

# MARITIME REPORTER

AND  
ENGINEERING NEWS

## SCANDINAVIAN REVIEW

—Previews—  
Nor-Fishing

Offshore Northern Seas  
(SEE PAGE 4)

Scandinavian  
Shipbuilding  
—An Update—  
(SEE PAGE 4)

JULY 15, 1984



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Painting courtesy Norman Kjeldsen, Esq.

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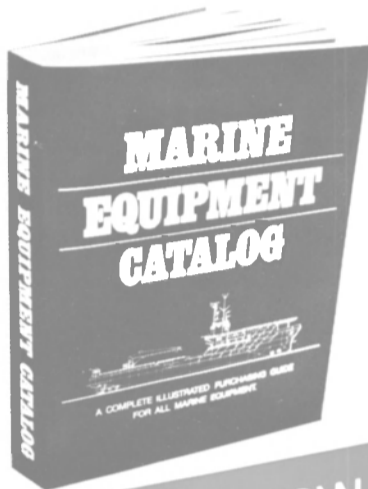
We at McAllister take pride in being part of the history and lore of New York Harbor. The Wavertree is now at the South Street Seaport Museum and we support her restoration in order to keep maritime and nautical traditions alive for future generations. Bear a hand. Send your donation to: Ship Trust, c/o National Maritime Historical Society, 15 State Street, New York, N.Y. 10004.

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# ON THE COVER

Cover Photo — Trade Commission of Norway

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A Preview**

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**Tacoma Boat Awarded  
\$110-Million Contract To  
Build Passenger Liner**

**B. James Lowe**, president of Tacoma Boatbuilding Company of Tacoma, Wash., has announced that details of a contract valued at \$110 million with Gulf Pacific Cruise Lines of Houston for construction of an 800-passenger cruise liner have been finalized. Implementation of the contract had been contingent upon Gulf Pacific's securing of final financing.

According to **Mr. Lowe**, the Houston-based company has now obtained appropriate letters of credit from a major financial institution. Gulf Pacific recently applied to the Maritime Administration for a Title XI mortgage guarantee that would cover 75 percent of the cost of the vessel, which will be named the Galveston. Approval of the application, expected within 90 days, will signal the go-ahead for the project.

The new ship will be based in Galveston, Texas, and operate cruises in the Gulf area. It is estimated that delivery of the U.S.-flag vessel will be about three years after start of construction.

According to Gulf Pacific president **Julio Giannotti**, his company also plans to buy the former Matson passenger ship Monterey, which is laid up in San Francisco and now owned by American Maritime Holding Inc. The passenger capacity of the 14,799-gt ship would be increased from 350 to 600. Gulf Pacific intends to request a Title XI guarantee from MarAd to aid the financing of the conversion, which could be accomplished in about 12 months' time.

## MARITIME REPORTER and Engineering News

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**Hitachi Zosen Delivers  
Bulk Carrier To Greek Owner**



The bulk carrier North Marchioness.

The North Marchioness, a 61,177-dwt bulk carrier, was recently completed at Hitachi Zosen's Ariake Works and subsequently delivered to its owner, Polaris Transport Corporation of Greece.

The North Marchioness is the eighth Panamax 60BC Mark II-type bulk carrier built by Hitachi Zosen, and is designed to carry various ore, coal and grain cargoes. The Panamax Mark II type is a Hitachi Zosen-developed standardized bulk carrier of the largest size which can sail the Panama Canal. The ship employs a low speed main engine and a large-diameter propeller, as well as a Hitachi Zosen-developed stern bulb, to reduce vibration and noise, while at the same time improving propulsion efficiency. Also, anti-fouling paint of a self-polishing type is used to further improve propulsion efficiency. All together these and other design features ensure fuel-saving ship operation.

The main features and approximate specifications of the ship are as follows: length 705½ feet; breadth 105½ feet; and depth of 584 feet. The main engine is a Hitachi Zosen B&W 7L6MC-type diesel with a maximum continuous output of 11,750 hp x 103 rpm, producing a trial speed of 16.44 knots. The North Marchioness is classified by Lloyd's Register.

**Cummins Engine Announces  
New Engine Model Codes  
For Marine Product Line**

Cummins Engine Company recently announced new engine model codes for their worldwide marine product line. The new models are being adopted to identify all new products by liters instead of present cubic-inch displacement. These new codes have been formulated to provide a consistent marine engine model description covering engine series, aspiration, displacement in liters, market application, and in some cases special or unique features.

The marine models that represent Cummins product line for the 80s and beyond will incorporate the new nomenclature. These engines are the B and C Series, which are being released with the new nomenclature, and the existing K Series and V (1710) Series which are being changed to the new nomenclature. Other engines will retain their current nomenclature.

A brochure entitled "Engine Nomenclature" has been released by Cummins Engine Company, Inc. describing how the new codes are formulated.

For a free copy of the brochure,

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July 15, 1984

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- \* • **GASTECH '84**  
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- A full program on all aspects of the marine transportation, storage and handling of LNG and LPG.
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### NOVEMBER 1

Advertising  
Closing Date  
October 10

- \* • **SNAME ANNUAL MEETING**  
(Society of Naval Architects and Marine Engineers) New York City — November 7 - 10  
plus
- \* • **THIRD ANNUAL SNAME INTERNATIONAL MARITIME EXPOSITION**  
The most important U.S. Marine Industry Show. For the third year, the prestigious Society of Naval Architects and Marine Engineers is sponsoring a marine trade show in conjunction with its internationally renowned annual meeting and technical symposium in New York City.
- The November 1 issue of MARITIME REPORTER will contain full details covering the entire technical program as well as the exhibition.
- The November 1 issue will receive extra bonus distribution at SNAME.
- **PLUS** — A wealth of current marine business and technical information first — weeks before the slower months.

### NOVEMBER 15

Advertising  
Closing Date  
October 26

- **NAVAL MACHINERY & ELECTRONICS**  
A full review of the latest developments in naval electronics, machinery and equipment as reported by leading manufacturers and suppliers to the Navies of the World
- **PLUS** — A wealth of current marine business and technical information first — weeks before the slower months.

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### Engineering Partnership Formed By Kongsberg And McDermott International

A/S Kongsberg Vaapenfabrikk has entered into an agreement with the international corporation McDermott International Inc. for cooperation in a joint venture for offshore oil and gas engineering. Kongsberg will sell 49 percent of Kongsberg Engineering, a.s. to McDermott, and the joint company will operate under the name of KME a.s. The company will operate from its headquarters in Asker and a branch office in Bergen.

KME intends to build up a strong organization which will work both in the Norwegian sector and overseas. Particular emphasis will be given to efficient coverage of the international subsea system engineering market, based on the experience and expertise which Kongsberg Engineering has developed in this field. McDermott will use KME as their capability center for subsea systems engineering for their worldwide offshore engineering operation.

The aim is to develop KME into a highly capable engineering company. It will not on its own compete for large integrated engineering contracts, but rather cooperate and support the already established Norwegian contacts.

Kongsberg Engineering a.s. has been operating since 1975 and has had various contracts for most of the Norwegian continental shelf operators.

McDermott brings into the Norwegian engineering world expertise and experience in most fields, including pipelaying, processing and large steel structures technology.

### Deutsch Metal Offers Free Pyplok Catalog

Deutsch Metal Components, Los Angeles, Calif., has announced the release of their new detailed Pyplok catalog which contains technical and dimensional information on the mechanically applied pipe connecting system.

The catalog illustrates how Pyplok is designed for the shipbuilding and ship repair industries. A cutaway illustration is featured to show specific design benefits.

Pyplok, the system that eliminates welding and hot work, has been tested and qualified by Navsea for its 6,000-psi fittings (70/30 CuNi) and 3,750-psi fittings (316L Stainless) and has received approvals from virtually every maritime approval agency in the world, including ABS and the U.S. Coast Guard.

The catalog is assembled in a hard-bound, protective coated binder and also details sizes (up to 2-inch), materials and tooling requirements necessary for Pyplok installations.

This informative catalog also illustrates the simplicity of Pyplok installations, explains testing results and gives ordering information.

For a free copy of the catalog,



**A TIGHT SQUEEZE**—McDermott Laybarge No. 28, owned by McDermott, Incorporated of New Orleans, La., is shown above loaded on the very large submersible ship (VLSS) Sibig Venture offshore Mobile, Ala., for destination Singapore via the Cape of Good Hope. The voyage will be 13,200 miles and has a projected transit of 43 days. The McDermott laybarge No. 28 has overall dimensions of 421 by 129 feet and a weight of approximately 13,000 long tons. This huge barge was floated over the submerged Sibig Venture with hardly any room to spare since the free deck usable space (clear deck) is only 423 by 138 feet, but yet is still one of the largest submersible ships in the world. The ship has a deadweight carrying capacity of 44,000 metric tons and is 728 feet in total length. McDermott, Incorporated, with headquarters in New Orleans, contracted the Sibig Venture with (I.T.C.) International Transport Contractors Holland B.V., of Haarlem, Holland. I.T.C. Holland B.V., contracts and operates the mammoth VLSS Sibig Venture now servicing the worldwide oil industry in rig and barge dry transportation for Tschudi & Eitzen (shipowners) of Oslo, Norway. International Transport Contractors (USA) Inc., is located in Houston, Texas.



The all-steel scalloper Traveler has living accommodations for a complement of 13.

## Bender Delivers 98-Foot New Bedford Scalloper

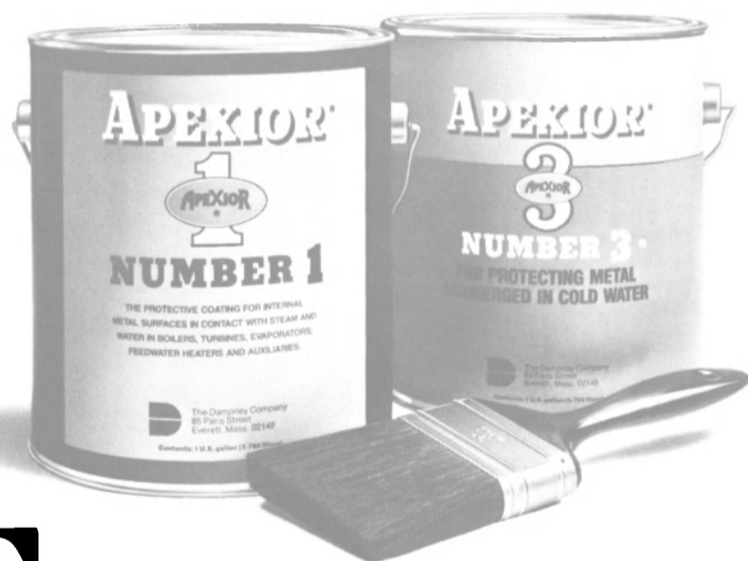
Bender Shipbuilding & Repair Co., Inc. of Mobile, Ala., recently delivered the 98-foot scalloper Traveler to **Jakob N. Shervo** and his sons, **John K.** and **Jarry**, of New Bedford, Mass.

Over the years, Bender has de-

livered several scallopers to New Bedford fishing interests, but this is the first of this type for **Jakob J & J.** Built entirely of steel, this double chine vessel features a completely enclosed shucking house

(continued on page 8)

## The "old masters" of waterside corrosion protection.



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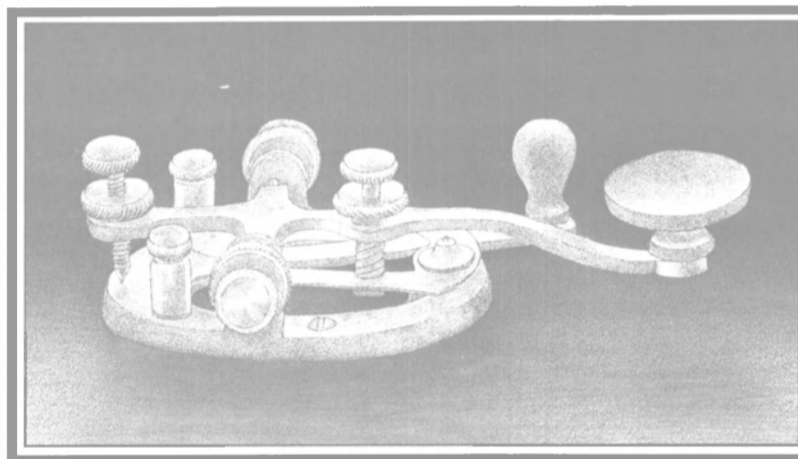
Apexior Number 1 is a heat-resistant organic coating for the protection of metal surfaces immersed in hot water at temperatures above 200°F (93°C). It protects the water-side surfaces of steam generating equipment, feed water heaters, de-aerators, evaporators, steam turbines, and diesel cylinder liners.

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(continued from page 7)

on her stern for year-round fishing on George's Banks.

In commenting on the new vessel Capt. **Jarry Shervo** said: "Bender was willing to incorporate many of my ideas on what I felt a working boat should be; ideas that come from experience. Traveler is a quality vessel that was delivered on time."

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Winches	Hathaway	Stereo	Cybernet
Winch engine	(1) Detroit Diesel	VHF radio	Cybernet
Heating/AC	Carrier	Course plotter	Furuno

## Philadelphia Gear Supplies New Propulsion Drives For San Francisco Ferry Boats

The three ferry boats that carry thousands of commuters and visitors daily across San Francisco Bay between San Francisco and Larkspur will soon have completely new propulsion drive systems for which Philadelphia Gear Corporation is manufacturing special gearboxes.

The original propulsion on the ferries was provided by a triple-drive system using gas turbines. Because of rising fuel and operating costs, the boats are being converted to twin-screw propulsion with two diesel engines. The ferries being converted are the San Francisco, Marin and Sonoma. They are owned and operated by the Golden Gate Bridge Highway and Transportation District.

The conversion is being accomplished by Southwest Marine Inc., San Diego Division. In addition to the work being accomplished by Philadelphia Gear Corporation, Southwest Marine is modifying the structure of the vessels to facilitate the addition of shafting, rudders and propellers. Additional modifications include advanced engine monitoring and control systems.

In addition to the Golden Gate ferry drives, the company recently supplied new gearboxes for the renovation of the San Francisco Cable Car System. These programs continue to demonstrate Philadelphia Gear's leadership in supplying high performance power transmission drives for marine and other tough applications.

## Gennaro Oliva Joins Atlantic Coast Enterprises

**Gennaro Oliva**, former hull design engineer with Newport News Shipbuilding and Dry Dock Co., has just recently joined the staff of Atlantic Coast Enterprises, Inc., manufacturers of a widely diversified marine product line.

Since his education as a naval architect, and receipt of a Bachelor of Engineering degree and a United States Coast Guard Third Assistant Engineer's license, Mr. **Oliva** has continued his advancement in the marine industry.

Combining his knowledge and experience in the ship design and construction field, with specialized training as a marine power-plant engineer and certification in marine fire-fighting by the U.S. Department of Transportation-Maritime Administration Division, Mr. **Oliva** will add expertise to the ever-growing staff of experienced and highly skilled professionals employed by Atlantic Coast Enterprises.

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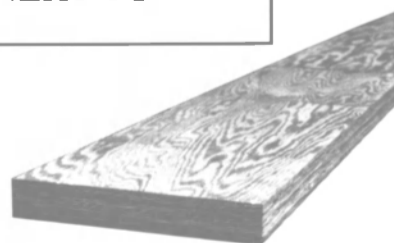
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## NABRICO Names Gower VP-Engineering



Charles Gower

Charles W. Gower has been named vice president of engineering for Nashville Bridge Company (NABRICO), Nashville, Tenn., according to an announcement by Al Zang, president of the shipyard.

Mr. Gower joined NABRICO in 1978 as manager of design. He was named director of engineering in 1980, and held that position until being named vice president.

Mr. Gower is a graduate of the U.S. Coast Guard Academy and during his term of active duty he obtained an MSE degree in naval architecture and marine engineering from the University of Michigan, and served five years of sea duty.

Licensed as a professional engineer in Tennessee and Washington, D.C., Mr. Gower is a member of SNAME, ASME and the ABS Western Rivers Technical Committee. He currently holds the rank of commander in the Coast Guard Reserve.

## Bob Daniels Named New Marland President & CEO



Bob Daniels

Marland Environmental Systems Inc. of Walworth, Wisc., a leading manufacturer of water purification and treatment systems and services, announced that Bob Daniels has been elected president and chief executive officer.

In addition to his corporate responsibilities, he will be directing the company's newly organized marketing and sales program. His responsibilities will extend to all Marland's products including Sani-System and SweetWater.

Marland is a manufacturer and worldwide distributor of IMO and U.S.C.G. certified marine sanitation treatment devices, with manufacturing facilities in the U.S. and Europe.

Marland's subsidiary, Allied Water Corporation, manufactures SweetWater, a well known reverse osmosis water purification system, and various state of the art treatment and purification technologies. Marland/Allied boast a worldwide distribution, sales and service network.

For additional information on all Marland and Allied products and services,

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## American-Standard Offers Free Bulletin On FanEX® Air/Oil Heat Exchangers

American - Standard, Heat Transfer Division, Buffalo, N.Y., is offering an eight-page bulletin on its FanEX® air/oil heat exchangers.

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in order to cool more efficiently, and how they cut operating costs, save energy, save water, reduce sewer charges, and cut maintenance.

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<p>Wall's STEEL LINE is a newly developed, super-tough rope designed for marine use.</p> <p>STEEL LINE is manufactured from a unique configuration and combination of synthetics that offer a host of advantages. For example, STEEL LINE is 40 percent stronger than polypropylene rope of the same diameter, twice as strong as wire rope on a weight basis, and stronger than nylon... pound for pound.</p> <p>What else is so special about STEEL LINE? Because its specific gravity is only slightly higher than polypropylene, it floats. And compared to polypropylene, STEEL LINE stretches less under loads and offers superior abrasion resistance.</p>	<p>But best of all, STEEL LINE delivers these premium advantages without a premium price. It costs you no more than polypropylene of the same diameter and, in fact, costs less than any synthetic, based on dollars per pound of tensile strength.</p>	<p>STEEL LINE is available in 3 or 8-strand construction, in diameters 1½ inches and larger. And it's manufactured in the United States from domestic materials.</p> <p>Want more facts—or quick shipment? Phone us at 919-835-6888 or write: Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621.</p>
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# Wall

**WALL INDUSTRIES, INC.**  
Service centers in major cities.

**New Raytheon SSB Is  
Microprocessor Controlled  
—Literature Available**

Raytheon Marine Company is offering free literature describing its newly introduced 150-watt microprocessor-controlled SSB radiotelephone for commercial vessels of all types. Raytheon's RAY-1285 SSB Marine Radiotelephone is

preprogrammed for all of the 192 ITU channels, and provides memory capability for 44 user-programmed channels or frequencies.

The user-oriented RAY-1285 transceiver provides digital-display monitoring and keyboard channel/frequency and mode selection. LCD readout on a backlit panel shows channel/frequency selected and operating condition. The unit's remote antenna-coupler pro-

vides fully automatic tuning. Last station used is automatically called up when the unit is turned on.

In addition to ready coverage of worldwide marine-band channels and frequencies, the fully synthesized RAY-1285 provides a number of important additional features. It has a sea-watch automatic scanning mode which allows the operator to monitor up to 10 selected channels or frequencies, in-



Raytheon's RAY-1285 SSB Marine Radiotelephone

cluding the International Emergency Frequency, 2182 kHz. Quick-select of the International Emergency Frequency is available with a built-in, two-tone distress alarm. A unique "force-transmit" control will provide communication even under emergency broken-antenna conditions.

The compact RAY-1285 transceiver operates on 12 Vdc. For optional manual tuning, the RAY-1285 transmits (1.6 to 25.999 MHz) and receives (100 kHz to 30 MHz) in fast or slow steps. Selectable modulation modes available are: standard SSB (AJ3), modified SSB (A3A) and AM compatible (A3H). Push-button listening to other vessel transmissions is available as well as a push-to-talk telephone handset.

