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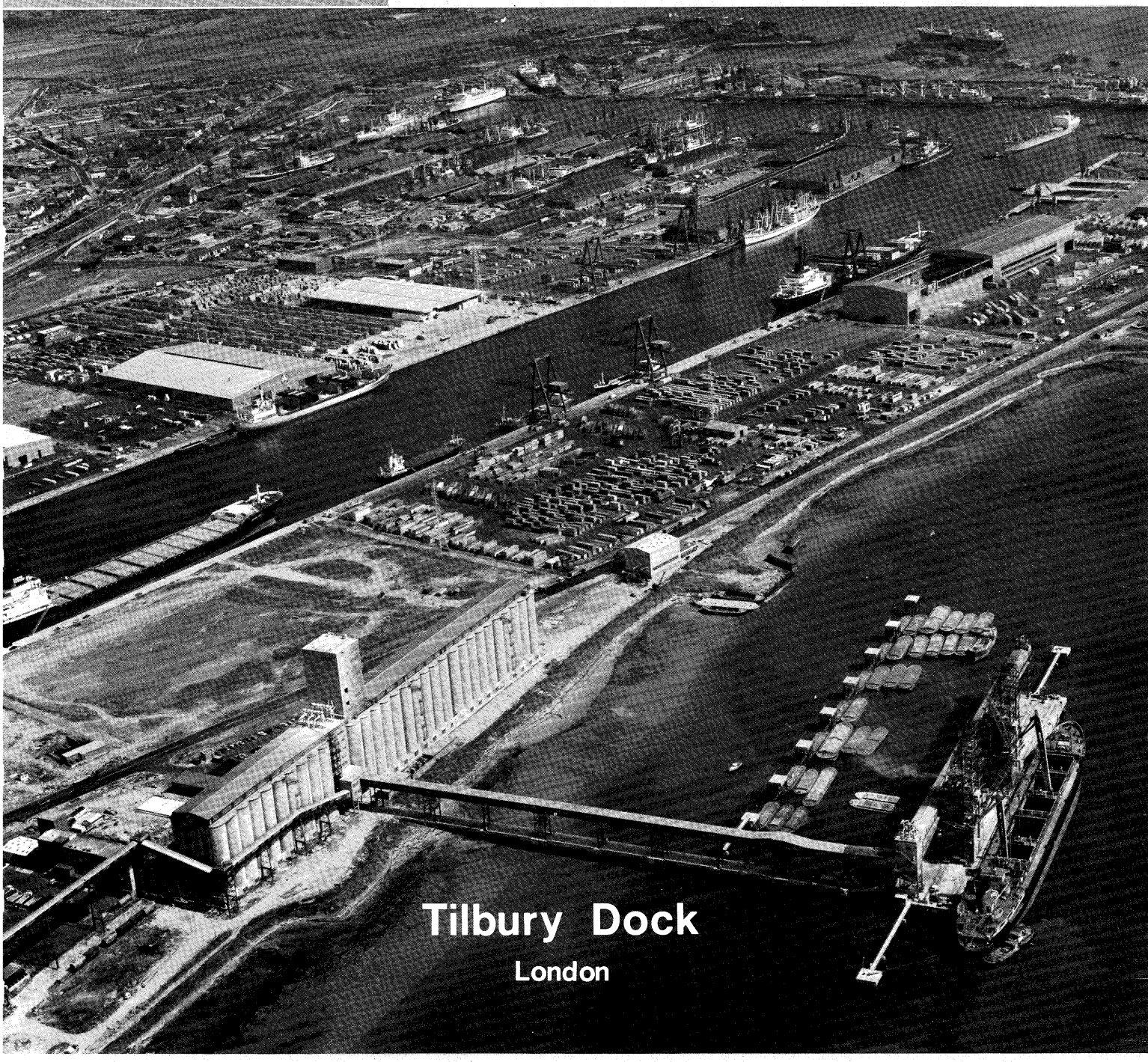
PORTS and HARBORS

February, 1973 Vol. 18, No. 2



Tilbury Dock
London

Amsterdam-Rotterdam Conference IAPH May 1973

The Publisher: The International Association of Ports and Harbors
Kotohira-Kaikan Bldg. 1, Kotohira-cho, Minato-ku,
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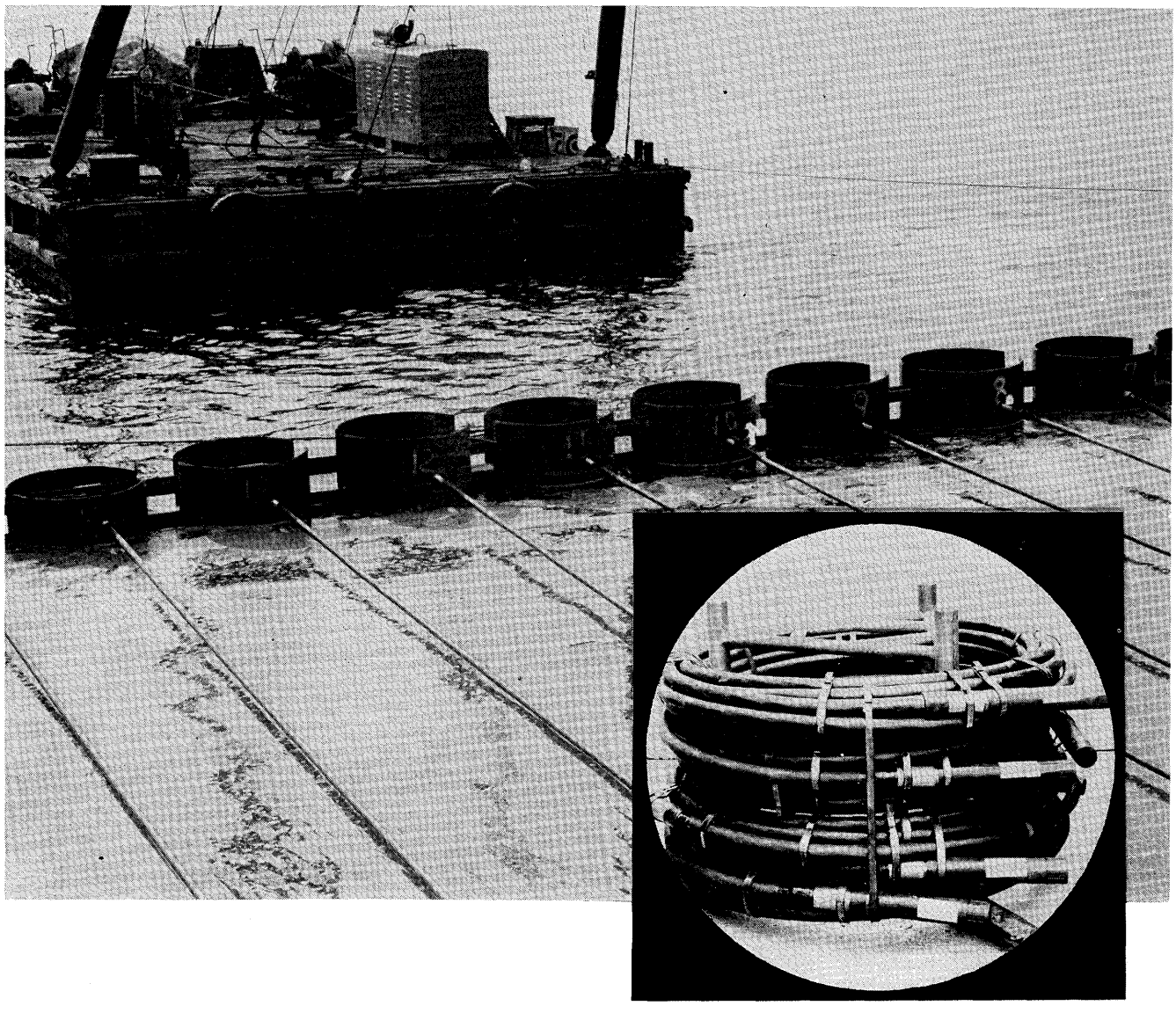

