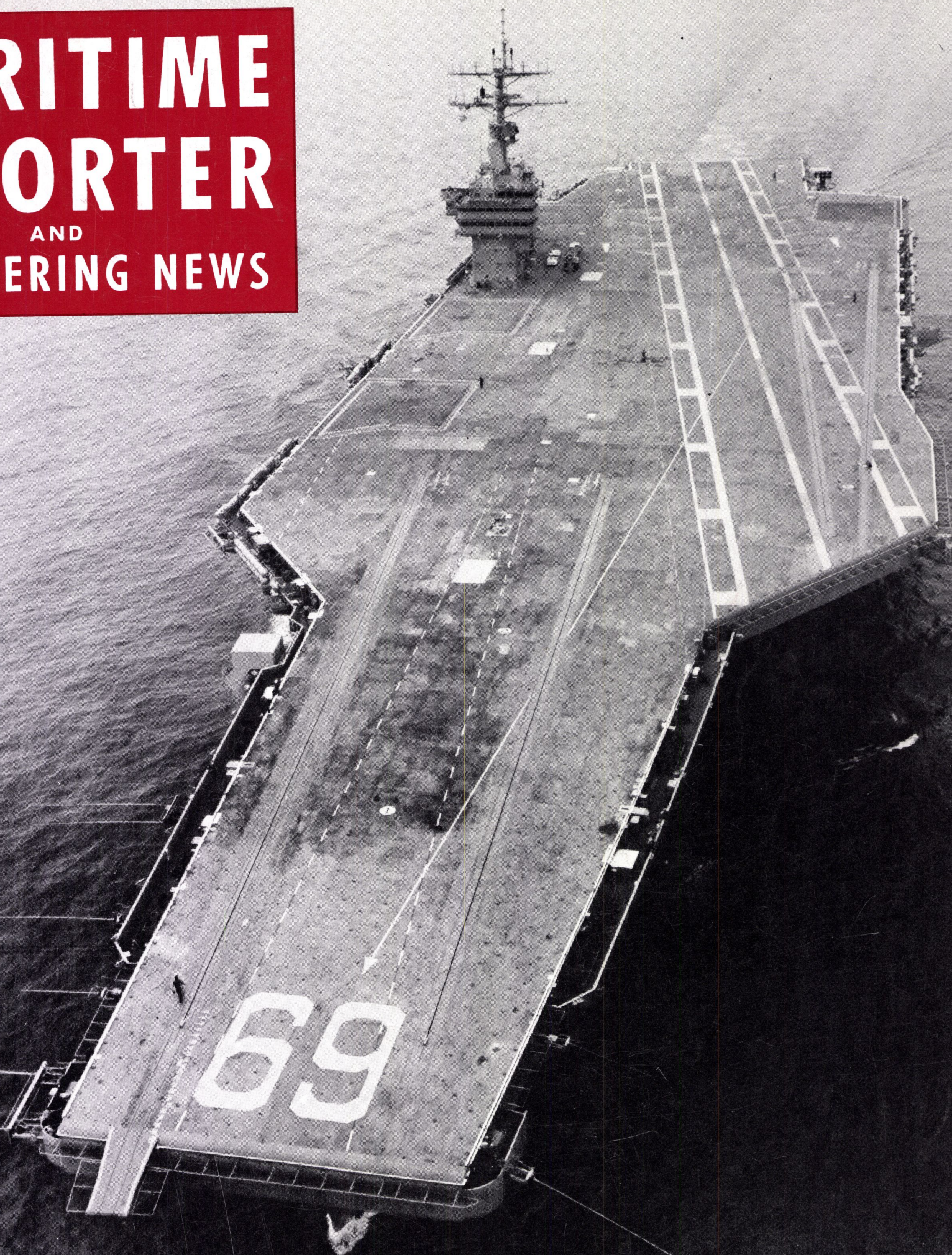


MARITIME REPORTER

AND
ENGINEERING NEWS

LOAD
N. Y.



**Newport News Delivers Nuclear-Powered
Aircraft Carrier Dwight D. Eisenhower**

(SEE PAGE 10)

OCTOBER 1, 1977

SAN FRANCISCO



The Golden Gate. Fisherman's Wharf. Gulf Harmony Oils.

Early settlers called it Yerba Buena. In 1847 the name was changed to improve chances of development.

Two years later came the Gold Rush. And San Francisco exploded into one of the most dynamic cities ever known.

San Francisco is now a major Gulf port. Where Gulf marine lubricants and service are as familiar to the Bay area shipping industry as Treasure Island and seafood dining.

Gulf Harmony Oils are here. They are highest quality turbine lubricating oils researched and developed by Gulf marine experts. The shipping industry considers them necessary for optimum performance.

Harmony Oils are blended from highly refined solvent processed base oils for use in marine turbine systems, hydraulic systems, electric motors, generators and air compressors. Rust, oxidation and foam inhibitors have been added to extend their life and performance in enclosed and circulating oil systems.

Gulf Marine Lubricants. Unexcelled in quality, performance and overall economy. They are available all over the globe. For complete information, contact your local Gulf Trading and Transportation Company marine consultant. In New York, ask for Jim Allen, (212) 397-1300. In London, Robin Lawrie, 01-283-1638.



Gulf Trading and Transportation Company
A Division of Gulf Oil Corporation

Shipping containers to and from New England?



McAllister Has Doubled Its Feeder Service.

The newly launched 300' ocean deck barge, McAllister Transporter, handles 386 T.E.U.'s in weekly service between New York, Boston, and New Haven with considerable savings in port charges.

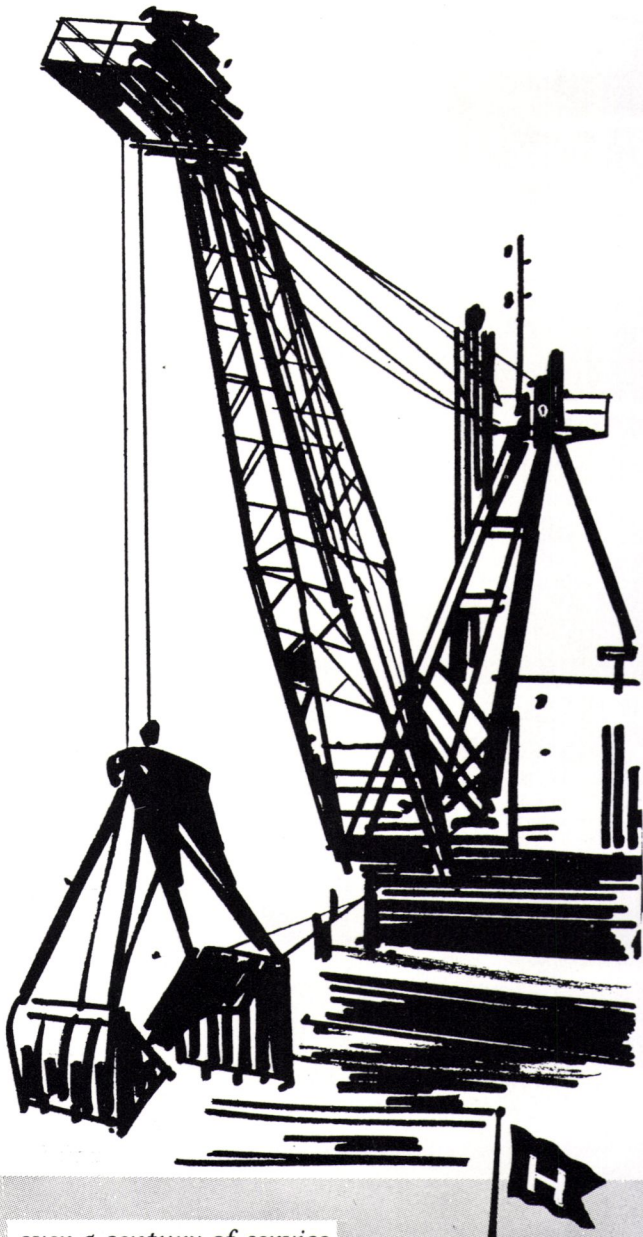
Call this number direct to the booking agent
212-425-3540-41 or 800-221-6422-23.

McAllister Feeder Barge Division
McAllister Lighterage Line, Inc.
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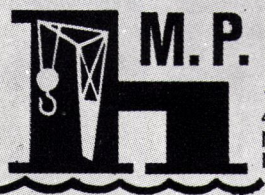
McAllister 

FLOATING CRANES FOR BULK CARGO LIFTS UP TO 60 TONS

Cranes with clamshells, for handling bulk cargo, are a Howlett specialty. Howlett also has floating cranes of various sizes and capacities to meet your specific needs. Whatever your requirements, call Howlett for prompt, efficient service.



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Ocean Orders Three Cargo Liners From British Shipyard

Ocean Transport & Trading Limited has ordered three cargo liners from Scott Lithgow Limited at a cost of approximately \$63 million.

Work will start immediately on the ships, and they will be delivered during the second half of 1979 and the first quarter of 1980.

Speaking about the contract, Sir Lindsay Alexander, chairman of Ocean, said: "We are very pleased to be placing orders in the U.K., and so playing our part in supporting a viable British ship-building industry."

"The placing of this contract renews a very long association between Scott Lithgow and Ocean. This stretches back more than 100 years to the building, by Scott, of Ocean's first three ships, Agamemnon, Ajax, and Achilles."

Delighted at having secured the contract, Ross Belch, the managing director of Scott Lithgow Limited, said: "Shipbuilding throughout the world is going through a very difficult time at present. It is therefore gratifying that very important British owners like Ocean have found it possible to place such a valuable order with us. It is vitally important for the Lower Clyde, since it will provide the equivalent of one year's employment for the whole of the yards and engine works in Greenock."

The new ships will be about 20,000-dwt twin-hatch, multipurpose cargo liners, and are designed for worldwide trading. They will have a service speed of 18 knots and be capable of operating as conventional break-bulk/palletized cargo ships, or as geared container ships carrying more than 750 containers, or as bulkers for cargoes such as grain or ore. They will be able to use ports which are not equipped with specialized container cranes.

Accommodation for 36 officers, crew and cadets, together with the main engine machinery, is located aft, and propulsion will be a Sulzer 7RND76M diesel engine built under license by Scott.

The ships will probably be operated in the Group's West African trades by Elder Dempster Lines.

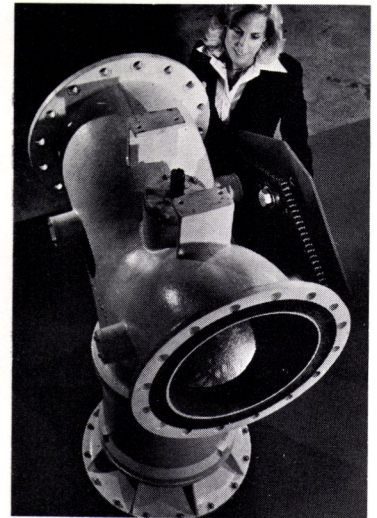
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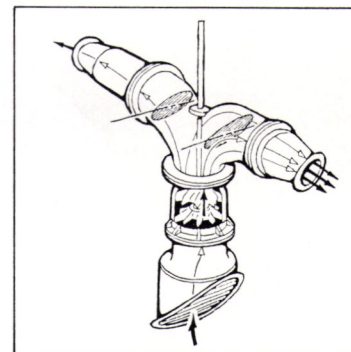
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MARITIME REPORTER AND ENGINEERING NEWS

No. 19

Volume 39

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

MURRAY HILL 9-3266, 3267,
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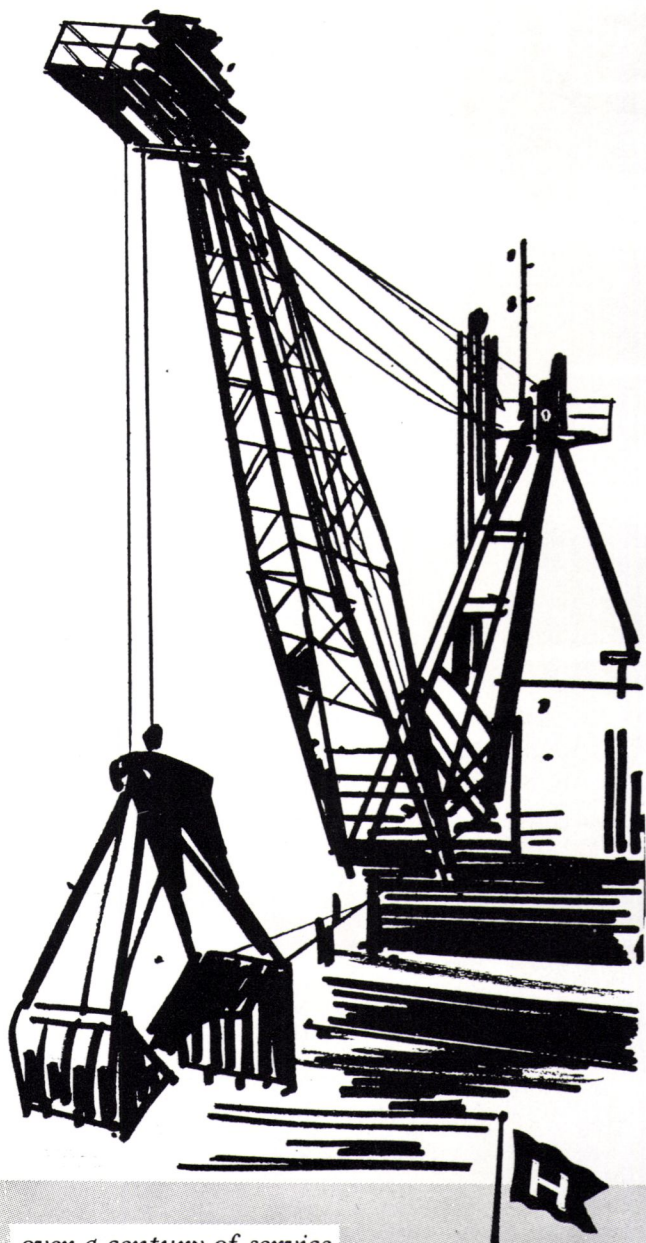
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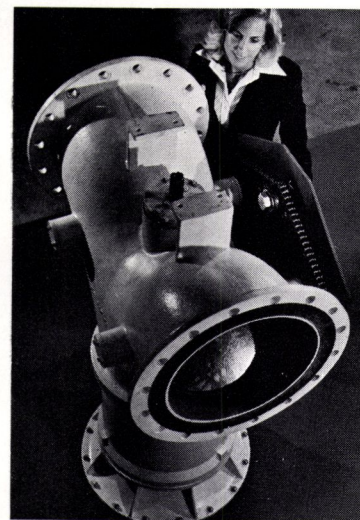
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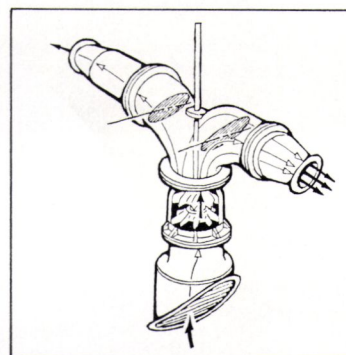
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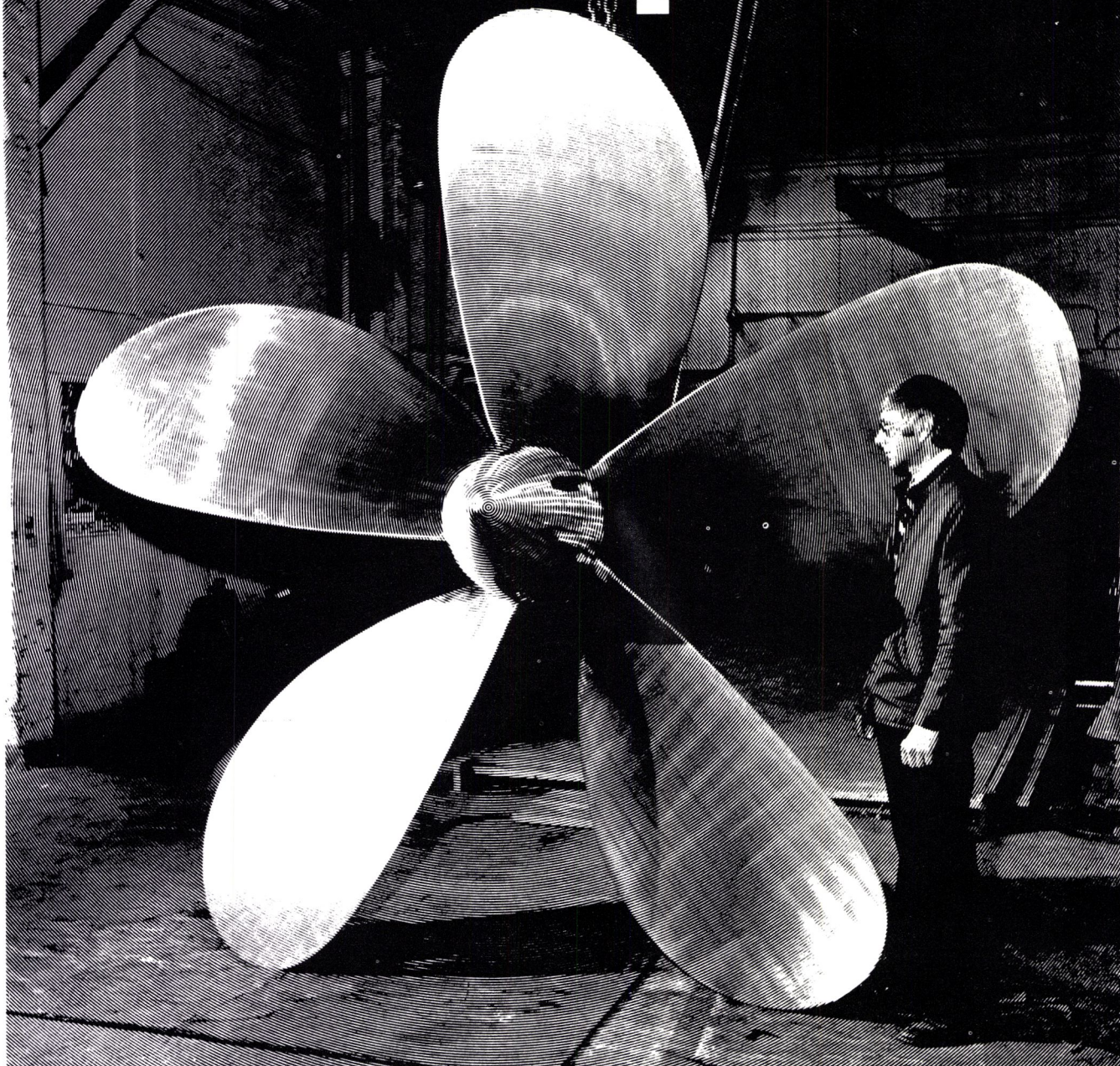
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steel or stainless steel.

We'll stake our reputation on your complete satisfaction. Contact: Coolidge Propeller Company, 1910 Fairview Avenue E., Seattle, Washington 98102. Telephone 206-325-5100.

Coolidge Propellers

Shipyards Will Bid On Matzer-Designed Ro/Ro Containership

Rudolph F. Matzer and Associates, internationally known firm of naval architects of Jacksonville, Fla., have designed another ro/ro-containership for Birdsall Shipping Company, Ltd., West Palm Beach, Fla. The Matzer-designed vessel will be named

the Tropic Jade and will feature satellite navigation.

Bid packages for the construction of the ship will be available from the Matzer firm on November 1, 1977.

The Tropic Jade will be the largest ship to be built for Birdsall. The other Matzer-designed vessels, the Tropic Day, Tropic Flyer and the Tropic Isle, are all 225 feet, while the new ship will

be 296 feet overall. It will have a breadth of 56 feet, a 19-foot draft and a draft loaded (mean) of 14 feet 6 inches. It will have a bulbous bow.

Like all other Matzer-designed vessels, the new addition to the Birdsall fleet will be built for increased productivity, maximum service, economic operation, and exceptionally fine maneuverability.

The design is a twin-screw flush-deck, stern-loading ro/ro-containership that will be powered by two 16-cylinder GM16E6A engines. They will have 1,950 horsepower each with 900 rpms, and a service speed of 14½ knots.

Equipped with a 400-horsepower bow thruster, Lufkin reverse reduction gears and slip clutches, the helmsman can maneuver the vessel into a dock without the assistance of tugboats. The helmsman will be located at a remote control station aft of the pilot-house.

Access to an 88-foot-long hold that will be suitable for autos, and general cargo will be via the flush deck with a hydraulically operated hatch cover that will measure 22 feet by 11 feet.

The stern ramp, also hydraulically operated, will be 48 feet wide, and the ship can accommodate 132 twenty-foot containers. Thirty refrigerated containers may be maintained by three 12V71 generators. Six after ballast tanks will serve to trim the ship while loading and unloading.

The bulwark will be heightened to 8 feet to insure dryness and container protection.

The Tropic Jade will carry a full ocean Bureau Veritas classification. She will admeasure under 1,600 gross tons, and will have a deadweight cargo capacity of 2,000 tons. The fuel capacity will be 325 long tons and fresh water will level off at 55 long tons.

The Tropic Jade will carry eight officers, eight crew, and will have accommodations for two guests. Her service will be in the Caribbean, touching the various island ports.

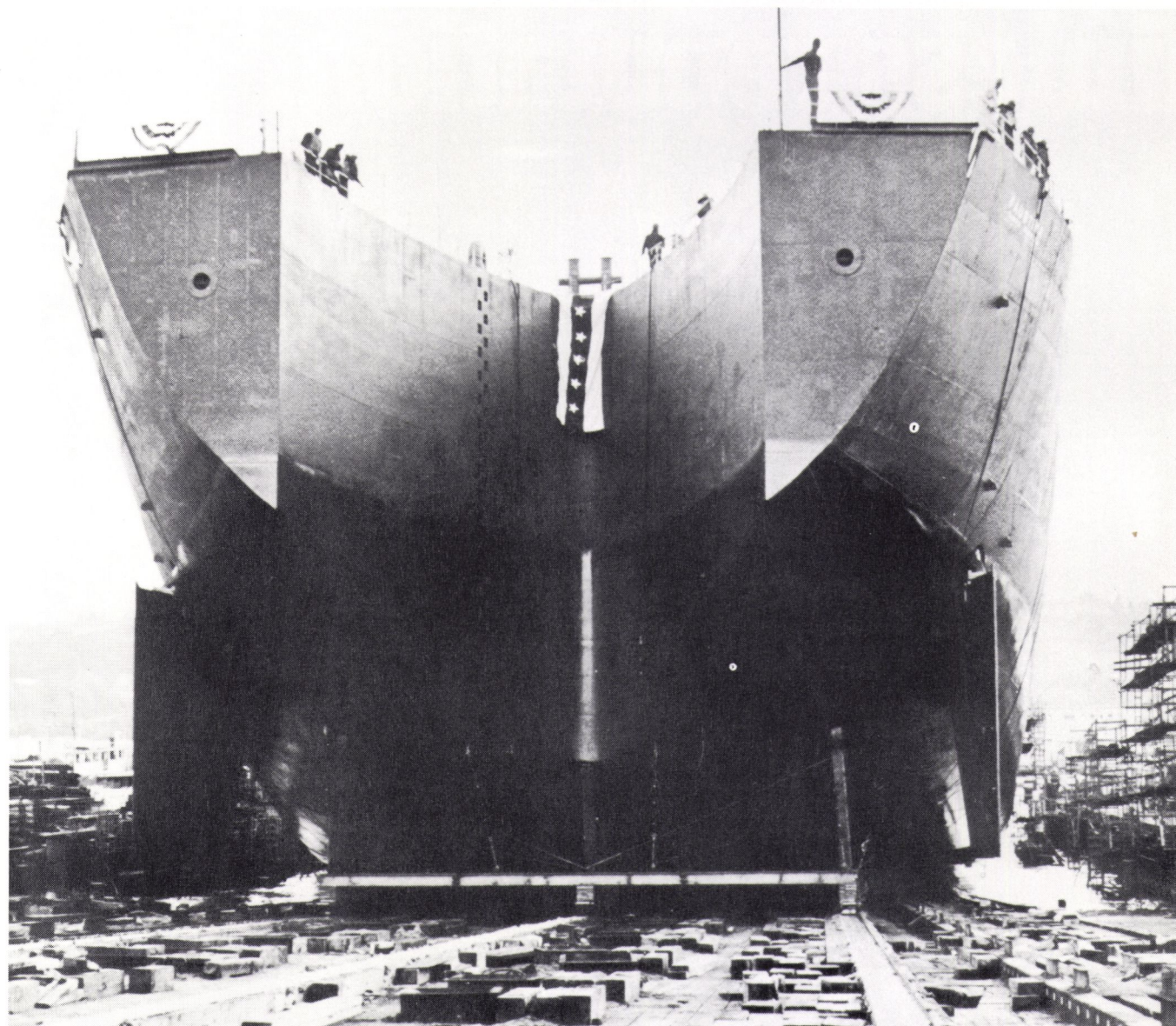
Extensive testing of the self-propelled model of the Tropic Jade was made at the Netherlands Ship Model Basin at Wageningen, Holland. Mr. Matzer, president of the Jacksonville, Fla.-based firm, attended the series of model testings.

Chiles Offshore Ltd. Requests Title XI For Mobile Drilling Vessel

Chiles Offshore Limited, 5100 Westheimer, Suite 135, Houston, Texas, has applied for a Title XI guarantee to aid in financing the construction of an offshore mobile drilling vessel under construction at Marathon LeTourneau Company of Houston.

The vessel, for which a construction contract was signed in June 1977, will be a 150-foot jack-up rig capable of drilling exploratory, development, or work-over wells in water between 15 and 150 feet deep.

Estimated actual cost is \$13.8 million. Chiles Offshore is an affiliate of Chiles Drilling Company of the same address. The vessel will be used around the world, primarily in the Gulf of Mexico.



Two football fields long, five stories high

That's some huge barge. In fact, she's the biggest one Todd Seattle ever built: she measures 495'x85'x48', and carries phosphate rock—up to 22,500 tons of it at a clip—out of the Gulf of Mexico. FAUSTINA is the first of two barges built by Todd for the Agrico Chemical Company of Tulsa, Oklahoma.

Not one, but four Todd yards—Galveston, Houston, Los Angeles, and Seattle—are expert barge builders, which makes possible unique flexibility for you in buying, scheduling, and building location. If you need barges, talk to Todd. We deliver custom-built barges at assembly-line costs. At top speed.

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**Chesapeake Corporation
Names Elmer Curfman
Marine Superintendent**



Elmer W. Curfman

Elmer W. Curfman has been named superintendent of the marine department of The Chesapeake Corporation of Virginia, West Point, Va. 23181, succeeding the late **Milton A. Paul**.

The announcement was made by **Thomas G. Harris**, vice president-woodlands of the corporation. Mr. Curfman will be in charge of the tug and barge fleet that moves pulpwood, chips and other materials by water to or from the pulp and paper mill at West Point.

A native of Mathews, Va., Mr. Curfman graduated from Lee-Jackson High School there in 1935. He went to work soon afterward for Bristow Brothers Truck Lines, one of the earliest motor freight lines in Virginia. He was the firm's terminal manager.

In 1942-45, he served with the 12th Air Force in the European Theater, rising to technical sergeant, and being decorated with the Bronze Star.

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**Drilling Systems
Merged Into Houston
Systems Manufacturing**

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According to Mr. Haley, "The business purpose of this combination is to provide HSMC access to Drilling Systems' engineering expertise, patents and developmental progress in the field of constant tension and motion compensation devices, both active and passive." Mr. Haley further stated that HSMC is itself investigating applications of this equipment for the offshore drilling and production industries. These applications include hoisting systems, especially in hostile offshore en-

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Houston Systems, with headquarters in Houston, is a leader in the design and manufacture of onshore and offshore drilling equipment, offshore platforms, drilling and production modules, marine cranes, special lift and handling systems and other large, specialized hydraulic systems for energy-related industries worldwide.

**MarAd Study Contract
To DeLaval Turbine**

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*This advertisement is neither an offer to sell nor a solicitation of an offer to buy any of these securities.
The offering is made only by the Offering Circular.*

September, 1977

\$43,121,000

**United States Government Guaranteed
Ship Financing Bonds**

issued by

American Export Lines, Inc.

\$17,450,000 7.95% Sinking Fund Bonds, Series I, due no later than December 1, 2006

\$17,450,000 7.95% Sinking Fund Bonds, Series II, due no later than December 1, 2006

\$4,148,000 7.75% Sinking Fund Bonds, Young America Series, due September 26, 1994

\$4,073,000 7.75% Sinking Fund Bonds, Red Jacket Series, due September 26, 1994

Payment of principal and interest will be guaranteed by the United States of America under Title XI of the Merchant Marine Act, 1936, as amended, which expressly provides that: "The full faith and credit of the United States is pledged to the payment of all guarantees made under this title with respect to both principal and interest, including interest, as may be provided for in the guarantee, accruing between the date of default under a guaranteed obligation and the payment in full of the guarantee."

Price 100%

(Interest accrues from date of issue)

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Newport News Delivers Nuclear-Powered Aircraft Carrier Dwight D. Eisenhower



The Eisenhower's initial nuclear cores will provide enough fuel to carry out operations for the next 13 years.

Tenneco's Newport News Shipbuilding, Newport News, Va., recently delivered to the United States Navy one of the world's largest warships, the nuclear-powered aircraft carrier Dwight D. Eisenhower (CVN 69).

With the Eisenhower, Newport News Shipbuilding has delivered 10 of the last 14 nuclear-powered ships received by the Navy since 1974.

The Eisenhower is the second Nimitz-class carrier and the Navy's third nuclear-powered aircraft carrier — all built by Newport News Shipbuilding. The Navy now has 10 nuclear-powered surface warships, seven built at the world's largest shipyard.

The Eisenhower is 1,092 feet long, with a flight deck width of more than 250 feet, a combat load displacement of nearly 95,000 tons, and can operate and provide sustained support for a Naval air wing of about 100 aircraft. The crew (including the air group) will number nearly 6,300 people.

Its initial nuclear cores will provide enough fuel to carry out operations for the next 13 years, thus making it truly independent of propulsion fuel logistic support. These cores contain energy equivalent to more than two million tons of coal or 11 million barrels of oil.

The Dwight D. Eisenhower, to be commanded by Capt. W.E. Ramsey, was launched October 11, 1975, and its keel was laid August 15, 1970.

The shipyard now has under

contract or construction 17 ships, including three liquefied natural gas (LNG) carriers and three ultra large crude oil carriers (ULCCs). Thus far this year, Newport News Shipbuilding has delivered three ships, launched three, and laid the keels for three others.

Swedish Owner Orders Nine Ships In Japan

The nine technically advanced ro/ro ships to be incorporated into Sweden's Brostrom fleet are to be built by Mitsui, Japan, under a Kr. 675-million (\$160,000,000) letter of intent, Brostroms has announced.

The deal is subject to agreement being reached between the owners and the trade unions concerned on the size of the crews, it is added.

The order includes two 6,500-tonners for the North Sea trade designed for operation by a crew of only 9, six 12,000-tonners for the Mediterranean trade, and a 23,000-tonner for worldwide line services, all for a crew of 16. The vessels will be among the most advanced in the world in respect of cargo-handling and navigational technology.

Tenders for the nine ships were originally invited from some 40 shipyards all over the world. Final evaluation was made between Mitsui and two Swedish yards, but the latter were not able to compete with the Japanese prices, Brostroms say.

New Giant Transtainer Cranes At Cape Town Port



Two of three new 35-metric-ton Transtainer® cranes for South African Railways are pictured at Port Elizabeth, Cape Town, South Africa. The giant rail-mounted container-handling cranes were built by Dorman Long Vanderbijl Corp., Ltd., a licensee of Paceco, Inc., a subsidiary of Fruehauf Corporation, Alameda, Calif.

The Paceco Transtainers have a span of 258 feet, including cantilever outreach of 44 feet 3 inches. Container stacking capability is one over five high. 200-

degree rotation of the trolley and operator's cab permits fast and easy spotting of containers in any direction.

These Paceco Transtainers will be a major factor in the integrated handling system—coordinating railway service and ocean traffic. The Cape Town public container-handling facility will be operated by South African Railways. The Transtainer cranes were fabricated at the Dorman Long facility in Durban.

Europort '78 To Include Naval Construction

Following discussions with both Naval authorities and Defense sales departments of the major shipbuilding countries, the Europort organization will incorporate a giant Naval Construction and Equipment Section in Europort '78.

Space bookings for this event are already well on the way, and there is every indication that the marine industry will fully accept this innovation.

In connection with this exhibi-

tion, a specialized conference on nonclassified matters will be held, and the organizers are planning for a naval week to take place concurrently with Europort '78.

Plans are being discussed for naval vessels from participating countries to appear in Amsterdam during this time. Along with the European participation, it is expected that there will be an American section.

Full details and brochures can be obtained on application to the organizers: Europort tentoonstellingen B.V. Waalhaven Z.Z. 44, 3088 HJ Rotterdam, the Netherlands.



Savings start at

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\$4,148,000 7.75% Sinking Fund Bonds, Young America Series, due September 26, 1994

\$4,073,000 7.75% Sinking Fund Bonds, Red Jacket Series, due September 26, 1994

Payment of principal and interest will be guaranteed by the United States of America under Title XI of the Merchant Marine Act, 1936, as amended, which expressly provides that: "The full faith and credit of the United States is pledged to the payment of all guarantees made under this title with respect to both principal and interest, including interest, as may be provided for in the guarantee, accruing between the date of default under a guaranteed obligation and the payment in full of the guarantee."

Price 100%

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Copies of the Offering Circular may be obtained in any State in which this announcement is circulated from only such of the underwriters, including the undersigned, as may lawfully offer these securities in such State.

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LNG Shipping— What Prospects Now?

In recent months, there have been many press and industry reports to suggest a growing interest in LNG shipping, the reports being a mixture of favorable and unfavorable news for owners and operators of LNG carriers, but leaning toward a generally improved outlook for LNG shipping. This apparently improved outlook is in contrast to historical developments in world LNG shipping expectations. The anticipated future boom in LNG shipping demand, which has consistently been forecast since the inception of seaborne LNG export trades in the mid-1960s, has continually suffered postponement in the past. The result is that at mid-1977, there were still only nine base-load LNG export trades in operation, which together generate a shipping capacity requirement of only 1.5 million cubic meters per annum, while the existing supply of LNG carriers is almost 2.9 million cubic meters, nearly double that level. Indicatively, at end-July 11, LNG carriers aggregating 1.2-million-cubic-meters capacity were laid up or had been inactive for two months or more. At present, therefore, there is a gross oversupply of very expensive shipping capacity in the LNG trades, a situation which, on the basis of currently scheduled future developments, will not be corrected until at least 1982.

However, during the next eight years as many as 15 new LNG export projects could come on-stream, and these could increase world LNG shipping requirement in 1985 to as much as 15.1 million cubic meters per annum, 7.6 million cubic meters more than the total capacity of the LNG fleet currently scheduled for 1985. From the known planned developments in world LNG export trades and LNG shipping supply, the expected future balance in LNG shipping supply/demand, expressed in numbers of the popular-sized 125,000-cubic-meter ship, can be calculated as follows: (Supply Surplus) end of year 1977, number of ships 9; end of '78, number of ships 12; end of '79, number of ships 19; end of '80, number of ships 18; end of '81, number of ships 17; (Supply Deficit) end of '82, number of ships (8); end of '83, number of ships (40); end of '84, number of ships (53); and end of '85, number of ships (61).

Between now and 1985, therefore, as many as 61 new orders for 125,000-cubic-meter-sized LNG carriers could be necessary to meet the incremental LNG shipping demand forecast to be generated between 1982-85. However, the expected acceleration in LNG shipping demand in this latter period is still uncertain. The boom in LNG shipping could be postponed, once again, to beyond 1985.

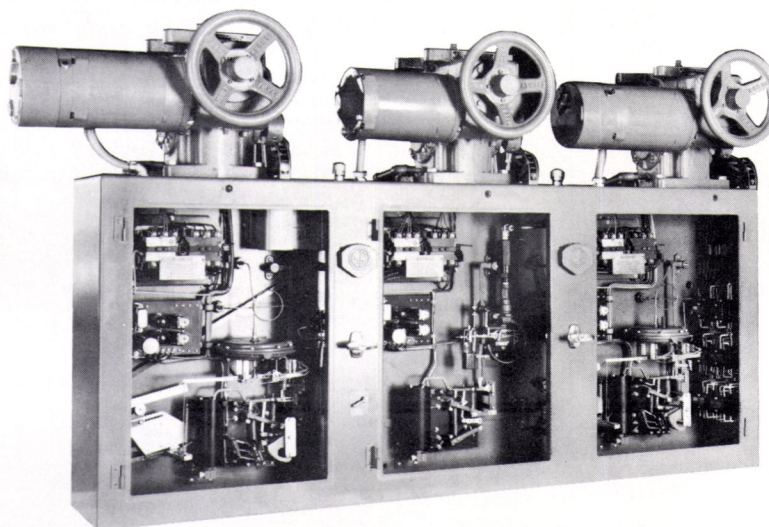
Recent developments improving the outlook for LNG shipping include the coming on-stream or the impending startup of some new projects and a reaffirmation of the status of other future projects. The Abu Dhabi Das Island gas export project came on-stream at the end of April, although deliveries to Japan, and

indeed the entire operation, have been held up due to the cargo contamination by metal bolts, suffered in the first shipload. This suspension (which involves stripping down most of the hardware involved—liquefaction plant, the gas carrier and reportedly the shipyard) will continue until the source of the bolts is located.

Two other major trades are due for imminent startup: (a) the first half of the Indonesia—from Badak in East Kalimantan—to Japan LNG export project due to have started August 1 (the second half—from Arun in North Sumatra—is scheduled to come on-stream early in 1978), and (b) the first major trade to USEC,

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known as the El Paso I project, which should be on-stream from Algeria before end-1977. Algeria has recently contracted with German and Dutch gas importers for LNG exports to Wilhelmshaven and Rotterdam beginning in 1984, while the USEC-destined Panhandle (Trunkline) project has been given FPC approval though

under condition of incremental gas pricing to consumers, rather than the preferred averaged-in price system.

Elsewhere, other possible future projects have advanced, notably those in Nigeria and Malaysia, where construction of liquefaction plant is soon due to begin, also in Indonesia, where

expansion of existing newbuilding gas export plant is being contemplated, and on the N.W. Shelf Australia, where gas exports by 1985 look highly likely, despite the lack of any definite plans concerning the siting of liquefaction plant, the export volumes available, or finance. In Canada, Arctic natural gas has also excited top-

ical interest, and liquefaction plant engineering studies for Melville Island reserves are in progress, while tenders have reportedly been placed with shipyards for suitable LNG carriers. Other reports concern the possibility of massive Swedish LNG imports and the continued Soviet desire to enter the LNG exporters club with trades to the U.S. and Japan, who would also provide both finance and technology.

However, press reports unfavorable to LNG have also been in evidence, with U.S. political involvement being a major factor. Lack of FPC approval has forced the cancellation of the Algeria-USEC Eascogas project, though this may be recontracted at lower import volumes. Two Burmah-controlled ships for the Eascogas trade have been switched to the Indonesia-Japan trade and replace the last two newbuilding vessels required here, which now become possible cancellations. Two other Algeria-USEC projects, Tenneco and El Paso II, are still awaiting FPC approval, with decisions being expected before end-1977, while USWC LNG import projects remain highly uncertain. FPC recommendations for pipeline imports of Alaskan gas seem to rule out new Alaskan supplies of LNG, while Californian import terminal approvals are still being sought for Indonesian LNG supplies. If successful, environmental pressures forcing LNG reception sites offshore in California would ensure that no USWC LNG imports could begin prior to 1985. Further reports have also detracted from the otherwise more buoyant LNG market outlook. These reports involve negotiations for the postponement of delivery of newbuilding LNG carriers, the unworkable economics of LNG exports from the Middle East Gulf to USEC and West Europe, and the reopened Algeria-Italy pipeline gas export contract (which presumably undermines a planned LNG shipping project between the same parties).