The RAY-1285 transceiver is supplied with antenna coupler, mounting hardware, interconnecting cables, and complete installation instructions. It meets FCC requirements and has passed Raytheon's tough environmental tests for shock, vibration, temperature extremes, and resistance to corrosion and fungus. Manufacturer's suggested retail price is \$5,995.

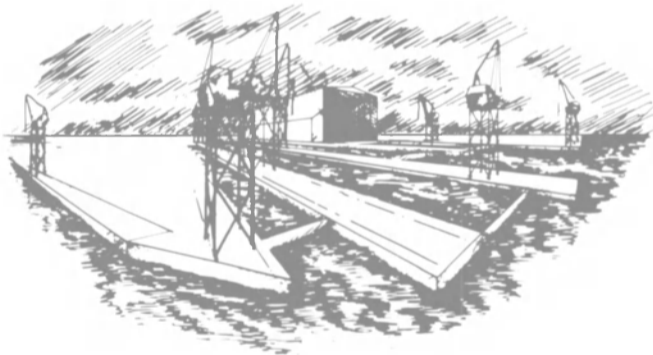
For free literature containing full details on the new RAY-1285 SSB,

Circle 95 on Reader Service Card



**We understand a shipowner's need  
to care for his equipment investment.**

**We have invested \$50 million in  
improved facilities to provide that care.**



**◀ MAIN YARD**

Two graving docks: 900' x 150'  
550' x 79'

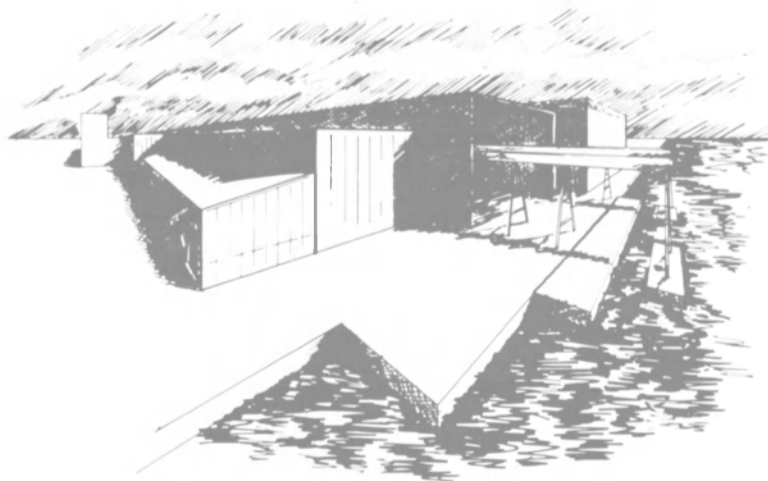
**1984 Additions:**

- Two graving docks – 750' x 125'
- Two wet berths
- Assembly/erection building with two 250 ton bridge cranes and auxiliary cranes

**SOUTHWEST FACILITY ▶**

11.0 acres of covered fabricating facility complete with:

- NC plasma machine
- Plate and shape preparation line
- One 700 ton bridge crane
- Two 200 ton bridge cranes
- One 100 ton bridge crane
- Barge loading facility



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(813) 247-1183 Telex: 52-637

A subsidiary of the American Shipbuilding Company

**Sonat Subsea Services**

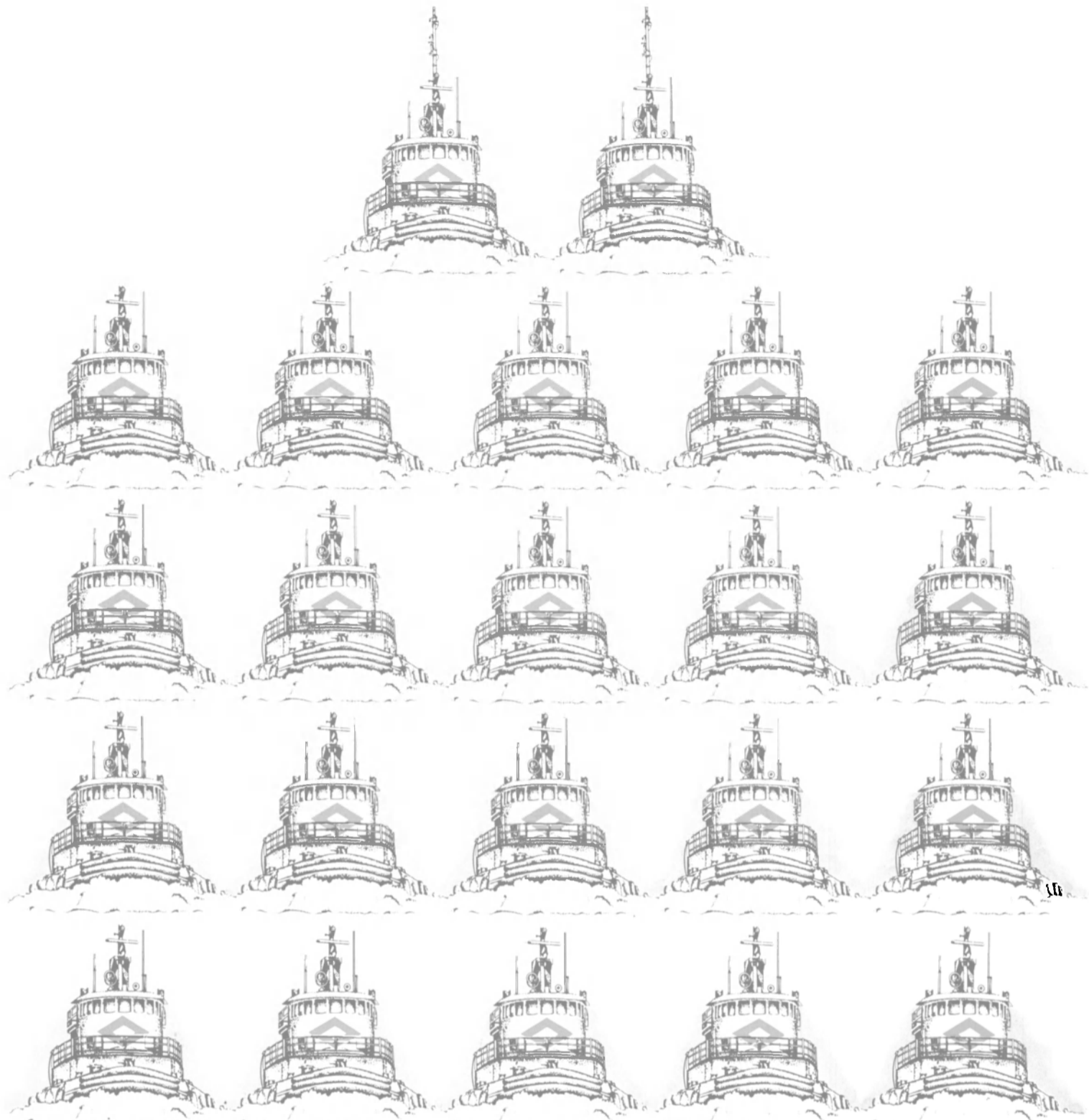
**Appoints Senior VP**

**Bruce C. Gilman**, president of Sonat Subsea Services, Houston, Texas, announced recently that **Thomas A. Angel** has been appointed senior vice president.

Formerly vice president and general manager of Santa Fe Underwater Services, Mr. **Angel** has more than 20 years' experience in underwater services.

Sonat Subsea Services, a subsidiary of Sonat Inc., provides high-technology underwater services in support of the offshore energy industry. They have headquarters in Houston with regional operations bases in Scotland and the Republic of Singapore. S&H Diving, its Americas-region operating subsidiary, has support bases in Morgan City, La., and Galveston and Corpus Christi, Texas.

Sonat Inc. is a company engaged in finding and producing oil and natural gas; field services associated with these operations; and transportation of these energy products.



## **Twenty-two reasons why Curtis Bay is the towing choice in three major East Coast ports.**

Twenty-two tugs make a powerful difference. And with over 70 years of experience plus trained, expert crews, you can be sure of time-saving

(and cost-saving) efficiencies. Perhaps that's why more marine managers are saying, "When you go with Curtis Bay Towing, you have more on your side."

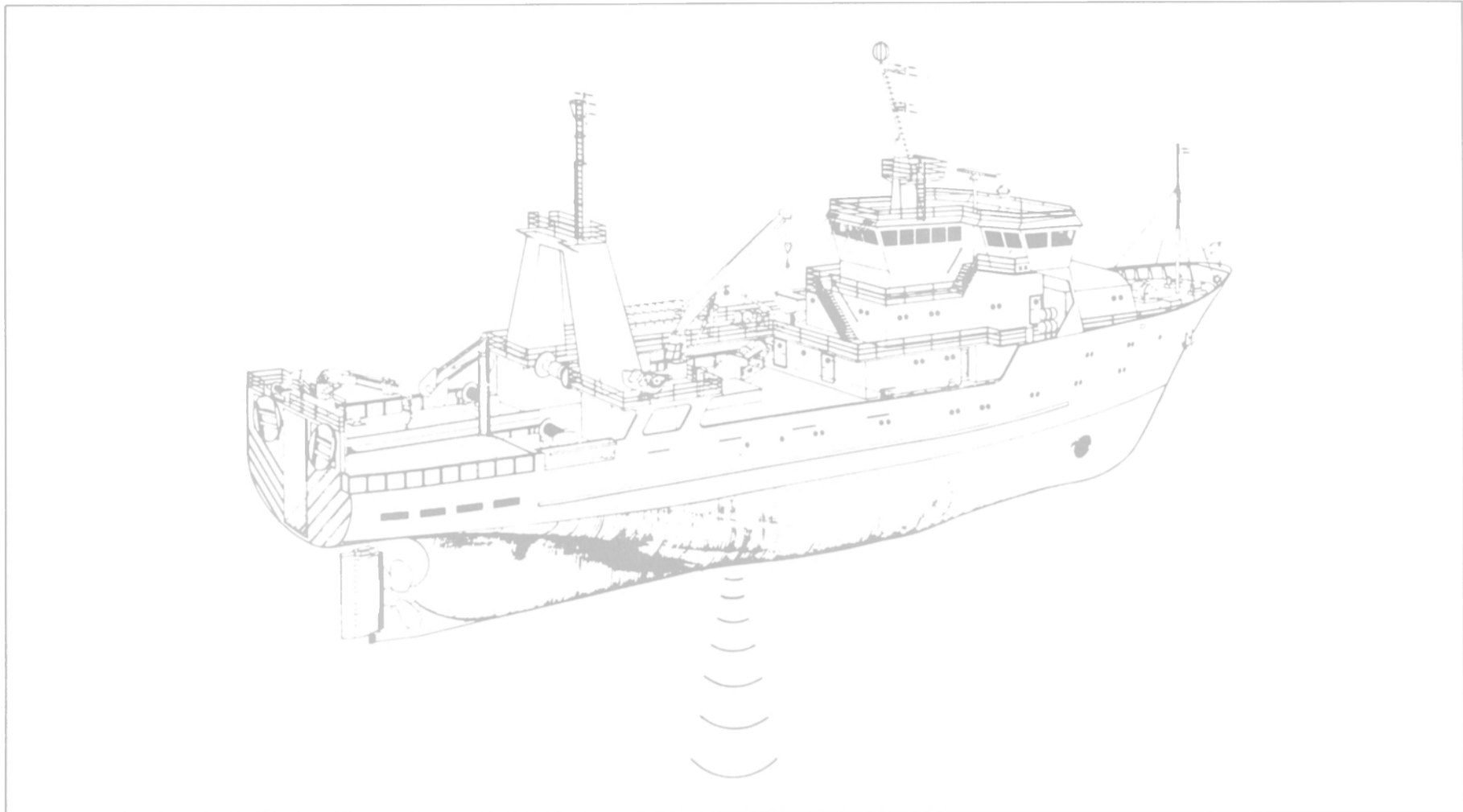


### **CURTIS BAY TOWING COMPANY**

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Headquarters: The World Trade Center Baltimore, Suite 800, Baltimore, Maryland 21202, 301-962-6500.

**...More on your side.**

Since 1910



The newly-built fishery research vessel Bei Dou, a gift from Norway to China, will be berthed near the Nidarø Hall during Nor-Fishing.



## NOR-FISHING '84

Trondheim, Norway—August 6–12

The organizers of Nor-Fishing '84, one of the world's leading international fisheries fairs, report that interest in this year's event, to be held August 6–12 in Trondheim, Norway, is greater than ever before. Because of enormous demand from exhibitors, the planned exhibition area had to be expanded. Every inch of available space in the Nidarø Hall has been booked, so that this year the fair will cover more than 6,400 square meters—with some companies placed on a waiting list.

This year's exhibition is the 10th time for Nor-Fishing. It was first organized in 1960 at Bergen. Trondheim was the site for the event in 1965, 69, 72, 74, 76, 80, and 82. It was held once in Oslo, in 1978. The organizers are the Royal Norwegian Ministry of Fisheries/Directorate of Fisheries, in collaboration with the Norwegian Trade Fair Foundation (Norges Varemesse).

Some 234 exhibitors representing more than 400 manufacturers in 20 countries have confirmed space for Nor-Fishing '84. New applications were still coming in as late as May this year, yet in spite of the increased exhibition area now made available, late applicants had to be placed on the wait-

ing list. The organizers had originally planned for 4,500 square meters of indoor exhibition space; this has now been increased to 5,400 square meters. In addition, there will be more than 1,000 square meters of space for outdoor exhibits adjacent to Nidarø Hall.

In previous years the somewhat limited availability of hotel accommodations in Trondheim created problems. However, since the 1982 Nor-Fishing three new hotels have been built in the city, accommodating more than 1,000 guests. Thus the organizers are confident that hotel facilities this year will be satisfactory.

Nor-Fishing '84 will present a comprehensive picture of the latest developments in the field of fishing craft, ships' equipment, fishing gear and other catching implements, navigational and safety equipment, marine electronics, packaging and transport equipment, fish processing machinery, and other products and services connected with the fishery industry.

Concurrently with this trade fair, special seminars will be held on August 8 and 9 (program listed below). These will be addressed by fisheries specialists of international repute. The main subjects to

be covered will be energy saving and the utilization of increasing herring resources—themes that are currently attracting wide attention both nationally in Norway and internationally.

The organizers report active efforts to attract foreign visitors to the fair, through close collaboration with the Export Council of Norway, NORAD, and the Ministry of Commerce. It is already known that both the exhibition and the seminars will be attended by important individual visitors and delegations from every part of the world. More than 24,000 specialists from some 40 nations attended Nor-Fishing '82; an equal number are expected at this year's fair.

Another attraction at Nor-Fishing '84 will be the Bei Dou, one of the world's most advanced fishery research vessels, which will be berthed close to the exhibition hall. This vessel is an official gift from Norway to China. One of the Norwegian Coast Guard's newest vessels will also be berthed in Trondheim during the fair, together with the more than 100-year-old, yet still fully operational, fishing schooner from the Faeroes, and several demonstration craft. With its wide span,

high professional standards, and topical seminars, Nor-Fishing should be of great interest to everyone connected with the fishery industry.

### Seminar Program

#### Wednesday, August 8

#### How Should We Use Our Herring Resources?

Chairman: **Ole Johan Ostvedt**, research director, Institute of Marine Research, Bergen.

**10:00 am**—"Herring—Quantity and Utilization—Yesterday and Tomorrow," by **Jorn Krog**, director, Norwegian Pelagic Fish Marketing Board.

**10:30 am**—"Herring for Consumption—Requirements in the Treatment of Raw Material," by Prof. **Ola Magnussen**, The Norwegian University of Fishery/Norwegian Institute of Technology, Trondheim.

**11:30 am**—"Processing of Herring," by **Wiggo Tangstad**, senior scientist, Institute of Fishery Technology Research, Tromsø.

**12:15 pm**—Lunch

**1:30 pm**—"Marketing Possibilities for Herring and Herring Products, with special Reference to the German Market," by **Theodor Hubsch**, director, Norda Heeringshandels-gesellschaft, Hamburg.

**2:10 pm**—Panel Discussion.  
**3:15 pm**—Conclusion of panel discussion.

**Thursday, August 9  
 Energy Saving**

**Chairman: Finn Bergersen Jr.,** secretary general, Norwegian Fisherman's Association, Trondheim.

**10:00 am**—"The Outlook for Energy Prices," by **Johan Nic. Vold,** managing director, A/S Norske Shell, Oslo.

**10:30 am**—"Potentials for Saving in the Fishery Industry," by **Anders Endal,** research director, Institute of Fishery Technology Research, Trondheim.

**11:30 am**—"Design of Energy-efficient Fishing Craft—Hull Design and Propulsion Systems," by **Aage Berg,** senior scientist, Institute of Fishery Technology Research, Trondheim.

**12:15 pm**—Lunch.

**1:30 pm**—"Operation of Fishing Vessels—Correct Use of Speed, Propulsion Machinery, and Propeller," by **Torbjorn Digernes,** senior scientist, Institute of Fishery Technology Research, Trondheim.

**2:10 pm**—Panel discussion.

**3:30**—Conclusion of seminar.

**LIST OF EXHIBITORS**

Country code: A=Australia, C=Canada, D=Denmark, E=England, EG=East Germany, F=Finland, H=Holland, N=Norway, PL=Poland, PO=Portugal, S=Sweden, WG=West Germany

- Alpha Diesel (D)
- Arentz & Amundsen A/S (N)
- H. Astrup & Co. A/S (N)
- Atlantconsult (N)
- B.N. Marine Consult (D)
- B T Elektronikk A/S (N)
- BT Marking A/S (N)
- Baader GmbH + Co. KG (WG)
- Bakelittfabrikken A/S (N)
- Bergen Bartz A/S (N)
- Bergman Instrumentering A/S (N)
- Berkel a.s. (N)
- Berner & Larsen A/S (N)
- Bergens Mekaniske Verksteder (N)
- Bjorshol International (N)
- Bjorshol Mek. Verksted A/S (N)
- Borden Kjemi Norge A/S (N)
- Brinchmann & Co. A/S (N)
- Brunsvikens Reperbane A/S (N)
- Braathens SAFE (N)
- Brodr. Brunvoll Motorfabrikk A/S (N)
- Bruusgaard & Blindheim A/S (N)
- as Bull Industri-og skipsteknisk (N)
- Carritech (D)
- Centromor (PL)
- Cerfil, S.A.R.L./Euronete, LDA (PO)
- H. Clausen A/S (N)
- A/S Cylinderservice (N)
- Dansk Eksportforening (D)
- Datasafe A/S (N)
- Distrikenes utbyggingsfond (N)
- Drammen Stal a.s. (N)
- Dyno Folier A/S (N)
- Dyno Norplast A/S, Dyno Cipax N. (N)
- Egersund Tralverksted A/S (N)
- Euroclean A/S (N)
- A/S Finsam Industries Ltd. (N)
- A/S Nils N. Finnoy Motorfabrik (N)
- Fishauction Lauwersoog (H)
- Fishimpex Rostock (EG)
- Fiskaren (N)
- Fiskeriindustriens Landsforening (N)
- A/S Fiskeriautomatikk (N)
- Fiskeridirektoratet (N)
- A/S Fiskernes Bank (N)
- A/S Fiskevegn (N)
- Floor-Tec Norge A/S (N)
- Fosnavag Fiskevegnfabrik A/S (N)
- Frigoscandia Contracting AB (S)

- Furuno Norge A/S (N)
- Forpackningsservice (N)
- Glomma pap & papir A/S (N)
- W.R. Grace A/S (N)
- Gram Fletteri (D)
- Grundborg (D)
- Grundens Regnklader AB (S)
- Guru Papp A/S (N)
- HaBa Produkter (N)
- Erling Haug A/S (N)
- Helly-Hansen A/S (N)
- Hiab-Foco A/S (N)
- Hirtshais Vad & Trawl binderi (D)
- Holund A/S (N)

- Hocom A/S (N)
- Asbjorn Horgard A/S (N)
- A/S Hydraulik Brattvaag (N)
- Hydraulish Aluminium a/s (N)
- Arnold Haabeth A.S. (N)
- ISI-FISK A.S. (N)
- Jacstone Froster Ltd. (E)
- Andreas Jensen (D)
- C.C. Jensen (D)
- Johnson Pump A/S (N)
- J.O. Jaeger (N)
- KNM Tordenskjold (N)
- Karmoy Winch AS (N)
- Kemers Norske A/S (N)

- Josef Kihlberg A/S (N)
- Kienzle Datasystem A/S (N)
- R. Kirksaether A/S (N)
- Kleveland Elektro Diesel A/S (N)
- William Knudsen A/S (N)
- Koden Norge A/S (N)
- A/S H. Koppnaes & Sonner (N)
- Krupp Atlas Elektronik GmbH (WG)
- Kumera Oy (F)
- Kvam Batindustri A/S (N)
- Kvaerner Kulde A/S (N)
- Lagan Plast AS (N)
- Lehmkuhl Radiosystemer A/S (N)

(continued on page 14)

# INDUSTRY NEWS

Marine chemical science solves a big problem for vessel operators.

