBLE INPUT—SINGLE OUTPUT DIESEL REDUCTION GEARS**
Farrell-Birmingham — 3200 SHP. Reduction gear: 1.81:1—handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard.

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



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16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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46	47	48	49	50	51	52	53							

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

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

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

T-2 TANKER MAIN & AUXILIARY EQUIPMENT

From 2 Vessels Reconditioned by U.S. Gov't

ALL MATERIAL IN FIRST CLASS CONDITION WITH A.B.S.

MAIN PROPULSION ROTOR — G.E.

Large Schenectady — serial 77418—reconditioned Bethlehem Steel 1970—all stages magnafluxed.

2 COMPLETE G.E. TURBINES

#61818 and #61834—large Lynn—all stages magnafluxed.

WILL INTERCHANGE WITH ELLIOTT MAIN TURBINE

- 2 COMPLETE SETS MAIN DIAPHRAGMS..
- 2 COMPLETE SETS LABYRINTH PACKING
- THRUST BEARINGS
- COMPLETE GOVERNOR ASSEMBLIES
- OPERATING CYLINDERS
- CONTROL VALVES
- SHAFT BEARINGS

ALSO

THROTTLE VALVE ASSEMBLY

G.E. REVOLVING FIELDS

Rewound 1968—main propulsion—by G.E. Seattle. Re-checked June 1971 by G.E. Service Shop—A.B.S.

WESTINGHOUSE REVOLVING FIELD

With A.B.S.—ex-Ohio Sun.

MAIN G.E. STATOR

With A.B.S. — reconditioned 1970.

WESTINGHOUSE MAIN GENERATOR STATOR

Reconditioned Westinghouse — #39519P915 — Thermoplastic winding.

NEW—UNUSED G.E. MAIN GENERATOR COOLER

Also Westinghouse—reconditioned to A.B.S.

G.E. AUXILIARY TURBINE ROTOR

For 525 KW G.E. Turbine DORV-325M—5645 RPM.

COMPLETE T2 TANKER TURBO GENERATORS

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

NEW STYLE AMPLIDYNE

5LY148A—Type A.M.—Frame 605.

75 KW—55 KW EXCITER ARMATURES

Also stators & pedestal bearings—400 KW aux. generator revolving fields.

T2 AUXILIARY GENERATOR S-162 REDUCTION GEARS—PINION & BULL GEAR—BEARINGS

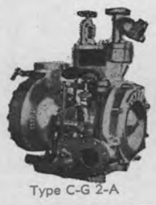
AUXILIARY GENERATOR THROTTLE VALVE

WESTINGHOUSE MAIN CARGO PUMP MOTORS

1 Unit—frame 874—125 HP—440/3/60—168 amps 590 RPM. 2 Units—frame 876C—125 HP—type CS—440/3/60—159 amps—585 RPM.

G.E. MAIN CIRCULATING PUMP MOTORS—125 HP

COFFIN FEED PUMPS



Type C-G 2-A

Type F

WESTINGHOUSE MAIN PROPULSION TURBINE

Profile (unshrouded)—serial 2-A-9361-21.

COMPLETE G.E. THROTTLE VALVE

With governor—for above turbine.

2 WESTINGHOUSE AUX. 538 KW TURBO GENS

Turbines—gears—400 KW generators—(110 KW—32.5 KW—5 KW excitation).

WILL SELL ROTORS—GEARS—EXCITERS SEPARATELY.

ALSO AVAILABLE — EXCITERS

(110 KW—28 KW—5 KW) or (110 KW—32.5 KW—5 KW)

SWITCHGEAR FOR ABOVE

also available.

WEST. MAIN PROPULS'N MOTOR COOLER

T2 ANCHOR WINDLASSES

1 American Hoist & Derrick—12x14 for 2 5/16" chain.
1 American Engineering Co.—12x14 for 2 5/16" chain.

T2 WARPING WINCH

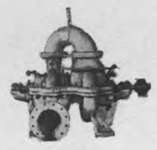
Poop—9x12—AH&D.

T2 DECK WARPING & HOSE HANDLING WINCH

8¼ x 10—Hunt Tool Co.

MAIN CIRCULATING PUMPS

Ingersoll-Rand—24 V.C.M.



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Anthony R. Maio Named Treasurer Of Prudential-Grace Lines

Anthony R. Maio

Prudential-Grace Lines, Inc., New York, N.Y., has announced the appointment of **Anthony R. Maio** as treasurer of the company. Mr. **Maio** has been with Prudential-Grace Lines for seven years, serving as assistant controller and most recently, as assistant treasurer. He was formerly with the U.S. Department of Commerce in the Maritime Administration's District Finance Office.

Mr. **Maio** is a resident of Jersey City, N.J., and a graduate of St. Peter's College in that city.

Newport News Ship Names Vought Supt. Welders Department

Grandin S. Vought

Grandin S. Vought has been appointed superintendent of the welders department at Newport News Shipbuilding, a Tenneco company. The announcement was made by **James E. Turner Jr.,** manager of the steel hull division.

Mr. **Vought,** a native of Raleigh, N.C., studied commerce at the University of North Carolina, and industrial education at North Carolina State University. He joined the data collection department at Newport News Shipbuilding in 1953. In 1957 he was assigned to industrial engineering, where he became a senior industrial analyst. He was appointed an analyst in the systems department in 1966, and was reassigned to industrial engineering in 1968, where he was promoted to chief industrial engineer. In 1970 he was named general foreman of the welders department, and in 1971 was appointed process engineer for the steel hull division.

Mr. **Vought** is a member of The Propeller Club, Port of Newport News, and is a past senior member of the American Institute of Industrial Engineers.

Anco Tanker Service Appoints Mithassel Managing Director

Anco Tanker Service A/S, Oslo, Norway, has announced the appointment of **Andreas Mithassel** as managing director. Mr. **Mithassel** succeeds Capt. **Aage Olsen,** who has announced his retirement as managing director, but who will continue to be associated with Anco Tanker Service in an advisory capacity.

Mr. **Mithassel** boasts a lengthy and comprehensive experience in the shipping industry, particularly in the tanker trade in the area of chemical and vegetable oil transportation. He was formerly managing director of Stolt-Nielsen Shipping A/S, also of Oslo.

Mr. **Mithassel** joins one of the leading firms in the burgeoning parcel-tanker industry. The group comprising Anco Tanker Service presently operates a fleet of 18 tankers with a total of 372,025 dwt. All of Anco's vessels are specially equipped to handle sensitive and hazardous liquid parcel cargoes, as well as the more common liquid commodities. The average age of the company's vessels is about four years, thus making Anco's fleet the most modern of its kind.

The Anco group's American operations are the responsibility of Anco Tanker Service, Inc., 545 Fifth Avenue, New York City.