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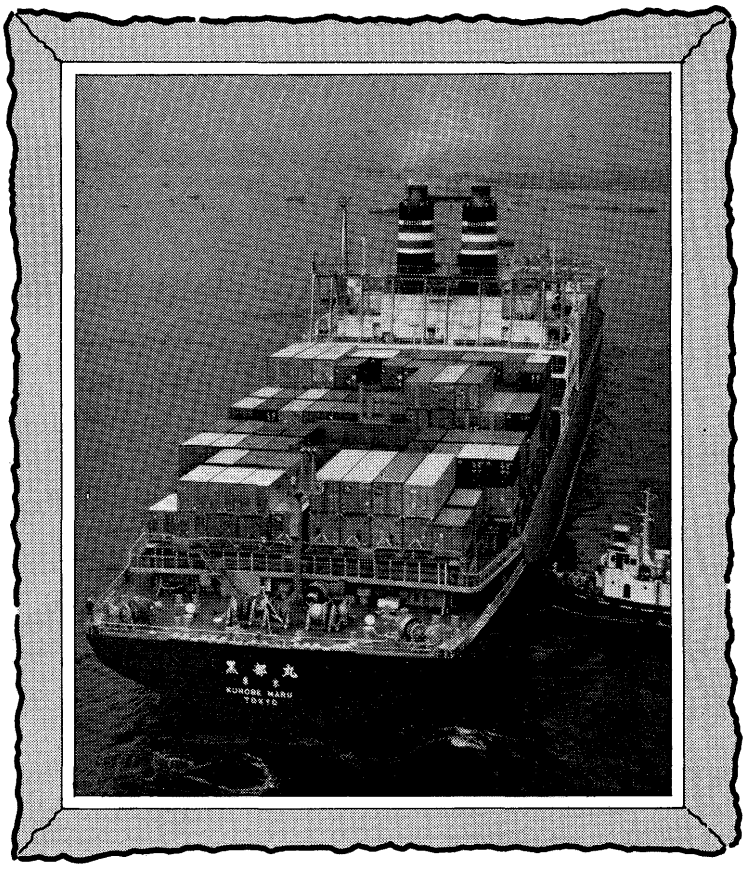

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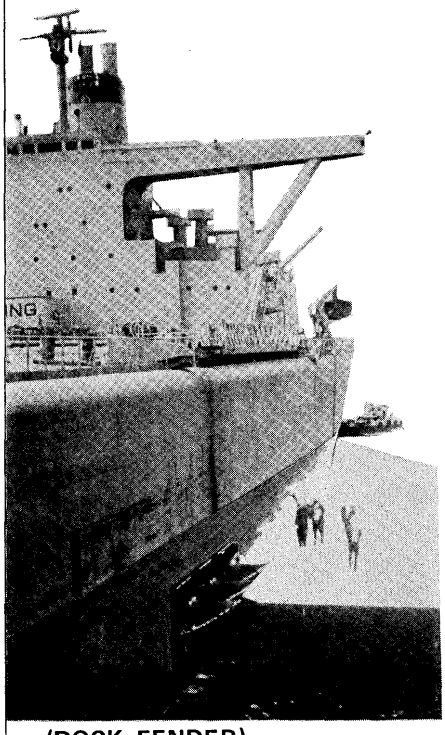

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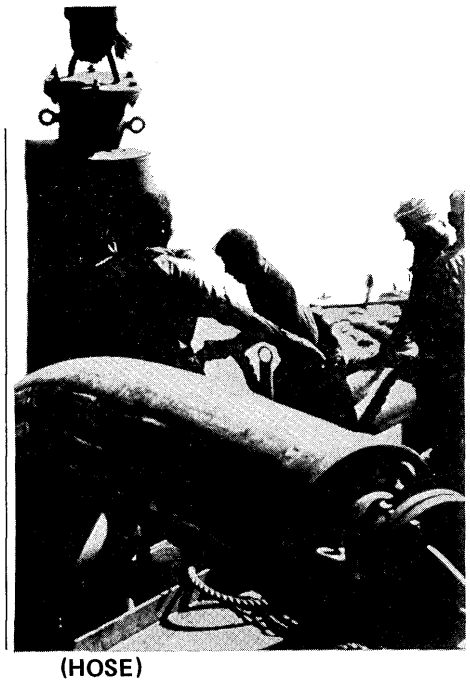

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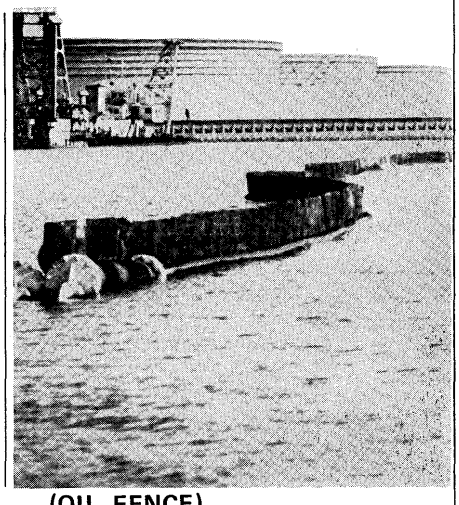

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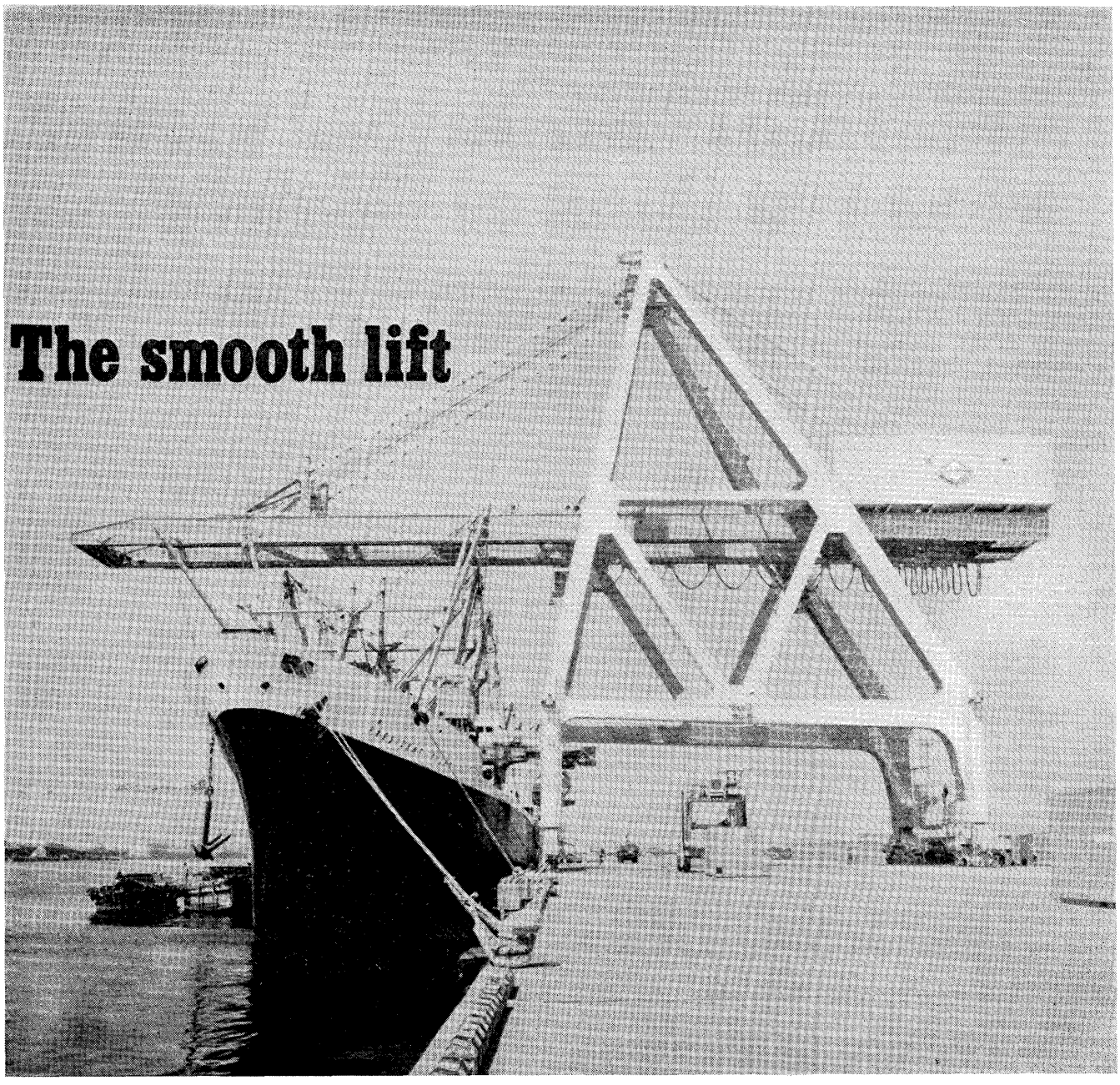