## "WE'VE DEVELOPED A POWERFUL CLEANER THAT WON'T HARM OILY WATER SEPARATORS"

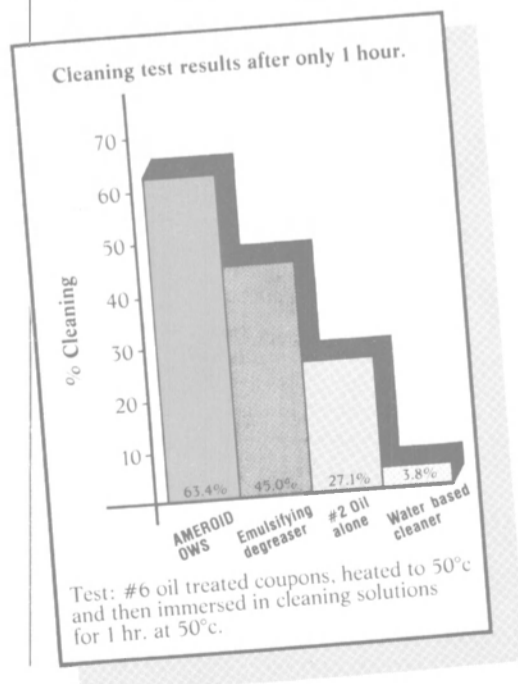
### AMEROID® OWS quick separating degreaser

It takes a powerful solvent-emulsifying cleaner to do all the degreasing jobs your ship requires. But a powerful degreaser can also be disastrous for the operations of the oily water separators required under international pollution control regulations. How? An effective marine degreaser dissolves oily deposits by forming an emulsion—a colloidal suspension of oil molecules in water. Cleaners perform this task because part of their molecules are attracted to oil, and the other part to water. That's how it lifts and holds soil and turns greasy deposits into an easily removed solution.

That's fine for cleaning, but just the opposite of your oily water separator's function, which is to *separate* the oil and water. Therefore, an effective marine degreaser that can be great for cleaning can be very harmful to the proper operation of your oily water separators. Fortunately, Drew Ameroid Marine has now solved this problem for the marine industry.

### AMEROID® OWS: the strong, effective, multi-purpose and degreaser.

Drew Ameroid Marine has developed AMEROID® OWS quick separating degreaser, an outstanding cleaner that does everything the traditional cleaners do—except for one thing. *AMEROID OWS doesn't harm the coalescing function of oily water separators.*



AMEROID OWS can be used as an effective, heavy-duty degreaser in almost every area of the ship—in the engine room, on deck, for cleaning tools, painted and unpainted surfaces, bulkheads and machinery. It is also a dependable tank cleaner.

Bilge cleaning? Yes. AMEROID OWS is easy to use, employing the regular "rock and roll" method.

In almost every area of the ship, this is a first class, top-to-bottom cleaner. Especially where the slop is pumped through oily water separators.

### The proof: leading manufacturers of oily water separators give OWS an enthusiastic approval.

Leading manufacturers\* of oily water separators have conducted their own tests with AMEROID OWS and confirm that this advanced cleaner when used as directed will allow the separator to perform at design parameters. These tests used various concentrations of AMEROID OWS—all of them strong enough to do an outstanding job. In each case, AMEROID OWS will not only do an outstanding cleaning job, but it will do it without harming the separating capabilities of the oily water separators.

When equipment manufacturers approve, recommend and list this cleaning product in the interests of their own machinery's performance and reputation you know that AMEROID OWS is the marine degreaser you *should* use!

### AMEROID® OWS offers these additional advantages.

AMEROID OWS is quick breaking—important in allowing oil to separate from water after the cleaning operation. Reduces slop disposal costs. It is a solvent-emulsifying cleaner, and therefore it reduces cleaning time, minimizes normal cleaning efforts and cost. It is highly concentrated and does its thorough job at low concentration levels. That's a cost saver.

And since AMEROID OWS does not harm oily water separator functions, it not only helps keep you clear of pollution violations, but spares you some costly problems.

### AMEROID® OWS—backed by more than 70 years of Drew experience.

AMEROID OWS is a product of Drew Ameroid Marine—chemical science dedicated to helping vessel owners and operators minimize costs while meeting required standards and regulations. And behind AMEROID OWS stands Drew technology and commitment. It is being introduced by Drew after extensive testing onboard vessels, and meets exacting standards that have kept Drew in its leadership position for more than 70 years. AMEROID® OWS quick separating degreaser is available worldwide through Drew's network of service representatives in strategically located ports.

\*Names on request.

## Drew Chemical Corporation

One Drew Chemical Plaza  
 Boonton, New Jersey 07005 USA  
 Telephone: (201) 263-7600 Telex: 136444



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## Nor-Fishing

(continued from page 13)

Lehmkuhl Storkjokken A/S (N)  
 Libra Plast A.S. (N)  
 Jorgen S. Lien A/S (N)  
 Projekt Lindholmen AB (S)  
 Lorentzen Hydr. og Mek. Verk. (N)  
 Lubrication Engineers Norway (N)  
 Naskin K. Lund Div. Mesna Brug AS (N)  
 Joh. Lovold A/S (N)

A.S. Lowener, Mohn (N)  
 MTC AB/Frigofrance SA (S)  
 Mapak A/S Maskin & Pakkesystemer (N)  
 Marinco A/S (N)  
 B. Markussen (D)  
 J.H. Mewes & von Eitzen KG GmbH (WG)  
 Meydam (N)  
 Midat A/S (N)  
 A.S. Mjelle & Karlsen (N)  
 Mobil Oil A/S Norge (N)  
 Moltech Norge A/S (N)  
 Motordrift AS (N)  
 MTU Motoren- und Turbinen-Union (WG)  
 O. Mustad & Son A/S (N)

A/S Myra Bat (N)  
 Morenot A/S (N)  
 Navimor (PL)  
 M. Neemann Norge (N)  
 A/S Nett & Tau Produkter (N)  
 Newage Norge A/S (N)  
 A/S Nielsen & Johnsen (N)  
 Noack AS (N)  
 Nogva Motorfabrikk A/S (N)  
 NORAD-Kontoret for Fiske (N)  
 A/S Norco Solo (N)  
 Nordic Supply A/S (N)  
 A/S Nordico (N)  
 Nordlandsforskning/Nordland DH (N)

Nils Nordoy & Co. (N)  
 Norfo (D)  
 Norges Fiskerihogskole (N)  
 Norges Rafisklag (N)  
 Norpack A/S (N)  
 A/S Norpower Brodr. Malo (N)  
 Norsamek Maritim (N)  
 Norsk Marconi A/S (N)  
 Norsk Mekanikk A/S (N)  
 Norsk Olje a.s. (N)  
 Norsk Scania-Vabis A/S  
 Norske Signode (N)  
 Norske Fiskeoppdretters Forening (N)  
 A/S Norske Shell (N)  
 Ocean Products A/S (N)  
 Panther Plast (D)  
 Pasilac-Therm A/S (D)  
 Pay & Brink a/s (N)  
 Pelitronic Bjorn Neuendorf AB (S)  
 Pettersen Spillfabrikk A/S (N)  
 Polyform A/S (N)  
 Professional Fisherman Magazine (A)  
 Pumpeteknikk A/S (S)  
 Pyrofabrikken A/S (N)  
 Racal Norge A/S (N)  
 Ranheim Papirfabrikk A/S (N)  
 Rapp Hydema A/S (N)  
 Redningselskapet N.S.S.R. (N)  
 Refa A/S Fiskerredskap (N)  
 Reflex Oljeovner (D)  
 Rena Kartong Fabrikk A/S (N)  
 Renaco as O.L.V. Industrier (N)  
 Rishaug Maskin A/S (N)  
 Robertson A.S. Radio Elektro (N)  
 Sabb Motor A.S. (N)  
 Thomas Sabro (D)  
 Sambandsteknikk A/S (N)  
 Scanmar A/S (N)  
 Scanmar Industries Inc. (C)  
 Scanmec A/S (N)  
 Scanvekt-Avery A/S (N)  
 ScanRope a/s (N)  
 Scanvest Ring A/S (N)  
 A/S Ragnar Scholberg/Bibun Corp. (N)  
 Sea-Tek A.S. (N)  
 Seamatrix Ltd. (Scotland)  
 Firskeforedlingskons Seatech A/S (N)  
 Selo-Gjerstrup A/S (D)  
 A/S Selsbakk Fabrikker (N)  
 Servex A/S (N)  
 Setsaas A/S (N)  
 Sildemelnaeringens Informasjonstj (N)  
 Simonsen Elektro a.s. (N)  
 Simrad A/S (N)  
 Skanti Radio A/S (N)  
 Skeide Mek. Fabrikker A/S (N)  
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 Trio Maskinindustri A/S (N)  
 Tustna Plast A/S (N)  
 O. Tynes & Co. A/S (N)  
 Unipower Universal Diesel A/S (N)  
 VVS K. Lund (N)  
 Valmet Corporation (F)  
 Vega Vekt A/S (N)  
 Vastkustens Maskin & Kyl AB (S)  
 West Mekan A/S (N)  
 West Norway Shipbuilders Association (N)  
 Vik & Sandvil A/S (N)  
 Viksund Nor A/S (N)  
 Volvo Norge AS/Volvo Penta (N)  
 Walderhaug Engineering A/S (N)  
 Sigmund Wenaas Konfeksjonsfabr. AS (N)  
 A.S. Wichmann (N)  
 World Fishing Exhibitions Ltd. (E)  
 Owre-Johnsen A/S (N)  
 Aas Skipsbyggeri A/S (N)

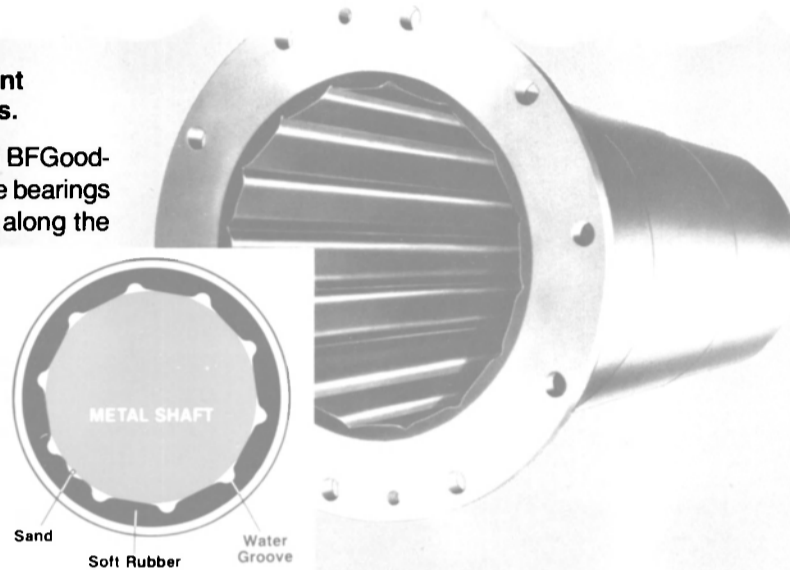
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Not true of hard-surfaced bearings. When abrasives enter hard-surface bearings, the particles are held firmly against the shaft causing excessive wear and damage.

Stop expensive shaft maintenance and replacement, use resilient Cutless rubber marine bearings. Available world-wide from yards and marine stores in a full range of shaft diameters and load capacities.



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 USWC

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 San Francisco, CA 94105  
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 RCA 276369

Please contact us for the address to our agent in your area.

1934-OW-1984

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## DE-MAR<sup>®</sup> MDX: Fuel-saving diesel engine oil with a 20-year reputation for top performance.

DE-MAR<sup>®</sup> MDX oil has been protecting the engines of workboats for years. Now it has been improved with Exxon proprietary friction-reducing additives to bring you fuel savings as well.

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# OFFSHORE NORTHERN SEAS

**Stavanger, Norway  
August 21-24**

The sixth Offshore Northern Seas (ONS) conference and exhibition will be held August 21-24 at the Siddis Centre in Stavanger, Norway, one of the world's leading centers of offshore activity. Currently scheduled at two-year intervals, ONS is an international forum for communication on topics related to the search for oil and gas in northern waters. Resources, policies, technology, and environmental constraints are among the subjects covered in relation to petroleum exploration, production, and refining in this increasingly important offshore region.

The location in Stavanger, amid one of the world's most concentrated and technically sophisticated offshore sectors, helps give the ONS event its unique character. The exhibition provides a meeting place for the oil industry at three levels—the local, the national, and the international. Offshore technology from all over the world merges with Norway's own impressive accomplishments in northern waters.

A special feature of ONS remains the close involvement of the oil companies operating on the Norwegian shelf. They collaborate in staging both exhibition and conference, emphasized by the participation of many Norwegian and foreign oil companies in the show as exhibitors.

The focus of the event is on technical solutions for the future. At the same time, the potential of the Norwegian offshore market, valued at more than \$30 billion over the next decade, provides a solid business attraction for exhibitors and visitors alike.

Stavanger offers a potent setting for pursuing such commercial targets. A number of oil companies and service firms have their Norwegian head offices there, along with the Norwegian Petroleum Directorate—the state agency responsible for regulating Norway's offshore activities.

Uncertainties and innovation in the management of northern offshore resources will be the central themes at the ONS '84 conference. As before, several sessions of varying length are planned under this

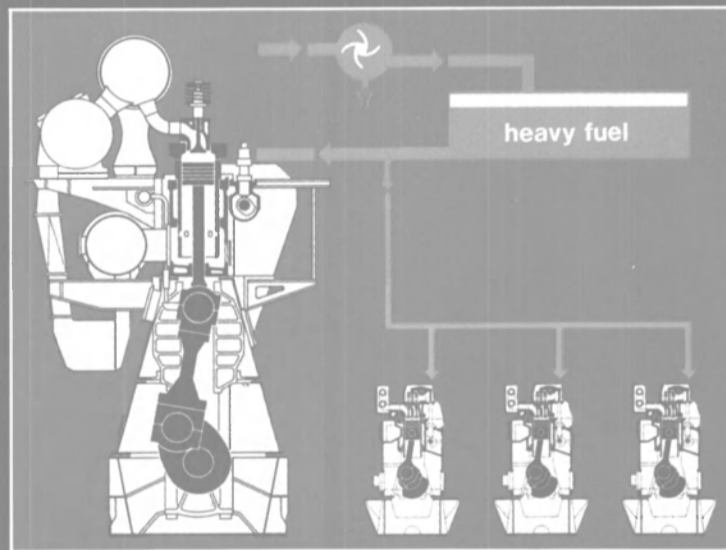
(continued on page 18)



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## Offshore Northern Seas

(continued from page 16)  
general heading to give broad coverage of relevant problems and solutions.

Political and technical uncertainties will be the topics at two of the seven sessions scheduled for the main four-day conference. The discussion of uncertainties is to be balanced by an overview of technological innovation—providing

fresh evidence of the way the international oil sector and its associated industries continue to rise to offshore challenges in difficult and demanding areas.

Other subjects will include the northern seas viewed from the rest of the world, raising the crucial question of how much importance is attached to energy supplies from a stable area—covering markets, prices, economics, and finance.

The new frontiers for the off-

shore industry in the Arctic and sub-Arctic regions as well as the Barents Sea will be discussed at another session. Where technological innovation is concerned, a broad look will be taken of exploration, reservoir technology, field development, production, and other factors. The significance of new technical advances will also be emphasized.

Evaluation of markets in relation to policies forms one aspect of

the planned sessions on markets and prices, which will look at these subjects from a global as well as a European viewpoint. Global problems, macro factors, the state of the world economy, and the role of OPEC are among the important considerations that will be dealt with under the heading of political uncertainties.

In addition to the four-day General Conference, three concurrent one-day meetings and a half-day conference are also included in the well-filled ONS '84 program. A session on geology and geophysics will look at the techniques available in these fields and examine how they have been applied to achieve better reservoir modeling. Actual field cases will be used, with the emphasis on specific applications of special techniques.

The half-day meeting on enhanced recovery will aim to identify the practical lessons for reservoir engineers provided by the preceding geology/geophysics conference. With the aid of real cases, it will show what has been achieved and project this experience into the future in a bid to examine ways of improving recovery even further.

Transport and logistics will be the topics for a second one-day session, where the themes will include multiphase flow, dense phase transport, conventional and unconventional transport methods, operation and maintenance of transport systems, as well as strategic considerations for their use.

Finally, a one-day conference will be held on the increasingly important topic of subsea production. Its purpose is to identify trends in underwater technology that can be expected to be applied during the coming decade, as well as to examine the development testing and confidence-building mechanisms that will allow more innovative techniques to progress to maturity.

### GENERAL CONFERENCE PROGRAM Tuesday, August 21

11:00 am—Introduction to Offshore Northern Seas 1984 and official inauguration: **Leif Terje Loddessol**, chairman, ONS executive committee.

11:15 am—Welcome to Stavanger: **Mrs. Kari Thu**, mayor of Stavanger.

11:20 am—Norwegian Oil Policy: **Kare Willoch**, Prime Minister of Norway.

11:35 am—"The Challenges of Northern Offshore Developments," by **Stephen D. Bechtel Jr.**, chairman, Bechtel Group Inc.

12 noon—Lunch

#### Political Uncertainties

Chairman: **Finn Lied**, ONS director.

2:30 pm—"Uncertainties of Energy Supplies in a Geopolitical Perspective," by **Robert Bel-**

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grave, head, British Institute Joint Energy Policy Program, London.  
4:00 pm—"Natural Gas for Continental Europe—Norwegian Gas and Implied Aspects of Energy Politics," by **B. Bergmann**, ONS executive board.

#### Wednesday, August 22 Market and Prices

Chairman: **Hans O. Bjontegaard**, senior vice president, Norske Hydro A/S, Oslo.  
9:30 am—"Price Fluctuations in the Energy Market—Causes and Consequences," by **Johan Nic. Vold**, manager-planning and public affairs, A/S Norske Shell, Oslo.  
10:45 am—"The Gas Market," by **James F. Allcock**, director-petroleum purchasing, British Gas Corporation, London.  
11:20 am—"Oil Trading—A Changed World," by **David A.G. Simon**, managing director, BP Oil International, London.  
12 noon—Lunch  
2:00 pm—"OPEC's View on Petroleum Activities in the Northern Seas," by Prof. **Robert Mabro**, St. Antony's College, Oxford.  
3:30 pm—"Impact of Market Conditions upon the Northern Seas Petroleum Developments—A Norwegian View," by **Jacob Oxnevad**, executive vice president, Statoil, Stavanger.