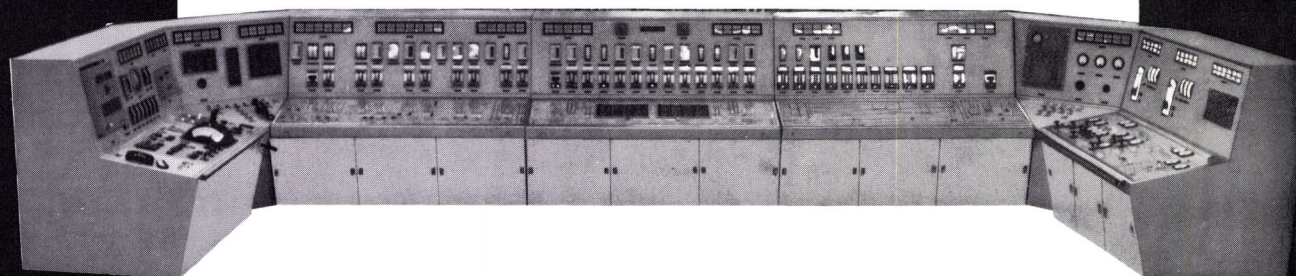
In summary, prospects for LNG shipping have improved slightly in the past half year, but the immediate outlook remains depressed due to the expected excess shipping supply up to 1982. However, the prospect of potential LNG shipping demand growth beyond 1981 is a plus point, but this growth rests on plans that are liable to postponement in the future.

The scheduled world LNG export projects and LNG fleet statistics used here will be analyzed and discussed in detail in a forthcoming H.P. Drewry Survey, "LNG Marine Transport Costs and Revenues," which is scheduled for publication in autumn 1977. For further information, write to H.P. Drewry (Shipping Consultants) Limited, 34 Brook Street, Mayfair, London W1Y 2LL, England.

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Newport News Delivers Nuclear-Powered Aircraft Carrier Dwight D. Eisenhower



The Eisenhower's initial nuclear cores will provide enough fuel to carry out operations for the next 13 years.

Tenneco's Newport News Shipbuilding, Newport News, Va., recently delivered to the United States Navy one of the world's largest warships, the nuclear-powered aircraft carrier Dwight D. Eisenhower (CVN69).

With the Eisenhower, Newport News Shipbuilding has delivered 10 of the last 14 nuclear-powered ships received by the Navy since 1974.

The Eisenhower is the second Nimitz-class carrier and the Navy's third nuclear-powered aircraft carrier — all built by Newport News Shipbuilding. The Navy now has 10 nuclear-powered surface warships, seven built at the world's largest shipyard.

The Eisenhower is 1,092 feet long, with a flight deck width of more than 250 feet, a combat load displacement of nearly 95,000 tons, and can operate and provide sustained support for a Naval air wing of about 100 aircraft. The crew (including the air group) will number nearly 6,300 people.

Its initial nuclear cores will provide enough fuel to carry out operations for the next 13 years, thus making it truly independent of propulsion fuel logistic support. These cores contain energy equivalent to more than two million tons of coal or 11 million barrels of oil.

The Dwight D. Eisenhower, to be commanded by Capt. W.E. Ramsey, was launched October 11, 1975, and its keel was laid August 15, 1970.

The shipyard now has under

contract or construction 17 ships, including three liquefied natural gas (LNG) carriers and three ultra large crude oil carriers (ULCCs). Thus far this year, Newport News Shipbuilding has delivered three ships, launched three, and laid the keels for three others.

Swedish Owner Orders Nine Ships In Japan

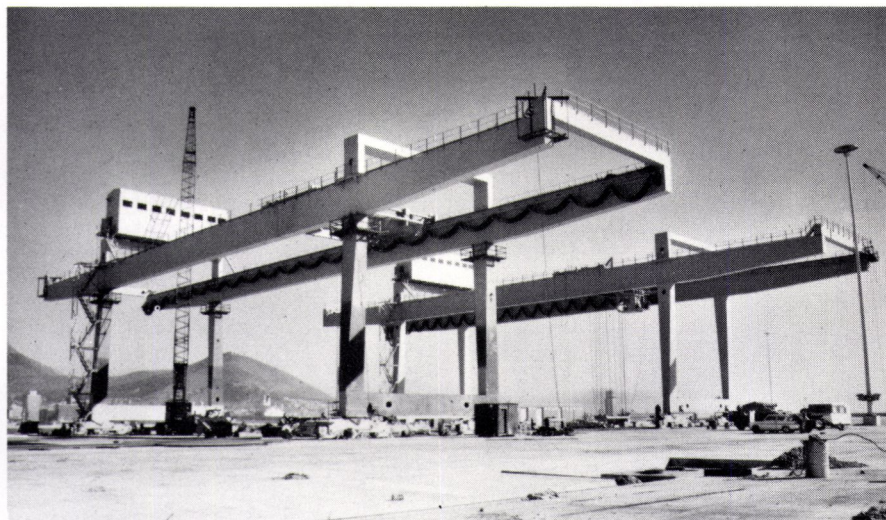
The nine technically advanced ro/ro ships to be incorporated into Sweden's Brostrom fleet are to be built by Mitsui, Japan, under a Kr. 675-million (\$160,000,000) letter of intent, Brostroms has announced.

The deal is subject to agreement being reached between the owners and the trade unions concerned on the size of the crews, it is added.

The order includes two 6,500-tonners for the North Sea trade designed for operation by a crew of only 9, six 12,000-tonners for the Mediterranean trade, and a 23,000-tonner for worldwide line services, all for a crew of 16. The vessels will be among the most advanced in the world in respect of cargo-handling and navigational technology.

Tenders for the nine ships were originally invited from some 40 shipyards all over the world. Final evaluation was made between Mitsui and two Swedish yards, but the latter were not able to compete with the Japanese prices, Brostroms say.

New Giant Transtainer Cranes At Cape Town Port



Two of three new 35-metric-ton Transtainer® cranes for South African Railways are pictured at Port Elizabeth, Cape Town, South Africa. The giant rail-mounted container-handling cranes were built by Dorman Long Vanderbijl Corp., Ltd., a licensee of Paceco, Inc., a subsidiary of Fruehauf Corporation, Alameda, Calif.

The Paceco Transtainers have a span of 258 feet, including cantilever outreach of 44 feet 3 inches. Container stacking capability is one over five high. 200-

degree rotation of the trolley and operator's cab permits fast and easy spotting of containers in any direction.

These Paceco Transtainers will be a major factor in the integrated handling system—coordinating railway service and ocean traffic. The Cape Town public container-handling facility will be operated by South African Railways. The Transtainer cranes were fabricated at the Dorman Long facility in Durban.

Europort '78 To Include Naval Construction

Following discussions with both Naval authorities and Defense sales departments of the major shipbuilding countries, the Europort organization will incorporate a giant Naval Construction and Equipment Section in Europort '78.

Space bookings for this event are already well on the way, and there is every indication that the marine industry will fully accept this innovation.

In connection with this exhibi-

tion, a specialized conference on nonclassified matters will be held, and the organizers are planning for a naval week to take place concurrently with Europort '78.

Plans are being discussed for naval vessels from participating countries to appear in Amsterdam during this time. Along with the European participation, it is expected that there will be an American section.

Full details and brochures can be obtained on application to the organizers: Europort tentoonstellingen B.V. Waalhaven Z.Z. 44, 3088 HJ Rotterdam, the Netherlands.





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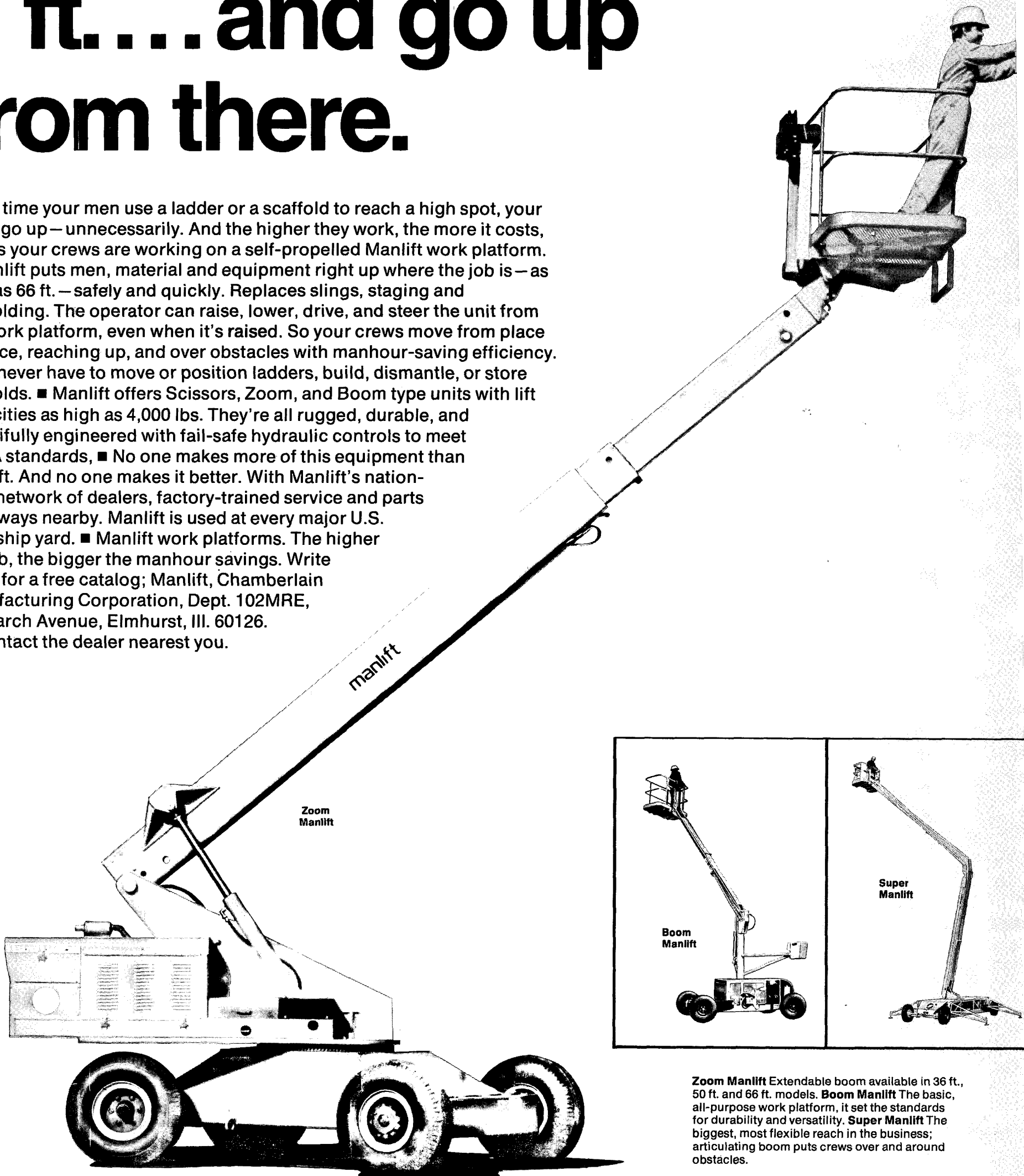
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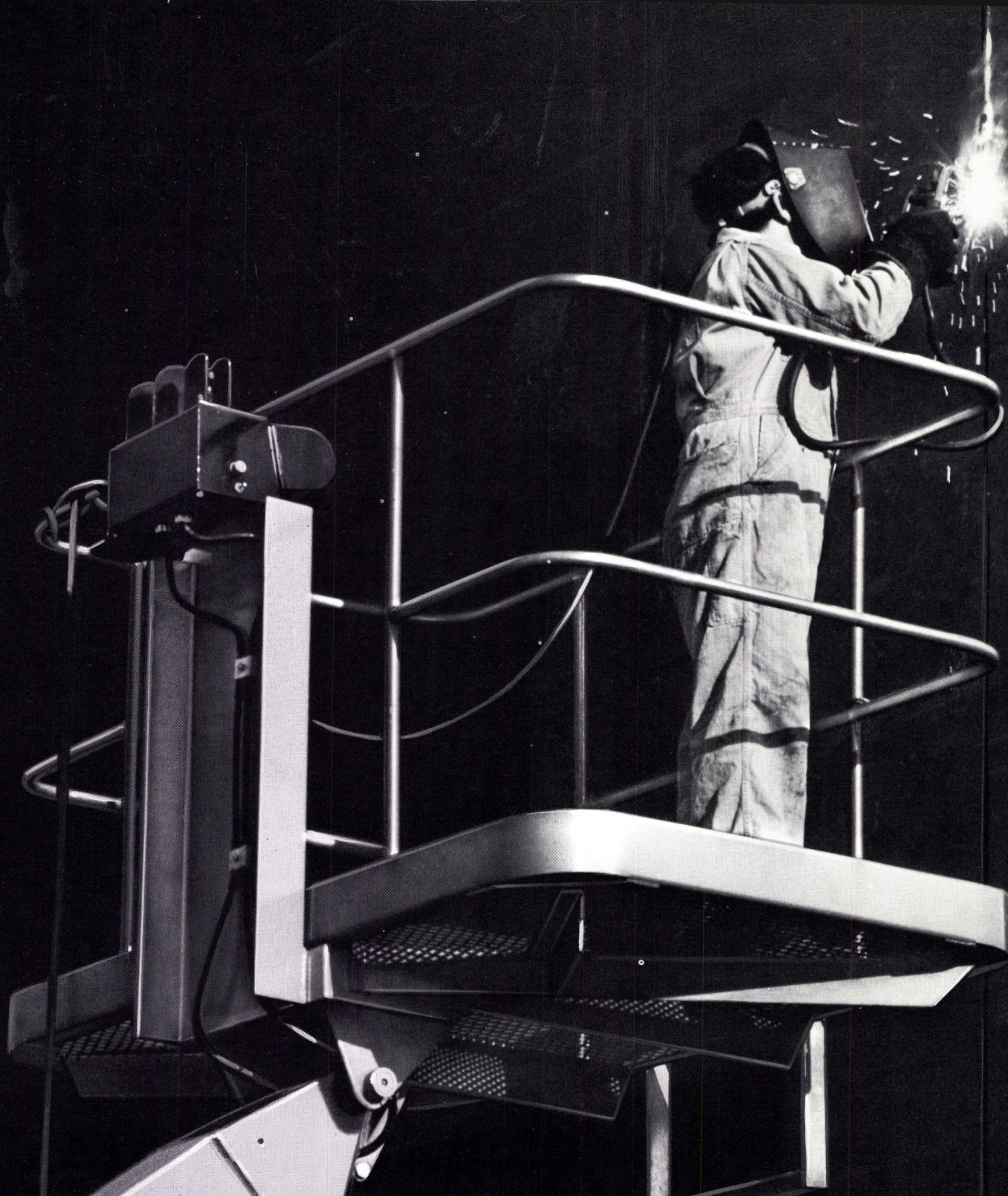


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Zoom Manlift Extendable boom available in 36 ft., 50 ft. and 66 ft. models. **Boom Manlift** The basic, all-purpose work platform, it set the standards for durability and versatility. **Super Manlift** The biggest, most flexible reach in the business; articulating boom puts crews over and around obstacles.



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Mini Scissors This compact, versatile scissors model puts a 25 ft. reach into the tight spots, retracts and stores in minimum space. Also available in 21 ft. model. **Scissors Manlift** Gives you reach plus added lift capacity with work platform big enough for crew and equipment.

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A nearby Manlift dealer can provide details on a rental program that will let you enjoy the efficiencies of these units without a major capital investment. Contact Chamberlain Manufacturing Corporation, Dept. 102MRE, 845 Larch Avenue, Elmhurst, Illinois 60126 for details and the name of a dealer near you.

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Bethlehem Steel Names Thomas Robinson To Central Technical Post

Thomas F. Robinson has been appointed assistant technical manager of the Central Technical Division of Bethlehem Steel Corporation's Shipbuilding Department, A. Dudley Haff, technical manager, has announced.

The Central Technical Division,

which is located at the Sparrows Point (Md.) Shipyard, provides technical assistance to all of Bethlehem's shipbuilding and repair yards.

A native of Quincy, Mass., Mr. Robinson is a 1943 graduate of the University of Michigan, with a B.S. degree in naval architecture and marine engineering.

He joined Bethlehem at the Fairfield Yard as a draftsman in 1943, and following two years in

the Navy at the Office of Supervisor of Shipbuilding in San Francisco, Calif., he returned to Bethlehem at the Staten Island (N.Y.) Yard, progressing to the position of naval architect.

In 1958, he left the Staten Island Yard to become assistant chief, drafting technical engineering of Bethlehem's Quincy Yard, and progressed to the position of assistant naval architect. He moved to the Sparrows Point

Yard with the relocated Central Technical Division in 1964, and has since held positions as special engineer, assistant chief naval architect and chief naval architect.



Thomas F. Robinson

Mr. Robinson is a member of The Society of Naval Architects and Marine Engineers, and a member of the Chesapeake Section's Executive Committee. He is the Shipbuilder's Council representative on the SOLAS United States Working Group on Subdivision and Stability, and has been a member of the U.S. delegation at several IMCO Subdivision and Stability Subcommittee meetings in London.

Marinette Marine To Build Two Workboats

Marinette Marine Corporation has been awarded a contract from the U.S. Naval Sea Command for construction of two 35-foot workboats to be used aboard the T-ATF (fleet/tug) currently under construction at Marinette Marine.

Value of the contract is placed at approximately \$358,000 by the Marinette, Wis., shipbuilder.

The vessel will measure 35 feet in overall length.

Delivery of the first vessel is scheduled for June 1978 at Little Creek, Va., and the second in July 1978 at Oakland, Calif.

Marinette Marine is a major supplier of custom-engineered vessels for oceanographic research craft, supply vessels, barges, gunboats, tugs, and patrol boats.

Enclosed Blasting Facilities Described In CAB, Inc. Brochure

A new brochure from Complete Abrasive Blasting Systems, Inc. describes the economic and environmental advantages of using an enclosed blasting facility. A color-coded diagram explains how the CAB blast room recycles reusable abrasive for lower overall costs in metal cleaning operations. The brochure includes photos and descriptions of major components that make it a simple but effective system for all abrasive blasting applications.

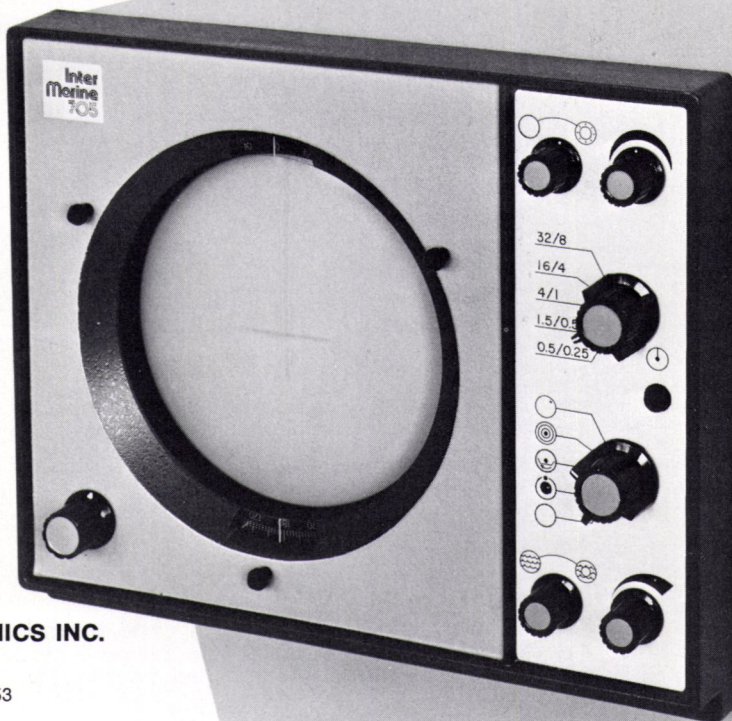
For copies, contact Bob Jellerson, Complete Abrasive Blasting Systems, Inc., 18250—68th Avenue South, Kent, Wash. 98031.

Value/the Intermarine 705

Each of the many small radars on the market today has its claim — the best, newest, most affordable, longest range, highest power, and so on.

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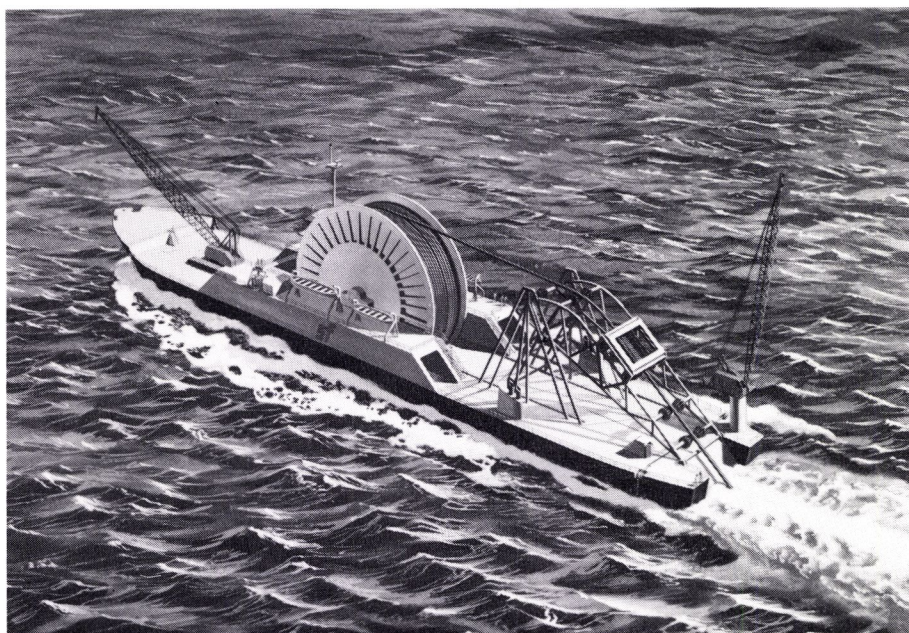
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Todd To Build Santa Fe Pipelaying Vessel



An artist's conception of the self-propelled pipelaying reel ship Apache, which will cost approximately \$28 million including owner-furnished equipment.

Todd Shipyards Corporation and Santa Fe International Corp. jointly announced the award of a contract to Todd for the construction of the first self-propelled pipelaying reel ship. According to E.L. Shannon Jr., Santa Fe president, the vessel will cost approximately \$28,000,000, including owner-furnished equipment, and it will be built at Todd's Galveston (Texas) Division for delivery in the second half of 1978.

The dynamically positioned vessel, to be named Apache, is designed to lay steel pipe from 4 to 16 inches in diameter in pre-welded strings from 7 to 50 miles long. Overall length will be 389 feet 3 inches, breadth 70 feet, and the vessel will be powered by two diesel engines with 7,200 total hp, providing cruising radius of 5,000 miles.

The decision to build the ship followed more than two years of design, planning and market analysis. The Apache will incorporate some of the patented features of Santa Fe's Chickasaw, a smaller, nonself-propelled reel barge which, since its construction in 1970, has laid nearly 6,000 miles of oil and gas pipelines up to 12 inches in diameter.

The Apache will be able to cruise at speeds of 12.5 knots for marine pipelaying projects in any part of the world. Traveling under its own power, it will be capable of unreeling pipe off the stern at speeds of 1.5 to 2 knots.

Its reel, turning on a horizontal axis, will feed the pipe onto a vertically adjustable ramp having a built-in hydraulic pipe straightener. With the ramp raised to its maximum height, the ship can lay pipe in water as much as 2,000 feet deep for 16-inch-diameter lines and to 3,000 feet deep for smaller lines; in either case much deeper than any marine pipelines previously laid on a commercial basis. The adjustable pipe ramp also will eliminate the need for a stinger, an appendage to the lay

vessel which is normally required to prevent buckling of the pipe as it descends to the seabed in deep water.

Measuring 83 feet high, the reel will have a hub diameter of 54 feet and a width of 22 feet between the outside flanges. It will carry up to 2,000 short tons of pipe, with a full load varying from 265,000 feet (50 miles) of 4-inch pipe to 140,000 feet of 6-inch, 92,000 feet of 8-inch, 60,000 feet of 12-inch, or 37,000 feet of 16-inch. The vessel also may carry any combination of these sizes on one voyage.

The Apache is designed to meet all rules and registration requirements of the U.S. Coast Guard, the American Bureau of Shipping, and the latest SOLAS (Safety of Life at Sea) conventions to qualify it for full ocean rating and to permit registry under the U.S. flag.

Capable of all-season operations in North Sea-type conditions, the vessel will be able to lay a load of pipe during a brief interval between storms in almost any ocean environment. According to design criteria, the vessel would be able to continue laying pipe while subjected to a combination roll of 5 degrees to each side, a double amplitude pitch of 5 degrees, and a total heave of 6 feet in 12-second cycles.

It will be equipped with a saturation diving system to support working dives in water depths to 1,000 feet.

Four thrusters, two each at the bow and the stern, will help maintain position of the vessel during pipelaying and retrieval operations. These thrusters will be individually driven by electric motor for computer-controlled automatic positioning.

In operation, the Apache will anchor at a coastal base while pre-welded strings of pipe are wound onto the reel and joined together. When loaded, it will

sail to the designated site and unreel the pipe. If more than one load is required for a job, the line will be temporarily plugged and laid on the seabed until the vessel returns with more pipe.

The reeling system eliminates all offshore pipeline welding except at the tie-ins where the line connects with a previously laid string or with another installation. It also permits X-raying of the yard welds and hydrostatic testing of the pipe before the vessel leaves port.

Since much of the pipeline work is done on shore, the Apache will have quarters for only 120 persons, about half the crew on a conventional pipelaying vessel. The normal complement aboard the Apache would total 85 persons assigned to the pipelaying operation, including inspectors and customer's representatives, plus a ship's crew of 35.

Home base of the Apache while operating in the Gulf of Mexico

will be at Houma, La. This is the site of Santa Fe's pipespooling yard currently used by the Chickasaw, and also is the Gulf Coast operations headquarters for the company's drilling, construction and diving organizations.

Brochure Describes Pollution Packer For Use Aboard Ship

A brochure published by Tony Team Industries fully describes a medium-high volume model Pollution Packer for use aboard ship. Model 1800 is a rugged super quiet "work horse" for wet or dry waste in galley service that is currently in use on Naval and passenger ships, Great Lakes vessels and offshore oil rigs.

You can obtain a free copy of the Pollution Packer brochure by writing directly to Ken Savageau, Tony Team Industries, 6701 West 110th Street, Minneapolis, Minn. 55438.

CLOW

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Avondale To Install Iron Cargo Piping Aboard U.S. Tankers

CLOW Corporation, manufacturer of cast and ductile iron pressure pipe, has announced it has received a contract from Avondale Shipyards, New Orleans, La., to supply 14-inch, 18-inch, and 20-inch-diameter ductile iron pipe for cargo piping in four tankers.

Although centrifugally cast ductile iron pipe has been used for ships' piping for several years by Europeans, the Avondale use, it is believed, will be its first installation on a U.S.-flag vessel. Pipe selected is standard 60,000 tensile ductile pipe which is in widespread use for underground pressure piping, except that the ductile iron will be alloyed with 2 percent nickel for added corrosion resistance. Pipe will be plain end and joined by couplings. Ductile was chosen on the basis of an anticipated extended life in service, despite a higher initial cost.

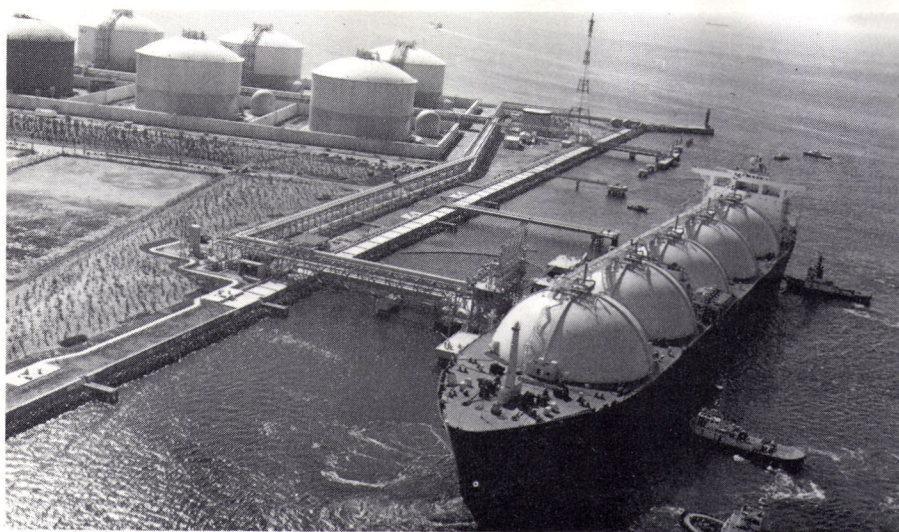
The choice of ductile pipe was made following U.S. Coast Guard and American Bureau of Shipping approval for the use of this pipe for "cargo and ballast systems."

CLOW Ductile pipe and fittings, alloyed with 2% nickel, offer the most economical corrosion resistance for cargo or ballast piping. For crude, saltwater, or similar service, investigate CLOW Ductile. CLOW's cargo and ballast piping meets or exceeds the requirements of the American Bureau of Shipping and U.S. Coast Guard.



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AQUARIUS IN JAPAN—The LNG Aquarius, the first liquefied natural gas (LNG) tanker of its size to deliver a cargo of the super-cooled gas, is shown moored at the Osaka Gas Company's unloading facilities in Osaka, Japan. Delivery of the huge cargo was completed August 19. The 125,000-cubic-meter tanker was built by General Dynamics at its Quincy (Mass.) Shipbuilding Division, and is operating under a 25-year charter to transport LNG from Indonesia to Japan. The 936-foot-long, 95,000-ton Aquarius can carry enough of the liquefied gas to supply an American city of 500,000 for one month. General Dynamics is building six more ships identical to the Aquarius for the Indonesia to Japan run.



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OCEANS '77 Conference Set For October 17-18-19

Sessions on a variety of technological, educational and public policy topics will highlight the OCEANS '77 Conference, set for October 17-18-19 in Los Angeles, Calif. This annual meeting and exposition is jointly sponsored by the Marine Technology Society and the Institute of Electrical and Electronics Engineers.

Dr. Simon Ramo of TRW, chairman of OCEANS '77, and his advisory board and conference committee are working to make OCEANS '77 an interesting and informative week for an estimated 2,000 attendees.

In addition to a busy calendar of conference sessions, with speakers like the Honorable Elliot L. Richardson and the Honorable H.S. Amerasinghe, OCEANS '77 will offer attendees a chance to see more than 100 exhibits from organizations involved in fields such as undersea drilling and instrumentation, remote imaging of the oceans and a variety of ocean-related equipment and technology.

The conference will be held at the Bonaventure, Los Angeles' newest fine hotel, which features excellent exhibit facilities.

The conference theme is "An International Conference to discuss and explore developing technology and its impact on public policy and education with a focus on the Pacific Rim." In some 40 sessions, more than 200 papers will be presented in fulfilling the conference objective of bringing together a strong interdisciplinary program.

Conference objectives include presentation of an outstanding technical program; provision of forums for discussion of ocean-oriented public policy and education issues; provision of opportunities for interdisciplinary exchanges on topical issues, in Plenary Sessions; attraction of top-level participation from the legal, academic, government, commercial and scientific fields, and presentation of an exhibit reflecting the latest advances in ocean technology.

Invocation by the United States and other nations of a 200-mile limit manifests the new priorities given ocean resources here and abroad. In recent times, fishery rights, offshore resources, coastal development, marine pollution and shipping hazards have escalated to national and international issues. Questions are raised about the proper use of technology in the sea, and of the responsibilities of policy-makers in regulating the deployment of technology.

The technical schedule is as follows:

Monday, October 17—9 a.m.-11 a.m.—(1) New Perspectives in the Law of the Sea; (2) Buoy Systems; (3) Microprocessors for Ocean Related Matters; (4) Poster Session, 10 a.m.-2 p.m.; Noon—Keynote Luncheon; 1:30-3:30 p.m.—(5) The Pacific Basin Com-

munity, 1:30-4:30 p.m.; (6) Kindergarten to Grade 14 Programs; (7) Undersea Vehicles I; (8) Floating Industrial Complexes; (9) Satellite Imagery Data Acquisition, Processing and Availability; (10) Applications of Underwater Acoustics in the Ocean; 4 p.m.-6 p.m.—(11) Continuing Education; (12) Undersea Vehicles II; (13) Port Operations; (14) Satellite Imagery Data Applications; (15) Underwater Acoustics II.

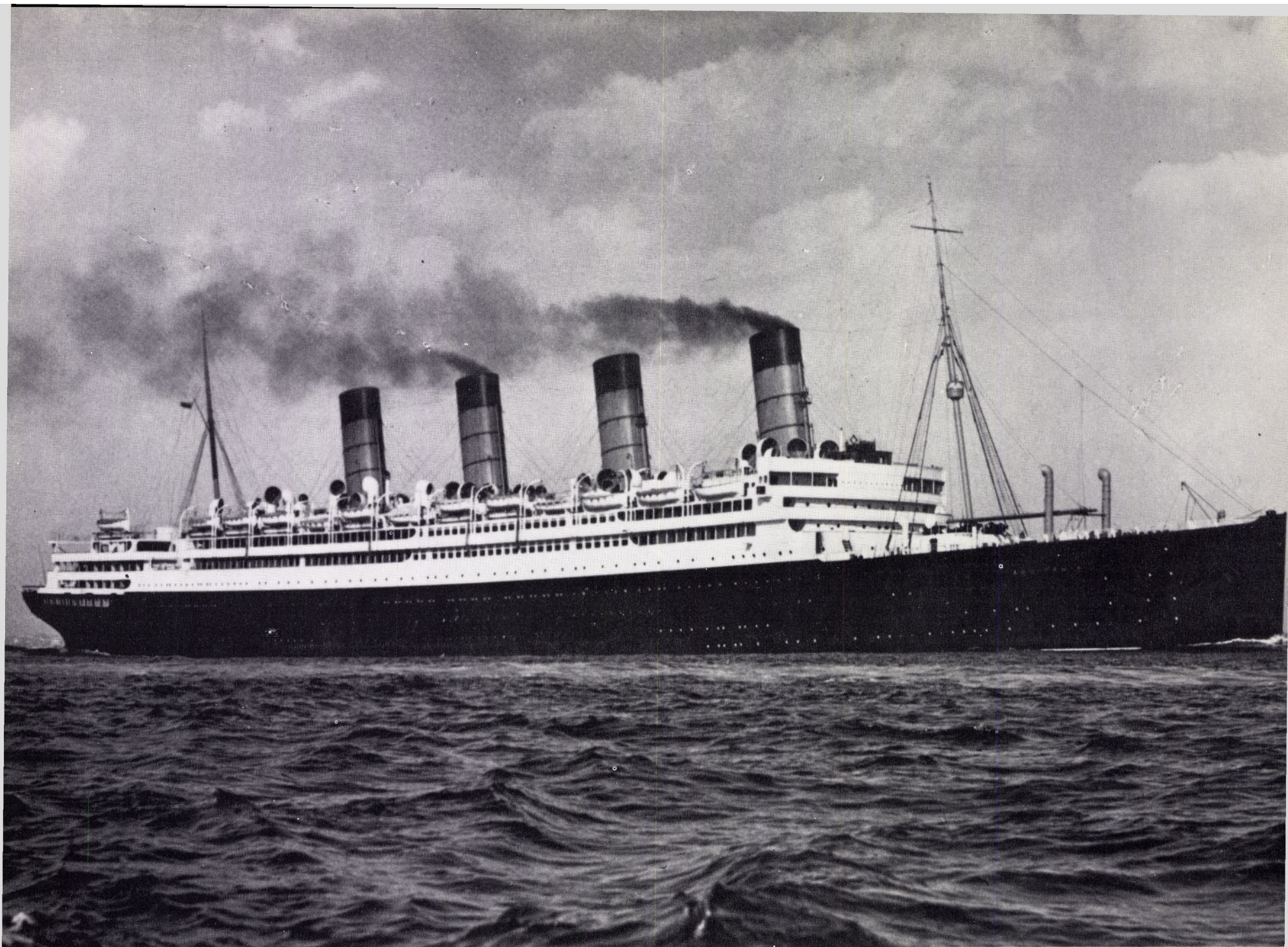
Tuesday, October 18—8:30-10:30 a.m.—(16) Man's Influence on Coastal Waters; (17) Diving Technology and Operations; (18) Underwater Optics I; (19) Education and Manpower, 10:30-Noon; (20) Poster Session, 10 a.m.-2 p.m.; 1:15-3:15 p.m.—(21) Zones of National Jurisdiction, 1:30-5:30 p.m.; (22) University Programs in Marine Studies; (23) Environmental Effects on the Marine Biota; (24) Cable and Connectors; (25) Automated Measurement Techniques; (26) Status of Deep Ocean Mining Programs; 3:45-5:45 p.m.—(27) Technical Training of Marine Manpower; (28) Tanker Operations; (29) Cable Connectors; (30) Current Efforts Toward Improved Reliability in Instrumentation; (31) Distributed Signal Processing; 6:30 p.m., Cocktails; 7:30 p.m., International Banquet.

Wednesday, October 19—8:30-10:30 a.m.—(32) Assessment and Forecast of Viable Utilization of Ocean Resources; (33) Marine Water Quality; (34) Under Water Optics Systems, 8-11 a.m.; Noon—Presidents' Luncheon; 1:15-3:15 p.m.—(36) Seabed Mining; (37) Industry Program for Marine Education and Manpower; (38) Navigation and Control System; (39) Instrumentation for Biological Measurements; (40) Environmental Aspects of Offshore Petroleum Development; (41) Ocean Thermal Energy Conversion; 3:45-5:45 p.m.—(42) Commercial Education and Manpower Programs; (43) Safety Aspects of Ship Operations; (44) International Decades of Oceanographic Exploration; (45) Offshore Petroleum Technology; (46) In-Situ Verification of Current Meter Data.

Pre-registration forms can be obtained by writing to OCEANS '77, 615 South Flower Street, Suite 504, Los Angeles, Calif. 90017.

American Export To Liquidate Subsidiary

American Export Lines has been given permission to liquidate its subsidiary, Mediterranean Marine Lines Inc., and transfer to AEL the four combination container and roll-on/roll-off vessels used by that service—Defiance, Great Republic, Red Jacket, and Young America. Subsidy contracts were revised accordingly.



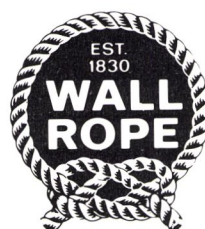
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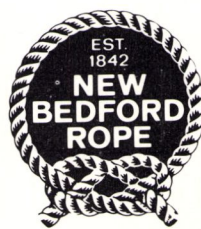
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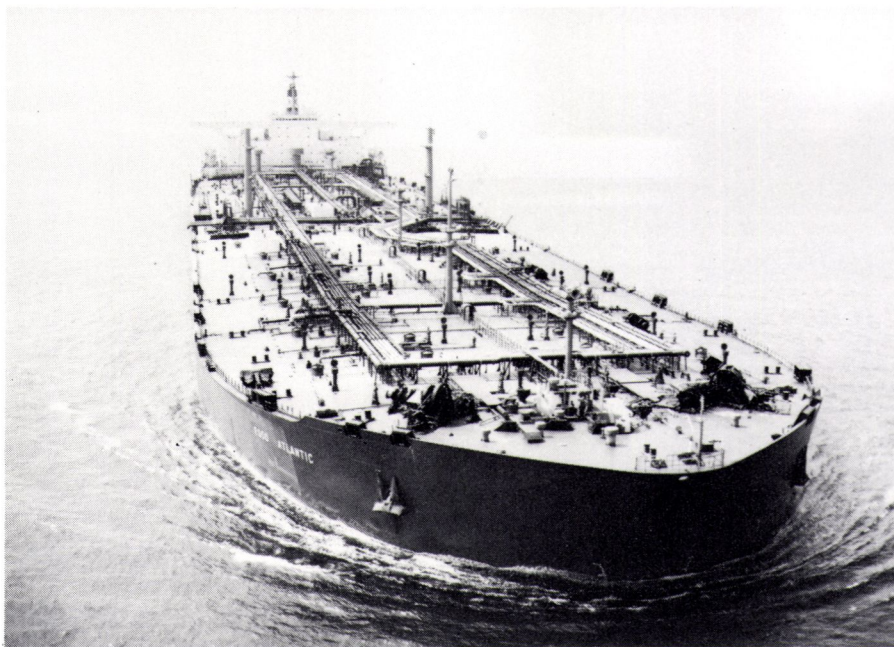


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Hitachi Delivers 508,731-DWT Esso Atlantic —Largest Ship Ever Built In Japan



The Esso Atlantic, the world's largest single-screw vessel, is equipped with a nozzle propeller and the engine room can be operated unmanned around the clock.

The 508,731-dwt ultra large crude carrier (ULCC) supertanker Esso Atlantic, the largest ship built in Japan to date, was delivered to her owner, Esso Tankers, Inc. of Liberia, on August 11, 1977, at Hitachi Zosen's Ariake Shipyard.