Elect Keeling President

Newport News Shipbuilding Promotes Galvin & Macdonald

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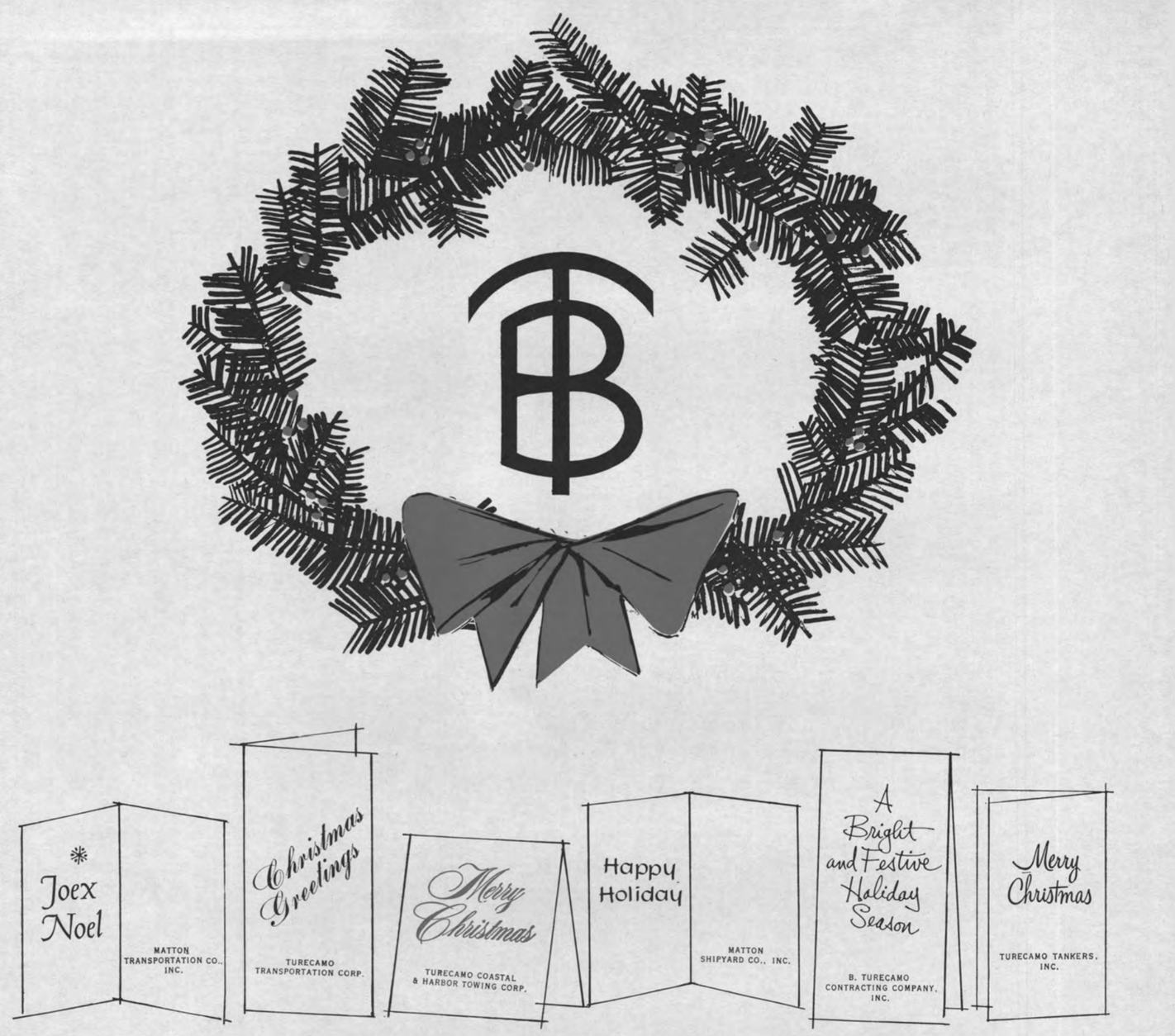

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Marine Surveyors Elect Keeling President

Harry W. Keeling Jr.

Harry W. Keeling Jr. was elected to the office of president of The National Association of Marine Surveyors to serve during 1972. Mr. **Keeling,** president of Coast Engineering Co. of Norfolk, Va., is a registered professional engineer and naval architect.

The other officers elected are: vice president, **George E. Pascoe Jr.,** Lovell-Pascoe, Cleveland, Ohio; treasurer, **Linwood E. Hart,** independent marine surveyor, Plymouth, Mass. Four directors were elected to serve for two years. They are: **John R. Bencal Sr.,** Houston, Texas; **Maurice Kambarn,** Seattle, Wash.; **Donald Lamont,** New York, N.Y., and **Dan J. Thomas,** Jacksonville, Fla.

The newly elected officers are to be installed in office on January 24, 1972, following the Association's Annual Meeting and Marine Conference, which will be held at the Statler Hilton Hotel, New York City.

The National Association of Marine Surveyors, with headquarters in New York City, is the largest professional association of marine surveyors in the world. Its members are located throughout the United States, Canada, and several foreign countries.

Sea-land Purchases Three Paceco Cranes For Hong Kong Facility

Earlier this year, Paceco, a Division of Fruehauf Corporation, took what it called "a step into the future" with the development of MACH (Modular Automated Container Handling) cranes. With the announcement of a $4.5-million-dollar contract from Sea-Land Service, Inc. for three MACH Portainer cranes, Paceco steps into the foreground of a bright new future for container shipping in the Far East.

Sea-Land's subsidiary, Sea-Land Orient Ltd., will operate the three MACH Portainer cranes, which will be equipped with the "Sway Stop and High Speed" modules, in the new Kwai Chung facility of Hong Kong. This will be the first Hong Kong terminal planned and developed exclusively for container handling.

Hong Kong is a deepwater port well-established as a handling center for traders because of its free port advantages and the availability of cargo handling labor. Since most shipments in and out of the port are consolidated at dock side from orders involving a number of small manufacturers, consolidation companies are already in business there to aid shippers in the breakdown and reassembling of containerized cargo coming in and going out of Hong Kong.

Paceco figured early in Hong Kong's development as a container port. A standard Portainer crane installed at Kowloon Wharf & Godown Company for Sea-Land and other steamship lines was the first pier side container handling crane in Southeast Asia for commercial trade, following two Portainer cranes installed at Cam Rahn Bay.

The new 32-acre facility at Kwai Chung will service Sea-Land's present ships, as well as their new super containerships. The new MACH Portainers will be capable of handling both 35-foot and 40-foot containers. The increased handling speeds possible with Paceco's MACH system are an important consideration at Kwai Chung. Since it was necessary for Sea-Land to purchase and reclaim the sea beds on which their berths will be constructed, the cost is substantial. Only very high throughput, made possible with the help of faster container handling equipment, will make Sea-Land's investment pay off.

All three cranes are being built by Paceco licensee, Mitsui Shipbuilding & Engineering Co., Ltd., under a special subcontract.

Newport News Shipbuilding Promotes Galvin & Macdonald

Daniel F. Galvin

John D. Macdonald

The purchasing department of Newport News Shipbuilding, Newport News, Va., has been redesignated as the procurement department, according to **G.C. Bonnell,** director of material management at the Tenneco subsidiary, "in recognition of its broader professional responsibilities in the material management area."

Daniel F. Galvin has been named manager of procurement and **John D. Macdonald** will serve as purchasing agent. Together, they succeed the late **W. Kenneth Wills,** who as purchasing agent, also served as manager of the department.

Mr. **Galvin,** formerly assistant purchasing agent, will be responsible for the functions of purchasing, small business, material utilization and sales, material coordinators and cost price analysis. He will report to Mr. **Bonnell.** Mr. **Macdonald,** reporting to Mr. **Galvin,** will have direct supervision of the company's purchasing activities and procedures.

Mr. **Galvin** is a native of New York City and attended Manhattan College. He joined Newport News Shipbuilding in 1951 and served as steel buyer and field expediter until November 1959, when he was transferred to the company's New York office. He returned to Virginia in 1964 as assistant to the purchasing agent and in 1965 was appointed assistant purchasing agent. Mr. **Galvin** is a member of The Propeller Club, National Defense Transportation Association, Virginia State Chamber of Commerce, and the board of directors of the American Ordnance Association.

Mr. **Macdonald,** a native of Newport News, has been with the shipyard's purchasing department since 1951, after receiving his B.A. degree from Hampden-Sydney College. He became a buyer in 1954 and was promoted to senior buyer in 1965. Mr. **Macdonald** is a past president of Toastmasters International and the American Field Service's foreign exchange student program. He is also a member of The Propeller Club.

1971 Annual Marine Man Award To Captain Warren G. Leback

Capt. **Warren G. Leback,** left, is shown receiving the 1971 Marine Man of the Year Award from **Charles R. Cushing** (Cushing & Nordstrom Inc.), recipient of the 1970 award.

The Seventh Annual Marine Man of the Year Award breakfast of the alumni of the United States Merchant Marine Academy, Kings Point, N.Y., was held on November 12, 1971, at the Berkshire Hotel in New York City.

Capt. **Warren G. Leback,** vice president of marine operations, Sea-Land Service, Inc., was the 1971 recipient.

Captain **Leback** graduated from Kings Point in 1944. He served as deck officer and master with Grace Line. In 1950, he was transferred from the fleet to South America and spent three years in Barranquilla and Cartagene, Columbia, as assistant manager and manager of W.R. Grace and Company's offices in those ports. He returned to New York in 1954 and served in Grace Line's foreign port operations department as terminal superintendent and port captain.

In 1960, Captain **Leback** joined Central Gulf Steamship Corporation in their marine department, being appointed general manager of the Marine Division in 1961. He joined Sea-Land Service, Inc. in 1965 as director of marine operations and was elected vice president of marine operations in 1967. In his capacity as vice president of operations, he was responsible for developing the largest and fastest containerships in the world. Captain **Leback** was instrumental in devising the concept of containerization, which is now accepted throughout the world as the most modern method of moving cargo.

Approximately 80 Kings Pointers and friends of Kings Point attended the Award breakfast.

Guest speakers were Rear Adm. **Arthur B. Engel,** USCG (ret.), Superintendent, United States Merchant Marine Academy; **Marvin Pitkin,** Assistant Administrator for Research and Development, Maritime Administration, Washington, D.C., and Capt. **Lauren S. McCready,** Director, National Maritime Research Center.

Newport News Ship Names Sahaj Supt. Maintenance Dept.