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PORTS and HARBORS

Editor: Yoshio Hayashi

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The Cover:

Tilbury Dock, London. The new dock extension, a major civil engineering project, carried out in three stages, has added nearly two miles of deepwater quay and makes Tilbury the leading British port for unitised cargo handling. The actual berth development which cost £20 million of the £30 million scheme for re-development at Tilbury provided thirteen berths—six for container traffic, three for unitised forest products, two for roll-on/roll-off traffic and two for mechanically handled general cargo. **(See also pictures on page 44.)**

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US$20.00 per year

PORTS and HARBORS

Conference Vignette

Programme of the IAPH 8th Conference

Amsterdam-Rotterdam, May 6-12, 1973

As Chairman of the 8th IAPH conference, to be held in The Netherlands in 1973, it is my pleasure to present you with the programme of this conference.

Those of you present at the closing session of the 7th conference in Montreal, and the readers of the October 1972 issue of "Ports and Harbors", have already been invited to attend our conference; however to others this will be the first occasion for them to know, that they will be most welcome to join us!

The Port Managements of the Municipalities of Amsterdam and Rotterdam will be your hosts. The vignette of this conference: two white-coloured streams of ships going in and out of the ports symbolizes the joint efforts of these closely related dutch cities. The port management of Antwerp will host your post-conference tour.

Amsterdam and Rotterdam are looking forward to see you in Holland at the 8th IAPH conference.

Ir. J. den Toom
Managing Director
Port Management Amsterdam

Conference Secretariat:
Organisatie Bureau Amsterdam N.V.
Europaplein 14, P.O. Box 7205
Amsterdam, The Netherlands
Tel.: (020) 44.08.07 Telex: 13499 (RAICO)
Telegrams: ORBU Amsterdam
This programme is subject to alteration.

General Programme

Sunday, May 6

9.30–12.00	Registration

Monday, May 7

8.30–18.00	Registration
* 9.30–12.00	Amsterdam Port Visit
*15.30–17.00	Official Opening Ceremony
*17.00–18.30	Informal Get Together

Tuesday, May 8

8.30–18.00	Registration
9.30–17.00	Ladies' programme
9.00–10.00	First plenary session
10.30–12.30	First working session
12.30–14.00	Luncheon
14.00–16.00	Second working session
16.00–16.30	Introduction Rotterdam Day
*20.30	Reception in the Rijksmuseum by the Municipality of Amsterdam

Wednesday, May 9

*	Visit to Rotterdam-Europoort

Thursday, May 10

9.30–12.00	Third working session
10.00–12.00	Ladies' programme
12.00–13.30	Luncheon
13.30–16.00	Fourth working session
*16.30–17.30	Second plenary session
*19.30	President's Reception and Dinner by the Port Authority of New York and New Jersey

Friday, May 11

9.30–12.00	Fifth working session
9.30–12.30	Ladies' programme
12.00–13.00	Third plenary session
*15.30–17.00	Closing session
*20.00	Special Dutch Farewell Party

Sunday, May 13

*11.00	Departure Post Conference Tour

Committee meetings are not mentioned in this programme

**accompanying ladies invited.*

Working sessions

During the five working sessions the following subjects will be dealt with:
Coordination in the planning of links between ports and the hinterland to facilitate movement of intermodal transportation.
Subject Coordinator:
Mr. Joseph L. Stanton, Port Administrator Maryland Port Administration.
Preventive measures against air and water pollution in port areas.
Subject Coordinator:
Mr. Robert Vleugels, General Manager of the Port of Antwerp.
Problems of developing ports and means of assistance available.
Subject Coordinator:

Mr. Howe Yoon Chong, Chairman/General Manager, The Port of Singapore Authority.

Potential of cargo distribution by barge carrier.

Subject Coordinator:

Mr. Ben E. Nutter, Executive Director, Port of Oakland (U.S.A.)

The functions of port undertakings.

Subject Coordinator:

Mr. Stanley Johnson, C.B.E., Managing Director British Transport Docks Board, London.

Vice Subject Coordinator:

Mr. D. E. Taylor, Chairman National Harbours Board of Canada, Ottawa.

Amsterdam Port Visit

Delegates are cordially invited to arrive early, as on Monday morning, May 7th, a boat trip through the port of Amsterdam is planned.

Rotterdam Day

On Wednesday, May 9, an extensive visit will be paid to Rotterdam-Europoort.

The programme comprises an official welcome by the Mayor of Rotterdam in the City Hall, a short trip by city train (Metro) during which passengers get their first impression of the port activities, a conducted tour of the "AHOY" sports and exhibition centre and a Dutch coffee-lunch.

The afternoon will be spent in the port area: first a bus tour along the entire complex of harbours and industries, ending on the newly reclaimed "Maasvlakte" under construction for basic industries dependent on supply by deep-draughted dry and liquid bulk carriers.

The tour will be continued by a three-hour river cruise, starting near the new river entrance and ending near the city centre, which will afford views from the waterside of the industries; port facilities for handling mineral oils, ores, chemical products, cereals and derivatives, raw minerals, fertilizers, logs and timber, fruit, etc.; shipyards; container yards; roll-on/roll-off ferry berths; LASH and SEABEE berths; inland barge traffic, etc.

Twilight scenery and sundowners as this cruise comes to an end will be something to be remembered.

Next the Municipality will host a dinner in the Concert and Congress Hall De Doelen. There will be floor entertainment and participants may like to step to the rhythm of a dance band.

Ladies' programme

Apart from the joint items of the programme, for both delegates and their wives, the ladies will be offered the following excursions:

Tuesday, 8th May 1973

A choice can be made out of two "all day" excursions:

A. Boat trip through the canals of Amsterdam.
Visit to the Willet Holthuysen Museum, a typical 17th century canal house.
Luncheon.
Visit to the "Keukenhof", a 60 acre estate where millions of flowers are on show.
Return to Amsterdam before dinner.

B. A visit to Aalsmeer, "the world's largest flower auction".
Visit to Gouda where the famous stained glass windows of the church can be seen.
Luncheon.
Visit to a castle.
Trip along the river "Vecht", with its beautiful patrician mansions.
Return to Amsterdam before dinner.

Thursday, 10th May 1973

Historical fashion show (1600-present).

Friday, 11th May 1973

Choice out of two "half day" excursions:

D. Visit to the historical town of Alkmaar with it's world famous cheese market.
Touristical bustrip via Edam (cheese!) and Monnikendam, both charming medieval villages, where the population still wears historical dresses.
Return in Amsterdam before luncheon.

E. Trip to "Zaanse Schans", a dyke with tiny old houses and a variety of windmills, still in action, some of them can be seen inside.
Visit to Marken and Volendam, here again the inhabitants wear their colourful costumes.

The above excursions will be cancelled when less than 30 persons take part.

What to wear in the evening?

Monday,	7th May:	Informal
Tuesday,	8th May:	Informal
Wednesday,	9th May:	Informal (Rotterdam Day)
Thursday,	10th May:	Formal (black tie)
Friday,	11th May:	Informal

General Information

Conference site

The 8th IAPH Conference will take place in the International Congress Centre RAI, Europaplein 12, Amsterdam. This Congress Centre is situated in the southern part of Amsterdam, only 10 miles from Schiphol Airport.