Besides being the largest ship ever built in Japan, she is also the third largest ship in the world behind a pair of 550,000-dwt ULCC sisterships built in France. Like the two French-built ships, she will be used primarily for service between the Middle East and Europe.

The Esso Atlantic boasts impressive dimensions. For example, her length of approximately 1,334 feet makes her just about 33 feet shorter than the Empire State Building is tall. Her crude oil capacity of 611,200 cubic meters could meet Japan's oil needs for one-half day. Even her propeller is large—as high as a three story building.

The Esso Atlantic is built with the following special features to improve operation.

Optimum Hull Shape Design

Designed by Hitachi Zosen-developed hull form calculation programs, the Esso Atlantic features a highly efficient hull shape which gives her excellent course stability, maneuverability, and reduced resistance. She is also the world's largest single-screw vessel, and is equipped with a nozzle propeller.

Unmanned

Engine Room Operation

Highly sophisticated automatic and monitoring systems are adopted to bring a substantial reduction in labor. The main engine is remote-controllable from the wheelhouse, and the engine room can be operated unmanned around the clock.

Reduced Fuel Consumption

After extensive research, more

than 10 fuel conservation systems or equipment units were incorporated to lower fuel consumption (198.4 grams/hp/hr at sea trials). These include: (1) Improved main condenser vacuum (723.5 mmHg); (2) Adoption of five-stage steam bleeding and five-stage feedwater heating system, and (3) Improved boiler efficiency.

Inert Gas Explosion Prevention System

Whether loaded or empty, the ship's crude oil tanks are filled with inert gas to reduce oxygen concentrations and thus prevent explosion.

Crude Oil Washing System

A crude oil washing system for tank cleaning is adopted to provide improved cleaning and cargo-handling performance.

Lifeboats And Sprinkler Systems

Two 60-passenger FRP fire-resistant lifeboats are provided as lifesaving equipment. The ship is also equipped with sprinklers to spray seawater on the lifeboats onboard the ship and during lowering to the sea to protect the crew and lifeboats from fire.

Automatic Navigation System

An automatic navigation system is provided to improve safety, reduce operation costs and minimize onboard work.

Elevators

The engine room, living quarters and main pump room are equipped with elevators to facilitate vertical traffic.

The living quarters are also extraordinarily comfortable, with vibration and noise reduced to about 1/3 the levels of other large ships.

The approximate measurements and main particulars of the Esso Atlantic are as follows: length overall, 1,334 feet; length between perpendiculars, 1,280 feet; molded breadth, 233 feet; molded depth,

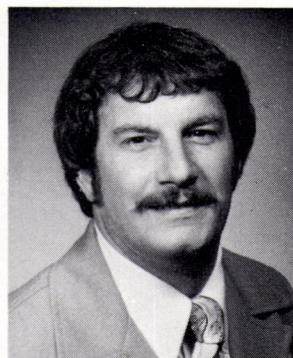
102 feet; designed full-load molded draft, 82 feet; deadweight tonnage, 508,731, and gross tonnage, 234,626.8. The main engine is a Hitachi UC-450-type steam turbine (one set) with a continuous

maximum output of 45,000 hp at 80 rpm producing a trial speed (maximum) of 16.051 knots. The ship carries ABS classification and is registered under the Liberian flag.

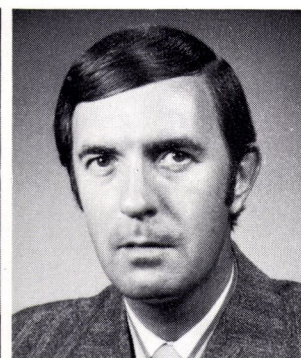
Alco Power Southwest Headquarters In New And Larger Houston Location



C.J. Elsner



Fredrick P. Howk



Antony Wright

E.H. Glascock, vice president, marketing and sales, Alco Power Inc., Auburn, N.Y., has announced that its Southwestern Regional Headquarters has been located in a larger, more modern facility. This new location is 3572 East T.C. Jester, P.O. Box 10895, Houston, Texas 77018. From this complex, Alco will ensure complete and immediate attention to its customers' engine or renewal parts requirements that were previously handled by Wilson Industries, Inc.

C.J. (Carl) Elsner, Southwestern regional manager, will continue to head this operation. Mr. Elsner joined Alco in 1946 as a field service engineer, and has held management positions in both service and sales, domestically and internationally.

Mr. Elsner has appointed Fredrick P. Howk as office and warehouse manager. Joining Alco in Auburn in 1968, Mr. Howk has progressed through various supervisory positions which include production control and customer order service.

Also located at this facility will be the newly organized subsidiary company Alco Industrial Power, Inc., announced John V. Sylvester,

president of Alco Power Inc. This company will be responsible for the sales and service of Dorman, Kelvin, and Baudouin diesel engines and spares.

Newly appointed as marketing director of the new company is Antony (Tony) Wright. With General Electric Ltd. (Alco's parent company) since 1955, Mr. Wright has held positions which include regional manager in Lima, Peru; regional manager for the Western Hemisphere, based in London, England, and group marketing manager for the international operations of GEC diesels.

Dorman marine auxiliary and main propulsion power engines satisfy requirements from 35-bhp (25-kw) to the 825-bhp (572-kw) range, and from 35-shp to 717-shp, respectively. Both air and water-cooled models are offered.

Kelvin marine diesels, available from 10 to 400 shp, are all water cooled.

Baudouin offers both marine and industrial diesel engines. For marine applications, horsepower ranges run from 92 to 420. In industrial applications, the range is from 80 to 420 hp. All of these engines are of the four-cycle type, water cooled with direct injection.

PFEL Gets Approval To Sell And Leaseback

The Maritime Subsidy Board and Assistant Secretary have approved a request by Pacific Far East Line, Inc. (PFEL) to sell and leaseback the container vessel Pacific Bear, and provide Title XI financing for the reconstruction of three other PFEL ships—the Thomas E. Cuffe, Golden Bear, and Japan Bear. The four ships were built and have been operated as lighter-aboard-ship (LASH) vessels. Last April, the Board and Assistant Secretary approved the award of construction-differential subsidy for their conversion into full container-ships.

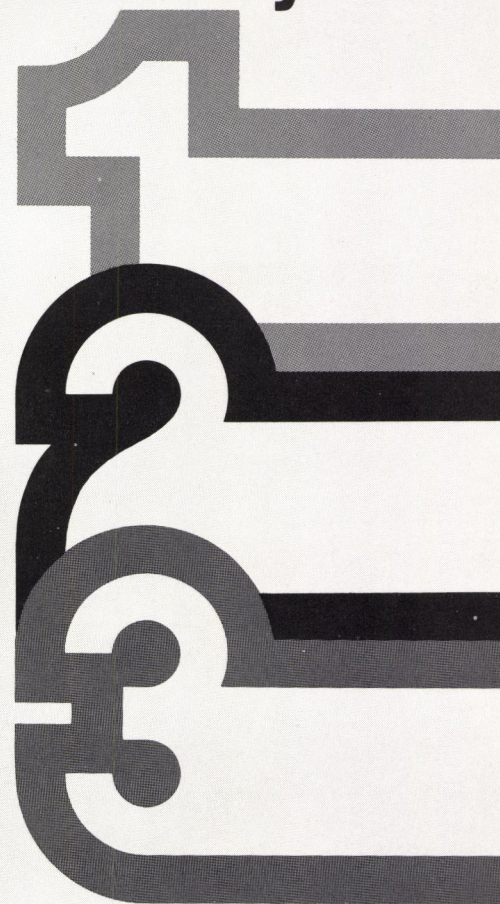
On September 2, PFEL requested approval of the sale/

leaseback of the Pacific Bear to a trust to be composed of CI Transportation Leasing Corp., Greyhound Leasing & Financial Corp., and MDPC Equipment Leasing Corp., as owner participants, and the United California Bank, as trustee.

The Assistant Secretary approved the sale price of \$28 million and the 15-year bareboat charter of the Pacific Bear by PFEL from the trust. In a related action, he approved amendment of a PFEL Letter Commitment to Guarantee Obligations, dated April 29, 1977, to fix the maximum amount of the guarantees under Title XI at \$7,785,000 (\$2,595,000 for each of the three vessels to be reconstructed). The Pacific Bear was converted without Title XI financing.



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Crowley Subsidiary Awarded \$39-Million Cool Barge Contract

The Alaska, Puget United Transportation Co. (APUTCO) of Seattle, Wash., has been awarded a five-year, \$39-million contract by the Navy's Military Sealift Command to resupply U.S. government installations in Alaska and along the Aleutian chain.

APUTCO, a subsidiary of Crowley Maritime Corp., Offshore Division, also of Seattle, will receive nearly \$9 million for each of the first two years and more than \$7 million for each of the last three years ending in 1982.

The lower 1980-82 contract price reflects lowered cargo requirements through this period.

Military Sealift Command has the option to cancel the contract at the end of any year.

APUTCO will provide tug and barge resupply services, known as Cool Barge, along the Alaska coastline and the Aleutian Islands chain.

Among the Defense Department and other government stations and organizations to be resupplied are: Alaskan Air Command, U.S. Coast Guard Stations, Distant Early Warning Line Stations, Naval Arctic Research Laboratory, National Petroleum and

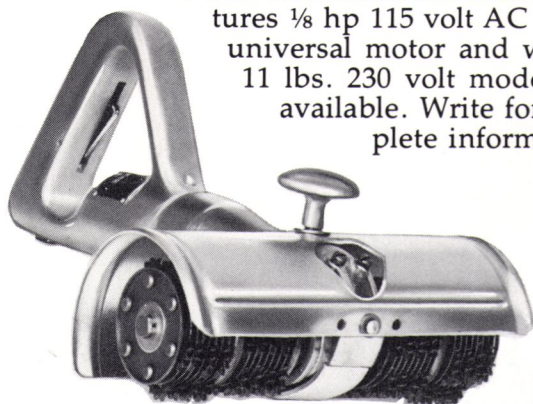
Oil Shale Region 4, Naval Underseas Warfare Center, Federal Aviation Agency, Fish and Wildlife Service, U.S. Weather Bureau, and the Bureau of Indian Affairs.

Military Sealift Command is responsible for supplying these stations or sites as the ocean transportation operating agency for the Defense Department. The Navy command moves cargo worldwide, primarily on scheduled berth line and chartered ships.

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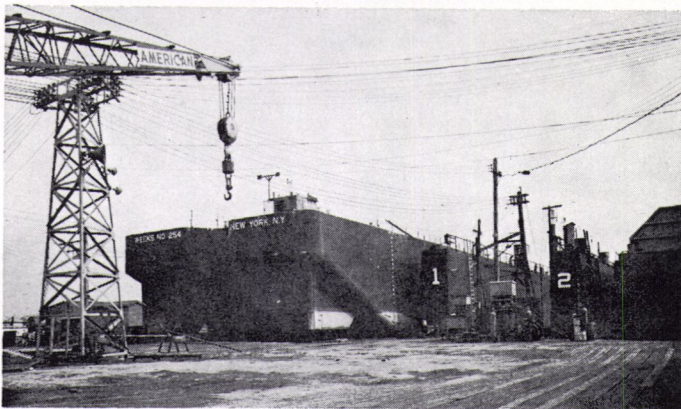
9 lbs. The Model KE electric features 1/8 hp 115 volt AC or DC universal motor and weighs 11 lbs. 230 volt model also available. Write for complete information.



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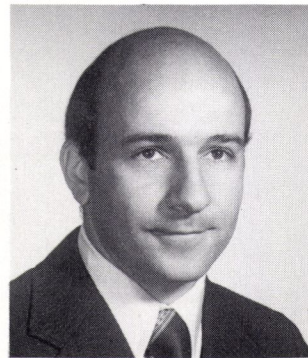


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Drew Chemical Promotes Sodano To Chief Engineer



Anthony Sodano

Maurice J. Piergrossi, vice president, manufacturing, Drew Chemical Corporation, Parsippany, N.J., announced the promotion of Anthony Sodano to the position of chief engineer. Mr. Sodano joined Drew in 1976 as senior project engineer. He is now responsible for Drew Corporate Engineering, reporting to Anthony Bianciella, manager, Manufacturing Operations.

A graduate of Newark College of Engineering (B.S.M.E.), Mr. Sodano obtained his M.B.A. degree from Seton Hall University, and is a licensed professional engineer in the State of New Jersey.

Drew Chemical, a subsidiary of United States Filter Corporation, New York, N.Y., is a major supplier of products and services for water management and specialty chemicals for the industrial and marine markets. United States Filter Corporation serves air pollution control, water and wastewater treatment markets and also provides management, engineering, design and planning services for energy and environmental systems.

Fluor Corp. Awarded Louisiana Offshore Oil Port Contract

Fluor Corp. has obtained a contract from Louisiana Offshore Oil Port (LOOP) to provide engineering and construction management services for the new supertanker floating port.

The \$150-million LOOP program is a joint project of Shell, Texaco, Marathon, Murphy and Ashland oil companies. Fluor's Houston office, P.O. Box 36878, Houston, Texas 77036, will do the engineering work.

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ABS President Foresees Trend Toward Nuclear Merchant Ships By 1990

Nuclear-powered merchant ships will sail the oceans by 1990, says **Robert T. Young**, chairman and president of the American Bureau of Shipping (ABS).

Addressing a meeting of the Hong Kong Shipowners Association in Hong Kong, Mr. Young said that "the operating record of the nuclear merchant ships Savannah and Otto Hahn, together with the more than 200 nuclear naval vessels, clearly indicates that the technology exists today to provide sound and reliable nuclear-powered commercial vessels." The U.S.-flag Savannah, built to ABS classification, operated from 1962 to 1970; the West German-flag Otto Hahn entered service in 1968 and is still active.

These vessels, Mr. Young said, "have enabled the shipbuilding industry to gain considerable technical knowledge and experience. This expertise could be readily applied to building nuclear-powered merchant ships."

The ABS chairman cited three major problems that have hindered the advent of commercial nuclear ships: questions concerning economic justification, indemnification and liability in case of damages, and port entry and international clearance. He noted a paradox in commercial nuclear ship development: "On the one hand the real benefits can be known, and the problems be resolved, only after the first few nuclear-powered commercial vessels are put into service; but, on the other hand, no owner is going to build a nuclear vessel and place it in service until the benefits are fairly well known and the associated problems are for the most part resolved."

"There are sizable odds against the future of nuclear-powered merchant ships," he said, "but I would not bet against it. Perhaps they will not be in service by the early 1980s, but it is my feeling that we will see nuclear-powered merchant ships sailing the oceans by the end of the next decade."

In one effort to resolve the problems, Mr. Young reported, governments and private agencies, individually and jointly, are developing proposals regarding nuclear liability, insurance, and standards for design and safety. The Brussels Convention on Liability of Operators of Nuclear Ships, which awaits ratification, would limit owner liability for accidents to about \$500 million. Signatory states would license nuclear ships of their flag and provide indemnification to that limit. "Ratification of the Brussels Convention would be a great boost to the development of nuclear-powered merchant ships," Mr. Young maintained.

Requirements for the design,

safety, and operation of nuclear vessels are being developed by the Organization for Economic Cooperation and Development, which is working with the Inter-Governmental Maritime Consultative Organization, assisted by the International Association of Classification Societies, of which the American Bureau of Shipping is a charter member.

Mr. Young said he believed that the work being devoted to the establishment of standards for design and safety "will meet with success within a few years." He added that ABS is presently updating its "Guide for the Classification of Nuclear Vessels," which was first published in 1962.

Mr. Young said that the con-

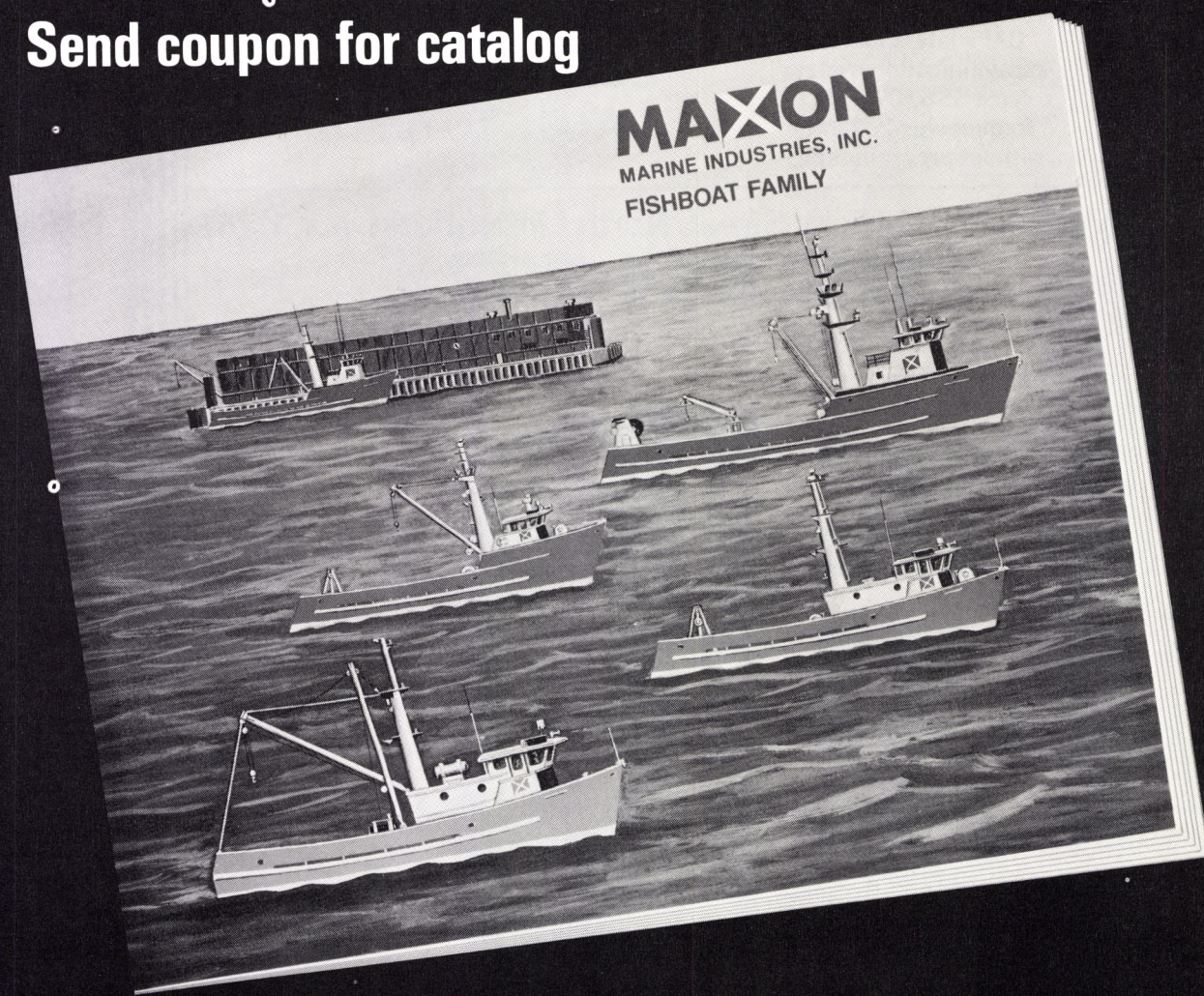
sensus of the maritime industry is that the best candidates for nuclear propulsion are the high-speed and high-powered vessels such as containerships, very large crude carriers, and liquefied natural gas carriers. Also, he added, there are other conceivable applications where conventional power is effectively ruled out, such as Arctic icebreaker tankers.

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Chinese On Worldwide Ship Buying Spree

The Chinese are on a worldwide buying spree for second-hand tonnage. A survey in the issue of ShipStatS Weekly Report (September 2, 1977) notes that since the beginning of May, the Chinese have bought a total of 33 second-hand vessels, amounting to 572,631 deadweight tons, which have cost them a total of \$127.44 million.

The Chinese have for a long time been steady buyers of second-hand tonnage, but in the last year or so have been inactive in the market.

Whether this has been due to internal political uncertainties, shortage of foreign exchange, or — as many market experts believe — they were waiting for the sale and purchase market to bottom out, is not known.

It is the general opinion of sale and purchase brokers, however,

that the price of second-hand tonnage, depressed by the consistently poor performance of the freight market, has just about touched bottom.

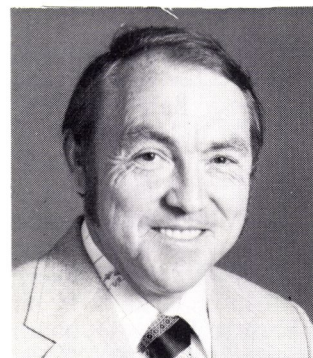
The Chinese, at least, seem to be of this opinion, and for several months now have had several inspection teams looking at tonnage all over the world, but particularly in Europe.

The type of vessels the Chinese seem to be most interested in are good quality 'tween-deck-

ers, generally above 10,000 dwt (although one British liner company has sold them five 7,000-tonners), and between 10 and 12 years old. They have also bought eight bulk carriers of between 20,000 and 40,000-dwt, two from Britain and six from Norway.

How much tonnage the Chinese are after is not known, but it is known that their shopping list is not yet complete, and that they are still looking at more vessels.

J. Barry Handlin Joins Otis Engineering Corp.



J. Barry Handlin

Otis Engineering Corporation, P.O. Box 34380, Dallas, Texas 75234, a Halliburton Company, announces that **J. Barry Handlin** has joined the company as sales consultant for their Special Products Division.

Mr. Handlin will be responsible for expanding Otis's Special Products market, which has centered around marine winching systems and heavy duty industrial winch applications.

Mr. Handlin has an extensive sales and service training and management background from marine equipment industries. Otis welcomes him and looks forward to the expertise he will be able to provide Otis's customers.

Otis Engineering Corporation provides diversified manufacturing and service capabilities in the oil and gas, hydraulics and industrial manufacturing industries.

Berger Group Appoints Apex Marine Corp.

The Maritime Subsidy Board has approved the application by the Berger Group to appoint Apex Marine Corp. as the general agent for the group. This action is intended to consolidate the management of the various Berger companies into one organization.

The Berger Group consists of the following companies: Aries Marine Shipping Company, Aeron Marine Shipping Company, Aquarius Marine Company, American Shipping, Inc., Atlas Marine Company, Pacific Shipping, Inc., and Worth Oil Transport Company. They are headquartered at Lake Success, N.Y.

The Berger Group companies are holders of operating-differential agreements for worldwide bulk transport. Apex Marine Corp., as general agent for the group, is to be staffed with personnel from the existing staffs of the Berger Group companies.



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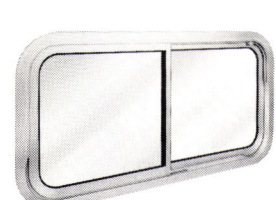
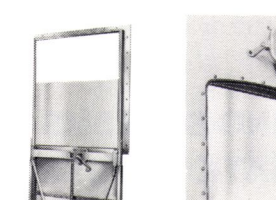
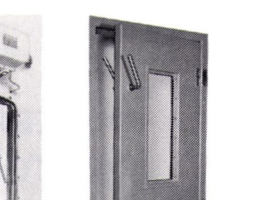
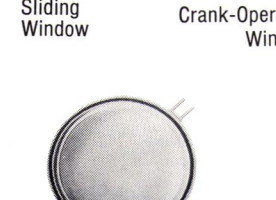

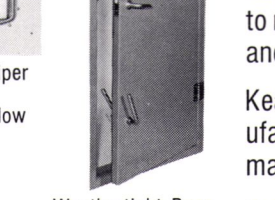
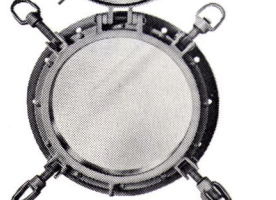
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Mr. Young said he believed that the work being devoted to the establishment of standards for design and safety "will meet with success within a few years." He added that ABS is presently updating its "Guide for the Classification of Nuclear Vessels," which was first published in 1962.

Mr. Young said that the con-

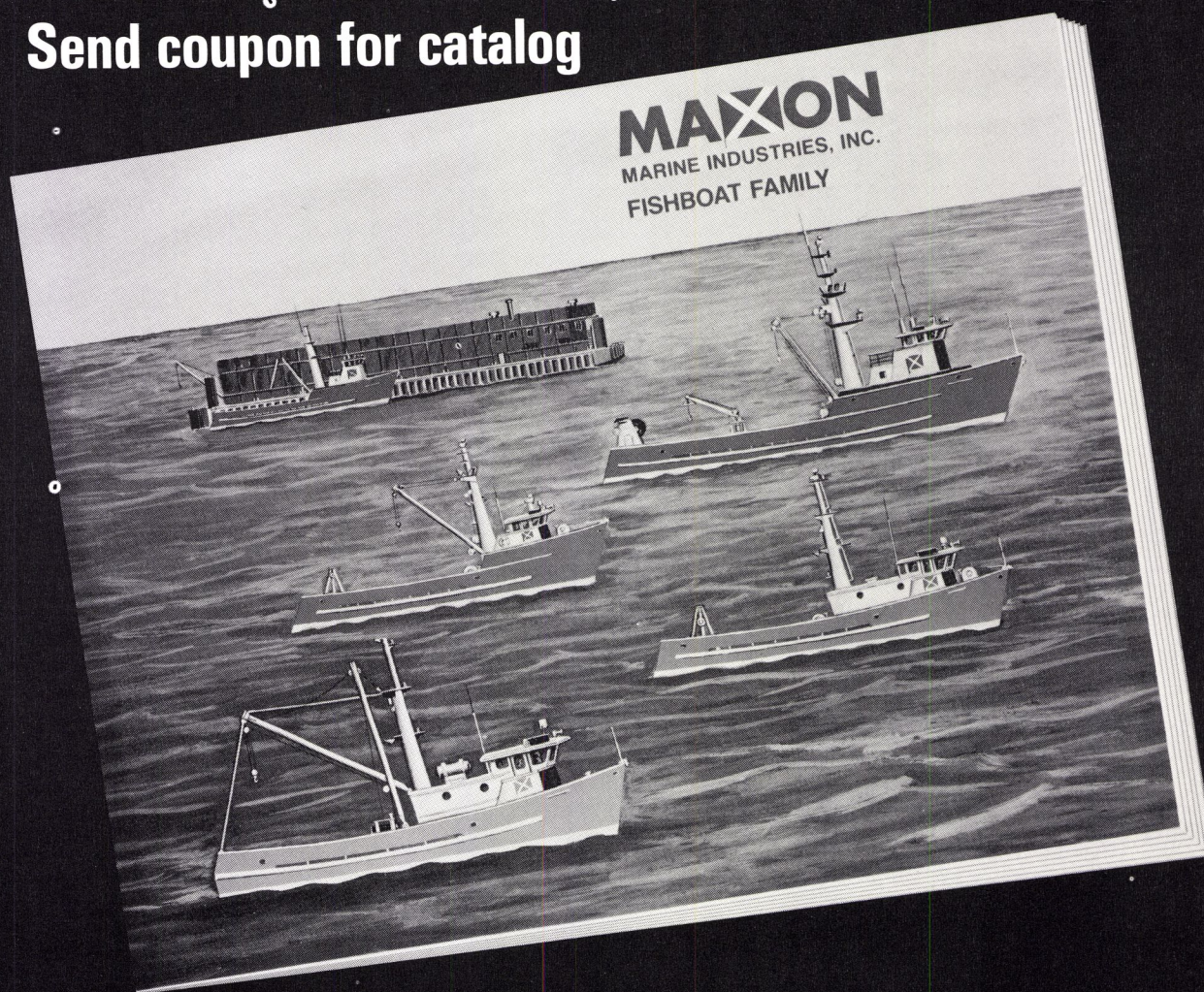
sensus of the maritime industry is that the best candidates for nuclear propulsion are the high-speed and high-powered vessels such as containerships, very large crude carriers, and liquefied natural gas carriers. Also, he added, there are other conceivable applications where conventional power is effectively ruled out, such as Arctic icebreaker tankers.

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Newport News Shipbuilding Receives \$380.8-Million Contract To Build Three Attack Subs

Newport News Shipbuilding & Dry Dock Co., Newport News, Va., has received a \$380.8-million Navy contract for construction of three SSN688-class attack submarines.

The total cost of the subs will be \$1.29 billion, a figure that includes large amounts of expensive equipment provided by the government.

So far, the Navy has ordered 31 of the fast atomic submarines, which are intended primarily to track and destroy enemy subs. Three of the boats, each 360 feet long, have been delivered to the Navy.

Oosterhuis Industries Supplies American Brons Diesel Engines To Five New Offshore Tugs

Five new offshore tugs recently delivered by U.S. shipyards were equipped with American Brons diesel engines from Oosterhuis Industries, Inc. of New Orleans, La. Oosterhuis is the American distributor for Brons and American Brons diesel engines.

Oosterhuis Industries also produces and sells the new American Brons Turbodiesel in 6, 8, 12, and 16-cylinder versions at their New Orleans facility.



Built by Rysco Shipyard of Blountstown, Fla., the 126-foot King's Knight is equipped with Kort nozzles.

Rysco Shipyard of Blountstown, Fla., delivered to King's Marine International Corporation, located in Gretna, La., the M/V King's Knight, a 126-foot, 5,000-hp tug, and the M/V King's Pawn, an 87-foot, 2,500-hp tug. Both vessels are propelled by series GVH American Brons diesel engines that turn, respectively, two 90 by 108 and two 96 by 74 propellers housed in Kort nozzles.


Land and Marine Fabricators of Harvey, La., delivered to Lombas Offshore Marine Services the M/V Lombas Offshore, a 110-foot offshore tugboat powered by series 12 GVH American Brons diesels.

Toche Shipyards of Ocean Springs, Miss., delivered to United Offshore Tugs, Inc. the M/V Lady Elda, a 121-foot offshore tug powered by American Brons diesels that turn two 120 by 80 stainless-steel propellers housed in Kort nozzles, and a sistership to the Lady Elda, also 121 feet long and powered by American Brons diesels.

All of the above-mentioned vessels are equipped with "Westfalia" fuel oil and lube oil separators supplied by Marine Engineering, Inc., also located in New Orleans.

For literature describing the American Brons diesel engines, write to Mrs. Mona Oosterhuis, Oosterhuis Industries, Inc., P.O. Box 30587, New Orleans, La. 70190.

Maritime Reporter/Engineering News



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Fruehauf Corporation Elects John F. Martin



John F. Martin

Robert D. Rowan, president and chief executive officer, Fruehauf Corporation, Detroit, Mich., has announced the election of **John F. Martin** to vice president of the corporation.

Mr. Martin will continue his responsibilities as president of Paceco, Inc., headquartered in Alameda, Calif., and chairman of the board of Paceco International Limited, London.

Paceco, Inc. is the recognized

world leader for container-handling equipment, with manufacturing plants in Alameda, Calif., and Gulfport, Miss.

Armco Offers Free Film For Group Programs

Power squadrons, yacht clubs, commercial boaters and similar groups may want to consider a new movie now available to borrow for fall/winter meeting programs. It is offered by Armco Steel Corporation, makers of AQUAMET Boat Shafting.

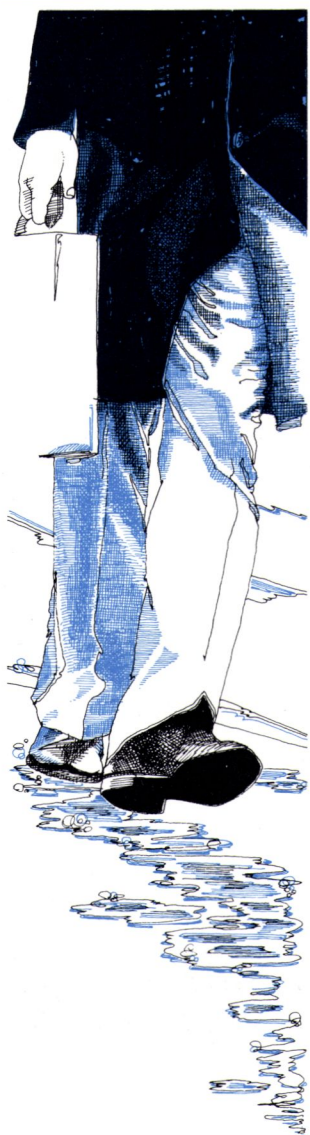
Titled "Building a Daydream Fleet," the low-key 22-minute 16-mm color film is described as both entertaining and educational — with helpful information on proper selection and use of shafting for either commercial or pleasure craft, power or sail. Also offered is a free handout folder of shafting data and tips.

Contact **E.E. Wilkinson**, Steel Marketing, Armco Steel Corporation, Middletown, Ohio 45043, for free scheduling. Qualified groups only.



\$78-MILLION KEEL-LAYING — Representatives of Farrell Lines and Bethlehem Steel mark the keel-laying for the first of two 27,340-dwt containerships to be built at Bethlehem's Sparrows Point Yard, Baltimore, Md. Taking part in the ceremonies were, from left: **Norman Lee**, vice president, Marine, Farrell Lines; **David Watson**, assistant general manager, Sparrows Point Yard; **Capt. Carl W. Swenson**, Farrell's executive vice president, and **Thomas J. Sartor Jr.**, marine superintendent for Farrell Lines. The ships will be 813 feet 3 inches overall, 769 feet between perpendiculars, with a molded beam of 90 feet. The vessels are being constructed at an estimated cost of \$78.3 million each, with a Maritime Administration construction-differential subsidy of \$39.8 million. Their design sea speed will be 22.5 knots. Their turbines are rated at 28,500 shaft horsepower. Each vessel will be capable of carrying, at the 33-foot draft, 1,708 containers, of which 768 may be refrigerated. Space is provided for unitized cargo, and tanks will carry 3,100 barrels of liquid cargo. When completed next year, the vessels will go into service for Farrell Lines between U.S. ports on the Atlantic and Gulf Coasts and Australia and New Zealand.

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Leif Hoegh Orders Two Multipurpose Ships From Japanese Yard

Nedlloyd Inc., 5 World Trade Center, Suite 617, New York, N.Y. 10048, general agents for Leif Hoegh & Company in the USA, have announced that L. Hoegh & Company A/S of Norway (Oslo) recently placed an order with Kawasaki Heavy Industries of Japan for two "Kingsize" multipurpose liner vessels, especially designed for their Round-The-World Service.

These 25,000-dwt vessels which are expected to be delivered during the first half of 1979, will have a bale cubic of 1.3 million cubic feet, including 45,000 cubic feet of reefer space and 50,000 cubic feet deep tank space for liquid bulk cargoes. Being of the lift-on/lift-off open ship type, they will have large twin hatches (length up to 80 feet), capable of handling up to 1,000 TEUS. Special emphasis is placed on the gear, which includes two Stulcken heavy derricks which can lift up to 450 tons. A number of 25-ton twin and single cranes/derricks makes these vessels extremely versatile for the export trade from the U.S. Atlantic, Gulf and Pacific Coast to Indonesian (out) ports, Singapore, Karachi and the Middle East.

Hoegh has an option on two additional sisterships. This addition to their existing fleet of modern liners, presently employed in this Round-The-World Service, will increase service to the American export trade to the above-mentioned areas.

Hyundai Shipbuilding Licensed To Build B&W Diesel Engines

Hyundai Shipbuilding & Heavy Industries Co., Ltd., Ulsan, Republic of Korea, and Burmeister & Wain Engineering Company, Copenhagen, Denmark, have entered into an agreement for the production of B&W diesel engines under license, and the agreement has now been finally approved by the Korean Government.

The license agreement covers the manufacture and sales in Korea of B&W diesel engines below 6,000 bhp for marine propulsion and stationary purposes. The production of B&W diesel engines will take place in new production facilities at present under construction adjacent to the shipyard near Ulsan.

Hyundai Shipbuilding & Heavy Industries Co. is a member of the Hyundai Group, which employs some 80,000 people.

Hyundai's ultramodern shipyard was commissioned early in 1973. It is extremely versatile and can offer newbuildings of

virtually any type and size—from tugboats to ULCCs. B&W type of diesel engines figure prominently as propulsion machinery in the ships that have been delivered and ordered from the yard.

So far, B&W type of two-stroke engines corresponding to almost 600,000 bhp have been installed or are to be installed in newbuildings from Hyundai Shipyard.

The production of diesel engines is planned to commence in the middle of 1978.

World Finance Int'l Names Sayer And Ikeura

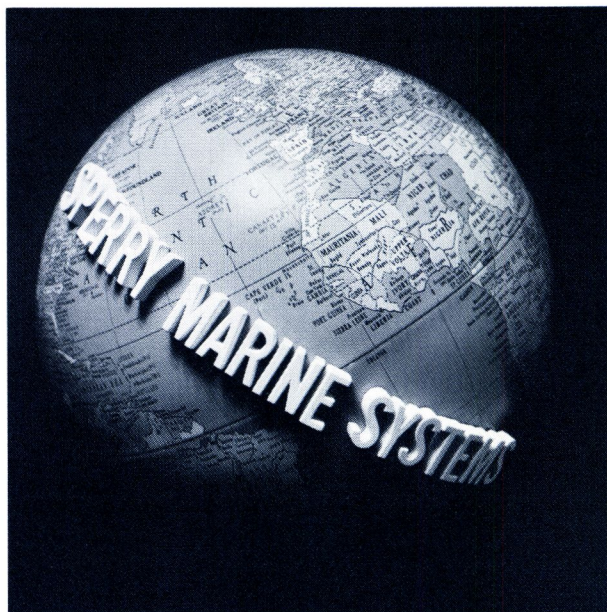
G.M. Sayer, the retiring chairman of the Hongkong and Shanghai Banking Corporation, and Kisaburo Ikeura, president of the Industrial Bank of Japan Ltd., have been appointed joint vice chairmen of the Bermuda-based World Finance International Ltd., a joint venture company among the World-Wide Shipping Group, the Hongkong and Shanghai Bank,

and the Industrial Bank of Japan, which was established in 1972.

The announcement was made by Y.K. Pao, chairman of the World-Wide Shipping Group, who is also chairman of the World Finance International.

Mr. Sayer has also been appointed director on the boards of World Maritime Limited, and World Shipping and Investment Co. Ltd., the two major fleet-owning companies within the World-Wide Shipping Group.

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Chinese On Worldwide Ship Buying Spree

The Chinese are on a worldwide buying spree for second-hand tonnage. A survey in the issue of ShipStatS Weekly Report (September 2, 1977) notes that since the beginning of May, the Chinese have bought a total of 33 second-hand vessels, amounting to 572,631 deadweight tons, which have cost them a total of \$127.44 million.

The Chinese have for a long time been steady buyers of second-hand tonnage, but in the last year or so have been inactive in the market.

Whether this has been due to internal political uncertainties, shortage of foreign exchange, or — as many market experts believe — they were waiting for the sale and purchase market to bottom out, is not known.

It is the general opinion of sale and purchase brokers, however,

that the price of second-hand tonnage, depressed by the consistently poor performance of the freight market, has just about touched bottom.

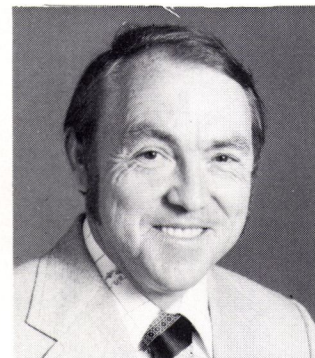
The Chinese, at least, seem to be of this opinion, and for several months now have had several inspection teams looking at tonnage all over the world, but particularly in Europe.

The type of vessels the Chinese seem to be most interested in are good quality 'tween-deck-

ers, generally above 10,000 dwt (although one British liner company has sold them five 7,000-tonners), and between 10 and 12 years old. They have also bought eight bulk carriers of between 20,000 and 40,000-dwt, two from Britain and six from Norway.

How much tonnage the Chinese are after is not known, but it is known that their shopping list is not yet complete, and that they are still looking at more vessels.

J. Barry Handlin Joins Otis Engineering Corp.



J. Barry Handlin

Otis Engineering Corporation, P.O. Box 34380, Dallas, Texas 75234, a Halliburton Company, announces that **J. Barry Handlin** has joined the company as sales consultant for their Special Products Division.

Mr. Handlin will be responsible for expanding Otis's Special Products market, which has centered around marine winching systems and heavy duty industrial winch applications.

Mr. Handlin has an extensive sales and service training and management background from marine equipment industries. Otis welcomes him and looks forward to the expertise he will be able to provide Otis's customers.

