MARITIME REPORTER
AND ENGINEERING NEWS

S/S United States

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Marine Technology '80 —A Preview
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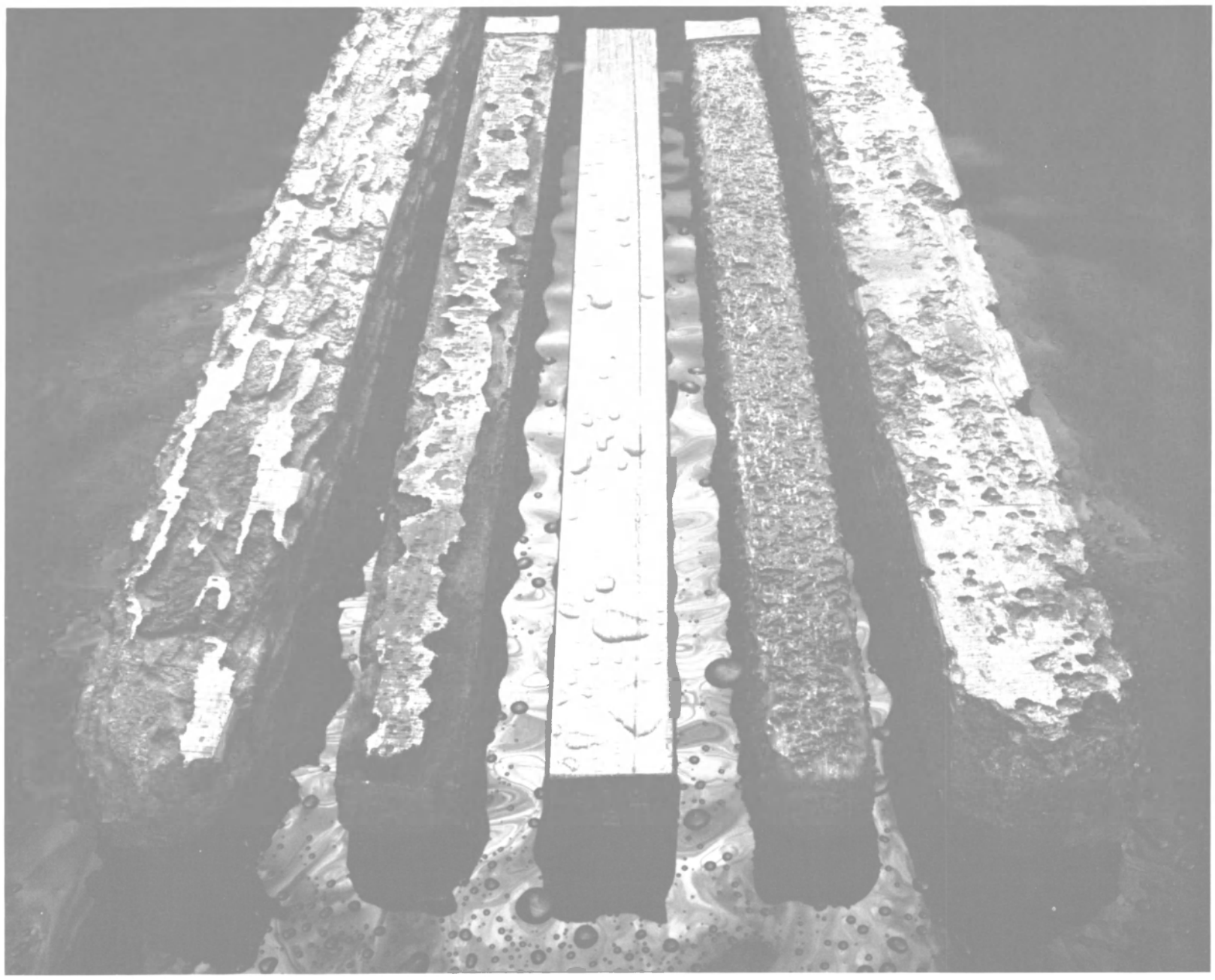
SEPTEMBER 15, 1980



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MMS Forms Subsidiary To Serve Clients In United Kingdom/Europe

Marine Management Systems, Inc. (MMS) recently announced the formation of an overseas subsidiary, Marine Management Systems (U.K.), Ltd., to provide technical support for its clientele in the United Kingdom and on the Continent.

Headquartered in Stamford, Conn., MMS specializes in the design and development of computerized management systems for the international shipping industry.

MMS president **Eugene D. Story** said the expansion move will also facilitate the marketing of services offered by two affiliate companies, MARDATA and MMS Associates. MARDATA markets a worldwide maritime information service, while MMS Associates is a consulting organization active in the marine transportation industry.

Mr. Story added that the new firm is headquartered at the World Trade Centre in London.

J.M. Colonell Appointed Senior Project Engineer For Woodward-Clyde

Woodward-Clyde Consultants has announced the appointment of Dr. **Joseph M. Colonell** to the position of senior project engineer with the firm's Anchorage office.

Prior to joining Woodward-Clyde, he was affiliated with the University of Alaska's Institute of Marine Science, where he was professor of ocean engineering. Before that he held a position as professor of civil and ocean engineering at the University of Massachusetts. Throughout his academic career, Dr. **Colonell** has also been active as an independent consultant, with emphasis on coastal engineering problems.

As senior project engineer, Dr. **Colonell** is responsible for Woodward-Clyde's coastal engineering and physical oceanographic activities in Alaska. His work will focus on the investigation and assessment of environmental forces in the coastal zone including beach and wave dynamics, pollutant transport processes, and the effects of ice.

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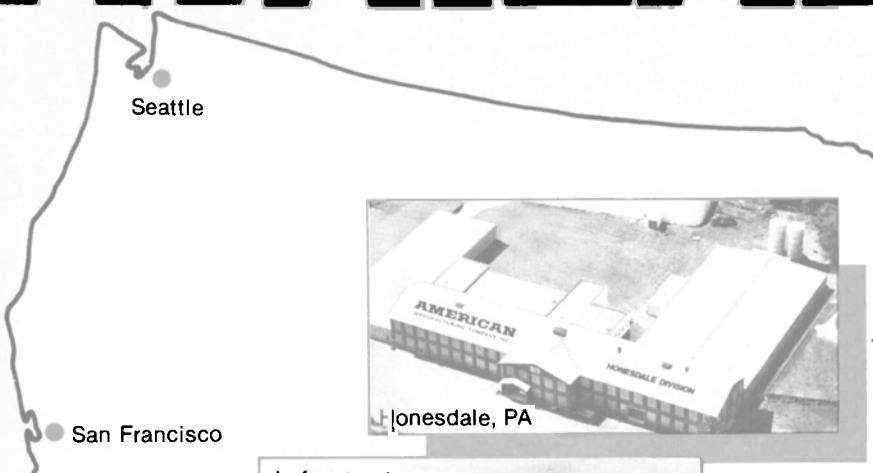

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Third Navy Destroyer Tender Launched At NASSCO Yard

A crowd of several thousand watched the recent christening of the USS Cape Cod (AD-43) at the San Diego yard of National Steel and Shipbuilding Company. She was the third Gompers Class destroyer tender to slide down the ways at NASSCO during the past 18 months. A fourth, (AD-44), is scheduled to be launched in December 1981.

Sponsor at the ceremonies was **Mrs. Betty Evans Murray**, wife of Under Secretary of the Navy **Robert J. Murray**, who was the key speaker of the day. Their younger daughter, **Victoria Ann Murray**, served as maid of honor.

Other participants in the program were **John J. Glynn**, USN, Chaplain, Naval Surface Force, U.S. Pacific Fleet; **C. Larry French**, president of NASSCO; Capt. **W. Todd Hale**, USN, Supervisor of Shipbuilding, Conversion and Repair, San Diego; Capt. **Stuart Platt**, USN, Deputy Commander, Naval Sea Systems Command, Contracts Directorate; and **John M. Murphy**, vice president, corporate relations, NASSCO.

Following the launching ceremony, Vice Adm. **Lee Baggett Jr.**, USN, Commander, Naval Surface Force, U.S. Pacific Fleet, laid the keel for the AD-44.

The Cape Cod — like her sister ships Yellowstone and Acadia launched last year — is named for a U.S. geographic area; in this case, the historic cape off Massachusetts where the Pilgrims first landed.

Sponsor of the new ship was **Mrs. Robert J. Murray**, wife of U.S. Navy Under Secretary **Murray** (left). Their daughter, **Victoria Ann Murray**, was maid of honor. At right is NASSCO president **C. Larry French**.

The 642-foot-long ADs are the first destroyer tenders of their type designed since World War II, and will replace aging fleet tenders that have been in continuous service for more than 30 years. The 22,000-ton (displacement) Gompers Class tenders will provide repair and supply services to new destroyer type ships that have advanced missile, antisubmarine, and electronics systems. They have more than 50 shops, including facilities to service nuclear power plants. They will provide repairs and modifications that do not require drydocking, and will carry spare parts, weapons, munitions, and medical and dental personnel.

NASSCO, a wholly owned subsidiary of Morrison-Knudsen Company, currently has under contract four Navy ships, four 37,500-dwt product carriers, and three 44,000-dwt product carriers.

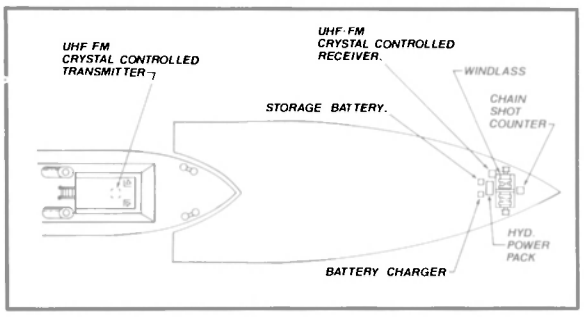
Destroyer tender **USS Cape Cod** (AD-43) was launched recently at San Diego yard of National Steel and Shipbuilding Company. She is third of class launched at the yard.

SSI Introduces Emergency Anchor Windlass System— Literature Available

A barge operator in Argentina is among the first customers for a new radio-controlled, emergency anchor windlass system that has been designed, developed, and is now being

manufactured by SSI, Inc., an associate company of TBW Industries of Houma, La.

The new system, now being installed on barges built by Astilleros Espanoles S.A., is designed to reduce substantially one of the major hazards in the shipping industry: the danger imposed by free-drifting barges when the towline between them and the tug has been severed.



Upon severence of a towline, the SSI system immobilizes the barge by remotely releasing its anchor. The barge can then readily be recaptured and its towline easily reconnected. Time in transit can thus be reduced, providing an economy to both barge owner and shipper. Stabilization of the barge's position minimizes the possibility of collision with other shipping.

A radio-controlled, digitally encoded transmitter is the heart of the new system. Mounted on the towing vessel, the unit may also be transferred from the original mounting position to other vessels, an operation which, the manufacturer states, can be done simply and quickly.

The barge-mounted windlass is equipped with a hydraulic cylinder that activates release of the windlass brake upon receipt of the signal. This is done by means of a solenoid-operated hydraulic valve, which upon activation by the radio signal, releases hydraulic fluid to the brake-release cylinder. The wildcat begins to rotate, paying out cable, which operation is monitored by switch so that the amount of chain released may be observed. When a pre-set number of revolutions has been achieved (usually equivalent to 15 fathoms of chain), the solenoid is automatically de-energized, allowing the spring-set brake to return to the on position. The process may be repeated at any time by reactivating the transmit switch. An emergency stop control is included, enabling the windlass to be stopped at any point in the cycle.

An electric hydraulic power pack, power for which is derived from batteries, is mounted on the barge. A battery charger is provided to maintain voltage level.

For more information and free literature on the new system, write to **Robert L. Fouchard,** Dept. MR, SSI, Inc., P.O. Box 4036, Houma, La. 70361.

F. Shepherd Promoted At Designers & Planners— Pramud Rawat Joins Firm

Frank Shepherd has been promoted to the position of director, project engineering and systems analysis, and Dr. **Pramud Rawat** has joined Designers & Planners, Inc. as director, special projects. The announcement was made recently by **Ferd Serim,** president of the company. Designers & Planners is a firm of naval architects and marine engineers with offices in New York, Washington, and Galveston.

In his new capacity, Mr. **Shepherd** will be responsible for diverse projects including development of general and ship specifications and standardization documentation, data base management, technical solutions to fleet support problems, and electrical and electronic engineering. Prior to joining Designers & Planners, he was employed by the Navy Department, Vitro Laboratories, Cornell Aeronautical Laboratories, Honeywell, Inc., and most recently the Logistics Management Institute.

As director, special projects, Dr. **Rawat** will be responsible for scientific research and development effort and facilities engineering. He is a naval architect with 23 years' experience in structural design, mathematical application in surface representation and approximation, safety certification of shipbuilding facilities, and large/scale software development.

Frank Shepherd

Dr. Pramud Rawat

Prior to joining Designers & Planners, Dr. **Rawat** worked with Howaldtswerke-Hamburg, MIT, Ghana Nautical College, M. Rosenblatt & Son, Advanced Marine Technology Division of Litton Industries, Hydronautics, Inc., J.J. McMullen Associates, and most recently with Vitro Laboratories.

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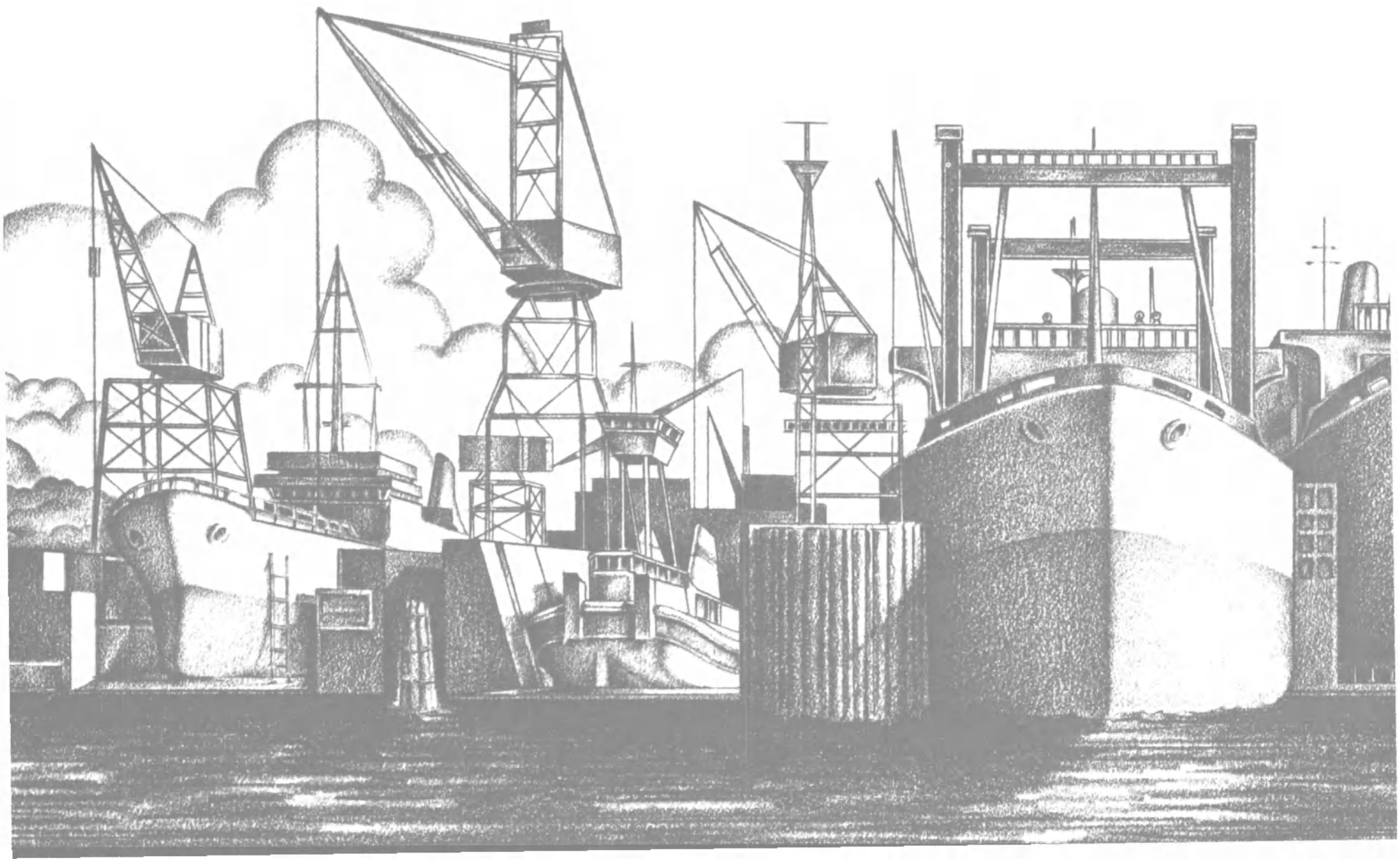

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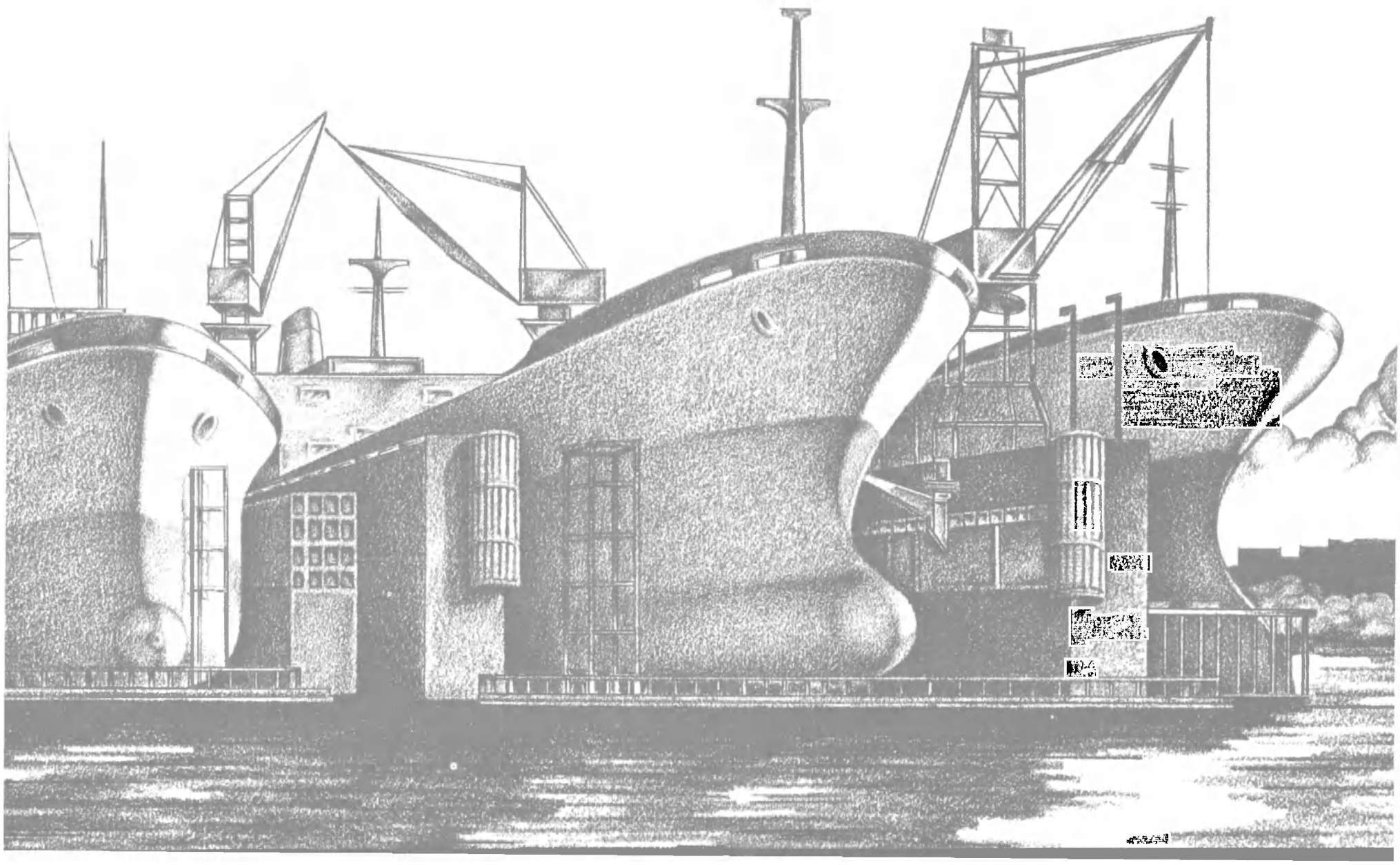


Canonie Forms New Subsidiary— Appoints Three New Executives

Stanley J. Andrie

Charles I. Beatty

John R. Parmater

T. Canonie Jr., president and chief executive officer of The Canonie Companies, Inc., announces the formation of a new subsidiary, Canonie-Bultema Pacific Corporation. Specifically formed to handle the West Coast operation of The Canonie Companies, Canonie-Bultema Pacific specializes in dredging, earthmoving, excavation, foundations, marine construction, and marine transportation. The new corporation combines the engineering/specialty construction / marine transportation skills of Bultema Dock and Dredge Company, Canonie Construction Company, Canonie Environmental Services Corporation, La Crosse Dredging Corporation, and Bultema Marine Transportation Inc.

Stanley J. Andrie, executive vice president of The Canonie Companies and president of Bultema Dock and Dredge, Bultema Marine Transportation, and La Crosse Dredging, has been elected president of the new subsidiary. He has been with the Marine Companies since 1963.

Charles I. Beatty, vice president of operations for Canonie Construction, and **John R.. Parmater,** who is executive vice president of Bultema Dock and Dredge and vice president of Bultema Marine Transportation and La Crosse Dredging, have been elected vice presidents.

Mr. **Beatty** joined Canonie Construction in 1970. Mr. **Parmater** has been with the Marine Companies since 1971.

Armco Restructures Western Steel Division Into Three Groups

Clifford G. Ward

Robert L. Purdum

F.H. Cheffy

Armco recently restructured its Western Steel Division into three operating divisions — Southwestern Steel, Midwestern Steel, and Manufactured Products. The reorganization is a further step in Armco's strategy to establish autonomous business units.

Southwestern Steel Division is headquartered in Houston, and produces carbon and alloy steels in plate, wide-flange, and bar forms primarily for the energy and marine markets. Its Houston producing plant is the largest integrated steel mill on tidewater west of the Mississippi River.

Clifford G. Ward is president of Southwestern Steel Division. He was with the company's steel sales organization from 1949 to 1977, when he transferred to Armco's Houston-based National Supply Company as vice president of administration. In 1978, he returned to Armco's Western Steel Division as vice president of Houston products.

Headquartered in Kansas City, Mo., Midwestern Steel Division produces carbon and alloy steels in the form of bar, rod, and wire, primarily for agricultural mining and light construction uses. **Robert L. Purdum** is president of Midwestern Steel Division. He served as sales engineer, general manager, and vice president for Armco's Metal Products Division. In 1978, he was named vice president for Western Steel Division's Kansas City Products organization.

Also with headquarters in Kansas City, Manufactured Products Division has producing plants in Kansas City; Sand Springs, Okla.; Marion, Ohio; and several smaller fabricating plants. Union Wire Rope, a full line wire rope producer, is part of this division.

F.H. (Ted) Cheffy is president of the division. He joined Armco

in 1956 and advanced through its steel sales organization to director of products and customer services for Armco's Eastern Steel Division. In 1977, he was named general manager of Union Wire Rope.

Newport News Awarded Two Navy Contracts Totaling $39.2 Million

Newport News Shipbuilding, Newport News, VA, has been awarded a $23,810,956 modification to a previously awarded contract for long lead time items and steel for the nuclear-powered aircraft carrier CVN-71. A second Navy modification award, in the amount of $15,389,641, was made for additional long lead time items for the same ship. The Naval Sea Systems Command was the contracting activity for both awards.

Toronto Firm Proposes Truck/Trailer RO/RO Run Across Lake Ontario

A Toronto company is prepared to start a roll-on/roll-off, translake ferry service if the scheme receives approvals from U.S. regulatory bodies.

Sherwood Marine Inc. has been developing plans for a truck/trailer ferry run across Lake Ontario for some time, and has set up a subsidiary, Ro-Ro Ontario Inc., to operate the proposed service.

According to company president **W. Paul Sherwood**, his firm is willing to spend $35 million to establish the ferry link between the Port of Toronto and a yet-to-be-determined U.S. city. Several sites for the U.S. base port are being considered and include Somerset, Rochester and Oswego, all located in New York State.

"A new marine service across Lake Ontario carrying commercial tractor trailers will mean significant benefits to the transportation industry and the consumer," said Mr. **Sherwood**, who explained that he is confident his firm will gain the necessary approvals to operate the service. "There is no indication, from the preliminary studies, of any problems," he said.

"The service offers a fast and inexpensive alternative to shippers of freight and parcels between Canada, the United States and foreign destinations. It's a cost-efficient transportation method that is expected to have a discernable impact on lowering fuel consumption, as well as reducing truck traffic on public highways," he said.

According to Mr. **Sherwood**, feasibility studies conducted in both Canada and the United States have shown that the 2½-hour translake service is a practical approach to shipping commercial traffic as compared to the conventional overland method.