Languages

The official conference languages are English, French, Spanish and Japanese. Simultaneous translation facilities will be provided from and into these languages.

Registration

IAPH members and non-members wishing to attend this conference are requested to kindly complete the

registration form, and to send it, legibly written and signed, to the secretariat of the 8th IAPH Conference, Organisatie Bureau Amsterdam N.V., P.O. Box 7205, Amsterdam, the Netherlands. Registration closes March 15th, 1973; however early bookings would be most appreciated.

At the same time the registration fee should be transferred to the Algemene Bank Nederland N.V., Europaplein 21, Amsterdam, on the account no. 54.96.22.691 of the 8th IAPH Conference.

Please indicate clearly the name(s) of the delegate(s) on transfers, moneyorders or cheques.

REGISTRATION FORMS CAN BE OBTAINED FROM THE CONFERENCE SECRETARIAT.

Registration fee

Regular members	Dfl. 480,—
Associate members	
class A, B or C	Dfl. 800,—
class D or E	Dfl. 480,—
Life supporting and	
Honorary members	Dfl. 480,—
Non-members	
port authorities	Dfl. 640,—
others	Dfl. 1120,—

There is no registration fee required for accompanying ladies.

Please note: No refunds can be made.

Congress card

On receipt of the completed registration form and the appropriate payment, the conference secretariat will send a congress card. On presentation of this card at the registration desk of the conference you will receive all documents (final programme, badge etc.)

Hotel reservation

Hotel reservations can be effected by completing the hotel reservation form. Rooms have been blocked already in the following hotels of the category A, all in a walking distance from the Congress Centre.

	Single room per night	Double room per night
Alpha	Dfl. 75,—	Dfl. 99,—
Amsterdam Hilton	Dfl. 94,—	Dfl. 130,—
Apollo	Dfl. 70,—	Dfl. 99,—
Esso Motor	Dfl. 75,—	Dfl. 95,—
Okura	Dfl. 85,—	Dfl. 120,—
(excluding breakfast)		

The above rates include room with bath, breakfast, service charge and taxes.

These rates are given as an indication only and may be subject to change.

Reservations can also be effected in hotels of another category.

A deposit for your hotelreservation of Dfl. 100,— per person should be transferred together with the conference fee to the Algemene Bank Nederland N.V., Europaplein 21, Amsterdam, the Netherlands on the account no. 54.96.22.691 of the 8th IAPH Conference.

On receipt of this deposit a voucher will be sent together with your congress card. On presentation of this voucher the hotel will subtract the deposit from the hotel's bill.

Registration and information desks

Throughout the conference you will find the following desks in the lounges of the Congress Centre:

a. Registration and general information desk: for conference documents, mail etc.
b. Hotel information
c. Tourist information
d. Bank
e. Post Office
f. KLM Royal Dutch Airlines

Mail

Participants can have their mail during the conference addressed c/o The 8th IAPH Conference, P.O. Box 7205, Amsterdam, The Netherlands. It will be delivered to their pigeon holes at the registration desk of the Congress Centre.

International transport

KLM Royal Dutch Airlines has been appointed "Official Carrier" of the 8th IAPH Conference. KLM offices all over the world will be happy to help participants of the conference with the necessary arrangements for their trip.

Local transport

The International Congress Centre RAI can easily be reached by the public transport network of the city of Amsterdam. There is a large parking area near the Congress Centre.

The weather

Temperatures in May range from 15 to 22 degrees centigrade. Although usually the weather is fine, it is always advisable to bring an umbrella and/or raincoat.

Dress

Informal dress will be suitable for all occasions, except for the President's dinner on Thursday evening, where formal dress is advised. (black tie)

Post Conference Tour

The Port Authority of the City of Antwerp is organizing a Post Conference tour in co-operation with the City and Port Authorities of Bruges-Zeebrugge and Ghent.

The basic idea of the programme is the discovery of three famous cities in Flanders (Belgium): Antwerp, Bruges and Ghent, Three cities in the Golden Delta,

cities where history is written in stone and is revealed to modern eyes through ancient buildings.

ANTWERP, as its name implies, is the city "at the wharf" on the mighty river Scheldt, one of the most important ports in the world and an expanding industrial centre of great importance. On the other hand it is also the City of Rubens, van Dyck, Jordaens, some of the most glorious Flemish painters of the early XVIIth century.

BRUGES is the sleeping beauty that suddenly awoke, the city where you can still sense the Middle Ages, the home of the Flemish primitives, Memling, van Eyck, etc. But Bruges means Zeebrugge as well, a rapidly expanding port on the coast.

GHENT, the historical city of the Counts of Flanders, still shows with pride its magnificent towers and possesses one of the Country's most famous paintings: "The Adoration of the Lamb" by J. van Eyck (XVth century). This masterpiece of art alone makes the tour worth-while. But above all Ghent will show you its busy port and industries.

And between these three cities you will find the fields of the Low Countries, a landscape which is not to be found elsewhere.

A great variety within a small distance, an enchanting trip to some of the highlights of European culture, cities where big business is carried out in an environment of art.

Programme

Sunday, 13th May
11.00 a.m.:
Leave Amsterdam. By bus along the Delta works to Goes for lunch.
By boat across the river Scheldt to Bruges. Hotel.
Evening free.

Monday, 14th May:
Bruges

Morning:
Tour of some of the historical sights and inspection of the port of Bruges-Zeebrugge.
After lunch at the fishing port a conducted tour of the medieval city and a visit to some of the remarkable buildings where we will see works by Memling and the other Flemish primitives.

Evening:
Buffet-reception in the Gothic Hall of the City Hall offered by the City.
Hotel.

Tuesday, 15th May:
Ghent

Morning:
Tour of the port and the industrial area by boat.
Lunch offered by the City in the medieval Abbey of Byloke.

Afternoon:
Sightseeing and special visit to the "Adoration of the Lamb" in the Cathedral.
Reception in the City Hall. By coach to Antwerp.

Evening:
Free in Antwerp. Hotel.

Wednesday, 16th May:
Antwerp

Morning:
Visit to the house of Rubens, the Flemish Galleries of the Fine Arts Museum and the Cathedral.
After a reception at the City Hall, an excursion through the port by motor launch with lunch on board offered by the Port Authority of the City of Antwerp.

5.00 p.m.:
End of the programme: last night at the Hotel.

Registration

The price of this Post Conference tour amounts to Dfl. 435,—(p.p.).

This price includes all services (transport, accommodation in first class hotels, meals, visits etc.).

If you want to participate in this tour, please check the appropriate box on the registration form.

Cancellations

If you have booked for this tour and you are unable to participate, the amount of Dfl. 435,—will be reimbursed less 20% provided your cancellation is received before 5 May 1973.

Extra hotelreservation

If you have to leave from Amsterdam early in the morning of 17 May you may request a hotelreservation in Amsterdam on the registration form. (not included in the price of the Post Conference tour).

After the 8th IAPH Conference: the I.C.H.C.A. Congress

The 11th Congress of the International Cargo Handling Coordination Association is scheduled to be held at the Congress Centre in Hamburg, Germany from May 14 through 17, 1973.
The theme of the Congress is
"The International Transport Chain-where are the weak links?"
Any further information can be obtained from:
Secretariat I.C.H.C.A.
Abford House, 15, Wilton Road, London S.W. 4, England

The Netherlands Page

(Series of articles and photographs contributed by the Port of Amsterdam.)

IAPH Information Stand at Schiphol Airport

Most of the visitors to the 8th Conference of the International Association of Ports and Harbors to be held in Amsterdam and Rotterdam from May 6 through 12, will arrive at Schiphol Airport, Amsterdam. To aid these visitors, the organizers in cooperation with KLM Royal Dutch Airlines, (designated as the "official carrier" to the Conference), will operate an information stand to assist travellers in the days preceeding the conference.

Schiphol Airport is one of the most modern—and busiest—in the world handling well over six million passengers last year. Interestingly, the airport is 13 feet below sea level, built on reclaimed land—the former bottom of the Haarlem Lake. The Lake was the scene of a famous naval battle in 1573 during the Eighty Years War between the Netherlands and Spain.