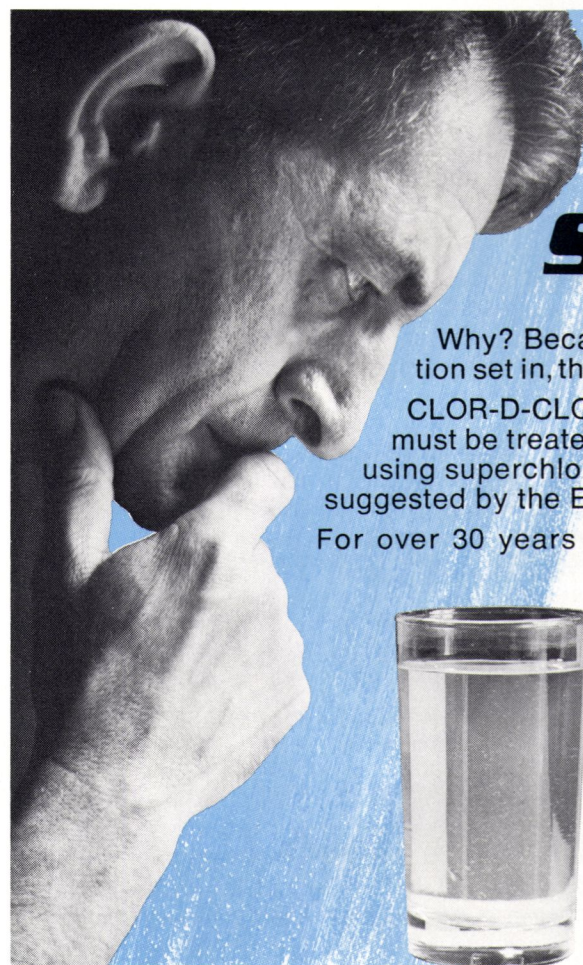
Otis Engineering Corporation provides diversified manufacturing and service capabilities in the oil and gas, hydraulics and industrial manufacturing industries.

Berger Group Appoints Apex Marine Corp.

The Maritime Subsidy Board has approved the application by the Berger Group to appoint Apex Marine Corp. as the general agent for the group. This action is intended to consolidate the management of the various Berger companies into one organization.

The Berger Group consists of the following companies: Aries Marine Shipping Company, Aeron Marine Shipping Company, Aquarius Marine Company, American Shipping, Inc., Atlas Marine Company, Pacific Shipping, Inc., and Worth Oil Transport Company. They are headquartered at Lake Success, N.Y.

The Berger Group companies are holders of operating-differential agreements for worldwide bulk transport. Apex Marine Corp., as general agent for the group, is to be staffed with personnel from the existing staffs of the Berger Group companies.



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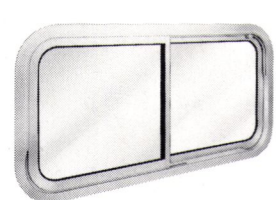
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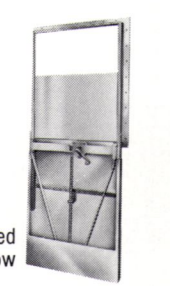
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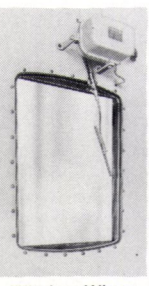
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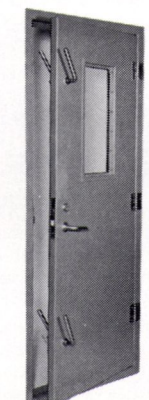
Sliding Window



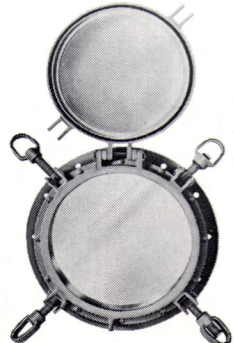
Crank-Operated Window



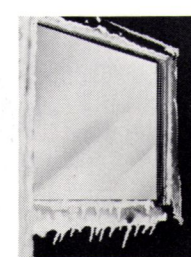
Window Wiper and Fixed Window



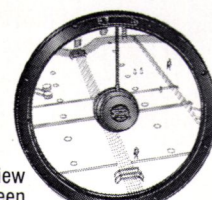
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Intermarine Brochure Fully Describes New Marine Radar

Intermarine Electronics Inc., a company established in November 1976 for the manufacture and distribution of marine electronics, announces the introduction of its first major product, a completely new marine radar, according to **Werner Brack**, president.

The new radar, called the "In-

termarine 705," is a compact two-unit system featuring full performance from 25 yards to 32 miles, with an effective 10-inch picture and innovative solid-state electronics. The inherent reliability and full performance designed in to the Intermarine 705 makes it the ideal radar for yachts, fishing vessels, workboats and off-shore supply boats of every description, and as a secondary radar on major high seas tonnage.

The Intermarine 705 is designed to be trouble-free but easily and economically installed and maintained; the design has been proven on a variety of vessels at sea. Further, each radar is subjected to exhaustive production testing to environmental extremes. However, if service is required it will be provided by a nationwide network of sales and service dealers backed by Intermarine's large inventories of

spare parts and subassemblies. Maintenance is provided under the terms of Intermarine's "limited warranty" certificate for two years on parts and six months on labor.

Intermarine Electronics Inc. is serving the marine radar industry by distributing specialized radar components for a wide variety of radars from various manufacturers in addition to its own "705" equipment.

A brochure that fully describes the Intermarine 705 can be obtained by writing to **D. Keith Dickenson**, executive vice president, Intermarine Electronics Inc., Flowerfield Building 7, St. James, N.Y. 11780.

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Subsidy For Three Tankers Terminated

The Assistant Secretary and Maritime Subsidy Board have rescinded actions of June 30, 1975, awarding construction-differential subsidy for the construction of three 51,000-dwt tankers at Avondale Shipyards, Inc. for Ajax Marine Shipping Co., United Shipping, Inc., and Achilles Marine Co. (in partnership with Aeron Marine Shipping Co.). Authority for operating-differential subsidy, which had been granted on the same date, also was rescinded. In addition, the Assistant Secretary and Board authorized termination of all contracts involved under a CDS contract provision which gave either the Government or the shipbuilder the option to cancel without liability. ODS had been authorized to Ajax, Achilles, and the Athena Marine Company (for United). The CDS contracts totaled \$130.3 million. MarAd's contracted share would have been 35.08 percent. Construction was never begun on either vessel.

Dillingham Ship Repair Facilities Described In Full-Color Brochure

Dillingham Ship Repair's facilities and capabilities are explained and illustrated in a new full-color brochure available on request from Dillingham Ship Repair, Portland, Ore.

Described and illustrated in detail are the drydock, berth, and support facilities available at the Swan Island (Portland) yard, as well as the oily waste disposal and tank-cleaning capabilities. Dillingham's voyage repair capabilities, both on location, and at this freshwater port, are also explained.

Dillingham Ship Repair, a company of the worldwide Dillingham Corporation, is a leader in dollar volume of commercial ship repair work on the West Coast, and has operated in Portland since 1904.

The Dillingham Ship Repair facilities brochure is available free from **Scott Fitzwater**, Dillingham Ship Repair, P.O. Box 4367, Portland, Ore. 97208.



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Northeast Marine Terminal Announces Start Of Affiliate Operation In Savannah, Ga.

F.X. McQuade, president of Northeast Marine Terminal Co., Inc., Brooklyn, N.Y., has announced that a newly formed affiliate—NMT of Georgia, Inc.—has started operations as a complete marine service agency in the South Atlantic Port of Savannah, Ga. The new company, headed by **John B. Hohenstein Jr.**, is located at 920 Realty Building, in Savannah.

"NMT of Georgia will complement our expanding operations with a broad range of services to the maritime industry in the South Atlantic coastal region," Mr. McQuade said. "These will include services as a ship agent, stevedoring, warehousing, export packing, container stuffing and stripping, NVOCC agency representation, local drayage, cargo solicitation and marine consulting," he added.

Mr. Hohenstein, a native of Savannah, is president of Hohenstein Shipping Company, American Maritime Agencies, and Inland Maritime Agencies with offices in Savannah and Atlanta. He is past president of the Savannah Maritime Association and has been actively engaged in South Atlantic shipping operations for 37 years.

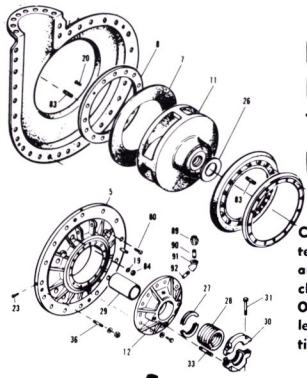
Northeast Marine Terminal Co., Inc. is a 15-year-old independent stevedoring company that operates the largest multipurpose ocean cargo facility in the Port of New York. Located at First Avenue and 39th Street, directly off the main shipping channel on the Brooklyn waterfront, it operates a 140-acre facility that can accommodate up to 11 oceangoing vessels simultaneously. The terminal can handle a mix of containerships, LASH barges, roll-on/roll-off ships and conventional breakbulk craft. It is also the only marine facility in the Port of New York with a roll-on berth open to all vessels.

Hull & Cargo Surveyors Relocate Headquarters

Hull & Cargo Surveyors, Inc. have announced the relocation of their headquarters to 10 Platt Street, New York, N.Y. 10038.

Hull & Cargo Surveyors, Inc., currently in its eighth year as an independent corporation, represents both underwriters and private interests in inspection and servicing of all types of ocean and inland marine risks. The cargoes inspected include a diversified assortment of commodities and industrial equipment, much of the latter related to energy development. The firm also inspects and handles losses on oceangoing barges, tugs, and larger vessels, including supertankers.

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American President Lines Names Capt. E.J. McClafferty

American President Lines has named **Capt. E.J. McClafferty** as managing director-Southwest region. Concurrently, the company announces the appointment of **Nassef Z. Kourey** as director of marketing-Southwest region.

A 16-year veteran of terminal, traffic and vessel operations management at APL, Mr. McClafferty assumes responsibility for all APL activity in southern California and seven Southwest states. Mr. Kourey, formerly managing director of the region, moves to a newly created position.

In making the announcements, G.E. Bart, APL senior vice president-marketing, said: "Captain McClafferty brings to his new assignment a broad knowledge of management experience in the transportation industry which will maximize the efficiency of APL's southern California terminal operations and service to customers throughout the region." As director of marketing, he said, Mr. Kourey will be responsible for intensifying sales efforts in the region.

With American President Lines since 1961, Mr. McClafferty has served in terminal, traffic and operations positions domestically and overseas, including five years in Japan directing APL operations in the Far East. Most recently, he served as assistant managing director-Atlantic region. Mr. Kourey, who joined APL in 1965, has held sales and marketing management positions in the Midwest, Pacific Northwest and Southwest.

Mr. McClafferty and Mr. Kourey will be located in San Pedro at APL's southern California terminal complex, Port of Los Angeles.

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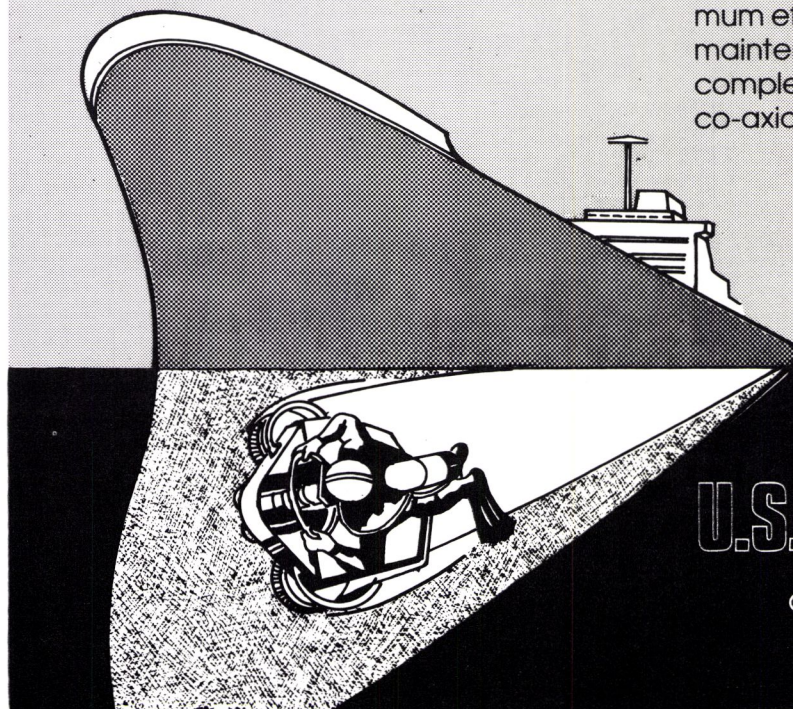
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Maine Maritime Academy Shipping Management Seminar Labeled Outstanding Success

The recently concluded Shipping Management Seminar co-sponsored by Marine Management Systems, Inc. of Stamford, Conn., and the Maine Maritime Academy, signaled the beginning of a new development at MMA, a Center for Advanced Maritime Studies in Castine.

Although plans are still in the formative stages, Academy Superintendent Rear Adm. E.A. Rodgers remarked: "This five-day seminar represented a giant step forward toward our goal to develop a year-round advanced maritime management education and training center in Castine." Rear Admiral Rodgers further stated that this venture has the full approval and support of our board of trustees.

The course, well-attended by key personnel of a large number of major shipping and oil companies based in the United States and abroad, was labeled an outstanding success by Academy and Marine Management Systems officials.

Eugene D. Story, president, Marine Management Systems, Inc., and three vice presidents of that company, David J. Noonan, William Oakes and Robert D. Ohmes, designed the course to meet the need for improved management information systems within the tanker/bulk carrier industry. Assisting these four as the seminar staff speakers/instructors were Frank X. Lang, manager, finance and planning of Norsk Pacific Steamship Co., Ltd. (subsidiary of Crown Zellerbach International), and Capt. David Moreby, Head of the School of Maritime Studies, Plymouth Polytechnic, Plymouth, England.

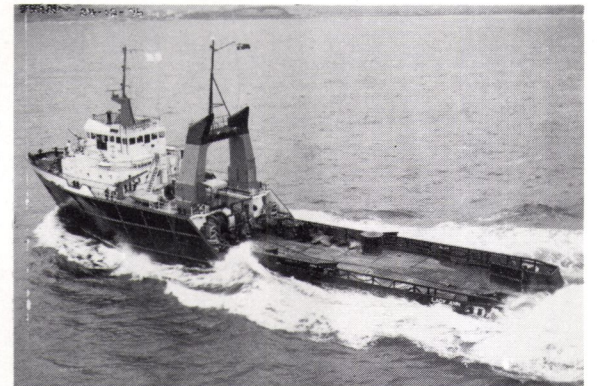
Seminar topics included: an Introduction to Marine Information System requirement for the Tanker/Bulk Carrier operations; covering fundamentals of a management information system and applications to the planning function, chartering, ship scheduling, ship operations, accounting and financial controls. Attendees went away with a solid hold on these subject areas, which will permit them to determine and specify their own system requirements. Another Seminar is planned for 1978.

Carrington Tomago Yard Busy Building Tugs, Offshore Supply Vessels And Dredgers

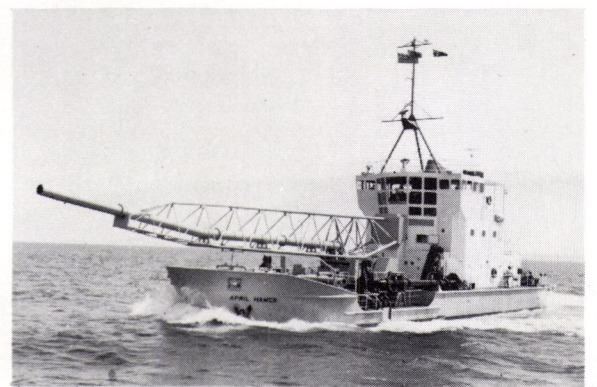
Last year, 10 vessels were launched by the Australian shipbuilder Carrington Slipways at their Tomago shipyard on Old Punt Road, Tomago, New South Wales, Australia 2322. The three vessels shown below are typical of the 10 launched in 1976.



The M/T Broadsound, a 115-foot twin-screw tug powered by two 2,800-shp engines producing a bollard pull of 75 tons, is fitted with a high-pressure foam/water/jet spray fire monitor installed atop the wheelhouse. The tug was built for J. Fenwick & Co., Tugmasters of Sydney, Australia, for service in Hay Point, Queensland. Ten tugs have been built in all by Carrington Slipways for Fenwick. The M/T Broadsound was launched in December 1976.



The M/V Lady Ann, a 199-foot oil-rig supply vessel designed to work with the new generation, large deep-water drilling rigs, is powered by four 1,600-shp Daihatsu engines. The M/V Lady Ann was built by Carrington Slipways for Australian Offshore Services, the 10th oil-rig supply vessel to be built for this owner. She was launched on July 8, 1976.



The M/V April Hamer, a 147-foot suction sidecasting dredger, is capable of an output of 841 cubic yards per hour with two pumps operating in parallel. Built for the Victorian Public Works Department, the M/V April Hamer was launched in August 1976.

INTEROCEAN MANAGEMENT EQUIPS TANKER FLEET WITH KRUPP ATLAS RADARS! ATLAS 6500 BCA



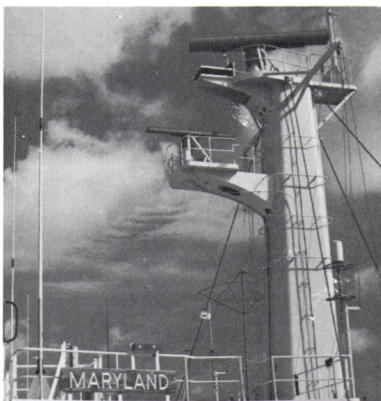
ATLAS 16 in. Radar Display on Bridge of S/S Maryland

After extensive tests and evaluations of Krupp ATLAS 16 inch radars on the U.S. flag tankers S/S ALLEGIANCE (34,800 DWT) and S/S MARYLAND (264,000 DWT), Interocean Management Corp., Philadelphia, decided to install ATLAS radars on a fleet wide retrofit program. On several of their U.S. flag vessels which went into service only last year, the radar equipment originally supplied was replaced by ATLAS radars. The ATLAS radars were supplied through Electro-Nav, Inc., New York.

Because of their proven reliability, Interocean Management Corporation selected the ATLAS 16 inch radars with Basic Collision Avoidance features, types ATLAS 6500 BCA (3 cm, X-Band) and ATLAS 6500 S BCA (10 cm, S-Band). These radars feature:

- Automatic target detection at preset ranges with Dual Guard Zones
- Fast measurement of target range and bearing through electronic VRM and Electronic Bearing Marker (EBM)
- Easy plotting and fast situation assessment with reflection plotter and digital plot clock
- Checking of most threatening target through compass stabilized EBM
- Superb picture quality on all ranges from .3 to 72, nm through unique fully solid state transceivers for both X-Band and S-Band

For full collision avoidance capability, the ATLAS radars can be interfaced with Iotron, Sperry, or other collision avoidance systems. Full interswitching of the transmitters is available.



Mast with ATLAS S-Band & X-Band Antennas



Interocean Management Corporation Tanker S/S Maryland



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Only the McNab Torque Meter System is accurate enough to be the *standard of sea trials.*

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Full-size, smooth-reading digital display in a sea-proven marine cabinet (18" x 9" x 20") for console or bulkhead mounting.

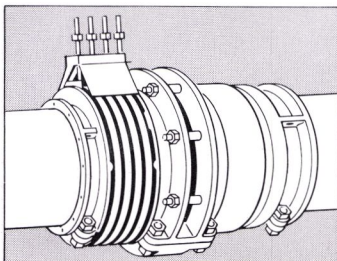
IT WORKS!

McNab Mark II torque and shaft horsepower systems offer the same sturdy husk and the same transducer system used in sea trials. When millions of dollars hang in the balance, virtually every U.S. shipyard relies on McNab equipment because it works!

Mark II now adds modern, solid-state electronics to the indicator panel, giving you greater operational benefits than ever before.

In addition, it offers:

- New proprietary circuitry that reduces slip-ring maintenance by 98% over non-Mark II designs.
- Large sampling area that assures accurate input data.
- Simplified design so ship's electrician can handle all operational maintenance.



Whether manufactured in the United States or abroad, the rigid McNab husks, with their micrometer accuracy, provide the precision data that makes Mark II WORK!

PLUS...

- A husk-mounted mechanical calibration unit for cross-checking that what is *read* as torque is in fact the *true* torque on the shaft.

The Electronics

Integrated circuit amplifiers give high stability. Permanent memory properly matches shaft characteristics. There is a full-range, adjustable, over-torque alarm circuit, and a power failure alarm circuit. Special outputs provide direct feed to computer/data logger. And, a sea trial switch for shipyard manual operation means flexibility.

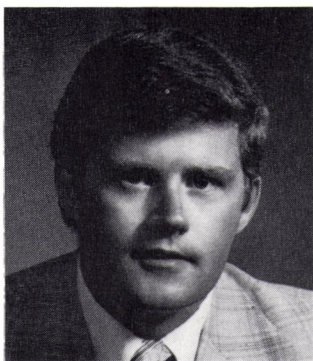
For more information on the SHP system that WORKS, together with complete details on technical services here and abroad, contact:



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**Union Mechling Corp.
Subsidiary Names
James Crowley**



James K. Crowley

James K. Crowley has been appointed manager of the Chicago Barge Terminal of Union Mechling Corporation, Dravo Corporation's subsidiary barge line.

Mr. Crowley will be responsible for operations of the Chicago, Joliet, and Hennepin Terminals of Marine Transit Company, a subsidiary of Union Mechling.

Mr. Crowley, a graduate of Lewis University with a degree in business administration, also attended Moraine Valley Junior College, where he worked toward an associate degree in transportation.

Mr. Crowley joined Union Mechling in 1967, and most recently served as assistant to the Chicago Terminal manager.

**Nuclear Merchant Ship
Environmental Impact
Analysis Published**

"Environmental Impact Analysis (EIA) of the Nuclear Merchant Ship Program — Addendum," a report released by the Maritime Administration, extends the 1975 "Environmental Impact Analysis" which MarAd published, to cover a container-ship, a bulk cargo vessel, and an icebreaking oil tanker, in addition to the ultra large crude carrier (ULCC) included in the earlier report.

The hypothetical ULCC on which the earlier EIA was based would most likely travel between offshore terminals in the Persian Gulf and terminals along the North Atlantic or Gulf Coasts of the United States. Other types of vessels, such as the container-ship or bulk cargo vessel, would operate in different environments. These environments and the effect which nuclear merchant ships would have on them are discussed in the addendum. Ecological impacts of the other types of ships would be somewhat greater than those of the ULCC because of the greater abundance of aquatic organisms at the coastline. However, these impacts can be kept within guidelines established for land-based nuclear powerplants, the report concludes.

A nuclear-powered icebreaking oil tanker operating in the Arctic, the report states, would be ex-

pected to have significant adverse environmental impact only in the case of an oil spill and particularly during the relatively short period of rapid biological activity during the summer.

"Environmental Impact Analysis (EIA) of the Nuclear Merchant Ship Program — Addendum" may be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161 for \$6 per copy. The order number is PB 268814/AS.

**New Hoffert Warehouse
Storage Center For Mobil
Chemical Coatings Line**

Hoffert Marine, Inc., has added a new warehouse at Parker and Wamboldt Streets, Jacksonville, Fla., to be used as a storage distribution center for Mobil Chemical Company's marine and industrial coatings and finishings.

Although Hoffert Marine has been handling Mobil finishes since 1974, the Jacksonville marine and

industrial supply firm will now also carry the Mobil industrial line of coatings for Florida and south Georgia in the clear span 20,000-square-foot warehouse.

Hoffert Marine will continue to maintain its headquarters and repair facilities at 1700 East Church Street, in addition to the new warehouse. The Jacksonville-based firm also has offices in Lyndhurst, N.J., serving the Port of New York and New Jersey; Norfolk, Va., and Houston, Texas.

A new generation of radar from Raytheon.



Packet Offered On Hiring Filipino Seamen

In conjunction with its two-month exhibit at the Philippine Center, 556 Fifth Avenue, New York, N.Y., the National Seamen Board of the Philippines will provide a free information packet to anyone interested in learning more about the growing role of Filipino mariners in the international maritime industry.

The information packet contains an eight-page, four-color brochure that covers Philippine seafaring history, a review of the reasons why Filipino seamen are the most sought after in the world today, and a description of their training programs.

In addition, the packet includes detailed information inserts on the "Rules and Regulations in Recruitment and Placement of Filipino Seamen Aboard Foreign-

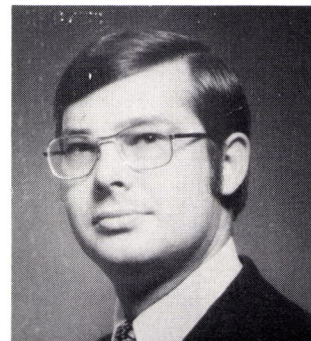
Going Ships"; "Employment and Protection of Filipino Seafarers"; "Filipino Seafarers the World Over," and "A Primer of the National Seamen Board."

A directory of registered manning agents in the Philippines and a list of International Philippine Labor attaches who can be contacted by shipowners who wish to make their shipboard operations more profitable are also included.

For your free kit, write the

National Seamen Board, Philippine Center, 556 Fifth Avenue, New York, N.Y. 10036, on your company letterhead.

R. Hugh Cunningham Named Vice President Marine Transport Lines



R. Hugh Cunningham

R. Hugh Cunningham was named vice president of finance for Marine Transport Lines (MTL), the ocean shipping subsidiary of GATX Corporation, it was announced by Fred S. Sherman, chairman of the board of MTL.

Mr. Cunningham, 35, received his B.A. degree from the University of Washington in 1964, and his MBA degree in 1969. He also did graduate work in psychology at the University of North Carolina.

MTL owns and operates tankers and dry bulk carriers, and is a major factor in chartering oceangoing vessels.

Caterpillar Names G.S. Brink Manager Promotion Services



G.S. Brink

G.S. (Gerry) Brink has been named manager of Promotion Services Division, Marketing Department, Caterpillar Industrial Division. He will be responsible for that division's advertising, news service, and sales training.

Mr. Brink, 42, is a Texas A & M University graduate with a B.S. degree in industrial technology. He joined Caterpillar in 1956 and has held numerous positions in sales and marketing. He has been a director of Caterpillar Mitsubishi Ltd., headquartered in Sagami, Japan; national account manager, Towmotor Corporation; assistant sales manager of Northeastern machine sales, U.S. Commercial Division; and most recently, assistant manager, materials development, sales training, General Offices.

American-made Raytheon Mariners Pathfinder Radar Systems offer the brightest, sharpest picture ever, even in bright daylight.



Raytheon offers a new generation of radars designed and engineered for today's commercial needs. These new Raytheon Mariners Pathfinder Radar Systems offer a remarkable list of outstanding advantages.

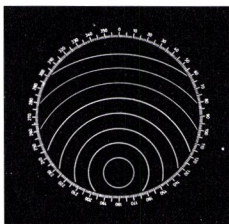
1. Bright Display. The unique crispness, brilliance and clarity of the Mariners Pathfinder 12" or 16" display are what set it apart from all the other marine radars. This is a picture you read easily in daylight without a viewing hood. As a result, two or more ship's officers are now able to view the screen at any time for surer, more positive judgements.

2. U.S. Coast Guard Dependability. Mariners Pathfinder Systems are designed to meet the rigorous performance standards of the United States Coast Guard. After extensive sea trials, Raytheon Mariners Pathfinder Systems have been installed and are in use aboard many U.S. Coast Guard patrol vessels. The total Coast Guard commitment calls for over 200 of these dependable

radar systems to be installed. Raytheon understands your needs and we know dependability is your greatest need.

3. Higher Power. Raytheon's new radar systems feature increased power. This new generation offers 50KW and 60KW, 3cm and 10cm band transmitters for increased range and target detection.

4. Superior Capabilities. An offset feature extends the forward view up to 70% without picture compression. Available full interswitch system allows complete freedom of operations between 3cm and 10cm radars. An Interference Reject System to eliminate interference from radars operating aboard nearby ships is easily added, as is Raytheon's unique True Motion/Anti-Collision System. Modular construction reduces spare parts requirements and speeds serviceability.



5. International Service.

Raytheon maintains the equipment you buy with a worldwide service organization of facilities and trained personnel second to none. Our commitment to service extends backward in time, as well as forward, covering earlier generations of



Raytheon radars and this, the new generation of radar from Raytheon.

6. Technological Leadership. Raytheon's background in the design and manufacture of radar systems is overwhelmingly extensive, and goes back some 45 years. Raytheon radar technology includes the development and production of early warning radar, harbor control radar, air traffic control radar, long-range surveillance radar for the military, airborne radar, and phased array radar. To our knowledge, this is a record that no other manufacturer can match.

For complete information on this new generation of radar from Raytheon, contact the Raytheon Office nearest you. Response will be immediate and complete.

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Manchester, NH 03103 USA
Telephone: 603-668-1600
Telex: 94-34-59

Raytheon Copenhagen
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Telephone: 57-06-11
Telex: 855-19373

Raytheon Marine Ltd.
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Westminster, London
SW1 P2NX
Telephone: 828-6172
Telex: 851-919-571

Raytheon Overseas Ltd.
Fifth Mori Building
Torandmon, Minato-Ku
Tokyo, Japan
Telephone: 591-7813
Telex: 781-222-3068



See Raytheon's new Mariners Pathfinder Radar at the Offshore Technology Conference, May 2-5

Maritime Industry Metric Conversion Study Is Available

The Maritime Administration has released a technical report, "Metric Conversion Study for the Maritime Administration," prepared by J.J. Henry Co., Inc., Arlington, Va. The study contains the master plan which J.J. Henry developed for the use of the Maritime Administration in assuming the lead role in metrication among

the Federal agencies concerned with the maritime industry. That role was suggested by the Maritime Transportation Research Board's Panel on Metrication in the U.S. Maritime Industry.

The report indicates that it will take 28,300 man-hours and 10 years for the Maritime Administration to facilitate metrication in the industry. It suggests a gradual, industry-directed phasing-in of the metric system, coordinated and facilitated by MarAd. This can be accomplished,

the report states, through greater MarAd participation in the American National Metric Council, particularly its Marine Sector; an increased role and participation in the government Interagency Metrication Group; a metrication liaison with the Coast Guard and the U.S. Navy; and the publication and circulation of a Maritime Metric Practice Guide to assist in obtaining a uniform metric practice in the industry.

The report may be ordered from the National Technical Informa-

tion Service, 5285 Port Royal Road, Springfield, Va. 22161, for \$4.50 per copy. Its order number is PB-271096/AS.

Interocean Conducts Inert Gas Course

Interocean Management Corporation, Three Parkway, Philadelphia, Pa. 19102, recently arranged the first "Inert Gas and Supporting Systems for Tanker Safety" training course to be offered in the United States. The four-day course is for deck and engineering officers sailing on new American-built VLCCs using flue gas as inert gas. Shore-based operational and engineering staff also attended.



Course lecturers Capt. Peter Ward of the Southampton School of Navigation, left, and Maj. Don Brown of Wilson Walton International, discuss aspects of inert gas plants.

Two experienced instructors were provided by Wilson Walton International Limited of Croydon, England, and the Southampton School of Navigation of Southampton, England. The course covered general aspects of inert gas, including reasons for use, sources and composition of inert gas, and the design and operation of various inert gas plants. Atmosphere control and use of the inert gas during all phases of loading/discharging, tank washing, gas freeing and crude oil washing were discussed. Primary emphasis was on the safe operation of the inert gas system and the safety of personnel.

A total of 43 officers attended, 20 from Interocean management who operate three American VLCCs, 20 from Gulf Trading and Transportation who recently took delivery of their first American VLCC, and one from another independent tanker owner. An MEBA District 2 instructor and a firefighting specialist from the U.S. Coast Guard in Washington attended as guests of Interocean Management.

Costs of the course other than wages of the attendees were split equally by Interocean Management Corporation and Gulf Trading and Transportation Company. Plans are being formulated to conduct this course again in the near future.

The more formidable the task, the better equipped we are to handle it!



Gulf Of Mexico
Gulf Mississippi Marine Corporation
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New Orleans, La. 70112, U.S.A.
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North Sea
Gulf Fleet U. K., Inc.
64 Commercial Street
Leith, Edinburgh, Scotland
Telephone 031-554-0693

Persian Gulf
Gulf International Marine Corporation
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United Arab Emirates
Telephone: 31200

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University Of Michigan Naval Architects Annual Alumni Dinner Nov. 10

The Annual Dinner of the Naval Architecture and Marine Engineering Alumni of The University of Michigan will be held in New York City on Thursday, November 10, 1977, at the Cambridge Room, Lower Concourse of the International Building, 630 Fifth Avenue, between 51st and 52nd Streets. The reception will start at 6 p.m.

Please note that this dinner will take place during the Annual Meeting of The Society of Naval Architects and Marine Engineers on the night before this Society's Annual Banquet.

Those interested in obtaining tickets for the dinner should contact **Lester Rosenblatt** of M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013. All Michigan alumni, family and friends are welcome.

MarAd To Study Liner Segment Of U.S. Merchant Fleet

Harbridge House has been contacted by the Maritime Administration to perform what may be one of the most far-reaching studies ever of the liner segment of the U.S. merchant fleet.

The study will explore the berth line operators in, basically, three possible economic settings:

1. Continuation of the existing "open" conference system.
2. A "closed" conference system such as exists in many foreign-to-foreign trades.
3. Removal of antitrust immunity from the existing rate-making conference systems to make for a more competitive environment.

Harbridge House, a major economic consultant firm with experience in ocean shipping, has put **Raymond J. Waldman**, former Deputy Assistant Secretary of State for Transportation and Communications, in charge.

The study, to be completed sometime next year, will shy away from concrete proposals, but will forecast the likely future impact on U.S. liners of the three different conference situations.

The study could well be completed about the time Congressional committees, especially the House Merchant Marine and Fisheries Committee, begin to turn their attention to other areas of the U.S. merchant fleet besides tankers.

U.S.-flag liner companies increasingly participate in cargo pools and cargo-sharing arrangements with Federal Maritime Commission (FMC) approval.

They also have been increasingly concerned at what they conceive to be a too accessible U.S. trade where virtually all comers are free to move in and out as shipping markets weaken and strengthen elsewhere.

The consequence is, in their view, that the U.S. foreign trades have become a "dumping" ground for surplus tonnage with the result that as rates in the U.S. trades tend to become depressed and cargo scarcer, hard-pressed carriers then begin to indulge in cargo-attracting measures—such as rebating—which are illegal and are currently under intensive scrutiny by FMC.

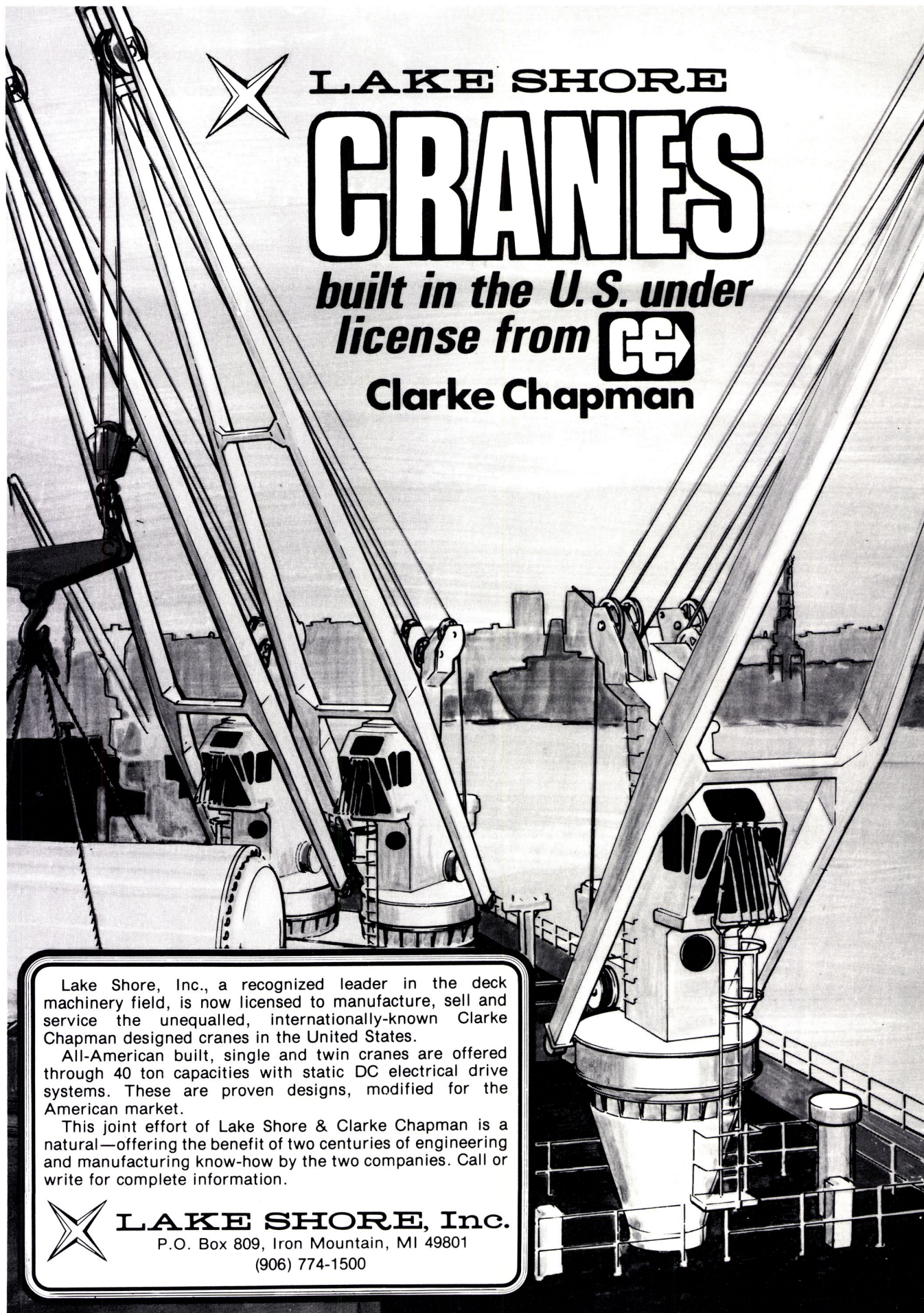
Rep. **John M. Murphy** (D-N.Y.), of the House Merchant Marine

and Fisheries Committee, has completed an extensive two-year study of all aspects of the ocean shipping industry.


He has indicated he plans to examine the possibility of changes in the regulation of conference systems, including the so-called closed conferences which are empowered to limit severely the admission of new lines to these rate-making bodies.

The Harbridge House study will examine the more specific recent

developments in the liner trades such as cargo sharing, the "dumping" of surplus foreign-flag carriers into the "open" U.S. trades, and the pending code of liner conduct, worked up under United Nations auspices, which is intended to give merchant fleets of underdeveloped countries a competitive chance against the fleets of established maritime countries by a universally agreed-to cargo sharing system.




LAKE SHORE CRANES

*built in the U.S. under
license from* 
Clarke Chapman

Lake Shore, Inc., a recognized leader in the deck machinery field, is now licensed to manufacture, sell and service the unequalled, internationally-known Clarke Chapman designed cranes in the United States.

All-American built, single and twin cranes are offered through 40 ton capacities with static DC electrical drive systems. These are proven designs, modified for the American market.

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G.E. 1500 KW A.C. TURBO GENERATORS

- 1 1500 KW — 450/3/1200 RPM — 0.8 P.F. — 2450 amps — 525 PSI — 850° TT — 8145 RPM — 11-stage geared 8145/1200 — type FN4 — 3 1/2" steam inlet. Unit will deliver full power at 440 lbs & 760° TT. OAL 16' 3-3/8" — OAW 6'6" — OAH 7'5 1/4" — wt. 36000 lbs. Almost equal to new. Very little use. With ABS or Lloyds.

G.E. 600 KW GEARED TURBO GENERATORS

- 2 450/3/60/1200 RPM — 961 amps — type ATL — 0.8 PF. TURBINE: FSN-FN-20 6-stage — 525 lbs/825°F — superheat 355°/371°F. GEAR: 10033/1200 — RPM 10033 — total — 6390 lbs. steam/hr. steam flow.

G.E. 400 KW TURBO GENERATORS

- 3 450/3/60/1200 — 0.8 PF — 641 amps. TURBINE: 6-stage — 10059 RPM — 525 lbs/825° TT — type GE 618N. Steam rate 5100 lbs/hr. — OAL 10' 10 1/2" — OAW 4' 10 1/2" — OAH 5' 5 1/4" — wt. 14,855 lbs.