#### Thursday, August 23 New Frontiers: Arctic and Sub-Arctic Areas

Chairman: **Ola Wattne**, managing director: BP Petroleum Development Ltd., Norway.  
9:30 am—"The Role of Northern Areas Petroleum Developments as Seen from the West," by **Finn Sollie**, Fr. Nansen Foundation, Oslo.  
10:40 am—"Petroleum Developments Offshore Northern Norway," by **Henrik Ager-Hanssen**, senior executive vice president, Statoil, Stavanger.  
11:20 am—"Sub-Arctic Developments," by **Jim M. Stanford**, president, Petro-Canada Resources, Calgary.  
12 noon—Lunch

#### Economy and Finance

Chairman: **Nils Guines**, senior vice president, Den norske Creditbank, Oslo.  
2:00 pm—"Risks Inherent in Financing Large Projects as Experienced by Banks," by **Lars Uno Thulin**, executive vice president, Den norske Creditbank, Oslo.  
3:30 pm—"Uncertainties and Problems Created for World Economy by Drastic Oil Price Fluctuations," by **Michel Develle**, chief economist, Compagnie Financiere de Paris & des Pays-Bas, Paris.

#### Friday, August 24 Technical Uncertainties And Technical Innovation

Chairman: **Asbjorn Larsen**, president, Saga Petroleum a.s., Oslo.  
9:30 am—"Development of New Oil and Gas Fields and the Need for Technological Innovation," by **Chris E. Fay**, director-exploration

& production, A/S Norske Shell, Stavanger.  
10:35 am—"Development of Reservoir Techniques and their Effect upon Field Economy," by **W.R. Nation**, production engineering supervisor, Amoco, Houston.  
11:15 am—"Engineering/Manufacturing Companies—Doers Only or Contributors as Well?," by **Hans Jorgen Frank**, director, Moss Rosenberg Verft a.s., Oslo.  
12 noon—Lunch

#### Towards An Orderly Energy Future?

2:00 pm—Panel Discussion  
Moderator: **Leif T. Loddessol**, president, Den norske Creditbank, Oslo.  
Panelists: **Robert Belgrave**, head, British Institute Joint Energy Policy Program, London; **Michel Develle**, chief economist, Compagnie Financiere de Paris & des Pays-Bas, Paris; **Arve Johnsen**, president, Statoil, Stavanger; **Jim M.**

**Stanford**, president, Petro-Canada Resources, Calgary; and **Jan van Dam**, head of production, Shell International Petroleum Mij, B.V. den Haag.

#### Special Conference: Reduction Of Uncertainties By Innovative Reservoir Geomodelling

Tuesday, August 21  
Chairman: **Douglas W. Ellenor**,  
(continued on page 20)

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## Offshore Northern Seas

(continued from page 19)

exploration manager, A/S Norsk Shell, Stavanger.

2:30 pm—"Synergism—An Interdisciplinary Approach to Optimizing Hydrocarbon Recovery," by **R.M. Sneider**, consultant, Houston.

3:30 pm—"The Current State of Development of the Marine 3-D Seismic Survey Method," by **Andrew L. Lucas**, manager, geophysical interpretation, BP Petroleum Development Ltd., London.

4:00 pm—"Porosity Evolution of Truncation Traps: Diagenetic Models and Log Responses," by **R.C. Selley**, consultant, R.C. Selley & Co. Ltd., Surrey.

4:30 pm—"Prediction Techniques from Logging Tools: Are the Results Confirmed by Testing?" by **Terje Helgoy**, manager of petroleum technology, Statoil, Stavanger.

### Wednesday, August 22

Chairman: **Ingebret Gausland**, chief geophysicist, Statoil, Stavanger.

9:30 am—"Frigg Field: Production History and Seismic Response," by **Michel Revoy**, manager, Geophysical Department, Elf Aquitaine Norge A/S, Stavanger.

10:00 am—"The Use of Palynology in Definition of Troll Reservoir Geology," by **Michael F. Whitaker**, palynologist, A/S Norske Shell, Stavanger.

10:45 am—"The Valhall Field—A New Geological Description," by **Martin T. Steinbis**, chief geologist, Amoco Norway Oil Company, Stavanger.

11:30 am—"The Norwegian Continental Shelf—Discoveries and Related Challenges," by **Egil Bergsager**, deputy director, Norwegian Petroleum Directorate, Stavanger.

12 noon—Lunch

### Improved Offshore Recovery

Chairman: **Tor Ivar Pedersen**, vice president, exploration & production, Statoil, Stavanger.

2:00 pm—"Improving Recoveries for Offshore Chalk Reservoirs," by **J. Ford Griggs**, manager of reservoir engineering, Phillips Petroleum Company Norway, Stavanger.

2:45 pm—"Improved Recovery from Thin Oil Sands," by **Sverre Hamre**, section head reservoir, Elf Aquitaine Norge A/S, Stavanger; **Bjorn Reinholdtsen**, reservoir engineer, A/S Norske Shell, Stavanger; and **Jack J. Zagar III**, staff reservoir engineer, Esso Expro Norway Inc., Stavanger.

4:00 pm—"Problems of Reservoir Management in Jurassic North Sea Reservoirs," by **M.G. Bayat**, supervising reservoir engineer, Britoil, Glasgow.

4:40 pm—"Improved Offshore Recovery—State of the Art," by **Denis E. Gregg**, manager, interna-

tional production, Conoco Inc., Houston.

### Special Conference: Subsea Technology—Extrapolation Or Innovation

Thursday, August 23

Chairman: **Knut Hagen**, technical manager, Norwegian Petroleum Consultants A/S, Asker.

9:30 am—"Two Fields Case Histories: N.E. Frigg/Skuld," by **B. Weil**, start-up manager, N.E. Frigg, Elf Aquitaine Norge A/S, Stavanger; and **Marc Freudenreich**, Skuld project manager, Elf Aquitaine Norge A/S, Stavanger.

10:00 am—"Advancement of Subsea Technology Through Experience: Tazerka Floating Production System and Cormorant Underwater Manifold Centre," by **G.H.C. van Opstal**, section head, underwater technology offshore R&D, Shell Internationale Petroleum Mij. B.V., The Hague.

10:50 am—"Production Risers for the Future," by **G. van der Graaf**, senior project manager, A/S Norske Shell, Stavanger; **Christian Dumazy**, project manager, Elf Aquitaine (SNEA-P), Paris; and **R.L. Vernier**, senior marine engineer, Conoco Production Engineering Services, Houston.

11:40 am—"State-of-the-Art for Subsea Pipeline Connections," by **Robert J. Brown**, chairman, R.J. Brown & Associates, Rijswijk, Netherlands.

12:15 pm—Lunch

### Afternoon Session

Chairman: **Bjorn Husemoen**, director, Kongsberg Engineering, Oslo.

2:00 pm—"Norwegian Industrial Involvement: Potentials and Objectives," by **Anders M. Liaaen**, managing director, A.M. Liaaer A/S, Alesund.

2:40 pm—"Critical Hardware and Control Aspects of Subsea Production Systems," by **Tore Andvig**, manager, Kongsberg Subsea Systems, A/S Kongsberg Vapenfabrikk, Kongsberg.

3:45 pm—"Troll Development—The Technical Challenge," by **Donal A. O'Neill**, head, subsea & export studies, A/S Norske Shell, Stavanger.

4:25 pm—"The Future of Subsea Production," by **Jacques Delacour**, director, drilling and production systems, Institute Francais du Petrole (IFP), Rueil Malmaison Cedex.

### Special Conference Hydrocarbon Transport Systems—Operation And Future Development

Friday, August 24

Chairman: **Magne Reed**, vice president, Norwegian Shipowners' Association, Oslo.

9:30 am—"Development in the Simulation and Design of Multiphase Pipeline Systems," by **H.L. Norris III**, senior research spe-

cialist, Exxon Production Research Company, Houston.

10:00 am—"Conventional/Unconventional Transport Methods," by **Fred Weir**, exploration & production manager, Mobil Exploration Norway, Inc., Stavanger.

10:45 am—"Reliability and Economics of Pipeline Operations," by **F.J. Alexander**, head of engineering, Total Oil Marine; Aberdeen; and **Olav Furnes**, president, a.s. Veritec, Oslo.

11:45—"Planning of Start-up and Operation for the Statpipe Transport System," by **Egil Sael**, general manager, Statpipe, Statoil, Haugesund.

12:15 pm—Lunch.

### OFFSHORE NORTHERN SEAS EXHIBITORS LIST

(Country Codes): A = Austria, B = Belgium, C = Canada, D = Denmark, E = England, FI = Finland, FR = France, I = Italy, L = Luxembourg, N = Norway, NE = Netherlands, SW = Sweden, SZ = Switzerland, US = United States, WG = West Germany.

A E I Cables Ltd. (E)  
A-H Skips og Industriservice A/S (N)  
AB Controls & Technology Ltd. (E)  
ACN-Articulated Columns Norway A/S (N)  
AEG-Telefunken (WG)  
AGA Navigation Aids AB (SW)  
ATC A/S (N)  
Aalborg Vaerft Offshore (D)  
Aeral N.V. (B)  
Aerospaciale, Helicopter Div. (FR)  
Afton Pumps Inc. (US)  
Agusta S.p.A. (I)  
Ahlseil Offshore (N)  
A. Ahlstrom Osakeyhtio (FI)  
AKER (N)  
Aker Contracting A/S (N)  
Aker Elektro A/S (N)  
Aker Engineering A/S (N)  
Aker Norsco A/S (N)  
Aker Verdal A/S (N)  
Alfsen Og Gunderson A/S (N)  
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Alsthom Atlantique (FR)  
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Monrad Anderson Group (N)  
Andersen & Odegaard A/S (N)  
Apram S.r.l. (I)  
Arco Norway Inc. (N)  
Arcticon (D)  
Arrow Chemicals Ltd. (E)  
Asea-Atom (SW)  
Aspelin Stormbull A/S (N)  
Aspelin-Stormbull Maskin A.S. (N)  
ASTEIO (FR)  
Ateliers et Chantiers de Bretagne (FR)  
Ateliers de Constructi de Jambes SA (B)  
Ingeniorforretningen Atlas A/S (N)  
Atlas Copco A/S (N)  
A/S Atlas (D)  
Autronica A/S (N)  
Arne Bo Pedersen & Sonner A/S (N)  
BOLIDT Kunststoftepassing B.V. (NE)  
BP Petroleum Development Ltd. (N)  
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Bekaert N.V. (B)  
Belgian Foreign Trade Office (B)  
Bell Helicopter Textron (US)  
Bennex A/S (N)  
A/S Bergens Mekaniske Verksted (N)  
Bergenske Services A/S (N)  
Signal Bergesen Group (N)  
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John Brown Offshore (E)  
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C.F.E.M. (FR)  
C.R.C. Chemicals Europe N.V. (B)  
CONTROLASCO B.V. (NE)  
Camera Di Commercio Industria (I)  
Cameron Iron Works (US)  
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Canadian Embassy (N)  
Canocean Resources (UK) Ltd. (E)  
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Chubb Fire Security Ltd. (E)  
A/S Clausen, Kaldager & Co. (N)  
Clemco Scandinavia (D)  
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Computervision (Europe) Inc. (E)  
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Cooperheat, Int'l Div. (E)  
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Cubic Western Data (US)  
A/S Cylinderservice (N)  
H. VAN DAM B.V. (NE)  
Dansk Elektro Instrument Fabrik A/S (D)  
Dansk Hydraulisk Institut (D)  
Danyko A/S (N)  
Det norske Veritas (N)  
Detronics Scandinavia ab (SW)  
Dive Supply A/S (N)  
DRASS (I)  
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Elektro Union A/S (N)  
Elektro Maskin (N)  
Elf Aquitaine Norge A/S (N)  
Keld Ellengsen & Sonn Teknisk A/S (N)  
Elomatic Oy (FI)  
Esbjerg Erhvervskontor (D)  
Esso Exploration & Production (N)  
Euroconsult A/S (N)  
ExploWeld AB (SW)  
Export Promotion Danmark (D)  
FAG Kugelfischer (WG)  
FOA 3 (SW)  
Fabricom N.V. (B)  
Fabrique de fer de Chariot S.A. (B)  
Fagersta-HAAK A/S/Sandvik Offshore (N)  
Ferno Norden a.s. (N)  
Ferrari E Figlio (I)  
Ferros Consorzio Fergal-Rossetti (I)  
Fine Tubes Ltd. (E)  
Finnish Foreign Trade Assn. (FI)  
Flopetrol-Johnson-Schlumberger (N)  
Gotaverken Arendal (SW)  
GEC Electrical Projects Ltd. (E)  
GEMEENTE's-Gravenhage (NE)  
GKL Gummi A/S K. Lund & Co. (N)  
GMC-Gruppen (N)  
GPE Controls (US)  
GS-Hydro Ky (FI)  
Gallus-Plesner Industri A/S (N)  
Galperti & Figlio S.p.A. (I)  
Gam Raccordi (I)  
A/S Gentrade (N)  
A/S Geoteam (N)  
W. Giertsen A/S (N)  
Jon Gjedebo (N)  
Glamox A/S (N)  
Graesdal & Korsvold A/S (N)  
Graco Norge A/S (N)  
Graenges Metalock (SW)  
Gram Taeffefabrik A/S (D)  
Gray Tool Norway A/S-Gray Tool Europe (E)  
Gulf Publishing Co. (US)  
Hoiness & Hoiness A/S (N)  
HEEREMA Engineering Service B.V. (NE)  
HOLLANDSE Constructie Groep B.V. (NE)

(continued on page 22)

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(continued from page 20)

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Sverdrup Hanssen & Co. (N)  
Hanstholm Offshore Supply Base A/S (D)  
Hapag-Lloyd Transport & Service GmbH (WG)  
Harding A/S (N)  
Hauland Maskin A/S (N)  
Helikopter Service A/S (N)  
Hellermann Haugerud A/S (N)  
Helly-Hansen A/S (N)  
Hemco Corp. (US)  
Hewlett-Packard Norge A/S (N)  
Hillevag Elektro-Diesel A/S (N)  
Hindle Cocoburns Ltd. (E)  
Hollming Oy (FI)  
Holta & Haland A/S (N)  
Holte Industri A/S (N)  
Honeywell A/S (N)  
Aug. P. Horn A/S (N)  
Humphreys & Glasgow Ltd. (E)  
A/S Hydraulik Brattvaag (N)  
Hydroscan A/S (N)  
Idhammar Konsult AB (SW)  
Oy Imporex Ab (FI)  
Inca A/S (N)  
Industrial Pipe Line International (D)  
Industriële Raad voor de Oceanologi (NE)  
Industrikonsult G. Draxler AB (SW)  
Ingeniorforlaget A/S (N)  
Ingersoll-Rand (E)  
Institut Francais du Petrole (FR)  
Integrated & Modular (FR)  
Irgens Larsen A/S (N)  
Italian Institute for Foreign Trade (I)  
A. Johnson & Co. A/S (N)  
Johnson Metall AB (SW)  
Karmsund Elektro A/S (N)  
Otto Kind GmbH (WG)  
Klockner-Humboldt-Deutz AG (WG)  
Kurt Kohorn Ltd. A/S (N)  
Kongsberg Vapen (N)  
Korody-Colyer Overseas Corp. (US)  
Kracht Hydraulics Ltd. (E)  
Krupp Atlas Elektronik GmbH (WG)  
Kvaerner Group (N)  
A/S Lowener, Mohn (N)  
Lac Component A/S (N)  
Lanne Elektriske Verksted A/S (N)  
Lanza Nuova (I)  
Alf I. Larsen (N)  
Lauritzen & Thommessen A/S (N)  
Wilhelm Layher GmbH (WG)  
J.K. Lindberg A/S (N)  
Ljusne Kaetting AB (SW)  
Lloyd's List (E)  
AB Lyckeaborgs Bruk (SW)  
Rolf Lycke A/S (N)  
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Macdonalds Tubulars Ltd. (E)  
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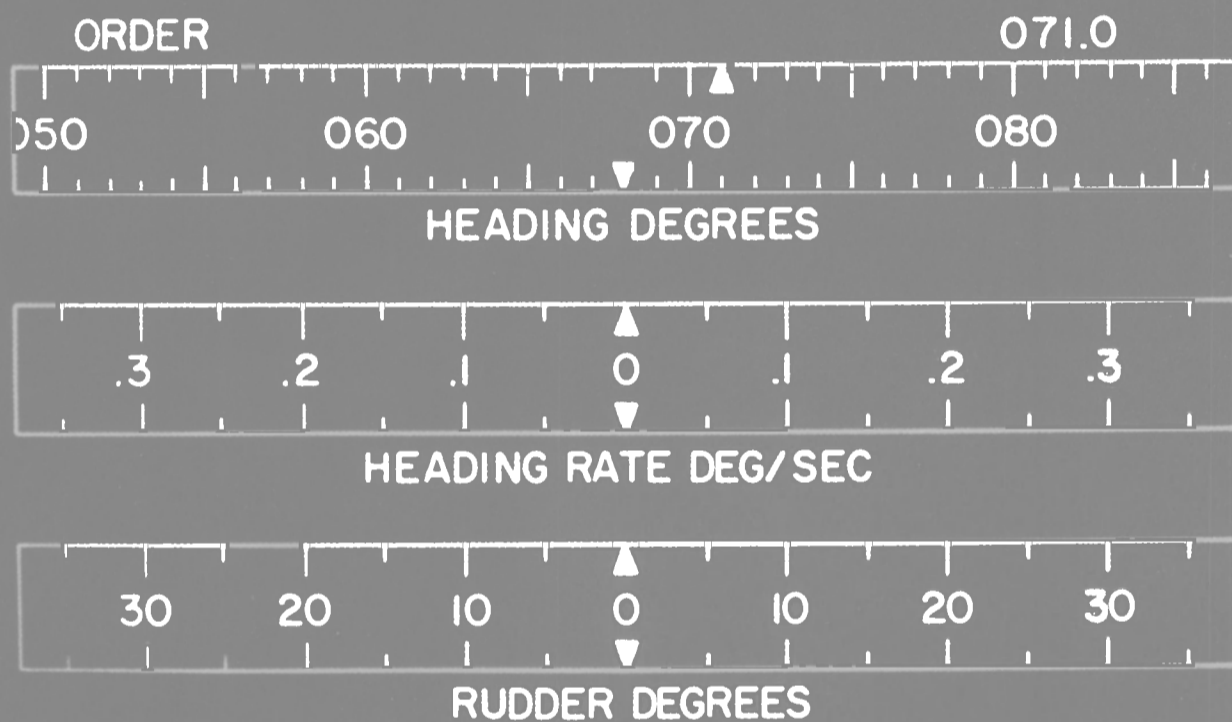
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# WITH TOMORROW

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The capability of baseband radar to

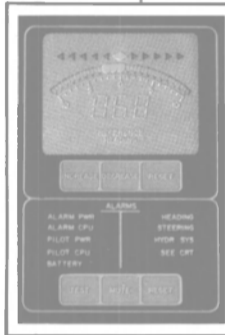
provide sensing accuracy of  $\pm$  one foot within a mile dramatically escalates Sperry's ability to provide a new generation of super-sensitive systems for precise offshore mooring and navigation in confined waterways.

Vessel traffic control is yet another area where Sperry technology is advancing the state-of-the-art, state-of-the-science and state-of-the-system.

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Cutters, our integrated ship control systems put all information needed for effective command and decision-making at the watch officer's fingertips.

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Top to bottom: Ship Control Helm Unit, Collision Avoidance Display, Control Room aboard Coast Guard Cutter.