Joseph Sahaj

Newport News Shipbuilding, Newport News, Va., has announced the appointment of **Joseph Sahaj** as superintendent of the company's maintenance department. The announcement was made by **E.S. Moriarty,** manager of facilities maintenance at the Tenneco subsidiary.

Mr. **Sahaj** joined the hull outfitting division staff at Newport News in August 1968, after his retirement as captain from the United States Navy.

A native of Holsopple, Pa., he joined the Navy in 1935 and spent most of World War II on submarine patrols in the Pacific. His other submarine assignments included engineering officer, USS Sailfish and USS Tilefish; executive officer USS Batfish, and commanding officer, USS Sea Lion.

After service as commander of the flag administration unit on the U.S. Atlantic Fleet staff from 1955 to 1958, Mr. **Sahaj** was assigned to the destroyer USS Bory as commanding officer. He later commanded the repair ship USS Vulcan in 1964. His last three years in the Navy were spent as commander of Naval Beach Group Two, U.S. Atlantic Amphibious Force.

He attended George Washington University and is a graduate of the Navy's General Line School in Monterey, Calif.

Shell Int'l Marine Orders Nine Tankers

Shell International Marine Ltd. announced it has placed an order worth more than $112.8 million with a Norwegian shipyard, Haugesund Mekaniske Verksted A-S, of Haugesund, for nine tankers of 32,000-deadweight tons each. "It is the largest single order ever placed with a Norwegian builder," Shell said.

The first tanker, to be delivered in the spring of 1974, will be owned by A-S Norske Shell (Shell Norway) and will be mainly used to carry petroleum products from Shell's Sola refinery in Norway to installations along the Norwegian coast and inter-Scandinavian waters. Equipped with heating coils, the carrier will be able simultaneously to carry all types of products.

The other eight tankers will operate on Shell's international supply routes. They will be delivered over the period 1974-76. The nine ships, each with 21 tanks, will be powered by a 12,000-hp propulsion plant, giving a contract speed of 15½ knots.

Dravo Brochure Describes Marconaflo Bulk Handling System

A unique automated handling system—Marconaflo—that significantly reduces capital and operating costs in moving bulk materials is described and illustrated in a new brochure by Dravo Corporation, Pittsburgh.

Marconaflo is a patented new process for loading, storing, discharging, reclaiming and handling granular bulk materials, using a liquid suspension, or slurry principle. It was developed by Marcona Corporation, San Francisco, and will be jointly marketed by Dravo and Marcona under an agreement entered into between the two firms earlier this year.

The 12-page full-color brochure explains the Marconaflo principle, illustrates system flexibility, and discusses various applications. Eighteen kinds of bulk materials that can be handled by the systems are listed, including heavy minerals, ore deposits, salt, sand, sanitary sludge, tailings, and a variety of ore concentrates. A major advantage, in addition to reduced operating costs, is the system's ability to meet the ecological requirements of water, air and environmental pollution control.

Copies of the brochure, No. 71ENCO1, can be obtained from Dravo Corporation, Engineering Construction Division, One Oliver Plaza, Pittsburgh, Pa. 15222, or from Marcona Corporation, One Maritime Plaza, San Francisco, Calif. 94111.

Northland Industries Appoints Lasse Moe

Lasse Moe

Lasse Moe has been appointed sales manager of Northland Industries, Englewood, N.J. Mr. **Moe,** a marine engineer, served in the Norwegian merchant marine for several years. He graduated from N.K.I. in Oslo in 1969, with a degree in mechanical engineering and became project engineer for the Shippers Car Line Division of ACF Industries.

Northland Industries represent leading Norwegian manufacturers of marine and industrial equipment such as The Aker Group, Frank Mohn A/S, Haugesund Mekaniske Verksted A/S, Norsk Hydro Verksteder A/S and A/S Strommen Staal. In addition to building ships to 283,000 dwt, these companies manufacture deck machinery, cranes, deepwell pumps, reduction gears, bow thrusters, valves and valve systems, iron castings, steel castings to 90 tons, propellers, propeller nozzles and many other marine products.

All equipment is in accordance with ABS, U.S. Coast Guard, and classification requirements. Castings, pumps and similar products manufactured to MIL-specs and applicable codes.

Lake Shore Opens Lifeboat Factory In N.J. —New President Named

Lake Shore, Inc., Iron Mountain, Mich, a leading manufacturer of marine deck auxiliaries, has opened a factory for the manufacture of fiberglass-reinforced utility and lifeboats in South Plainfield, N.J. This move follows Lake Shore's acquisition of the former Welin Davit and Boat Division of Lane Marine Technology, Inc., Brooklyn, N.Y. Located at 3614 Kennedy Road, South Plainfield, the factory will be housed in a newly built 15,500-square-foot single-story building.

A large supplier of davits and winches for naval vessels, Lake Shore also acquired a line of commercial davits and winches from Lane Marine Technology. Commercial davits and winches, as well as those for naval vessels, will be manufactured at the company's Marquette and Kingsford, Mich., plants.

Lake Shore's Eastern Sales Office, formerly located at Upper Montclair, N.J., has been moved to the South Plainfield facility. Sales and service of Lake Shore's extensive line of marine deck equipment, ShoreMaster container carriers, and Wagner underground, trackless mining vehicles, will be handled from the new sales office.

The board of directors elevated **B.W. Reeve** to the position of chairman of the board and chief executive officer of the company, and named **James T. Malsack** president and chief administrative officer.

Mr. **Reeve,** a native of Brock, Neb., joined Lake Shore in 1947 as manager of what was then the company's Service and Supply Division. In 1949, he was named vice president, sales, and became president upon the death of **F.A. Flodin** in 1958.

Mr. **Malsack** joined Lake Shore in 1951 as assistant to the president. He later served as secretary-treasurer, vice president, was elected a director in 1958, and named executive vice president in 1961. Mr. **Malsack** is a native of Milwaukee, Wis., and a graduate of Marquette University.

In other action, the board elected Dr. **Raymond L. Smith,** president of Michigan Technological University, Houghton, Mich., to the board of directors, succeeding the late **Lee Redman.**

SHIPYARD TRANSPORTER: Destined for the Swan Hunter Shipyard at Newcastle-on-Tyne in England, the self-propelled transporter shown here is capable of handling 60-ton loads and is designed for use in limited access or congested areas in shipbuilding yards to transport fabricated ship sections from the assembly and outfitting buildings to the drydock for installation. Several leading shipbuilders in the United States are using these transporters in their operation, and full sales and service for all areas of the United States and Canada is provided by Truck Engineering Limited, P.O. Box 518, Woodstock, Ontario, Canada. Another unique platform trailer of the same manufacture is a King-Scheuerle unit which can be produced with a 336-ton capacity. Other designs up to 1,000-ton capacity are available. When completed, each of the six-axle line, 48-tired trailers can be used independently or combined to provide tremendous maneuverability and load capacity.

Key Engineering Names Chartwell London, Co. As European Agent

James A. Giese, Sr., president and founder of Key Engineering, Inc., 12502 Woodthorpe Lane, Houston, Texas 77024, has named Chartwell London,. Co. as European agent.

Key Engineering has been designing and building bulk grit blasting and vacuum recovery equipment for its own companies for the past 30 years. Since 1967, Key has serviced general marine customers in the United States.

Key Engineering equipment includes grit blasting and vacuum recovery units, automated penstock and pipe blasting systems, a unique line of portable on-deck gantry and mobile scaffolding assemblies, and a patented steel abrasive recovery system for blast rooms.

The increased interest from overseas sources has necessitated the appointment of Chartwell London to handle much of the overseas inquiries. For information on Key equipment, write their Houston, Texas, office.

Overseas Enterprises Moves To New Offices

Overseas Enterprises, Inc. has moved its offices to One World Trade Center, Suite 2841, New York, N.Y. 10048, according to an announcement by **Magnus Olsen,** president.

Overseas Enterprises, Inc. acts as agents for The Portuguese Line —CNCA, Great Lakes Transcaribbean Line, DS-Tankers, Deutsche Africa Line, India Steamship Co., D.G. "Neptun," and Sea Containers, which is an independent container leasing firm specializing in chassis, containers, refrigerated containers, tanks, feeder containerships, and container cranes.

Hoffman Companies Appoints Kilpatrick

Joseph F. Watters, vice president, Hoffman Companies of Belleville, N.J., has announced the appointment of **James J. Kilpatrick** of Belleville as field sales representative. Mr. **Kilpatrick** is a graduate of La Salle College in Philadelphia and was a construction officer with the Peace Corps in Nigeria. Most recently, Mr. **Kilpatrick** was field representative for Sea Land Co., a major container cargo firm.

Mr. **Watters** stated, "This appointment enables us to better service the construction and heavy hauling industry in the key New York Metropolitan market."