Haarlem Lake was drained in 1852 and the area was used for agricultural purposes and a fortress named Schiphol (literally "Ship's Hole" because of the number of ships which were found on the former lake bottom nearby) was built in the Northeast corner, near the approaches to Amsterdam. A military airfield was laid out nearby in 1917 and when civil aviation was introduced on May 17, 1920, with regular flights by KLM between Amsterdam and London, the civil airport was born.

By 1961, it was deemed necessary to re-adopt plans for expansion resulting in the present terminal complex inaugurated in 1967. Schiphol Airport is undergoing constant expansion programs and present traffic projections indicate that it will be able to handle traffic

An aerial view of Schiphol Airport.

for the next decades.

Schiphol Airport is a 20 minute drive from the heart of Amsterdam and an hour away from Rotterdam to the South. It also serves as an important airfreight centre, currently ranked 4th in Europe.

Host Ports of Amsterdam and Rotterdam Are Municipally-Operated

Joint hosts of the 8th IAPH Conference are the Ports of Amsterdam and Rotterdam, both of which are operated by their respective municipalities. This somewhat unusual arrangement works well in both cases with the municipal governments supplying the infrastructure of the vast ports, while private enterprise, working closely with the local government, provides the superstructure of the port establishments.

Both Rotterdam and Amsterdam are governed by a Municipal Council of 45 elected members presided over by a Burgomaster appointed by Queen Juliana. The Municipal Council itself elects eight of its own members to the post of Aldermen and these men with the Burgomaster form each city's executive body. In both Amsterdam and Rotterdam one of the aldermen is responsible for port activities.

Both ports are managed in the form of a municipal industrial undertaking headed by a Managing Director appointed by the Municipal Council. But the importance—and freedom—of private enterprise in both Dutch ports is not to be underestimated. Tug services are operated by private companies and all shipbuilding and ship-repairing facilities are in private hands. Although most quays and sheds are owned by the municipalities stevedoring and all cargo handling in general is done by private firms.

Thus the Port Managements as well as the Municipalities of Amsterdam and Rotterdam will serve as hosts for the IAPH Conference. Conference Secretariat is:

Organisatie Bureau Amsterdam,
Europaplein 14, P.O. Box 7205,
Amsterdam, The Netherlands
Tel: (020) 44.08.07 Telex: 13499 (RAICO)
Telegrams: ORBU Amsterdam.

Post Conference Tour Set for Belgian Ports

A post-conference tour has been organized by the Port Authority of the City of Antwerp and it will concentrate on the three main Flemish ports in Northern Belgium. The program begins on Sunday, May 13th with a bus trip from Amsterdam, through Rotterdam, along the Delta Works to the small town of Goes in the Dutch Province of Zeeland for lunch. In the afternoon, there is a trip across the River Scheldt—entrance to the Port of Antwerp—to Bruges.

The following day, there will be a visit to some of the historical sights in Bruges as well as tour of the Port of Bruges Zeebrugge, directly on the North Sea.

Tuesday, May 15th will be spent in Ghent with a tour of the port and the nearby industrial area as well as a special lunch in the medieval Abbey of Byloke.

The last day of the tour, Wednesday, May 16th will be spent in Antwerp, one of the most important ports in the world and the City of Rubens. A port excursion as well as a sightseeing tour and a reception at the Town Hall are included in the day's activities.

Other visitors to the IAPH Conference may be interested in attending the 11th Congress of the International Cargo Handling Coordination Association, scheduled to be held at the Congress Centre in Hamburg, Germany from May 14th through 17th. Further information on this congress can be obtained from the Secretariat:

I.C.H.C.A.,
Abford House,
15, Wilton Road,
London S.W. 14,
ENGLAND.

Windmills in Holland

Windmills were brought into use in Holland at the end of the Middle Ages and were used not only for grinding corn and as saw mills, but mostly for pumping water from the low-lying polders—which otherwise would remain underwater.

In the 17th Century large areas North of Amsterdam, formerly lakes and marshes, were drained—entirely by wind power. At one point, there were over 10,000 windmills operated in Holland, today there are less than 1,000 and most are protected as national monuments.

The most famous group of windmills still standing are located near the village of Kinderdijk, just North of Alblasserdam (on the road from Rotterdam to Gorinchem). Here 16 mills dating from the 18th Century can be seen in operation during certain periods of the summer.

In addition, the Open Air Museum in Arnhem has several different types of operating windmills from all areas of the country in its parkland. The tall stone windmills built on the ramparts which formerly surrounded almost every Dutch town are particularly impressive.

In the Ladies' Programme of the 8th I.A.P.H. Conference, a visit to Zaansche Schans has been included; on this dyke—apart from some lovely old houses—you will also find a number of windmills still in action. These mills, among others one for mustard grinding, can be visited inside, an extremely interesting experience.

Further information on windmills in Holland can be obtained from: Vereiniging "De Hollandsche Molen", Reguliersgracht 9, Amsterdam.

Forum on Port Problems:

Environmental Protection for Offshore Marine Terminals

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Vice President
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ABSTRACT

The subject of Offshore Marine Terminals is discussed in general terms, with particular emphasis on the environmental aspects. Operational and environmental considerations are reviewed as preliminaries to planning, designing and constructing a terminal in deep water, in an exposed location, for the handling of petroleum and dry bulk commodities. Reference is made to some general conclusions and conceptual engineering resulting from a Study made for the U.S. Maritime Administration (MARAD) by Soros Associates entitled "Evaluation of Offshore Terminal System Concepts". A conceptual design of an Offshore Delaware Bay Terminal is presented and discussed in general terms.

INTRODUCTION

The subject of Offshore Terminals is getting an increasing amount of attention. The obvious energy crisis is a very strong factor in this situation, indicating the need for greater quantities of petroleum and natural gas to provide for the present and anticipated future energy requirements. The amounts of petroleum and dry bulk commodities needed for this energy and industry in general are becoming increasingly large and the economics of transportation are dictating that larger and larger ships carry these commodities. The limited draft capabilities existing in the United States ports are well known. It is obvious that something very significant must be done to solve the situation and one type of solution is to go offshore in deeper waters for the development of marine terminals.

The U.S. Maritime Administration and the U.S. Corps of Engineers are attempting to solve the overall problem and have both undertaken very comprehensive studies in this direction. The U.S. Maritime Administration, last year, engaged the firm of Soros Associates to perform an Evaluation of Offshore Terminal System Concepts. This study, recently completed, examines the situation for the entire Continental United States. It reviews and projects bulk cargo traffic to and from the United States and identifies what regions and ports will need additional capacity for handling this traffic. It then reviews and develops types of connections from the mainland to offshore terminals in certain areas. As a last exercise, this study selects 5 locations, where the need exists and where the factors appear to be favorable, and develops in a conceptual manner the terminal complexes for these areas.

OPERATIONAL CONSIDERATIONS FOR OFFSHORE TERMINALS

General

The wave conditions encountered at an offshore location will determine in large measure the technical and economic feasibility of a terminal at that location.

The wave conditions and general sea state will dictate the need for protective devices, as breakwaters, and determine basic designs and construction methods to be used. The designs of the equipment needed for ship berthing, loading and unloading, and the pollution control will depend largely on the degree of protection to be provided during ship operations. The degree of protection will in turn relate to the desired "berth availability" and to the overall economics of the proposed terminal.

Generally, a berth availability of at least 85 to 90 percent is sought in selecting a site for a marine terminal. This availability would be needed if a "berth occupancy" of between 60 and 70 percent were to be achieved. A terminal can be operated with "berth availability" factors less than 85 to 90 percent, but usually costly ship delays would result.

Quite obviously, the size of ships which would be using the terminal would also effect the berth availability. If feeder vessels are to be used at the offshore terminal, they would be more affected by the waves than the supercarriers would be. If the connection to shore could be made without the use of feeder vessels, such as by pipeline, the terminal design would usually be less complicated.