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Photo—Trade Commission of Norway

## SCANDINAVIAN SHIPBUILDING

At a time when even the lower-cost Japanese and the aggressive South Korean shipbuilding fraternities are experiencing some difficulties, there are signs of success in the Scandinavian countries. The shipbuilding industries of each of these four traditional maritime nations are still active, with a few yards doing relatively well.

The Finns, with another spate of Soviet ordering and their own specialization in high technology vessels, are in the best position; the Danish yards are kept going by their special relationships with shipowners; the Swedes and the Norwegians, with their industries organized along radically different lines, both face an uphill struggle.

Scandinavian shipbuilders still have a well deserved reputation for producing high quality vessels. Recent examples include the "Sea Goddess," a luxury cruise liner/yacht, from Finland's Wartsila; the ACL RO/RO container vessels from Kockmus in Sweden; the successful "Multiflex" freight ROs/ROs from the Danish Frederikshavn Vaerft, and the popular UT708 and UT704 offshore support vessels from Ulstein Hatlo in Norway.

### Denmark

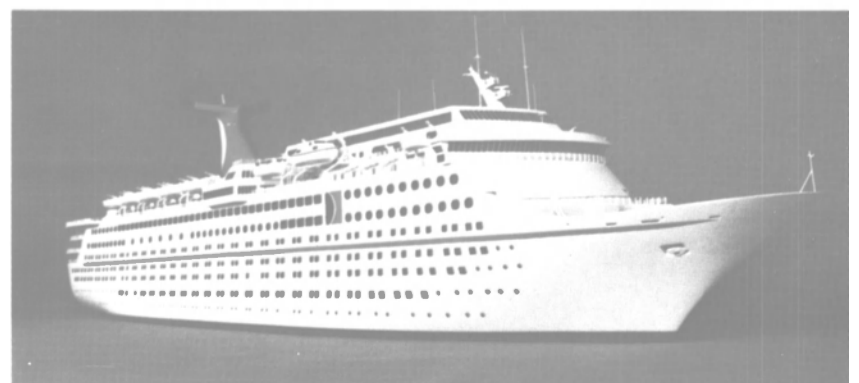
On the face of it, the Danish shipbuilding industry fared relatively well in 1983. Against the background of a slump in world deliveries of over 9 percent in terms of ships, and 17 percent in

terms of tonnage, Danish yards increased output to 28 ships (up by four), and 839,940 dwt, an improvement of 21 percent.

Indeed, figures indicate that this relatively high level of work will continue, in the short term at least. The Danish Shipbuilders' Association's annual report for 1983 revealed that there were 36 ships totalling 1,164,823 dwt on order at its member yards on January 1st 1984. In the first quarter of 1984,

a further 11 vessels were ordered from Danish yards boosting the tonnage figure by a total of 34,000 dwt.

However, these successes have not been won easily. Yards have been forced to make workforce reductions, and it has been reported that more may follow. The total number of people now employed in Danish shipbuilding is down to around 11,000, representing a drop (continued on page 26)







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## Scandinavian Shipbuilding — Denmark

(continued from page 24)

of some 25 percent during 1983.

A large number of these lost jobs occurred at Helsingor Vaerft which, with delivery of two RO/RO vessels for Iraq in the early part of 1983, effectively ceased to exist as

a shipbuilding yard.

There is, however, a bit of comfort in this closure story: Helsingor Vaerft was part of the J. Lauritzen group, which in conjunction with Frederikshavn Vaerft A/S—another Lauritzen group member—set up a shiprepair company to operate from the dry docks and quay installations previously used by Helsingor Vaerft.

Situated close to Copenhagen, the yard's location will enable it to

take advantage of the heavy ferry traffic between Denmark and Sweden.

The two major yards in the Lauritzen group, Frederikshavn, mentioned above, and Aalborg Vaerft, have both been working—indeed Frederikshavn enjoyed considerable success, and indications are that it will continue to do so.

Frederikshavn's lifeline is the special relationship it has developed with the Danish shipowner

Mercandia Rederierne, coupled with the success of its standard design "Multiflex" freight RO/RO. During 1983, it delivered four 7,000 dwt "Multiflex" vessels, and at the end of the year had another two similar vessels and eight "giant" Multiflex ships on order from Mercandia.

Two more orders, recently announced, bring the number of Mercandia vessels on order at Frederikshavn to 12, and the total of ships for which the company has contracted at the yard over the past few years to a very healthy 70.

Aalborg Vaerft, having done a fine job on a previous vessel for Carnival Cruise Lines, and with good progress currently on a second, the yard might have hoped to pick up something when the American company was looking to order additional ships during the summer.

In any event, the contract for both vessels went to Kockmus in Sweden. Aalborg Vaerft then had one ship on its orderbook, due for delivery in mid 1985, until the gloom was lifted by a recent order for three 7,750-dwt fruit carriers for the USSR, the last of which is scheduled for delivery in 1986.

An additional bright note was the delivery by Aalborg Vaerft of one of the most talked-about vessels of 1983, the New Zealand Railways ferry Arahura. The Arahura will run between New Zealand's north and south islands, across the Cook Strait, one of the world's harshest stretches of sea. Aalborg Vaerft is hoping the interest aroused by Arahura, coupled with the yard's already strong reputation for building good-quality passenger ferries, will result in more orders for this kind of vessel.

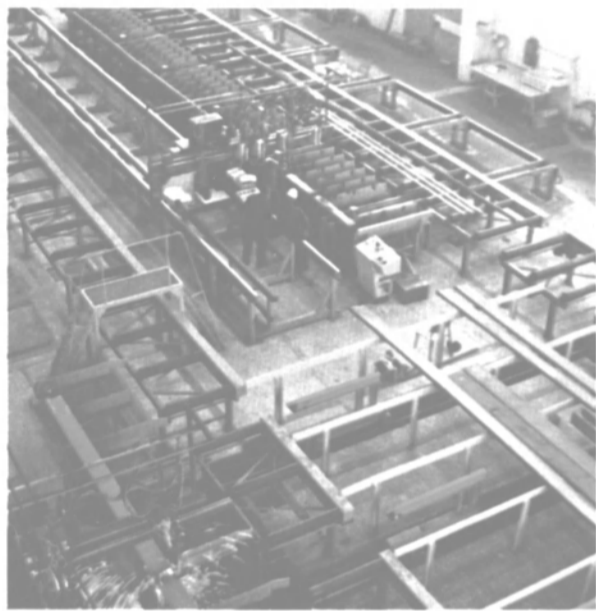
Both with favourable positions on the east coast of Jutland, Frederikshavn and Aalborg Vaerft constitute the main ship repair industry of Denmark. Frederikshavn has recently increased its maximum capacity from 40,000 dwt to 60,000 dwt while capacity at Aalborg is somewhat greater.

Burmeister and Wain of Copenhagen has enjoyed continued success with its 64,000 dwt Panamax bulk carrier design, with five of these vessels delivered during 1983, including two for Wheelock Marden, and a further four on order at the beginning of 1984. One of the major factors behind the popularity of this class of vessel is its highly economical hull design. It is intended to perform at an average speed of 15 knots, while consuming less than 40 tons of fuel per day. Mass production techniques have enabled B&W to reduce costs even more, and the yard's naval architects have now adapted the basic design to produce products tanker and container ship designs.

Another Danish yard to benefit from a special relationship with a

(continued on page 28)

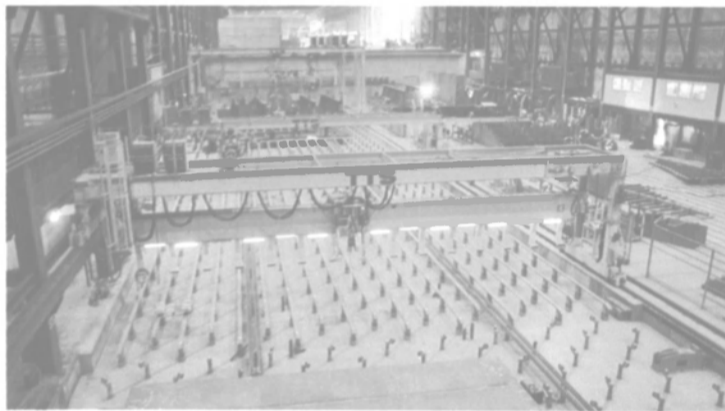
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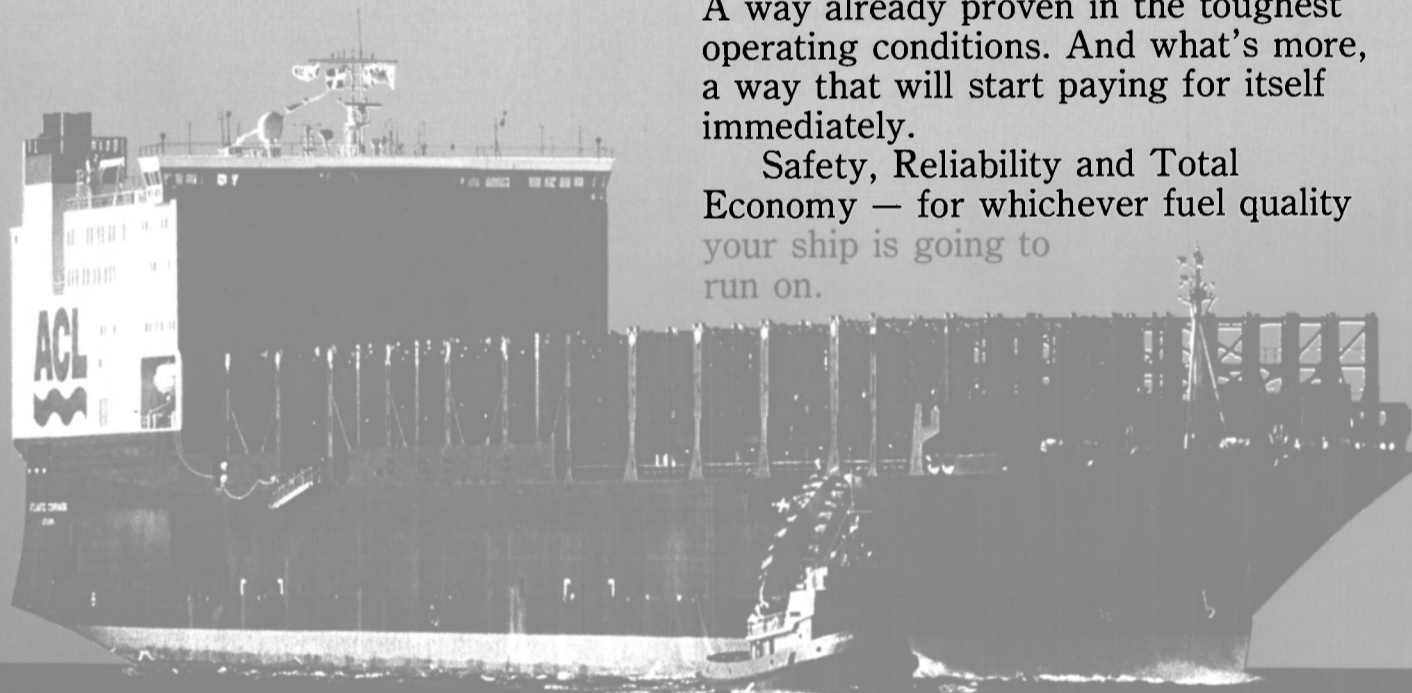
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## Scandinavian Shipbuilding — Denmark

(continued from page 26)

shipowner is Lindovaerft, at Odense. In this instance, the relationship stems from the fact that the shipowner, A P Moller, is the yard's parent company. Orders from Moller account for a large proportion of the yard's currently healthy orderbook, which includes a pair of 15,000 m<sup>3</sup> LPG tankers, and a series of 48,000 dwt products tankers.

Indeed, Lindovaerft is becoming something of a specialist in this kind of vessel, with two further examples on order for Torm D/S, and the delivery of two giant 97,570 dwt products tankers to A P Moller last year. In addition, a \$52.6-million order for two 20,000-dwt products tankers has just been announced. Due for delivery towards the end of 1986, the vessels have been ordered by the Danish Investment Fund, and will be bareboat chartered to A P Moller with an option to buy after the first five years.

Of the smaller Danish yards, the most successful has been the prolific coaster builder Nordsovaerft. At the beginning of this year the yard had nine vessels on the orderbook, including a series of three multi-purpose dry cargo ships with container capacity for Elite Shipping. These vessels are due for delivery in the last quarter of 1984 and the early part of 1985.

In general, Danish shipyards have managed to remain independent from state ownership, and relatively busy. They are helped considerably by the fact that Danish shipowners rarely place orders

overseas, and indeed many of the yards are actually owned by shipping companies.

### Finland

A glance at the list of Finnish deliveries in recent years shows quite conclusively that the country's shipbuilding industry is very heavily dependent on orders from the USSR. It has been estimated that around 60 percent of Finnish shipbuilding activity since 1980 has been for the Soviet Union, and indeed of the 33 vessels of more than 2,000 dwt delivered by Finnish yards in 1983, only five were destined for non-Soviet ownership.

At the beginning of 1984, however, Finnish orderbooks were showing a decline, due almost entirely to the fact that the lion's share of the work resulting from the current Soviet five-year plan had already been exhausted.

Therefore, the recent announcement of 21 Soviet newbuildings for Finland, all of which are advance orders for the next five-year plan, has been enthusiastically welcomed by the four major Finnish shipbuilding groups, each of which will be getting a slice of this very lucrative pie.

The major beneficiary of this latest round of Soviet ordering is state-owned Valmet, with a 52 percent share, in financial terms, of the total order. It is to build a total of eight new vessels: three 400-berth accommodation vessels, worth \$40 million each at its Turku yard, and an additional five arctic multi-purpose cargo ships, of the successful SA 15 design, at Helsinki.

Valued at some \$52.6 million each, these ships will incorporate slight modifications. The changes



Hollming Ltd. Shipyard Rauma, Finland.

Circle 91

are expected to affect the quarter ramp design, accommodation, and engine room layout.

These orders were announced about the same time as a \$50 million contract with Swedish owner Birka Line for a 21,000 grt passenger vessel, representing a remarkable turnaround in fortunes for Valmet.

Although state-owned, the yard is required to operate efficiently and does not benefit from government subsidies. At the beginning of 1984 the orderbook was at a particularly low ebb. As a result, the corporation merged its two Turku yards — Perno and Laivateollisuus — with the loss of a number of jobs. Shortly thereafter, the firm decided to use its large building dock at Helsinki solely for conversion and repair work.

Valmet is Finland's largest ship repairer, with capacity for over 400 ships per year. However, with the Birka Line order heralding the corporation's entry into the passenger vessel field, and the Soviets' timely boost, Valmet is now looking forward to a healthy future.

Numerically, the largest share of the Soviet order has gone to Rauma Repola, with nine vessels spread among its three yards. Five

5,000 dwt arctic product tankers will be built at Rauma, with two ocean-going tugs ordered from Uusikaupunki, and two hydrographic survey vessels from Savolliina. The new orders are particularly important to these latter two yards, which were rapidly running out of work.

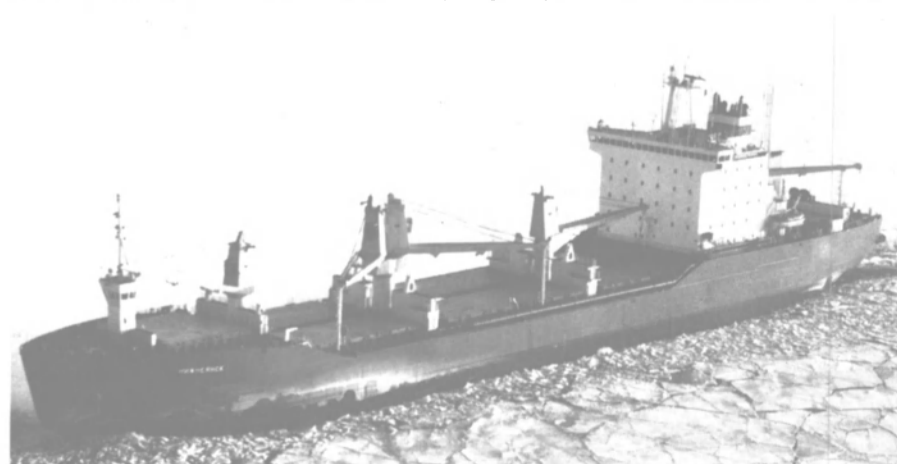
Hollming, although smaller, is one of the country's major shipbuilders, and is now becoming something of a specialist in the design and construction of research vessels. It currently has four such craft on order from the USSR, two of which are its share of the latest orders. It is now looking to capitalize on its experience in building this type of ship, and has recently set up an ocean systems department for the development marketing of complex electronic systems.

Without doubt, the most successful of the Finnish shipbuilders is Wartsila, one of the few genuinely healthy shipbuilding concerns in the world today. Despite only receiving contracts for a pair of dredgers in the latest Soviet ordering spree, there remains a large amount of good quality tonnage on the books at both its Helsinki and its Perno yards.

The major element in Wartsila's success is its specialization in two

Valmet is building a series of multi-purpose dry cargo ships for the Soviet Union.

Circle 97.



## RAY-1285 SSB Worldwide microprocessor radiotelephone sets new professional standards.

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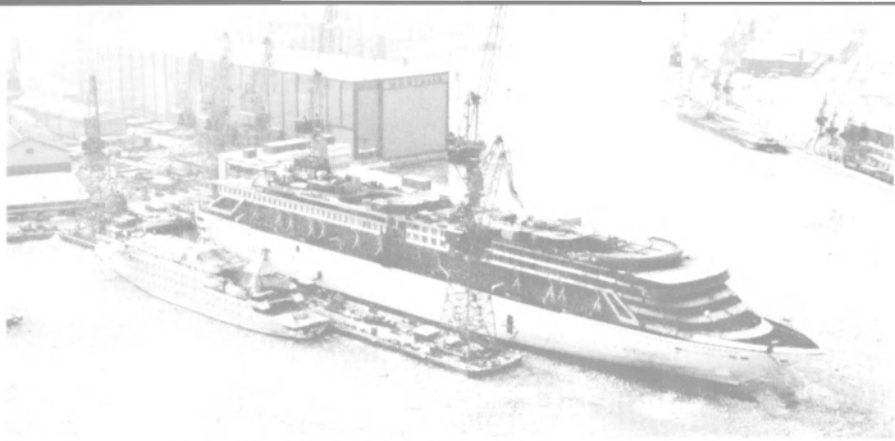
antenna coupler automatically fine tunes during transmission; can be controlled by the keyboard for broken-antenna emergency transmissions.

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View of Wartsila Helsinki Shipyard with the cruise liner Royal Princess currently under construction.

Circle 93



Kockums shipyard in Malmo, Sweden.

Circle 89

specific vessel types—icebreakers and passenger ships—to the extent it is widely considered the world's leading builder of these craft. Last year it delivered 13 icebreakers. Prominent on the current order book is P&O's Royal Princess, destined to become one of the most prestigious cruise ships afloat, and two "super ferries" building for Silja Line, and two smaller "yacht cruisers" for Norske Cruise A/S.

Wartsila sees a market for less conventional cruise ships in the future and already has well advanced designs for both a four-masted "Windcruiser" and a 2,000-passenger SWATH ship.

#### Sweden

Shipbuilding in Sweden continues to make headway, thanks in no small part to the government's apparent willingness to write off large amounts of capital, and to the slimming down operation which has been underway since nationalization in 1977.

Last year the country's only two surviving large ship builders, Kockums and Uddevallavarvet, both reduced their workforces by around 30 percent. Shipbuilding capacity in Sweden has been cut more than in any other European nation. The current workforce of 9,450 employed on newbuildings is about only 20 percent of the figure for the early 1970s.