E.H. Mundy & Co. Names J.H. Ferris Jr.

The Miami-based steamship agency firm of E.H. Mundy & Co. (America) Ltd. announced that it has named **J.H. Ferris Jr.** as its general manager. Mr. **Ferris** had formerly served as port director of Port Everglades.

In his new post, Mr. **Ferris** will be responsible for the agency, including the operation of the Blue Sea Line and Gulf Container Line accounts.

'Without Prejudice'— Book Describes History Of U.S. Salvage Assn.

Titled "Without Prejudice" and written by **C. Bradford Mitchell,** well-known maritime author, a book commemorating the history of the United States Salvage Association, Inc., was recently published celebrating the organization's semicentennial.

The title "Without Prejudice" is the formal phrase ordained by custom (and required by the Marine Surveying Manual of the United States Salvage Association) to precede the surveyor's signature on any report he may file. In the same spirit as the more cumbersome formulae "Without fear or favor" and "the whole truth and nothing but the truth," it attests the marine surveyor's professional integrity and impartiality.

Born an offshoot of marine underwriters' "audacious planning for a self-sufficient American hull insurance market," the United States Salvage Association has become since 1921 an internationally recognized and, in many ways, unique center for marine surveying, ship damage investigations, technical research, and maritime safety studies. Initially fostered by Congress and U.S. Shipping Board to perform surveys on the huge Emergency Fleet of 1917-21, it survived the withdrawal of Government support in 1931, growing in ensuing years to such stature that the Government turned to it for specialized assistance in—among others—the logistics of the Normandy invasion, assessment of nuclear ship-propulsion hazards and delivery of the rocket boosters used to send astronauts to the moon.

Responsive to underwriter, shipowner, and public needs, the Association and its men have rendered emergency service on many famous ships and in many of history's great sea disasters. Of late, they have become centrally involved in establishing criteria and arrangements for the Arctic tug-and-barge supply line to Alaska's North Slope and the exacting waterborne movement of ponderous nuclear reactors.

Early in this century, American hull surveying, like the merchant marine itself, was at extreme low ebb. Today, with 19 offices in the United States, three in key foreign shipping centers, and almost 90 representatives in seaports around the world, the Association is an acknowledged world leader, not only in the ancient disciplines of survey and salvage, but also in a broad new spectrum of marine and paramarine technology. How these things came about is the theme of this fiftieth-anniversary volume.

The work will not be sold commercially, but copies are obtainable from the South Street Seaport Museum, 16 Fulton Street, New York, N.Y. 10038, and the Steamship Historical Society of America, Inc., P.O. Box 149, Montclair, N.J. 07043, at the price of $5. Proceeds will be applied in full to the benefit of these organizations.

Spencer P. Hutchinson Named Port Captain By Belgian Line Inc.

Eric de Spirlet, president of Belgian Line Incorporated, has announced the appointment of **Spencer P. Hutchinson** as port captain to replace Capt. **F. Van Geert,** who retired from the company after 43 years of service. The Belgian African Line services West African ports from the U.S.A.

Mr. **Hutchinson's** duty and responsibility is the supervision of the Belgian African Line vessels discharging and loading in the Atlantic and Gulf ports, including purchasing. His office is located at Pier 36, East River, Manhattan.

Before coming to the Belgian Line, Mr. **Hutchinson** was employed by the John W. McGrath Corporation, and previously by the Philpott Shipping Agency and the Isthmian Steamship Lines. He is a graduate of the New York Maritime College.

SNAME Pacific Northwest Section Discusses A Unique Way Of Computing Wetted Surfaces

Participants shown above are, left to right: **Tom Harrigan,** assistant secretary-treasurer of the Pacific Northwest Section; **Karl Atwood,** discussor, naval architect, Boeing Company; **Gene Frampton,** secretary-treasurer of the Section; **Theodore Holdridge,** author, Value Engineer, Supervisor of Ships, 13th Naval District; **George Salisbury,** Section vice chairman; **Lou Chirillo,** chairman, Pacific Northwest Section, and **Ed Hagemann,** discussor, Nickum and Spaulding Associates, Inc.

A unique way of computing wetted surfaces, called the "Quarter Circle" method, was the topic of a paper entitled "Improved Hydrostatic and Inclining Experiment Calculations for Unconventional Hull Shapes," presented to 70 members and guests of the Pacific Northwest Section of The Society of Naval Architects and Marine Engineers during their regular meeting on October 21, 1971.

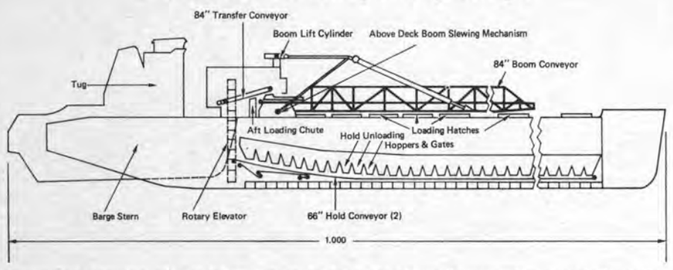
While presenting his paper, **Theodore E. Holdridge,** Value Engineer, Supervisor of Ships, 13th Naval District, noted that the calculation of hydrostatic curves and inclining experiments has remained relatively unchanged for a number of years, and the increased number of ships with unconventional hull shapes, e.g., catamaran, trimaran, etc., has further complicated the direct calculation of hydrostatic characteristics.

Mr. **Holdridge's** paper described in detail where improved mathematical logic was applied in a computer program, and together with the "Quarter Circle" rectification of station spacing and the use of right triangle areas and moments for cross curve calculations, it provided a technique to directly calculate the hydrostatic properties of ships with unconventional hull shapes.

Oral and written discussions were made by **Karl E. Atwood,** The Boeing Company; **E.C. Hagemann,** Nickum and Spaulding Associates; **Bruce Nehrling,** University of Michigan; **Ralph E. Johnson,** U.S. Coast Guard, Washington, D.C., and **Paul G. Snyder,** U.S. Coast Guard, San Francisco, Calif.

ESSO FOUNDATION GRANT: Webb Institute of Naval Architecture, Glen Cove, N.Y., has received a $5,000 grant from the Esso Education Foundation. **A. Giallorenzi** (right), New York branch manager of the marine department of Humble Oil & Refining Co., presented the check to Rear Adm. **W.A. Brockett,** USN (ret.), president of the institute, in the newly dedicated Livingston Library. Under the Foundation's 1971-72 Engineering and Science Program, similar grants totaling $336,000 will be made this year to 70 departments of science or engineering at 49 public and private institutions.

Materials Handling Innovations Planned For Huge Tug-Barge



Schematic drawing of tug-barge cargo transporter shows layout of materials handling system which includes a total of 198 unloading hoppers, dual 66-inch-wide hold conveyors, unique rotary elevator, transfer conveyor and 250-foot boom conveyor.

The largest pusher type tug-barge cargo transporter in the world—plans for which were announced this past July by Litton Industries—will include a number of innovations in the design of its high output bulk handling system.

The unique, self-unloading tug-barge will have a deadweight cargo capacity of 52,000 long tons. Specifically designed as a multi-product carrier, it will be able to transport a variety of commodities including iron ore, iron ore pellets, limestone and coal, to and from Great Lakes ports in the United States and Canada. The barge will be 105 feet wide, have a 28½-foot maximum draft and will have an overall length of 1,000 feet when pushed by the 15,000 horsepower tug.

The materials handling system for the new barge is being designed by Litton's Hewitt-Robins division. At its core is a novel rotary elevator which, together with dual hull conveyors and a new type hopper gate design, will give the barge a maximum unloading rate of 10,000 long tons per hour. The high output elevator, which looks much like a large water wheel, was pioneered by Hewitt-Robins in the Stuart J. Cort, a 1,000-foot self-propelled ore carrier built by Litton for Bethlehem Steel Corp. and now undergoing sea trials at Erie, Pa. In the new barge, however, the 67½-foot diameter rotary elevator, instead of being positioned in line with vessel's keel as on the Cort, will be installed perpendicular to the keel to permit it to receive materials from twin 66-inch hold conveyors simultaneously. In addition, the rotary elevator will load internally, instead of externally, with the drive belt supporting part of the loaded wheel's weight.

Material from the elevator will discharge onto a transfer conveyor, which in turn will feed a 250-foot-long hydraulically luffed and slewed 84-inch-wide boom conveyor. The hydraulic slewing mechanism of the boom will be positioned—for the first time ever on a self unloading vessel—completely above deck. Not only will this feature permit more usable cargo space below, but the simplified installation, according to engineers, will result in substantial savings over conventional installations of comparable size.