Whenever the wave conditions at a proposed site are so severe that a berth availability of 85 to 90 percent cannot be obtained, a breakwater could be used to reduce the waves to an acceptable level. The judgement as to whether or not the facilities would be available 85 to 90 percent of the time depends upon the capability of the equipment used for

- Berthing the vessel,
- Restraining the vessel in the berth,
- Loading, or unloading the vessel, and
- Controlling petroleum spills or other sources of pollution

The berth availability is determined by the equipment which represents the "weakest link" or which has the lowest capability. With the exception of berthing, these operations would be considered continuous while the vessel is in the berth. The berth availability, is dependent upon the berthing equipment only during the berthing operation; after a vessel is tied up, it may be possible to continue the loading, or unloading, operations during wave conditions more severe than would be possible for berthing.

Operational Equipment Limitations

The capabilities of the several

Operation	Maximum Wave Condition			
	At a Fixed Terminal		At a Single Point Mooring	
	Range	Consensus	Range	Consensus
Berthing Ship	6–12 ft.	10 ft.	6–10 ft.	8 ft.
Restraining Ship in Berth	8–16	12	10–20	14
Loading Liquid Bulk	8–16	12	6–14	9
Unloading Liquid Bulk	8–16	12	6–14	9
Loading Dry Bulk	4–10	7	—	—
Unloading Dry Bulk	2– 6	4	—	—
Pollution Control	4–12	8	2– 6	4

types of operational equipment needed at an offshore marine terminal is a very complex subject with differing opinions by the experts. There are many factors involved and the environmental factor is one of the most significant. The increasing desire to protect the environment and eliminate pollution is resulting in very restrictive operational limitations on the handling of bulk cargoes. This factor also probably accounts for some of the differing opinions expressed by the experts. For example, crude oil has been loaded from single point mooring devices in seas up to 20 feet in some areas. However, the risk of spillage was undoubtedly great and undoubtedly such a high degree of risk would not be tolerated at a U.S. petroleum terminal.

The limitations of operational equipment, expressed in maximum wave heights, and based on the present state of the art, are summarized in the following table. A range of figures is given in each case, together with a consensus figure. These figures are based on operating ships in the 150,000 dwt to 326,000 dwt range, and obviously involve considerable exercise of judgement.

The ideal arrangement, and the goal of further research and development, should be to bring the level of capability of all operational equipment to the same plateau so that the berth availability would not be dependent upon the "Weakest link". The level of this plateau should be set so that the berth availability of 85 to 90 percent could be achieved at offshore sites without the need for constructing protective breakwaters. A level which would accomplish this for most prospective offshore terminal sites would be about 16 feet. It is judged that this should be attainable within the next 15 to 20 years.

Needless to say, to achieve the 16 foot wave level for all operations would require more effort for some than for others. Designs already exist for upgrading the equipment for all of the operations, but some of these designs have yet to be proved to everyone's satisfaction. Probably the three more difficult operations to upgrade would be the ship restraining, the unloading of dry bulk, and the pollution control.

Upgrading dry bulk unloading equipment probably offers the greatest challenge. In this field, new designs for self-unloaders and equipment which would be placed on board the ship to serve as self-unloading equipment are promising solutions.

Advancements in technique and equipment are being made for restraining the large ship. The use of constant-tension winches on berthing structures and on board the ship, the use of more sophisticated mooring lines of new materials and of several materials to better control the elasticity and the provision of higher-capacity and more effective deck equipment on the ship are some of the trends.

The berthing equipment used for bringing ships into their berths has traditionally been dependent upon the launches used for line handling. Obviously, the size of line-boats could be increased to permit operations in larger waves, but the use of equipment which does not employ line-boats is more promising. Two such possibilities which might be designed to handle the mooring lines directly, or a light line made fast to the mooring lines, would be long reach telescopic cranes, and helicopters. For the offshore terminals where helicopters would be needed for other uses, a system could be devised to permit a helicopter to take a light line over to the capstan at the mooring equipment on the pier.

Advances made in recent years, together with concepts already on the drawing boards, by the manufacturers of loading arms for handling the loading and unloading of liquid cargoes indicate that equipment could be designed to permit higher wave conditions, particularly if these designs are coordinated with the manifold designs on the vessels.

With regard to environmental protection and pollution control, advances are being made almost daily in techniques and equipment. Some experts believe that it is possible today to design equipment which could defend against a 16 foot maximum wave, but the difficulty in the past has been the proving of the equipment. The Maritime Administration has in February of this year opened a Research and Development Center in Galveston, Texas, to advance the improvement of the U.S. merchant fleet. Among the objectives of this center is the upgrading of pollution protection equipment.

Wave Conditions and Ship Motions

Although the limiting conditions are generally expressed in terms of wave heights, they imply wave induced ship motions which are related to wave heights, wave period, wave direction and wave length, the latter being a function of the wave period.

The horizontal motions, surge, sway and yaw, are primarily induced by waves of very long periods—40 seconds to several minutes—associated with the seiching action in enclosed harbors and embayments. Waves of such long periods rarely occur at offshore sites and then are of very low amplitude. Surge and yaw will be induced by quartering seas, sway by beam seas. For ships of 30,000 to 250,000 DWT yaw will be negligible.

The vertical motions, roll, pitch and heave, are induced primarily by waves having periods approximately the natural response periods of the ships. For ships of 30,000 to 250,000 DWT, these periods will range from 10 to 20 seconds. The periods common to seas are usually 3 to 8 seconds, exceeding 10 seconds only dur-

ing sustained storm or hurricane winds. Swells usually have periods of 6 to 12 seconds but may have periods up to 20 seconds, and therefore will have greater influence on the vertical motions than seas of the same heights. Roll and heave are induced by beam waves, pitch by quartering waves. For the very large ships the displacement due to heave will be negiligible for wave periods less than 20 seconds.

Operational Design Criteria

Selection of proper operational design criteria for an offshore marine terminal should therefore be dependent on many factors including the state of the art of the equipment involved. It is believed that the maximum wave height that could be tolerated at present for the typical petroleum and dry bulk terminal should be about 8 feet or a significant wave height of 3 to 5 feet. On this basis, appropriate design criteria would be:

> A 90 percent berth availability for waves alone, or an 85 percent berth availability for a combination of waves and swells, with waves not exceeding a height of 8 feet. If the site does not provide these characteristics, then breakwater protection will be needed and the breakwater should be designed so that waves behind the breakwater will be less than 8 feet in height at least 90 percent of the time.

As the state of the art advances the wave level can be increased. A terminal for the North Atlantic which is needed now should be designed for the 8 foot maximum wave limit. However, for future terminals, it is probable that the wave height could be increased and the need for a breakwater thereby reduced.

ENVIRONMENTAL CONSIDERATIONS FOR OFFSHORE TERMINALS

Offshore Biota

The animal and plant life, the biota, associated with an offshore coastal site will be of two types: the relatively immobile benthic species including the seaweeds, worms and shellfish, and the mobile pelagic species including plankton, finfish, birds and certain mammals. The seaweeds, being photo synthesizing plants, require sunlight and thus are found in relatively shallow water, generally less than 50′ in northern waters. Oysters, many clam species, most of the worms and crustacea require the brackish shallows of bays and estuaries, but quahogs and scallops and some worm species occupy the continental shelf in depths from 50 to 200′. Plankton, minute plant and animal species, is found free floating throughout the upper portion of the sea, the plant forms requiring sunlight and oxygen to convert the minerals in the seawater to living tissue. These are the lower levels of the food chain upon which both benthic and pelagic species feed—the pelagic species in turn feeding on the benthic species and each other. The pelagic species are free to roam, and do, particularly in search of food and water temperatures of their pleasing, sometimes disappearing for decades from their normal grounds, to reoccur later as quickly and mysteriously as they disappeared. Some species are dedicated to particular estuaries and rivers for spawning and their larvae and fry will eat specific foods available to them only in those places. Obviously, the loss of, or damage to riverine and estuarine areas effects a great many benthic and pelagic species, whereas the loss of an area of the continental shelf affects only the benthic specimens indigenous to that site.