In 1983 Swedish yards delivered 17 vessels, totalling 501, 156 dwt. Of these, the two major yards accounted for 8 ships and 464,500 dwt, leaving the balance for the smaller operations.

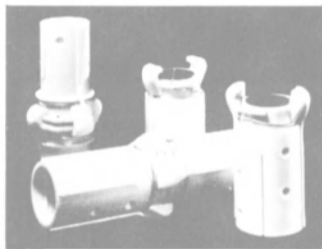
Under the scheme instituted following the state take-over, Kockums was dedicated to building RO/ROs and other medium-sized tonnage, although it is geared up for the construction of large ships. The yard's 1983 deliveries were a series of three RO/ROs for the National Shipping Corporation of Saudi Arabia.

At the moment, the yard is approaching completion of the last of three RO/RO containerships for the Swedish partners in ACL.

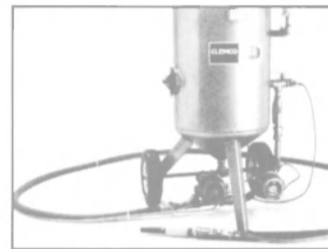
It appeared, temporarily, Kockums would experience a gap between delivery of the last ACL vessel and the commencement of work on the two Carnival Cruise Lines ships which are due for delivery in 1986 and 1987. However, this time slot was neatly filled

(continued on page 30)

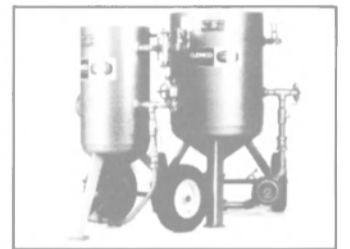
## The Abrasive Blast Performance System By Clemco



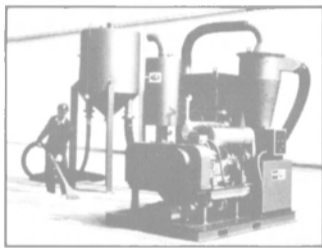
**Couplings/Holders**  
Precision molded from tough nylon, brass or aluminum, safe no-leak fit, static conducting, 1/2"-1 1/2" quality blast hose.



**PVR Remotes**  
New Pinch Valve designed for production, safety, service. Blast machine does not depressurize when blasting stops. Straight through 45° abrasive feed is unique to Clemco.



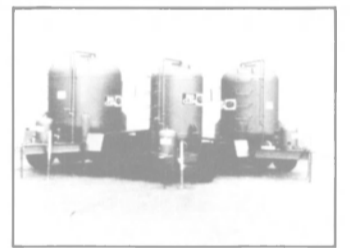
**Blast Machines**  
39 models, 50-800 lb. sand capacity, new pop-up valve, quieter air bleed noise. The heart of Clemco performance systems...Continues to be the best!



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The newly constructed North Sea Hall at Haugesund Mekaniske Verksted's yard

Circle 92

## Scandinavian Shipbuilding — Sweden

(continued from page 29)

with the announcement, towards the end of 1983, that Swedish operator Wallenius lines had placed an order for two car carriers, with a 1985 completion date.

Uddevallavarvet's future order-

book appears thin. However, the last of three OBOs for Philippines Transmarine, together with a pair of products tankers for Anders and Wilh. Wilhelmsen and an ore/oil carrier for Uglund Management will ensure work until the latter half of next year. After that, activity will depend upon any success in obtaining new orders in the near future.

The real success story in Swedish shipbuilding is to be found at Gotaverken Arendal. Since facing a crisis with the collapse of the tanker market in the late 1970s, Gotaverken has devoted itself entirely to offshore building, and has established itself as Europe's leader in this field.

Since 1980, it has turned out 15 rigs from its single yard, in addition to four conversions and a module. The current orderbook features four supply vessels for Stena Offshore, and four diving support ships and a semi-submersible rig for Consafe.

At the other Swedish yards, the outlook is less encouraging. Only Falkenbergs Varvet has a vessel under construction, a small supply ship for Tunisia. Oresundvarvet has been closed down, and Oskarhamns resurrected under private ownership with a 50 percent reduction in workforce.

However, Cityvarvet, the repair and service group, reported a small profit in 1983.

The Cityvarvet organization has ten docking facilities able to take ships of up to 240,000 dwt. These are strategically located around the Swedish west, south and east coasts. An important part of the Cityvarvet resources is the worldwide ship service through its Ciserv-organization.

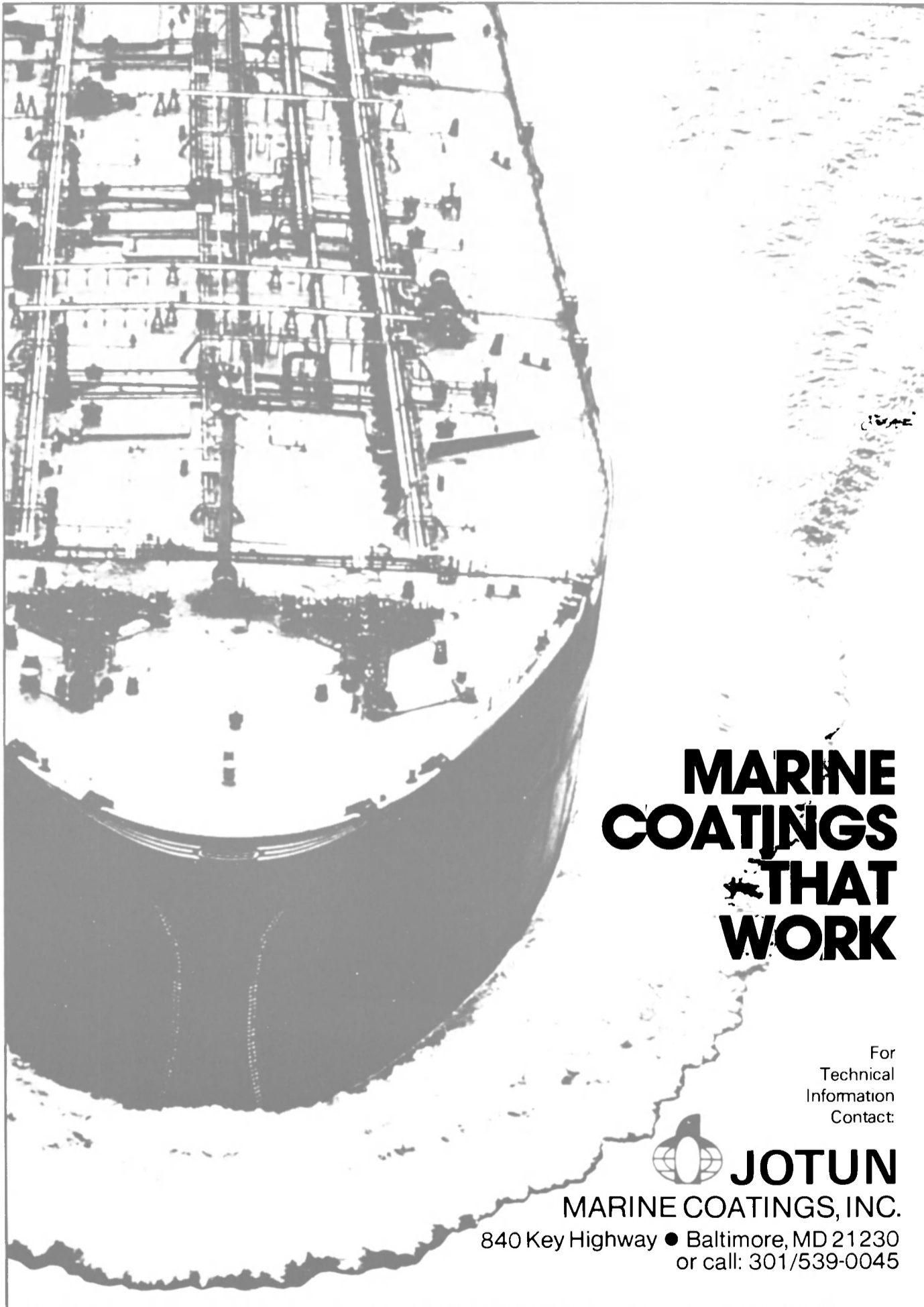
### Norway

The structure of Norwegian shipbuilding is very different from that of Sweden. While the Swedes have opted for a small number of large-capacity state-owned yards, each specializing in a particular vessel type, the Norwegians have completely avoided government intervention and central control.

As a result, the coastline of Norway is peppered with small shipyards. Once again, the story of decline is revealed by cuts in the labor force. Before 1974 and 1983, the number of people employed in shipbuilding in Norwegian yards had declined from 15,082 to just 4,541.

The building of large ships in Norway is rare now. The biggest vessels delivered in 1983 were two 55,000 dwt chemical tankers, built at Horten for Th. Brovig and Toro Horten A/s, and a 38,400-dwt chemical tanker built by Aker for J O Odfell.

Most of the yards with capacity for large vessels have turned their attention elsewhere. Aker has gone over to offshore activity, while Haugesund Mek. Verksted and (continue on page 32)



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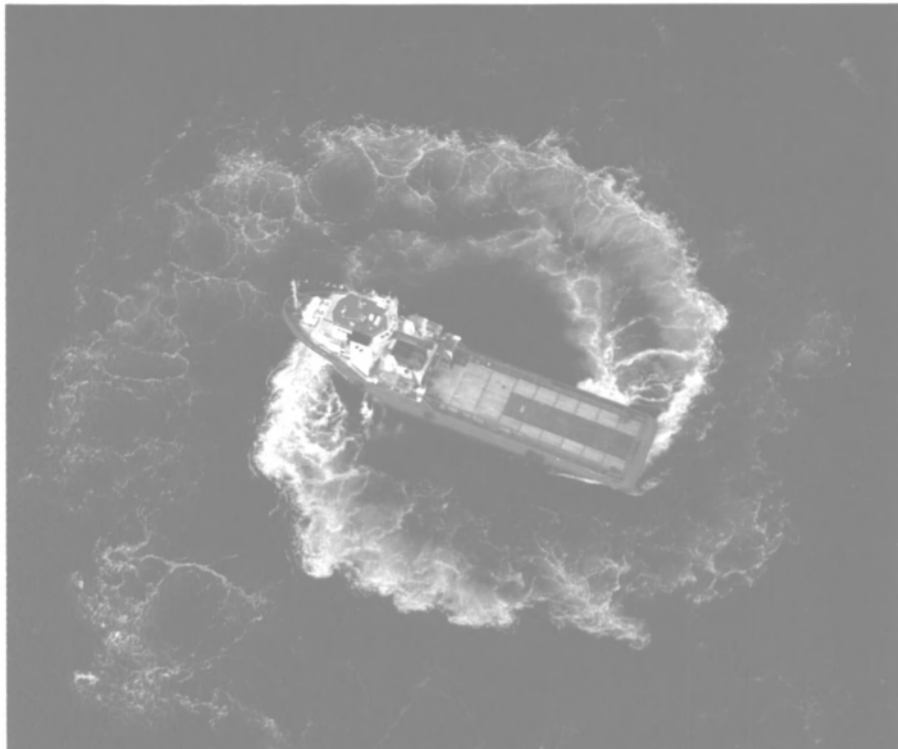


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Ulstein, known for its offshore supply vessels, also designs and manufactures propulsion and maneuvering systems. **Circle 88**



The AI Jabalaine, third of three cement terminal vessels converted at Cityvarvet yard in Gothenburg, Sweden. **Circle 90**

## Scandinavian Shipbuilding — Norway

(continued from page 30)

Bergens Mek. Verksted, which recently broke away from the Aker group, and Kristiansands Mek. Verksted, are all concentrating on repair and offshore work.

Only Moss Rosenberg has vessels of significant size on its current order book—a 24,000 m<sup>3</sup> LPG carrier for Helge R Myhre, and 13,200 dwt chemical tanker for A/S Havtor Management. However, Moss, too, has joined the rapidly growing number of yards looking towards the offshore market for future employment.

As has been noted elsewhere, one of the keys to survival in today's shipbuilding market is the

establishment of a reputation as a specialist and leader in the construction of a particular vessel type. This has been achieved by Ulstein Hatlo, with its highly popular UT 708 and UT 704 supply vessels. A number of these sophisticated craft have been delivered, and the yard is constantly working to improve and refine the design in order to offer prospective buyers a still more efficient and economic product.

The work which stems from the offshore industries is extremely varied, involving the construction and maintenance of rigs, accommodation platforms, modules, supply vessels, rescue crafts, buoys, pipelines, tankers etc. Nevertheless, it seems doubtful whether there will be enough to enable many of the small Norwegian yards, unaided by government subsidies, to hold great hopes for the future.

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### Thomas R. Dyer Joins Glost Associates



Thomas R. Dyer

**Duane H. Laible**, president of Glost Associates, Inc., Seattle, recently announced the appointment of **Thomas R. Dyer** as vice president and director of operations.

**Mr. Dyer** began his shipyard career with Astoria Marine Construction. He has held management positions at Marco and Todd Shipyards and most recently at Foss Shipyards.

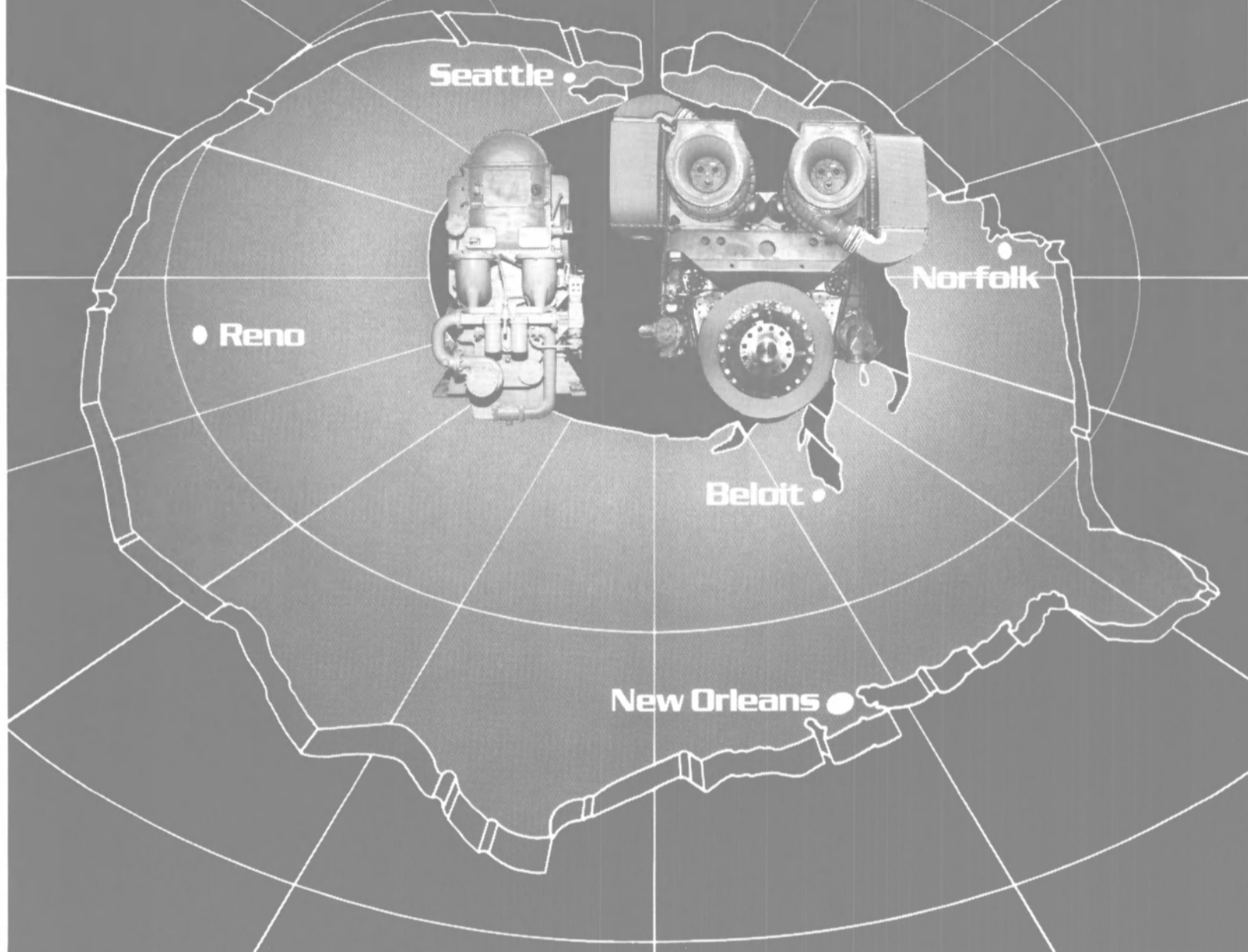
He is a graduate of Stanford University with a degree in mechanical engineering. **Mr. Dyer** also received a Masters Degree in naval architecture and marine engineering from M.I.T.

He is registered in Washington State as a Professional Engineer in naval architecture and marine engineering.



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For parts and service program details, contact Colt Industries, Fairbanks Morse Engine Division, 701 Lawton Avenue, Beloit, WI 53511. 800/356-6955.

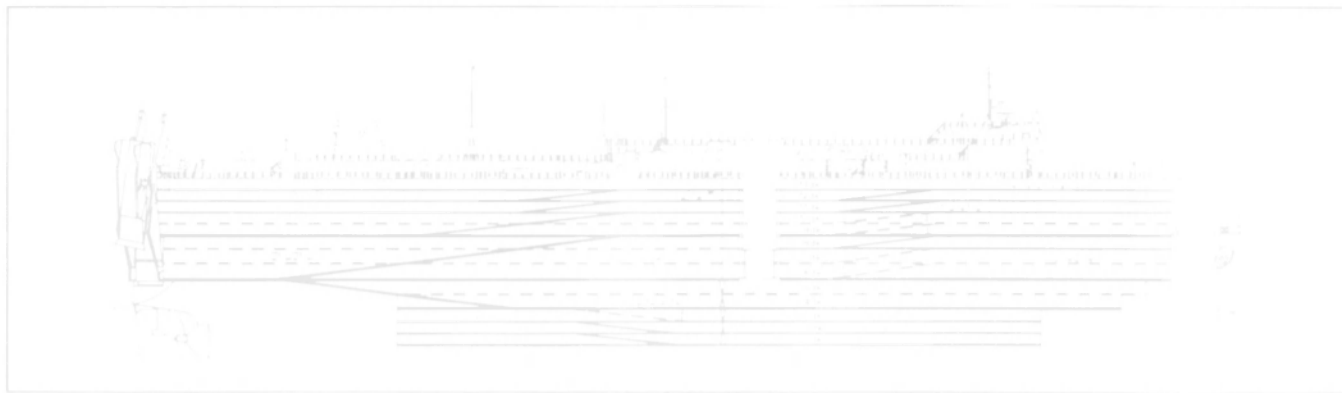


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**Colt Industries**



**Fairbanks Morse**  
Engine Division



**WALLENIUS LINES** is a family-owned company and the youngest of Sweden's major shipping companies. The name is an overall name for several companies that were all started by **Olof Wallenius** (1902-1970). The parent company—Rederi AB Soya—was founded in 1934.

In the mid-fifties global trade in automobiles and other vehicles was rapidly expanding. **Olof Wallenius** foresaw the growing need for tonnage to carry vehicles. In 1955 the first two purpose built car-carriers entered service between Europe and the USA (the Great Lakes). The ships were custom built to go through the locks to the lakes and, by today's standards, were small. At 2,700 dwt, each ship had a capacity for 290 automobiles—all lifted on and off.

Between 1959 and 1963, the size of the ships in the fleet successively increased up to 15,000 dwt. All were combined car/bulk cargo vessels.