The transfer conveyor is employed not only to feed the boom conveyor but also to load the aft section of the hold beneath the boom pivot. For loading, the transfer conveyor is moved aft to a chute serving the aft hold section. As the rest of the barge is being loaded, the system is actuated to move material from the hold into the rotary elevator and onto the transfer conveyor positioned over the aft hold chute.

A new type of hopper gate has been engineered to discharge material onto the two reclaim conveyors that run nearly the full length of the hull. The 198 gates, suspended via cables and links from their hoppers, open perpendicular to the direction of conveyor belt travel and direct material flow along the center line of the belt rather than along its width. This feature spreads the impact of the material along the length of the belt and reduces wear on both idlers and belt. In addition the gates travel horizontally until half open and are levered to prevent accidental opening under load. As they reach maximum opening, the gates swing outward and upward to form side plates or skirtboards for the conveyors and thus reduce spillage.

The new barge is expected to be completed and undergo its sea trials and systems tests late next year.

American Ship Building Buys Training School

The American Ship Building Company has announced the acquisition of Electronic Technology Institute, Inc., a long-established technical training school with headquarters in Cleveland and branches in three other Ohio cities —Akron, Canton and Lorain. Terms of the purchase were not announced. **George M. Steinbrenner III,** chairman and chief executive officer of American Ship, said the new acquisition will become part of a new Training Division in the diversified corporation.

Electronic Technology Institute is headquartered at 4300 Euclid, Cleveland, and has 500 full-time students, and 1,100 taking courses on a part time basis. Many of those attending live in nearly 200 apartment units available on the campus. The school, which has already trained over 25,000 students, offers a two-year technician training program and a two-year course leading to an associate degree in the engineering technology field.

A special program trained enough employees in electrical, welding, ship fitting and blueprint reading to permit American Ship to establish a third shift at its Nashville Bridge plant in Nashville, Tenn. The school is presently developing a corporate safety training program which will be used by American Ship and several other companies.

Peltz Buys Assets Of Mill Supplies

Peltz Brothers, Inc., a ship chandler and industrial supply firm in Industrial Park, Norfolk, Va., has purchased the assets of Mill Supplies Corp. of 3301 Tait Terrace. The announcement was made by **Arthur H. Rosenfeld,** Peltz president.

Mill Supplies will operate as a separate division of Peltz. Mill Supplies' inventory has been moved to Industrial Park and four members of Mill Supplies' staff have joined Peltz Brothers, Inc.

The added staff includes **William J. (Joe) White,** president of Mill Supplies, who founded the business in 1945, **Alton Jackson, Henry Seymore,** and **James Moss.**

Mill Supplies has been specializing in hand and cutting tools and power transmission material to Government and industrial accounts.

Peltz Brothers was established in Newport News in 1916, opened a branch in Norfolk in 1935, and moved all of the business to Norfolk a few years ago. It acquired the ship chandlering business of Anders Williams, Inc. in early 1970 and expects sales next year of $2-million.

Mr. **Rosenfeld** said that Peltz is the only business on the East Coast that operates full-scale as both a ship chandler and industrial supplier. The firm also has entered the import-export business, largely through the efforts of **Robert Rodriguez,** the Mexican consul to Virginia.

A brochure describing the complete Peltz Brothers service can be obtained by writing to Peltz Brothers, Inc., 3499 Inventors Road, Norfolk Industrial Park, Norfolk, Va. 23502.

The University Of Michigan Naval Architectural Alumni Hold Annual Banquet In N.Y.

Pictured at The Brass Rail during the reunion, left to right: **Lester Rosenblatt,** president, M. Rosenblatt & Son; **James A. McCurdy,** president, McCurdy & Rhodes; **William E. Zimmie,** president, W.E. Zimmie, Inc.; Prof. **R.B. Couch,** and Prof. **Harry Benford,** University of Michigan.

The annual dinner of the Naval Architecture and Marine Engineering Alumni of the University of Michigan was held at The Brass Rail in New York City on November 10.

Following cocktails and dinner, **James A. McCurdy,** prominent yacht designer, spoke on the subject of racing and the design of racing yachts. Prof. **Harry Benford** and Prof. **R.B. Couch** gave brief talks about life on the campus of the University of Michigan. **William E. Zimmie** acted as toastmaster, and **Lester Rosenblatt** served as dinner chairman.

Two Heavy-Duty Deck Barges Join Union Barge Line Fleet

Especially heavy and oversized equipment—such as nuclear reactor vessels and components, steam generators, fractionating towers, petrochemical reactors, cranes, trucks, tanks, furnaces and presses—can be transported safely and efficiently by water on two new heavy-duty deck barges which have been added to the fleet of Union Barge Line Corporation, Pittsburgh, Pa.

Built by Dravo Corporation, Pittsburgh, the barges—200 feet long, 50 feet wide and 13 feet deep—are certificated by the American Bureau of Shipping for ocean, lake and river use.

Thick deck plate and closely spaced extra-heavy and deep internal bracing with bulkheads and trusses give each vessel a maximum load capacity in excess of 2,000 tons and a concentrated load capacity of up to 10 tons per square foot. Internally, the barges are divided into a number of compartments for additional load bearing strength.

Full support strength under the entire surface of the virtually flat decks facilitates loading and unloading of cargoes, while the internal compartment design permits flexibility in ballasting. The barges can be loaded or unloaded in a grounded condition from the bow, stern, or either side.

A subsidiary of Dravo Corporation, Pittsburgh, Union Barge Line offers common carrier service on the Ohio-Mississippi River System, the Gulf Intracoastal Waterway, and across the Gulf of Mexico to and from Tampa, Fla.

For a copy of Bulletin No. 71UBLO1 describing the strengths and capabilities of the new heavy-duty deck barges, write to Union Barge Line Corporation, One Oliver Plaza, Pittsburgh, Pa. 15222.

U.S. Freight Subsidiary Named Broker For Construction Of Three Luxury Cruise Ships

MGM has appointed U.S. Freight Transport Development, Inc., a subsidiary of United States Freight Company, as sole shipbroker for its proposed fleet of three 400-cabin luxury cruise ships for the moderately priced tourist market. The announcement was made by **Fred Benninger,** chairman of the board of Metro-Goldwyn-Mayer Inc. and **G. Russell Moir,** chairman and chief executive officer of United States Freight.

Under the agreement, U.S. Freight Transport Development's principal responsibilities involve design development, worldwide surveys of shipyard capacities and capabilities, preparation and submission of construction tenders, and commercial supervision of vessel construction following the award of contracts.

MGM contemplates that contracts for the construction of the ships will be entered into early in 1972 and that the first of these ships will be ready to start operations in the fall of 1973.

According to Mr. **Moir,** the vessels' design, classified as "U.S.F. Airline Module," will be patterned heavily—although on a more luxurious scale—on that of Freeport I, a 15,000-ton cruise ship operating successfully between Miami, Freeport and Nassau since December 1968. It is expected the MGM ships will have an overall length of about 528 feet, with sleeping accommodations for approximately 950 passengers. The ships will be designed to U.S. Coast Guard Fire Safety Regulations, American Bureau of Shipping Standards, and the latest and pending International Maritime Consultative Organization and other foreign-flag requirements.

Freeport I, of which United States Freight is a major owner, was designed and constructed under the management supervision of USFTD, and in 1970, transported over 190,000 passengers. Results through the first nine months of 1971 indicate that record will be far surpassed by the end of this year.

FRONT DRIVE TRAIN: John Giallombardo (at right) chief draftsman of the USMP Co., points to some of the features of a model that he made of a front drive train installed in several 33,000-dwt oceangoing barges. USMP is a wholly owned subsidiary of Alfred Conhagen, Inc., Staten Island, N.Y. The drive train takes full power from the front end of an 800-hp Caterpillar diesel, and through clutches alternately or simultaneously drives a 7,500-gpm Deepwell ballast pump or a 150-hp duplex hydraulic pump used to power the low pressure hydraulic deck machinery. Alfred Conhagen, Inc., is also U.S. licensee for the deck machinery installed on the barges. Shown above with Mr. **Giallombardo** is **Duncan (Scotty) McIntosh,** USMP plant manager, and **Alfred Conhagen Jr.** (center), vice president of Alfred Conhagen, Inc.

Adm. Emory S. Land

Vice Adm. **Emory Scott Land,** USN (ret.), who served as chairman of the Maritime Commission during World War II, died recently in the Naval Hospital at Bethesda, Md. He was 92 years old.

As chairman of the Maritime Commission and head of the companion agency, the War Shipping Administration, Admiral **Land** was responsible for the construction of some 55-million tons of ships. Many experts felt that this achievement, more than any other single factor, won the global war.