400 KW WESTINGHOUSE TURBO GENERATOR SETS FOR BETH-SPARROWS POINT HULLS 4467 TO 5400; QUINCY HULLS 1600 SERIES

- 4 400 KW (500 KVA) — 0.8 PF — 1200 RPM — 450/3/60. TURBINE: 585 lbs — 840° TT — 28 1/2" vacuum — 9018 RPM — serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA — 400 KW — 450 volts — 641 amps — 0.8 PF — 3-phase 60-cycle — 1200 RPM — CR 40° — excitation amps 41 — excitation voltage 120. Instruction book 5442. Switchgear available.

UNUSED WESTINGHOUSE 60 KW 120 VDC M-20-EH

- 5 120 VDC — 1800 RPM. TURBINE: M-20-EH — 20 lbs dry & saturated — 25" vacuum. 7283 RPM. GEAR: 7283/1800. GENERATOR: 60 KW — 120 VDC — 500 amps — SK — stab. shunt wound.

UNUSED 500 KW DELAVAL-WESTINGHOUSE GEARED TURBO GENERATOR

- 6 GENERATOR: Westinghouse 500 KW — 120/240 volts DC — 2080 amps — 1200 RPM — stab. shunt. TURBINE: DeLaval — 730 HP — 440 PSI working pressure condensing. Temperature 740° — 9977 RPM. HELICAL GEAR: 9977/1200 RPM. Serial # of turbine 245204 — weight 22,000 lbs.

TURBINES & ROTORS

BETH-SPARROWS POINT, QUINCY HULLS

- 7 1 HP Turbine or rotor — Bethlehem
1 400 KW Stator only — Westinghouse
1 HP turbine casing only — Bethlehem
1 Complete Westinghouse 400 KW turbo generator set
1 Forced draft motor fan
1 Anchor windlass — 2 11/16"
Steering gear motors — 15 HP
Forced draft fan impeller

WESTINGHOUSE C-25 CARGO PUMP TURBINE ROTOR VICTORY-AP2 MAIN PROPULSION

- 8 Westinghouse AP2 19-stage HP rotor for 6000 HP Victory — serial #4A-2079 — equal to new. Unused surplus AP2 — Victory Ship complete HP & LP turbines
Allis-Chalmers HP & LP
Westinghouse LP AP2 with throttle valve
G.E. HP & LP with throttle valve

VICTORY-AP3 MAIN PROPULSION NEW 8500 HP G.E. TURBINES

- 9 Large Victory or C-3
HP #72271 LP #72272
10 Boxes spare parts, tools & fittings. With maneuvering valves.

8500 HP G.E. — C-3 OR VICTORY

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

VICTORY SHIP AUXILIARY TURBO GENERATOR SET ROTORS

- 11 300 KW 5965 RPM JOSHUA HENDY
Turbine — 3H-69 Gear — 52269
Turbine — 3H-52 Gear — 52252
Turbine — 3H-62 Gear — 52262
ALSO WESTINGHOUSE 2A & 5A SERIES

— FOR T-2 VESSELS —

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

538 KW WESTINGHOUSE T-2 AUXILIARY GENERATOR — COMPLETE

- 13 TURBINE: 538 KW @ 5010 RPM — 438 PSIG — 750° TT — 28 1/2" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW — 450/3/60/1200 — 0.8 PF. DC EXCITER: 32.5 KW — 120 volts (variable voltage) — shunt — 4-pole — DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

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

- 14 10-Stage — 435# — 720° TT — turbine complete with rotor — serial #109166 — 4925/5400 KW — 3600/3720 RPM — 28.5" vacuum.

WESTINGHOUSE MAIN PROPULSION STEAM TURBINE WITH ROTOR EX-CHEVRON VESSEL "MACGAREGILL"

- 15 Shrouded — like-new condition. Will sell rotor separately. WESTINGHOUSE MAIN PROPULSION TURBINE Ex "Pecos" — unshrouded — serial 2A-7733-2 type A

UNUSED G.E. MAIN PROPULSION STATOR

- 16 Type ATB-2 — serial #6978272. 2300/2370 volts — 60/62 cycles — 3-phase — 3600/3720 RPM — armature amps 1237/1315 — 4925/5400 KW — 1.0 PF. Westinghouse stator — from Ex "Pecos"

WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE

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

538 KW WESTINGHOUSE AUXILIARY TURBINE ROTORS

WESTINGHOUSE T-2 TANKER MAIN GENERATOR COOLERS & MAIN MOTOR COOLERS

- 19 Reconditioned — with A.B.S. Units all ready to ship. Also G.E. Main Generator Coolers

G.E. 525 KW AUX. GENERATOR EXCITER ARMATURE

- 20 75-55 KW

NEW STYLE AMPLYDINE

- 21 5LY148A2 — type A.M. — frame 605

AUXILIARY GENERATOR ROTORS

- 22 G.E. aux. generator rotors — DORV-325M — for 525 KW turbo generator sets

T-2 MAIN CARGO PUMPS

- 23 Ingersoll-Rand 6GT — 2-stage — bronze — 2000 GPM — 280' head

LATEST DESIGN 5-SPEED FORCED DRAFT FAN MOTORS

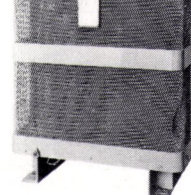
- 24 G.E. Model 5M505FE-1 — frame 5055 — type M — 440/3/60 — serial S.E.6731807. Controller available. (Complete with fan impeller)

T-2 SHIPS SERVICE AIR COMPRESSORS

- 25 Worthington — 5 1/2 x 3 1/2 x 3 1/2 — VA2 — 20 C.F.M. — 100 lbs. — 5 H.P. Motors — 440/3/60 — 1750 RPM.

WESTINGHOUSE DRY TYPE T-2 CARGO PUMP TRANSFORMERS

- 26 200 KVA — single phase — 60 cycle 2300/450 volts — weight 3720 lbs. each. 4 available.



G.E. PYRONOL OIL COOLED TRANSFORMERS

- 27 200 KVA — single phase — 60 cycles — 2300/450 volts — 3 available.

MISCELLANEOUS DRY-TYPE TRANSFORMERS

- 28 Lighting Transformers — 15 KW — 450/120 volts
Galley Power Transformers — 15 KW — 450/220 volts

INGERSOLL-RAND 14,000 GPM MAIN CIRCULATOR

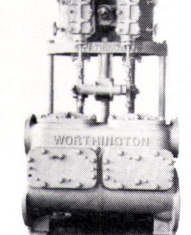
- 29 14,000 GPM @ 25' head — model 24UCM — bronze — with 125 HP 440/3/60 580 RPM motor. 26" suction — 24" discharge. Can furnish with Westinghouse type CS frame B-876C or GE type KF vertical motors.



PUMPS

BRONZE T-2 TANKER STRIPPING PUMPS

- 30 14x14x12 — 700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.



G.E. 200 H.P. CARGO PUMP MOTORS

- 31 440/3/60/1750 RPM — 40° — Frame 557-Z

MISSION TANKER T2SEA2 CIRCULATING PUMP MOTOR

- 32 150 HP — 440/3/60/590 RPM. Frame 6335 — type KF — 204 amps

T-2 MAIN ROTOR

- 33 LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR



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

T-2 MISCELLANEOUS, PUMPS ETC.

- 34 10 HP Labour Self-Priming Bilge Pumps • Rudder 13 1/2" Rudder Stocks • Main Injection 3-Way Valve Main Condensate Pumps • Fuel Oil Service Pumps Magnablast Breaker • 1 Set New Bull Gear & Pinion for G.E. 525 K.W. Diesel Gen Model S-162 • 32", 24", 15" Rubber Expansion Joints • Mission Tanker Steering Gear Pumps

TURBINE FIRE PUMPS — BRONZE

- 35 Worthington turbine — 440# — 448° — 3500 RPM — 75 HP — 15# back pressure — 750 GPM @ 125 lbs — 6" suction — 4" discharge.

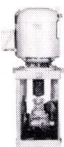
THE BOST

313 E. BALTIMORE

Main Office: (301)

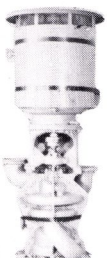
NEW BLACKMER FUEL OIL TRANSFER PUMP

36



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

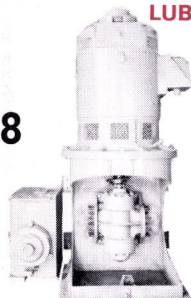
37



UNUSED BRONZE FEED-WATER BOOSTER PUMPS

220/237 GPM @ 144' head —
2-stage — 1750 RPM with 30
HP 440/3/60 motor control &
spares. Built for USN

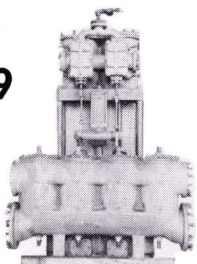
38



LUBE OIL SERVICE PUMP

Quimby-Rotex — size 6D —
500 GPM @ 70 lbs — 6"x6"
flange — 720 RPM. MOTOR:
Allis-Chalmers — 40 HP —
230 VDC — type EBV-147S —
stab. shunt — 148 amps. Com-
plete with starter and rheostat
— designed originally for
C-1MAV-1 vessels.

39



**WORTHINGTON 16"x14"x18"
VERTICAL DUPLEX STRIPPING PUMP**

1400 GPM @ 110 PSI; suction
lift 11.5 ft. Steam back pres-
sure 15 lbs. Suction 14" —
discharge 10" — steam 2 1/2"
— exhaust 4". Overall width
6' 8" — overall height 9' 1 1/2"
— depth 3' 9 1/2" — approx.
wt. 10,000 lbs.

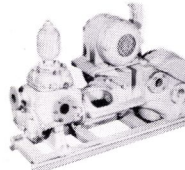
40



**NEW WORTHINGTON VERTICAL
SUBMERSIBLE BILGE PUMP**

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

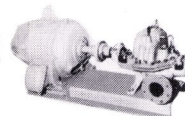
41



**MOTOR-DRIVEN GARDNER-DENVER
RECIPROCATING BILGE PUMP**

50 GPM — 150 PSI — Model
ALAXE — serial #106335.
3 3/4" bore — 4" stroke — 2 1/2"
suction — 2" discharge. 51"
long — 21" wide — 21" high
— weight 750 lbs. MOTOR:
Diehl — 2.5 HP — 440/3/60
— 1750 RPM — 3.53 amps.

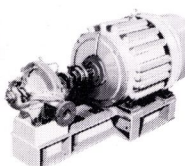
42



GOULD FIRE AND BILGE PUMP

Ex-LST — horizontal centrif-
ugal — bronze — 4" suction —
3" discharge — 250 GPM @
100 PSI — 2200 RPM. MO-
TOR: 30 HP — 230 VDC
with magnetic starter.

43



**AURORA HEAVY DUTY
BRONZE FIRE SERVICE PUMP**

Single stage — 2 1/2" suction
— 2" discharge. 3000 RPM
— 250 GPM. 100 lb. head.
Impeller diameter 9 1/2". MO-
TOR: Air cooled heavy duty
25 HP Reliance T type ON-
2S-2 1/2 230 VDC — 110 amps
— stab. shunt.

IN METALS CO.

ST. • BALTIMORE, MD. 21202

-1900 Marine Dept.: (301) 355-5050

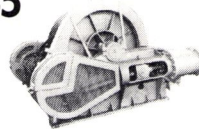
**DIESEL
GENERATOR SETS**

44

**410 KW ENTERPRISE DIESEL
GENERATOR SET**

Enterprise DSG-6 6-cylinder diesel engine driving
Westinghouse generator. 250 volts DC — 1640
amps — 650 RPM — shunt wound.

45



AUTOMATIC TENSIONING 12X14 STEAM WINCH

American Engineering. Drum
diameter 24". Will stow 1500
ft of 1 1/2" in 8 layers. Ca-
pacity 1st layer: 20,000 lbs/50
100 FPM — 16,000 lbs/50
FPM. Drum width 2' 6 3/4".
Steam inlet 3" — exhaust 4".
8' 4 1/2" wide over cylinders.
Base 6' x 6' 3 1/2".

46



**16"
BRASS
PORTLIGHTS**

15" and 16" brass portlights.
16" portlights are 3-dog type.

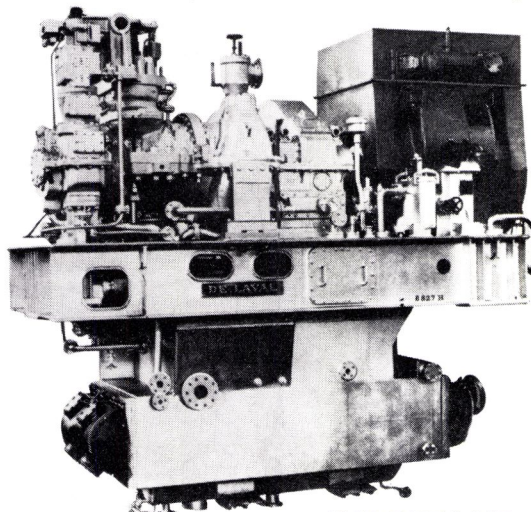
MISCELLANEOUS

47

**IF YOU'RE GOING TO JUMBO-IZE
YOU CAN ECONOMIZE WITH THESE**

**ALLIS-CHALMERS
1000 KW GEARED MARINE
TURBO-GENERATORS**

If you are contemplating the new construction of
TANKERS, ORE CARRIERS, CONTAINER VESSELS, ETC.



**YOU CAN SAVE
THOUSANDS
OF DOLLARS**

with these modern, practically new
units — built to highest Navy stand-
ards. Send for our free descriptive
brochure. You'll be glad you did
and money ahead!

IMPORTANT INFORMATION

DELAVAL TURBINE: 1442 HP — 10019 RPM — Class GJ-N — 9-stage — 10,000 RPM — 1050
PSI — 950°TT — condensing steam rate 10.30 lbs. Typical serial number 652468. DELAVAL
DOUBLE HELICAL GEAR: 10000/1200 RPM — Allis-Chalmers — 1000 KW — 450 volts — 3-phase
— 60 cycle — 1200 RPM — 0.8 PF — static excitation — totally enclosed air-to-water cooling — tem-
perature rise: Stator 130°C — Rotor 110°C — class H insulation — typical serial number 160615
— type M.A.K.G. Complete with 525 sq.ft. condenser — 190 lbs/hr air ejector — oil coolers —
strainer — piping & valves — generator switchgear — static excitation control — voltage regula-
tor. Total weight of unit 40,300 lbs. OAL 12' 9" — OAW 6'. Turbo-generator height 5' 8" —
total height of turbo-generator & condenser 12' 8". UNITS IN EQUAL-TO-NEW CONDITION.
Originally designed for DLG Guided Missile Frigate Program. Installed only about 2 years,
then removed and carefully re-boxed by U.S.N. at Bath Iron Works 1964-65. Navy in-
stalled larger units due to increased load requirements.

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Device Prevents Cable From Becoming Tangled With Buoy Lines

A costly tangle involving petroleum explorers and fishermen may soon come to an end, the American Petroleum Institute reports.

Mobil Oil Corporation has patented a device that will prevent seismic cables used for exploring beneath the marine bottom for oil

and gas from becoming tangled with the buoy lines used to mark crab and lobster traps. Mobil has dedicated its patent for the device to the public so that it may be freely used by anyone without payment of royalties.

During marine operations, the cable containing the seismic instruments must be maintained at a designated depth. To do this, torpedo-shaped housings with

movable wings are used. These depth control devices are known as hydroplanes or paravanes, and are commonly referred to as "birds."

The birds are attached to the seismic cable, which is towed by an electronically equipped boat through the area being surveyed. The seismic gear transmits signals which provide the information about the underlying strata.

Difficulties can arise if the wings of the birds, which are used to lower and raise the cable, come in contact with a lobster or crab trap line. The line can get caught in a space between the wing and the housing of the bird, and a sawing action may occur. This action not only may damage the bird but also damage or destroy the trap.

The device that Mobil has invented to prevent this problem is a skeletal, frame-like structure which is fitted to the housing or the bird in front of each wing. A trap line coming in contact with the frame simply slides away from the bird.

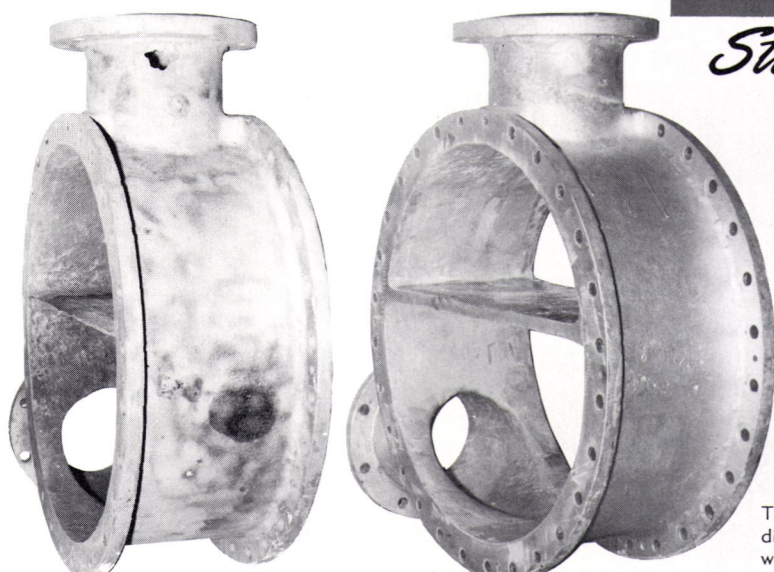
The API reports that Mobil has used the device successfully for more than a year, and is making its patent available to the public in hopes that others involved in offshore petroleum exploration will use the device in lobster and crab fishing areas.

THOUSANDS OF REPAIR JOBS HAVE BEEN COMPLETED QUICKLY AND ECONOMICALLY

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Strong-Back Materials



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

Water Boxes	Ventilators
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Ducts	Pumps
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Condenser Covers	Tanks, Bulkheads and Decks
Cooler Heads	Shell Plating Etc.
Tail Shafts	Frozen Pipes, etc.

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

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STANDARD KIT For Ocean Going Vessels JUNIOR KIT For Harbor Craft

CORDOBOND REPAIR KITS CONTAIN ALL THE COMPONENTS AND ACCESSORIES FOR MAKING EMERGENCY REPAIRS AT SEA

Packed in sturdy Navy type refillable metal containers.

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Over 6000 ocean going vessels carry our standard repair kits. Cordobond is not affected by water, oil, gasoline, etc. It does not corrode. It eliminates costly gas freeing. Cordobond is self curing, no applied heat necessary.

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Sageric
ARABIA—Kuwait
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Sea Power Symposium Set For Los Angeles November 4, 1977

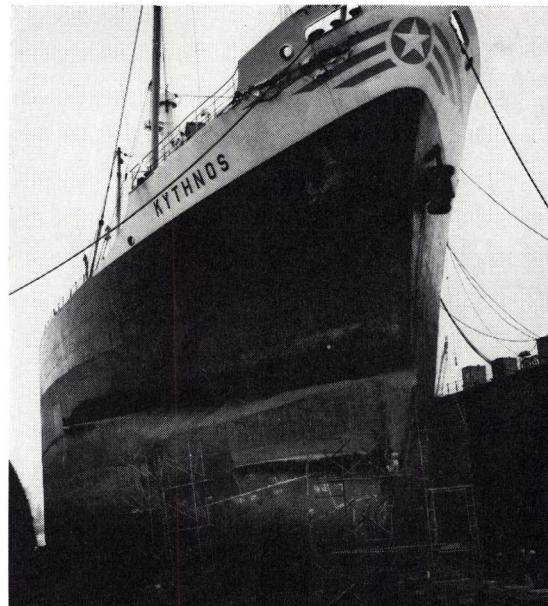
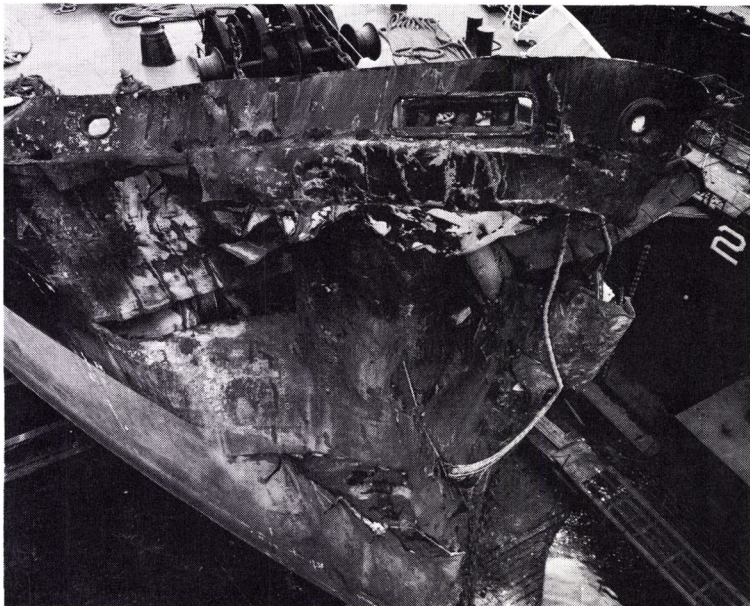
The Honorable Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs, and Adm. Maurice F. Weisner, USN, Commander in Chief, Pacific, will be headliners for a Sea Power Symposium to be held on November 4, 1977, in the Ambassador Hotel in Los Angeles, Calif. Mr. Blackwell is the keynote speaker at the symposium, and Admiral Weisner will be the honored speaker at the luncheon.

T.J. Patterson Jr., Western Region Director, Maritime Administration, will be the master of ceremonies for the symposium which begins with registration at 8:30 a.m. in the Venetian Room.

Guest speaker/moderator is Herbert Brand, president, Transportation Institute, Washington, D.C. Guest speakers at the symposium are James R. Herman, president, International Longshoremen's and Warehousemen's Union; Charles Hiltzheimer, chairman of the board, Sea-Land Service, Inc.; Vice Adm. William St. George, USN, Commander, Naval Surface Forces, Pacific; Vice Adm. Austin C. Wagner, USCG, Commander, Coast Guard Pacific Area, and Commander, Twelfth Coast Guard District; Shannon Wall, president, National Maritime Union; and Don Walsh, director, Institute for Marine and Coastal Studies, University of Southern California.

The luncheon at 12:30 p.m. will cost \$10. Reservations are to be made with Mrs. Monika Wegener, International Commerce and Maritime Division, Los Angeles Area Chamber of Commerce, 404 A. Bixel Street, Los Angeles, Calif. 90017.

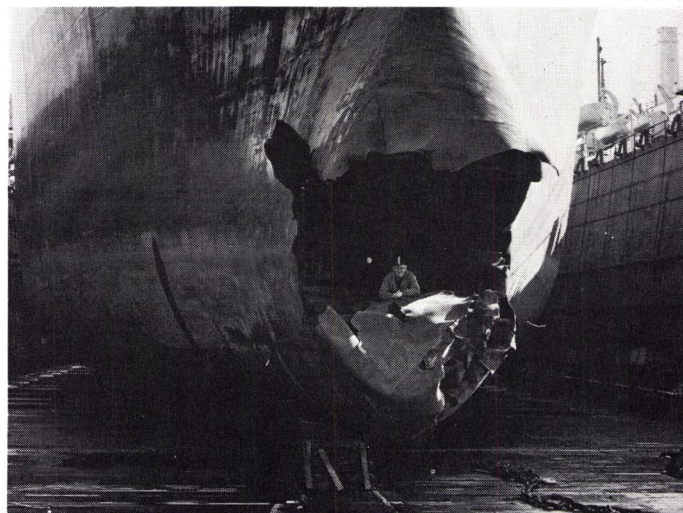
The symposium is sponsored by the Navy League of the United States and the National Maritime Council.



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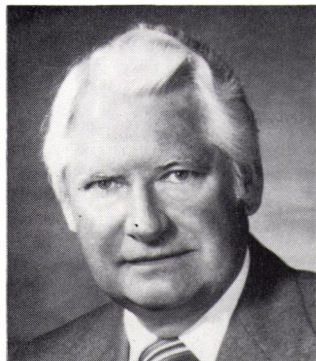


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Mechling States All Modes Necessary For Sound System



Floyd A. Mechling

The chairman of one of the nation's largest barge companies challenged transportation leaders of all modes to form a "willing partnership with each other, and with government" in order to provide the nation with a transportation system that is efficient, competitive, energy conservative, and that is financially sound.

Speaking at the Transportation Clubs International annual convention in Chicago, Ill., **Floyd A. Mechling**, chairman of Union Mechling Corporation, stated that the American public requires all modes of transportation in order to receive the best service.

Mr. Mechling said that government "has a chief role in shaping a better transportation network." Citing the example of waterways user charges, however, he criti-

cized government as being too quick to act without performing a thorough analysis of the problems facing transportation.

Improving efficiency by continuing to upgrade the rights-of-way and providing technological improvements is a top priority, he said. He emphasized that Federal funding of river development and the land grants to railroads have been made to benefit regional development, not to benefit the modes.

Currently, however, the attitude of some people is that the barge lines have profited from this Federal support. Mr. Mechling warned that profit margins for barge lines are actually "thin" and that any increased costs from user charges will be passed on to the consumer.

"It is clear that if we are going to develop a sensible approach to the role of government financing for an efficient transportation system, we must begin with a comprehensive review of the nature and extent to which the various forms of transportation already benefit from Federal aides," he said.

Mr. Mechling also stressed the importance of increased intermodal activity. He stated that the inherent advantages of each mode should be maximized and used in combination to provide efficient, low-cost movements.

He said, however, that while increased cooperation benefits the

consumer, "we also need to invigorate competition." He pointed out that under the Interstate Commerce Act, there is in reality an incentive for one mode to use price-squeeze tactics to suppress competition because there is no provision for the suppressed party to sue for damages.

Calling it the "most crucial awakening needed today," Mr. Mechling also stated that there must be a proper understanding that the country faces a long-term shortage of capital. He said the transportation sector is suffering from inadequate revenues and earnings primarily because historic costs, not replacement costs, are used to determine profit needs.

He noted that there are new revenue standards being considered by the ICC, and he urged that they be implemented to provide for "fair, reasonable and economic profit."

Gonsoulin Industries New Mother Company For LeBeouf Towing

LeBeouf Bros. Towing Co., one of the better-known marine transportation companies operating on the Mississippi River and the Gulf Coast, has evolved into one of the fastest growing, diversified organizations in the marine industry. As a result of this growth, a new corporation, Gonsoulin Industries, Inc., has been

formed. **Earl A. Gonsoulin**, chairman of the board of directors, explained that the acquisition of several other firms made the move necessary. "We feel that our original corporate identity as a towing company, specializing in the transportation of petroleum products and crude oil no longer represented our overall scope of operations. Yet, in deference to the LeBeouf family and considering the fact that this name has been known throughout the marine industry since the company was founded, we didn't want to abandon the name entirely. So, we created Gonsoulin Industries as a parent company and kept LeBeouf Bros. Towing Co. as a wholly owned subsidiary." In addition to the LeBeouf Division, Gonsoulin Industries also consists of a steel service center, Houma Steel & Supply Co.; a shipyard, Bourg Dry Dock & Service Co.; a diesel repair service, R & G Diesel; Canafax Construction Company, specializing in general oil-field construction, and the Marcello Agency.

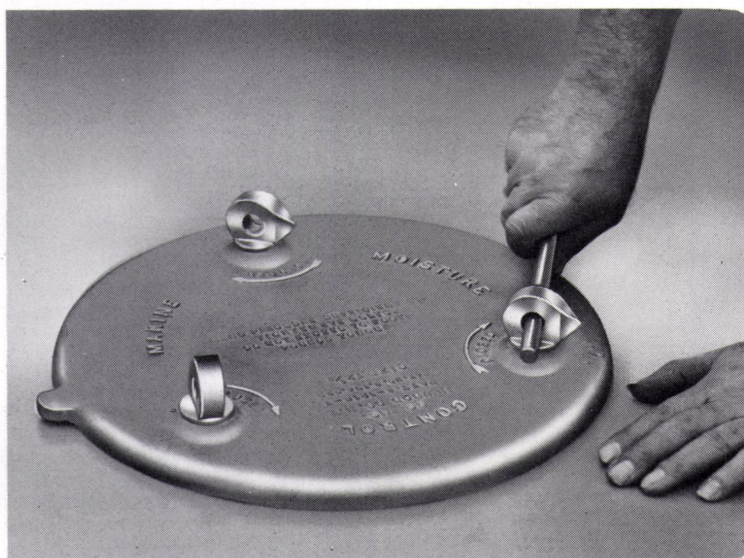
The new company has moved the LeBeouf Division and the corporate offices to the Tenneco-Laterre Building in Houma, La. The officers of the corporation are **Earl A. Gonsoulin**, chairman of the board; **Richard A. Gonsoulin**, president; **Jerry T. Gonsoulin**, executive vice president; **T.E. Lofton Jr.**, vice president, and **Edward D. Conway**, secretary-treasurer.

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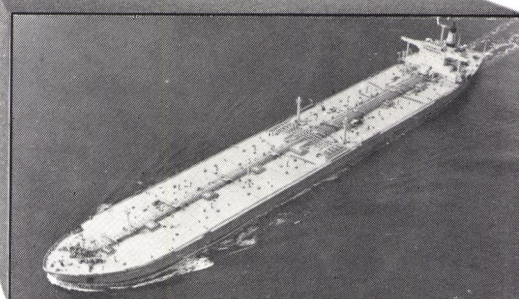
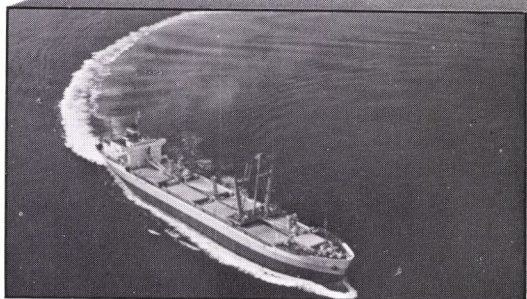
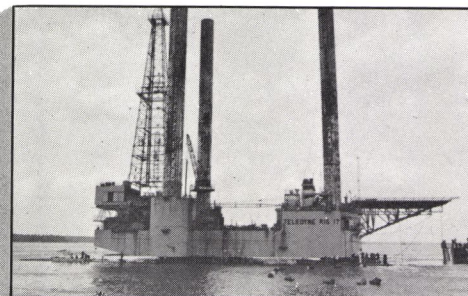
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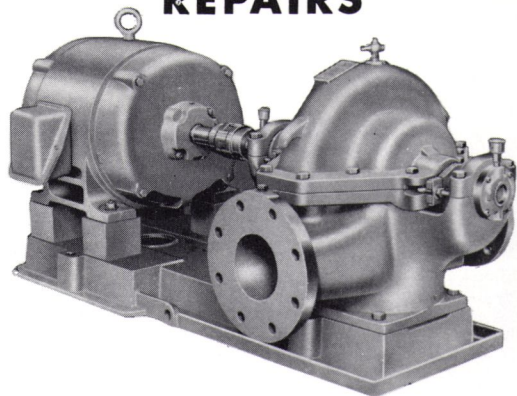


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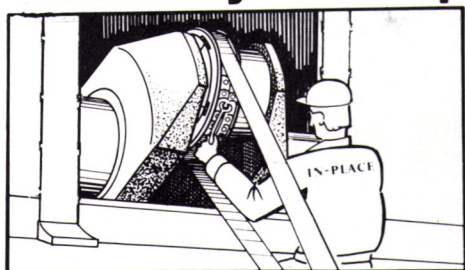


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Campbell Delivers Second Offshore Vessel To Biehl

Campbell Industries, P.O. Box 1870, San Diego, Calif. 92112, recently delivered the Biehl Traveler, second of two offshore tug/supply ships built for Biehl Offshore, Inc. of Houston, Texas. Her maiden voyage will take her to the Gulf of Alaska, where her sister-ship the Biehl Trader is now in service.



The Biehl Traveler is powered by two DeLaval Enterprise diesels, each producing 3,656 hp.

The Biehl Traveler is 209 feet 8 inches long (63.91 meters), with a beam of 42 feet 8 inches (13 meters) and a design draft of 17 feet 5-3/4 inches (5.327 meters). Her displacement is 2,707 long tons, with a gross tonnage rating of 1,181 registered tons (484 net). Cruising speed is approximately 15.7 knots.

Fully U.S. Coast Guard-certified, the Traveler carries the following ABS designations: +A-1 ABS Ice Strengthening Class C, E, +AMS, +ACCU.

Propulsion for the new ship comes from two DeLaval Enterprise DMR-46 diesels, each producing 3,656 bhp at 450 rpm. They drive a pair of LIPS 4-blade conical controllable-pitch propellers through Kuypers 2.23:1 reduction gears. The 114-inch-diameter propellers are set inside fixed nozzles. Auxiliary power is supplied by four Stork-Werkspoor Type R-156 6-cylinder diesels, each with an output of 205 bhp at 1,200 rpm. The ship also features a 315-horsepower Orenstein & Koppel "Tornado" bow thruster, 6 feet in diameter.

The towing winch for the Biehl Traveler is a Van Der Giessen three-drum type, rated at 350,000 pounds. The ship has a bollard pull rating of 100 short tons. She has a stern roller that is 8 feet in diameter and 16 feet 5 inches wide. Her two Van Der Giessen capstans are each rated at 7.5 metric tons.

The vessel's "mud" system is made up of five Halliburton tanks with a combined capacity of 6,275 cubic feet, along with two Quincy W-5105 air compressors.

Other ship's capacities include net deadweight, 1,077 long tons; fuel oil, 141,500 gallons; drilling water, 151,000 gallons; potable water, 29,600 gallons; and deck cargo, 500

tons (deck area is 34 feet wide and 110 feet long).

Nav aids and other electronic gear aboard the Biehl Traveler include two Decca radars, Decca Loran C, Decca-Arkas autopilot, Sperry gyrocompass, Simrad depth sounder/recorder, Benmar ADF, CAI 40-channel 1,000-watt SSB, two Hy-Gain 55-channel VHF's with remotes, Drake emergency receiver, Stoner-Goral emergency SSB, Standard hand-held VHF radiotelephone, ITT-Mackay emergency position indicating radio beacon (EPIRB), emergency tone generator (ETG), ITT-Mackay lifeboat transmitter, a color television, and a stereo AM/FM/8-track unit.

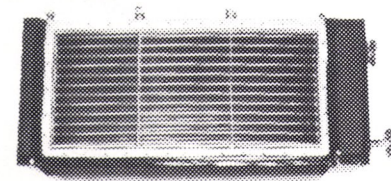
Cleveland-Cliffs Iron Appoints Wallace Rohn

Wallace J. Rohn has been appointed assistant manager-marine sales of The Cleveland-Cliffs Iron Company, 1460 Union Commerce Building, Cleveland, Ohio 44115.

In his new position, Mr. Rohn will report in the company's vice president-sales, and will concentrate on expanding business opportunities for the Cleveland-Cliffs fleet of Great Lakes bulk carriers.

Mr. Rohn joined Cleveland-Cliffs in 1947. During the past 30 years, he has held various marine department positions, including superintendent-marine traffic, manager-traffic, marine superintendent, and most recently superintendent of marine traffic and personnel.

A member of The Propeller Club, Mr. Rohn also is a member of The Society of Naval Architects and Marine Engineers, and the Cleveland Traffic Club. A native of Cleveland, he attended Case Western Reserve and Fenn College.



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World's First Naval Exposition Set For Netherlands June '78

A timely exhibition and conference covering the full range of unclassified naval requirements and including the latest in warship design, ship systems and equipment, naval armament and electronics is to take place in Europe, June 6-8, 1978.

The first of its kind to be organized on such a broad scale, the International Naval Technology Expo—INTEC '78—is to be held in the Ahoy' Exhibition Center in Rotterdam, the Netherlands, and will attract top-ranking naval officers and procurement officials from defense establishments throughout Europe and the maritime nations of the world. A strong contingent of specialized technical staff representing prime

naval and defense contractors is also expected to attend.

The exhibition will feature advances in naval technology worldwide, in such areas as naval ship design and construction, power and propulsion, communications and navigation, command and control, electronic warfare, electro-optics and naval armament, including antisubmarine and mine warfare, environmental systems and navy-related equipment. Na-

val aviation will also be featured at INTEC '78. In addition, Rotterdam's harbor, one of the largest in the world, will permit exhibitors to demonstrate a wide range of naval craft.

To complement the exhibits, an extensive technical conference program is being organized, covering warship design and utilization, advances in naval armament, fire control electronics, command and control, training and simulation, etc., and selected topics emphasizing the use of such equipment in naval operations. Specialists who have distinguished themselves in various areas of naval technology are being invited to direct and contribute to the conference program.

INTEC '78 is organized by Kiver Communications S.A. of England, a company experienced in producing a variety of international exhibitions, including the "Military Electronics Defence Expo," now in its second year at Wiesbaden, Germany. Kiver Communications is a subsidiary of Industrial & Scientific Conference Management, Inc., of the United States. This company specializes in high technology and industrial exhibitions and is ranked among the largest producers of trade shows and conventions worldwide.

The conference part of INTEC '78 is organized by the respected multi-language publication "International Defense Review," which is also sponsoring the exhibitions.

For complete information, contact **Joseph C. Maurer**, Industrial and Scientific Conference Management, Inc., 222 West Adams Street, Chicago, Ill. 60606.

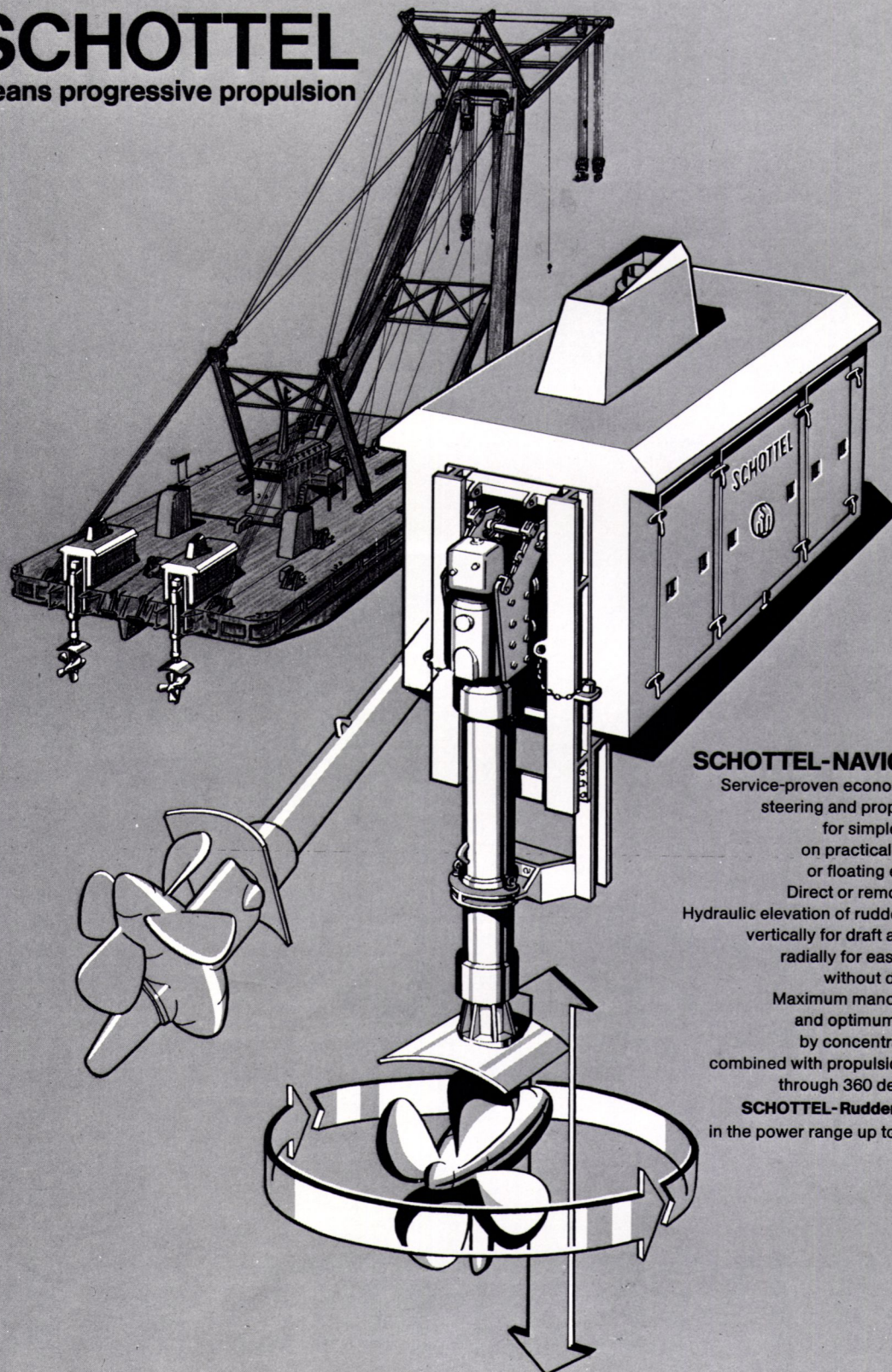
MarAd Awards Another Research Contract To Combustion Engineering

The Maritime Administration has awarded a \$54,000 research and development contract to Combustion Engineering Company of Windsor, Conn., to evaluate present practices for marine boiler and feedwater analysis and treatment.