Once given the go-ahead, Mr. **Sherwood** expects to inaugurate the service with a chartered RO/RO vessel. This would be followed by the construction of equipment specifically designed for the run and for this purpose.

"Further down the road we will have to build," he said. Among other craft, Sherwood Marine is looking at a U.S.-designed Catug integrated tug-barge system. Marketed in Canada by Bulk-Mar Canada Inc., a Toronto-based affiliate of Logistec Corporation, the Catug cross-lake ferry would accommodate 85 trailers on two enclosed decks of the barge, with room for up to 51 twenty-foot containers on the exposed upper deck.

Designed by J.B. Hargrave, Naval Architects Inc. of West Palm Beach, Fla., in collaboration with Seabulk Corporation of Fort Lauderdale, the unique Catug system incorporates a twin-screw catamaran tug that fits closely over and around the specially contoured stern of the barge.

Avondale Lays Keel For Fourth Navy Fleet Oiler

Avondale Shipyards, Inc. of New Orleans, a subsidiary of Ogden Corporation, recently laid the keel for the U.S. Navy auxiliary oiler Willamette (AO-180). She is the fourth in a series of five that Avondale is building for the Navy.

Named for the river that flows from the Cascades into the Columbia River in western Oregon, the Willamette is scheduled to be launched in March of 1981 and delivered in December the same year.

The Willamette will join the Navy's fleet of AOs to deliver bulk diesel marine fuel and JP-5 from shore depots to AOEs and AORs effecting delivery under way, to make underway delivery to combatants and support forces, and to deliver limited fleet freight, mail, and personnel.

Like her sister ships, the Willamette will have an overall length of 591½ feet, extreme beam of 88 feet, mean draft of 31½ feet, and displacement of 26,110 tons. She will be manned by a crew of 200, and have a sustained speed of 20 knots.

Although principally a shipbuilder, Avondale is a diversified company with facilities that include quick-repair yards, a foundry, a special products division, steel sales, and a facility near the Gulf at Bayou Black that builds offshore drilling structures.

J.V. Sterling Joins Pacific Marine As VP And General Manager

James V. Sterling Jr. has joined Pacific Marine, a Unitek Company, as vice president and general manager of the ship and industrial repair.

James V. Sterling Jr.

Prior to joining Pacific Marine, he was senior vice president for one of Hawaii's largest maritime companies. He is a retired lieutenant, U.S. Navy Reserve, and currently holds a U.S. Coast Guard license. He is a graduate of the Massachusetts Military Academy.

Pacific Marine, a Unitek Co., is a diversified Hawaii corporation with operations in a variety of industries. Its primary businesses are ship repair and industrial contracting.

TBW Industries Gets $5-Million Order For SMATCO Deck Equipment

A $5-million contract for SMATCO deck equipment and Pnu-Tanks has been signed by TBW Industries of Houma, La., which will provide the equipment for MacLaren Shipyard of Rio de Janeiro, Brazil. MacLaren is currently building 14 supply boats on orders placed by Brazilian offshore operators.

Announcement of the contract was made by **R.M. Thompson**, president of TBW Industries, who said the major items to be supplied will be windlasses, tuggers, waterfall anchor-handling winches, and pneumatic bulk tanks.

The contract is one of three recently signed by TBW Industries with Brazilian companies. Ebin-So Shipyard of Porto Alegre has contracted for a major shipment of SMATCO constant-tension winches, and Dresser of Brazil has ordered four horizontal tanks.

All of the equipment included in the three orders is manufactured in Brazil through licensing agreements with TBW licensees CEC Equipamentos Maritimos and Irmaos Strauhs.

Thomas Ternes Joins Guralnick Associates As Supervisory Engineer

Hugh F. Munroe, president and chief executive officer of Morris Guralnick Associates, Inc., has announced that **Thomas John Ternes** has joined the San Francisco-based firm of naval architecture and marine engineering in the capacity of supervisory engineer in the Naval Architecture Department.

Thomas John Ternes

Mr. **Ternes** comes to MGA from Hydronautics, Incorporated, where he served as assistant research scientist. In that position, he was engaged in numerous studies and tests of resistance and powering of ships utilizing the company's model testing basin. That work covered such technical areas as improving the controllability of tankships, maneuvering tests of cable layers, seakeeping characteristics of containerships, resistance of planing hulls, and many similar investigations, which resulted in valuable technical reports to clients.

Mr. **Ternes** is a 1971 graduate of the U.S. Naval Academy with a degree in naval architecture.

HUD Moves Head Office To Tsing Yi Island— Kowloon Yard Closed

A recent occupant of HUD's 100,000-ton floating dock Chung Shan was 92,000-dwt tanker, owned by Guangzhow Ocean Shipping, an example of what the yard can handle.

The headquarters office of Hongkong United Dockyards Ltd. (HUD) recently moved to Tsing Yi Island, where its new yard is now in full operation and where plans for the second phase of expansion have been made.

The recent drydocking of the passenger/cargo vessel Shanghai, owned by Xing Hai Company of Shanghai, was the last vessel to be repaired at the 115-year-old Kowloon Yard, and marked the end of an era at Hung Hom and a beginning of a new one for the company.

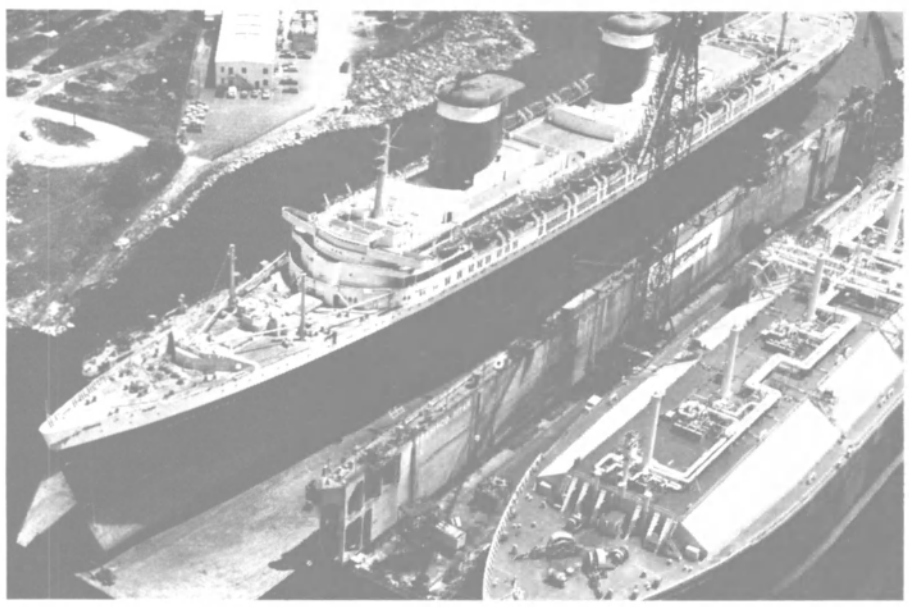
The resources of the company have now entered a new phase, for at Tsing Yi, HUD's drydock capacity is far greater than in the old graving docks that stood for so long at the Kowloon Yard.

The addition of the 100,000-ton floating dock Chung Shan, along with the Panamax-sized dock Whampoa and the 25,000-ton Taikoo, puts HUD's facilities at Tsing Yi Island second to none in the region, says commercial manager **Frank Mackinnon.**

"The 92,000-dwt tanker Chaohu of Guangzhow Ocean Shipping Company, which was docked recently in the Chung Shan dock, is an indication of the type of vessels to be expected in the future," Mr. **Mackinnon** said.

Commenting on the Kowloon Yard closure, HUD managing director **David Hall** said: "Our historical links with the Kowloon Yard are very strong, and the closure will be a landmark in the history and development of HUD, but we are convinced that our major investment in the new yard at Tsing Yi will ensure the future growth of HUD and Hong Kong's ship repair industry."

ON THE COVER



S/S 'United States'— A Second Life For World's Fastest Passenger Liner?

The recent drydocking and inspection of the SS United States at Norshipco's yard in Norfolk showed the 28-year-old ship to be in excellent condition, both inside and out.

Since the world's fastest passenger liner was mothballed in 1969, the Maritime Administration has provided her with meticulous care. A sophisticated dehumidification system utilizing some 5,000 feet of galvanized tubing has kept the relative humidity in the interior spaces at less than 20 percent—about what you might expect in King Tut's sealed tomb.

Even more remarkable, during a recent tour of her public rooms and service areas, the ship appears like she had been out of service for only days or weeks—not the more than 10 years that she has been laid up. Her galley, once capable of serving 9,000 meals daily, is still stocked with its 80,000 pieces of crockery, 25,000 pieces of crystal, and 48,000 pieces of silverware. Her engine rooms are almost as spotless as the galley. And in her library, note paper, envelopes, and playing cards are still in slots on the writing desks!

When the United States was completed in 1952 as the flagship of United States Lines, she quickly set a record to win the coveted "Blue Riband" by crossing the Atlantic from New York to Le Havre in 3 days, 17 hours, and 48 minutes, attaining an average speed of more than 35 knots, a record that has never been equaled. Until recently, her top speed was a military secret; it is now known that she attained a maximum speed in excess of 39 knots during her official time trials.

Now it appears that the Big U may resume service as a luxurious cruise ship operating between the West Coast and Hawaii, and on cruises to other areas of the world. U.S. Cruises Inc. of Seattle agreed to purchase the mothballed liner from the Maritime Administration in September 1978 for $5 million. The Seattle company is privately owned by **Richard H. Hadley**, a real estate builder and developer. He plans to spend $35 million on a 12-month refurbishing of the United States to make her one of the most luxurious liners in the world.

When construction and outfitting of the United States was completed in 1952, the total cost was about $79.5 million. Were she to be duplicated today, the cost would be approximately $400 million.

The SS United States was designed by William Francis Gibbs, then one of the world's leading naval architects, to be an "outstanding express liner of remarkable speed, safety, and efficiency." The 38,216-gt ship has an overall length of 990 feet and a beam of 101 feet 6 inches—measurements that would just allow her to squeeze through the Panama Canal, although she has never made that transit.

When last in service, the United States carried a crew of 1,000 to serve the needs of her 2,000 passengers who were carried in 694 cabins. After the refurbishing program planned by U.S. Cruises, she will have about 650 luxury staterooms accommodating more than 1,300 passengers. She will carry a crew of about 450, and will operate at speed of 18-20 knots.

Present plans for refurbishing include the construction or remodeling of five gourmet restaurants, the classic ship's dining room; a half-acre shopping arcade; two theaters for films and stage shows; formal ballroom; Hawaiian lounge and disco; "San Francisco" style pub; library and card room; full-size tennis court; two racquetball courts; three new outdoor, fresh-water swimming pools and one indoor pool; and a gymnasium, sauna, and spa. In addition, a closed-circuit television system will offer daily entertainment, as well as worldwide and ship's news and reports.

The goal of U.S. Cruises for the SS United States is at once enormous and simple: to make her the world's greatest luxury cruise ship.

An Update On The Contract Design Of The

Multi-Purpose Mobilization Ship

George H. Levine and John F. Walter*

One of the Maritime Administration's (MarAd) missions is to provide shipping capability during a declared national emergency. As one part of this mission MarAd has identified the need to have "on-the-shelf" plans and specifications for designs which will satisfy shipping requirements. MarAd initiated a "Ship-Designs for Mobilization" program in 1974 to identify these requirements. Ship characteristics were developed through an analysis of potential emergency shipping needs, shipyard production capabilities, and a variety of design constraints and requirements.

This paper presents the present status of the contract design phase and the original preliminary design of the Multi-Purpose Mobilization Ship along with three alternative versions showing possible configurations utilizing optional features. This particular design provides flexibility and versatility to effectively handle and stow containerized, roll-on / roll-off, unitized, breakbulk, or heavy-lift type cargoes. The design is commercially attractive in trading with developing areas, although it cannot compete with dedicated

*Mr. **Levine** and Mr. **Walter**, Office of Ship Construction, Maritime Administration, presented the paper abstracted here before a recent meeting of the Chesapeake Section of The Society of Naval Architects and Marine Engineers.

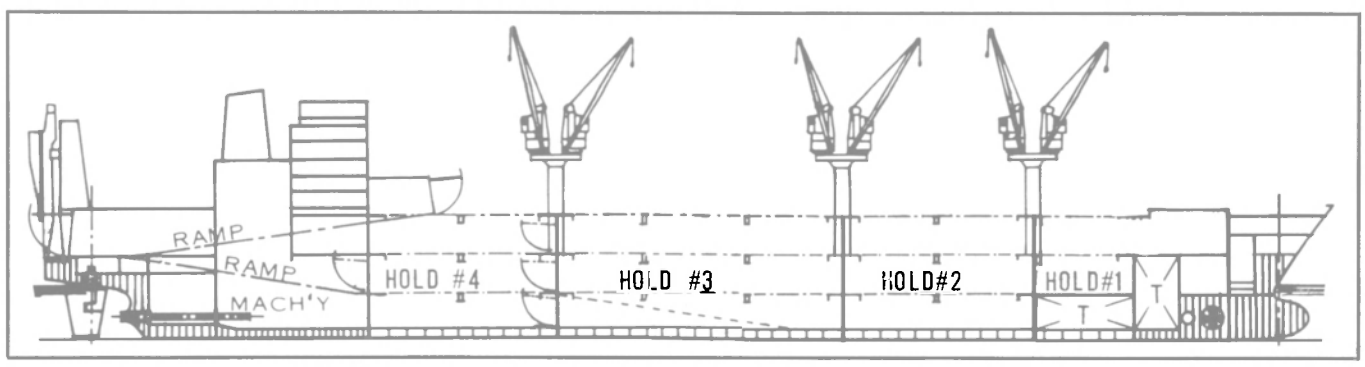


Figure 1 — Security Class mobilization ship, design no. C7-S-MA 134a.

sophisticated designs in specialized trades.

The five scheduled phases of this design project are: Phase 1 — Development of mobilization ship capabilities; Phase 2 — Preliminary design of mobilization ship; Phase 3 — Contract design of mobilization ship; Phase 4 — Construction of prototype, and Phase 5—Operation of prototype.

The first phase has been completed and has resulted in the development of working papers reviewing: Needed shipping capabilities; shipyard production problems, engineering system alternatives; possible ship concepts, and design constraints.

The second phase has also been completed. It began with the development of three conceptual designs—the PD-204 versatile general cargo mobilization designs. These cargo ships were planned as candidates for the basic building blocks of the mobilization fleet. These designs were developed through the concept stages to assure feasibility. The three designs offered a variety of ship sizes and cargo-handling arrangements. Features of the three designs developed were compared with each other for their particular advantages and disadvantages.

The small PD-204 design, "500 General," featured a 489-foot LBP and 73.5-foot beam vessel with five general cargo holds.

The large PD-204 design, "670 RO/RO," had a 655-foot LBP and 105-foot beam and was designed primarily for roll-on / roll-off cargo.

The middle sized "550 Combination," on the other hand, was 539-feet in LBP and 97-feet in beam and had a multipurpose cargo-handling approach. Eight holds with 'tween decks were serviced by cranes (or kingposts and booms) with hatch covers forming a container-guide structure, which when in a vertical position, allows easy loading of containers. A stern ramp was also provided for roll-on/roll-off cargo access to the second deck.

Efforts between August 1977 and November 1978 refined the 550 Combination design into the Multi-Purpose Mobilization Ship preliminary design, PD-214.

In September 1979 a contract was awarded to M. Rosenblatt & Son, Inc. to prepare the contract design of the base ship and a number of alternative versions utilizing various optional types of propulsion machinery and cargo gear. This work is scheduled to be completed some time after the presentation of this paper.

The preliminary design was the starting point for developing the contract design. The object of the contract design phase is to complete the preparation of plans and specifications to a level of detail adequate for a shipyard to produce a bid quotation to construct the ship.

As a result of the Government/ Industry Mobilization Ship Conference in November 1978, numerous comments were received which indicated that the preliminary design was too small for both commercial and military operations. Comparison with the results of MarAd R&D study on the design of the next generation cargo liner also indicated that a larger vessel would be more appropriate for commercial use. This R&D study is particularly valid since it was done in cooperation with seven ship operators.

It was concluded that the new contract design base ship length should be the same as the preliminary design jumbo. In addition, the beam was increased to 105 feet 6 inches. It became apparent that, for more efficient container stowage, the hull depth should be increased to 70 feet, and it was decided to use flush, mechanically operated hatch covers on the weather deck and to include a ramp to allow vehicle access to the weather deck. Finally, the hull material was changed from mild steel to high-strength steel when it was found to be readily available in mobilization situations. The design is shown in Figure 1.

General Arrangement

The preliminary design of the Multi-Purpose Mobilization Ship is a single-screw ship capable of

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Multi-Purpose Mobilization Ship

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loading, transporting, and discharging a mix of roll-on/roll-off, general breakbulk, unitized, and containerized cargo. The house and engine room are located aft.

The machinery space is designed to accommodate any of various types of main propulsion machinery plants of the required horsepower necessary to provide a minimum 20-knot speed.

In determining the degree of automation to be used for the machinery, the dichotomy between the desire for simplicity of design and construction (requiring less automation but increased manning) versus the limited availability of trained shipboard engineering personnel (dictating decreased manning and increased automation) during an emergency must be considered. The "one-man" watch concept selected for all mobilization ship powerplants appears to be a reasonable compromise.

All configurations of the mobilization ship can be lengthened. The jumbo Multi-Purpose Mobilization Ship version prepared during the preliminary design added one complete cargo hold of 110 feet, with associated cargo-handling gear, to the base ship. Speed remains above 20 knots.

The Multi-Purpose Mobilization Ship design can handle general breakbulk cargo, containerized cargo and ro/ro cargoes. Some of the commercial cargoes that can be driven on are buses, trucks and cars. Containers can be lifted onboard using shipboard cranes or carried on by straddle carrier or forklift. Palletized cargo, such as oil drums and cartons, can be carried aboard using forklifts or lifted aboard. Paper rolls, cable reels, lumber bales, and random lengths of pipe can all be easily handled.

Military cargo items, such as M60 tanks, can be loaded over the ramp or hoisted onboard, using the twin-tandem heavy-lift capability. Cargo type helicopters also can be lifted or rolled aboard. Trucks and other wheeled vehicles can be quickly loaded and discharged over the ramp. The portable cardeck can accommodate jeeps in the ro/ro space. Overall, the ship has enough capacity to carry supplies and equipment for one Army battalion.

A 114-foot slewing stern ramp is installed to provide access to the ro/ro deck (Second Deck). It is hinged to a turntable, allowing it to rotate so that the vessel can be offloaded when either port or starboard side is adjacent to the berth. It is 24-feet wide, permitting two-way truck traffic. Two sideports are also provided to allow additional ro/ro access to the Second Deck.

From the Second Deck an internal ramp in Hold 4 allows rolling cargo access to the Third Deck. In Hold 3 a ramp goes down to the Tank Top. The Third Deck ramp is 18-feet wide and the ramp to the Tank Top is 14-feet wide.

Portable cardecks are installed in the Second Deck ro/ro area. These are lowered and form a deck with a 5-foot overhead clearance, so that maximum utilization of space can be realized when carrying automobiles.

Since in wartime mobilization situations manufacturing capacity may not be adequate to supply the necessary numbers of sophisticated cargo gear such as deck cranes and slewing ramps, provision has been made in the design to incorporate alternative gear. For instance, a quarter ramp or a single straight stern ramp could be utilized. Instead of deck cranes it would be possible to utilize kingposts and booms. Another alternative capability that has been included is the installation of a gantry crane instead of the deck cranes. Depending on the amount

of ro/ro capability required, internal ramps to the Tank Top and/or Third Deck and watertight doors between holds could be omitted. Likewise, watertight doors can be added to increase the ro/ro capability into the forward holds.

Machinery Selection

Machinery considerations for the Multi-Purpose Mobilization Ship preliminary design were generally dictated by the environment in which the vessel was expected to be constructed. Since the ship is intended to be rapidly built during a full-scale wartime mobilization for military support, or to serve as replacement tonnage of U.S. ship losses for postwar commercial trade, simplicity and efficiency are characteristics required of the machinery plant to satisfy this operating profile.

Normally, a propulsion system most compatible with the ship's mission would be selected on the basis of trade-off studies, considering space, weight and arrangement requirements, fuel consumption and costs. However, since the production of the maximum number of ships in the least time is a major planning objective, trade-off studies to determine the optimum powerplant are less important. Since production capacity for a particular type of machinery is limited, designing the vessel to accommodate several different types of powerplants increases the number of ships that can be constructed in a given time frame.

The combined criteria of availability, marine service experience and design simplicity led to consideration of the following machinery alternatives for the preliminary design of the mobilization ship: Steam turbine; medium-speed diesel; slow-speed diesel; heavy-duty and aircraft-derivative gas turbine prime movers, with geared (or direct-drive, in the case of the slow-speed diesel) transmission systems, and fixed-pitch propellers.

Transient Personnel

A comment received from the military community suggested that, for mobilization purposes, provision should be made for the carriage of 50 transient personnel in addition to the ship's base crew. Based on recent studies, modular accommodations aft of the deckhouse would meet this requirement.

The facility is intended to be as completely self-contained as feasible. The modules would be the same size as I.S.O. shipping containers.

The accommodation complex consists of 21 modules above the Main Deck for berthing, galley, messroom, lavatory, stores, laundry and recreation; interconnected by stairways and passageways. A sewage module, consisting of a sewage holding tank and pumps, receives drains from sinks, showers, lavatories, etc., and would be located aft the house below the Main Deck. The lavatory and galley modules would be equipped with internal plumbing supplied from the ship's fresh water system.

Lighting, HVAC units, refrigeration equipment and hot water heaters would be supplied in appropriate modules and would consume ship's service electrical power by means of plug-in connections.

Houston Offshore Asks Title XI On $29.7-Million Jackup Drilling Barge

The Maritime Administration has received an application from Houston Offshore Limited IV for a Title XI guarantee to aid in financing the construction of one jackup drilling barge.

The 157-foot-long, mat-supported cantilever barge will be operated in the Gulf of Mexico. Bethlehem Steel's Sparrows Point, Md., yard is the proposed builder, with delivery scheduled for June 1981.

The Title XI guarantee, if approved, would cover $22,275,000, or 75 percent of the estimated $29,735,000 cost of the barge.

3. The completeness of the reactivation is clearly shown by a colour change.

In this system VINYGUARD takes care of the protection against corrosion while SEAMASTER keeps the underwater hull free from fouling.

A full utilization of the SEAMASTER systems depends therefore on the use of the total SEAMASTER-SYSTEM taking care of both the corrosion and fouling problems. Therefore, SEAMASTER should be used only on newbuildings or on ships to be sandblasted to bare steel.

Floatmaster

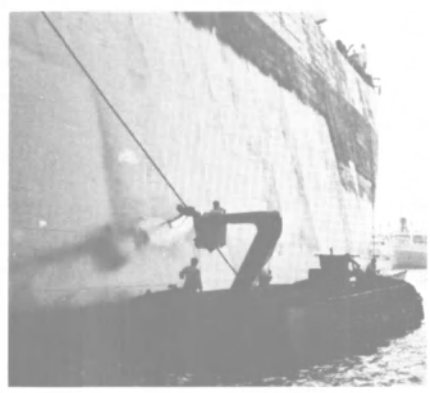
More and more vessels are docking afloat, so called "wet-dockings". Also there is a great interest in reducing the time needed for a dry-docking. There has also been a constant call for an antifouling which dries rapidly, does not need "ideal" weather conditions for application, and dries below the waterline yet still retains the lasting properties of a good long-life antifouling.

Antifouling FLOATMASTER fulfils these demands completely. After 20 minutes air-drying, FLOATMASTER can be exposed to seawater.

Due to a perfectly balanced binder/solvent combination FLOATMASTER is able to dry under water as fast as in air. The resulting film has the same high antifouling standard as SARGASSO C. R. with an expected lifetime of 18 to 20 months.

In combination with Silverseal as a primer, it is possible in favourable conditions to dry-dock a vessel with a full paint system within 16-20 hours.

In lower temperatures the application and drying time can increase by some 50 per cent.



Takata LLL

Antifouling Takata LLL is an antifouling developed by the Jotun Marine Coatings' partner in Japan, Nippon Oil & Fats Co., Ltd. (N.O.F.). It is based on an organo metalic - acrylic co-polymer which is slowly hydrolized in seawater, releasing the active antifouling. Contrary to other antifoulings, the active ingredient is intimately bound in the vehicle, and thus the release of the toxicant will result in an even breakdown of the coating, leaving a completely smooth and non-porous surface.

The antifouling properties of the special toxic agent/vehicle co-polymer used is comparable to that of any longlife antifouling on the market.

Antifouling Takata LLL is therefore combining the properties of a first rate long-life antifouling with an extremely smooth, low friction surface.

Antifouling Takata LLL was first marketed in 1972, and until now, some fifty tankers (mainly VLCCs) have been treated with this product.

First of five dredge tender boats destined for Egypt, built by T.D. Vinnette Company under subcontract from Dixie Dredge, undergoes trial run before recent shipment.

Dixie Dredge Delivers Four Vessels To Egyptian Dredging

The Dixie Dredge Corporation of St. Louis, a subsidiary of Pott Industries' St. Louis Ship Division, Houston Natural Gas Corporation, recently affirmed the shipment of the first of five dredge tender boats, two crewboats, and the second of five dredges to the Egyptian Dredging Company of Cairo, Egypt. The announcement was made by Dixie Dredge president **Jack T. Dunn**.