A native of Canon City, Colo., Admiral **Land** studied at the Naval Academy and scored Navy's winning touchdown in the 1900 Army-Navy game.

He was a past president and honorary member of The Society of Naval Architects and Marine Engineers.

Admiral **Land** was recipient of the Spanish Campaign Badge; the Victory Medal; World War (Submarines) Medal; Navy Cross; decoration of Honorary Commander Order of Commander of the French Legion of Honor (1948); Military Order of the British Empire (1922); a special letter of commendation by the Chairman of the National Advisory Committee for Aeronautics (1929); the Philippine Legion of Honor (Officer); and the Navy League's Robert M. Thompson Award for outstanding civilian leadership (1970). In 1951, the executive committee of The Society of Naval Architects and Marine Engineers authorized creation of The Vice Admiral "Jerry" Land Medal "For Outstanding Accomplishment in the Marine Field." Admiral **Land** was its first recipient.

Admiral **Land** joined the Society in 1908, served as member of council and was elected a vice president for two consecutive terms, from 1932 to 1938. At the November, 1940, council meeting he was elected president, and in 1942 was made an honorary member of the Society.

Dravo Corp.'s Marine Equipment Bookings Exceeds $32 Million

Dravo Corporation has announced that 1971 bookings for the manufacture of marine equipment will exceed $32 million—more than $11 million, or 50 percent, better than the previous best year.

Through October, the company had recorded orders for 282 hulls, primarily hopper barges. Included is a contract from Midland Enterprises, Inc., Cincinnati, Ohio, for 110 barges, Dravo's largest-ever single marine order.

Robert Dickey III, president and chief executive officer of the diversified engineering, construction and manufacturing firm, attributed the record year to several factors.

"Increased grain export quotas boosted demand for barges to move large quantities of grain to ocean ports," he said. "And the need for more equipment to transport increased quantities of coal to electric power generating plants also affected our 1971 barge bookings."

Mr. **Dickey** noted that the normal barge replacement market was exceptionally strong in 1971. He said, too, that recent expansion of the inland waterways system made commercial water transportation available for the first time to some sections of the country, increasing the number of potential barge users.

"We expect the barge market to remain strong in 1972," Mr. **Dickey** said, "and we look for a marked increase in demand for double-skin tank barges within the next year or so. More and more types of commodities are being moved by tank barge today. This, coupled with new water pollution regulations, will undoubtedly accelerate the switch from single-skin equipment to double-skin."

Dravo recently expanded its barge production capacity to meet anticipated demand. An additional assembly line was added this summer to the company's facility on Neville Island in the Ohio River near Pittsburgh, Pa. The plant can turn out six hopper barges per week, plus other types of marine equipment such as specialty barges and towboats.

Marine equipment is an important segment of Dravo's manufacturing operations, which this year will amount to about 25 percent of an anticipated total revenue of $400 million.

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Experienced in new ship construction using M1G, vertical electro-slag, vertical electrogas, submerged arc, and various manual techniques. Will be required to develop and monitor welding procedures, sequence, welder qualification, and in-plant welding procedures. Applicant should have 5-10 years practical experience plus related engineering degree.

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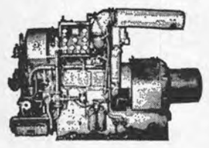

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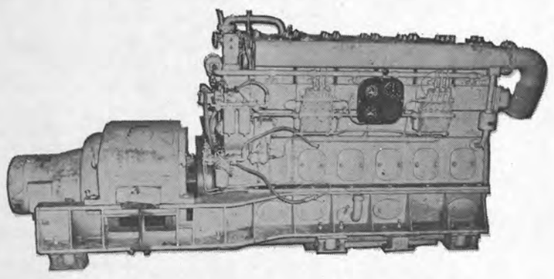

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Model FSN6, 6 cylinders, 375 HP, 900 RPM, with General Electric Generators, 250 KW, 440/3/60.

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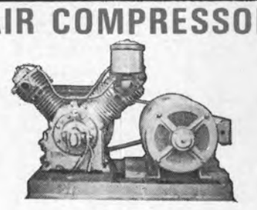

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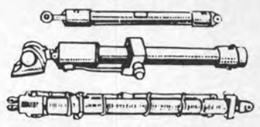

Bore	Overall Stroke	Rod Diameter	retracted length	Action
10"	12"	3.75"	45½"	double
10"	26"	3.75"	58½"	single
2"	8"	1½"	20"	double
2.5"	15"	1.12"	25½"	double
3"	8"	1.37"	1-5½"	double
6"	8'	4"	144"	double
13"	9'7"	5½"	14'	double

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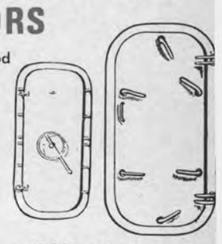

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AMERICAN ENGINEERING, horizontal, double 2⅛" Chain, 65 HP, 230 DC, complete.

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

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

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

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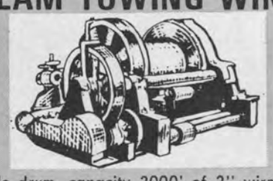

Single drum, capacity 2000' of 2" wire rope, cylinder size 9" bore by 10" stroke.

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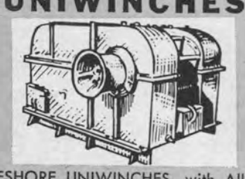

LAKESHORE UNIWINCHES, with Allis-Chalmers Motors, 50 HP, 230 Volts DC, complete with Control Equipment.

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.

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

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39.50 each with pull test certificates

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3 — L.S.T. TYPE VESSELS

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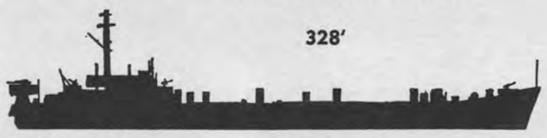

Steel Hull, 328' length overall, 50' extreme beam, maximum draft 14', light displacement 1780 tons, full load displacement 3640 tons, twin screw, with two (2) General Motors Diesel Engines, 900 HP, Model 12-567A. WILL SELL VESSELS COMPLETE (AS IS) OR STRIPPED TO HULL.

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6—FALK REVERSE REDUCTION GEARS 3 port, 3 starboard, as used with GM 12-567A Engines on L.S.T. Vessels, ratio 2.48:1 ahead, 2.52:1 astern.

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3—ALMON A. JOHNSON Stern Anchor Winches as removed from L.S.T. Vessels, line pull rating 100,000 pounds at 10 FPM in low gear, complete with Contractor Panels, Resistors, and Master Switches.

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12—4" size, ditto the above description.

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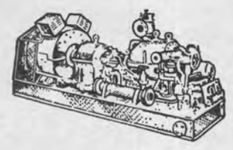
2—DE LAVAL, 360 HP, 440 PSI, 740°F, with Crocker-Wheeler Generators, 250 KW, 240/120 DC, 1200 RPM.

1—WORTHINGTON, 225 PSI, 397°F, 6510 RPM, with Westinghouse Generator, 150 KW, 120 DC, 1250 Amperes.

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

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



1—GENERAL ELECTRIC, 525 PSI, with G.E. Generator, 250 KW, 440/3/60.

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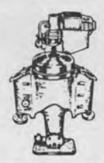
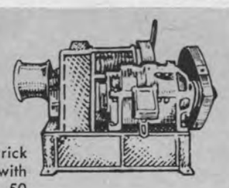


CARGO WINCHES



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Single Speed, Single Drum
Two Speed, Single Drum

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American Hoist and Derrick Company

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

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U5 -SINGLE DRUM, Two speed (2)
High Speed line Pull: 7450# - 224 FPM, 6360# - 238 FPM, 3720# - 288 FPM,
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Motor: Westinghouse, 50 HP, 230 Volts DC, 1900 RPM, Model 288212, 183 Amperes, compound wound, Frame 9 UW, horizontal.

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

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

1—WEINMAN, 220 GPM, 60' head, Size 3, Type KB, with Reliance Motor, 5 HP, 230 DC.

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

1—WARREN, Size 8DM11½, 1175 GPM, 11.1 PSI, with Reliance Motor, 10 HP 230 Volts DC.

1—WORTHINGTON, 3½" suction, 3" discharge, 150 GPM, 23.8 PSI, with Diehl Motor, 3.47 HP, 230 DC, 1750/3500 RPM.

3—GOULDS, 250 GPM, 100 PSI, Figure 3380, 4"x3", with 30 HP Motors, 230 DC.

CENTRIFUGAL PUMPS

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2—WARREN, 60 GPM, 50 PSI, 1.87 HP, 440/3/60, 3500 RPM.

1—WARREN, 17 GPM, 110 PSI, 3½ HP, 440/3/60, 3500 RPM.