The RO/RO concept was introduced in 1963 when Wallenius built a number of ships for the North Sea traffic equipped with ramps in the stern or bow. In 1966, the first of a series of six

ocean-going RO/RO vessels was commissioned.

The mid-sixties were important for Wallenius Lines. Japan began exporting cars to Europe and the USA without suitable Japanese tonnage being available. In 1965, Wallenius was able to sign an agreement with the Japan-Europe Freight Conference that is still in force.

In the sixties, containers were introduced for unit loads, and in 1967 **Olof Wallenius** took an initiative that resulted in the formation of Atlantic Container Line (ACL), at present the largest container shipping line on the North Atlantic. The partners in the consortium include three Swedish lines and three European shipping companies. Wallenius owns 22 percent and manages the car-carrying operations. ACL's fleet consists of 10 container vessels of which Wallenius owns three.

In 1975-76 the two first PCC ships were delivered, each having a capacity of 4,900 cars. In 1977 two more somewhat larger PCC vessels were delivered. They took 5,500 cars and could also carry heavy or high vehicles (PCTC). In 1978, the fleet was enlarged with

the addition of two similar car-carriers, each taking 5,900 vehicles.

The eighties began with the conversion of the two Polish built vessels into pure car-carriers. At the same time, four new PCTC vessels were ordered for delivery in 1981 and 1982.

The expansion of the Wallenius fleet continued. In 1983, orders were placed for four sister vessels to those delivered in 1981 and 1982. Delivery is planned for 1985. A drawing of the 200-meter-long, 17,000-dwt ships is shown above. Two are building at Hitachi in Japan and two at Kockums in Sweden.

The company's own fleet consists of 17 specialized vessels for carrying vehicles together with eight chartered ships. All the company's own ships (apart from the ACL vessels) are named after famous operas, e.g., Aida, Otello, Carmen, Figaro, etc. The Wallenius fleet of car carriers is the most modern and flexible in the world and the company is one of the world's largest car-carrying shipping companies.

For a free color brochure detailing Wallenius Lines worldwide services,

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## Study Survey Available From Lubritech On Fuel And Maintenance Savings

A new field study report from Lubritech International Corp. of Bethesda, Md., contains detailed information on reducing maintenance and fuel costs savings.

During one test an operator reported a seven percent fuel reduction representing an annual savings of \$76,000.

For further information,

Circle 86 on Reader Service Card

## Magnavox MX 1100 Series Navigators GPS Upgradable —Literature Available

Users of Magnavox MX 1100 Series Satellite Navigators and Satellite/Omega Navigators may soon retrofit their receivers to accept and process signals from Navstar GPS satellites providing position, velocity, heading and time displays.

Upgraded Transit-to-GPS receivers will initially be single channel, C/A code equipment because, by policy, the U.S. Department of Defense denies P-code access to all but a few civilian users. Thus, in the Magnavox upgraded receivers, only L<sub>1</sub> frequency signals will be available at 1575.42 MHz and C/A code signals at 1.023 MHz. These signals offer 30-35 meter accuracy depending on the quality of orbit parameters and clock corrections transmitted by satellites. In time, civil users may be given access to full system accuracy.

There are currently five experimental GPS satellites in operation. By the end of 1987 it is expected that there will be 12 operational satellites which would be sufficient to provide continuous two-dimensional navigation worldwide. Meanwhile, users will have only a few hours of full coverage per day in most parts of the world.

Since the current GPS satellites are experimental, the U.S. Government cautions that it has the right to modify or terminate their operation at any time. Sale of GPS upgrades is subject to U.S. Government export regulations.

Retrofit of Series 1100 Satellite Navigators entails the addition of a GPS receiver and processor card, a software update, and the replacement of the antenna with a combined GPS and TRANSIT antenna using the same coaxial cable and mounting hardware. In most cases, installation may be quickly accomplished in the field by authorized Magnavox Marine Dealers worldwide.

For more information,

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## Ingram Materials Expands Bulk Marine Terminal

Ingram Materials Company, a division of Ingram Industries Inc., headquartered in Nashville, Tenn. announced the grand opening of its expanded bulk marine terminal facilities in Paducah, Ky.

Ingram Materials' Paducah Port is located at Mile 2.1 on the Tennessee River and has 450 feet of river frontage.

The recent expansion added 15,000 tons of covered storage and 80,000 tons of outside storage area for bulk cargo. The total covered storage is now 17,000 tons while outside storage exceeds 100,000 tons. To date it has handled fertilizer, petroleum coke, Arkalite, gravel sand and grain.

Ingram has a self-contained dredging and processing facility, the Floating Plant Ingram, which operates on the Ohio River near Paducah and produces specification sand for distribution at riverside facilities in Nashville and Clarksville, Tenn. in addition to Paducah.

## Emerson Shank Joins Desco Marine As VP Sales And Marketing



Emerson Shank

Desco Marine president **Tom Collins** announced recently that **Emerson Shank** has accepted the position of vice president for sales and marketing with the St. Augustine shipbuilder. Mr. **Shank** will supervise Desco's sales and marketing program for new boat construction, repair and marine hardware and supply.

"We will be more aggressive in our efforts to promote our products and expand our capabilities," said Mr. **Collins** when announcing Mr. **Shank's** appointment. "This is a continuation of the program begun last year with new ownership and the addition of several new product lines."

Mr. **Shank's** sales background includes 15 years with V.A.W. Aluminum, a West German manufacturing company with over \$2 billion in annual sales. Overall, he has been active in marketing and sales for 25 years.

In addition to Mr. **Shank**, other management personnel to join the Desco team recently include **John L. Leonard** as production man-

Circle 217 on Reader Service Card ►

ager, and **Mike Russell** as naval architect and engineering manager.

Desco Marine, Inc. is a modern shipbuilding and repair facility located in St. Augustine, Fla. Desco's capabilities include steel boats up to 200 feet, fiberglass boats to 90 feet and wood boats to 73 feet. For information regarding Desco Marine's products and services,

Circle 82 on Reader Service Card

## Jeffrey Gordon Joins Sonat Offshore Drilling

**William C. O'Malley**, president of Sonat Offshore Drilling Inc., recently announced that **Jeffrey B. Gordon** has joined the company as division manager of the Gulf Coast.

Mr. **Gordon** joined Sonat Offshore Drilling in 1975 as an attor-

ney and in 1978 was named senior contracts and sales representative. From 1979 until his return to Sonat Offshore Drilling, he was employed by an international drilling contractor in the field of marketing.

He earned a Bachelor of Engineering Science degree from the United States Air Force Academy and a J.D. degree from the University of Texas.

With the continued steady rise in energy costs, the need for new and more economical modes of transportation has become yet more pressing. Barge carrying systems — integrating ocean shipping with traditional inland navigation — provide one answer. Barges are cheap, and water-borne transport is indisputably the most economical form of transport.

Furthermore, it is a well-established fact that the more time an expensive vessel actually spends at sea, the more economical it becomes to its owners. With the Valmet system, turnaround times for the mother ship are greatly reduced, and loading/unloading of the contents of the individual barges can take place when the ocean carrier itself is enroute to its next port of call.

The system developed by Valmet features a mother vessel for ocean traffic, float-on-float-off feeder units for 4-8 barges, pusher tugs for river transports and port use, and a patented loading terminal.

M/S BORIS POLEVOY, the first of the two 8,800 tdw barge feeder/ro-ro vessels recently delivered by Valmet Helsinki Shipyard for the Soviet Danube Shipping Company.



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## Navy Adding 19 Ships To Ready Reserve Force

Nineteen U.S.-flag merchant ships have been procured for the Ready Reserve Force of the National Defense Reserve Fleet administered by the Maritime Administration. MarAd executed the \$30-million contract with Delta Lines and Lykes Bros. shipping companies at the request of the

Chief of Naval Operations for the Navy's Military Sealift Command.

Vice Adm. **William H. Rowden**, Commander, Military Sealift Command, recommended acquisition of the 19 breakbulk carriers from 51 ships offered in response to a request for proposals. The offerings were followed by surveys and an evaluation of the ships' material condition by two Navy/MarAd selection committees.

Six ships offered by Delta Lines for \$8.95 million and 13 ships offered by Lykes Bros. Steamship Company for \$21.06 million were selected. These ships have the highest military utility at the lowest cost of the ships offered. All 19 have national defense features.

When delivered to MarAd, by November 30, 1984, the ships must be within class in accordance with American Bureau of Shipping

Standards and certified by the U.S. Coast Guard as capable of 180 days of sustained, unrestricted operations.

The Ready Reserve Force currently consists of 32 ships, 26 of which are berthed at the three major sites of the National Defense Reserve Fleet—Beaumont, Texas; James River, Va.; and Suisun Bay, Calif. These additional 19 ships will be berthed at James River or Beaumont to be in or near their designated activation and loading ports. All ships in the RRF are kept in a 5 or 10 day readiness status, meaning they can be activated, crewed and ready to sail in 5 or 10 days from call-up by the Chief of Naval Operations.

Delta Lines of Teaneck, N.J., has offered the following ships:

Name	Yr. Built	Type
Santa Barbara	1967	Partial Container
Santa Clara	1966	Self-Sustaining
Santa Cruz	1966	Breakbulk (C4)
Santa Elena	1967	Breakbulk (C4)
Santa Isabel	1967	Breakbulk (C4)
Santa Lucia	1966	Breakbulk (C4)

Lykes Bros. Of New Orleans, La., offered the following ships:

Adabelle Lykes	1963	Breakbulk (C3)
Aimee Lykes	1963	Breakbulk (C3)
Charlotte Lykes	1963	Breakbulk (C3)
Mayo Lykes	1963	Breakbulk (C3)
Allison Lykes	1964	Breakbulk (C3)
Sheldon Lykes	1963	Breakbulk (C3)
Margaret Lykes	1963	Breakbulk (C3)
Christopher Lykes	1963	Breakbulk (C3)
Gulf Banker	1964	Breakbulk (C3)
Gulf Farmer	1964	Breakbulk (C3)
Gulf Trader	1964	Breakbulk (C3)
Gulf Shipper	1964	Breakbulk (C3)
Gulf Merchant	1964	Breakbulk (C3)

Although MarAd is the contracting authority for the Federal Government, the ships are being paid for by the Navy. They will be used by the Military Sealift Command for strategic sealift during emergencies, contingencies or exercises to test their readiness.

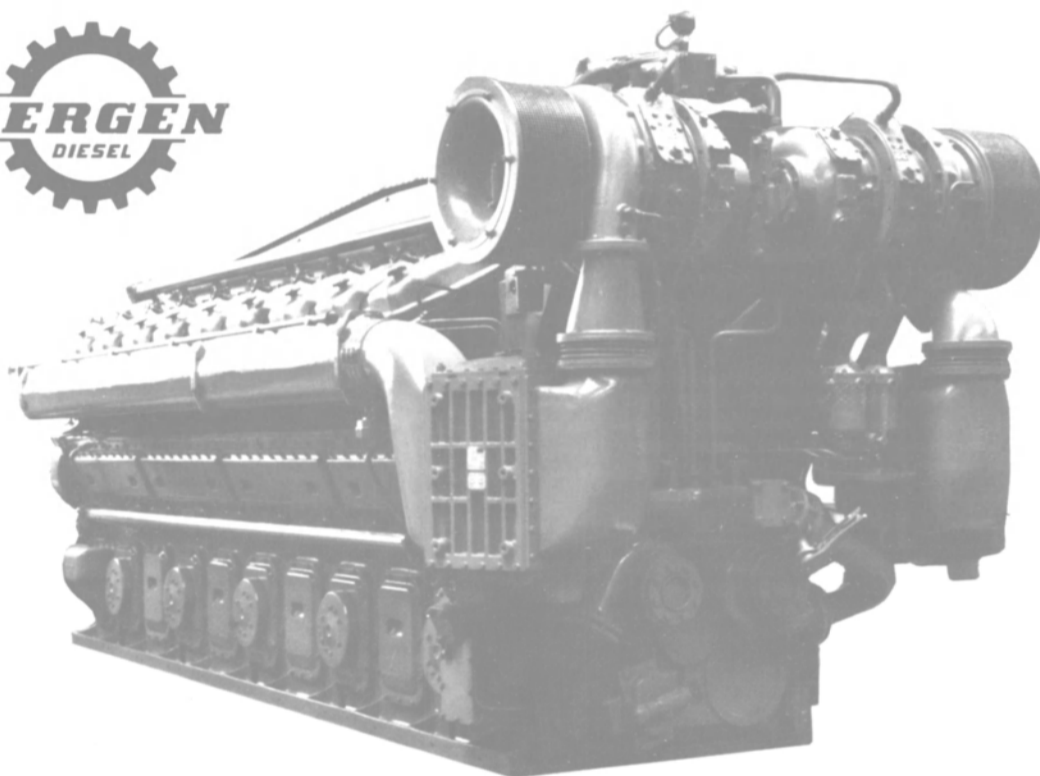
## Robert Allnutt Elected New VP, Government Affairs At COMSAT

COMSAT announced the election of **Robert F. Allnutt** to the position of vice president, government affairs. In this newly created position, Mr. Allnutt will be responsible for the management and direction of COMSAT's liaison with the executive branch, the U.S. Congress and regulatory agencies. He will report to **John L. McLucas**, executive vice president and chief strategic officer.

Most recently, Mr. Allnutt was vice president and legal counsel of the U.S. Committee for Energy Awareness.

He holds a B.S. from the Virginia Polytechnic Institute and a J.D. and LL.M. from George Washington University.

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**Cassidy Appointed New  
Manager-Operations,  
Burrard Yarrows-Vancouver**



David Cassidy

Burrard Yarrows Corporation has appointed **David Cassidy** as general manager, operations at its Vancouver Division shipyard.

Mr. Cassidy joins BYC from Saint John Shipbuilding, where he was project manager during the construction of the \$160-million Bow Valley semisubmersible drill rig in the past two years.

He has more than 25 years' experience in shipbuilding and marine engineering, mostly with Swan Hunter shipbuilders in the U.K., where he held several senior posts, including assistant yard manager, engineering.

**AMR™ Is New Name For  
Transamerica Delaval Line  
Of Three-Screw Pumps**

Transamerica Delaval Inc. has chosen a new name for its line of three-screw pumps: AMR™—axial multi-rotor pumps. The new trade name was chosen after Transamerica Delaval terminated its joint technical assistance agreement with IMO AB of Sweden.

The new name joins those of two other well-known families of rotary positive displacement pumps engineered and manufactured by Transamerica Delaval in the United States: GTS®—geared twin-screw pumps, and CIG®—crescent internal gear pumps.

**J. Kenneth Lippincott**, vice president and general manager of Pyramid™ Pump Division, pointed out that AMR pumps have been reliable pieces of rotating equipment onboard ship, in utilities, refineries, chemical plants and fluid power systems for more than 50 years, classing them as unique for simplicity of design, smoothness of flow, high shaft speed capability and very low noise.

Transamerica Delaval has 19 operating divisions at 22 manufacturing locations worldwide. The company makes a line of industrial products including compressors, connectors, controls, diesel engines, electric motors, fasteners, filters, forgings, gearing, pumps, sensors, steam condensers, turbines, valves and waste treatment systems.

For further information,

Circle 85 on Reader Service Card

Circle 192 on Reader Service Card ▶

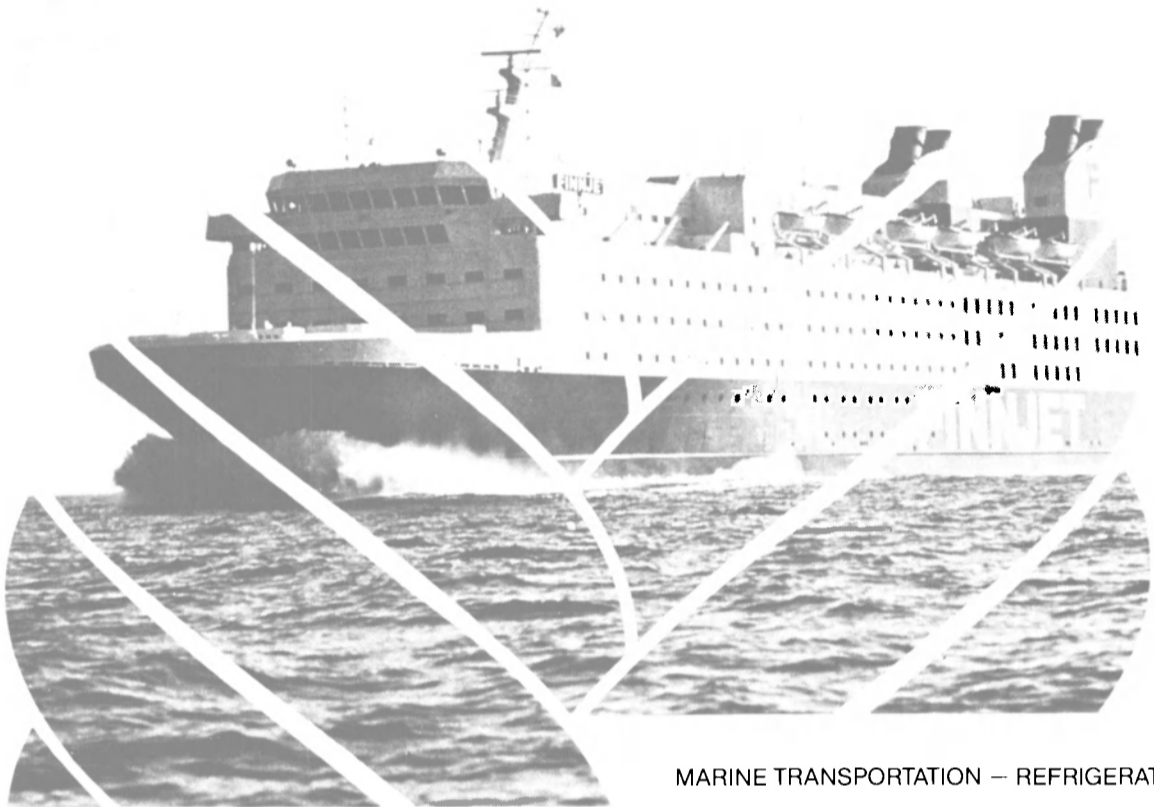
**Caterpillar Offers  
Remanufactured Fuel  
Nozzles And Tune-Up Kits**

Caterpillar Tracor Co. announces the availability of factory Remanufactured Fuel Nozzles and Tune-Up Kits for 1100, 3100, and 3208 engines. The nozzles are priced at approximately 45 percent

of new on an exchange basis. New nozzles are designed to match Caterpillar engines for optimum fuel efficiency and performance; being factory-remanufactured ensures all fuel nozzles still meet these original factory specifications. Tune-up kits conveniently include everything needed, including Remanufactured Fuel Nozzles for a complete tune up.

Both products are backed by Caterpillar's "same as new" warranty, six months, unlimited mileage/hours, honored by over 2,500 Caterpillar engine parts and service locations in North America. For additional information on warranty and specific model coverage,

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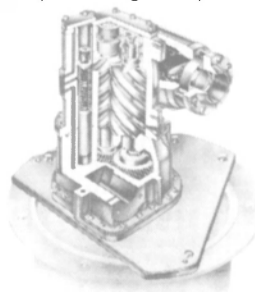
During the last 20 years — ever since screw compressors began to be used for marine refrigeration installations (where we have long been world leaders) — technical development has made continuous progress. Our new screw compressors now operate effectively even in

the lower capacity range for air-conditioning installations. At the same time, they offer the same high efficiency, low maintenance costs and long life as our well-known large compressors.