The contract is an addition to an existing \$369,000 contract to Combustion Engineering to improve marine boiler reliability. All phases of the larger contract, including the work to be done under this additional award, will be completed in March 1978.

Five tasks are to be performed under the additional award. Shephard T. Powell Associates of Baltimore, Md., a subcontractor, will identify boiler and feedwater quality standards and guidelines for the marine industry. Combustion Engineering will classify various techniques of boiler feedwater treatment, generically compare and classify various treatment chemicals, analyze the cause and effect relationships of improper treatment, and evaluate new methods for the analysis of treatment chemicals.

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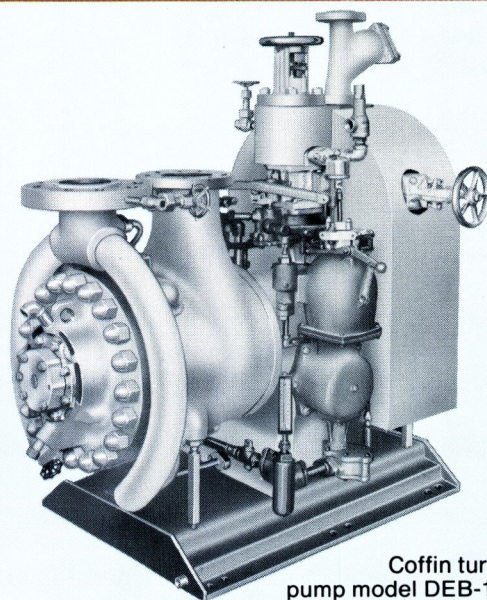


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North American Philips Offers New Radio Telex System For Shipboard Communications

N.A. Philips Communications Systems has announced an advance microprocessor-controlled error correcting system that links shipboard teleprinters to the worldwide Telex network. The new unit, called STB-750, installs between the vessel's high frequency radio and the teleprinter. Using ARQ, "FEC" and selective FEC error correcting techniques, it enables the vessel to exchange error-free traffic with any Telex terminal anywhere in the world.

The STB-750 is an advanced replacement for Philips STB-75 system, now installed on over 600 vessels and offshore platforms. The ships use H.F. radio to communicate with coastal stations, which are linked directly

to the Telex landline network. At present, there are more than 30 coastal stations in Europe, North America, and Asia, providing total coverage to all shipping lanes.

The advantage of radio telex, according to Philips Communications Systems, is its economy. STB-750 offers the same low error rates as satellite in most geographic areas, and error rates approaching the performance of satellite in fringe areas.

Major features of the new system include dialing from the teleprinter keyboard, automatic frequency drift correction, and buffer storage of up to 12,000 characters.

For complete information on the new radio telex system, write to **Saverio J. Berthe**, North American Philips, Communications Systems, 91 McKee Drive, Mahway, N.J. 70430.

Mangone Delivers 185-Foot Supply Vessel To Briley

The Alice Briley, a 185-foot supply ship built by Mangone Shipbuilding of Houston, Texas, was delivered to Briley Marine Services, Inc. of Morgan City, La., in late August. The ship will work the Gulf of Mexico out of Galveston for Briley Marine. Mangone is a subsidiary of Stewart and Stevenson Services, Inc.

The Alice Briley is powered by two 16V (149) Detroit Diesels developing a total of 2,770 hp, and carries two 8V-71 Detroit Diesel generators rated at 125 kw each.



Powered by Detroit Diesels, the Alice Briley has a range of approximately 9,000 miles.

The new ship has a working capacity of up to 50 days, range of approximately 9,000 miles, cruising speed of approximately 13 knots, and sleeps 20.

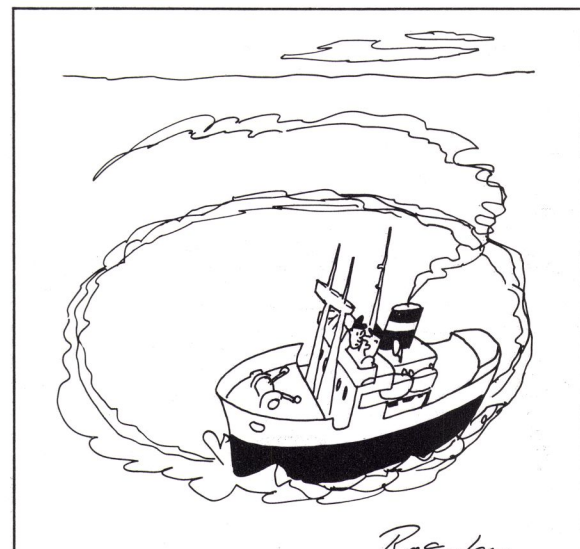
Overall measurements are 185 feet in length, 38-foot beam, 16-foot depth, and 13-foot 8-inch draft. Clear deck space is 110 feet by 31 feet.

The Alice Briley has electric and electric hydraulic steering, a flume stabilization system, and a 48-inch-diameter bow thruster driven by an 8V-71 diesel engine.

Controls are Westinghouse air, and located in the pilothouse and aft station. Electronic gear includes radar, radiotelephone and VHF Loran recording Fathometer.

Outfitted for her Gulf service, the ship has mud tanks with a total capacity of 42,156 gallons and six cement tanks below deck totaling 3,000-cubic-feet capacity.

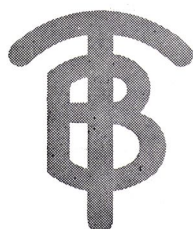
Mangone vice president and general manager **Don Godeau** reports that the Alice Briley is U.S. Coast Guard Certified and ABS-classed star Hull and Machinery, all oceans.



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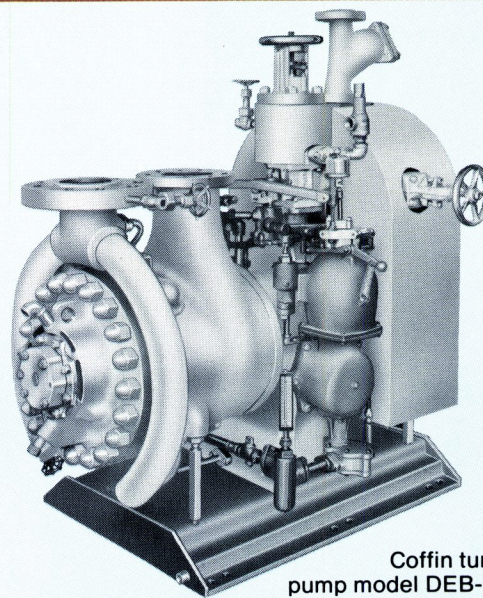


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**Stephen Russell
Named President
Seatrain Lines**

Seatrain Lines has named **Stephen Russell**, 37 years old, president of the company, succeeding **Howard Pack**, who becomes vice chairman and chairman of the executive committee.

Mr. Russell, who continues as chief operating officer of this

diversified steamship concern, joined Seatrain as executive vice president in March 1974. Previously, he had been executive vice president of Hertz Corp., a unit of RCA Corp.

The position as chairman of the executive committee, which **Mr. Pack**, 60, assumes is new at Seatrain. The company doesn't designate a chief executive officer. **Joseph Kahn**, also 60, continues as chairman.



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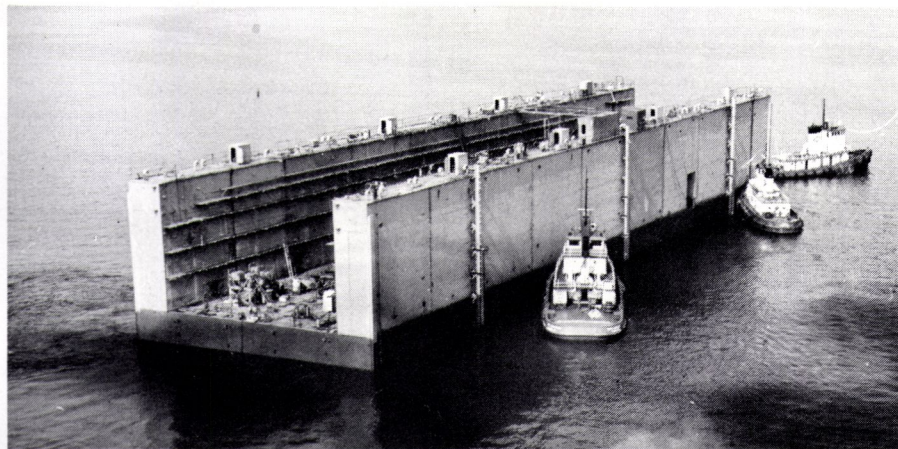
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DRYDOCK FOR NAVY—Tugs maneuver the ARDM-4, a floating auxiliary repair drydock for U.S. Navy submarines, as the drydock is removed from the building basin at Bethlehem Steel's Sparrows Point shipyard, Baltimore, Md. The ARDM-4 will be completed at an outfitting pier and towed to New London, Conn., to be delivered to the Navy early next year. The drydock, first of a new class, is designed for routine servicing of nuclear ballistic missile and nuclear attack submarines. It is 492 feet long overall, with a beam of 96 feet, and an overall depth of 61 feet. At 18 inches of pontoon deck freeboard, the ARDM-4 will lift 7,800 tons. The ARDM-4 differs from previous ARDM drydocks in that it is open-ended, and is basically dependent on shore facilities for utility services and accommodations.

Camar Develops Blowers Designed For Shipboard Inlet Gas Systems

Camar Corporation of Worcester, Mass., has developed a series of blowers designed specifically for shipboard inlet gas systems. The design and manufacture of these blowers is of American origin.

Because of the highly corrosive atmosphere produced by flue gas, scrubbed with seawater, and the high speeds necessary to produce the required static pressures, the fan impellers are fabricated of Inconel 625 material. These blow-

ers have been furnished for system pressures to 93 inches w.g. Capacities are available to 40,000 CFM.

For highest efficiencies, the blades are of the backward-curved design. This design exhibits non-overloading characteristics to prevent overheating of electric motor drives.

Shafts are machined from 316L stainless steel. Shaft bearings are located outboard of the fan housing, and are of the tapered roller, self-aligning, grease-lubricated type.

The fan housing is split and flanged to provide access to the entire rotating fan assembly.

Built-in water-washing nozzles are provided in the inspection door of the upper half casing, to allow for fresh-water flushing of the fan impeller after system shut-down.

Additional product lines include the manufacture of marine turbines, ventilating fans, blowers and air systems.

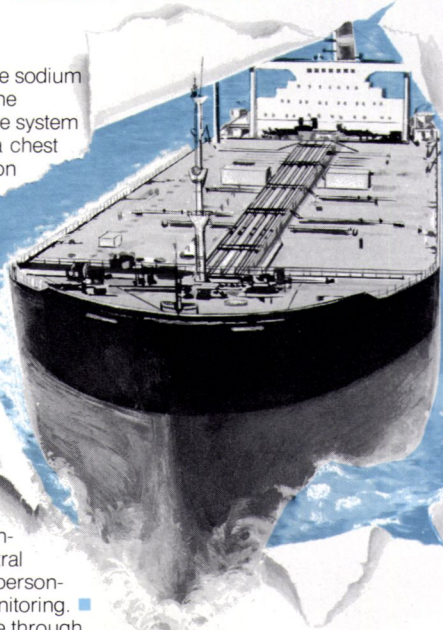
For further information, write Camar Corporation, 186 Prescott Street, Worcester, Mass. 01613, or write **Bill Durkin**, P.O. Box 537, Flemington, N.J. 08822.

Bird-Johnson Receives Bow Thruster Contract

Bird-Johnson Company, Walpole, Mass., has been awarded a contract for a 7,000-hp controllable-pitch propeller and a 1,000-hp bow thruster by Bay Shipbuilding Corp., Sturgeon Bay, Wis. The propeller and thruster will be installed on a new vessel being constructed by Bay Ship for the Columbia Transportation Division of Oglebay Norton Company. Designated as Hull 722, the vessel is a Great Lakes self-unloader of 23,300 dwt, and is powered by two General Motors EMD engines.

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required. Tested and proven efficient for over 3 years in 40 shipboard installations, many original systems have been at work without so much as a sign of fouling, or a need for expensive maintenance. The CHLOROPAC hypochlorite system's extremely low power requirements . . . 2 to 3 kw per pound of equivalent chlorine generated, make it not only sensible and safe, but economical as well. Now you can make sodium hypochlorite, as you need it, onboard, from seawater. ■ It's easy. The CHLOROPAC hypochlorite system takes care of itself and your ship. ■ ****Guaranteed for 5 years. Prorated replacement charge based upon current cell selling price and time remaining in 5 year warranty period.**

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Report Shows 101 Plants Locate Waterside In First Quarter Of 1977

The American Waterways Operators, Inc., Washington, D.C., has announced that 101 plant facilities were located along the waterways of the United States in the first quarter of 1977, creating over 6,000 permanent jobs.

Of the 101 plant facilities, 74 reported capital investments totaling \$1,596,100,000, an average of \$21.5-million investment per plantsite. A total of 6,020 new jobs will be created by 16 of these plant locations, resulting in an average 375 new employees per plant.

AWO records show that 48 of the plants were chemical and petroleum refining facilities, 27 were metal-producing plants, four were terminals, docks and wharves, three were paper and wood-producing plants, and the remainder consisted of general manufacturing and miscellaneous installations.

The Mississippi River led with 22 facilities, followed by the Houston Ship Channel with 13, the Gulf Intracoastal Waterway with 11, and the Ohio River with 10.

The following is a list, by waterway, of the 101 plant locations and expansions constructed or announced during the first quarter of 1977.

Atlantic Intracoastal Waterway — Piscataway, N.J., Tenneco Chemicals will open a flexible vinyl film plant, Union Carbide will expand with a \$30-million investment, involving polystyrene operations and phenol production; Charleston, S.C., Robert Bosch Corp. will expand its diesel fuel systems plant; Hialeah, Fla., Designatronics will build a \$1-million plant to manufacture electrical components.

Black Warrior, Warrior and Tombigbee River System — Bessemer, Ala., Alabama Oxygen will invest \$4 million in expanding its air separation facilities to produce cryogenic liquids; Moundville, Ala., Lawter Chemicals is investing \$3 million to expand its synthetic resins plant.

Chattahoochee River — Opelika, Ala., Troxel Manufacturing Co. plans to construct a \$2.75-million steel tubing plant, which will employ 150 people.

Columbia River — Quincy, Wash., Witco Chemical Corp. is opening a new \$8-million plant to process diatomaceous earth, used industrially as a filter material and absorbent; Kalama, Wash., Madill plans to invest \$2 million in a portable logging tower plant, employing up to 150 persons.

Connecticut River — South Windsor, Conn., United Technologies and the U.S. Energy Research and Development Administration will construct a \$12-

million plant for experimental fuel cell power production.

Coosa River — Anniston, Ala., Phelps-Dodge Brass Co. will expand facilities by \$3.3 million for producing cast and wrought iron. Over 100 new jobs will be created.

Flint River — Griffin, Ga., Borden Chemicals will expand by \$3.5 million; Albany, Ga., Merck & Co. is expanding its pharmaceutical production with a \$9-million investment.

Gulf Intracoastal Waterway — Port Arthur, Texas, ARCO Polymers is expanding its production of high-density polyethylene, Lubrizol Corp. plans to start work on a \$20-million lubricant additive chemical plant; Berwick, La., Cameron Iron Works will spend \$1 million to expand its oil-field machinery manufacturing plant; Beaumont, Texas, Threaded Steel Products Co. is constructing a \$1-million plant to manufacture

alloy steel stud bolts and anchor bolts; Victoria, Texas, DuPont has opened its high-density polyethylene resins plant; Corpus Christi, Texas, ICI Americas plans to construct a \$600-million petrochemicals plant, Quintana-Howel began work on the second phase of a multimillion-dollar expansion which will result in one of the 10 largest benzene plants in the country, Sun Petroleum

(continued next page)

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AWO Report (cont'd)

Products is investing \$12 million in a modernization of its gas recovery and alkylation units; Eunice, La., Dresser Industries is planning to build a \$22.9-million plant to manufacture mining and oil-field equipment; Lake Charles, La., Olin Corp. is investing \$1.5 million in its nitrogenous fertilizer facility and \$1.9 million in industrial organic chemical pro-

duction; Westlake, La., Continental Oil Co. is spending \$16.5 million to improve its organic chemical plant and upgrade its production of cyclic crudes and intermediates.

Houston Ship Channel—Channelview, Texas, ARCO Chemical Co. has opened a new ethylene plant; Deer Park, Texas, Soltex Polymer Corp. plans an expansion of its polyethylene plant; LaPorte, Texas, Air Products &

Chemicals will build an industrial gas plant, Novamont Corp. is planning a polypropylene plant; Houston, Texas, ACECO has started a \$1-million overhead crane plant, Big Three Industries will expand its air separation plant, Diamond Shamrock Corp. plans a \$100-million vinyl chloride plant, Exxon Chemical Co. plans a multimillion-dollar expansion of its linear paraffin plant and will also invest \$500 million in a new olefins plant,

Georgia-Pacific Corp. plans a major chemical manufacturing complex, Gulf Oil Chemical Co. has completed a polyethylene unit, Imperial Sugar Co. is investing \$3 million to expand facilities, Inland Marina has announced plans for the construction of the largest inland marina in the South. Over 400 sailboats and power boats will be accommodated in open, covered and dry storage facilities, Liquid Air is investing \$4 million to increase its air separation plant's capacity for producing liquid oxygen and nitrogen, Pipe Specialties is investing \$1 million to expand its production of high-pressure couplings, adding 90 employees, U.S. Steel Corp. is expanding its raw steel-producing facility.

Illinois Waterway — Joliet, Ill., Peoples Gas Light & Coke Co. is now in full-scale production of a substitute natural gas at its new \$100-million facility.

Kanawha River — Charleston, W.Va., Union Carbide Corp. will invest \$7.7 million in air pollution control equipment at its plant; Nitro, W.Va., FMC Corp. is investing \$3 million in pollution control equipment, Midwest Corp. will spend \$1 million to build a spike and tract accessories plant, Monsanto Corp. plans to invest \$1.1 million to expand its rubber chemicals plant, creating 650 jobs.

Kentucky River — Frankfort, Ky., Bendix Corp. will spend \$1 million to expand its automotive brake manufacturing facility.

Lake Erie—Milan, Mich., Ford Motor Co. will expand its plastics division with a capital investment of \$2.65 million.

Lake Michigan — Benton Harbor, Mich., Gast Manufacturing Corp. has opened a \$1.5-million facility for its new reciprocating products division; Manitowoc, Wis., The Manitowoc Co. is constructing a \$14-million plant to produce cranes and excavators, providing up to 600 new jobs.

McClellan-Kerr Arkansas River System—Pryor, Okla., Gold Bond Building Products will modernize its paper mill; Tulsa, Okla., Dover Corp. will expand its facilities for manufacturing barrel pumps with a \$7.5-million investment, Industrial Fabricating Co. has opened a \$12-million facility to manufacture heat exchangers, Sun Oil Co. will invest \$10 million in an expansion of its refinery facilities.

Mississippi River — Newbern, Tenn., Dover Industries plans to construct a \$4.4-million plant, employing 280; Norco, La., Shell Chemical Co. will increase its production of polypropylene with an investment of \$61.6 million; Gramercy, La., Kaiser Aluminum will upgrade its alkali and chlorine manufacturing plant by \$8.9 million; Reserve, La., Betz Laboratories has begun construction on a \$2-million facility to produce water treatment chemicals; Taft, La., Union Carbide Co. will spend \$23 million to increase inorganic

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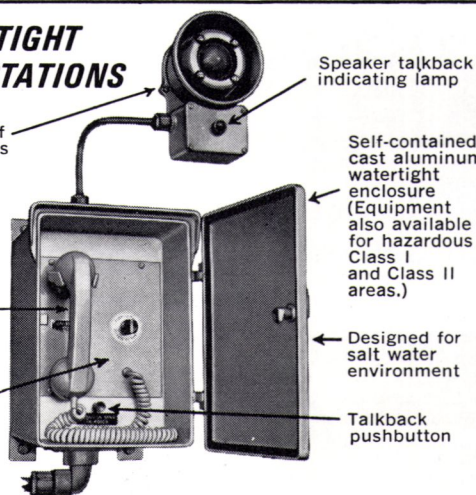
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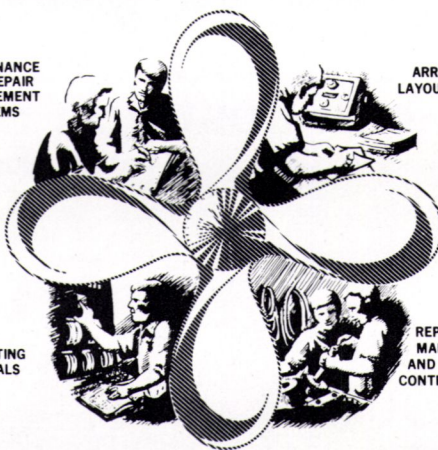
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chemical production at its plant; St. Gabriel, La., Air Products and Chemicals has opened its \$30-million facility to produce alkylamines for herbicides; Cos-Mar has finished its \$55-million plant for manufacturing styrene monomers; DeRidder will employ 200 at its new plant to manufacture heat exchangers; Baton Rouge, La., Kaiser Aluminum is investing \$7 million in expanding its industrial organic chemical plant; C.S. Mott will upgrade its molding resins facility by \$10.9 million; Darrow, La., Inger Oil Co. is building a \$1.5-million petroleum refinery; Geismar, La., BASF Wyandotte has completed its \$30-million plant to produce agricultural chemicals; Paincourtville, La., Texas Brine Corp. will build a new \$2.5-million facility to produce organic chemicals; Mereaux, La., Murphy Oil Co. is enlarging its refinery with a \$3-million investment; Good Hope, La., Good Hope Refineries will invest \$12.7 million in an expansion; St. Louis, Mo., Ford Motor Co. has added 1,250 workers at its auto assembly plant; Davenport, Iowa, Caterpillar Tractor Co. will enlarge its heavy equipment and diesel engine parts manufacturing plant; Muscatine, Iowa, Monsanto Co. will spend \$22 million in expanding its herbicide and plastics manufacturing plant; Plaquemine, La., Dow Chemical Co. will construct a \$59.2-million facility to produce plastic materials; Fenton, Mo., Chrysler Corp. has expanded its auto assembly plant, creating 1,000 new jobs; House Springs, Mo., Universal Solar Systems plans to hire 100 people to make solar equipment; Pevely, Mo., Banner Iron Works is producing iron and steel castings in a new plant.

Missouri River — Mound City, Mo., Schuykill Metals Corp. will construct a lead reprocessing facility and hire 100 workers; Linn, Mo., Schluter Manufacturing Co. plans to build a plastic and metal water cooler manufacturing plant, employing 100 persons; Lawrence, Kan., TRW will expand its electrical cable manufacturing facility with a \$3.2-million investment.

Ohio River — Louisville, Ky., DuPont will spend \$7.5 million to upgrade its neoprene and freon manufacturing operation, International Harvester Co. has finished a \$3.5-million expansion of its tractor manufacturing facility, Precision Tool, Die and Machine Co. will spend \$1 million in improving its screw machine parts manufacturing operation, Vermont America Corp. will spend \$1 million to expand its carbide manufacturing site; Paducah, Ky., Paducah Marine Ways will spend \$2 million to expand its river barge construction plant, Union Carbide Corp. will enlarge its capability to produce enriched uranium ore with a \$99.7-million expansion; Ashland, Ky., Pinkham Lumber Co. has finished a \$7.8-million expansion of their lumber mill; Catlettsburg, Ky.,

construction will begin shortly on the first U.S. pilot project for coal liquefaction. The project is jointly sponsored by Ashland Oil, Standard Oil of Indiana, the Electric Power Research Institute, the State of Kentucky, and the Federal Government; Elizabethtown, Ky., Colt Industries will expand its magnet production facilities with a \$2-million investment; Lewisport, Ky., Martin Marietta Aluminum will employ 170 people

after completion of its \$40-million expansion.

Puget Sound — Sumner, Wash., Al Thrasher Co. plans to spend \$3 million for a sawmill.

Red River — Shreveport, La., Atlas Processing Co. is expanding its petroleum refinery with a \$1.4-million addition; Bossier City, La., Louisiana Wire & Cable plans to construct a \$4-million plant to fabricate wire products; Alexandria, La., Dresser Industrial Valve

and Instrument will spend \$1.6 million to enlarge its valve and pipe-fitting manufacturing operation; Pollock, La., Farmland Industries has announced plans for a \$5.7-million facility to produce nitrogenous fertilizer, F.I. Pollock Trust will erect a \$59-million plant to manufacture nitrogenous fertilizer.

St. Johns River — Orlando, Fla., Mogul has broken ground for a (continued next page)



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AWO Report (cont'd)

\$2-million facility to produce pharmaceutical products.

San Joaquin River — Fresno, Calif., PPG Industries will construct a \$20-million float glass facility.

Savannah River — Toccoa, Ga., Vermont America Corp. will manufacture saw blades at a new \$4.5-million facility; Waynesboro, Ga., Kimberly Clark Corp. is ex-

panding its lumber production with a \$2.3-million investment.

Snake River—Meridian, Idaho, Pumice Products Co. will construct a \$2.5-million facility to produce concrete masonry units.

Tennessee River — Clinton, Tenn., Sprague Electric Company has begun site preparation work on a \$3.6-million expansion program with the ultimate addition of 130 employees; Lenoir City, Tenn., Johnson City Chemical

Company will build a fertilizer plant and a barge terminal; Gadsden, Ala., Goodyear Tire & Rubber Co. will spend \$69 million to expand its plant, creating 400 new jobs; Decatur, Ala., Gold Kist will begin construction on a demonstration project, authorized by the Energy Research and Development Administration, to use solar energy in drying soybeans, ConAgra plans an expansion of its plant in order to receive si-

multaneous incoming shipments of grain by barge, truck and rail; Limestone County, Ala., the Saginaw Steering Gear Division of General Motors has announced the construction of a new \$80-million manufacturing plant, the second such facility to be built by the company outside Michigan. The facility will share the Tennessee Riverfront with the first plant, bringing total GM investment to well over \$200 million. The new plant will employ approximately 1,150 persons in the manufacture of tilt-wheel steering columns and steering column intermediate shafts for GM and other U.S. automakers.

Port Of St. Louis Propeller Club Elects Robert Patrick



Robert J. Patrick

Robert J. Patrick has been elected president of The Propeller Club of the United States, Port of St. Louis, Mo. Mr. Patrick is president of Apex Marine Service.

The St. Louis Club was chartered in 1937, and its membership of more than 370 people is made up of persons engaged in the maritime industry and related businesses. Mr. Patrick succeeds William M. Gardner of Frank B. Hall & Co. of Missouri, Inc., as president of the St. Louis Club. Other elected officers are: vice president, James V. Swift, The Waterways Journal, business manager; and secretary-treasurer, Jerald A. Tinkey, Mid-America Transportation Co., vice president and manager of traffic and personnel.

The board of governors for the club, in addition to the above officers, will be: Ronald A. Bennett, St. Louis Ship; Capt. David R. Carlton, Federal Barge Lines, Inc.; Charles A. Newton, Economy Boat Store Co.; William M. Gardner, Frank B. Hall & Co. of Missouri, Inc.; Glennon G. Bequette, National Marine Service, Inc.; Robert A. Labdon, Federal Barge Lines, Inc.; Fred W. Schulte, Twin City Shipyard; Jack R. Chouner, St. Louis Fuel and Supply, Inc.; Joseph R. Cordaro, Sioux City & New Orleans Barge Lines, Inc., and Comdr. Harry A. Rowe, United States Coast Guard.

The board includes three former presidents of the St. Louis Club. They are Ronald A. Bennett, William M. Gardner and Fred W. Schulte.

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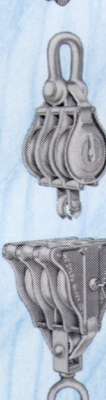
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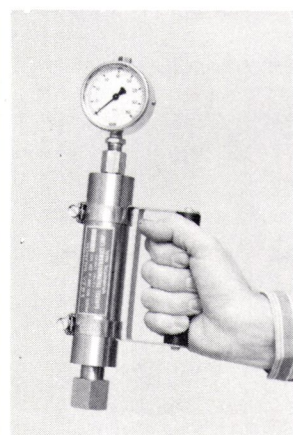
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Maxon Marine Industries Delivers Specially Designed Towboat To J.L. Shiely Company



The Maxon-built M/V Joe Al Jim II is powered by Caterpillar diesels and equipped with a retractable pilothouse.

Maxon Marine Industries, Inc., Tell City, Ind., recently delivered the M/V Joe Al Jim II to J.L. Shiely Company, St. Paul, Minn. The towboat is 72 feet 6 inches by 19 feet by 7 feet 6 inches, and has an operating draft of 5 feet. It is equipped with two Caterpillar Model D353 T.A. main propulsion engines developing 425 hp each, and has two Caterpillar 55-kw generator sets.

The vessel is specially designed to operate in small lock chambers. Having a beam of only 19 feet, it can lay alongside of its tow when locking through.

The two steering and four flanking rudders are independently operated.

The Kahlenberg stainless steel propellers turn inside Kort nozzles

made by Michigan Wheel Corporation. The boat has two Quincy Model D 325 air compressors.

Quarters are provided for three persons. Bulkheads are insulated and covered with Masonite paneling. The Joe Al Jim II has an Incinolet Marine electric toilet. It has a 5,400-gallon fuel capacity, 1,000 gallons of fresh water, and 300 gallons of lube oil. It has a retractable pilothouse, hydraulically operated. Other equipment aboard includes a General Electric Model MVP radio, two 19-inch, 1,000-watt searchlights and Beebe Model 65 barge connectors.

The M/V Joe Al Jim II is the second towboat built by Maxon for J.L. Shiely Company. The first, the M/V Mary Jenny, was built in 1967.

SNAME Publishes 'Gas Trials Guide For LNG Vessels'

Of highest interest in the marine field today is the design and construction of many specialized ships that carry cargoes of liquefied natural gas (LNG). Major shipyards in the U.S. and other countries are engaged in building these giant carriers. For some time there has been a need for a guide or handbook to help the builder try out and prove the cargo piping, pumping equipment, and tanks at dockside. Panel MS-8 (Special Cargo Systems) of the Society's Marine Systems Committee has long recognized this need and has now published, through SNAME's Technical and Research Program, the 20-page "Gas Trials Guide for LNG Vessels."

This guide provides definitive information on the preparation for gas trials, and the conduct of those trials.

It covers procedures for drying and inerting, cold testing of deck machinery and piping, displacement of inert gas and cool-down of the tanks, LNG handling, boil-off handling, warm-up and gas-freeing. In addition, there is a section giving information for the first full load.

Panel MS-8 is comprised of representatives of American shipbuilders, shipowners and operators, the Maritime Administration, the American Bureau of Shipping, the U.S. Coast Guard, and other experts of the LNG industry.

Technical and Research Bulletin 5-2 (Gas Trials Guide for LNG Vessels) is available from the Society at \$6 per copy if payment accompanies the order. Society member price is \$4. For additional information, write the Publications Department, The Society of Naval Architects and Marine Engineers, One World Trade Center, Suite 1369, New York, N.Y. 10048.

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**James J. Bolton
Elected President
Jered Industries**

Jered Industries, 1300 South Coolidge Road, Birmingham, Mich. 48008, recently announced that the board of directors has approved the following changes in the management of the company.

E.R. Davies, who founded the company in 1946 as a design consulting company and as president has guided Jered to its present

leadership position in the marine machinery and equipment field, has been elected chairman of the board of directors.

James J. Bolton Jr., who joined Jered in 1964 as vice president of engineering and sales, has been elected president of the company. A graduate of Drexel Institute of Technology, Mr. Bolton is a registered professional engineer, whose reputation in the steering gear, sewage system, windlass, elevator, conveyor, crane, and

other marine equipment field is well known.

Mr. Bolton's past experience includes service as designer and engineer with Automatic Drive and Transmission Company, American Engineering Company, and the C.H. Wheeler Company where he became vice president of the marine department. He also worked with Baldwin-Lima-Hamilton Corporation where he was responsible for marine, atomic, and special products.

Since joining Jered Industries, Mr. Bolton has been a major force in establishing Jered as a dependable supplier of high-quality marine equipment from original concept through engineering design, manufacturing, and testing.



James J. Bolton Jr.

Richard W. Glenn, who joined Jered in 1976 after an extensive management career with AT&T and IBM, has been elected executive vice president, and will be responsible for the day-to-day operation of the business.

Brian F. York, C.P.A., who was manager at Hoskins & Sells until joining Jered in 1972 as controller, was elected treasurer.


In speaking about the significant recovery which Jered has made from the recent business recession, Mr. Davies made special reference to the expanding low-water volume and vacuum flush sewage systems which Jered has developed. Jered provides systems which comply with Type III no-discharge requirements specified in the Part 159, Chapter 1, Title 53, Code of Federal Regulations, and are now on or being installed in a number of marine applications such as ferryboats, DD-963-class vessels, U.S. Coast Guard Medium and High Endurance-class vessels, etc. The company also sees great potential in land-based applications as the world usage of fresh water begins to exceed the supply.

These new product lines, as well as our current products, prompt us to make these and other organizational changes, Mr. Davies commented. We expect to be better able to plan for future work, as well as make maximum use of our people and work load now at hand through the changes we have announced.

**Norton, Lilly Appoints
Indelicato Line Manager
For C.N. Lloyd Brasileiro**

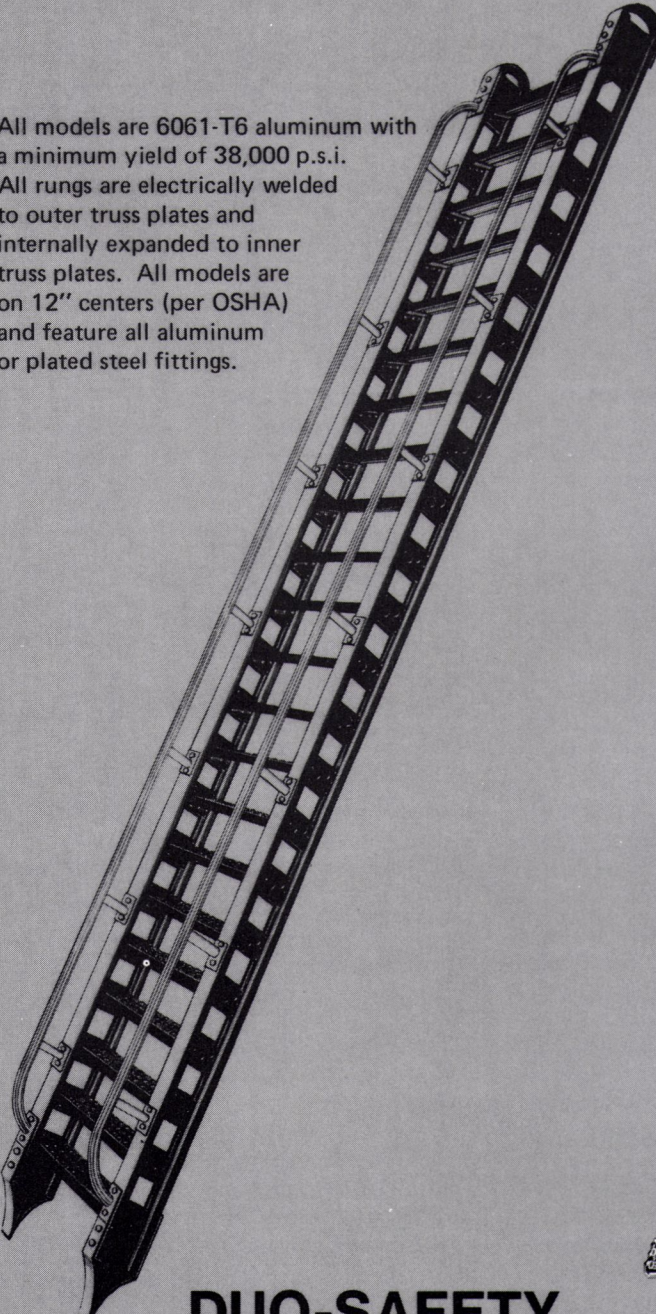
Norton, Lilly & Co., Inc. has announced the appointment of **Louis F. Indelicato** as line manager for C.N. Lloyd Brasileiro Line. Mr. Indelicato, previously assistant line manager for Blasco Med-Atlantic Line, will in his new capacity be responsible for coordination of cargoes between U.S. East Coast and Brazilian ports.

Previous to joining Norton, Lilly & Co., Inc., he was associated with Trans-American Trailer Transport and Prudential Grace Line in various capacities.



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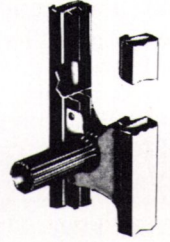


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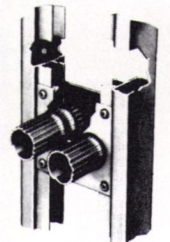
TYPE MH —

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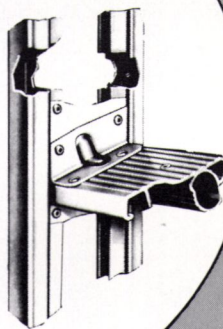
TYPE MHDR —

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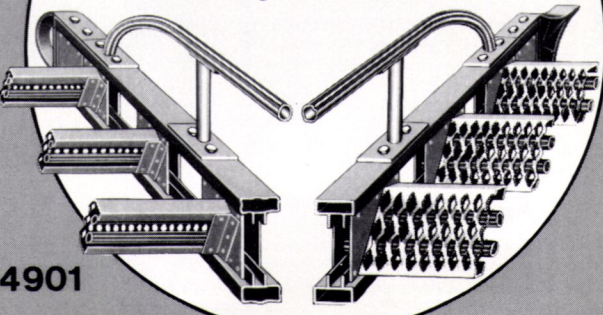
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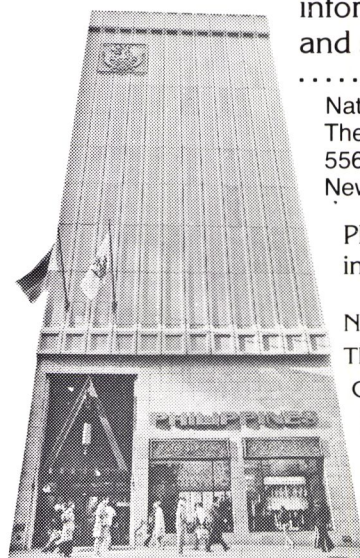
There, the Philippine National Seamen Board has mounted a special exhibit on today's Filipino seaman.

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National Seamen Board Exhibit, New York Philippine Center, August 4th to October 4th.

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North American Philips Offers New Radio Telex System For Shipboard Communications

N.A. Philips Communications Systems has announced an advance microprocessor-controlled error correcting system that links shipboard teleprinters to the worldwide Telex network. The new unit, called STB-750, installs between the vessel's high frequency radio and the teleprinter. Using ARQ, "FEC" and selective FEC error correcting techniques, it enables the vessel to exchange error-free traffic with any Telex terminal anywhere in the world.

The STB-750 is an advanced replacement for Philips STB-75 system, now installed on over 600 vessels and offshore platforms. The ships use H.F. radio to communicate with coastal stations, which are linked directly

to the Telex landline network. At present, there are more than 30 coastal stations in Europe, North America, and Asia, providing total coverage to all shipping lanes.

The advantage of radio telex, according to Philips Communications Systems, is its economy. STB-750 offers the same low error rates as satellite in most geographic areas, and error rates approaching the performance of satellite in fringe areas.

Major features of the new system include dialing from the teleprinter keyboard, automatic frequency drift correction, and buffer storage of up to 12,000 characters.

For complete information on the new radio telex system, write to **Saverio J. Berthe**, North American Philips, Communications Systems, 91 McKee Drive, Mahway, N.J. 70430.

Mangone Delivers 185-Foot Supply Vessel To Briley

The Alice Briley, a 185-foot supply ship built by Mangone Shipbuilding of Houston, Texas, was delivered to Briley Marine Services, Inc. of Morgan City, La., in late August. The ship will work the Gulf of Mexico out of Galveston for Briley Marine. Mangone is a subsidiary of Stewart and Stevenson Services, Inc.