The dredge tenders, designed by **William G. Preston** of Marine Power, Inc. of Gulf Breeze, Fla. and built under subcontract from Dixie Dredge by T.D. Vinnette Company of Escanaba, Mich., are 36 feet long and are powered by a Cummins N-855-M diesel engine developing 195 bhp at 1,800 rpm. The tenders are equipped with a 10,000-pound-capacity A-frame with winch for lifting dredge equipment and cargo.

The two crewboats shipped to Egypt earlier this summer also were designed by Mr. **Preston**, and built by AAA Builders, Inc. of Pascagoula, Miss. Each boat is 32 feet long and powered by a GM-Detroit Diesel Allison engine developing 128 bhp at 2,800 rpm. The crewboats each carry 20 passengers, protected from the weather by a canvas awning.

The dredge tenders and crewboats were subcontracted by Dixie Dredge in conjunction with its $3.5-million contract to supply dredges, supporting equipment, and spare parts to the Egyptian Dredging Company. Financing of the purchase was accomplished by a U.S. State Department A.I.D. Loan and Grant.

The dredges employ a "tilting spuds systems" that allows them to pass under bridges and other obstacles without the need to remove their spuds. The hull side sections for the dredges are being built by Egyptian Dredging.

For further information and free literature on dredging equipment, write to **Jim Bishop**, Dept. M.R., The Dixie Dredge Corporation, 8224 Polk Street, St. Louis, Mo. 63111.

Twin Disc Forms New Task Force To Market Marine Transmissions

Twin Disc, Incorporated of Racine, Wis., has announced the formation of a task force to market the MGN-Z line of marine transmissions throughout North America. This line of marine products, for diesel engines rated 634 to 3,671 kw (850 to 4,850 hp), is manufactured by Twin Disc's partially owned affiliate, Niigata Converter Company Limited (NICO) of Japan.

Heading this marketing group is **James H. Haertel**, manager of marine sales, assisted by **Richard F. Graff**, applications engineer, and **Takero Hayashi**, a NICO engineer assigned to Twin Disc.

Mr. **Haertel**, a veteran Twin Disc executive, was former manager of OEM engine equipment sales and a district sales manager in the former Newark, N.J., office.

Mr. **Graff** began his Twin Disc career in 1975. His experience includes application engineering in marine products as well as industrial clutches, hydraulic and universal joint products.

Mr. **Hayashi** has been employed as an engineer at NICO since 1962. He has had vast experience in the design and application of NICO marine transmissions.

The Twin Disc Marketing Group will work out of the company's main office in Racine, and will have responsibility for sales, application, and service of NICO MGN-Z Series marine transmissions.

James H. Haertel

Richard F. Graff

Takero Hayashi

Literature on the NICO MGN-Z series of marine transmissions is available by writing to **James H. Haertel**, Twin Disc, Incorporated, Dept. MR, 1328 Racine Street, Racine, Wis. 53403.

Quality Delivers Towing/Supply Vessel To Gulf Fleet Marine

Gulf Fleet Marine Corporation of New Orleans recently took delivery of the Gulf Fleet No. 41, a towing/supply vessel measuring 190 feet by 40 feet by 14 feet. The No. 41 is Gulf Fleet's 101st vessel, and the seventh delivered this year.

Built in Houma, La. by Quality Shipyards, Inc. a Gulf Fleet company, this vessel represents one phase of an aggressive construction program that projects an additional $12 million of new vessels during the next 10 months.

Powered by twin GM Electro-Motive Division 16-645-E2 diesel engines that develop a total of 3,000 bhp at 900 rpm, driving through a pair of Reintjes WAV 481, 3:1 reduction gears, the vessel is capable of a sustained speed of 13 knots.

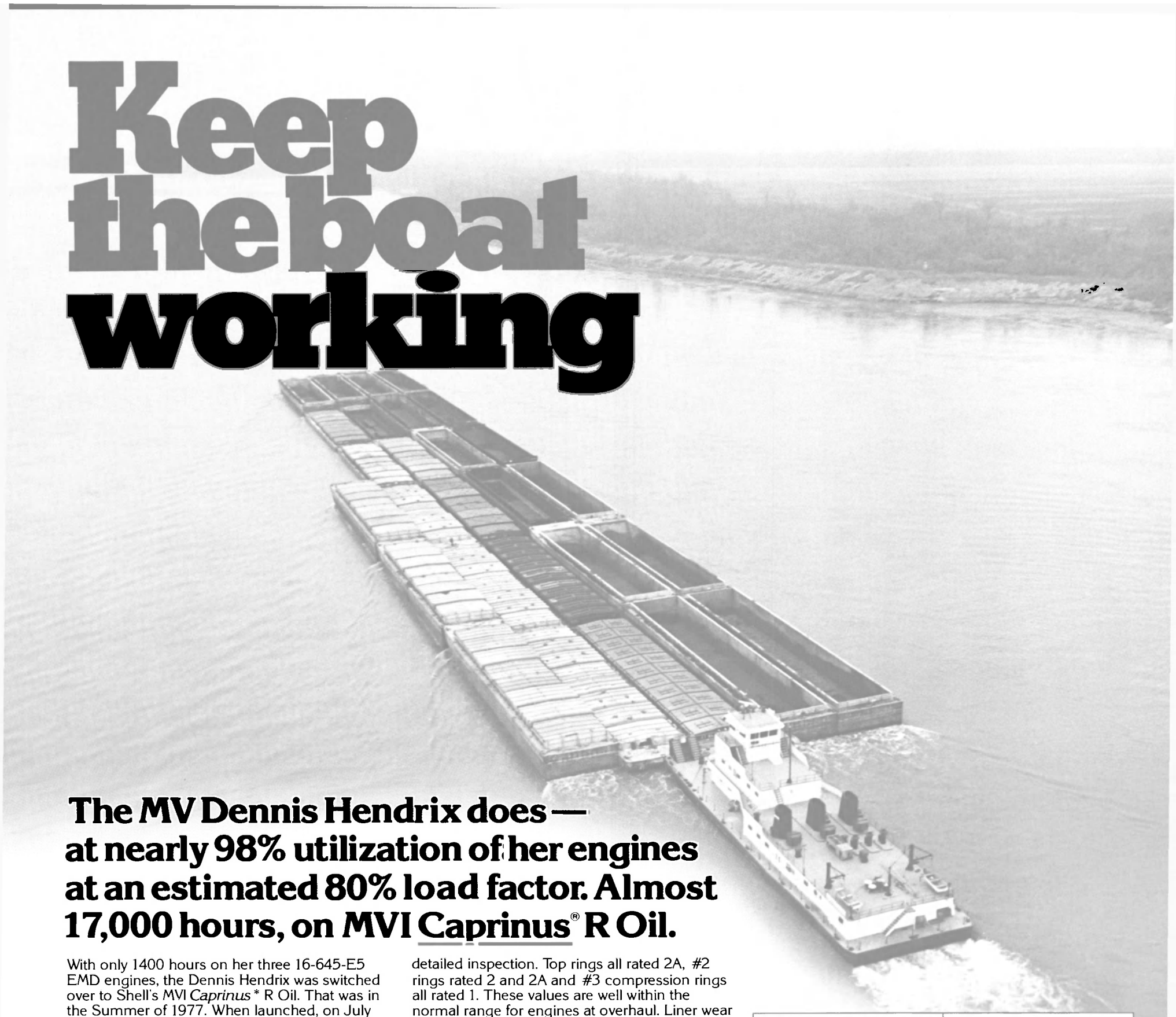
The vessel has a clear deck space of 96 feet by 32 feet, and maximum deck cargo capacity of 522 long tons. Under-deck tanks hold 520 tons of drill water, while bulk tanks have a total capacity of 5,800 cubic feet that can be transferred at a rate of 50 tons per hour. The vessel is fitted with liquid mud tanks with 1,250-barrel capacity, which can be transferred at a rate of 600-800 gpm at 170 feet head. Calcium chloride tanks also provide a capacity of 1,250 barrels.

The Gulf Fleet No. 41 has a SMATCO 66 DAW200, double-drum towing winch with a capacity of 2,500 feet of 2-inch cable on each drum. Equipped with a 5-foot by 8-foot stern roller, the vessel has a measured bollard pull of 70,000 pounds. She is built to U.S. Coast Guard specifications, and is classed by the American Bureau of Shipping as +A1 (AMS) All Oceans, Towing.

Gulf Fleet Marine is one of the Houston Natural Gas Corporation group of companies.

Towing/supply vessel **Gulf Fleet No. 41** is New Orleans-based company's 101st vessel. Built by Quality Shipyards, she is powered by General Motors EMD main engines.

Keep the boat working



The MV Dennis Hendrix does — at nearly 98% utilization of her engines at an estimated 80% load factor. Almost 17,000 hours, on MVI Caprinus® R Oil.

With only 1400 hours on her three 16-645-E5 EMD engines, the Dennis Hendrix was switched over to Shell's MVI *Caprinus* * R Oil. That was in the Summer of 1977. When launched, on July 16, 1977, the boat started working the Lower Mississippi pushing tows of up to 40 barges of 1500 tons each. On August 19, 1979, she was finally ready for her first scheduled overhaul. Total engine hours averaged 17,885. Individual engine hours were; port — 18,124, center — 17,421 and starboard — 18,110. Total *elapsed* time from the date of launch; 18,312 hours. And work on the Lower Mississippi usually means long runs with few interruptions. It was estimated that the load factor was averaging about 80% during these hours. In over two years, the engines averaged only 2.3% downtime.

The Dennis Hendrix was the first American Commercial Barge Line vessel to use *Caprinus* R. So, when the overhaul was scheduled, Shell went along to see the results. As is usual with *Caprinus* R oil, the engines were very clean, with relatively low deposit levels. Wear was low for the time and type of service. Used oil analysis showed that the premium MVI *Caprinus* R Oil had equilibrated at a TBN-E of 3.0, which means corrosion protection was adequate even though the engines were operated in 'no drain' service. Carbon deposits were as expected with an MVI oil, soft and flaky.

All three engines appeared about equal in appearance, and the port engine was selected for detailed inspection. Top rings all rated 2A, #2 rings rated 2 and 2A and #3 compression rings all rated 1. These values are well within the normal range for engines at overhaul. Liner wear was normal for the hours. All three engines had done their job well. The oil had done its job well. MVI *Caprinus* R oil had helped the Dennis Hendrix stay on the job with minimum downtime and maximum reliability.

MVI oils have been proven in almost half a century of operation in medium-speed diesels. Shell's MVI *Caprinus* R Oil maintains that reputation of MVI oil and uses a modern additive package to meet the latest engine service requirements.

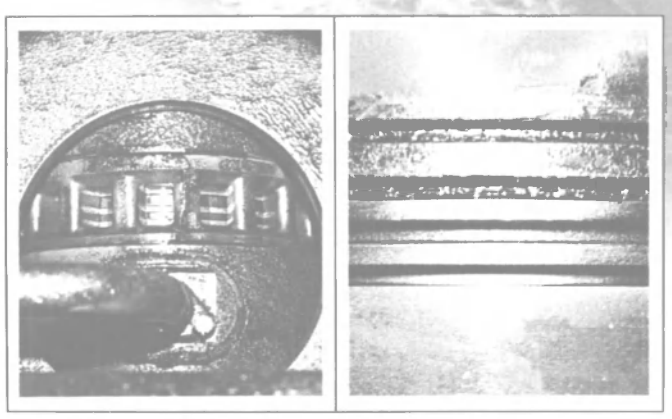
Shell doubling MVI capacity

Since Shell is *doubling* its MVI lube oil capacity, there is no need to switch to HVI oils, as suggested by some MVI-short suppliers. HVI oils form harder, denser carbon deposits that can block port areas and crowd rings in their grooves. With *Caprinus* R Oil, you can usually operate without changing oil in most engine types with good engine protection. A used oil analysis program can be the means to longer life and excellent engine protection with *Caprinus* R Oil.

For more information write Shell Oil Company, Manager, Commercial Communications, One Shell Plaza, Houston, Texas 77002.

Caprinus is a trademark and is used as such in this writing

Come to Shell for answers



The light carbon deposits in the airbox are typical of a premium MVI oil such as *Caprinus* R. Soft deposits will clean up rapidly, and even after 17,000 hours, are not blocking air flow.

Pistons had no scuffing or scoring. Ring groove fill and ring wear were normal for the time and type of engine service. Rings were free.

Victory

The boot-topping and freeboard areas of this tanker have been painted with a coating system that includes a two-component aliphatic urethane topcoat based on Desmodur N and Desmophen urethane resins from Mobay.

Super-tough help win the battle

Outstanding weatherability and excellent corrosion and abrasion resistance are just a few of the benefits of marine coatings based on Mobay's Desmodur N and Desmophen urethane resins.

There are a lot more. For example, an outstanding low-temperature curing capability lets you apply a urethane coating at temperatures as low as 20° F and still achieve a complete cure.

at sea.

marine coatings based on Mobay urethane chemicals against corrosion, abrasion and high maintenance costs.

And urethane coatings save money because they help to minimize surface preparation during dry docking. This means lower labor and material costs, minimized lost income while your vessel is out of service, and reduced dry dock service charges.

And, if that's not enough, their unparalleled gloss and color retention capability keeps beautiful, tough urethane marine coatings looking better longer.

All of these factors make urethane coatings the top choice to fight off the rigors of marine service...from ocean-going tankers to offshore rigs to tuna boats.

For more information on the unbeatable cost/benefit story of urethane marine coatings, and the names of suppliers, call Carl Bye at Mobay. Phone 412-777-2873 today, or write:

Urethane Coatings Raw Materials

Mobay Chemical Corporation
Plastics and Coatings Division
Pittsburgh, PA 15205

New Company Will Offer Underwater Vehicle Inspection Services

Jerry Jones has resigned as president of Ocean Systems to form a new, highly specialized underwater vehicle inspection services company, JERED. Co-owner in the new company is **Ed Trlica**, former vice president of Martech, and recently manager of Solus Ocean Systems' Gulf Coast Division.

The owners feel that a need exists in the offshore petroleum industry for a non-diving company to provide high-quality, unmanned vehicle inspection services. As new applications are required by the petroleum industry for unmanned, remotely controlled underwater devices, solutions to these applications can best be met by a high-technology, engineering-oriented company that provides a dedicated service, the JERED owners stated.

For the first year, operations will be restricted to the Gulf of Mexico, using specially prepared underwater vehicles manufactured by Perry Oceanographics. An initial order for four vehicles is part of a planned 14-unit package that will be delivered over a 48-month period. The initial four vehicles will be outfitted with color and black-and-white video systems, manipulator arms, and specialized electronic, non-destructive testing equipment. All vehicles will be capable of performing inspections inside platforms as well as on submarine pipelines.

A modern warehouse/office facility is being constructed in Houston for occupancy in October this year. The company's mailing address is: JERED, P.O. Box 218666, Houston, TX 77218.

Shearson Seeks Title XI Covering 90-Barge Order To Cost $27 Million

Shearson Leasing Corporation of New York has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of 90 hopper barges.

Shearson's application proposes Nashville Bridge Company of Nashville, Tenn. as the builder of 60 barges measuring 200 feet long by 35 feet wide by 12 feet deep. Dravo Corporation of Pittsburgh is the proposed builder for the remaining 30 barges, which will measure 195 feet long by 35 feet wide by 12 feet deep. All 90 barges are expected to be operated on the U.S. inland waterways.

If approved, the Title XI guarantee would cover $23,686,000, which is 87½ percent of the $27,069,990 estimated cost of the vessels.

Ferrous Has Proportioning Pump For Fuel Additive—Literature Available

Ferrous Corporation, manufacturer of combustion catalysts for marine diesels and boilers, is now offering a simplified pump system for delivering the proper proportion of catalyst to diesel and bunker fuels prior to combustion.

The 110-volt, ac proportioning pump system is designed to fit over the top of a 55-gallon drum. The system, designed for easy installation, comes complete with mounting brackets.

"The mounting brackets can be secured directly to the deck," **K. Chorlton**, Ferrous vice president of marine sales said. "Once the brackets are in place, the user simply orders catalyst in 55-gallon drums and the drum becomes a daytank for the catalyst."

The new economical pump system includes a fluid-level monitor and an even-flo pump depulser that provides a continuous stream of catalyst to the fuel system.

For more details and free literature, write to **K. Chorlton**, Dept. MR, Ferrous Corporation, P.O. Box 1764, Bellevue, Wash. 98009.

Joseph Quinn Named President Of Reorganized Devoe Marine Coatings

Joseph M. Quinn

Devoe Marine, formerly part of Devoe & Raynolds Co., a Division of Grow Group, Inc., has reorganized as a separate company under Grow Group's Marine and Corrosion Control Group. The move was necessary, according to company officials, to better serve the rapidly expanding market for new-technology marine coatings.

Now known as Devoe Marine Coatings Company, Division of Grow Group, Inc., the new Louisville, Ky.-based company is headed by **Joseph M. Quinn,** whose new position as president follows several years as vice president-Marine Division, Devoe & Raynolds Company. He is an 18-year veteran of the company and a graduate of the Merchant Marine Academy.

Mr. **Quinn** is also chairman-Marine Coatings Committee of the National Paint and Coatings Association.

Furuno Radar Simulator Installed At California Maritime Academy

Completion of an extensive radar simulator system at California Maritime Academy was announced recently by Furuno. The system was designed by Furuno engineers to present a wide variety of typical radar situations at sea on standard Furuno FRK-100 16-inch radar displays under the control of a central computer.

The basic system simulates position and movement of two "own ships" and six "target ships" including course and speed changes during an exercise. Also shown are six different coastline displays complete with radar shadow effect, radar range falloff due to earth's curvature, set and drift of tidal currents, own ship's yaw, sea clutter and receiver noise, shadow sector, defining the blind spot due to own ship's mast or stack, plus such normal radar features as azimuth and North-up stabilization and true motion.

The California Maritime Academy required a complex simulator to train midshipmen in all aspects of radar navigation. A total of nine 16-inch displays are under computer control. Maximum realism is accomplished by adding operational "touches" such as making target subject to the effects of own ship's maximum speed, helm inertia, maximum rate of turn, loss of speed during turn, and even cross-coupling speed and rate of turn so that target speed is reduced when turning.

There are three key displays at the California Maritime Academy simulator: the instructor's unit and two "own ship" displays. Each own ship can be made to appear as a target on the other own ship display so that two students may operate "independent vessels" within a 60 x 60 nautical mile area. The instructor's console can select either of the two own ship consoles, and the whole situation can be "frozen" at any time for discussions among the students. To add complete realism, the primary radar stations are complete with simulated VHF radio communications, engine order and helm controls, speed indicators and autopilot controls.

For more information of Furuno's radar simulator experiences and capabilities, write to **John L. Burkhill,** Furuno U.S.A., Inc., Dept. MR, P.O. Box 2343, 271 Harbor Way, South San Francisco, Calif. 94080.

Boeing Jetfoil Sold To Argentine Owner—Christened Montevideo Jet

Alimar S.A. of Buenos Aires, Argentina, has purchased a Boeing Jetfoil for operation in the Rio de la Plata area between Argentina and Uruguay. The announcement was made at recent launching ceremonies in Seattle by Adm. **Victor Malatesta**, president of Alimar. The Alimar Jetfoil was christened Montevideo Jet by **Mrs. Malatesta**.

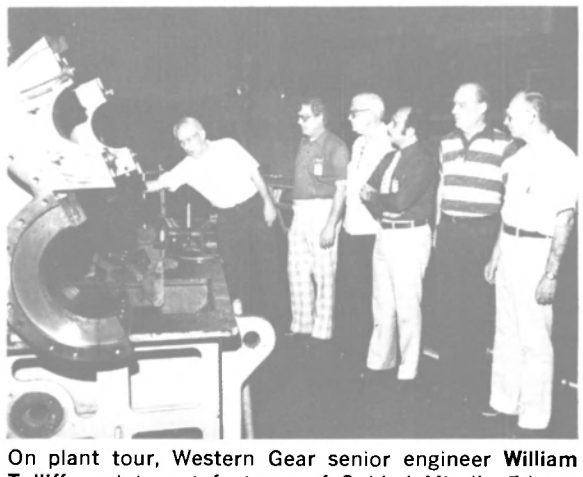
The Montevideo Jet will be delivered in time to begin service for the 1980-81 tourist season. The sale is valued at approximately $13 million, including training, customer options, and shipping.

Alimar will offer Jetfoil service on the 32-nautical-mile route from Buenos Aires to Colonia, Uruguay, which has been served for 18 years by Alimar PT-50 surface-piercing hydrofoils. The Argentinian operator decided to begin the Jetfoil operation following a study of available craft to update its service. The Jetfoil features a fully submerged foil system, waterjet propulsion, and automatic computer control for a smooth ride at speeds up to 50 mph, even in rough water.

Alimar will also offer service over a new route from Buenos Aires to Montevideo, a distance of 130 nautical miles. The Montevideo Jet will carry 272 passengers and offer full food service from galleys on both decks. It also will provide adequate space for baggage.

The Alimar operation will be the fifth Boeing Jetfoil service to begin this year. Other passenger services were inaugurated in 1980 on the English Channel, the Irish Sea, in the Canary Islands, and in Puget Sound between Seattle and Victoria, British Columbia. Fifteen Boeing Jetfoils are now in service worldwide.

SNAME Los Angeles Section Tours Western Gear's Power Transmission Division



On plant tour, Western Gear senior engineer **William Tolliffe** points out features of Guided Missile Frigate series housing to SNAME members (L to R): **Church Heil**, Arco Marine; **J.C. Woelfe**, Richfield Oil (ret.); **Nabil Zake**, Western Gear; **Frank Kuntz**, Interstate Electronics; and **Richard Docherty**, El Paso Tanker.

Members of the Los Angeles Metropolitan Section of The Society of Naval Architects and Marine Engineers recently toured the Power Transmission Division of Western Gear Corporation in Lynwood, Calif.

The main attraction was the 40,000-hp Western Gear marine propulsion drive for the U.S. Navy's Fleet Frigate Guided Missile (FFG) series of ships. Light, fast, and highly maneuverable, these new patrol vessels will be equipped with surface-to-air and surface-to-surface missile systems, antisubmarine torpedoes, a 76-mm gun, and two helicopters.

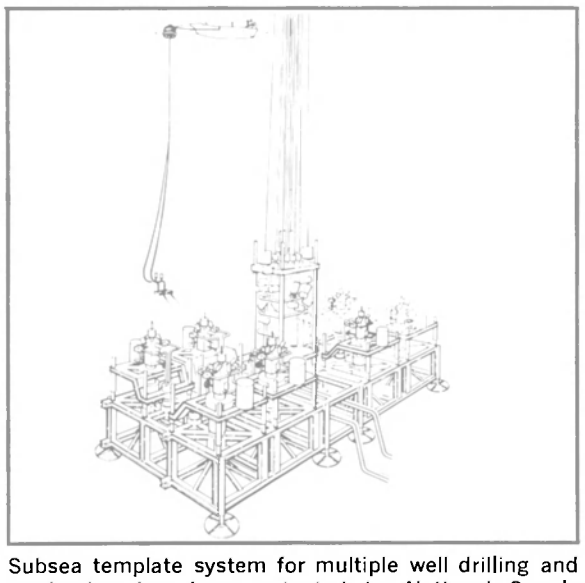
The Navy currently plans to build 55 ships

of this class, of which 43 have been contracted for with Todd's San Pedro and Seattle yards and Bath Iron Works in Maine.

RIG WORK UNDER WAY — Ocean Drilling and Exploration Company's Barge A (foreground), a 7,500-ton submersible, has been moved onto land for change-out of its four stability columns, installation of a deepwater tank module, and replacement of more than 130 tons of steel in the rig's mat, at Ingalls Shipbuilding's yard at Pascagoula, Miss. The drill barge was picked up and moved onto land by Ingalls's floating drydock and land transfer system. In the background is ODECO's jackup rig Gulftide, presently in the shipyard for placement of footings. Other work includes the 300-foot deck barge, SKUA's Able Turtle (left center), and McDermott Incorporated's 420-foot Lay Barge 28 (behind Gulftide).

National Supply Patents Subsea Template System —Literature Available

National Supply Company has received a U.S. patent for a subsea template system for multiple well drilling and production.



Subsea template system for multiple well drilling and production has been patented by National Supply Company, a subsidiary of Armco. System is said to reduce time and cost of underwater operations.

The template design was developed by National Supply's Well Control Systems engineering group, Houston, to reduce time and cost of underwater operations, whether by remote mechanical means or by divers, when installing subsea equipment and connecting it to a floating production vessel.

The system provides for assembly prepiping and testing of drilling and production modules on land to minimize at-sea and subsea installation operations, according to National Supply.

The company helped pioneer subsea production to floating vessels. Floating systems allow earlier production than fixed platforms and require a lower capital investment, notes National Supply. These advantages make floating production particularly suited to fields where reservoir potential is still undefined and to small fields where the economic potential does not justify the cost of a fixed platform, explains the firm.

By reducing diver operations, the template system is particularly suited to deepwater fields where fixed platforms large enough to sit on the sea bottom may not be practical or physically possible.

The templates in the patented system come in two-well modules that serve as guides for drilling and as bases for completion or landing of trees and a manifold/riser module. Template modules can be readily joined to provide for any number of wells. Drilling can be performed directionally using conventional subsea methods.