1—WARREN, 600 GPM, 50 PSI, 8¼ HP, 440/3/60, 1135 RPM.

1—GARDNER-DENVER, 750 GPM, 360' head, 6" suction, 5" discharge, 3500 RPM, with G.E. Motor, 100 HP, 440/3/60.

1—WARREN, Size 3-SED-8, 150 GPM, 26.2' hd., with Westinghouse Motor, 3.96 HP, 440/3/60.

4—WORTHINGTON, 200 GPM, 100 PSI, 3½" suction, 3" discharge, Size 2UB1, with Wagner Motor, 25 HP, 440/3/60.

1—GARDNER-DENVER, 5" suction, 3" discharge, 350 GPM, 336' head, 50 HP, 440/3/60, 3500 RPM.

1—CARVER, 400 GPM, 100 PSI, 3½" suction, 2½" discharge, 3500 RPM, 35.7 HP, 440/3/60.

2—WORTHINGTON, 875 GPM, 10 PSI, 1160/860 RPM, with Westinghouse Motor, 4.45 HP/7.92 HP, 440/3/60.

3—WORTHINGTON, 6" x 6", 550 GPM, 25' head, 6 HP, 440/3/60, 1750 RPM.

2—BUFFALO, 250 GPM, 100 PSI, Class CCS, Size 4 x 3½", with Westinghouse Motors, 25 HP, 440/3/60.

CENTRIFUGAL PUMPS

DC – VERTICAL

1—AURORA, 4" x 3", with G.E. Motor, 25/40 HP, 230 DC, 1310/1750 RPM.

1—INGERSOLL-RAND, Size 8VCM, 8" suction, 8" discharge, with Westinghouse Motor, 15 HP, 230 DC, 850/1210 RPM.

1—INGERSOLL-RAND, 4" suction, 3" discharge, with Westinghouse Motor, 15 HP, 230 DC, 1310/1750 RPM.

1—WARREN, 6" suction, 3" discharge, with G.E. Motor, 5 HP, 440/3/60, 1725 RPM.

1—DAYTON-DOWD, 5" suction, 4" discharge, with Century Motor, 15 HP, 230 DC, 1310/1750 RPM.

2—ALLIS-CHALMERS, 170 GPM, 208' head, Type CF2V, 6" suction, 3½" discharge, 20 HP, 230 DC.

2—ALLIS-CHALMERS, 30 GPM, 208' hd, Type CF2V, 2½" suction, 1½" discharge, 7½ HP, 230 DC.

1—ALLIS-CHALMERS, 12,500 GPM, 10.4 PSI, Type LS-V, Size 20" x 20", 100 HP, 230 DC.

1—ALLIS-CHALMERS, 2520 GPM, 14.4 PSI, Size SE-V, 12" x 12", 30 HP, 230 DC.

2—ALLIS-CHALMERS, 600 GPM, 30 PSI, Type SGV, 5" x 5", 20 HP, 230 DC.

1—ALLIS-CHALMERS, 450 GPM, 120 PSI, 4" x 3", 50 HP, 230 DC.

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

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AC – VERTICAL

1—DE LAVAL, 155 GPM, 59.9 PSI, 440/3/60.

1—WARREN, 17 GPM, 55 PSI, with Westinghouse Motor, 4.26 HP, 440/3/60.

1—INGERSOLL-RAND, Size 2VHMA, 65 GPM, 75 PSI, 440/3/60.

1—BUFFALO, Size 6, 875 GPM, 10 PSI, 6.3 HP, 440/3/60.

ROTARY PUMPS

DC – VERTICAL

1—WORTHINGTON, Size 4GRVS, with Westinghouse Motor, 15 HP, 230 Volts DC, 1310/1750 RPM.

2—QUIMBY, Size 4D, 225 GPM, 50 PSI, 15 HP, 230 DC, 540/740 RPM.

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

2—QUIMBY, Size 6, 500 GPM, 70 PSI, 40 HP, 230 DC.

1—QUIMBY, Size 2½, 17 GPM, 405 PSI, 7½ HP, 230 DC.

Rotary, AC – Vertical

2—NORTHERN, Size 7020, 10 GPM, 350 PSI, 200 RPM, 3.65 HP, 440/3/60, 1720 RPM.

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1—HELE SHAW, Size JLP12, 1000 PSI, 850 RPM, with Westinghouse Motor, 35 HP, 230 DC.

2—OIL GEAR, Type OH35-11, 1100 PSI, 860 RPM, with Reliance Motors, 40 HP, 230 DC.

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ROTARY PUMPS

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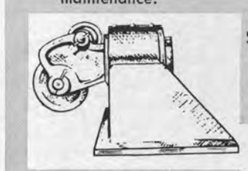

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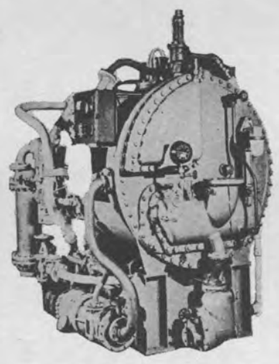

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Bruce GM Diesel, Inc., 180 Route #17 S. at Interstate 80, Lodi, N.J. 07644
Caterpillar Tractor Co., Industrial Div., 100 N.E. Adams St., Peoria, Ill. 61602
Colt Industries Inc., Power Systems Div., Beloit, Wisc. 53511
Electro-Motive Division General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

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

DOORS—Watertight—Bulkhead
Overbeke-Kain Co., 209 Aurora Rd., Bedford, Ohio 44014
Pioneer Industries, 401 Washington Ave., Carlstadt, N.J. 07072
Walz & Krenzer, Inc., 20 Vesey St., New York, N.Y. 10007

ELECTRICAL EQUIPMENT
Arnessen Electric Co., Inc., 335 Bond St., Brooklyn, N.Y.
Galbraith-Pilot Marine Corp., 600 4th Ave., Brooklyn, N.Y. 11215
L. F. Gaubert & Co., 700 So. Broad St., New Orleans, La. 70150
Marine Industrial Products Co., 195 Paterson Ave., Little Falls, N.J. 07424
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Pauluhn Electric Mfg. Co. Inc., P.O. Box 12805, Houston, Tex. 77017

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

FITTINGS & HARDWARE
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

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

GALLEY RANGES
S. Blickman, Inc., 536 Gregory Ave., Weehawken, N.J. 07087
Elisha Webb & Son Co., 136 So. Front St., Philadelphia, Pa. 19106

HEATERS—Ship
Todd Products, Div. of Todd Shipyards Corp., Brooklyn, N.Y. 11231

HULL CLEANING & BLASTING
Key Engineering, 12502 Woodthorpe Lane, Houston, Texas 77024
Trident Marine, 533 East 24th St., Brooklyn, N.Y. 11210
Vacu-Blast Corp., Box 885, Belmont, Calif. 94002

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

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

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

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

MARINE DRIVES—GEARS
Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa. 19406
Western Gear Corp., Industrial Products Div., P.O. Box 126, Belmont, Calif. 94003

MARINE NAVIGATION EQUIPMENT & AIDS
American Hydromath Co., 55 Brixton Rd., Garden City, N.Y. 11530
Bently Nevada Corp., P.O. Box 157, Minden, Nevada 89423
Edo Western Corp., 2645 So. 2nd St., W. Salt Lake City, Utah 84115
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
Marquardt Corp., 16555 Saticoy St., Van Nuys, Calif. 91406
National Marine Service, 1750 So. Brentwood Blvd., St. Louis, Mo
Radiomarine Corp., 20 Bridge Avenue, Red Bank, N.J. 07701
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Star Lifeline, Ltd., 1148 W. 15th St., No. Vancouver, B.C., Canada
Tracor, Inc., 6500 Tracor Lane, Austin, Texas 78721

MARINE EQUIPMENT
Adsco Div., 34 Milburn St., Buffalo, N.Y. 14212
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Kearfott Marine (Div. of The Singer Co.) 21 West St., New York, N.Y. 10006
Merrin Electric, 162 Chambers St., New York, N.Y. 10007
Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Stow Mfg. Co., 225 Shear St., Binghamton, N.Y. 13902
Vokes Filter Div., (Cardwell Machine Co.), Cardwell and Castlewood Rd., Richmond, Va. 23221

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

MARINE INSURANCE
Adams & Porter, Cotton Exchange Bldg., Houston, Texas

MARINE PROPULSION
Buehler Corp., 9000 Precision Drive, Indianapolis, Ind. 46236
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Marine Turbine & Gear Dept., Lynn, Mass. 01910
General Electric Co., Gas Turbine Dept., Schenectody, N.Y. 12305
Murray & Tregurtha, Inc., 2 Hancock St., Quincy, Mass. 02171
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Western Gear Corp., Precision Products Div., P.O. Box 190, Lynwood, Calif. 90262