The Alice Briley is powered by two 16V (149) Detroit Diesels developing a total of 2,770 hp, and carries two 8V-71 Detroit Diesel generators rated at 125 kw each.



Powered by Detroit Diesels, the Alice Briley has a range of approximately 9,000 miles.

The new ship has a working capacity of up to 50 days, range of approximately 9,000 miles, cruising speed of approximately 13 knots, and sleeps 20.

Overall measurements are 185 feet in length, 38-foot beam, 16-foot depth, and 13-foot 8-inch draft. Clear deck space is 110 feet by 31 feet.

The Alice Briley has electric and electric hydraulic steering, a flume stabilization system, and a 48-inch-diameter bow thruster driven by an 8V-71 diesel engine.

Controls are Westinghouse air, and located in the pilothouse and aft station. Electronic gear includes radar, radiotelephone and VHF Loran recording Fathometer.

Outfitted for her Gulf service, the ship has mud tanks with a total capacity of 42,156 gallons and six cement tanks below deck totaling 3,000-cubic-foot capacity.

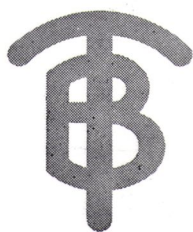
Mangone vice president and general manager **Don Godeau** reports that the Alice Briley is U.S. Coast Guard Certified and ABS-classed star Hull and Machinery, all oceans.



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1500KW GE, turbo-gen 3/60/480V 1200 RPM, driven by Terry turbines, 625 PSI, 750° FTT. □ 3000 HP Westinghouse turbines high pressure & low pressure for DE. Unused. □ 15,000 HP GE turbines, cross compound, high & low pressure, port and starboard. Unused.

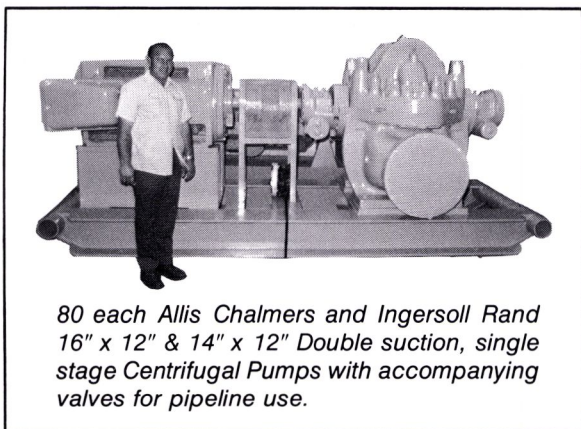
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3 ea. General Electric 2750 KW, 3/60/600 V, 1200 RPM driven by G.E. diesel engines model 7 FDS 16 B1, 16 cylinder, V-type. New.

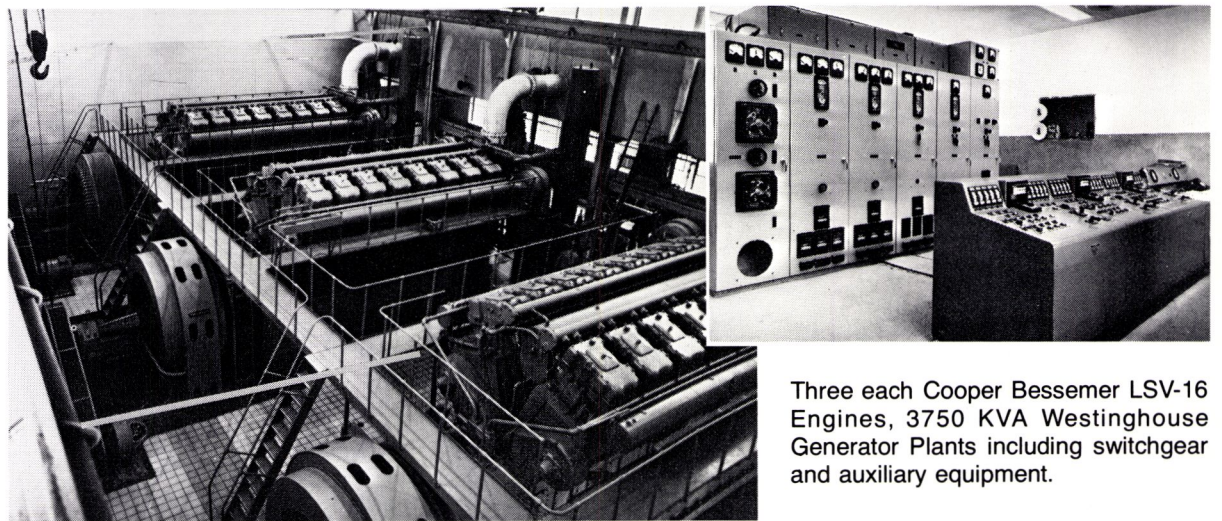
6 ea. EMD 1000 KW, 3/60/2400/4160 V, 720 RPM driven by EMD 16-567C diesel engines mounted in railway cars.

Pumps

5 ea. Ingersoll Rand model 10 ALV, 3000 GPM @ 396 ft. head. □ Fairbanks Morse 2 stage, 6" x 4" driven by GM 6-71 diesel. □ Ingersoll Rand model 3 CHT-10, 350 GPM @ 4850 hd. ft.

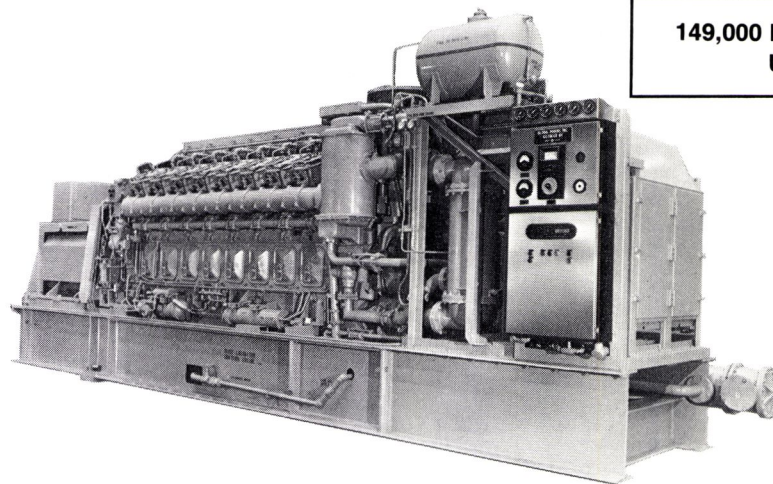


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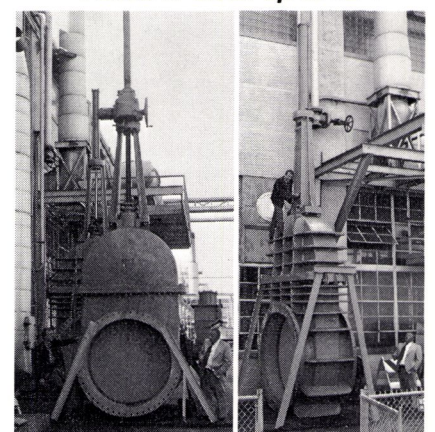


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Britain's P&O Group Designs New Type Naval Vessel To Be Built In Private Yards

Britain's giant shipping group P and O has unveiled designs for a versatile new type of naval vessel which can be built or refitted in any commercial shipyard capable of handling a deepsea trawler.

The designs are intended to help governments with limited defense and manpower budgets and without specialized naval dockyards to provide adequate defense and coast guard cover, oil rig and fisheries protection.

The company does not propose to build the vessel itself, but would supply the designs, help select a suitable shipyard, and supervise construction. It would also offer assistance in obtaining parts and equipment.

The use of commercial shipbuilding prac-

tice, says P and O, enable costs to be kept to a minimum. The basic vessel could be built for around \$14,000,000, while the most advanced type, with full weapons and electronics, would cost around \$28,000,000.

Named the "Flower Project" after the Flower-class sloops of the First World War and corvettes of World War Two, the designs are for a corvette of approximately 1,100-tons displacement with an overall length of about 282 feet (86 meters).

The vessel's main feature is the ability to operate and maintain two helicopters at sea, though its cost and manpower requirement is only half that of a full-size frigate which can operate only one helicopter.

Three main versions are available. Type 86 P is the basic low-cost vessel for coast guard and para-military duties, Type 86 N is the full naval version with heavier armament and more advanced electronics, while

the main features of these two types are combined in the third version, Type 86 M.

Both types 86 P and 86 M can also carry decompression equipment for divers, and equipment for survey and research work or disaster relief. All three types can be varied to meet individual requirements including, for example, fitting either ship-to-ship or ship-to-air missile systems.

Normally, the Flower Project vessels will use British Westland Lynx helicopters, and armament would include a single 76-mm and two 40-mm guns and antisubmarine torpedo tubes.

The designs are by P and O subsidiary Three Quays Marine Services, which supervises design and construction of P and O vessels, and also works for other shipowners. It is currently involved in the building of cargo vessels in Korea for Arab shipping interests.

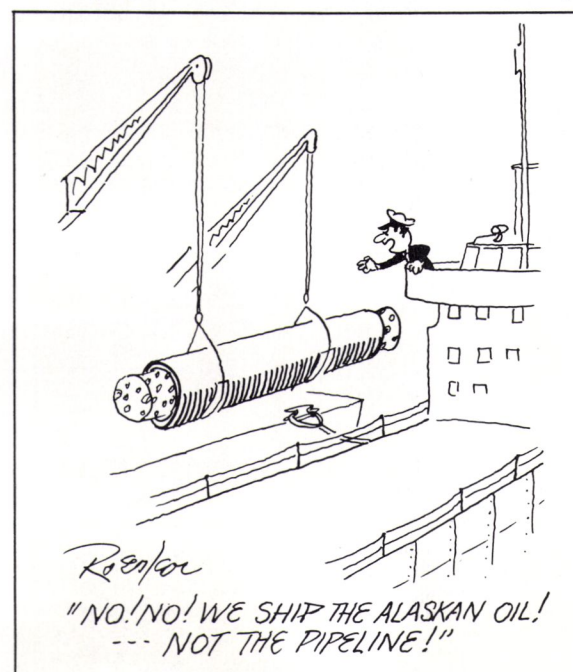
Equitable Lays Keel For First Of Three Breakbulk Vessels For American Atlantic Shipping

Keel-laying ceremonies for the first 2,000-dwt breakbulk vessel in a series of three vessels for American Atlantic Shipping, Inc., was held recently by Equitable Shipyards, Inc. at its Madisonville La., shipyard.

The principals attending the keel-laying ceremonies were **Paul Hancock**, vice president, American Atlantic Shipping, Inc.; **A.P. Chester**, chairman of the board and president, American Atlantic Shipping, Inc.; **Richard Blum**, Maritime Administration Construction Representative; **Norman Hodge**, plant manager, Equitable Shipyards, Inc., Madisonville; **C.M. Keeney**, president and chief executive officer of Equitable Shipyards, Inc.; **J.F. Williams**, vice president-sales, Equitable, and **Bruce Carroll**, contract administrator, Equitable.

Equitable was awarded the contract on May 6, 1977, by American Atlantic Shipping, Inc. to construct three identical 2,000-dwt breakbulk vessels under Maritime Subsidy Board U.S. Department of Commerce Contract MA/MSB-399, MA Design C1-M-122a.

Equitable is a wholly owned subsidiary of Trinity Industries, Inc., a Dallas, Texas-based manufacturer of industrial, marine and structural metal products. The Equitable shipyards are the world's largest builder of lighter aboard ship (LASH) and SEABEE barges, and builds tugboats, crewboats, towboats, supply vessels, and other floating marine equipment for the offshore oil industry.



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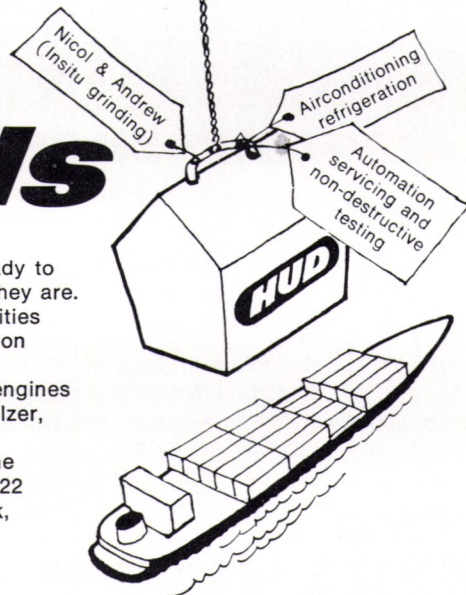
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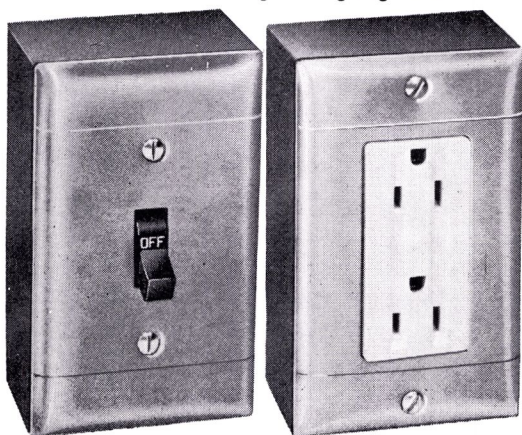
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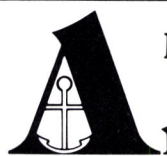
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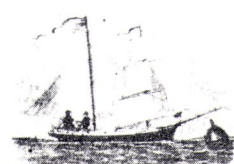
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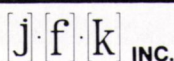
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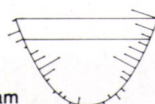
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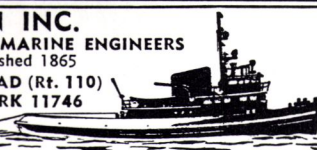
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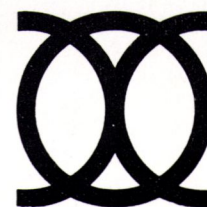
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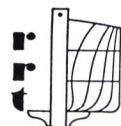
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Study Of Superports And SBMs For Tankers Published

The closure of the Suez Canal in 1967, together with the steady increase in world crude oil movements, precipitated the development of the VLCC fleet (tankers over 175,000 dwt), and later the ULCC fleet (tankers over 300,000 dwt). Initially, world port facilities to handle these supertankers were inadequate, and during the late 1960s and early 1970s several plans for the expansion of existing ports and the creation of entirely new ones were discussed. Many of these went ahead, but the slump of late 1973 meant that several projects never left the drawing board, while others were considerably modified. The aim of Study 55 is to describe and evaluate the current role of supertanker terminals and examine their future development and capability to handle projected worldwide crude oil loading, discharging and transshipment.

The Study begins with an examination of world crude oil movements, which indicates that the greater proportion is suitable for supertanker trading. Main VLCC loading and discharge areas are discussed, and the various types of terminal, including those of the single buoy mooring (SBM) class, are indicated. SECTION I of the Study examines both current and future VLCC/ULCC terminals by crude oil exporting area, and is illustrated by maps of the most important of these areas showing the juxtaposition of oil fields, pipelines, and terminals. This is followed by SECTION II by a discussion of worldwide supertanker discharge and transshipment terminals. This section is also illustrated by maps of the major importing areas showing terminals, pipelines and refining areas. In both these sections terminal throughput is discussed, together with the relative part these terminals play in the whole crude oil export and import pattern. An analysis of the utilization of supertanker terminals is included in the third section of the Study, which is based on the 1976-77 voyage pattern of a 25 percent sample of the supertanker fleet. The Study concludes with a discussion of future utilization of superports in the light of known port development plans, projected fleet size, and oil movements.

Throughout the Study the importance of SBM's vis-a-vis conventional port facilities is emphasized. Details of all ports and terminals capable of taking VLCCs/ULCCs throughout the world are given, including, wherever possible, number and size of berths, throughput, capacity, operators and development plans.

Study No. 55, "Superports And SMB's For Tankers," can be ordered from HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England, at U.S. \$75 per copy.

New Orleans Dedicates New Ro/Ro Facility

The Port of New Orleans, La., recently dedicated its new \$850,000 roll-on/roll-off facility at Florida Avenue, with two steamship lines scheduled to provide regular roll-on service to Central America from the new berth.

The \$850,000 facility, which includes container storage area, is part of a \$91-million port capital improvements program which began last year. Work is presently under way on a \$210,000 expansion of the facility to permit simultaneous berthing of two roll-on ships, scheduled to be completed by the end of the year.



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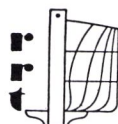
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DIPLOMATE IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

Study Of Superports And SBMs For Tankers Published

The closure of the Suez Canal in 1967, together with the steady increase in world crude oil movements, precipitated the development of the VLCC fleet (tankers over 175,000 dwt), and later the ULCC fleet (tankers over 300,000 dwt). Initially, world port facilities to handle these supertankers were inadequate, and during the late 1960s and early 1970s several plans for the expansion of existing ports and the creation of entirely new ones were discussed. Many of these went ahead, but the slump of late 1973 meant that several projects never left the drawing board, while others were considerably modified. The aim of Study 55 is to describe and evaluate the current role of supertanker terminals and examine their future development and capability to handle projected worldwide crude oil loading, discharging and transshipment.

The Study begins with an examination of world crude oil movements, which indicates that the greater proportion is suitable for supertanker trading. Main VLCC loading and discharge areas are discussed, and the various types of terminal, including those of the single buoy mooring (SBM) class, are indicated. SECTION I of the Study examines both current and future VLCC/ULCC terminals by crude oil exporting area, and is illustrated by maps of the most important of these areas showing the juxtaposition of oil fields, pipelines, and terminals. This is followed by SECTION II by a discussion of worldwide supertanker discharge and transshipment terminals. This section is also illustrated by maps of the major importing areas showing terminals, pipelines and refining areas. In both these sections terminal throughput is discussed, together with the relative part these terminals play in the whole crude oil export and import pattern. An analysis of the utilization of supertanker terminals is included in the third section of the Study, which is based on the 1976-77 voyage pattern of a 25 percent sample of the supertanker fleet. The Study concludes with a discussion of future utilization of superports in the light of known port development plans, projected fleet size, and oil movements.

Throughout the Study the importance of SBM's vis-a-vis conventional port facilities is emphasized. Details of all ports and terminals capable of taking VLCCs/ULCCs throughout the world are given, including, wherever possible, number and size of berths, throughput, capacity, operators and development plans.

Study No. 55, "Superports And SMB's For Tankers," can be ordered from HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England, at U.S. \$75 per copy.

New Orleans Dedicates New Ro/Ro Facility

The Port of New Orleans, La., recently dedicated its new \$850,000 roll-on/roll-off facility at Florida Avenue, with two steamship lines scheduled to provide regular roll-on service to Central America from the new berth.

The \$850,000 facility, which includes container storage area, is part of a \$91-million port capital improvements program which began last year. Work is presently under way on a \$210,000 expansion of the facility to permit simultaneous berthing of two roll-on ships, scheduled to be completed by the end of the year.



Blue Water Marine Forms New Division —George Gray Named



George D. Gray

Blue Water Marine Supply, Inc. has announced the formation of its new Offshore Safety/Survival Division. Blue Water president **Walter E. Turner**, in making the announcement, said **George D. Gray** has joined the firm as vice president and manager of the division.

The division will, according to Mr. Gray, "Sell hundreds of product lines designed to provide offshore safety measures for surface vessels and drilling rigs, submarines and aircraft, as well as products designated as means of life-saving and survival." The new division will operate at the parent firm's 1000 Broadway at Channel-side, Houston, Texas 77012, headquarters location. The division will also operate a safety inspection station for inflatable life rafts.

Mr. Gray was with Alexander Industries for the past 12 years, serving as district manager and director of marketing, Safety Division. Previously, he had held

a managerial post with General Electric, headed a home-building firm, and served as president of a building supply company. Retired with the rank of commander after 22 years in the USNR, Mr. Gray had 10 years' active duty in the Naval Air Corps, serving during World War II and the Korean Conflict.

He is active with the International Association of Drilling Contractors, serving on the Safety Committee, with The Society of Naval Architects and Marine Engineers, the Retired Officers Association, and with Marine Service Association of Texas, of which he was co-founder and first president.

Buenos Aires And Manila Added To ABS Network Of Technical Offices

The Buenos Aires, Argentina, and Manila, Philippines offices of the American Bureau of Shipping (ABS) have been designated Technical Offices, and now provide hull plan approval services in addition to field surveying.

The addition of the two offices brings to 11 the number of countries in which the international ship classification society maintains Technical Offices, which are equipped to review hull or machinery plans, or both.

As of July 1, 64 vessels totaling 205,090 gross tons were being built, or were scheduled to be built, to ABS classification in Argentinian shipyards, and 31 vessels totaling 15,290 gross tons were being built, or were scheduled to be built, to ABS classification in Philippine shipyards. There were 161 Argentine-flag



BLOUNT DELIVERY—The newest and fastest addition to the Montauk, Long Island, N.Y., fishing fleet is Capt. **Paul Forsberg's** Viking Starship. Designed and built by Blount Marine Corporation, Warren, R.I., the 135-foot vessel has an aluminum superstructure mounted on a Mayari R50 steel hull. She is powered by two Mercedes-Benz diesel engines producing 2,240 hp, and cruises loaded at 20 knots. Built to U.S. Coast Guard requirements for taking 149 anglers 150 miles offshore, the Viking Starship has several unique features. She has a heated deck and handrail for winter fishing. Inside the lower cabin there are 70 reclining seats. Below deck there are bunks sleeping 72.

vessels, and 104 Philippine-flag vessels in ABS class as of July 1.

In addition to Buenos Aires and Manila, ABS maintains Technical Offices in Rio de Janeiro, Brazil; Hamburg, Germany; Genoa, Italy; Tokyo, Japan; Rotterdam, the Netherlands; Singapore; Madrid, Spain; London, United Kingdom, and New York, Cleveland, New Orleans, and San Francisco, in the United States. ABS has offices in 88 countries.

ABS is a nongovernmental, worldwide ship classification society which establishes internationally accepted standards, called Rules, for the design, construction, and periodic survey of merchant vessels and other marine structures. The Rules are published in English, Spanish, German, Greek, Portuguese, Japanese, and French.

American Heavy Lift Shipping Company Names Two Top Executives

Winthrop A. Wyman and **J. Terrence Hammer** have been appointed president and executive vice president-general manager, respectively, for American Heavy Lift Shipping Company (AHL), a jointly owned venture of Gulf Oil Corporation and Hansa Lines of Bremen, West Germany.

In addition to his AHL responsibilities, Mr. **Wyman**, who joined Gulf in January 1977, will continue as general manager-marine transportation for Gulf Trading and Transportation Company (GT&T), a division of Gulf Oil Corporation. He is a native of Minneapolis, Minn.

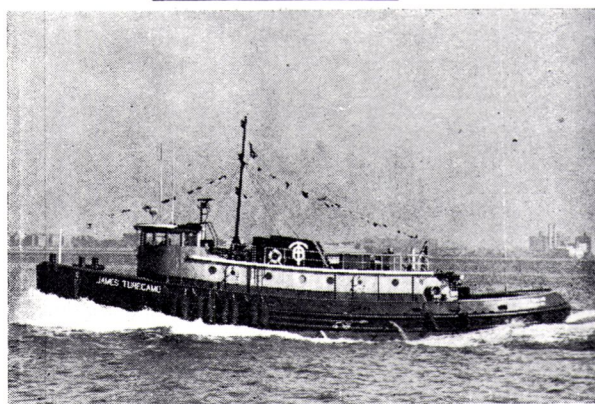
Mr. **Hammer** has held a succession of managerial posts of increasing responsibility since joining Gulf in 1970. He will manage the American Heavy Lift operations from the company's headquarters in Pittsburgh, Pa., until the spring of 1978. At that time, AHL headquarters will be transferred to Philadelphia, Pa.

American Heavy Lift, incorporated on November 18, 1976 in Delaware, is owned 75 percent by Gulf Oil Corporation and 25 percent by Hansa Lines of Bremen, West Germany. Gulf Trading and Transportation will manage and operate AHL's heavy-lift vessels. Hansa Lines, one of the oldest and largest operators of heavy-lift ships in the world, will be responsible for marketing the worldwide services these vessels will perform.

Two heavy-lift vessels are now under construction for AHL by Peterson Builders, Inc. in Sturgeon Bay, Wis. The vessels are being designed to lift single cargo pieces weighing over 400 tons, and roll-on/roll-off of 1,000-ton items via a bow ramp. Cargoes for the heavy-lift vessels will include generator components, nuclear reactor parts, locomotives, industrial plant components and other heavy machinery.

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Woolsey Marine Names Terry Koehl



Terry F. Koehl

H.W. Evans Jr., president of Woolsey Marine Industries, Inc., Danbury, Conn., manufacturer of marine coatings, has announced the promotion of **Terry F. Koehl** to the position of vice president of marketing and sales, with overall responsibilities for both Woolsey's Yacht Finishes and Commercial Marine Coatings Divisions.

"This is a very special occasion," said Mr. Evans, "as we are about to celebrate our 125th Anniversary of producing marine paints and coatings, and as **Terry** is a 25-year veteran with the company, he takes over the sales lead at a most auspicious time. Woolsey is on the brink of some very exciting product innovations, and under **Terry's** guidance we anticipate enhancing our present strong position in the Yacht Finishes market."

Mr. Koehl was formerly the vice president of Gulf Coast sales, and a resident of New Orleans, La.

Hapag-Lloyd Containers Now Around The World

Hapag-Lloyd is establishing the last link of its worldwide chain of container trades with the inauguration of a fully cellular container service between the Pacific Coast of the United States and the Far East toward the end of this year.

Hapag-Lloyd is going to offer a 10-daily service between Los Angeles, San Francisco Bay and the Pacific Northwest on the American side, and Japan, Korea, Hong Kong, Taiwan and other areas in Southeast Asia. The ships will have a capacity of 1,100 TEUS. Mini-bridge services will be offered to and from the East Coast of the United States and the U.S. Gulf ports. Depending on the development of the trade, weekly sailings may be offered in the future.

It's the first liner service which Hapag-Lloyd will have inaugurated in a cross trade after many decades. They are confident that in view of their worldwide reputation as dependable liner operators they will be in a position to achieve a reasonable participation.

W.L. Bull Jr. Named Marine Transportation Director For NLFI

Northern Liquid Fuels International, Ltd. (NLFI), Houston, Texas, has named **William L. Bull Jr.** director of marine transportation.

Mr. Bull, formerly manager of supply and transportation for Tropigas International Corpora-

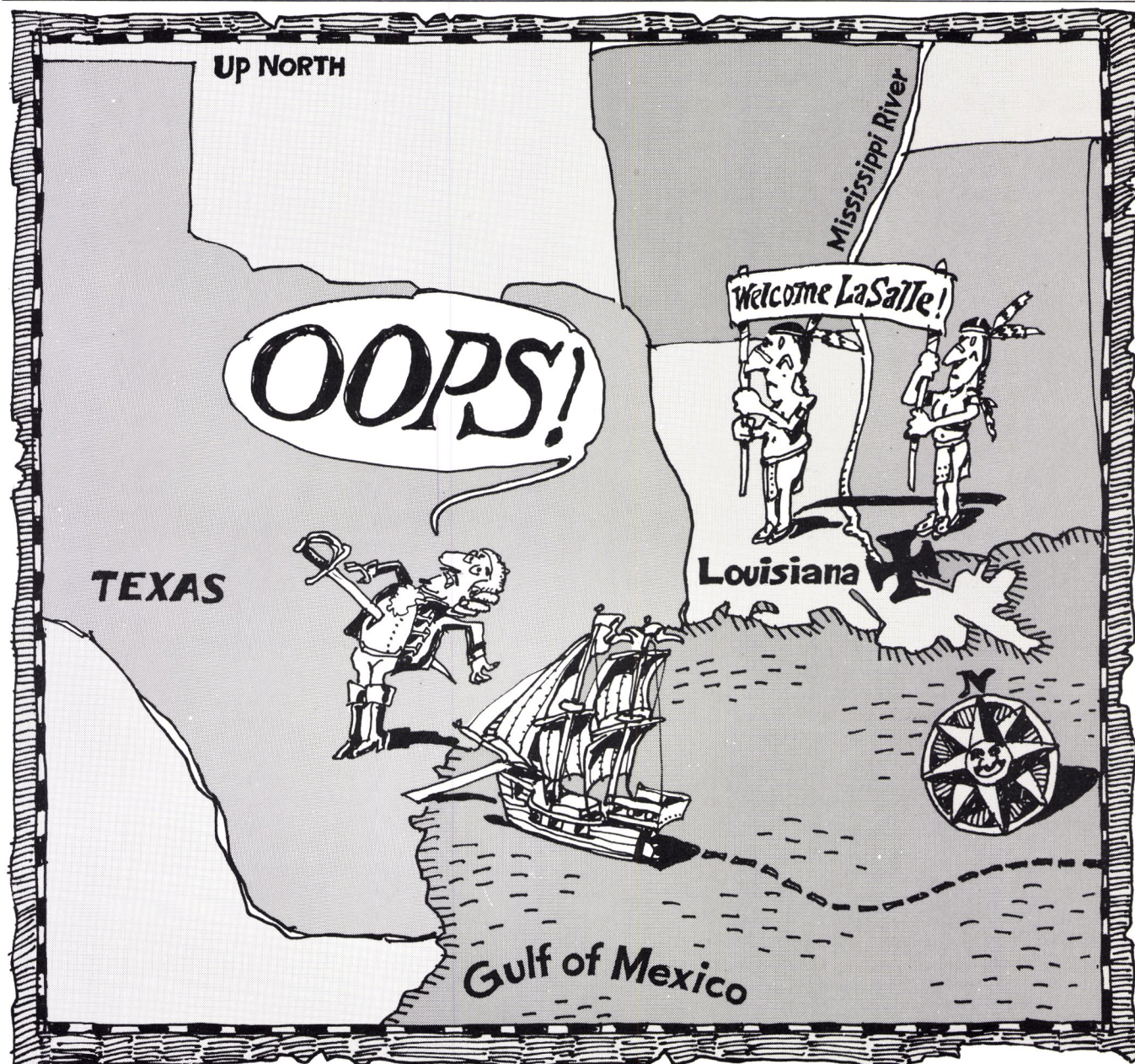
tion in Miami, Fla., will be responsible for the operation of two 75,000-cubic-meter LPG vessels presently under construction for Northern Natural Gas Company, in addition to chartering responsibilities for all NLFI shipping.

Northern Liquid Fuels International, 3800 Buffalo Speedway, Suite 216, Houston, Texas 77098, a wholly owned subsidiary of Northern Natural Gas, was formed

in 1976 as an international supply and marketing operation for LPG.

Prior to joining Northern, Mr. Bull was employed 18 years by Tropigas. During that time, he was responsible for the company's marine department and its operation of a fleet of owned and chartered LPG vessels.

Mr. Bull will be located in NLFI's Houston headquarters.



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Marco's 25th Crabber Readied For King Crab Season Opening

A new Marine Construction & Design Co. (Marco) crab boat, christened recently at Seattle's Fishermen's Terminal, had just enough time to be provisioned before it headed north for the September 15 opening of the King Crab fishery in the Bering Sea. The 108-foot steel vessel is named the West Point.

Owners of the West Point are **Peter Haugen**, who is also the skipper, and partners **Kjell Fjortoft** and **John P. Lowman**, all veteran Pacific Northwest fishermen. **Michelle Fjortoft**, daughter of owner **Kjell Fjortoft**, broke the traditional bottle of champagne over the bow during the christening ceremonies. Mr. Fjortoft also owns and captains another Marco 108-foot crabber, the Norseman.

The West Point will be delivering its catch to East Point Seafood Co. at Dutch Harbor in Alaska's Aleutian Islands.



The 108-foot West Point powered by a Caterpillar diesel producing 850 bhp will operate in the Bering Sea.

A Caterpillar D398B engine, producing 850 bhp, powers the West Point. The three-blade, stainless steel, 80-inch-diameter propeller is manufactured by Coolidge. Top vessel speed is 12 knots. The vessel has two Caterpillar D3306 auxiliary engines.

The West Point carries five Marco hydraulic winches to handle the deck work—a topping winch, a trolley winch, two cargo winches, and an anchor winch. Crab pots will be hauled by a Marco KingHauler pot line hauler. A Marco hydraulic dumping rack automatically sets the pots in the water and facilitates the handling of pots onboard.

Electronics include two radar systems, recording depth sounder, depth indicator, two loran systems, and four radio sets. A Wagner hydraulic steering system has a pilothouse wheel, plus two jog steering stations.

The West Point has three crab tanks providing a total of 7,500 cubic feet of space. With that amount of space and the vessel's seawater circulation system, the new crab boat can carry 170,000 pounds of live crab for weeks at a time if necessary.

Marco's latest crabber is the 25th such vessel the Seattle, Wash., shipyard has built since 1968, reported **Robert F. Allen**, executive vice president. Mr. Allen noted that all Marco crab boats, which range from 94 to 121 feet in length, can be readily converted to work as trawlers, a capability which may increase in importance as a result of the 200-mile limit.

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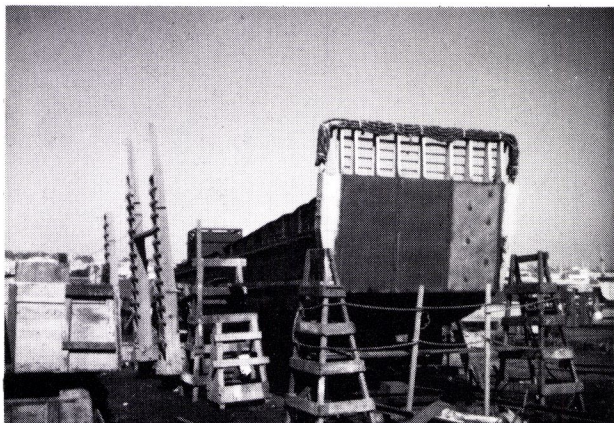
Personnel Department
Bay Shipbuilding Corporation
605 N. 3rd Avenue
Sturgeon Bay, WI 54235

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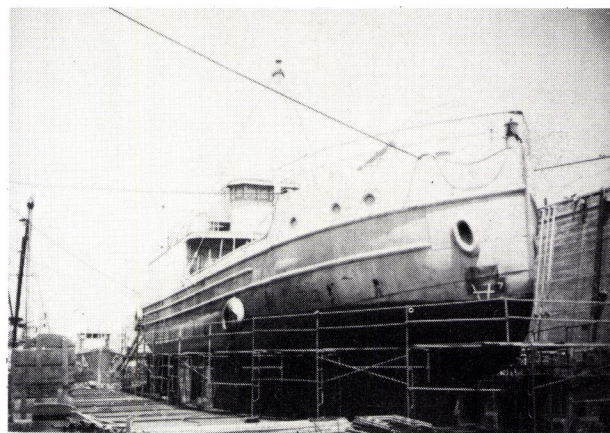
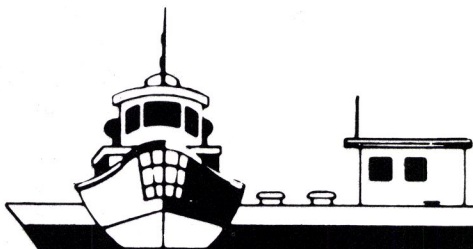
NO REASONABLE OFFER REFUSED



LCM 6's — 9 Units BUILT 1950's & 1960's
56' x 14'4" x 3'6"
LOCATION: (3) East Coast
(6) West Coast — ENGINES COMPLETELY REBUILT



ASR—Submarine Rescue Ship (Fleet Tug) BUILT 1942
251' x 44' x 16' Single Screw-3000 SHP
LOCATION: West Coast



YF's (Yard Freighters) — 4 Units BUILT 1945
133' x 31' x 9'
LOCATION: West Coast. CONSIDERABLE ENGINE AND
UNDERWATER WORK RECENTLY COMPLETED.

MSF — MINESWEEPER

221' x 32' x 11'

4-GM Engines Total 4120 HP

LOCATION: West Coast

BUILT 1943

1. Electric Pallet Transporters
(2) Loc: W.C. \$1500 Each
2. Lifeboats Self-Propelled 31'
(2) Loc: W.C. \$2000 Each
3. Fuel Injection Pumps — Alco
Engines (18) Loc: W.C. \$1000 Each
4. Crankshafts for Hercules Diesels
(4) Loc: W.C. \$ 300 Each
5. Gray Marine (GM6-71)
(4) Loc: W.C. \$4200 Each
6. Lifeboats 22' (3) .. Loc: E.C. \$ 500 Each
7. Lifeboat 31' (1) .. Loc: E.C. \$ 600
8. 30' LCPL (1) Loc: W.C. \$3955
9. 30' LCPL (1) Loc: W.C. \$3955
10. Personnel Boat C-4471
with Engine Loc: W.C. \$9500

FOR FURTHER DETAILS AND ARRANGEMENTS
FOR INSPECTION, PLEASE CONTACT

MOWBRAY'S

TUG & BARGE SALES CORP.
21 WEST ST., NEW YORK, N.Y. 10006
(212) 943-7070

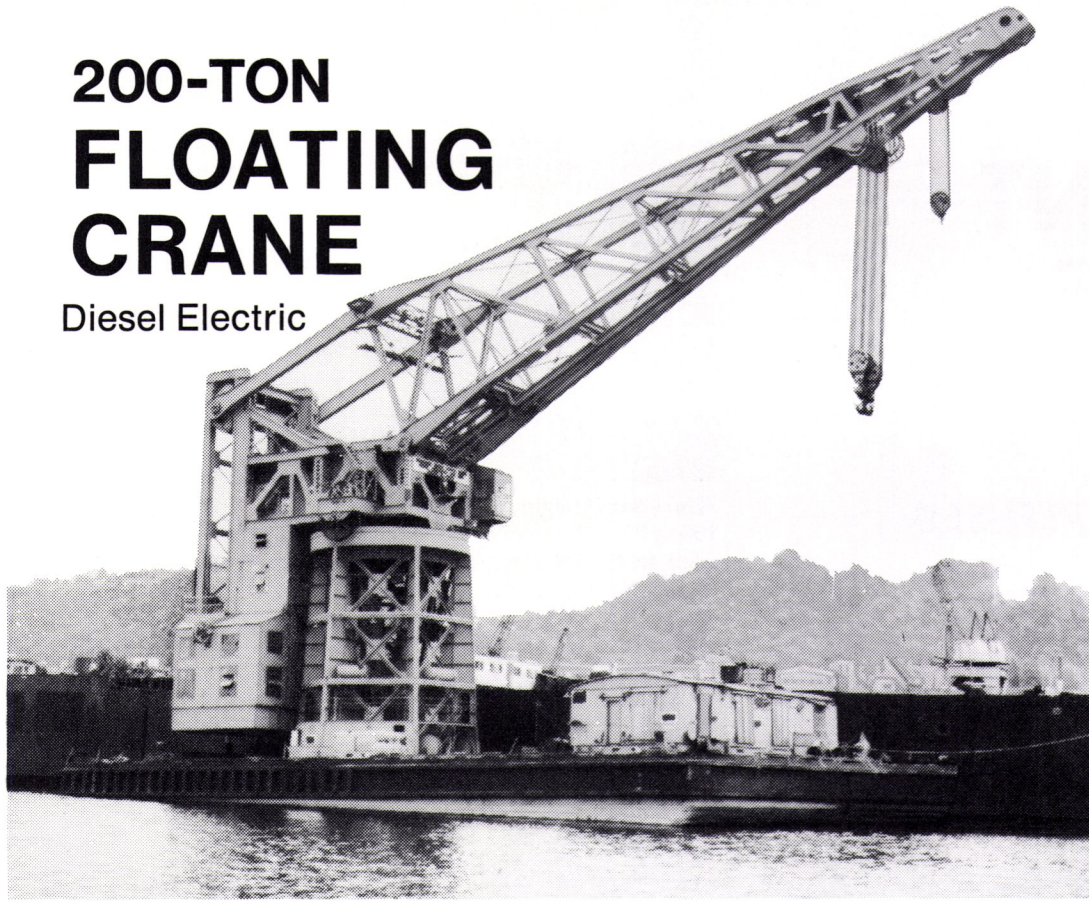
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Ready To Go To Work NOW

200-TON FLOATING CRANE

Diesel Electric



MR 7601

VESSEL CHARACTERISTICS 200-TON LIFTING CAPACITY

LENGTH OVERALL 140 FT.
BEAM 84 FT.
DRAFT 7 FT.
LIGHT DISPLACEMENT 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING TYPE—FULL 360°
WEB BOOM 146 FT.
MAIN HOIST: 200-Ton—By 2 only, 8 part blocks.
Each block carries 2,050 ft. of 1½",
6 x 37 I.P.S. wire rope (New).
AUX. HOIST: 25-Ton—By 1 only 4 part block.
Block carries 1,110 ft. of 1¾", 6 x 37
I.P.S. wire rope (New).