Prepiped flow lines between tree and template automatically engage when the tree is landed, eliminating problems of laying and attaching flow lines.

The United States patent for the system, No. 4,192,383, is officially held by Armco, National Supply's parent company.

For free literature containing complete details on the new subsea template system, write to **William C. Marmack**, Dept. MR, Armco National Supply, 1455 West Loop South, Houston, Texas 77027.

Hitachi Gets Jackup Rig Orders From Danish And Netherlands Owners

Hitachi Zosen of Japan recently received an additional order from J.L. Offshore Drilling A/S, Denmark, for construction of a jack-up-type offshore drilling rig. This is the second of two of the same type rig to be built by Hitachi for the Danish company; the first order was received in April this year. The first rig will be named Dan King, the second Dan Duke.

The J.L. Offshore rigs, said to be among the world's largest, are designed for operation under severe weather and rough sea conditions. They will be capable of operating in water depths of 205 feet, and drilling to 20,000 feet. The three legs will have an overall length of 343 feet.

The rigs will be classed by the American Bureau of Shipping and have accommodations for a crew of 72. Delivery of the second rig is scheduled for October 1981.

Neddrill B.V. of the Netherlands, an affiliate of Royal Nedlloyd Group, recently placed an order with Hitachi for one cantilever type, jackup offshore drilling rig. This rig, to be classed by Lloyd's Register of Shipping and built to conform with Dutch Government and IMCO regulations, will be capable of drilling to 25,000 feet in water depths up to 164 feet. Delivery is scheduled for December 1981.

Since 1974, Hitachi Zosen has received orders for 14 rigs; seven units have been delivered to date.

E.H. Barron Joins Overseas Enterprises As Director Of Chartering

Magnus E. Olsen, president, Overseas, Enterprises, has announced the appointment of **Edward H. Barron** as director of chartering. His responsibilities will encompass all chartering, marketing, and operational functions of O.N.E. Shipping Ltd., which maintains regular chemical tanker service from the U.S. North Atlantic and Gulf ports to Venezuela, Colombia, the Caribbean, the west coast of South America, and Central America.

Mr. **Barron** brings to this position 13 years of experience in marine transportation, the most recent being associated with Amoco Chemicals Corporation in Chicago, and prior thereto with the U.S. Navy.

Overseas Enterprises, Inc. in its capacity as general agents for O.N.E. Shipping Ltd., operate four chemical tankers in the South American service. O.E.I. also represents Delmas-Vieljeux, Paris; India Steamship Company, Calcutta; and Deutsche Africa Linien, Hamburg.

New Brochure On Gears And Gear Units Now Available From Farrel

"Gears and Gear Units" is the title of a new 16-page brochure published by Farrel Connecticut Division, Emhart Machinery Group.

The publication describes types of gearing produced by the company, including industrial, marine, high-velocity, and special gearing. Single-helical, double-helical, spur, and internal gears are discussed. Also covered are such topics as methods of lubrication, gear tooth wear, and installation and maintenance instructions for open and semi-enclosed gear sets.

Also discussed are Farrel gear units, including high-speed units, speed-reducing units, right-angle vertical-shaft drives, right-angle horizontal-shaft drives, ball mill drives, roll drives, and sugar mill drives.

For a free copy of the new brochure, write to **H.F. Johnston,** Dept. MR, Farrel Connecticut Division, 25 Main Street, Ansonia, Conn. 06401.

Fred Ramsden. Fred West

"Our strict inspections mean these barges are ready for immediate loading on delivery"

Making certain the customers get everything they wanted, and that a barge can do everything it was designed to do, requires total knowledge of barges and their construction. HBC Barge Inspectors, Fred Ramsden and Fred West:

"We've both worked as welders, fitters and layout men here at HBC Barge. We know from experience what goes into a well-built barge, start to finish. We inspect, start to finish.

"Welding is tested with an Ultrasonic Tester for required penetration and solid integrity. Hydrostatic testing is run on every tank barge. Every seam is soap seal tested.

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"The Coast Guard, and the American Bureau of Shipping, also inspects these barges. So do the customers' inspectors, some of whom say this is some of the finest work they have seen. They say virtually nothing gets past us.

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Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

Promet Gets Repeat Orders From Two U.S. Companies

Promet Private Limited, a marine construction company based in Singapore, has won repeat orders for the construction of two supply vessels from National Marine Service, and the construction of two three-legged, self-propelled jackup barges from Sun Contractors, Inc.

Earlier this year, Promet was awarded a repeat order to build five supply vessels for National Marine after the completion and delivery of five supply vessels and two triple-screw tugs designed for operations in the Middle East. The supply vessels are 176 feet long, with a beam of 38 feet and depth of 14 feet. Delivery dates for the latest supply vessel order are September and November 1981.

Sun Contractors has ordered two three-legged, self-propelled jackup barges measuring 110 by 50 by 10 feet, scheduled for delivery in March and May 1981. In May of 1980 Sun Contractors awarded Promet a contract to build a four-legged jackup barge. The Singapore yard recently delivered a three-legged well service barge to Sun, the first contract signed with that company.

In line with the Singapore government's policy to modernize and upgrade technology in the yard, Promet will invest S$20 million in new equipment to increase productivity at the yard. It is also negotiating with Jurong Town Corporation, Singapore, to extend the present 27-hectare yard by another 7 hectares (from 66.7 to 84 acres).

Promet recently placed an order with Manitowoc Engineering in Wisconsin for an S$8-million, platform/revolving crane with lifting capacity of 600 tons, capable of handling large onshore and offshore projects ranging from power stations and chemical plants to oil drilling rigs, ports, and harbors. Installation of this crane is scheduled for the end of October this year.

Promet has also placed orders for a 3,000-ton press and a rack-cutting machine, both to be delivered before the end of 1980.

Michael Jackson To Head Newly Opened Global Marine Houston Office

Global Marine Development Inc., Irvine, Calif., has opened a Houston office under the direction of **Michael D. Jackson**, manager, production systems sales.

Located at 7500 San Felipe, the office will provide increased service to clientele in the Gulf and East Coast areas. Global Marine Development, a subsidiary of Global Marine Inc., Los Angeles, provides engineering and construction services to the marine, petroleum, and other energy-related industries.

A 1973 graduate of the U.S. Merchant Marine Academy, Mr. **Jackson** served as regional manager-marketing for IMODCO prior to joining Global Marine Development.

W.J. Kristen Appointed Freight Merchandiser For Agri-Trans Corp.

Paul J. Staadeker, vice president-transportation services for Agri-Trans Corporation, has announced the appointment of **William J. (John) Kristen** as freight merchandiser. He will report to **John S. Johnson,** director-transportation services.

In his new position, Mr. **Kristen,** who had been a dispatcher with Agri-Trans, will be responsible for the buying and selling of freight as it relates to the company's logistical and merchandising requirements. He joined Agri-Trans in June 1979.

Prior to joining Agri-Trans, Mr. **Kristen** was an operations manager with River Line, Inc. of Memphis, and rate supervisor for SCNO Barge Line, Inc., St. Louis.

THERE IS A DIFFERENCE IN TUGBOAT COMPANIES.

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Docking the EL PASO HOWARD BOYD at the Columbia LNG Corp. Terminal at Cove Point, Md.

Levingston Lays Keel For New Jackup Drilling Rig

Builder's and owner's representatives at keel-laying ceremonies included (left to right): **Woody Gaines,** director of steel trades, Levingston Shipbuilding; **Eddie Uher,** project engineer, Levingston; **L.A.J. Monroe,** chairman of the board, Dixilyn-Field; **Joe Barrios,** vice president, Commercial Division, Levingston; **David Edgar,** director of purchasing, Dixilyn-Field; **Pat Ahlman,** project engineer, Dixilyn-Field; **George Istre,** program manager, Levingston; **Dick Franklin,** hull superintendent, Levingston; and **Lou Seeber,** Dixilyn-Field representative.

Levingston Shipbuilding Company of Orange, Texas, recently laid the keel for a new jackup drilling rig. Dixilyn-Field of Houston is the owner of this Levingston-designed Class 111-C rig, and will take delivery in April 1981.

Officials of Dixilyn-Field attending the ceremony included **L.A.J. Monroe,** chairman of the board; **David Edgar,** director of purchasing; **Pat Ahlman,** project engineer, and **Lou Seeber,** owner's representative. Levingston was represented by **Joe Barrios,** vice president, Commercial Division; **Eddie Uher,** project engineer; **George Istre,** program manager; **Woody Gaines,** director of steel trades; and **Dick Franklin,** hull superintendent.

This three-legged drilling rig measures 200 feet by 186 feet by 23 feet and has independent four-chord square truss legs which will be 414 feet long. One of the customer's requirements for this particular rig is that it be capable of operating in temperatures of minus 20 degrees centigrade, and withstand winds of up to 125 mph and seas of 50 feet. Drilling depth is 25,000 feet in a maximum of 300 feet of water.

Rig 87 will have accommodations for 80 people, and is equipped with two galleys and two messrooms. The construction of this rig will meet the requirements of the United States Coast Guard and the American Bureau of Shipping.

AWO's Shipyard Conference Honors Renshaw For Leadership

Edward Renshaw, president of St. Louis Ship, was honored recently by the American Waterways Shipyard Conference (AWSC), an organization founded in 1976 largely through his efforts. Under Mr. **Renshaw's** stewardship, the AWSC has grown into a representative national body, which today includes 64 member companies.

John M. Donnelly Jr., chairman of The American Waterways Operators, Inc. (AWO), and president, Ingram Barge Lines paid tribute to Mr. **Renshaw** at a recent AWSC meeting in St. Louis. Mr. **Donnelly** traced the history

Watercolor painting was presented recently to **Edward Renshaw** (left), founding chairman of the American Waterways Shipyard Conference, by AWO chairman **John M. Donnelly Jr.** Mr. **Renshaw,** president of St. Louis Ship, has stepped down from the chairmanship of the Conference. The new chairman is **Jack O. Pirozzolo** of RYSCO.

of the Conference and, in particular, Mr. **Renshaw's** leadership and dedication in organizing it.

The AWSC is part of the AWO, a trade association of the inland and coastal domestic water transportation industry. The Conference represents the interests of small- and medium-sized shipyards located on the East, West, and Gulf Coasts, the inland rivers, and the Great Lakes. These companies build and repair vessels for the barge and towing industry, offshore oil and mining industries, and the fishing industry.

Mr. **Donnelly** also presented Mr. **Renshaw** with a watercolor painting by **James Godwin Scott** titled "St. Louis Ship, Winter." The painting carries a plaque inscribed,"Edward Renshaw, Founding Chairman, American Waterways Shipyard Conference, With Deep Appreciation, 1980."

Since 1976 when the Conference was founded, many events, proposed regulations, and bills could have developed into major problems for the nation's smaller shipyards. Under **Ed Renshaw's** leadership, however, many of these potential problems have been quelled through the active work of the Conference committees and membership. In addition, the organization is seeking solutions to long-standing problems that existed before the AWSC was formed.

Steps also have been taken to improve conditions within the industry. For example, the AWSC has just received a planning grant under the Occupational Safety and Health Act "New Directions" program to establish the organization as a center of competency for shipyard safety and to provide safety programs for the industry.

Mr. **Renshaw** stepped down from the chairmanship of the Conference this past June after helping to insure its status as a viable national organization. The new chairman is **Jack O. Pirozzolo,** RYSCO Shipyard, Inc., Rockport, Texas.

Automation Industries Gets $4.5-Million Navy Job For Conversion Plans

Automation Industries, Incorporated, Vitro Laboratories Division, Silver Spring, Md., has been awarded a $4,480,700-million negotiated cost-plus-fixed-fee contract by the U.S. Navy for a set of conversion plans for Class DDG 28-30 Midlife Conversion Program for Federal Republic of Germany guided-missile destroyers. The Naval Sea Systems Command was the contracting activity.

Beker Shipping Asks Title XI On $35.4-Million Tug/Barge Combination

Beker Shipping Company of Greenwich, Conn. has applied for a Title XI guarantee by the Maritime Administration to aid in financing the construction of one combination, deep-notch tug/barge unit. The applicant is a subsidiary of Beker Industries Corporation.

Beker plans to operate the 33,000-dwt unit to carry phosphate rock in the Gulf of Mexico area. The application did not state a proposed builder for the tug/barge unit.

If approved, the Title XI guarantee would cover $31 million, or 87½ percent of the $35,429,000 estimated cost of the unit.

New Naval Architecture Firm Formed By M. Korkut And R. Roemer

M. Deha Korkut, Korkut Engineers, Inc., New Orleans, and **R.H. Roemer**, Mobile Marine Associates, Inc., Mobile, announce the formation of Korkut & Roemer, Inc., naval architects-marine engineers, Mobile, Ala. 36609; (205) 661-9666, telex 810/782-008.

The firm will specialize in engineering, calculations, design, and detailed drawings for offshore structures, drill rigs, and attendent specialty type barges and support vessels. It will also offer general naval architectural marine engineering services, including shipyard production drawings for new construction, conversions, and alterations of commercial vessels.

Lionel Charveriat Named Executive VP For Gazocean USA Inc.

Gazocean USA Inc., New York, the American affiliate of the French-based Gazocean Group (specializing in liquefied gas transportation and worldwide gas trading), has announced the addition of **Lionel Charveriat** to its staff.

Mr. **Charveriat**, formerly based in Paris and responsible for Gazocean's LPG trading activities in the European-Mediterranean zone, will assume the position of executive vice president for Gazocean USA.

Wichita Has PTOs For Large Diesel Engines— Literature Available

Power take-offs (PTOs) designed for use on diesel engines with indirect drives are now available from the Wichita Clutch Company, a subsidiary of Dana Corporation. These PTOs can handle the horsepower range from 250 to 800 hp at speeds up to 2,100 rpm.

Wichita's PTOs utilize the Wichita airtube disc clutch for smooth power transmission. The airtube disc clutch consists of a series of alternating discs connecting an inner drive member to an outer drive member. Engagement is achieved by pneumatic expansion of the airtube. The air clutch provides controlled slip actuation for smooth start-ups. Torque is delivered in direct proportion to air pressure applied, providing easy and accurate control of torque build-up. The air clutch eliminates problems normally associated with mechanical clutches, such as lever and linkage wear.

These PTOs are ideal for use with V-belts or other drives. They isolate the side load from the crankshaft flange of the engine so that all of the side pull is carried by the PTO bearings and the housing. Wichita PTOs are also ideal for automated control systems. Remote control of the clutch as well as the engine throttle is easily accomplished through a simple air system.

For more information and literature, write to **Thomas Long**, Dept. MR, Wichita Clutch Company, P.O. Box 1550, Wichita Falls, Texas 76307.

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Our thanks to you for your past support and the continuing opportunities of serving you.

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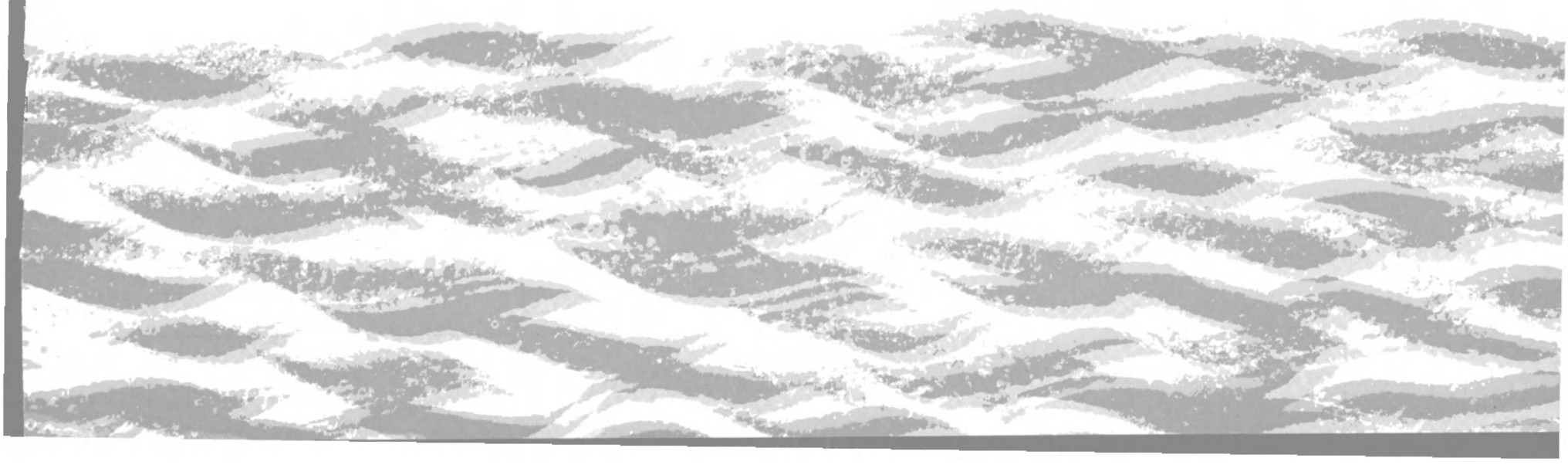
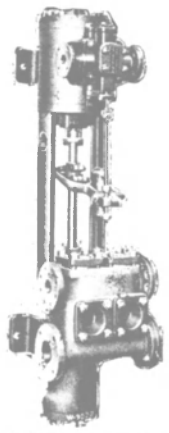


PUMPS

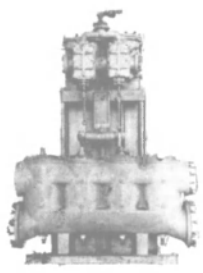
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.
for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 7½x4x10—3" suction—2" discharge—1¼" steam—1½" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable

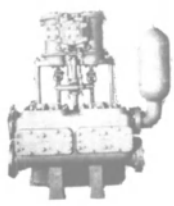
$1195

WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



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

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



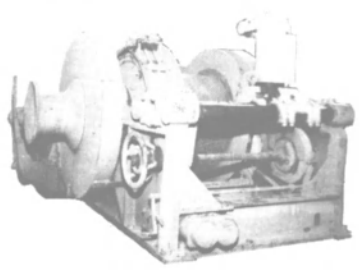
10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

8" X 8" X 10" VERTICAL DUPLEX PUMP

Hendy design Suction 8" — discharge 6" — 160 GPM @ 100 PSI.

PRACTICALLY NEW

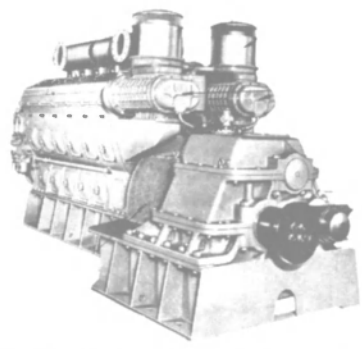
100,000 LB. ALMON JOHNSON Constant Tension Mooring Winches



In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

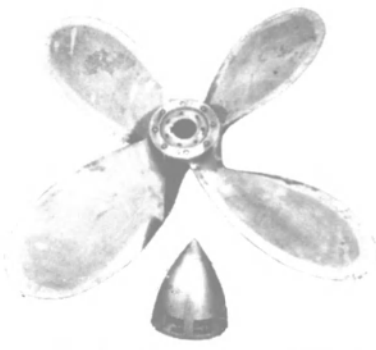
MATCHED PAIR GM 12-567A 900 HP DIESEL ENGINES

with Falk reverse & reduction gear



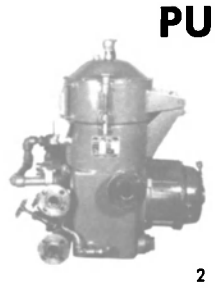
ENGINE: GM 12-567A—8½X10—VEE type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse & reduction—2.48:1 forward—2.52:1 reverse.

4-BLADE LST BRONZE PROPELLERS



Starboard — 7' diameter — pitch constant 4.699: Bore tapers from 6⅛" to 4$\frac{53}{64}$". 14½" taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

RECONDITIONED—GUARANTEED DELAVAL PURIFIERS



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225 G.P.H.

55N-13 (Lube Oil)
55N-23 (Fuel Oil)

300 G.P.H.

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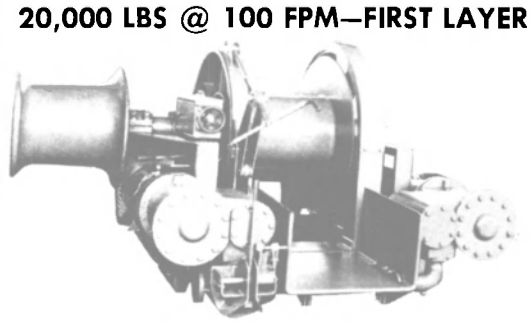
65N-23 (Fuel Oil)

2 HP — 440/3/60/1750 RPM — Frame 224

STEAM MOORING WINCHES

12" x 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head

20,000 LBS @ 100 FPM—FIRST LAYER



ALSO HANDLES 16,000 LBS @ 150 FPM OR 50,000 LBS @ 8 FPM

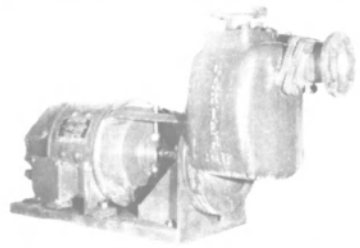
Drum will show 1500 ft of 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger".

ALSO IN STOCK

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

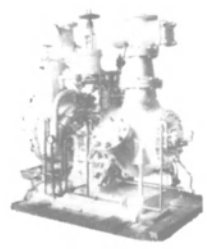
CARTER BRONZE SELF-PRIMING BILGE & GEN. SERVICE PUMP



85 GPM @ 50 lbs. — 3500 RPM — 2" X 2". 5 HP — 115 VDC — 1750 RPM motor.

$1466

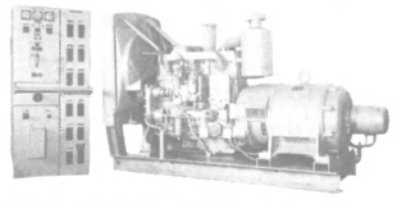
COFFIN FEED PUMPS — ALL SIZES — TYPE DE



3 TYPE DE-2
540 GPM 1870' NET HEAD

8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

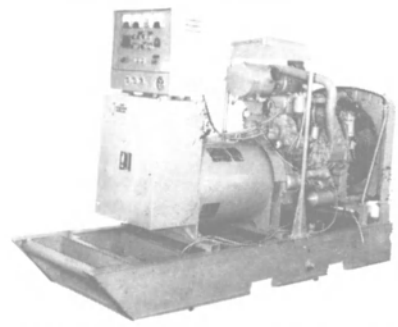
CUMMINS 75KW 93.8 KVA DIESEL GENERATOR SET



440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

GM 4-71-T TURBO-CHARGED 100 KW 440/220/3/60 10 WIRE DIESEL GENERATOR SET

ALL VOLTAGES POSSIBLE



100 KW 440/220/3/60 generator driven by GM 4-71-T radiator cooled turbo charged diesel. P.F. 0.80—for T-2, etc. 1800 RPM. With switchgear. Generator is 10 wire—all voltages possible.

WITH SWITCHGEAR / ALARMS / DISCONNECT

PLEASE NOTE:

Our Marine Dept. & Warehouse is
250 Scott St. at McHenry — Baltimo

KNOWN 'ROUND THE WORLD

THE BOST

313 E. BALTIMO

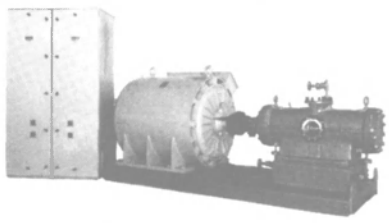
Marine

CABLE: BOSIRON—BALTIMC

700 G.P.M. @ 150 P.S.I.
NEW — UNUSED

MOTOR DRIVEN ROTARY HORIZONTAL PUMPS

WITH 4-SPEED 440/3/60 MOTOR



Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

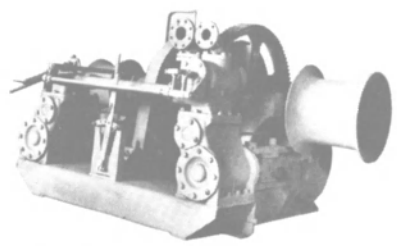
9 X 12 2-SPEED ALL-STEEL

STEAM WINCHES

for use as General Service or

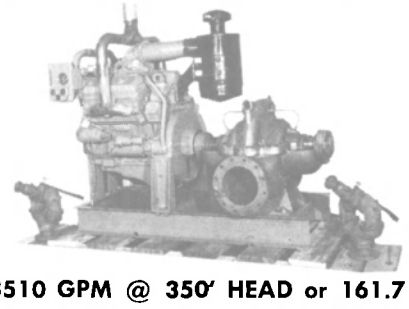
MOORING WINCHES

20,000 LBS @ 110 FPM—7,450 @ 250 FPM



DRUM CAPACITY: 1250′ of 1" wire in 9 layers or 2200′ of ¾" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. DRUM BRAKE: Contracting band type — asbestos lining — foot operated. WINCH DIMENSIONS: 12′ long—8′ wide — 5′ 10" high. Reconditioned by U.S. Navy. Equal to new.