MARINE RADIO COMMUNICATIONS EQUIPMENT
Collins Radio Co., M/S 407-321, Dallas, Texas 75207
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Electro-Nav, Inc., 555 Fifth Ave., New York, N.Y. 10017
Huse McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
ITT Decca Marine, Inc., 386 Park Ave. South, New York, N.Y. 10016
Raytheon Co. Marine Products, 676 Island Pond Rd., Manchester, N.H. 03103
RCA Service Co., A Division of RCA, Marine Communications and Navigation Equipment Service, Bldg. CHIC-225, Camden, N.J. 08101
RF Communications, Inc., 1676 University Ave., Rochester, N.Y. 14610

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Breit Engrg. Inc., 441 Gravier St., New Orleans, La. 70130
Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Crandall Dry Dock Engrs., Inc., 238 Main St., Cambridge, Mass. 02142
Cushing & Nordstrom, 50 Trinity Place, New York, N.Y. 10006
Arthur D. Darden, Inc., 1040 International Trade Mart, New Orleans, La. 70130
Sharp DeLong, 29 Broadway, New York, N.Y. 10006
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011
M Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Christopher J. Foster, 14 Vanderventer Ave., Port Washington, N.Y. 11050
Friede and Goldman, Inc., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 21 West St., New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
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J. J. Henry Co., Inc., 90 West St., New York, 10006
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Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, Calif. 93017
C. T. Ilariucci & Associates, Tourism Pier #3, San Juan, Porto Rico 00902
James S. Krogen, 1460 Brickwell Ave., Miami, Fla. 33131
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 1180 Ave. of Americas, N.Y., N.Y. 10036
Marine Design Associates, P.O. Box 2674, Palm Beach, Florida
Marine Mining & Engrg., Inc., P.O. Box 5032, Concord, Calif. 94520
Maritech, Inc., 38 Union Sq., Somerville, Mass. 02143
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Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742
Robert Moore Corp., 350 Main St., Port Washington, N.Y. 11050
Gunnar Nelson, 195 Paterson Ave., Little Falls, N.J. 07424
Nickum & Spaulding Associates, Inc., 71 Columbia St., Seattle, Wash. 98104
Ocean-Oil International Engrg. Corp., P.O. Box 6173, New Orleans, La. 70114
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
Potter & McArthur, Inc., 253 Northern Ave., Boston, Mass.
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Georg. G Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver 10, Canada

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

OILS—Marine—Additives
Esso International Inc., 15 West 51 St., New York, N.Y. 10019
Ethyl Corp. Marine Div. Perolin Co., New York, N.Y. 10001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Humble Oil & Refining Co., Humble Building, Houston, Texas 77002
Mobil Oil Corp., 26 Broadway, New York, N.Y. 10004
Refineria Panama, S. A., 277 Park Ave., New York, N.Y. 10017
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017

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

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Independent Petroleum Supply Co., 1345 Ave. of Americas, New York, N.Y. 10019
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Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Texaco, Inc., 135 E. 42nd St., New York, N.Y. 10017
The West Indies Oil Co., Ltd., St. John's, Antigua, W. I.

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

POLLUTION CONTROL
Enjay Chemical Co., 60 West 49th St., New York, N.Y. 10020
Uniroyal, Inc., 10 Eagle St., Providence, R.I. 02901

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

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Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bird-Johnson Co., 883 Main Street, Walpole, Mass. 02081
Coolidge Propeller Co., 1608 Fairview Ave. E., Seattle, Wash. 98102
Federal Propellers, 1501 Buchanan Ave. S.W., Grand Rapids, Mich. 49502
Ferguson Propeller, 1132 Clinton St., Hoboken, N.J. 07030

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Coffin Turbo Pump/FMC Corp., 326 So. Dean St., Englewood, N.J. 07631
Colt Industries, Inc., Fairbanks Morse Pump & Electric Div., 3601 Kansas Ave., Kansas City, Kansas 66110
Goulds Pumps, Seneca Falls, N.Y. 13148
Houttin-Pompen N. V. Sophialaan 4, Utrecht, Holland
Worthington Corporation, Harrison, New Jersey 07029

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

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York Corp., Grantley Road, York, Pa. 17405

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Columbian Rope Co., 309 Genesee St., Auburn, N.Y. 13022
Du Pont Co., Room 31H1, Wilmington, Delaware 19898
Jackson Rope Corp., 9th & Oley, Reading, Pa. 19604
Samson Cordage Works, 470 Atlantic Ave., Boston, Mass. 02210
Tubbs Cordage Company, P.O. Box 709, Orange, Calif. 92669
Wall Rope Works, Inc., Beverly, N. J. 08010

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Schuyler's Engineered Products Co., Box 87, Staten Island, N.Y.
Yokohama Rubber Co. Ltd., P.O. Box 46, Shiba, Tokyo 105, Japan

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

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

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Syntron, Div. FMC Corp., 398 Lexington Ave., Homer City, Pa. 15748

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

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
National Metal & Steel Corp., 1251 New Dock St., Terminal Island, Cal. 90731
Zidell Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

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

SHIPBUILDING STEEL
Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh, Pa. 15219
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004
Huntington Alloy Products, Div. International Nickel Co., Inc., Huntington, W. Va. 25720
International Nickel Co., 1 New York Plaza, New York, N.Y. 10004
United States Steel Corp., P.O. Box 86, Pittsburgh, Pa. 15230

SHIPBUILDING—Repairs, Maintenance, Drydocking
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Astilleros Espanoles, S.A. Zurbano, 70, Madrid 10, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Beliard Murdoch S. A., Kattendijkdok Westkaai 21, Antwerp, Belgium
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Blount Marine Corp., P.O. Box 360, Warren, Rhode Island 02885
Brodogradiliste "SPLIT", P.O. Box 107, Split, Yugoslavia
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Dillingham Corp., P.O. Box 3288, Honolulu, Hawaii 96801
Drava Corporation, Neville Island, Pittsburgh 25, Pa.
Equitable Equipment Co., Inc., P.O. Box 8001, New Orleans, La. 70122
General Dynamics, Electric Boat Division, 99M Eastern Point Road, Groton, Conn. 06340
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gotaverken American Corp., 39 Broadway, New York, N.Y. 10006
Grafton Boat Co., Inc., Grafton, Ill. 62037
Groignard Shipyards, P.O. Box 829 Colbert, Marseilles, France
Gunderson Bros. Engrg. Corp., 4700 N.W. Front St., Portland, Oregon 97208
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Havre de Grace, Havre de Grace, Md.
Hiliman Barge & Construction Co., Grant Bldg., Pittsburgh 19, Pa.
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Ishikawajima-Harima Heavy Industries Co., Ltd., 15 William St., New York, N.Y. 10005
Jacksonville Shipyards, 644 E. Bay St., Jacksonville, Fla. 32203
Jeffboat, Inc., Jeffersonvilie, Ind. 47130
Kawasaki Dockyard Co., 8 Kaigan-dori, Ikuta-ku, Kobe, Japan
Kelso Marine, Inc., P.O. Box 268, Galveston, Texas 77550
Kockums Malmo, Fack, Malmo, Sweden
Levingston Shipbuilding Co., P.O. Box 968, Orange, Texas 77630
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Litton Industries, 9920 W. Jefferson Blvd., Culver City, Calif. 90230
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Maryland Shipbuilding & Drydock, P.O. Box 537, Baltimore, Md. 21203
Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047
Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan
Mitsubishi Heavy Industries, Ltd., 5-1 Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan
Nashville Bridge Co., P.O. Box 239, Nashville, Tenn. 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
Northwest Marine Iron Works., P.O. Box 3109, Swan Island, Portland, Oregon 97208
Nuclear Service & Construction Co., Inc., 9296 Warwick Blvd., Newport News, Va. 23607
O.A.R.N. (officine Allestimento e Riparazioni Navi) Genoa, Italy
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Star Shipyards, Ltd., 61 Duncan St., New Westminster, Vancouver, B.C., Canada
Sumitomo Shipbuilding & Machy. Co., Ltd. 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Teledyne Sewart Seacraft, P.O. Box 108, Berwick, La. 70342
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

SHIP MODEL BASIN
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Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

STEAM GENERATING EQUIPMENT
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James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
Jackson Marine Corp., P.O. Box 1087, Aransas Pass, Texas 78336
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McDonough Marine Service, P.O. Box 26206, New Orleans, La.
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Suderman & Young Towing Co., 329 World Trade Center, Houston, Texas 77002
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Mechanical Marine Co. Inc., 900 Fairmount Ave., Elizabeth, N.J. 07207

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