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## Cosat Dedicates Roaring Creek Earth Station

Cosat World Systems Division announced recently that Roaring Creek Earth Station in central Pennsylvania was officially dedicated on June 1, 1984. Roaring Creek Earth Station is the newest and largest international commu-

nications satellite earth station in the Intelsat global communications satellite system. Managed and operated by Cosat World Systems Division, Roaring Creek joins other similar stations operated by Cosat World Systems Division for international communications satellite services. It is the most powerful and advanced earth station complex ever to be constructed for operation in the Intel-

sat system, and is jointly owned by Cosat, AT&T, RCA and Western Union International.

Through the Intelsat system, people in the United States are able to make international telephone calls, send and receive telex messages, computerized data and facsimile to and from points abroad and view live television programs from overseas. Today, the Intelsat system carries approximately two-

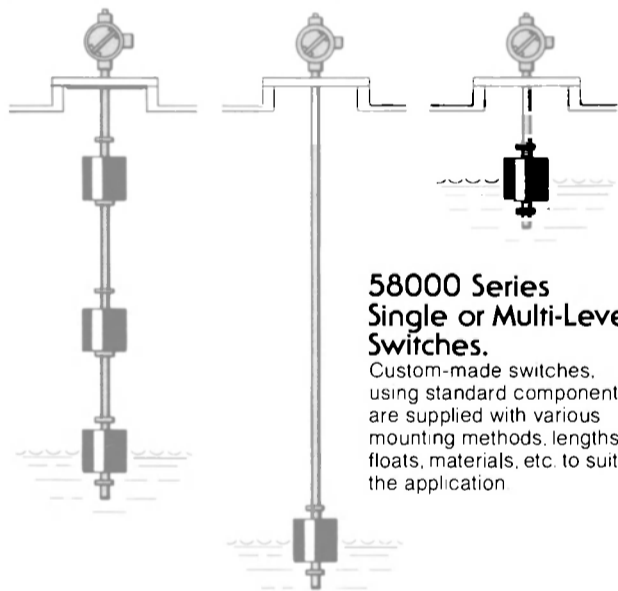
thirds of all international communications traffic and serves 170 nations and territories. The \$50-million Roaring Creek facility is located in a radio-quiet area 55 miles northeast of Harrisburg, Pa., near the town of Bloomsburg. Operating with Intelsat satellites positioned in geosynchronous orbit some 22,300 miles over the Atlantic Ocean, the Roaring Creek Earth Station will connect the United States with nearly three dozen other nations.

Three dish-shaped antennas tower over the Roaring Creek complex, each stretching 105 feet across. One of the three antennas, which began service in mid-May, operates in the lower of two satellite frequency bands, sending signals to the satellite at a rate of six billion cycles per second (6 gigahertz) and receiving them at four billion cycles per second (4 gigahertz). Another antenna, which will begin operating later this year, transmits and receives signals in a higher frequency band (14/11 gigahertz). This antenna's 105-foot size makes it unique in the Intelsat system in that other high-frequency band antennas usually measure about 60 feet across. The larger size at Roaring Creek lessens the likelihood of signal interference, which can be caused by heavy rainfall. The third antenna, the first dual-band antenna in the Intelsat system, operates in both the lower and higher satellite frequency bands. That antenna will serve as a backup to the other two antennas after it becomes operational later this year.

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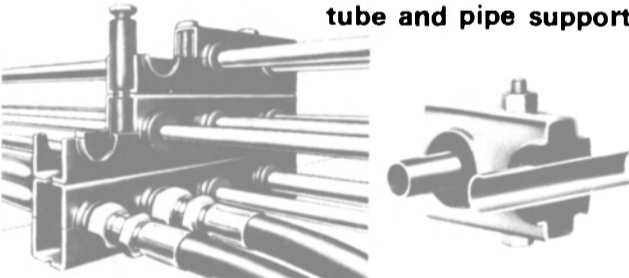
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## SNAME Issues Call For Papers For 1985 OTC

The Society of Naval Architects and Marine Engineers has issued a "Call For Papers" to be delivered at the 1985 Offshore Technology Conference (OTC) to be held in the Astrohall, Houston, Texas, May 6-9, 1985.

A 200 to 300-word abstract should be submitted on the official OTC form by September 14, 1984. Authors should send the form to the Program Department, Offshore Technology Conference, 6200 North Central Expressway, Drawer 64705, Dallas, Texas 75206. Copies of the form may be secured from OTC or from SNAME, One World Trade Center, Suite 1369, New York, N.Y. 10048.

The papers should be concerned with new knowledge or experience in some field of offshore resource and environment. SNAME's representative on the 1985 OTC Technical Program Committee is Fred E. Shumaker. Monroe D. Macpherson is the representative on the OTC Executive Committee.

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**ICFS '85 To Be Held  
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in New Bedford, Mass.**

The dates for the International Commercial Fisheries Show (ICFS '85) hosted by the City of New Bedford, Mass., have been set for April 12, 13 and 14, 1985. The location for the show is the State Pier Building in New Bedford.

The show this year will feature an added emphasis on the processor industry with displays of machinery and equipment and a special area featuring displays of product.

**Norcontrol Renews  
Long-Term Agreement  
With B&W Diesel**

Norcontrol, a division of A/S Kongsberg Vaapenfabrikk, Norway, has recently renewed a six-year collaboration agreement with Burmeister & Wain Diesel A/S, Denmark. B&W Diesel is, through its own and more than 30 licensed manufacturers, the world's largest supplier of slow-speed diesel engines for ships.

Norcontrol is the only Norwegian manufacturer of remote control systems for ships. They are one of only two approved suppliers of remote control systems for the B&W motors. In addition to the remote control and safety systems, the new Norcontrol/B&W Agreement also included the recently launched Norcontrol Digital Governor Unit DGU 8800. This advanced regulator can be used on engines of different makes and sizes and is designed to be directly compatible to other instrumentation and monitoring systems of Norcontrol.

After many years of effort Norcontrol has recently had a breakthrough in South Korea. Locally they are represented by Scan-Korea, a subsidiary of Scan-International in the Fearnley Group. Scan-Korea is an agent to several leading Norwegian ship equipment manufacturers.

So far this year, Norcontrol has signed contracts for 35 complete remote control systems for delivery to Korean shipyards in 1984/85.

**Asea Stal Receives Order  
For 11 Sets Of Infracone  
Soot-Removal Equipment**

After three months of sea trials, a major United States shipping line has awarded Asea Stal AB, Finspong, Sweden, an order for 11 sets of Infracone equipment. They will install the soot-removal devices on the main boilers of their vessels.

A subsidiary of Asea Stal, Infracone AB, makes Infracone. The devices use low frequency sound

(20 Hz) to remove dry soot and dust from main boilers and exhaust-gas economizers. Because of the reflecting properties of low-frequency sound in enclosed spaces, the system reaches all parts of a boiler. This helps maximize boiler efficiency.

Infracone runs intermittently. It might send out its soot-removing, airborne pressure variations for only 20 seconds every five minutes. This keeps running costs low. The initial investment is moderate. Combine all of this with simple, fast installation, and the system offers a short payback period.

Land-based boilers have used Infracone equipment for over five years. More than 100 sets keep boilers clean worldwide.

Customers in the United States, France, Italy, Sweden and Eng-

land have now bought over 40 marine units,

For more information,

Circle 84 on Reader Service Card

**Drew Ameroid® OWS  
Approved By SEREP  
— Report Available**

Ameroid® OWS quick separating degreaser, recently introduced by Drew Ameroid Marine, Boonton, N.J., has been tested and found compatible by SEREP (Societe D'Etudes et de Realisations De'Equipment Petroliers), a leading manufacturer of oil water separators, Le Havre France, for use with their oil water separators.

For additional information on Ameroid OWS or for a copy of the trial report,

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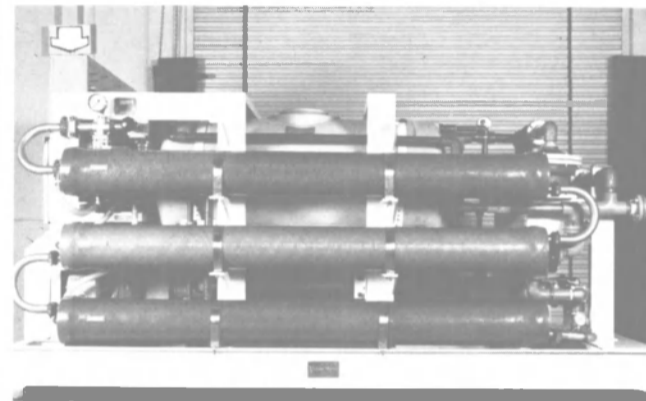
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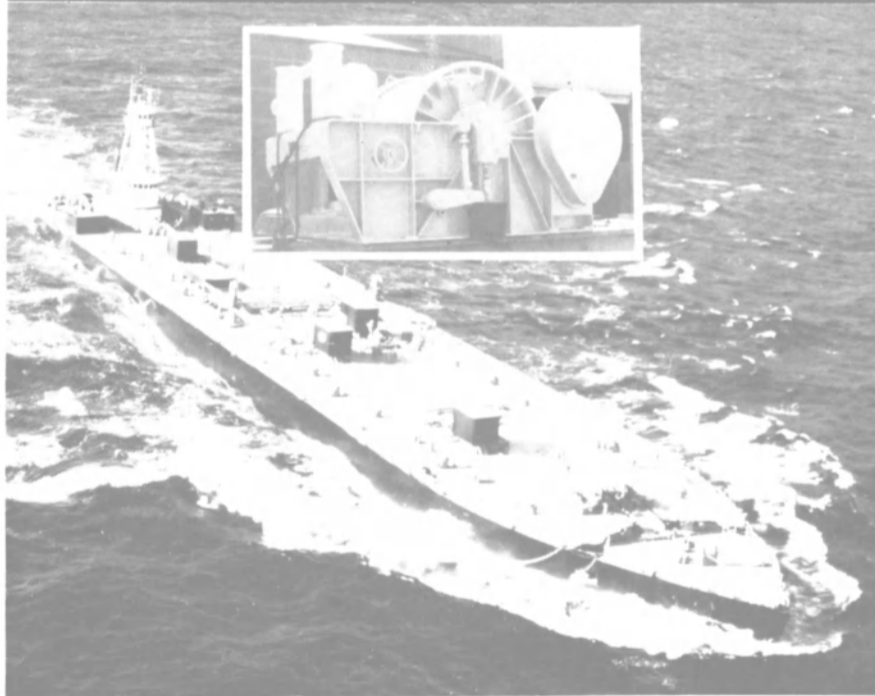
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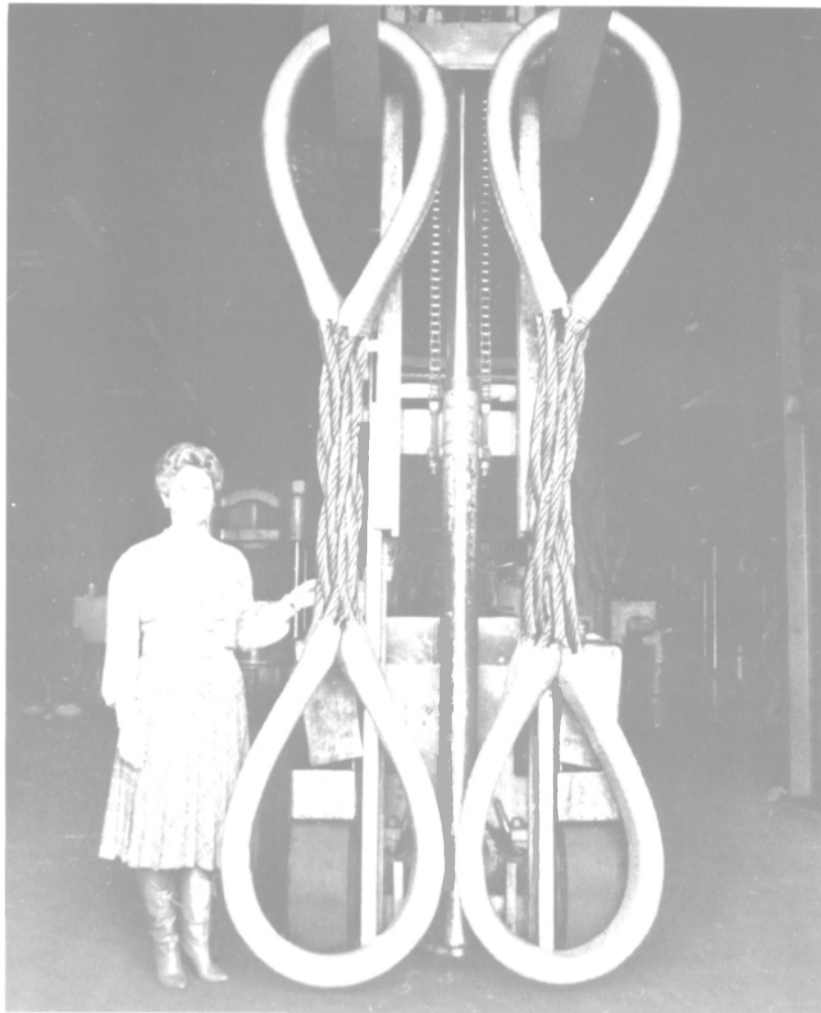
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MR

# New Bulk Carriers from Hyundai

Here are Hyundai's latest large standard bulk carriers – 138K, 165K and 175K – designed to meet the needs of the current shipping market.

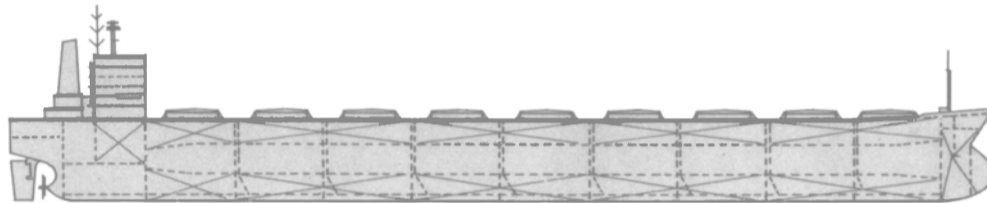
Our Ulsan yard with its modern facilities and experienced workforce is ideally suited to the construction of large bulk carriers. Indeed we have delivered eleven of them since 1981.

Take a look at these bulk carriers.

## 138,000 DWT Bulk Carrier

LBP/BM/DM: 267.6/42.5/23.0M  
Draft (Designed/Scantling): 16.25/17.0M  
DWT at Scantling Draft: 138,000 M/T  
Cargo Hold Capacity (Grain): 162,000 M<sup>3</sup>

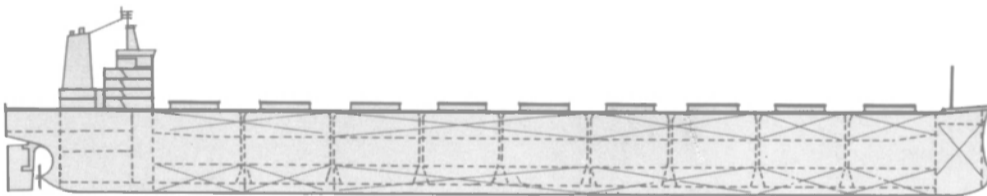
Main Engine: MCR: 16,980 BHP x 95 RPM  
NCR: 15,280 BHP x 92 RPM  
Speed: 14.0 knots at Service Condition



## 165,000 DWT Bulk Carrier

LBP/BM/DM: 277.0/45.0/23.0M  
Draft (Designed/Scantling): 17.0/17.5M  
DWT at Scantling Draft: 165,000 M/T  
Cargo Hold Capacity: 185,000 M<sup>3</sup>

Main Engine: MCR: 16,220 BHP x 77 RPM  
NCR: 14,600 BHP x 74 RPM  
Speed: 13.0 knots at Service Condition



## 175,000 DWT Bulk Carrier

LBP/BM/DM: 280.0/46.0/23.8M  
Draft (Designed/Scantling): 14.5/17.4M  
DWT at Scantling Draft: 175,000 M/T  
Cargo Hold Capacity (Grain): 200,000 M<sup>3</sup>

Main Engine: MCR: 17,190 BHP x 75 RPM  
NCR: 15,470 BHP x 72.4 RPM  
Speed: 14.0 knots at Service Condition



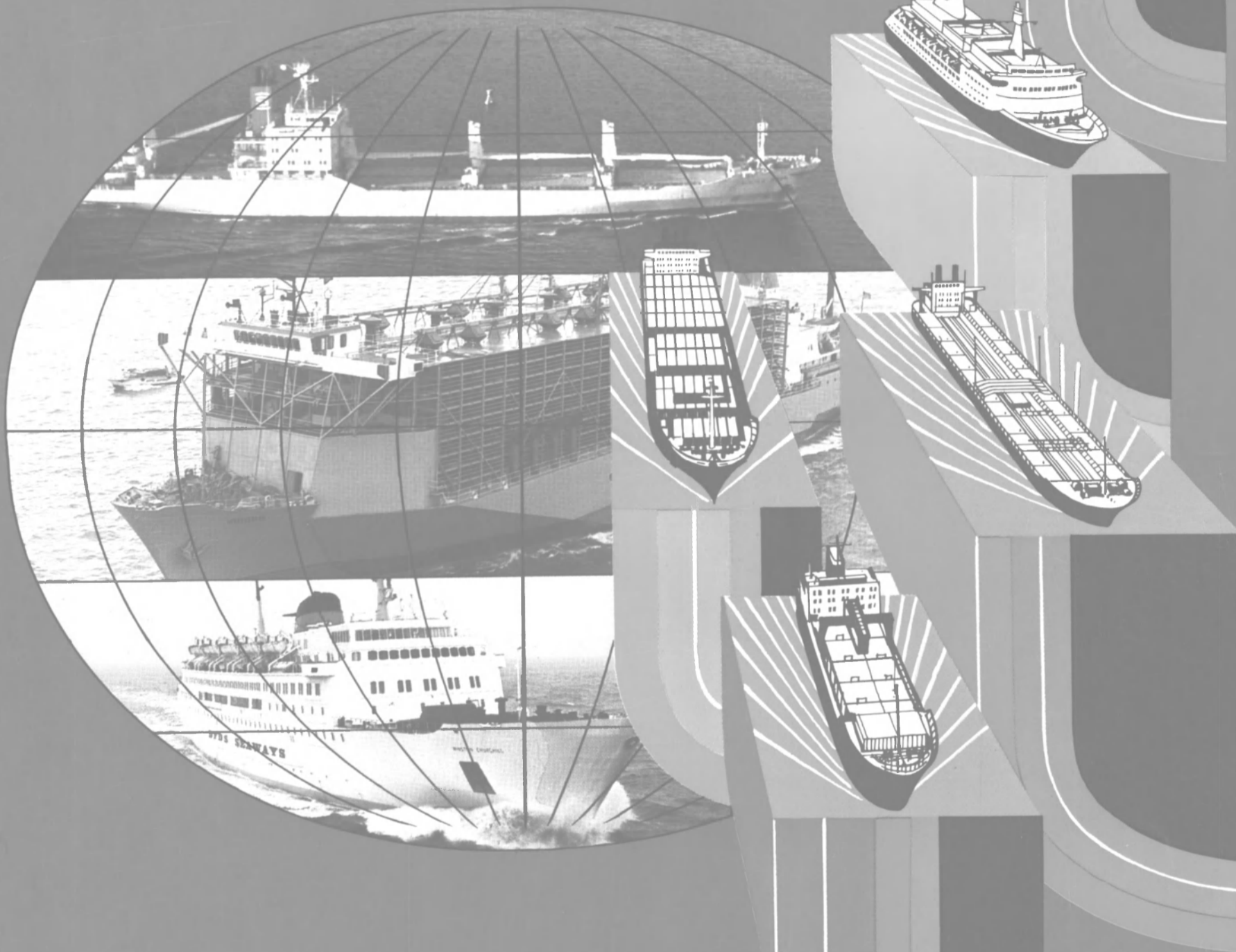
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