DIESEL DRIVEN FIRE PUMP



3510 GPM @ 350′ HEAD or 161.7 PSI

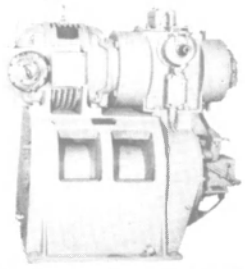
Pump: 10" x 8" horiz. split case. Also 2000 GPM @ 110 PSI and 1450 RPM. Unused—all steel—will sell separtely. Diesel: GM 6V-71 or 6-71 in-line, radiator or heat exchanger cooled.

DAVIT – WINCH

Mfg. by Skagit

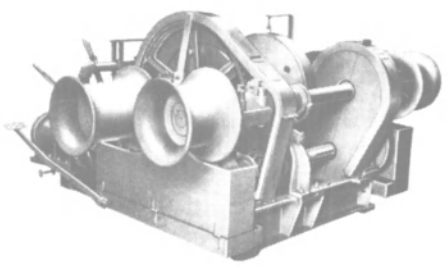
Rated 4000 lbs. @ 80 FPM

6500 LBS OF BOAT & MAN AT 40 F.P.M.



Motor: 13.5 HP — 440/3/60. Designed for ½" 6x37 wire rope. Divided drum with 2 spooling areas. Drum 8½ wide — 4" flange — 10" diameter. Complete with level wind. Also capable of manual operation by crank in case of motor failure. Hand brake & speed limiting brake are provided for holding & lowering boat by gravity. Non-magnetic.

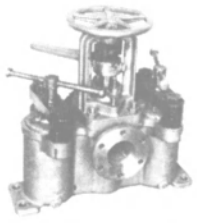
7x12 10,000 LB AH&D CARGO WINCH



2-Speed — single drum — reverse throttle operation. LINE PULL: low gear 10,000 lbs — high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7/8" diam. rope — high gear 250 FPM based on 1st layer of 5/8" diam. rope. DRUM: 26" diam. — 20" long — 26" flange diam. Rope capacity of drum: 7/8" diam. rope in 6 layers — 650′; 5/8" diam: rope in 8 layers 1200′. Steam preassure at throttle 115 lbs. Operating weight 6450 lbs.

DUPLEX STRAINERS

4" and 6"



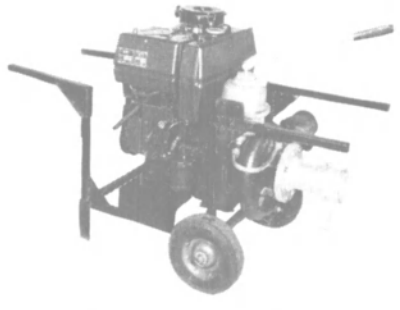
FOR SALTWATER OR LUBE OIL

PORTABLE - EMERGENCY

3" DIESEL GENERAL SERVICE AND FIRE PUMP

70 GPM @ 105 PSI

WITH HAND PRIMING



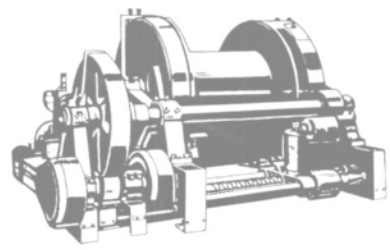
ENGINE: Mfg. by V.M.—air-cooled model HR192A—13.5 HP—3000 RPM—rope start (crank optional). PUMP: Hale—cast iron—3"—N.P.T.—hand priming—weight 410 lbs. Carrier mounted with 2 pneumatic tires for easy handling or 2-man hand carry. Ideal for oil barge, tankers, dockside, etc use.

LARGE STEAM

TOWING ENGINE

9 X 10 TWIN ENGINE DRIVE

Air or Steam — 125/250 PSI



Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800′ of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12′6" wide—6′6" high. Write for details.

ALSO AVAILABLE

Large towing ring — 36" I.D.

T-2 EQUIPMENT

Selected Items Listed

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

10 Stage — 435# — 720°T.T.

Turbine complete with rotor — serial No. 109166 — 4925/5400 KW — 3600/3720 RPM — 10-stage — 435# — 720°TT — 28.5" VAC.

WESTINGHOUSE
MAIN PROPULSION
GENERATOR STATOR

From Ex-Pecos — in like-new condition. With A.B.S.

WESTINGHOUSE
538KW TURBINE ROTORS

WESTINGHOUSE 538 KW AUX.
GENERATOR EXCITER ARMATURE
400 KW REVOLVING FIELDS

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

FOR G.E. 525 KW
T-2 TURBO GENS.

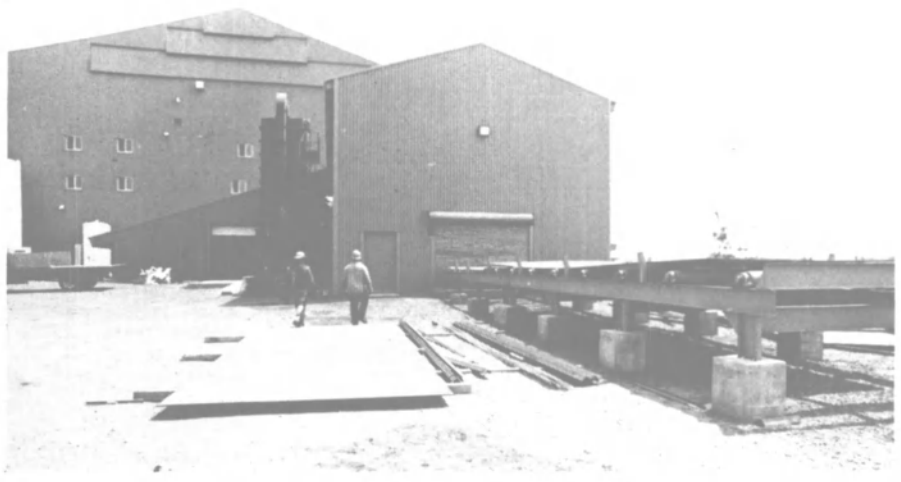
- G.E. DORV-325M TURBINE ROTORS

AMPLIDYNE GENERATORS – ABS

NEW STYLE—LY148
ABS-READY-TO-GO
IN STOCK
FOR
IMMEDIATE
DELIVERY

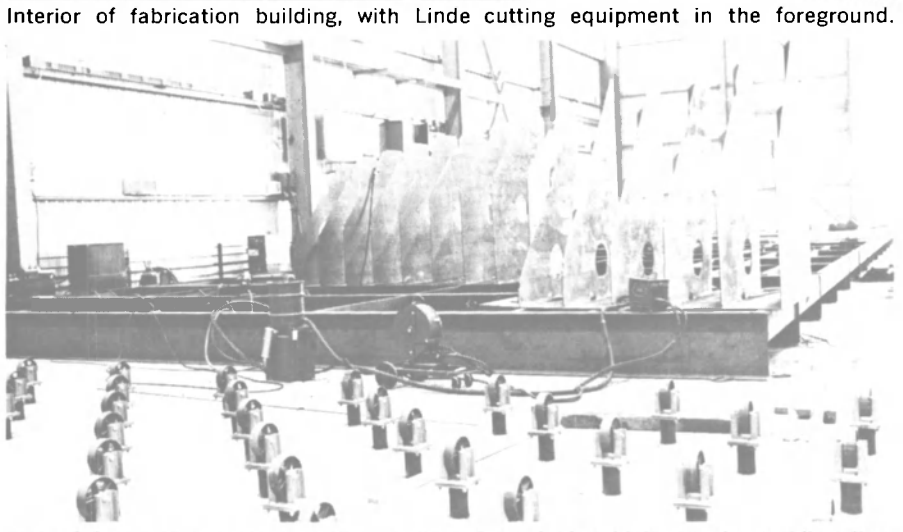
On Michigan's Upper Peninsula—

New UPSCO Shipyard Begins Production

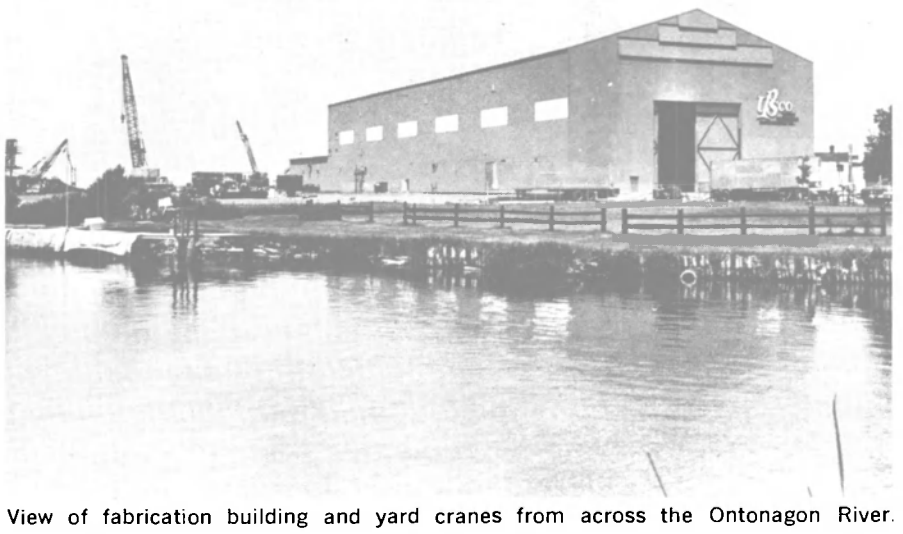


Steel entering main fabrication building passes through Pangborn processing unit.

Interior of fabrication building, with Linde cutting equipment in the foreground.



One of first barge modules being fabricated on Ogden high-capacity welding line.



View of fabrication building and yard cranes from across the Ontonagon River.

An entirely new shipyard, programmed to build commercial tug/barge units, is now in operation in Ontonagon, Mich.

Upper Peninsula Shipbuilding Company (UPSCO), a privately owned firm, was formed in May of 1979 when its president, **Charles H. Kerkman**, together with **Robert J. Rotundo** and **Robert D. Fischl**, saw a need for efficient vessel systems that would offer low-cost water transportation on the Great Lakes. Comprehensive transportation studies involving rail and truck traffic in the Great Lakes area clearly indicated savings to the many shippers who could use cross-lake water transportation as an alternative to around-the-lake rail or truck forms of shipping.

These studies showed that the integrated tug/barge concept seemed to offer the most efficient system in handling cross-lake needs on a shuttle basis. Frequent service on a closely scheduled timetable would smooth the peaks and valleys, and reduce the "dead time" during loading and unloading of cargoes. UPSCO feels that the integrated tug/barge concept is ideally adapted to the needs of cross-lake railroad car shuttle service between Michigan and Wisconsin railhead ports.

The first vessels being built at the new UPSCO yard are part of an integrated tug/barge system for the State of Michigan. The initial contract with the state specifies a system comprising one tug and four barges (forebodies). Production of the system is now under way, with deliveries planned over the next three years.

The tug in the UPSCO system is 120 feet long, powered by two MaK 4,000-bhp turbocharged diesel engines driving controllable-pitch propellers. The engines are designed to operate on residual fuels, providing low-cost operation. Each barge will be 437 feet long with a beam of 64 feet; LOA of the tug/barge unit will be 484 feet.

The barges will be fully enclosed utilizing Navaire bow doors, and will accommodate 28 railroad cars. The mechanism to connect the tug and barge will be manufactured under license from ACB of France.

UPSCO engaged Breit & Garcia, a New Orleans naval architecture firm with a great deal of experience and an international reputation in the development of integrated tug/barges, to design the complete system.

Construction of the Upper Peninsula Shipbuilding yard began in November 1979. In less than seven months, on June 2, 1980, vessel fabrication was started.

The main fabrication building has an area of 60,000 square feet, with an adjoining five-floor production office building. Module building is carried out under four P&H bridge cranes, each having a span of 125 feet and 70 feet under the hook; two have a capacity of 50 tons and two are 15-ton cranes. Administration, trades, warehouse, and other support buildings are now under construction, scheduled for completion by the end of this year.

Installation of the latest in steel-treatment, transport, fabrication, and lifting equipment ensures the cost efficiency of UPSCO's operation. Major items of equipment include a Pangborn metal-processing system, the latest computer-automated Linde metal-cutting equipment, a high-capacity Ogden welding line, and a 750-ton Pacific press. Outside lifting will be handled by a Manitowoc model 4100W crawler crane.

One of the major undertakings is the staffing of the company. UPSCO is building its organization on a scheduled basis, both in the areas of management and hourly employees. Knowledgeable, experienced personnel have been brought into the company in all areas.

In cooperation with the Michigan Department of Labor, employee training schools have been under way for several months. Total employment during July this year reached 85 people; full-production employment level will range between 400 and 450 workers.

world leader in container handling cranes

It's not idle talk...just observe the PACECO cranes in action. The way these big machines produce tells you there's something outstanding. PACECO equipment is the choice of major ports and terminals worldwide. There are reasons why.

Portainer®, **Transtainer**™ and **Shipstainer**© cranes are built for high productivity, low maintenance and easy handling. Decades of continuous heavy duty work around the world have proven their durability.

Transtainer cranes, rubber-tired and rail-mounted, have high-stacking capabilities that will save your premium terminal space. Lower maintenance and lower operating costs combined with high productivity make this equipment cost effective!

Portainer and Transtainer Modular Automated Container Handling (MACH) crane models are available for ports and terminals of the future. For help in your expansion requirements and a **Big Lift in Your Productivity** – Contact PACECO!

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Licensees and Representatives Worldwide – For information, contact PACECO World Headquarters: Alameda, CA 94501, (415) 522-6100, Telex 335-399 or Paceco International Limited: London, Tel: 01-681-3031/4, Telex 946-698.

Bath Saves Time-Money With New Ship Insulation —Literature Available

Major cost and time savings in naval ship construction are estimated from a newly developed insulation being applied to FFG-7 Class guided-missile frigates under construction at Bath Iron Works, Bath, Maine, a Congoleum company.

The new insulation, named Tuff Skin™, was developed and tested in a cooperative program between the shipyard and the Claremont Company of Meriden, Conn.

The Navy has authorized the use of Tuff Skin on the frigates being built at the shipyard, according to **George Bliss**, supervisor of value engineering at Bath Iron Works, and adopted it as the Navy's standard for all new ships.

Mr. **Bliss** said use of the insulation in the frigates is saving approximately $100,000 per ship. It is applied in machinery spaces.

"Navy authorization was the culmination of an accelerated development and test program which required extensive fire and acoustic tests of many different materials," Mr. **Bliss** said.

For free literature containing complete details on "Tuff Skin," write to **Robert C. Roy**, Dept. MR, Claremont Company, 174 State Street, Meriden, Conn. 06450.

Supramar Reorganized With Baron Hanns von Schertel As President

Supramar of Switzerland has been reorganized and will now operate under the name Supramar Hydrofoils Ltd., and no longer as Supramar AG.

Baron **Hanns von Schertel** has been appointed president of the renamed firm, and **Harry Trevisani** general manager.

The company will continue to operate at Ausserfeld 5, CH6362 Stansstad, Switzerland; telephone 041/613194, telex 78228. An enlarged team of designers will be working on further improvements of existing hydrofoil types, and developing a new type of hydrofoil/catamaran, for which the company sees a wide range of applications.

Lance Melik Appointed Director Of Marketing For Twin Disc, Inc.

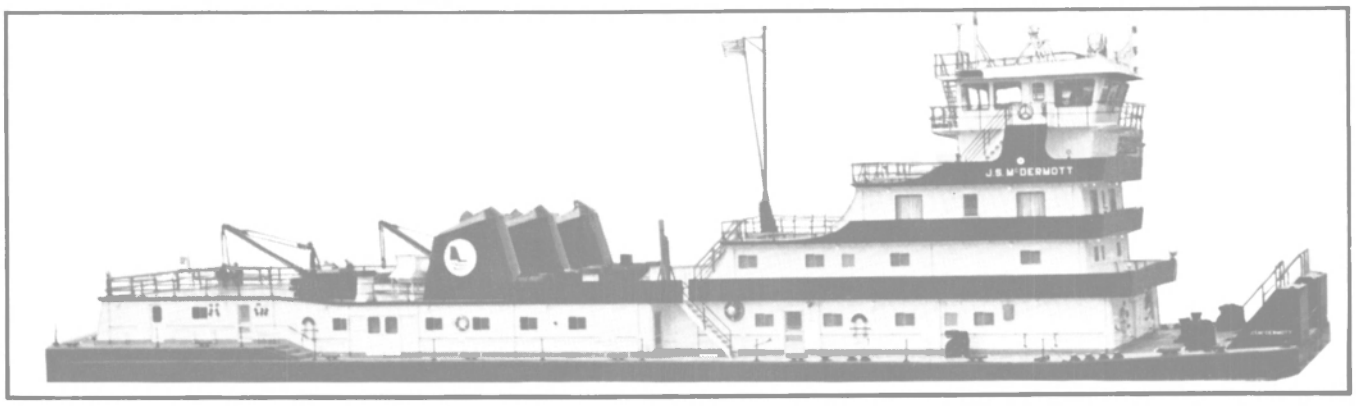
Lance J. Melik

Lance J. Melik, formerly manager-product development, has been promoted to the position of director of marketing for Twin Disc, Incorporated, Racine, Wisc. He will be responsible for the formulation and implementation of the company's marketing strategy.

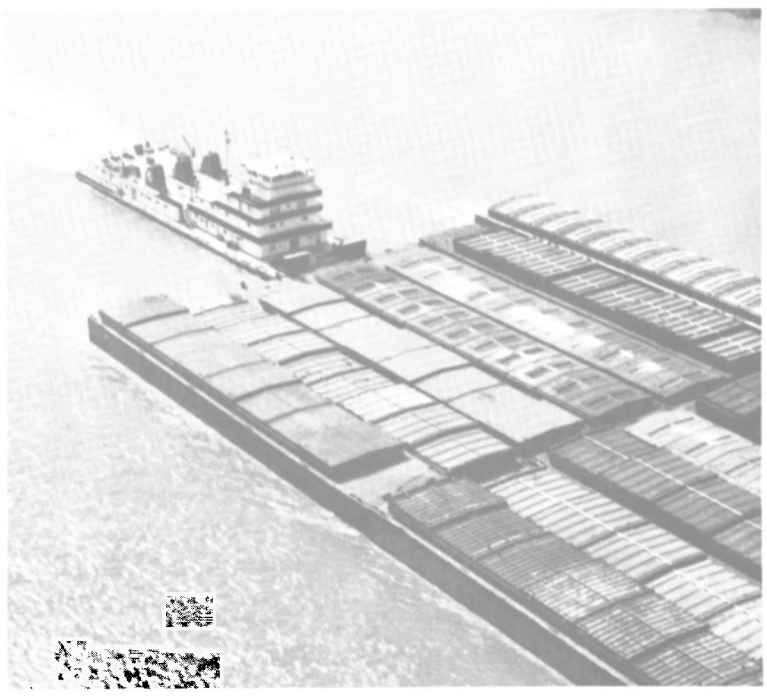
Mr. **Melik** will supervise the following functions: product development, distribution marketing, service engineering, market economics, marketing communications, and marketing administration.

Since joining Twin Disc in 1967, Mr. **Melik** has held several positions within the Marketing Department including statistician, marketing analyst, manager-marketing service, manager-market economics and product planning, and his most recent position of manager-product development.

FEDERAL'S 10,500 HP SUPERPUSH



Carrying on its noted tradition, Federal Barge Lines recently added a new super towboat to its fleet. The M/V J.S. McDermott is shown pushing a large tow on the lower Mississippi. The McDermott is one of the largest Hydrodyne towboats ever built by St. Louis Ship, as well as the largest and most powerful towboat in Federal's fleet. Federal Barge pioneered the concept of the "super towboat," when it built the 9000 HP M/V United States in 1958, and the 9000 HP M/V America in 1960. Whether your needs are for a very large towboat, or for a small one, St. Louis Ship will engineer, design and build a Hydrodyne towboat of maximum efficiency to satisfy your requirements. Please call us at (314) 638-4000.



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

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

In Washington, D.C.—

MTC '80

"Decade Of The Oceans"
More Than 150 Technical Papers—More Than 200 Exhibits

This year's Marine Technology Conference, to be held October 6-8 at the Shoreham Hotel in Washington, D.C., is scheduled to hear U.S. Transportation Secretary **Neil Goldschmidt** as the keynote speaker. Scores of scientists and more than a dozen members of Congress also are expected to address the conference. Opening remarks will be made by Coast Guard Commandant Adm. **John B. Hayes**, chairman of the conference and exhibition.

CALENDAR OF EVENTS
MARINE TECHNOLOGY CONFERENCE & EXHIBITION
SHOREHAM HOTEL

Sunday, October 5, 1980

5:00 pm Advance Registration and Early Bird Reception

Monday, October 6, 1980

9:00 am Plenary Session
11:45 am Chairman's Luncheon
1:30 pm Concepts/Regulations
2:00 pm Oceanography I/Water Quality/Marine Affairs I
3:00 pm Coffee Break
3:45 pm Offshore Structures/ Oceanography II/Oil Pollution/Search and Rescue
5:15 pm Exhibitors' Cocktail Party

Tuesday, October 7, 1980

8:30 am Buoy Technology I
9:00 am Manned Vehicles/ Oceanographic Ships/ Marine Affairs II
10:00 am Coffee Break
10:45 am Buoy Technology II/ Unmanned Vehicles/ Education I/Ocean Energy
12:15 pm Lunch
1:30 pm CZM
2:00 pm Ocean Mining I/Education II/Marine Affairs III
3:00 pm Coffee Break
3:45 pm Undersea Physics/Ocean Mining II/Diving/ Materials
6:15 pm No Host Reception
7:00 pm Decade of the Oceans Banquet

Wednesday, October 8, 1980

8:30 am Geodesy
9:00 am Fisheries/Marine Technology I/Marine Affairs IV
10:00 am Coffee Break
10:45 am Cables-Connectors/Sea Floor Engineering/ Marine Technology II/ Remote Sensing
12:15 pm President's Award Luncheon
2:00 pm Instrumentation I/ Radioactive Waste I/ Vessel Traffic Service I
3:00 pm Coffee Break
3:45 pm Instrumentation II/ Radioactive Waste II/ Vessel Traffic Service II

The conference theme, "Decade of the Oceans," underscores the major role marine technology will play in the 1980s as the United States and other countries turn to the seas for more effective ways of solving their economic, environmental, and defense needs.

The three-day conference will provide a timely forum for discussing national and international issues related to marine technology. Technical seminars will deal with ocean energy and food supplies, pollution control, undersea vehicles, ocean measurements and instrumentation, and state-of-the-art hardware for the marine environment. More than 200 exhibits will showcase the latest marine technology products and services.

The Marine Technology '80 technical program, focusing as it does on the coming decade of the oceans, represents a broad spectrum of expertise. It encompasses the interests of many disciplines — including the social, political, and physical sciences, as well as engineering — on that 70 percent of the world's surface called the oceans.

The technical sessions arranged for the MT '80 Conference focus attention toward a variety of topics. Over 150 scholarly papers, representing significant contributions from universities, governments, laboratories, and private industries worldwide were reviewed to develop this year's technical program. The efforts of all concerned have been aimed toward insuring that this conference will be the finest and most productive for the oceans community.

Chairman of the Technical Program is Rear Adm. **Alfred P. Manning Jr.**, USCG.

Marine Affairs Program

The Marine Affairs Program will provide four panels, of shorter duration than the Technical Program, to complement the ongoing technical sessions and follow up on the theme outlined in the Chairman's Message and Plenary Session.

Panel I—A Forecast of Emerging Economic Marine Needs—will attempt to gain some consensus on the precise range of national needs having marine dimension that now indicate a significant, emerging demand for advanced marine technology. It will explore how marine technology can be applied more effectively to support national economic (energy, transportation, mining, fisheries, etc.), defense, foreign policy, environmental and other societal needs. It also will highlight current developments, such as the need to implement anticipated accords from the Law of the Sea

MT 80 EXHIBITORS

Aanderaa Instruments, Inc
Advance Cable & Assembly
Aquafot, Inc
Bell & Howell, CEC Division
Benthos, Inc
Birns Oceanographics
Blake Wire & Cabe
Brantner & Associates, Inc
Canadian Marconi Co
Compass Publications, Inc
Conference Book Service, Inc
Cortland Line Co
Cubic Western Data
Custom Cable Co
David Taylor Naval R&D Center
Del Norte Technology, Inc
Diving Unlimited International Inc
EDO Western Corp
EFCOM
EG&G Environmental Consultants
EG&G Environmental Equipment Div
EG&G Sea-Link Systems
Electro Space Inc
Engineering Services Associates, Inc
Environmental Devices Corp (ENDECO)
EPC Labs, Inc
Fathom 36, Inc
Flash Technology
Franklin Electric Co, Inc
Gans & Pugh
General Instrument Corp
General Oceanics, Inc
Giannini Petro Marine
Gibbs & Cox, Inc
Grundy Environmental Systems, Inc
HANDAR
Heckerman Corp
Hiab Cranes & Loaders, Inc
Hydrasearch, Inc
Hydro Products, Inc
International Underwater Contractors, Inc
InterOcean Systems, Inc
Interstate Electronics Corp
J-TEC Associates, Inc
Jet Propulsion Lab
KINTEC
Klein Associates, Inc
Lockheed Missile & Space Co, Inc
Lucker Manufacturing Co
Magnavox Corp
MAR, Inc
Marinco
Marine Technology Society
Motorola, Inc (Gov Electronics Div)
National Ocean Industries Association
NAVOCEANO
Neil Brown Instrument Systems, Inc
Nereides
NOAA
NORDA
D. G. O'Brien, Inc
Ocean Applied Research
Ocean Data Equipment
Odom Offshore Surveys, Inc
Optelecom
Osmose Marine Division
Otis Engineering Corp (Special Products Div)
Parkway Fabricators
Photosea, Inc
K. Pollock Associates, Inc
Pollock Research & Design
Polyform, USA
Preformed Line Products Co
Raytheon Ocean Systems
Rebikoff Ocean Systems
Remote Ocean Systems
C. A. Richards & Associates, Inc
Schonstedt Instrument Co
Sea Data Corp
Sea Mac
Sercel, Inc
SMATCO
Sonatech, Inc
Southwest Research Institute
Sutter & Co, Inc
Teledyne Hastings Raydist
Telstar Electronics Corp
Tetra Tech, Inc
Tracor, Inc
Tracor Marine, Inc
University of Delaware
University of Southern California
Vector Cable Co
Video Sciences, Inc
Whitehill Manufacturing Corp
Ed Winston Associates
Zippertubing Co

negotiations into national legislation and programs, and specifically how these trends will accelerate the need for advanced marine technology.