Environmental Effects of Construction

The construction of a breakwater or island will permanently eliminate from productivity the area of seafloor and volume of water it occupies, but will not endanger any species. An acre of continental shelf and water produces about 5,000 pounds of fish and shellfish each year having an average market value of $.50 per pound. However some of this loss will be offset by the fish havens inherent in the voids of rubble mound structures and the surge chambers in caisson type breakwaters or island perimeters—provided the waters are not polluted by terminal operations. The offshore siting is preferable to a riverine or estuarine siting as it will effect fewer species and lesser numbers of biota and will represent a much smaller percentage of the total area of like environment. The offshore structures will however provide nesting sites for birds which will feed on the fin fish.

If the breakwater and island reduce wave action at the shoreline, erosion will be reduced and the alongshore current, denied the driving force of the waves, will slow, allowing a deposition of the suspended sediments with resultant accretion of that portion of the beach. Continued accretion will result in the development of a sand spit, or tombolo, which may ultimately extend to the offshore structure. This accretion will be detrimental to the entire coastline if it occurs at the upstream end of a beach system and thus denies the normal supply of sand to the rest of the coastline, which will then be subject to erosion only. However, if located at the downstream end, where the sand might otherwise be lost through flow offshore, the accretion will benefit the entire coastline by keeping the sand within the system. In general, if the distance from the shore to the structure is greater than twice the length of the structure, the effect on the shoreline will be mininal. This suggests that a breakwater 2 miles long should be located at least 4 miles offshore if changes in the coastline are to be avoided.

Dredging at the offshore site will not produce any long term effects on the biota. During dredging operations fish will be attracted to the site by the turbulence and will feed upon the new food sources exposed, and on each other. The colonies of benthic fauna removed with the dredged material will be replaced within a few years by new colonies. This is not the case with the dredging of estuarine areas where species are more depth sensitive and some, like oysters, require a bed of shells for their existence. If the area dredged is seaward of the sediment laden alongshore current, siltation will not be a problem; otherwise the increase in depth will cause a reduction in current velocity resulting in the settling and deposition of suspended material.

Environmental Effects of Operations

Any terminal operation presents

a potential source of pollutants that can have adverse effect on the biota. The principal pollutants from bulk cargo terminals are oils, acid run-offs from ores, and sewage. The damage would be relative to the toxicity, oxygen consumption, persistence and volume of pollutants being discharged into the sea will of course depend upon the pollution prevention and control equipment provided at the terminal and the care exercised in its operation.

The most endangering of these pollutants is oil: it is toxic to nearly all forms of biota, may occur in large volumes, and is readily spread and transported by wind and currents to areas remote from the terminal. The greatest damage will occur if the oil reached the coastal margings, particularly estuarine marshlands where the bulk of the biota is concentarted. The extent of damage will depend on the type of oil discharged as well as the volume. The "light" oils, those having an SSU viscosity of less than 100, contain higher concentrations of fast acting poisons and spread rapidly on the sea surface, but evaporate quickly. The "heavy" oils contain more of the persistent carcinogenic hydrocarbons, do not spread as rapidly but are readily mixed with the seawater by wave action and assimilate with the sea floor sediments. Samples of seafloor sediments in the offings of industrial areas have been found to contain concentrations of toxic material comparable to the concentrations in some oils. The most damaging oils are the heavy crudes which contains both light and heavy fractions.

Oil terminal operations can result in the loss of oils to the sea through transfer operation accidents, inadvertent discharge of oily bilge or ballast waters, equipment failures, and seepage from pipelines or storage tanks. Fortunately, means are available to minimize the occurrence and volumes of such spills and to effect their clean-up. The experience of the Milford Haven oil terminal, Britain's largest, indicates the potential for oil spills that can be expected at a well equipped, well operated terminal. Milford Haven can accommodate tankers up to 250,000 dwt and has an annual throughput of 41 million tons of crude oil refined products. Through improvement in facilities and operating techniques over the past decade, the spillage rate has been reduced to 0.00004% of the throughput a present average of 13.5 gallons per day. Of the 55 spills that occurred in 1970, 35 were of less than 80 gallons and only 3 were in excess of 160 gallons.

Polluting Spills in U.S. Waters—1970

Source	Incidents	Gallons Spilled	% of Total
Spills in Excess of 10,000 Gallons:			
Bulk Storage Facilities	9	6,676,000	43.5
Offshore Wells	4	3,553,000	22.8
Pipelines	14	1,316,000	8.4
Barges	19	1,238,000	8.0
Transfer Operations	8	1,021,000	6.5
Dumping	1	500,000	3.2
Industrial Accidents	5	367,000	2.3
Tank Ships	3	73,000	0.5
Hose Failures	1	42,000	0.3
Unknown	6	120,000	0.8
Spills of Less than 10,000 Gallons:			
Known Volumes	1,282	356,000	2.3
Estimated Volumes	2,359	236,000	1.5
Total	3,711	15,489,000	100.0

Source: U.S. Coast Guard

In comparison, 200 gallons per day were discharged from adjacent refineries in the form of oily process water, run-off from storage areas and processed ballast water from feeder vessels—all discharged at concentrations well below the 50 ppm allowable limit established by the government. The discharge of oils in treated ballast water can be eliminated by utilizing the dirty ballast water from feeder vessels as ballast water for the departing systems, or by constructing the feeder vessels with "clean" ballast tanks independent of cargo or fuel oil tanks, or by providing a treatment plant at the terminal.

The real concern is for the major spills in excess of 10,000 gallons. During 1970, 3,711 spills in U.S. waters were reported to the U.S. Coast Guard.

Of the total volume of 15,253,000 gallons (about half the volume spilled by the TORREY CANYON in 1967), 95% was attributed to 70 spills of 10,000 or more gallons. As shown in the accompanying Table, the principal source of spills was the failure of onshore storage tanks half of which resulted from the collapse of an earth dike impounding waste oil at a recycling plant. Spills from pipelines and barges each accounted for 8%. Spills due to the rupture, collision or grounding of seagoing tankers totalled 73,000 gallons or 0.0002% of the estimated 115,000,000 tons of petroleum imports—however none of these ships were as large as those anticipated in the operation of the proposed offshore terminal.

A study of 38 major oil spills throughout the world during the period 1956 to 1969, indicated that 88% of the volume spilled was the result of the grounding, sinking, collision or rupture of tankships, as tabulated below. The average spill volume related to tankship accidents was 3,000,000 gallons, the largest single accident, the grounding of the TORREY CANYON amounted to 28,000,000 gallons.

An analysis of 51 documented collisions involving tankships revealed that 62% occurred in rivers, bays and estuaries, 21% on the high seas and 17% in harbors. The collisions were caused principally by smaller, nontankers, striking the tankers; the striking ship speeds ranged from 1 to 18 knots and 20% of the struck tankers had speeds of less than 1 knot or were dead in the water at moorings at the time of collision. A recent study by the U.S. Coast Guard of collisions between vessels

Cause	Number of Incidents	Gallons Spilled
Grounding	14	43,000,000
Sinking	2	5,000,000
Collision	6	6,000,000
Hull Failure	4	24,000,000
All Other	12	11,000,000

of all kinds, indicates that most collisions occur during darkness even with visibility over 5 miles. Collisions generally involved vessels of less than 1,000 gross tons and the initial contact between vessels was by visual observation.

The most disastrous spills have resulted from grounding in the shoal approaches to harbor entrance channels. For the deep draft vessels of 250,000 dwt, the term "shoal" can mean any depth less than 100'. If the spill occurred at the entrance to, or within an estuary, the tidal currents could spread the oil as far as 9 miles within three hours, whereas if the grounding occurred 20 miles offshore the oil would be spread less than one mile in the same time period where it could be collected or dispersed prior to reaching the estuary.

The evidence suggests that an offshore oil terminal would not be prejudicial to the marine environment if it is properly designed, equipped and operated. Means exist to minimize the volumes of accidental spills during transfer operations as shown by the record at Milford Haven. Oil spills containment and collection equipment has been demonstrated to work effectively in seas up to 8', the present generally accepted limiting conditions for berthing and cargo transfer operations. The required engineering expertise and construction techniques exist to build leak-proof storage tanks of non-corroding materials that can resist cracking if subjected to earthquake or unequal settlement. Subsea pipelines can be buried to protect them from damage by storm waves, fishing trawls or ships' anchors and can be equipped with leak detection devices.