ADDED FEATURES

1. Diesel Electric Powered with G.M. 8-278A diesel engine (engine just majored) and 300 KW, 230 volt Generators. Both in A-1 first class condition.
2. All New Wire Rope Throughout.
3. All sheaves, bushings and sheave pins have been removed, inspected and replaced in Good Condition.
4. All Electrical systems and controls have been placed in good operating condition.
5. Large Fuel Tank Capacity.
6. 25 Ton auxiliary hoist has full 140 ft. of boom travel.
7. Two main hoist drums can be operated independently.

AVAILABLE FOR INSPECTION AND DEMONSTRATION AT OUR PIER—PORTLAND, OREGON

Contact: **Hugh Sturdivant**

Sales Manager

Phone: 503/228-8691

and 2 FLOATING DOCKS

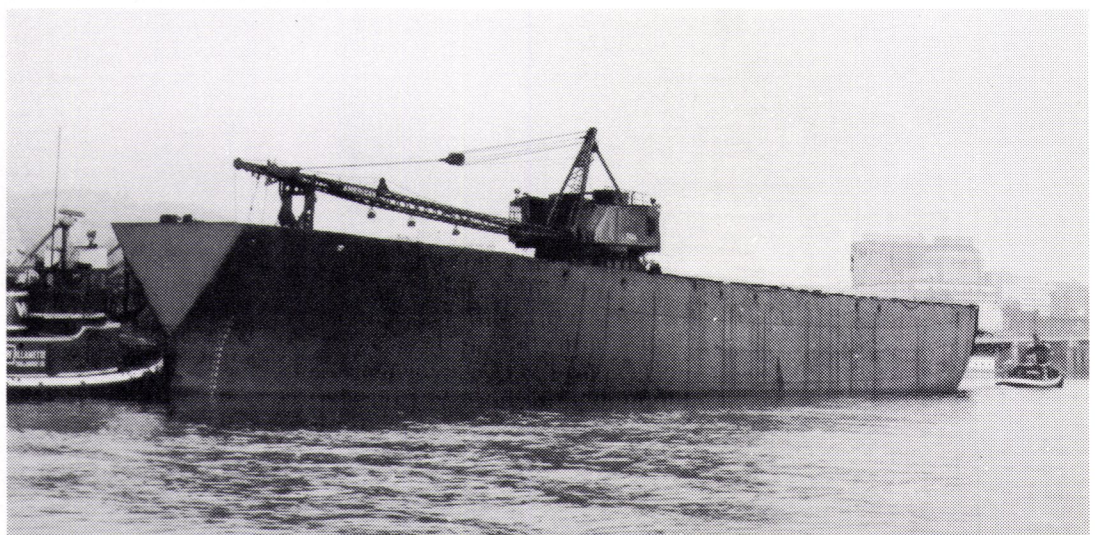
with 50-Ton Whirley Cranes

VESSEL CHARACTERISTICS

LENGTH OVERALL 442 FT.
BEAM 57 FT.
DRAFT (Light Displ.) 14 FT.
CRANES: Main Hoist 50 Tons
Whip Hoist 10 Tons
Boom 105 Ft.

Check these ADDED FEATURES

- ✓ 400 ft. Whirley Track on deck.
- ✓ 564,000 Cubic ft. of inside storage—5 Holds
- ✓ YES—IMMEDIATELY Available for Use.
- ✓ 3 Units in One—A Dock, A Whirley Crane and Large Dry Storage Facility.



MR 7602

Available for inspection and demonstration at our pier—Portland, Oregon

Contact: **Hugh Sturdivant**
or **A. D. Canulette, Jr.**
Phone: 503/228-8691
Telex: 36-0503 • Cable "ZIDELL"

ZIDELL
EXPLORATIONS, INC.
3121 S.W. Moody Avenue
Portland, Oregon 97201

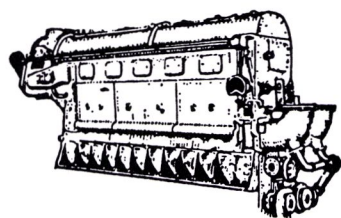
SHIPBOARD EQUIPMENT

From

ZIDELL EXPLORATIONS INC.

Contact: Hugh Sturdivant
3121 S. W. Moody Ave., Portland, Ore. 97201
Telex: 36-0503 • Cable "ZIDELL"
PHONE: A/C 503 • 228-8691

MARINE DIESEL ENGINES



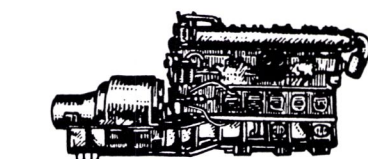
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-1/2 — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start.. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.



3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

TURBINE GENERATORS—AC and DC Voltage

A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

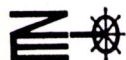
1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.

**FAST REPLIES
ON YOUR
INQUIRIES!**



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listing of our
stock from
**EX-NAVY and
MARITIME VESSELS**

Certifications to A.B.S.
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SPREAD IN
ALTERNATE
ISSUES OF
M.R.**



Rebuilt
and Guaranteed

AXIAL FLOW FANS LaDel, Sturtevant, etc.

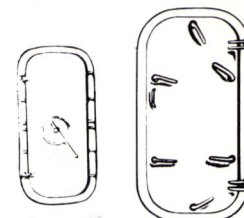
In 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Completely reconditioned.

EXAMPLE LISTING:

Size A 1/4	Size A3	Size A8
Size A 1/2	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

STEEL WATERTIGHT DOORS

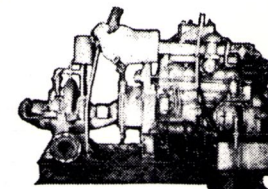
Used, Good
Condition,
Trimmed
Frames.



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

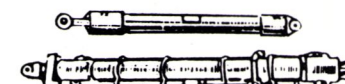
26"x48"-4 Dogs—\$60.00 ea.
26"x57"-6 Dogs—\$80.00 ea.
26"x60"-4 Dogs, 6 Dogs—\$86.00 ea.
26"x66"-6 Dogs, 8 Dogs—\$100.00 ea.
26"x66"-Q.A. Type—\$175.00 ea.

FIRE PUMPS



2—BUDA, Model 6-LD-468, Diesel Engines
6 cylinders, 100 BHP, Marine, Gardner
Denver, centrifugal Pumps, Bronze, hor-
izontally split case, 1000 GPM, 280' head, 6
suction and 5" discharge.

HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45 1/2"	double
10"	26"	3.75"	58 1/2"	double
2"	8"	1 1/2"	20"	double
2.5"	15"	1.12"	25 1/2"	double
3"	8"	1.37"	15 1/2"	double
6"	8"	4"	144"	double

Electro-Mechanical STEERING GEAR

1—SPERRY No. 2, 5 HP, 230 Volts DC, com-
plete with Steering Winch, Controller Panel,
Ballast Resistor, Electro-Mechanical Steer-
ing Stand—with Steering Wheel (with Pull-
out Knob).



AIR COMPRESSORS

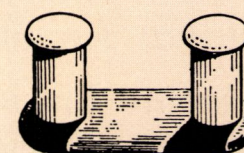
1—GARDNER-DENVER, 150 CFM, 125 PSI,
Class WB, Size 7x5 3/4 x5, with Diehl Motors,
45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

3—INGERSOLL - RAND, Size 5x5x4x4, 50
CFM, 150 PSI, with G.E. Motor, 20 HP,
440/3/60.

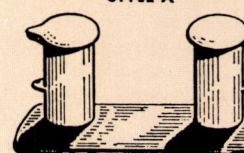
1—INGERSOLL - RAND, Model 40B, 155
CFM, 110 PSI, 870 RPM, with 40 HP Motor,
230 DC.

2—WORTHINGTON, 20 CFH, 3000 PSI, 4
stage, 585 RPM, with Worthington Steam
Turbine, 47 HP, 5502 RPM.

DOUBLE BITS



STYLE A



STYLE B

Used, clean, good,
suitable for reuse.
Predominantly 12"
and 14" sizes, 2
styles, Many other
sizes in stock,
ranging from 6" to
18".

Specify quantity,
size and style re-
quired for fast
quotation.

ANCHOR CHAINS USED - GOOD



1 3/8" Size	2 1/4" Size
1 1/2" Size	2 3/8" Size
2 1/8" Size	

FOR MARINE VALVES AND FITTINGS: A/C 503,
228-8691, ASK FOR "VALVE DIVISION."

FOR ELECTRICAL EQUIPMENT: A/C 503,
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We have served the Shipping Industry exclusively for nearly 40 years and maintain an active file of people experienced in all of its phases — including Port Engineers, Ship Construction Supervisors, M&R, sales, etc. — to relocate anywhere.

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Excellent opportunity for qualified individual to plan, schedule and integrate all production work for multiship new construction of different class vessels and ship repair.

Shipyard experience is preferred with at least 5 years in planning operations and strong technical background in naval architecture, marine or industrial engineering or related discipline.

Send resume including present or most recent salary to:

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BAY SHIPBUILDING CORP.

605 N. 3rd Avenue
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ELECTRICAL MARINE DESIGNERS

A prominent Naval Architectural Firm desires to expand its staff and has openings, on the East Coast, for experienced Marine Engineers in the following:

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I.C. Systems

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Please send resumes to:

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• Naval Architect • Marine Engineer

The continued growth of Giannotti & Buck Associates, Inc., has resulted in the need to expand our professional staff in the commercial and naval ship design area. Candidates for Naval Architect should have experience in hull structure, hydrostatics, and weights and arrangements. Candidates for Marine Engineer should have experience in propulsion, auxiliaries, and electrical systems. Both must be graduate engineers with a minimum of two years' experience. Salary will be commensurate with education and experience. Please send resume to:

giannotti & buck associates, inc.
Crestwood Building, Suite 402
5711 Sarvis Avenue
Riverdale, Maryland 20840

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For Fleet of Fully Automated Tugs up to 5000 H.P. each in Caribbean, engaged in ship docking, Point-to-point and Deepsea towing, require Superintendent Engineer with Chief Engineer's license.

Box 922 Maritime Reporter/Engineering News
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Man with knowledge of marine industry. Preferably with sales experience to edit a monthly house organ with national coverage . . . for maritime organization in New York metropolitan area. Send resume in confidence to:

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107 East 31 Street New York, N.Y. 10016

SHIPYARD ESTIMATOR

Must be familiar with all phases of shipyard estimating for both commercial and military vessels. Experience required in job writing, pricing, customer relations, and negotiating. Knowledge of contracts, marine insurance, and the preparation of insurance surveys is also required.

For consideration, send resume to:

Box 921
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107 East 31 Street
New York, N.Y. 10016

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DIESEL ENGINEERS

Permanent Civil Service positions available on U.S. Navy operated ships. Coast Guard diesel license as second assistant or higher required.

Standard rates of pay in effect. Call collect 9 a.m. to 2 p.m. Monday - Friday, (201) 858-6684, Mr. Cotter, Military Sealift Command, Atlantic, Military Ocean Terminal, Bldg. #42, Bayonne, N.J. 07002

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Salesman — Guaranteed \$20,000 Annual Salary and Commission.

For international marine and industrial corrosion engineering company; must be thoroughly experienced to market Cathodic Protection products such as sacrificial anodes (i.e. magnesium, aluminum, zinc) and Impressed Current Systems for marine and industrial use.

Extensive company benefits, some domestic travel.

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Experienced only please call:
Wilson, Walton International
(212) 227-6657

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Immediate opening for a Certified Marine Chemist. \$25,000.00/year salary plus benefits with option to purchase stock. All replies held in strict confidence.

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MACHINERY INSTALLATION SUPERVISOR

Bay Shipbuilding Corporation is seeking an aggressive supervisor with demonstrated skills in organization, administration and operational details related to shipboard machinery installation. The successful applicant will have at least three (3) years experience in direct line supervision with detailed knowledge of large bore diesel engines, optical alignment and boring bar practice, rigging and heavy lifting. A thorough understanding of the interrelationship of shipbuilding trades is essential.

Submit resume including salary history and references to:

Personnel Department
BAY SHIPBUILDING CORP.
605 N. 3rd Avenue
Sturgeon Bay, Wi. 54235
An Equal Opportunity Employer M/F

FLORIDA DEPARTMENT OF TRANSPORTATION NEEDS IMMEDIATELY MARINE CAPTAINS

Location: Jacksonville, Florida
Salary: \$12,653 — \$16,871
Requires U.S. Coast Guard License as Master for 800 ton vessel.

MARINE ENGINEER I

Location: Jacksonville, Florida
Salary: \$11,275 — \$14,970
Requires U.S. Coast Guard Engineer License for 1,600 HP vessel. Responsible for operation, maintenance and repair of diesel and gas engines.
Contact Walter Cadwell, Department of Transportation, Personnel Manager, P.O. Box 1089, Lake City, Florida 32055 Telephone (904) 752-3300

Interview and relocation assistance available to qualified candidates. No age restrictions.

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• ESTIMATING ENGINEER

MacGregor the recognized world leader in design of hatch covers and roll-on/roll-off access equipment has an opening in its U.S. organization. Engineers for this position will be familiar with estimating/purchasing procedures and have several years experience and a working knowledge of hydraulics, electrical and structural layout. Candidates should also be familiar with ship construction and shipyard procedures. In addition to an excellent compensation program, we offer a competitive benefit package. Respond in confidence with resume and salary requirements to J. Nydegger, Executive Vice President.

MacGregor-Comarain, Inc.
Cargo transfer and access equipment

135 Dermody St. Cranford, New Jersey 07016

PORT ENGINEER WANTED

Must be a graduate, registered engineer with the ability to recognize and solve problems inherent in waterfront construction. Experience in this type construction desirable but not required. Salary is negotiable. Location in Southeastern United States. Please send resume with salary requirements in confidence to:

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WANTED SHIPYARD SUPERINTENDENT

To assume total responsibility for new construction and repair operations of medium size shipyard. Send resume in confidence to:

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SHIPBOARD EQUIPMENT

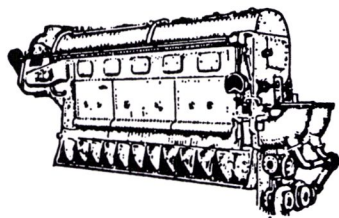
From

ZIDELL

EXPLORATIONS
INC.

Contact: Hugh Sturdivant
3121 S.W. Moody Ave., Portland, Ore. 97201
Telex: 36-0503 • Cable "ZIDELL"
PHONE: A/C 503 • 228-8691

MARINE DIESEL ENGINES



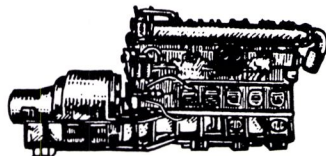
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-1/2 — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start.. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.



3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

TURBINE GENERATORS—AC and DC Voltage

A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.

**FAST REPLIES
ON YOUR
INQUIRIES!**

A partial
listing of our
stock from
**EX-NAVY and
MARITIME VESSELS**

Certifications to A.B.S.
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ALTERNATE
ISSUES OF
M.R.**



Rebuilt
and Guaranteed

AXIAL FLOW FANS

LaDel, Sturtevant, etc.

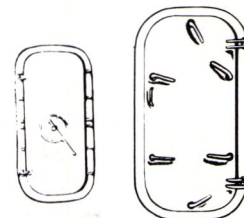
In 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Completely reconditioned.

EXAMPLE LISTING:

Size A 1/4	Size A3	Size A8
Size A 1/2	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

STEEL WATERTIGHT DOORS

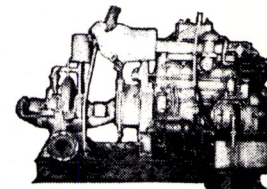
Used, Good
Condition,
Trimmed
Frames.



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

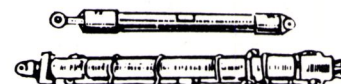
26"x48"-4 Dogs—\$60.00 ea.
26"x57"-6 Dogs—\$80.00 ea.
26"x60"-4 Dogs, 6 Dogs—\$86.00 ea.
26"x66"-6 Dogs, 8 Dogs—\$100.00 ea.
26"x66"-Q.A. Type—\$175.00 ea.

FIRE PUMPS



2—BUDA, Model 6-LD-468, Diesel Engine: 6 cylinders, 100 BHP, Marine, Gardner Denver, centrifugal Pumps, Bronze, horizontally split case, 1000 GPM, 280' head, 6 suction and 5" discharge.

HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45 1/2"	double
10"	26"	3.75"	58 1/2"	double
2"	8"	1 1/2"	20"	double
2.5"	15"	1.12"	25 1/2"	double
3"	8"	1.37"	15 1/2"	double
6"	8"	4"	144"	double



AIR COMPRESSORS

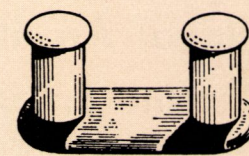
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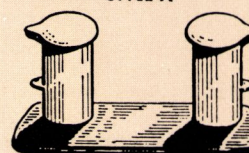
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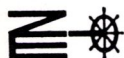
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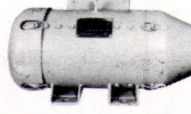
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AB Hagglund & Soner, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
Lake Shore Inc., P. O. Box 809, Iron Mountain, Mich. 49801
Marathon LeTourneau Company, P.O. Box 2307, Longview, Texas 75601

Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
PHB (Pohlig-Heckel-Bleichert), Vereinigte Maschinenfabriken AG, Pohligstr 1, D-5000 Koln 51, Cologne, Germany
Weeks Stevedoring Co., Inc., 216 North Avenue East, Cranford, N.J. 07016

DECK COATINGS—Non-Slip

American Abrasive Metals Co., 460 Coit St., Irvington, N.J. 07111

DECK COVERS (METAL)

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

DECK MACHINERY—Cargo Handling Equipment

AB Hagglund & Soner, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523
Appleton Marine, Appleton Machine Co., 618 S. Oneida St., Appleton, WI 54911
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
New England Trawler Equipment Co., 291 Eastern Ave., Chelsea, Mass. 02150
Skagit Corporation, P.O. Box 151, Sedro-Woolley, Wash. 98284

DIESEL ACCESSORIES

Alnor Instrument Co., 7301 N. Caldwell Avenue, Niles IL 60648
Controls, Inc., 2655 U.S. Rt. 22, Union, N.J. 07083
Exhaust Controls, Inc., 2655 U.S. Rt. 22, Union, N.J. 07083
General Thermodynamics Corporation, 150 Ballardvale St., Wilmington, Mass. 01887

Piston Products, Inc., 1140 Bloomfield Avenue, P.O. Box 1079, West Caldwell, N.J. 07006

DIESEL ENGINES

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Caterpillar Tractor Co., Industrial Division, Peoria, Ill. 61629
Colt Industries Inc., Power Systems Div., Beloit, Wisc. 53511
Electro-Motive Division General Motors, La Grange, Illinois 60525
Goltien Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
Mitsui Engineering & Shipbuilding Co. Ltd., 6-4 Tsukiji, 5-chome, Chuo Ku, Tokyo, Japan
Oosterhuis Industries Inc., 1800 Engineers Road, Belle Chasse, La. 70037
H.O. Penn Machinery Co., Inc., 1561 Stewart Ave., Westbury, N.Y. 11590
Power & Propulsion Systems, Inc., 9821 Katy Freeway, Houston, Texas 77024

DOCK BUILDERS

GHH Sterkrade, Ferrostaal Overseas Corp., 17 Battery Place, New York, N.Y. 10004

DIVERS

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706

DOORS—Watertight—Joiner

Overbeke-Kain Co., 20905 Aurora Rd., Cleveland, Ohio 44146
Walz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

ELECTRICAL EQUIPMENT

AMP Special Industries (Div of AMP Products Corp), P.O. Box 1776, Paoli, Pa. 19301
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N. Y. 10013
General Regulator Div., Forney Engineering Co., 3405 Wiley Post Road, Addison, Texas 75001
Merrin Electric, 1120 Clinton Street, Hoboken, N. J. 07030
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Rapid Electric Co., Inc., P.O. Box 2915, Brookfield, CT 06804
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EQUIPMENT—Marine

Alexander Industries, Inc., 1901 Julia Street, New Orleans, LA 70113
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N. Y. 10013
Beaver Tool & Machine Co., 525 S.E. 29th St., Oklahoma City, OK 73109
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Thompson Marine Supply, Inc., 11 Broadway, New York, N.Y. 10004
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

FAIRLEADS—Blocks and Rigging

Crosby Group, Box 3128, Tulsa, Okla. 74101

FANS—VENTILATORS

Aerovent, Inc., #1 Aerovent Drive, Piqua, Ohio 45356
Camar Corp., 186 Prescott St., Worcester, Mass. 01605
Coppus Engineering Corp., 344 Park Avenue, Worcester, Mass. 01610
Dasic International Corp., 1035 Southeast Ninth Street, Portland, OR 97214
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
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

FINANCING—Leasing

General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Lazard Freres & Co., One Rockefeller Plaza, New York, N.Y. 10020
Lehman Brothers Inc., One Williams Street, New York, N.Y. 10004
Manufacturers Hanover Leasing Corp., 350 Park Av., N. Y., N.Y. 10022
Warburg Paribas Becker Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE

Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207
Superior Switchboard & Devices, Division of Union Metal Manufacturing Company, P.O. Box 590, Canton, Ohio 44701

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Inland Marine Industries, 1818 Harrison St., San Francisco, CA 94103

GANGWAYS

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

HULL CLEANING

Butterworth Systems, Inc., P.O. Box 9, Bayonne, N.J. 07002
East Coast Marine Associates, Inc., 80 Broad Street, New York, N.Y. 10004
MP Industries Inc., 1200 Ponca St., Baltimore, Md. 21224
U.S. Phosmarine Inc., 3186 Airway Ave., Bldg. F, Costa Mesa, CA 92626
Wheelabrator-Frye, 621 S. Byrkit Ave., Mishawaka, Ind. 46654

HYDRAULICS—Launching Equipment

Hydranautics, P.O. Box 1068, Goleta, Calif. 93017

INERT-GAS GENERATORS

Airflow Engineering, Inc., 1901 Julia St., New Orleans, La. 70113

INSULATION—Cloth, Fiberglass

Amatex Corp., 1032 Stanbridge Street, Box 228, Norristown, PA 19404
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Cryogenic Structures Corp., 10 Fairway Court, Northvale, N.J. 07647
Haveg Industries, Inc. (A subsidiary of Hercules, Inc.) 900 Greenbank Road, Wilmington, Delaware 19808

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
R.B. Jones Insurance, 911 Main St., Kansas City, MO 64199
R.B. Jones Insurance, 120 S. Central Ave., St. Louis, MO 63105
R.B. Jones Insurance, 160 Water St., New York, N.Y. 10038

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

MACHINE TOOLS

Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MARINE CONSTRUCTION

Morrison-Knudsen Company, Inc., P.O. Box 7808, Boise, ID 83729

MARINE SERVICE

General Electric, Schenectady, N.Y. 12345
Siemens Corporation, 186 Wood Avenue South, Iselin, N.J. 08830

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
Alpha Engineers, 7215 N.E. 13th Ave., Vancouver, Wash. 98665
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
Anchorage Marine Services Incorporated, 844 Biscayne Boulevard, Miami, Florida 33132
J.L. Bludworth, P.O. Box 5217, Houston, Texas 77012
Boquer & Associates, P.O. Box 30184, New Orleans, La. 70190
Breit & Garcia, Naval Architects, 441 Gravier St., New Orleans, La. 70130
CADCOM Inc., 2024 West St., Suite B, Annapolis, Md. 21401
R.A.CADY-Marine Survey Practice, 2301 Leroy Stevens Road, Mobile, Ala. 36609
Catalina National, Inc., 1725 Monrovia Ave. (Suite A4), Costa Mesa, CA 92627
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211

Childs Engineering Corp., Box 333, Medfield, Mass. 02052

Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011

M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 14 Vanderventer Ave., 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

Phillip Gresser & Associates (PTE) Ltd., 122 Eng Neo Ave., Singapore 11

Morris Guralnick Associates, Inc., 550 Kearny Street, San Francisco, Calif. 94108

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227

James S. Kroger & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460

Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567

Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225

John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritope, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742

Nelson & Associates, Inc., 2001 N.W. 7th Street, Miami, Florida 33125

Nickum & Spaulding Associates, Inc., 811 First Ave., Seattle, Wash. 98104

Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114

Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156

S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Proto-Power Management Corporation, P.O. Box 494, Mystic, Conn. 06355

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 & Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316

Seaworthy Engine Systems, P.O. Box 327, Canton, Conn. 06019

George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2

SRS Shipping Research Services Inc., 205 S. Whiting St., Alexandria, VA 22304

The Stanwick Company Maritime Systems Department, 3661 E. Virginia Beach Blvd., Norfolk, VA 23502

R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235
Richard R. Taubler Inc., Treadway Towers, 9 E. Lockerman St., Dover, Delaware 19901

H.M. Tiedemann & Co., Inc., 295 Greenwich Ave., Greenwich, Conn. 06830

Timsko, 951 Government St., Suite 2161, Mobile, Alabama 36604

Uhlig & Associates, Inc., 8295 S.W. 188th St., Miami, Florida 33157
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

NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526

Automated Marine Systems Division, Litton Systems Canada Limited, 21101 Oxnard St., Woodland Hills, CA 91364

Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746

Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024

Dynell Electronics Corp., 536 Broad Hollow Road, Melville, N.Y. 11746

Edo Corporation, 13-10 111th Street, College Point, N.Y. 11356
Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201

Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, N.Y. 10801

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011

Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780

ITT Decca Marine Inc., P.O. Box G, Palm Coast, Fla. 32037
Konel Corporation, 271 Harbor Way, So. San Francisco, Calif. 94080

Krupp Atlas-Elektronik, A Div. of Krupp Intl. Inc., P.O. Box 58218, Houston, Texas 77058

Lorain Electronics Corp., 2307 Leavitt Road, Lorain, Ohio 44052
Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503

Mico, Inc., 109 Beaver Court, Cockeysville, Md. 21030
Nav-Com, Inc., 2 Hicks Street, North Lindenhurst, N.Y. 11757

Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871

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

Standard Communications Corp., P.O. Box 92151, Los Angeles, CA 90009

Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

BUYERS DIRECTORY (continued)

Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Products Research & Chemical Corp., (PRC Coating and Sealants Div.) 5430 San Fernando Road, Glendale, California 91203
Union Carbide Corporation, 250 Park Avenue, New York, N.Y. 10017
Woolsey Marine Industries, Inc., 100 Saw Mill Road, Danbury, CT 06810

PETROLEUM SUPPLIES

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

PILOT LADDERS—Wood Products

A.L. Don Co., 58 Grant Avenue, Carteret, N.J. 07008

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
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

PLATENS

Welding Wholesale Co., Div. J.A. Cunningham Eqpt., Inc., 2151 Dreer St., Philadelphia, Pa. 19125

POLLUTION CONTROL

Argo Marine, Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Baylor Company, P.O. Box 36326, Houston, Texas 77036
Calt Industries, Water & Waste Management Operation, Beloit, Wisc. 53511

Demco, Inc., P.O. Box 94700, Oklahoma City, OK 73109

Eureka Chemical Co., P.O. Box 2205, So. San Francisco, CA 94080
Engelhard Industries, Chloracop Systems, 2655 U.S. Rt. 22, Union, N.J. 07083

LaMere Industries, Inc., (Marland Environmental Services and Clear Water, Inc.) 227 N. Main Street, Walworth, WI 53184
Mapco, 1437 So. Boulder Ave., Tulsa, Okla. 74119
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696

Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, La. 70560
Sigma Treatment Systems, 603 Dean Street, Brooklyn, N.Y. 11238

PROPELLERS: NEW AND RECONDITIONED—SYSTEMS

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
J.W. Berg, S-430 90 Ockero, Gothenburg, Sweden
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
Escher Wyss GmbH, P.O. Box 798, Ravensburg, Germany
Lips BV, Lipsstraat 52, Drunen, Netherlands
Propulsion Systems Inc., 21213 76th Ave. South, Kent, Wash. 98031

Voith Schneider—U.S. Agent: Krupp International, Inc., 550 Mamaroneck Ave., Harrison, N.Y. 10528

PROPULSION—Marine

Combustion Engineering, Inc., Windsor, Connecticut 06095
Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
In-Place Machining Co., 1929 N. Buffman St., Milwaukee, WI 53212
Maritime Industries Ltd., 6307 Laurel St., Burnaby, B.C., Canada V5B 3B3
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Schottel of America, Inc., 21 N.W. South River Dr., Miami, Fla. 33128
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

PUMPS—Repairs—Drives

Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602
FMC Corporation, Pump Division, 326 So. Dean Street, Englewood, N.J. 07631
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Terry Corporation, P.O. Box 1200, Windsor, CT 06101
Worthington Pump Inc., P.O. Box 1250, Mountainside, N.J. 07092

RATCHETS

CM American, Division Columbus McKinnon Corp., P.O. Box 74, McKees Rocks, Pa. 15136

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
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19523

RIGGING & BLOCKS

Crosby Group, P.O. Box 3128, Tulsa, Okla. 74101
Superior Switchboard & Devices, Division of Union Metal Manufacturing Company, P.O. Box 590, Canton, Ohio 44701
D. Van Beest En Zn.B.V., P.O. Box 57, Merwestraat 1-5, Slidrecht, The Netherlands

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
The Cordage Group, Columbian Drive, Auburn, N.Y. 13021
Wall Rope Works, Inc., Beverly, N. J. 08010

RUDDER ANGLE INDICATORS

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp

SCAFFOLDING EQUIPMENT

Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SCALERS

Chicago Monarch, Box 9751, Cleveland, Ohio 44140
Corrosion Dynamics, Inc., 1100 Walnut Street, Roselle, New Jersey 07203

SHAFTS, SHAFT REVOLUTION INDICATOR EQUIP.

Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
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
General Metals of Tacoma, Inc., 1902 Marine View Dr., Tacoma, Washington 98422
National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731
Zidek Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

SHIP BROKERS

Agemar, P.O. Box 1465, Maracaibo, Venezuela
Capt. Astad Company, Inc., 231 Carondelet St., New Orleans, La. 70112
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
Riggs Marine Corp., 29 Broadway, New York, N.Y. 10006
Vensport, Apartado Postal No. 1201, Maracaibo, Venezuela

SHIP MODELS

Jas Foley & Son, 506 Seventh Street, Santa Monica, Calif. 90402

SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

Arab Shipbuilding & Repair Yard Co., P.O. Box 5110, Bab-Al-Bahrain Building, Bahrain, Arabian Gulf
Astilleros Espanoles, S.A., 17, Padilla, Madrid 6, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bludworth Shipyard, Inc., (Subsidiary of Elpac, Inc.), 8502 Cypress St., Houston, Texas 77012
Boston Marine Industrial Park, Public Drydock No. 3, 60 Congress St., Boston, Mass. 02109
Carrington Slipways Pty. Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322

Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles

Dravo Corporation, One Oliver Plaza, Pittsburgh, Pa. 15222
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
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

General Dynamics, Quincy Division, Quincy, Mass. 02169
Gladding-Hearn Shipbuilding Corporation, 1 Riverside Avenue, Somerset, Mass. 02725

Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126

Harland & Wolff Shipbuilding & Engineering, Queens Island, Belfast, Northern Ireland

Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., P.O. Box 510, Brownsville, Pa. 15417

Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edbori 1-Chome, Nishi-Ku, Osaka, Japan

Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong
Hyundai Mipo Dockyard Co., Ltd., 456 Cheonha-dong, Ulsan, Korea
Hyundai Shipbuilding & Heavy Industries Co., Ltd., 5 World Trade Center, Suite 679, New York, N.Y. 10048

Jeffboat, Inc., Jeffersonville, Ind. 47130

Kawasaki Heavy Industries, Ltd., Kawasaki Kisen Kaisha, Ltd., 8 Kaigan-dori, Kuta-ku, Kobe, Japan

Keppel Shipyard Ltd., P.O. Box 2169, Singapore

Kockums Shipyard, S-201, 10 Malmo 1, Sweden

Lantana Boatyard, Inc., 808 N. Dixie Hwy., Lantana, Fla. 33460

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134

Marathon Manufacturing Company

Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002

Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520

Marathon LeTourneau Marine Division, LeTourneau Rural Station, Vicksburg, Mississippi 39180

Marathon LeTourneau Offshore Pte., Ltd., P.O. Box 83, Taman Jurong Post Office, Singapore 22, Singapore

Marathon Shipbuilding Company, P.O. Box 870, Vicksburg, Miss. 39180

Marathon Shipbuilding Company (U.K.) Ltd., Clydebank Dunbartonshire, G81-1YB, Scotland

Marinette Marine, Ely Street, Marinette, WI 54143

Matton Shipyard Co., Inc., P.O. Box 428, Cohoes, New York 12047

Maxon Marine Industries, Inc., P.O. Box 349, Tell City, Ind. 47586

J. Ray McDermott & Co., Inc., P.O. Box 60035, New Orleans, LA 70160

Mercantile Marine Engineering & Graving Docks Co., N.V., Antwerp, Belgium

Misener Industries, Inc., 5353 Tyson Avenue, P. O. Box 13625, Tampa, Fla. 33681

Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan

Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655

Murray & Stewart (Marine) (PTY) Ltd., Ocean Road-Table Bay Harbour, P.O. Box 1909, Cape Town 8000, South Africa

National Steel & Shipbuilding Corp., San Diego, Calif. 92112

Navimor U.S.A., One World Trade Center, Suite 3557, New York, N.Y. 10048

Neorion Shipyards Syros, Ltd., Syros, Greece

Northwest Marine Iron Works, P. O. Box 3109, Portland, Oregon 97208

O.A.R.N. (Officine Allestimento-Riparazioni 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

St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111

Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan

Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga. 31402

Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27

Sumitomo Heavy Industries Ltd., 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan

Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380

Terrin Shipyards, Societe Provencale des Ateliers Terrin, 287, Chemin DeLa Madrague, 13345 Marseille—Cedex 3, France

Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087

Vancouver Shipyards Co., Ltd., 50 Pemberton Ave., North Vancouver, B. C., Canada

Wiley Mfg., a unit of AMCA International Corp., Suite 200/Stockton Bldg., University Office Plaza, Newark, Del. 19702

SHIP STABILIZERS

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

SHOCK CORDS

Wm. B. Bliss Inc., 381 Park Ave. So., New York, N.Y. 10016

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

TANK CLEANING

Butterworth Systems Inc., P.O. Box 9, Bayonne, N.J. 07002

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS

Gems Sensors Div., Delaval Turbine Inc., Spring Lane, Farmington, Conn. 06032

GPE Controls, Inc., 6511 Oakton Street, Morton Grove, Illinois 60053

TOWING—Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002

Chotin Transportation, Inc., 1414 One Shell Square, New Orleans, La. 70139

Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202

Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771

Gulf Mississippi Marine Corp., 225 Baronne St., New Orleans, La. 70112

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

Suderman & Young Towing Co., Inc., 918 World Trade Building, Houston, Texas 77002

Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

B.V. Bureau Wijsmuller, Postbus 510, Ijmuiden, Holland

TURBINES

Camar Corp., 186 Prescott St., Worcester, Mass. 01605

Nicolai Joffe Corp., P.O. Box 2445, South San Francisco, CA 94080

Terry Corporation, P.O. Box 1200, Windsor, CT 06101

UNDERWATER SERVICES

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706

VACUUM LIFT SYSTEMS

DP Way Corp., 3822 West Elm Street, Milwaukee, Wisc. 53209

VALVES AND FITTINGS—Hydraulic—Safety Flanges
American-Darling Valve, Div. of American Cast Iron Pipe Co., P.O. Box 2727, Birmingham, Ala. 35202

Flexitall Gasket Co., 5 Linden Street, Camden, N.J. 08102

Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696

Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

Stow Manufacturing Co., 86 Bump Road, Binghamton, N.Y. 13902

Valve Services Corp., 266 54th St., Brooklyn, N.Y. 11220

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Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

VIDEO EQUIPMENT

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WATER PURIFIERS

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Fleetweather, Orbit Lane, Hopewell Junction, N.Y. 12533

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Gearmatic Co., Ltd., 7400 132nd St., Surrey, B.C., Canada

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

Skagit Corporation, a subsidiary of The Bendix Corporation, Sedra-Woolley, Washington 98284

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

Elkan Electric Cable Co., 248 Third St., Elizabeth, N.J. 07206

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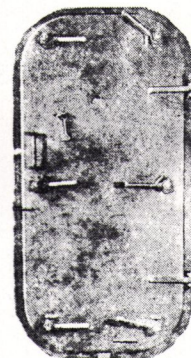
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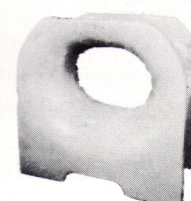
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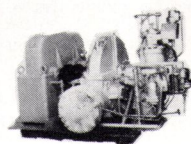
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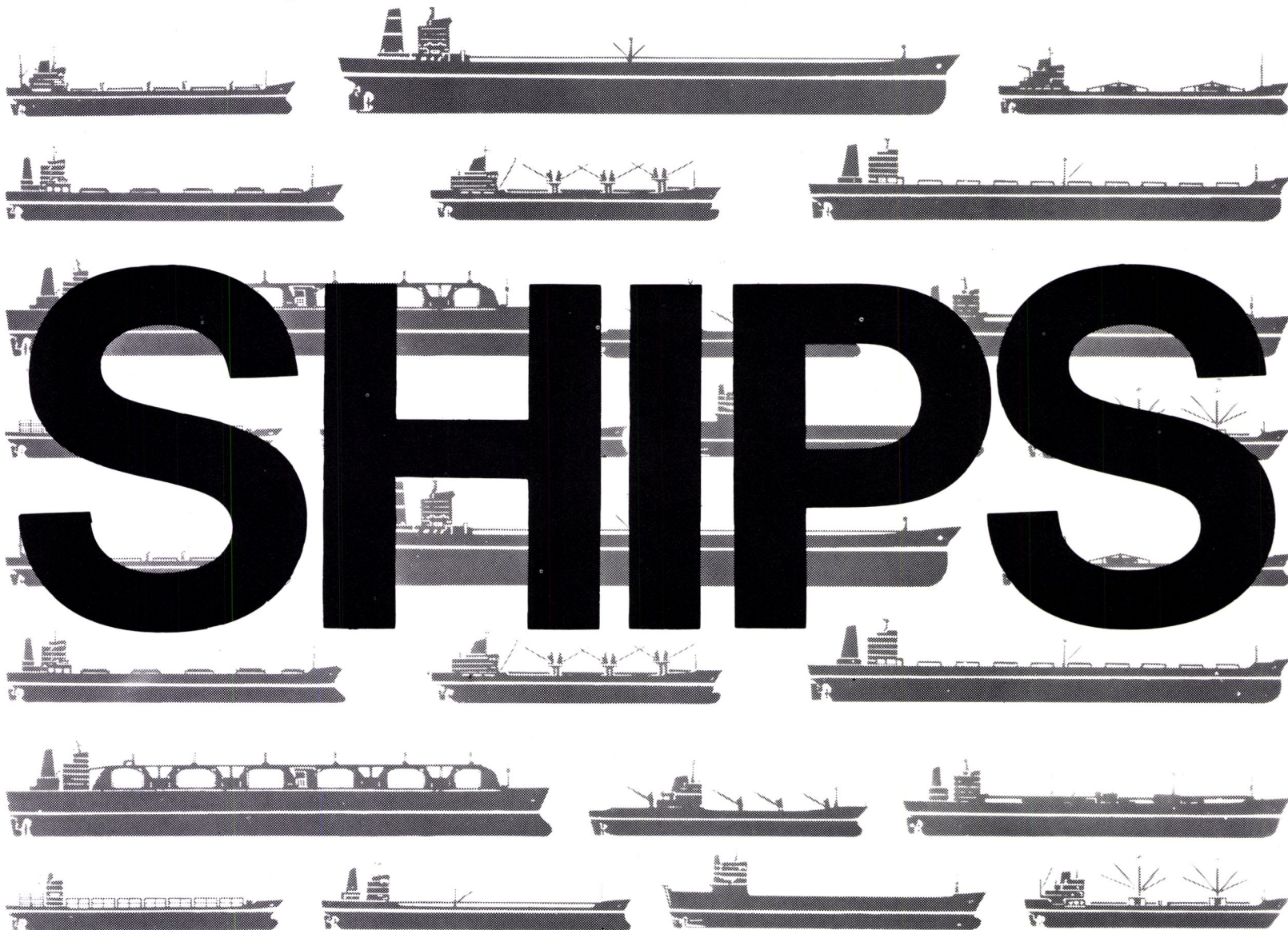
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