Panel II—Government-Industry Relations in Marine Resource Development—will focus its discussion on the appropriate roles of both the private and public sectors in the fostering or facilitating of the state of the art for marine technology. In collateral discussion, the panel will deliberate how marine law and policy, and its implementation into Federal and State programs, can be improved to insure that marine technology will be more supportive of national needs.

Panel III — The Role of U.S. Marine Technology in the International Area — will explore the range and directions for U.S. foreign policy in the transfer of technology to both developing nations and the developed world. Considering such issues as technology transfer inherent in the Law of the Sea negotiations and the "North-South Dialogue," the panel will discuss the cooperative roles of the private sector and government in this effort. Examination also will focus on the critical problems of balancing U.S. needs for access to resources with conditions diluting traditional proprietary rights associated with technology.

Panel IV—Economic Regionalism in Maritime Affairs — will complement Panel III by extending the concept of regionalism that has been evident in the areas of science and transfer of marine technology to the broader range of economic development. Addressed will be such topics as hemispheric cooperation for energy and fisheries development, and the roles of multinational corporations in the sectoral extraction, processing, distribution, and marketing of ocean resources — fisheries and agriculture, offshore oil, and ocean minerals.

Executive Summaries

Executive summary of major developments and trends in marine technology will be presented by the Marine Technology Society professional committees to provide ocean managers, engineers, and scientists with a summation of the leading activities in the broad spectrum of ocean discipline. MTS vice president for technical affairs **Joseph R. Vadus** will chair the two sessions, and the chairmen of the four technical divisions will moderate the presentations given by each of the MTS professional committees.

The program will include:

(1) Ocean and coastal engineering—**Jack W. Boller,** moderator;

(2) Manpower, professional development, and education — **Gilbert Maton**, moderator;

(3) Ocean and coastal management—**John Norton Moore,** moderator;

(4) Ocean resources and environment—**Jack Flipse**, moderator.

Satellite Workshop

A workshop is being organized by the MTS Satellite and Aircraft Remote Sensing Technical Committee. The purpose of this workshop is to review and assess the state of the art of ocean monitoring satellites having microwave sensor suites (SEASAT-A and NIMBUS-7), and to attempt to apply this information to the proposed National Oceanic Satellite System (NOSS).

Dialogue will be encouraged to assess accomplishments, voids, and needs related to: (1) sensor data acquisition, storage, retrieval, dissemination, and processing; (2) ground-truth verification; and (3) meteorological interference corrections. Corresponding points of discussion will be addressed for the NOSS, using the SEASAT-A and NIMBUS-7 experiences as a reference base.

This workshop will be held on Thursday, October 9 from 9:00 a.m. to 4:00 p.m.

Rockwell Publishes New Cast Steel Valve Catalog

A new catalog describing Rockwell Edward cast steel gate, globe, angle, and check valves is now available from the Flow Control Division.

Covering high-pressure, high-temperature valves for power, process, and general industries, the catalog reviews product design, development, and testing. It contains cutaway illustrations, dimensions, pressure-temperature ratings, and other data in standard and metric notation. For easier reference, the valves have been grouped into three sections: stop valves, stop-check valves, and check valves. Of special interest is the new section on Rockwell gas/hydraulic valve actuators for large, fast-closing valves for main steam and feedwater services. Cast steel valves are available in sizes 2½ through 32 inches for all popular ANSI classes.

For a free copy of Catalog V-300, Rockwell Edward cast steel valves, write to **Frank T. Wendt**, Dept. MR, Rockwell International, Flow Control Division, 400 North Lexington Avenue, Pittsburgh, Pa. 15208.

McIndoe Named Director—International Marketing For Twin Disc, Inc.

James McIndoe

James McIndoe has been promoted to director of international marketing for Twin Disc, Incorporated. His former position was marketing director of Twin Disc International, S.A. in Nivelles, Belgium. Mr. **McIndoe** will be headquartered at the Twin Disc corporate offices in Racine, Wisc. He will be responsible for the development of the company's international marketing strategy involving markets and products.

He began his career at Twin Disc International in 1967 as a sales engineer, and was promoted to his former position of director of marketing in 1976. Prior to joining TDI, Mr. **McIndoe** was chief engineer at Inchgreen Engineering, J. Swire Division, in Greenock, Scotland.

MarAd Awards CDS For Mormac Conversions To Cost $4.4 Million Total

The Maritime Subsidy Board has authorized the award of construction-differential subsidy (CDS) for work by Maryland Shipbuilding and Drydock Company of Baltimore to increase the container-carrying capacity of four Mariner Class vessels owned by Moore McCormack Lines of New York. The cost of the work is to be $1,105,087 per vessel, with the subsidy rate set at 40.82 percent.

The ships are the Mormacsaga, Mormacsea, Mormactide, and Mormacwave. The conversion work will allow the carriage of 40-foot containers, and increase the total container capacity for each ship from 140 to 206 twenty-foot equivalent units.

The subsidy rate was based on a finding that Japan was the appropriate foreign shipbuilding center for subsidy computations, and that the price for the work in Japan would be $654,000 per vessel.

New Brochure Explaining Combustion Catalysts Available From Ferrous

Ferrous Corporation, manufacturer of combustion catalysts for marine diesels and boilers, has recently prepared a brochure explaining the factors that affect combustion performance, and how to achieve maximum efficiency.

The full-color, six-page brochure explains the causes of poor fuel economy, soot, slag, acid corrosion, and carbon build-up. It explains the combustion process itself, and how a catalyst can be successfully applied to improve efficiency.

The brochure also contains a bibliography of technical bulletins readers can obtain to learn more about combustion efficiency and related subjects.

To obtain a copy of the brochure, write to **K. Chorlton,** Dept. MR, Ferrous Corporation, 910 108th Street N.E., Bellevue, Wash. 98004.

Thomas Zambetti Named New Sales Engineer For Selby, Battersby

Dean S. Champlin, vice president-marine operations of Selby, Battersby & Company of Philadelphia, a subsidiary of Quaker Chemical Corporation, has announced the appointment of **Thomas J. Zambetti** as sales engineer.

For the past several years Mr. **Zambetti** has been serving the marine industry in the marketing of marine deck coverings and other hull outfitting materials. His addition to the Selby, Battersby staff is aimed at broadening the company's service to the industry.

MarAd Study Reports $9.8 Billion Needed To Expand U.S. Ports

A new study by the Maritime Administration estimates that construction costs to increase deepwater cargo-handling facilities at American ports will exceed $5 billion in this decade. Growth of the nation's waterborne commerce, the report says, will require construction of nearly 250 new marine terminal berths by 1990.

The report, "National Port Assessment 1980/1990," also projects the need for nearly 500 new or upgraded riverport facilities in 17 mid-America states at an estimated cost of $4.8 billion.

The assessment discusses the 10-year requirements of seaport and riverport terminals by comparing their current cargo-handling capacity with projections for the end of this decade. Terminal requirements by major coastal regions also are included.

Some 45 percent of the estimated deepwater requirements is expected to consist of container terminal facilities; about 25 percent of dry-bulk cargo berths; about 19 percent of liquid-bulk facilities; and 11 percent of break-bulk handling facilities.

Most of the U.S. riverport industry is located from the Central Gulf Coast north through the Ohio River basin. This regional system comprises nearly 1,200 water terminals providing more than 1,800 barge berthing facilities serving 26 rivers and waterways.

The study also discusses the distribution of existing port facilities by state and size, and identifies typical marine terminal construction and operating costs. Two national and 13 regional maps are included, showing major ports and waterways.

Copies of the 127-page report are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The order number is 003-007-0010.

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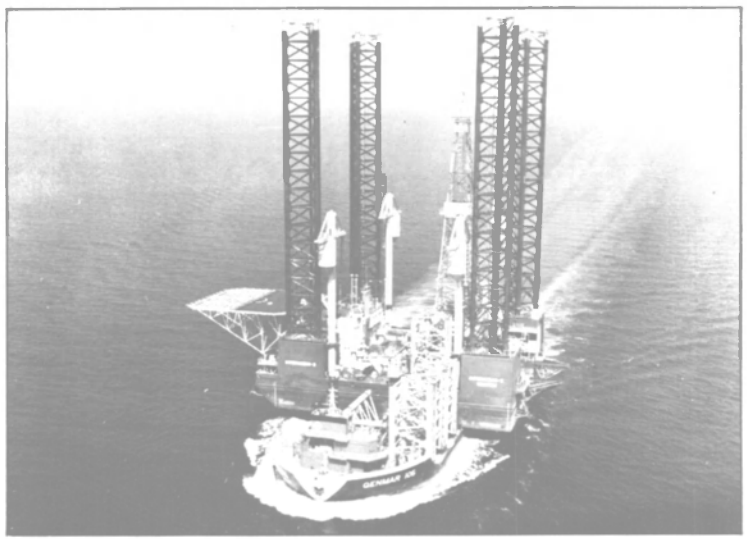

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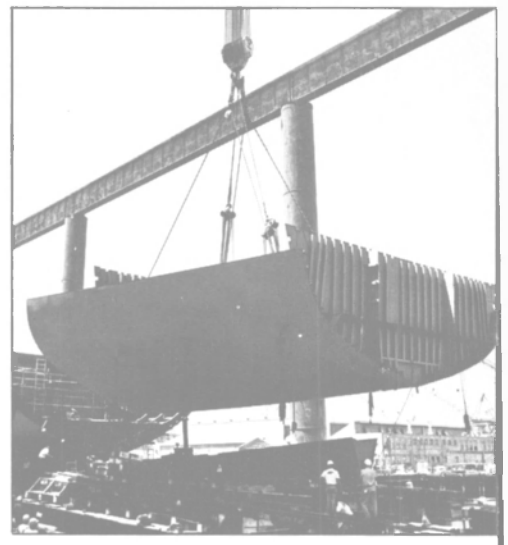

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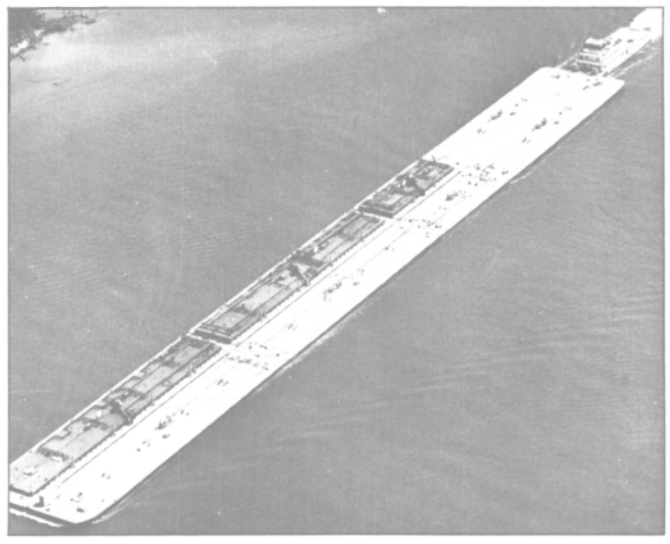

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MARITIME REPORTER AND ENGINEERING NEWS

IMM Asks For Title XI For Two Offshore Boats To Cost $2.7 Million

International Mooring & Marine, Inc., Port of Iberia, New Iberia, La. 70560 has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of two 120-ton workboats.

The 510-bhp, twin-diesel vessels are to be used in marine construction and offshore oilfield work in the Gulf of Mexico. Halter Marine of New Orleans is the proposed builder of both vessels, with delivery scheduled for later this year.

If approved, the Title XI financing would cover $2,027,000, or 75 percent of the total estimated cost of $2,703,000.

Title XIs Asked On Two Tug/Supply Vessels To Cost $6.5 Million Total

Spring Rain, Inc., and Summer Sun, Inc. of Berwick, La., have applied to the Maritime Administration for Title XI guarantees to aid in financing the construction of two 3,000-bhp tug/supply vessels.

The diesel-powered vessels will operate in U.S. and foreign waters servicing offshore oil and gas drilling platforms. Halter Marine, Inc. of Lockport, La., is the designated builder of the boats, but no delivery date has been set.

If approved, the Title XI guarantees would cover $5,712,000, or 87½ percent of the total estimated cost of $6,530,000 for the two vessels.

Demetropoulos Named West Coast Manager For Magnus Maritec

Nick Demetropoulos has been promoted to West Coast District manager by Magnus Maritec International, one of the largest suppliers of marine water treatment and maintenance chemical technology in the U.S.

Nick Demetropoulos

Mr. **Demetropoulos** has been with Magnus Maritec since 1974 as a national account executive in New York. Now located in the San Francisco Bay area, his responsibilities will include sale and service of MMI's complete line including maintenance, water treatment, fuel treatment, and tank coating products. He will supervise seven MMI distributors from Vancouver, B.C., to Ciudada del Carmen, Mexico, and MMI offices in Vancouver and Los Angeles.

ML Barge Seeks Title XI On 125 Barges To Cost Total Of $37,622,700

ML Barge Operating Corporation, a subsidiary of ML Operating Corporation of New York, has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of 125 box and rake type, jumbo covered barges, all intended for use on the inland waterways of the U.S.

St. Louis Ship of St. Louis, and American Bridge Division of Ambridge, Pa., are the proposed builders of the barges.

Estimated cost of the first 60 vessels, scheduled for delivery later this year, is $17,147,700 ($285,795 per unit). The estimated cost of the other 65 barges, scheduled for 1981 delivery, is $20,475,000 ($315,000 each).

The requested loan guarantee is for 70 percent of the total cost.

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Will you collide? RAYCAS (Raytheon Collision Avoidance System) provides the answer in seconds, and helps you select the best evasive action.

RAYCAS combines a compact computer module with a Mariners Pathfinder® 16-inch Bright Display radar. This provides three unique installation options:

1. add only the RAYCAS module to an existing Raytheon 16-inch Bright Display radar;
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Whichever you choose, you get a proven Collision Avoidance System that exceeds existing requirements . . . and cost less than other units.

Unmatched radar performance.

The Raytheon Bright Display presentation helps make RAYCAS the most effective Collision Avoidance System in the world.

In addition to direct daylight viewing, it features two-level video and automatic interference rejection. This provides the clutter suppression and noise-free picture so essential for reliable target acquisition and tracking. Proven 3 and 10-cm interswitch capability assures compliance with MARAD requirements for dual installations.

User-oriented presentation.

RAYCAS uses basic radar system video as input for the computer. The computer-generated collision avoidance symbols are then electronically superimposed directly on the Bright Display radar picture. As a result, observers can use familiar radar procedures assisted by target vectors, points of potential collision and other anti-collision data.

RAYCAS features.

- *Relative-motion Display:* Centered or 70% off-centered with course-up or north-up.
- *True-motion Display:* Own ship moving across scope with course-up or north-up.
- *Target Acquisition:* Manual or automatic with fixed and adjustable guard zones.
- *Tracked Targets:* Up to the 20 most dangerous targets.
- *Target Vectors:* Indicate true or relative courses and speeds; adjustable time base helps predict future position.
- *Target Trails:* Indicate target's past position and course.
- *Dangerous Targets:* Automatically selected by pre-set CPA (Closest Point of Approach) and TCPA (Time to CPA).
- *Points of Potential Collision:* Automatically displayed.
- *Digitally Displayed Data:* CPA and TCPA; own ship's speed and course; target's range, bearing, speed, and true course; own vector length; vector time; BCR (Bow Crossing Range) and BCT (Bow Crossing Time).
- *Trial Maneuver:* Scope displays results of own ship's trial course and speed changes.
- *Visual and Audible Warnings:* Dangerous target, target in guard zone, equipment fault, trial maneuver, and target lost.
- *Automatic Drift Correction:* Computed by tracking on fixed navigation aid.
- *Navigation Lines:* Scope presentation of 8 lines for fairways.
- *Brightness Controls:* Separate adjustments for radar and computer video.
- *Performance Monitor:* Manual or automatic monitoring of radar performance.

Two-year warranty.

The American made RAYCAS, like the more than 5000 Raytheon Dual 3 and 10-cm Radars now in service, is already a proven performer. Installations have been made on all types of vessels from coastal ships to VLCC'S.

RAYCAS has a two year limited parts warranty. On board service is free for one year within a fifty-mile radius of any of our U.S. Dealers and worldwide service network in major ports everywhere.

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Coal-Burning Bulkers Ordered From Yards In Italy And Japan

Orders were placed recently for the first four of a new generation of coal-burning ships. Two 75,000-dwt coal-fired bulk carriers have been ordered by Bulkships Ltd., the ship-owning arm of Australia's Thomas Nationwide Transport Group, from the Monfalcone Division of Italy's Italcantieri Shipbuilding Group. Two additional 75,000-dwt, coal-fired bulkers have been ordered by the Australian National Lines from Mitsubishi Heavy Industries' Nagasaki yard. All four ships will be classed by Lloyd's Register of Shipping.

These ships will all be powered by steam turbine plants supplied by coal-fired boilers. They will use well established methods of coal burning, as well as highly automated handling of their bulk cargoes.

Several economic studies have shown that the world demand for coal as an energy source will increase from now until the end of the century. This makes this first generation of coal-burning ships of particular technical importance.

Lloyd's Register has shown keen interest in the use of coal as an alternative fuel for merchant ships. The British classification society recently published a booklet on the subject titled *Guidance Notes for the Burning of Coal in Ships' Boilers.*

CDI Marine Awarded Navy Design Contracts Totaling $3.2 Million

CDI Marine Company announces the recent award of two major contracts to supply design services to the U.S. Navy. The first is a $1.3-million, one-year contract to provide design and engineering support for Navy surface ships to Supervisor of Shipbuilding, Jacksonville, Fla. CDI Marine has been providing design services to this Navy office almost continuously since the first such award in Jacksonville in 1973.

A contract with Naval Ship Systems Engineering Station (NAVSSES), Philadelphia, is also significant to the continued growth of CDI Marine. This contract, totaling $1.9 million, requires CDI Marine to furnish engineering and support services for Naval ships' propulsion system and electrical power generation and distribution systems. Management of this contract will be assigned to CDI Marine's Philadelphia area office in Voorhees, N.J.

CDI Marine Company, headquartered in Jacksonville, has grown into one of the nation's largest naval architectural and marine engineering firms. The Jacksonville office is the hub of a network of permanently staffed design offices located in the Philadelphia area, Norfolk area, San Diego, Boston, Groton, Conn., Charleston, S.C., and Pascagoula, Miss.

Offshore Ship Services Seeks Title XI On Tug/Supply Boat To Cost $3.2 Million

Offshore Ship Services, Inc. of Belle Chasse, La., has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of a twin-screw tug/supply vessel.

Rysco Shipyard Inc. of Blountstown, Fla., has been designated to build the 180-foot vessel, with delivery scheduled for October 1981. Offshore Ship Services plans to operate the vessel in U.S. and foreign waters servicing offshore oil and gas drilling rigs.

The Title XI guarantee, if approved, would cover $2.8 million, or 87½ percent of the vessel's estimated cost of $3,200,000.

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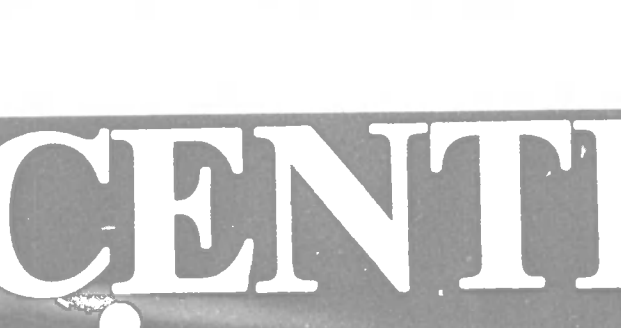

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Tidelands Seeks Title XI For $11.9-Million Inland Barge Drilling Vessel

Tidelands Limited III of Houston has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of one inland barge drilling vessel.

Tidelands plans to operate the vessel in the inland waterways along the U.S. Gulf of Mexico coastal areas. Stewart & Stevenson Service, Inc. of Houston, and McDermott Incorporated of New Iberia, La., are the proposed builders; delivery is expected in February 1981.

If approved, the Title XI guarantee would cover $10,400,000, or 87½ percent of the vessel's $11,886,000 estimated cost.

Delta Bulk Terminal Asks Title XI On Two Barges To Cost $7 Million Total

Delta Bulk Terminal, Inc. of Houston has applied to the Maritime Administration for a Title XI guarantee to aid in financing one self-unloading barge and one flatdeck barge.

Kenner Marine & Machinery, Inc. in La Place, La., is building both the 524-foot self-unloader and the 203-foot flatdeck barge. Delta Bulk Terminal plans to operate both vessels along the U.S. Gulf Coast.

If approved, the Title XI guarantee would cover 87½ percent of the vessels' estimated cost—$6,103,125 of the self-unloading barge's $6,975,000 estimated cost, and $91,875 of the flatdeck's $105,000 estimated cost.

Bonito Offshore Orders Jackup Drilling Rig From Ingalls Shipbuilding

Bonito Offshore, Inc. of Houston has signed a contract with Ingalls Shipbuilding of Pascagoula, Miss., to build a Friede & Goldman design L-780 (Mod. 2), cantilevered jackup drilling rig.

Scheduled for delivery in March 1982, the rig will be capable of drilling in 300 feet of water to depths of 25,000 feet. The mobile unit will be 180 feet long and 175 feet wide, and will have accommodations for 90 personnel.

Ingalls Shipbuilding, the only North American contractor currently building L-780 design jackups under Friede & Goldman license, now has 12 rigs under construction, including eight jackups and four submersible rigs. All rig contracts have been signed this year.

Tacoma Boat To Build Nine USCG Cutters At Cost Of $646 Million

Tacoma Boatbuilding Company, Tacoma, Wash., has been awarded a contract to construct nine 270-foot, medium-endurance cutters for the United States Coast Guard. Original contract price for the cutters is $378 million; however, with the escalation factor built into the contract price, keyed to the Bureau of Labor statistics for shipbuilding, total cost for construction of the nine vessels is estimated at $646 million.

Announcement of the award was made recently by Congressman **Norm Dicks** (D-Wash.) in ceremonies at the company's new Plant Number 3 on Commencement Bay in Tacoma. According to Congressman **Dicks,** the vessels will be delivered to the United States Coast Guard over the next five years, As planned, they will be used for patrolling the 200-mile limit.

The nine-vessel contract is a follow-on to four medium-endurance cutters already under construction at Tacoma Boatbuilding. As with the first four vessels, the nine new ships will be constructed using the same production facilities located at Plant Number 3.

With the award of the current contract, the backlog at Tacoma Boatbuilding Company now stands at approximately $800 million.

Michigan Wheel Will Market Bow Thrusters —Literature Available

Michigan Wheel Division, Dana Corporation, recently announced that it will now market a line of bow thrusters under the trade name of Michigan-Jastram. This exclusive arrangement applies to the United States, Canada, and Mexico.

According to **Chuck Dykstra,** director of marketing of Michigan Wheel, the company has formed a new propulsion systems group that is consistent with its goal to provide quality propulsion equipment and systems for improved maneuverability for overall vessel efficiency. Michigan Wheel, Mr. **Dykstra** indicated, is collaborating with Jastram-Werke of Hamburg, West Germany in manufacturing and marketing of the Michigan-Jastram line of bow thrusters in North America.

Working with Dr. **Dykstra** at Michigan Wheel's divisional offices in Grand Rapids, Mich., will be **Dave Johnson,** propulsion systems manager. Mr. **Johnson** explains that an essential element of the Michigan-Jastram bow thruster is its high-quality marine gearbox. He adds that since 1954, an ever-increasing number of ships of all sizes and types in Europe have been equipped with Jastram bow thrusters. The Hamburg-based company is a leading European manufacturer of transverse, fixed-pitch bow thrusters.

In the United States, the Jastram-supplied gears, along with Michigan propellers and transverse tunnels, will provide cost-efficient thrusters for the North American market.

For further information and free literature on Michigan-Jastram, write to **Charles Dykstra,** Dept. M.R., Michigan Wheel Division, 1501 Buchanan S.W., Grand Rapids, Mich. 49507.

U.S. Yards Invited To Bid On First Maritime Prepositioning Ships

Private American shipyards have been invited to bid on the first two Maritime Prepositioning Ships, a new class of cargo vessels designed to provide standby logistic support for the rapid deployment of United States Marines around the world.

The invitation was extended by the Maritime Administration (MarAd), under a joint agreement with the Department of Defense. MarAd will serve as the contracting authority for the construction of the vessels, and will turn them over to the U.S. Navy upon delivery of the shipyard(s). The Naval Sea Systems Command will be responsible for the overall program, and the Navy's Military Sealift Command will operate the ships. A joint program office is being organized to administer the entire program.

Up to eight new ships in this class, designated by MarAd as C8-M-MA134j, are planned by the Navy. MarAd has invited sealed bids on the first two vessels (either one or both) on or before October 22, 1980. All bids will be publicly opened at the Commerce Department at 2:15 p.m. that day.

The ships will have an overall length of 831 feet 6 inches, a displacement of 48,800 long tons at design draft, a carrying capacity of 28,000 deadweight tons, and a service speed of 20 knots.

Interior cargo volume will exceed 2.6 million cubic feet. Four twin deck cranes will provide both standard and heavy lift-on/lift-off access to the ship's five holds.

Vehicles will roll on and off the ship via a stern ramp. Each ship will have up to 225,000 square feet of roll-on/roll-off deck area, including cardecks, and a maximum container capacity of 1,958 twenty-foot-equivalent units (TEUs).

Options thus would be provided

(continued on page 52)

U.S. Yards To Bid On Prepositioning Ships

(continued from page 51)

for any combination of cargoes, ranging from heavy tanks to refrigerated containers filled with perishables.

The ship will be propelled by two medium-speed energy-efficient diesel engines generating a total of 27,000 bhp.

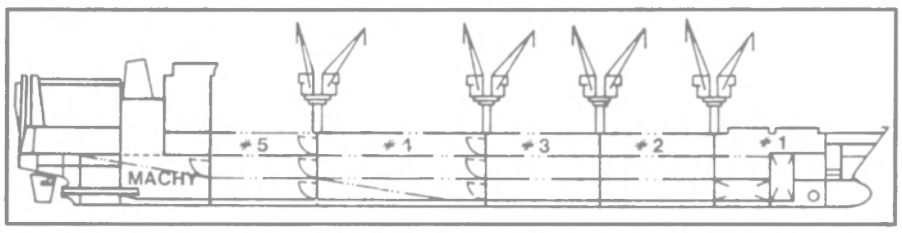
The design also calls for a helicopter pad on the stern, and for the installation of dehumidification systems to provide long-term preservation of the cargo.

The existing Navy/Marine Corps sealift support plan calls for the conversion of four roll-on/roll-off ships currently in the U.S. merchant fleet to serve with the eight new prepositioning ships. The 12 vessels together would support three Marine Amphibious Brigades (MABs). In the event of an emergency, MAB personnel would be airlifted to a point of rendezvous with their support vessels.

Delivery of the first ship would be due 29 months after the signing of a construction contract, and the second within 34 months of the signing.

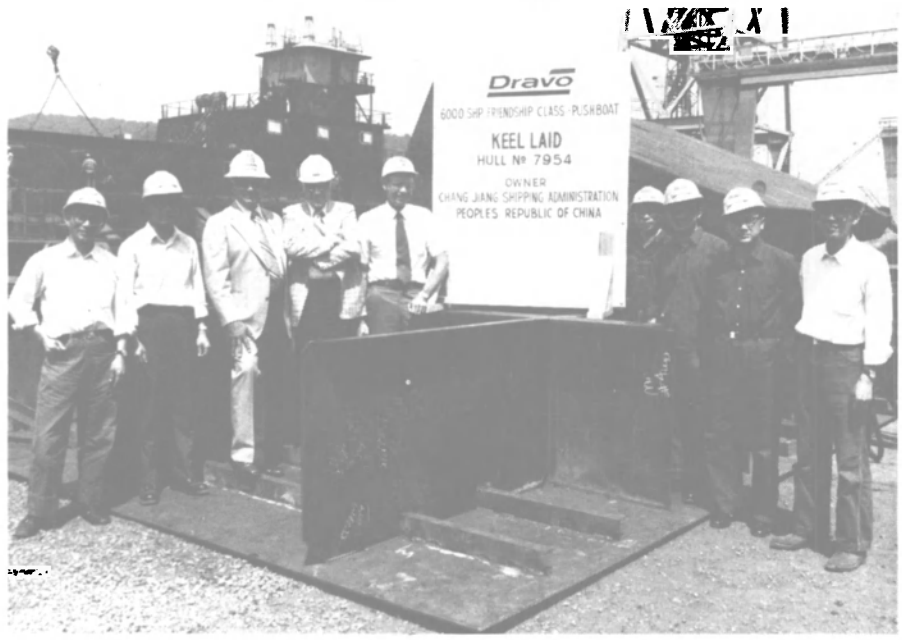
The Maritime Prepositioning Ship design grew out of MarAd's ongoing development of a multipurpose mobilization ship design known as the Security Class. The purpose of that program is to prepare the detailed design of a vessel or vessels that could be produced quickly in an emergency, as Liberty and Victory ships were in World War II.

M. Rosenblatt & Son, Inc. of New York developed the contract design for the Maritime Prepositioning Ship. The firm is continuing work on the contract design of other versions of the Security Class under a contract with MarAd.



Maritime Prepositioning Ship

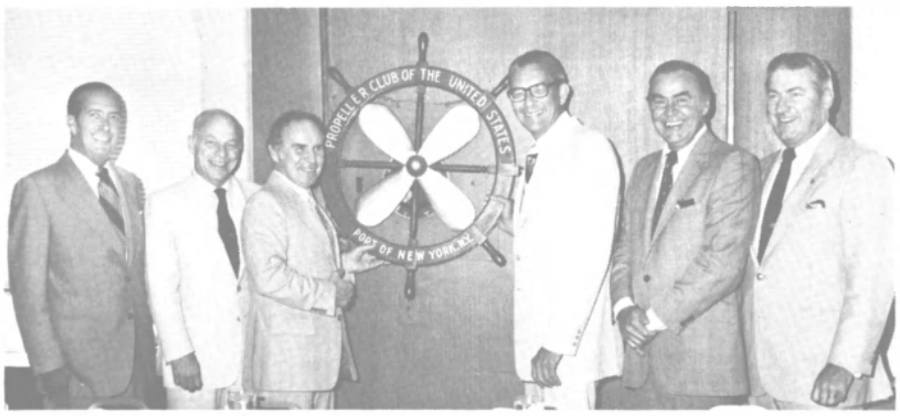
Dravo Lays Keel For Towboat Ordered By People's Republic Of China



The keel was laid recently for the first of four 6,000-bhp Friendship Class pushboats being manufactured by Dravo Corporation's Engineering Works Division for the People's Republic of China. The vessel will measure 45.7 meters by 12.8 meters by 3.5 meters (150 feet by 42 feet by 11½ feet). The boats and a fleet of 30 barges are being produced for the PRC's Chang Jiang Shipping Administration at Dravo's Neville Island shipyard near Pittsburgh.

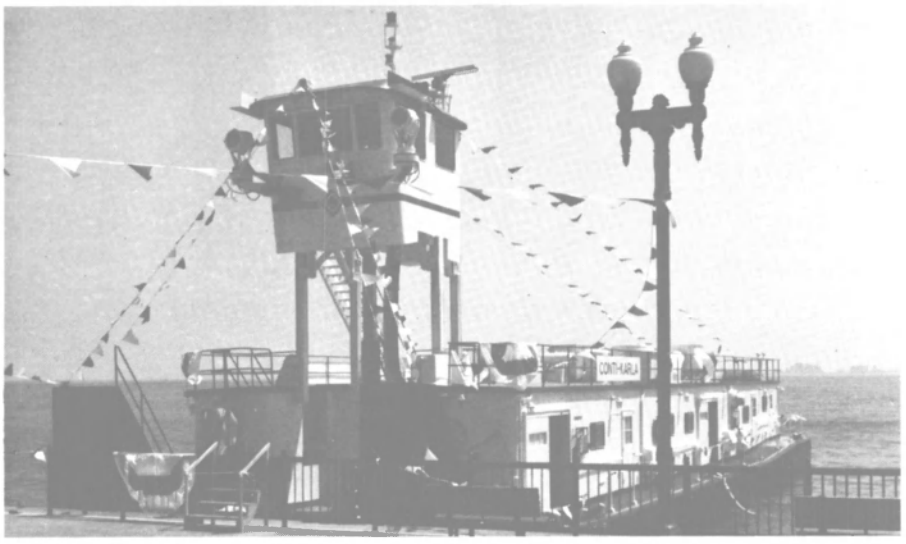
From left to right in photograph, are: **Chen Yiming,** inspector, engineer-ship structure; **Li Youqiang,** inspector, interpreter; **Peter Kurlak,** vice president, manufacturing, Engineering Works Division; **Kees van Mook,** engineering manager, marine; **Donald P. Courtsal,** vice president and general manager, Engineering Works Division; **Yu Xianhuan,** chief inspector, directing engineer; **Li Daode,** inspector engineer, steering and navigation; **Chen Xiaojin,** inspector engineer, drawings and superstructures; and **Ling Hongyun,** inspector engineer, mechanical and electrical.

National President Honored At New York Propeller Club Luncheon



Capt. **William V. Figari** (3rd from left), corporate vice president of Crowley Maritime Corporation and national president of the Propeller Club of the United States, was guest of honor at a recent luncheon meeting of the Port of New York Chapter. Shown with Captain **Figari** are (L to R): **James J. Dickman,** president, New York Shipping Association; Capt. **Robert E. Hart,** president, Marine Index Bureau; **Donald Schmidt,** senior vice president, Farrell Lines; **Francis X. McQuade,** board director, Northeast Terminal; and **William Horan,** president, Horan Associates.

Jeffboat-Built 'Conti-Karla' Christened At Chicago's Navy Pier



Towboat **Conti-Karla,** built by Jeffboat for ContiCarriers and Terminals, was christened recently at Navy Pier in Chicago. The new 2,800-bhp, GM-powered vessel will transport salt and other commodities to the Chicago area, and grain southbound on the Illinois River.

The motor vessel Conti-Karla, fourth of six towboats under construction by Jeffboat, Incorporated for ContiCarriers and Terminals, Inc., was christened recently at the Navy Pier in Chicago. ContiCarriers and Terminals is a subsidiary of Continental Grain Company, with headquarters in Des Plaines, Ill.

The Conti-Karla has a length of 114 feet, beam of 34 feet 6 inches, depth of 10 feet, and normal operating draft of 7 feet 3 inches. Normal displacement is 620 tons. She can carry 44,200 gallons of fuel oil, 8,000 gallons of fresh water, 8,400 gallons of sanitary water, and 2,000 gallons of lube oil.

Specially designed to work on the Illinois waterway system and in the Chicago harbor, she is constructed with a retractable pilothouse to permit passage under the 15-foot bridge levels in the Greater Chicago area, and sufficiently powered by two GM Detroit Diesel 8E7 BA engines, each rated at 1,400 bhp at 900 rpm, to handle tows on the Illinois River.

The vessel has accommodations for a crew of 11. She is now in service transporting salt and other commodities to the Chicago area, and principally grain southbound.

CONTI-KARLA SUPPLIERS

Main engines (2), **GM Detroit Diesel.**
Reverse/reduction gears (2), **Lufkin.**
Propeller shafts (2), **National Forge.**
Generators (2), **GM Detroit Diesel.**
Hot water boiler, **Kewanee.**
Air-conditioning, **Dunham-Bush.**
Air compressors (2), **Westinghouse LeRoi.**
Fire pump, **Ingersoll-Rand.**
Capstans (2), **Schoellhorn-Albrecht.**
Winches (2), **Beebe Bros.**
Radar, **Raytheon.**
Depth indicator, **Elac.**
Intercom, **TOA/Moakler.**
Sound-powered telephone, **Hose McCann.**
Searchlights (2), **Carlisle & Finch.**
Air horn, **Kahlenberg.**
VHF radios (2), **Raytheon.**
SSB radio, **Motorola.**
Swing meter, **Rivertronic.**

Mrs. Walter M. (Karla) Goldschmidt, wife of executive vice president of Continental Grain Company, was sponsor of the new vessel. Looking on is **Robert Greene,** vice president of American Commercial Barge Line.

Mid-Coast Marine Delivers Second Trawler And Tugboat

Mid-Coast Marine, Inc. of Coos Bay, Oregon, recently delivered the second 94-foot trawler Centurion to Continental Marine. She is designed to participate in the North Pacific trawl fishing industry, with capabilities of switching quickly from bottom trawling to mid-water trawling. The vessel is equipped with four fish holds totaling 5,100 cubic feet and chilled by two Wescold 24-ton R-22 Port-A-Chillers with Carrier compressors. Overall length is 94 feet, molded beam 26 feet, and depth 11 feet.

Trawler **Centurion** was delivered recently to Continental Marine by Mid-Coast Marine, Inc. of Coos Bay, Ore. The 94-foot vessel is powered by two Cummins diesels.

The Centurion is powered by two Cummins KTA 1150 diesel engines, with Twin Disc 5:1 reduction gears driving two stainless-steel propellers in Kort nozzles. The main engine room is located aft, minimizing shaft length and reducing noise and vibration in the living quarters. The aft engine room also houses two 135-kw, Cummins auxiliary generator sets and one 30-kw, Detroit Diesel Allison emergency generator.

A passageway between the fish holds permits easy access between the forward and aft engine rooms; the forward engine room contains all the smaller auxiliary machinery for the electrical, bilge, hydraulic, fresh water, and steering systems. To round out the efficiency of the vessel, a complete package of electronics and communications equipment was provided by Whatcom Marine Electronics of Seattle.

Another recent delivery by Mid-Coast Marine was the tugboat Ardie, built for Amak Towing Company of Alaska. Twin-screw boat is powered by Caterpillar engines.

Shortly after the Centurion was completed, Amak Towing Company of Ketchikan, Alaska, took delivery of their second 55-foot tugboat from Mid-Coast, the Ardie. Her overall length is 55 feet 6 inches, with a beam of 19 feet, depth of 8 feet 9 inches, and draft of 7 feet 6 inches.

The twin-screw tug is powered by two Caterpillar 3408TA diesel engines driving 54-inch, stainless-steel propellers in fixed nozzles through Twin Disc MG514, 4.5:1 reduction gears.

Two Perkins 4-236, 30-kw auxiliary diesel generator sets provide ac power. All engines are cooled by Fernstrum grid coolers. Aurora Communications of Ketchikan provided the electronics and communications package. The vessel is equipped with Mathers controls, Argus Auto-Watch alarm systems, and a Microphor sanitation system.

HUDSHIP To Build Utility Vessel For Kuwait Owners

At recent Morgan City, La., signing of contract to build a 112-foot utility vessel for the Lamnalco Group of Kuwait were (seated, L to R): **Wendle Huddleston,** president of HUDSHIP; and **Peter E.J. Evans,** technical manager for Lamnalco. HUDSHIP executives in second row are (L to R): **Travis E. Short,** vice president and general manager; **Gayle Robbinson,** vice president; and **Bobby Rawls,** secretary-treasurer.

Calendar Of Coming Events

Exhibition & Congress: Ship, Machinery, Marine Technology International **Sept. 23-27**

Organized by Hamburg Messe and Congress GmbH.

Fair Grounds Exhibition Centre, Hamburg, West Germany. Contact the organizers at Tungiusstrabe 18, Messehaus Postfach 302360, Hamburg 36, West Germany; telex 0212609.

NACE Northeast Regional Meeting **Sept. 29-Oct. 1**

Sponsored by the National Association of Corrosion Engineers, and organized by the Philadelphia Section.

Marriott Hotel, Philadelphia. Contact **Jay Keldsen**, c/o Matcor, Inc., P.O. Box 687, Doylestown, PA 18901; (215) 348-2974.

Marine Technology '80 **Oct. 6-8**

Conference & Exposition sponsored by the Marine Technology Society.

Shoreham American Hotel, Washington, D.C. Contact MTS at 1730 M Street, N.W., Suite 412, Washington, DC 20036; (202) 659-3251.

54th Annual Convention and 1980 American Merchant Marine Conference **Oct. 8-10**

Sponsored by The Propeller Club of the United States, and hosted by the Propeller Clubs of Seattle and Tacoma.

Washington Plaza Hotel, Seattle. Contact Propeller Club, 217 Ninth Avenue North, Seattle, WA 98109; (206) 624-9525.

(Preview in Oct. 1 issue of MR/EN.)

AAPA Annual Convention **Oct. 19-23**

Sponsored by the American Association of Port Authorities.

Omni International Hotel, Norfolk, Va. Contact AAPA 1980 Convention Planning Committee, Virginia Port Authority, 1600 Maritime Tower, Norfolk, Va. 23510; (804) 622-1671.

Conference on Coal-Fired Ships **Oct. 21-22**

Sponsored by Shipping World & Shipbuilder and Polytech International.

Roosevelt Hotel, New York City. Contact **John Hiett**, Conference Organisers International Ltd., 21 Lewes Road, Haywards Heath, West Sussex RH17 7SP, England; 444-50476, telex 87515.

MariChem 80 **Oct. 21-23**

Third International Conference and Exhibition on the Transportation, Handling, and Storage of Bulk Chemicals.

Organized by BML Business Meetings Ltd.

Royal Lancaster Hotel, London, England. Contact **Ronald A.B. Sim**, 2 Station Road, Rickmansworth, Herts WD3 1QP, England; telex 924312 Gastech.

European Offshore Petroleum Conference & Exhibition **Oct. 21-24**

Sponsored by The Society of Petroleum Engineers and others, and organized by The Society of Petroleum Engineers (U.K.) Limited.

Earls Court, London, England. Contact The Society of Petroleum Engineers, EUROPEC II, 6200 North Central Expressway, Dallas, TX 75206; (214) 361-6601.

(Preview in Oct. 1 issue of MR/EN.)

WGA Annual Convention **Oct. 22-24**

Ninth annual convention and technical symposium of the Wild Goose Association for professional navigators.

Bradford Hotel, Boston, Mass. Contact **Bahar Uttam**, c/o JACOR, 300 Unicorn Park, Woburn, MA 01801; (617) 933-6805.

Dieselcare 80 **Oct. 28-29**

Second International Conference on Marine Diesel Propulsion.

Organized by Intec Press, Ltd., London.

New York Hilton Hotel, New York City. Contact **M. Randolph Long**, Intec Press, Ltd., 310 East 46th Street, New York, NY 10017; (212) 697-4893.

SNAME Annual Meeting **Nov. 13-15**

Sponsored by The Society of Naval Architects and Marine Engineers.

New York Hilton Hotel, New York City. Contact SNAME, One World Trade Center, Suite 1369, New York, NY 10048; (212) 432-0310.

(Preview in Nov. 1 issue of MR/EN.)

EUROPORT '80 **Nov. 18-22**

Exhibition & Conference organized by the Europort Group.

RAI Halls and Congress Centre, Amsterdam, The Netherlands. Contact **Peter K. Johnson**. Europort Inc., 6006 Bellaire Boulevard, Suite 101, Houston, TX 77081; (713) 666-5188.

(Preview in Nov. 1 issue of MR/EN.)

Marchese Named Estimating Manager, Tacon Chief Accountant For Paceco

Peter J. Marchese was recently appointed manager, Estimating Department, and **Frederic E. Tacon Jr.** was named chief accountant for Paceco, Inc. of Alameda, Calif., a subsidiary of Fruehauf Corporation. The announcement was made by **Adam J. Consolatti**, vice president, administration.

Mr. **Marchese** will be involved in the development, training, and managing of the new Estimating Department at Paceco's Gulfport, Miss., manufacturing plant. Prior to coming to Paceco, he was associated with Whiting Corporation in Harvey, Ill., where his most recent position was manager of the Crane Division.

Peter J. Marchese

Frederic E. Tacon Jr.

Mr. **Tacon's** prior association was with the Jim Walter Corporation in Tampa, Fla., where he held the position of controller.

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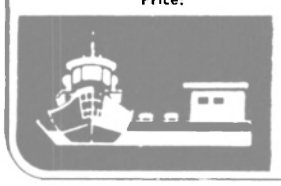

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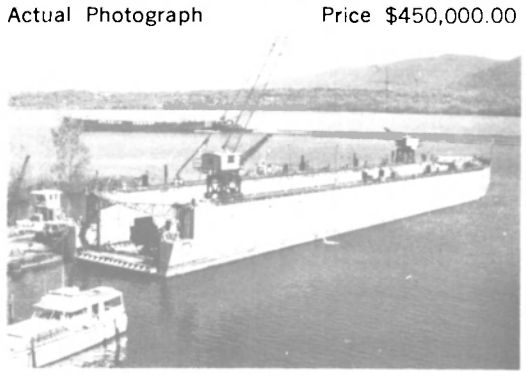

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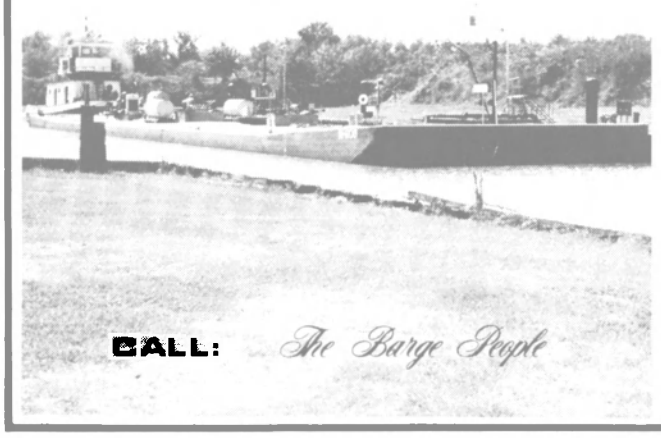

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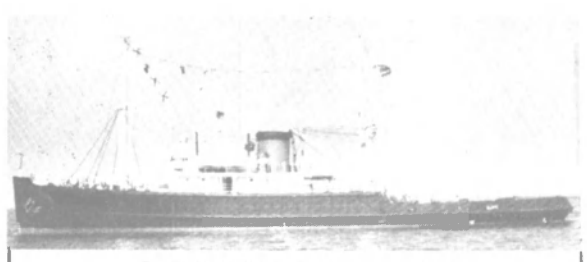

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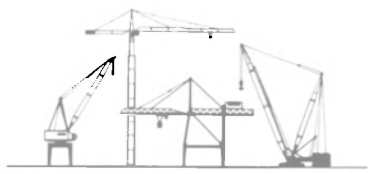

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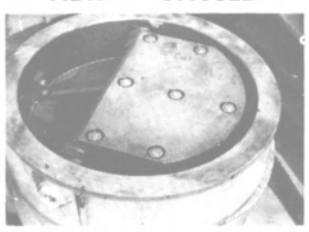

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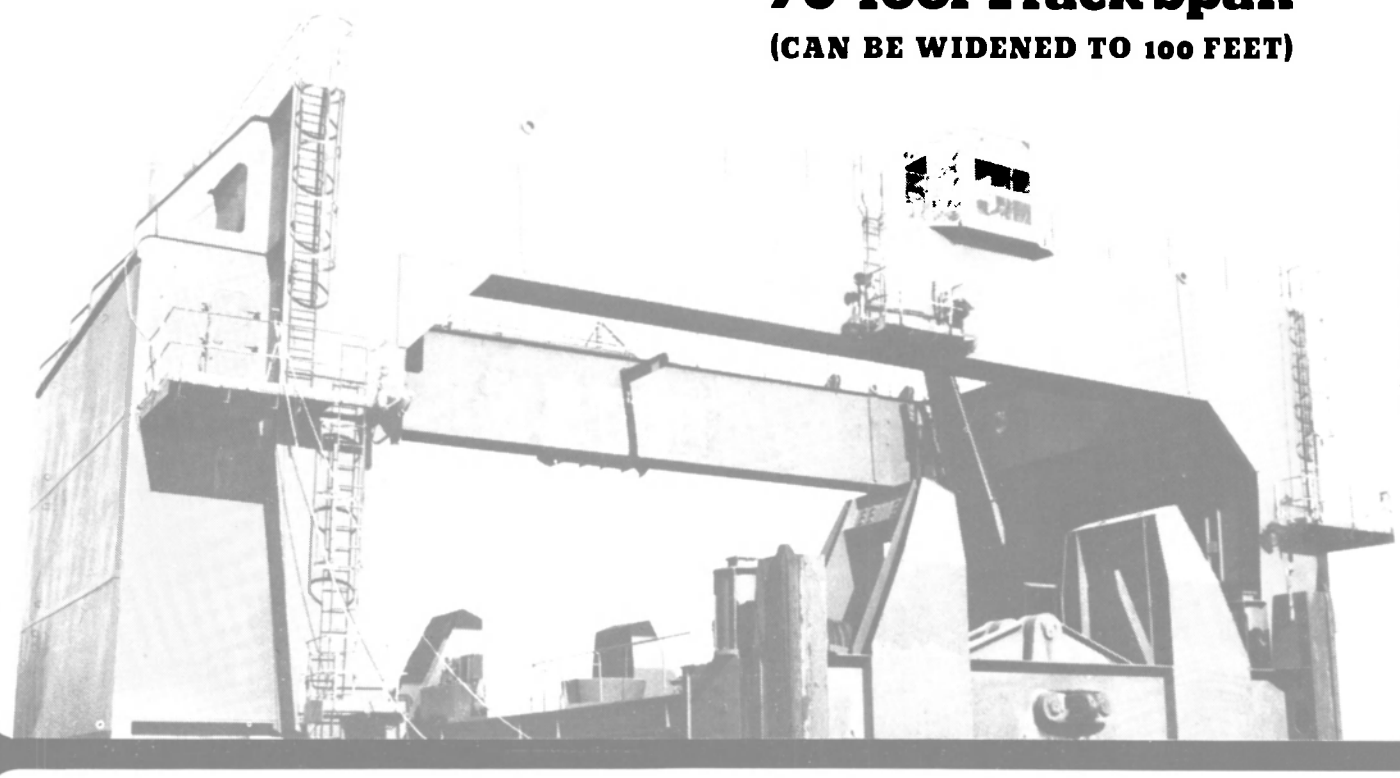

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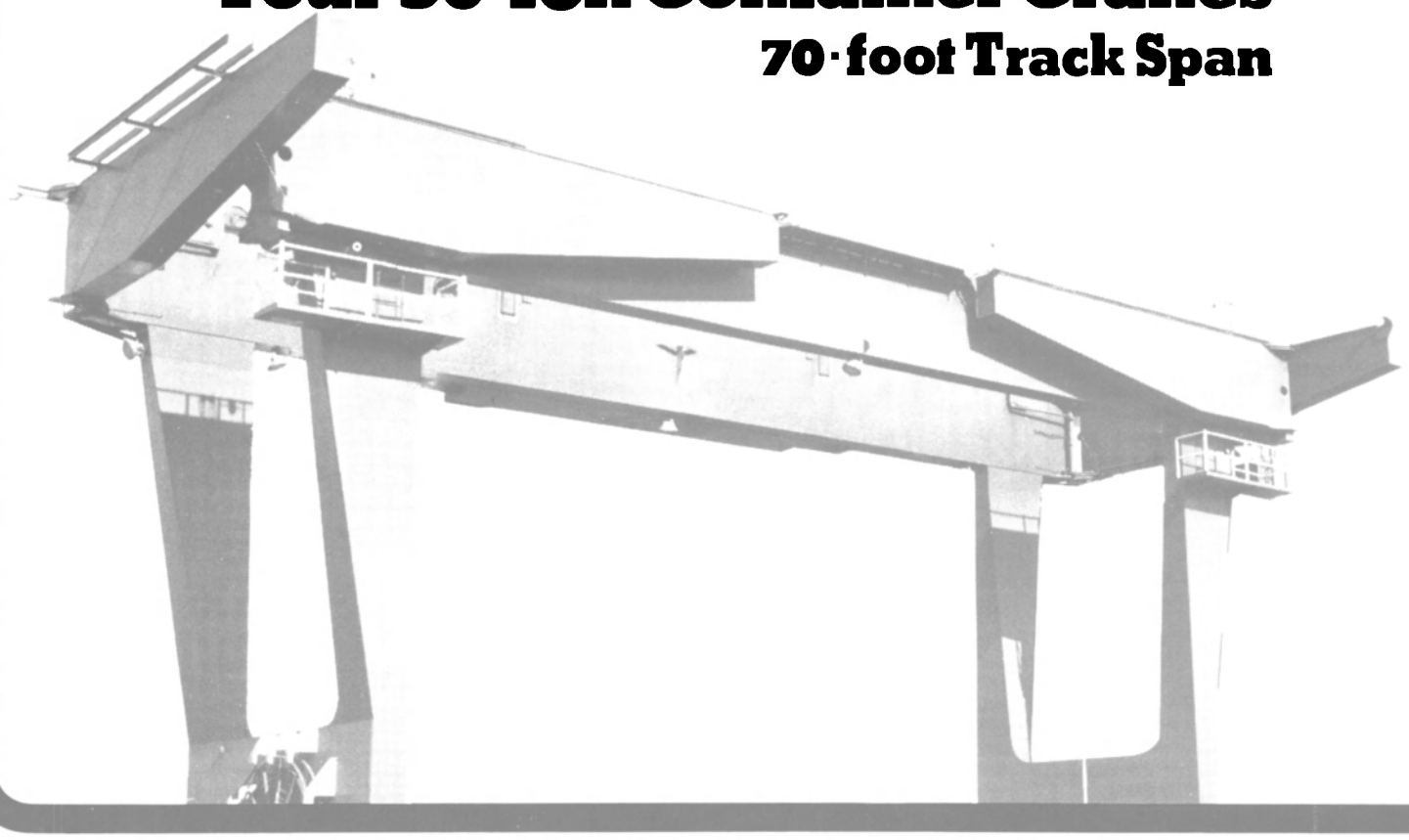

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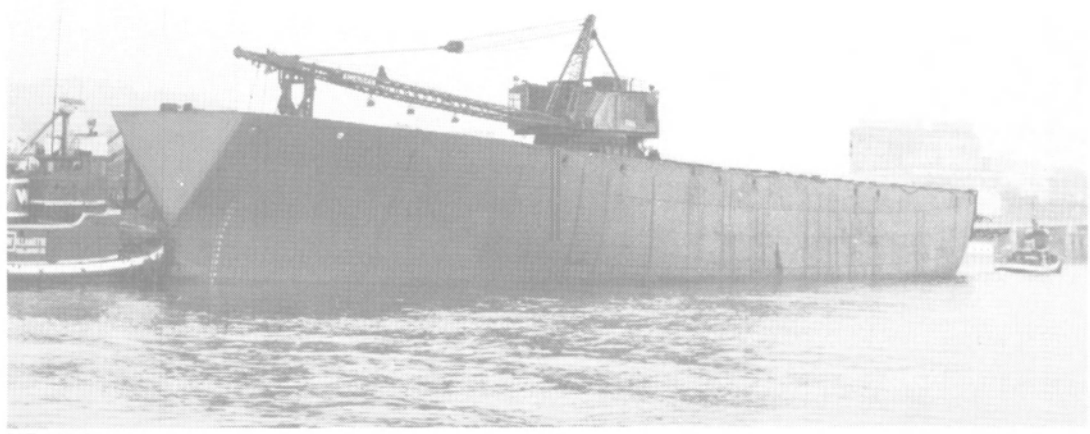

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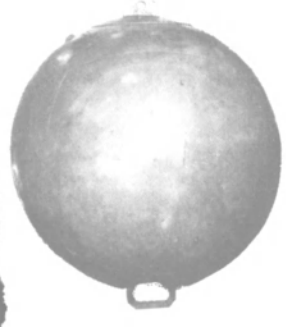

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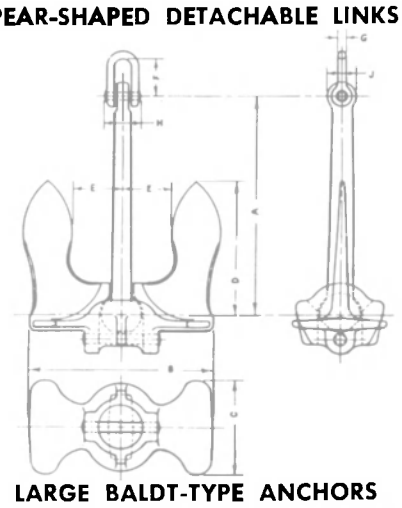
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS
16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
3 EA. R.P. ANCHOR SHAX 3⅞ STK, 3⅞ PIN

NEW CHAIN
10 X 90 Ft. 3" DILOK CHAIN — ABS
9 X 90 Ft. 2" DILOK CHAIN — ABS

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3 EA. 2 5/16 — 3" E&E SWIVELS
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25 EA. #7 — 17 EA. #5

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HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

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- Rotors for G.E. 525KW DORV-325M aux. turbo-gen. sets. Also rotors for Westinghouse 538KW turbo-gen. sets.

- G.E. Revolving Field — August 1979 Certificate — for immediate delivery
- 1 Main circulating pump — complete — Ingersoll-Rand 24CVM. New certif. 1979 — completely rebuilt.

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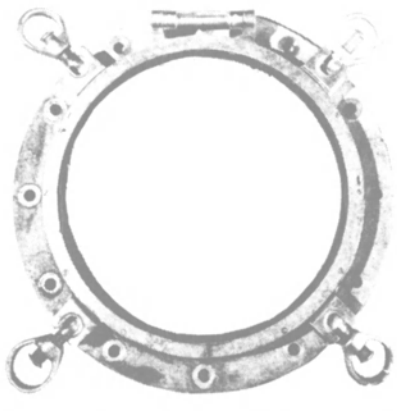
15½" & 16" CLEAN BRASS
4-DOG MARINE
PORTLIGHTS
15½" CLEAR OPENING
16" CLEAR OPENING



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R.W. Fernstrum & Company, 1716 Eleventh Avenue, Menominee, MI 49858
James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 1139KB), Oakland, CA 94643

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
GMMC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205

BOILERS—Tube Cleaning
Combustion Engineering, Inc., Windsor, Connecticut 06095

BRAKES
Goodyear Aerospace (Industrial Brakes Division), Box 477, Berea, KY 40403

BROKERS
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6
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
Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

BUNKERING SERVICE
Belcher Company of New York, Inc., 48-02 54th Avenue, Maspeth, NY 11378
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHOCKING SYSTEMS
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CLOCKS
Wempe Chronometerwerke Germany, Stubbenhulk 25 2000 Hamburg 11, Germany

COILS—Cooling, Heating, Ventilating
Colmac Coil, Inc., Colville, Wash. 99114

CONTAINERS—Cargo Container Handling
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

CONTROL SYSTEMS—Monitoring
Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 5909 West 130th Street, Cleveland, OH 44130
Seatronic Engineering & Mfg. Co., 1230 E. Joppa Rd., Towson, MD 21204
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS
Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK MACHINERY—Cargo Handling Equipment
Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, KS 66115
Twin Disc, Incorporated, Racine, Wis. 53403

DOORS—Watertight—Joiner
Walz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

DRAFTING EQUIPMENT
AM Bruning, 1834 Walden Office Square, Schaumburg, IL 60196

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EQUIPMENT—Marine
ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Baldt, Inc., P.O. Box 350, Chester, PA 19016
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

EVAPORATORS
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS
Washington Iron Works, 1500 Sixth Avenue South, Seattle, WA 98134

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS
Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52
Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing
Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Salomon Brothers, One New York Plaza, New York, N.Y. 10004
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE
Custom Alloy, 2040 N. Loop W., Houston, TX 77018
Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
IDT Corp. (Intersystems Design & Technology Corp.), P.O. Box 1590, Summerville, S.C. 29483

GANGWAYS
Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment (Phoceenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredriksstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022

INFORMATION—Marine
Maritime Data Network, 300 Broad Street, Stamford, CT 06901

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Dupont Company, Nemours Bldg.-RM C31H6, Centre Rd. Bldg., Wilmington, DE 19898
IDT Corp. (Intersystems Design & Technology Corp.), P.O. Box 1590, Summerville, S.C. 29483

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
Midland Insurance Co., 160 Water St., New York, N.Y. 10038
Whitehall Brokerage, Inc., 17 Battery Place, New York, NY 10004

KEEL COOLERS
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LADDERS
Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 10-99 3901 North 29th Avenue, Hollywood, FL 33020
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

LNG CONTAINMENT
McDonnell Douglas Astronautics Co., 5301 Bolsa Ave., Huntington Beach, CA 92647

LUMBER
R.N. Templeman, Inc., 3000 Perdido St., New Orleans, LA 70119

MACHINE TOOLS
Climax Manufacturing Company, P.O. Box 230, Newberg, OR 97132
Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
A.L. Burbank & Co., Ltd., Marine Thermotest Dept., One World Trade Center, Suite 2811, New York, NY 10048
General Electric Company — Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
Agemar, Avenida 3E No. 71-51, Edif. Acuario (Planta Baja) Apartado 1465, Maracaibo, Venezuela
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
CCS Marine Associates Ltd., 2784 Crescentview Drive, N. Vancouver, B.C. Canada V7R2V1
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners Inc., One State Street Plaza, New York, N.Y. 10004
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
L.R. Glosten & Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, Wash. 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Lucander Designs, P.O. Box 711, San Perlita, TX 78590
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Corning Townsend III, 18 Church St., Georgetown, CT 06829
Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706
Wesley D. Wheeler Associates, Ltd., 104 East 40 St., Suite 207 New York, N.Y. 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 907
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
American Hydromath Co., Buckwheat Bridge Rd., Germantown N.Y. 12526
Collins Marine Corp., Pier 32, San Francisco, CA 94105
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Dantronics Co., P. O. Box 673, Rye, NY 10580
Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201
EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, P
Coast, FL 32037
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 2
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 073
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 2
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News 23606
Navigation Communications Systems, Inc., 20100 Plummer S
Chatsworth, CA 91311
North American Philips Communication Corp., 91 Mckee Roa
Mahwah, N.J. 07430
RCA Service Co., Building 204-2, Camden, N.J. 08101
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H.

Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Rockwell International, Collins Telecommunications Products Division, Cedar Rapids, IA 52406
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Texas Instruments Inc., P.O. Box 226080, M/S 3107, Dallas, TX 75265
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives

B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS

Alfa-Laval, Inc., 2115 Lindwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932

PAINTS—COATINGS—CORROSION CONTROL

Belzona Molecular Metalife Inc., 224 7th Street, Garden City, NY 11530
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
The Skybryte Co., 3125 Perkins Ave., Cleveland, OH 44114

PETROLEUM SUPPLIES

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

PLASTICS—Marine Applications

Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Alsthom-Atlantique, 2 quai de Seine, 93203 Saint-Denis, France
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain, One State Street Plaza, New York, N.Y. 10004
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Caterpillar Tractor Company, Engine Division, Peoria, IL 61629
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525
Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Motive Power Corp., P.O. Box 365, Mineola, NY 11501 70124
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, P.O. Box 30587, New Orleans, LA 70190
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

PUMPS—Repairs—Drives

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, Inc., IMO Pump Div., P.O. Box 321, Trenton, NJ 08602
Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
Tubbs Cordage Company, Orange, CA 92668

RUDDER ANGLE INDICATORS

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
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.

SANITATION DEVICES—Pollution Control

Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
Research Products/Blankenship, 2639 Andjon, Dallas, Texas 75220
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

SCAFFOLDING EQUIPMENT—Work Platforms

Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055
Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage

American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Levin Metals Corporation, 1310 Canal Blvd., Richmond, CA 94807
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzs de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blount Marine Corp., P.O. Box 368, Warren, RI 02885
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10001
Coastal Dry Dock & Repair Co., Building 131, Brooklyn Navy Yard, Brooklyn, N.Y. 11205
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004
Delattre-Levivier, Tour Fiat, Cedex 16, 92084 Paris La Defense, France
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Empressa Nacional Bazan, Paseo de la Castellana 65, Madrid 1 Spain
Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries, Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Jackson/New York, 29 45 Richmond Terrace, Staten Island, NY 10303
Jeffboat, Inc., Jeffersonville, Ind. 47130
Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4
Kockums Shipyard, S-201, 10 Malmo 1, Sweden
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott & Company, Inc., 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
North American Hydraulics, P.O. Box 278, Brampton, Ontario Canada L6V 2L1
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012
Port of Portland, P.O. Box 3529, Portland, OR 97208
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
S.E.B.N., Societa Estercizio Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175
The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308
Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904
Zigler Shipyards, P.O. Box 2607, Morgan City, La. 70380

SHIP STABILIZERS

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

SMOKE INDICATORS

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

SURVEYORS AND CONSULTANTS

Francis B. Crocco. Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING

Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 77 River St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS

Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032
Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017
Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042

TECHNICAL MANUAL PREPARATION

Benhof, Inc., 2468 N. Jerusalem Road, N. Bellmore, NY 11710

TERMINALS—Oil-Transfer

Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614
Delong Corp., 29 Broadway, New York, N.Y. 10006
Houston Marine Services, Inc., First State Tower, (Suite 509), Houston, TX 77015
Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottsville, VA 22903

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.

Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Sudarman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

UNDERWATER SERVICES—Contracting

SeaTec International Ltd., Blackburn Industrial Center, Gloucester, MA 01930

VALVES AND FITTINGS

Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208
Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

WINCHES AND FAIRLEADERS

Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
Gearmatic Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

WINDOWS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

ZINC

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

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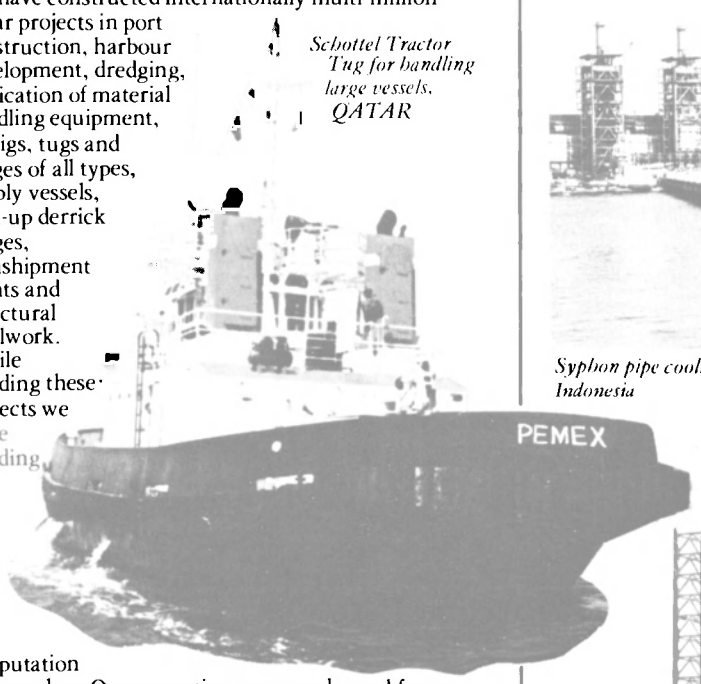
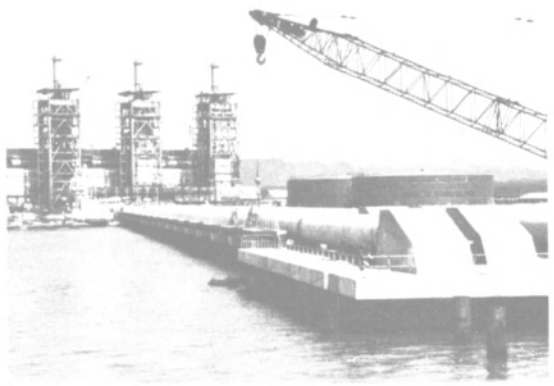


Schottel Tractor Tug for handling large vessels, QATAR



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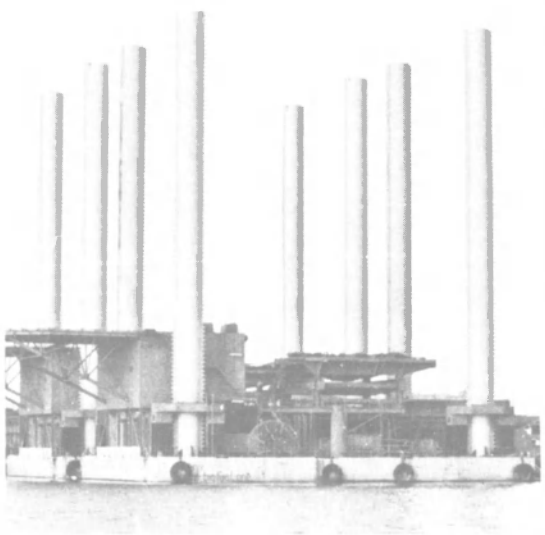

Shallow water jack-up drilling rig, Gulf of Mexico

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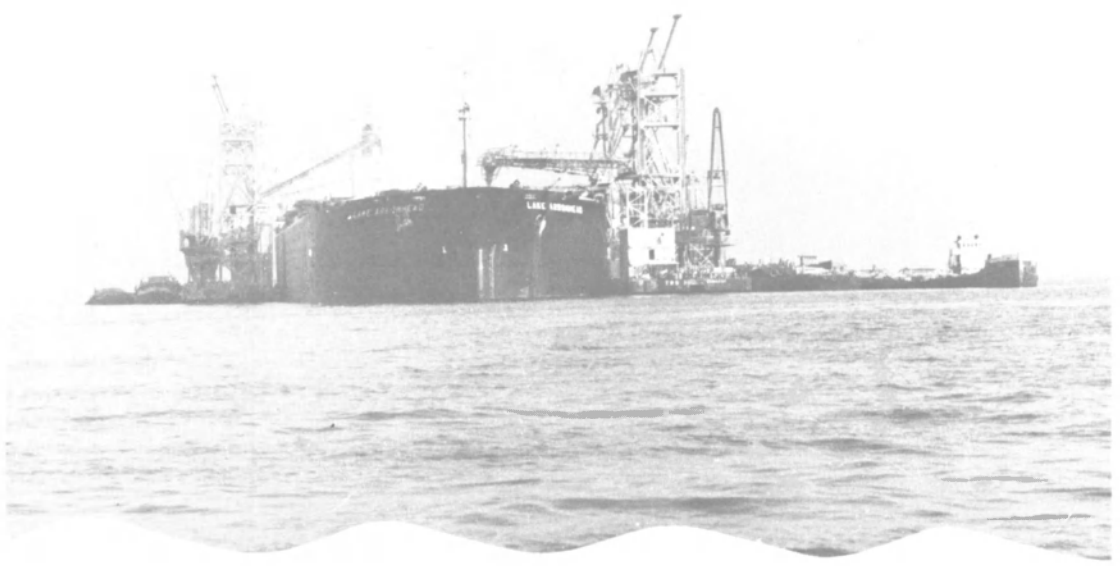

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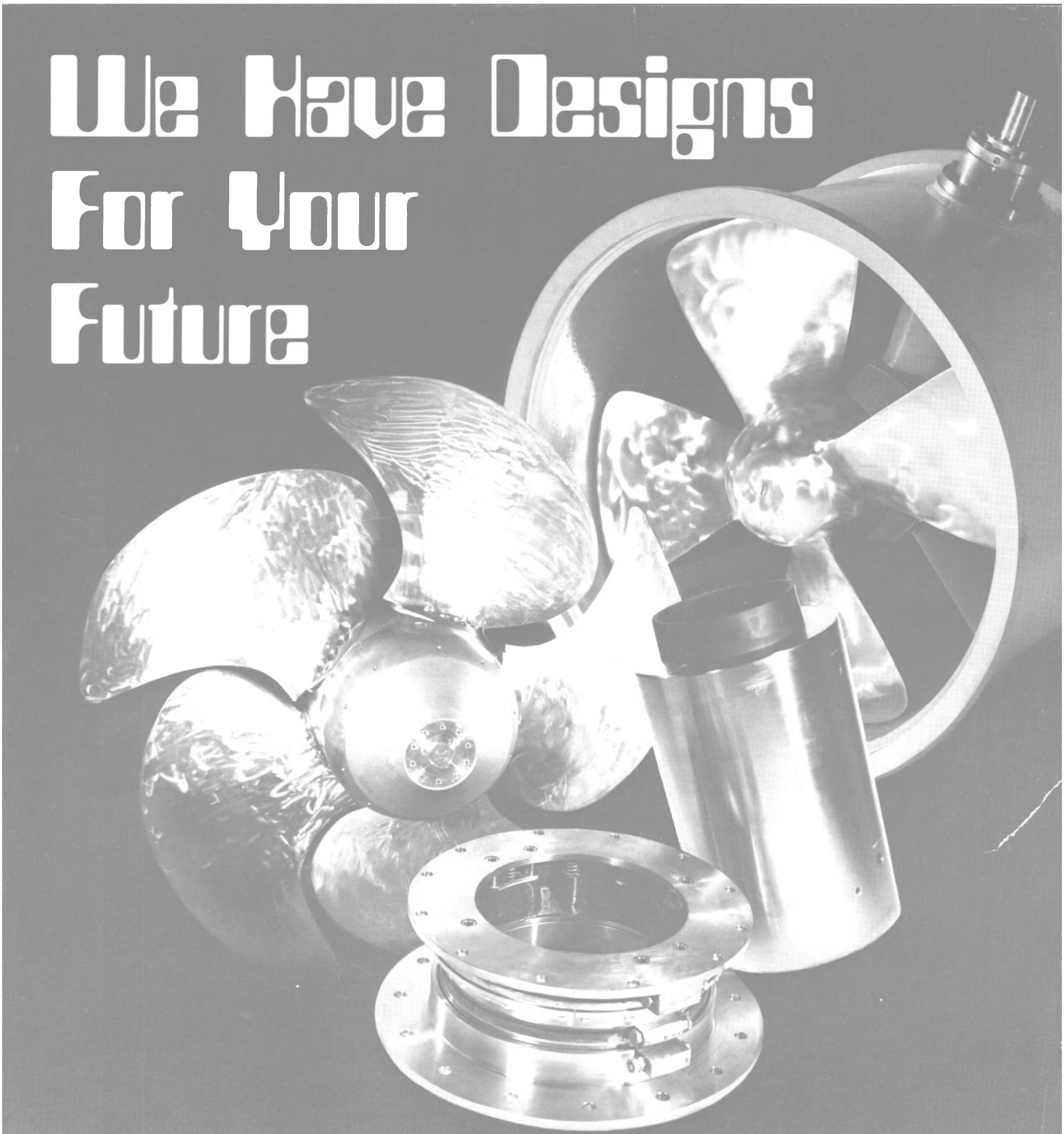

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