The greater hazard, that of a major spill due to grounding or collision, could be substantially reduced by siting the terminal at a deep water offshore location, preferably remote from any estuary or river, and from the restricted channels and fairways utilized by other smaller vessels. Collision avoidance systems now on the market are capable of automatically plotting the courses of several "targets" simultaneously and predicting probably collisions, and navigation systems have been developed to accurately guide the ships through deep water access routes. Port equipment should include readily mobilizable means for containing and collecting oil spills that occur outside the terminal proper, and a program for rapidly deploying the equipment utilizing the tugs and similar vessels normally available at the terminal. This equipment would also be available for the control of oil spills not associated with the proposed terminal.

The Maritime Administration is currently studying the requirements for shipboard oily waste collection and treatment systems and that study will recommend the facilities, operating criteria and costs for systems that could be utilized at an offshore terminal. Such facilities would receive and treat dirty ballast waters, oily bilge water, tank cleanings and slops.

Dry bulk terminal operations also present a potential for oil spills. The heavy fuel oils can be lost by groundings or collisions, by the dumping of dirty ballast, if fuel oil tanks are used as ballast tanks, the discharge of oily bilge waters, and accidental spills during transfer or from storage facilities, if bunkering is done at the terminal. The port facilities should include receiving tanks for dirty ballast and bilge waters with appropriate means for separating the oils and for disposing both the oil and the remaining water.

The cargos—coal, iron ore, phosphates and alumina—can adversely effect the marine biota in the vicinity of the terminal in several ways. First, fine particles in suspension in the sea water will reduce its transparency diminishing the light available to sea weeds and plankton which are light dependent. Second, acids in the ores are toxic to many marine species at certain concentrations, and metals in the acids which may be introduced at less than toxic concentrations are sequestered by shellfish to toxic levels and are passed on to other biota feeding on them. Third, oxidation of the ores reduces the oxygen available to the biota. Fourth, the phosphates are nutrients which can induce growth in the biota at a rate that rapidly depletes the oxygen resulting in their demise.

The pollutants may enter the sea as wind blown dust from the cargo transfer operations and stockpiles or as the drainage of rainwater containing both particulate matter and acids leached from the stockpiles. Fortunately, the toxicity of the runoff will be substantially reduced by dilution and the buffering action of salts common to sea water which neutralize the acids. The potential for damage to the environment will depend on the volume discharged in relation to the volume of water passing the terminal. Diking the storage areas or providing interceptor trenches will prevent large outflows during heavy rainfalls and allow drainage in small volumes over a period of several days. The principal pollutants will be sulphuric acid and ferrous sulfate. A field study by others of the effect of barge disposal of these wastes has revealed that there was no measurable increase in concentrations of iron in the sea water or the bottoms or significant reduction in transparency even after an extended period of dumping.

TYPICAL OFFSHORE TERMINAL

Figure 3–4 illustrates the general configuration of a terminal located off the coast of Delaware. This is one of the conceptual designs proposed in our study for the Maritime Administration and is presented here as illustrative of some of the problems encountered with offshore terminals.

This particular concept locates a terminal about 11½ miles from Cape May and 8½ miles from Cape Henlopen, in a very exposed location but in an area where there are shoals and a natural deepwater channel. The terminal would be strategically placed between the fairways for ships

entering and leaving Delaware Bay as shown on Figure 3–2. Deep-draft vessels could approach the terminal along a natural deep water trench. The terminal facilities would be arranged so that the piers for the deep-draft vessels would be in deep water at the edge of the natural trench: and a breakwater for protection of the piers and other terminal facilities would be located in shallower water on the shelf adjacent to the trench. This arrangement would permit the construction of the breakwater and the island in approximately 50 feet of water and the deep-draft berths in 100 feet of water.

This Offshore Terminal would be intended as a crude oil transshipping terminal for a first stage development, with a second stage expansion to include additional crude oil capability and facilities for handling coal and iron ore. The Stage I terminal would be planned for a throughput of 200 million tons per year of crude imported from the Persian Gulf, North Africa and West Africa, (4 million barrels per day). The Stage 2 terminals would be planned for an additional 100 MTY (2 MBD) of crude oil plus 20 MTY of coal and 10 to 15 MTY of iron ore. The terminal would receive crude oil by large vessels and transship it by smaller feeder vessels, and later by submarine pipelines, to refineries in the Delaware Bay area. It would receive coal from the Hampton Roads area by feeder vessels and transship this into very large bulk carriers for export to overseas locations. The iron ore, like the crude oil, would be coming in from foreign countries in very large bulk carriers and be transshipped into smaller feeder vessels for delivery to steel mills in the area.

The basic design criteria used in planning this Offshore Terminal includes the following:

Maximum Ship Size		326,000 DWT
Water Depth Required at MLW for Loaded Ship		100 ft.
Water Depth Required at MLW for Ballasted Ship		70 ft.
Maximum Water Level above MLW Datum		58 ft.
Breakwater Design Wave Height		32 ft.
Breakwater Top above MLW Datum		40 ft.
Maximum Operational Wave Height for Marine Terminal		8 ft.
Maximum Survival Wave Height for Marine Terminal		20 ft.
Maximum Current		3.1 knots
Maximum 1 Hour Sustained Wind		70 knots
Maximum 5 sec. Gusts		104 knots
Throughput Design:	Stage 1—Crude Oil	200 MTY
	Stage 2—Crude Oil	+100 MTY
	Stage 2—Coal	20 MTY
	Stage 2—Iron Ore	10~15

The facilities planned for this Offshore Terminal are shown conceptually in Figures 3–4, 3–5, and 3–9. Note for Stage I that there would be four deep-draft berths for receiving the crude oil in up to 326,000 DWT vessels and 12 shallow-draft berths for shipping out the crude in the smaller feeder vessels in the 30,000 to 60,000 DWT range. The island would have an area of about 200 acres and would be a self-sufficient complex with all the necessary facilities to support the petroleum and later the dry bulk operations. All facilities would be protected by a dog-leg shaped breakwater about 14,000 feet long.

Figure 3–7 illustrates the general features of the island for Stage I. Precast concrete caissons would form the perimeter of the island, serving as berthing structures for the smaller vessels and containment and protection for the man-made island. The tanks for storage of crude oil would be cylindrical in shape, buried in the island fill with bottoms at about elevation +5 ft. There would be 20 tanks of 1 million barrels each for a total storage capacity of 20 million barrels for the Stage I development. The island would be provided with the usual trenches for the petroleum pipelines and utilities and also combination trenches around the perimeter for the interception of run-off from rains and accidental petroleum spills. A treatment plant would be included to receive island drainage and oily ballast water from the ships and to separate the oil and other pollutents from the water before it is released for re-use and or disposal into the harbor. Four million barrels of ballast storage capacity would be provided.

With regard to environmental protection and pollution control, the terminal would be designed with sophisticated systems and equipment for prevention of any type of pollution from the petroleum and later from the dry bulk operations. If in fact some type of pollution did occur, these systems and equipment would provide early detection, containment of the pollution, and clean-up on shore and around the ship berthing areas.

On shore, the buried tanks, the dikes and the interceptor trenches would control any possible petroleum leakage and spills from storage and the collecting and distribution systems. The treatment facilities, receiving and treating the island run-off and ship oily water ballast, would eliminate pollution from these sources.

For the unloading and loading operations, the large ships and the smaller feeder ships handling the crude petroleum would be protected by permanent floating barriers with clean-up equipment. The conceptual design of these barriers is shown in Figure 3–8. It is planned that the barriers, when not in use, would be located either submerged on the bottom of the harbor or floating and near the berthing structures. After the ship is berthed, and before unloading or loading operations start, the floating barrier would be positioned to provide a complete enclosure around the ship. In addition, portable barriers and mop-up devices would be available for deployment by surface craft or helicopter as needed.

The figures shown in this paper illustrates the overall concept of this type of terminal planned for construction and operation in deep-water and at exposed locations. Such a terminal is of course a very ambitious undertaking. The cost would be high but the need exists and the savings to be accrued would

(Continued on Page 25 Bottom)

SOROS ASSOCIATES, INC.

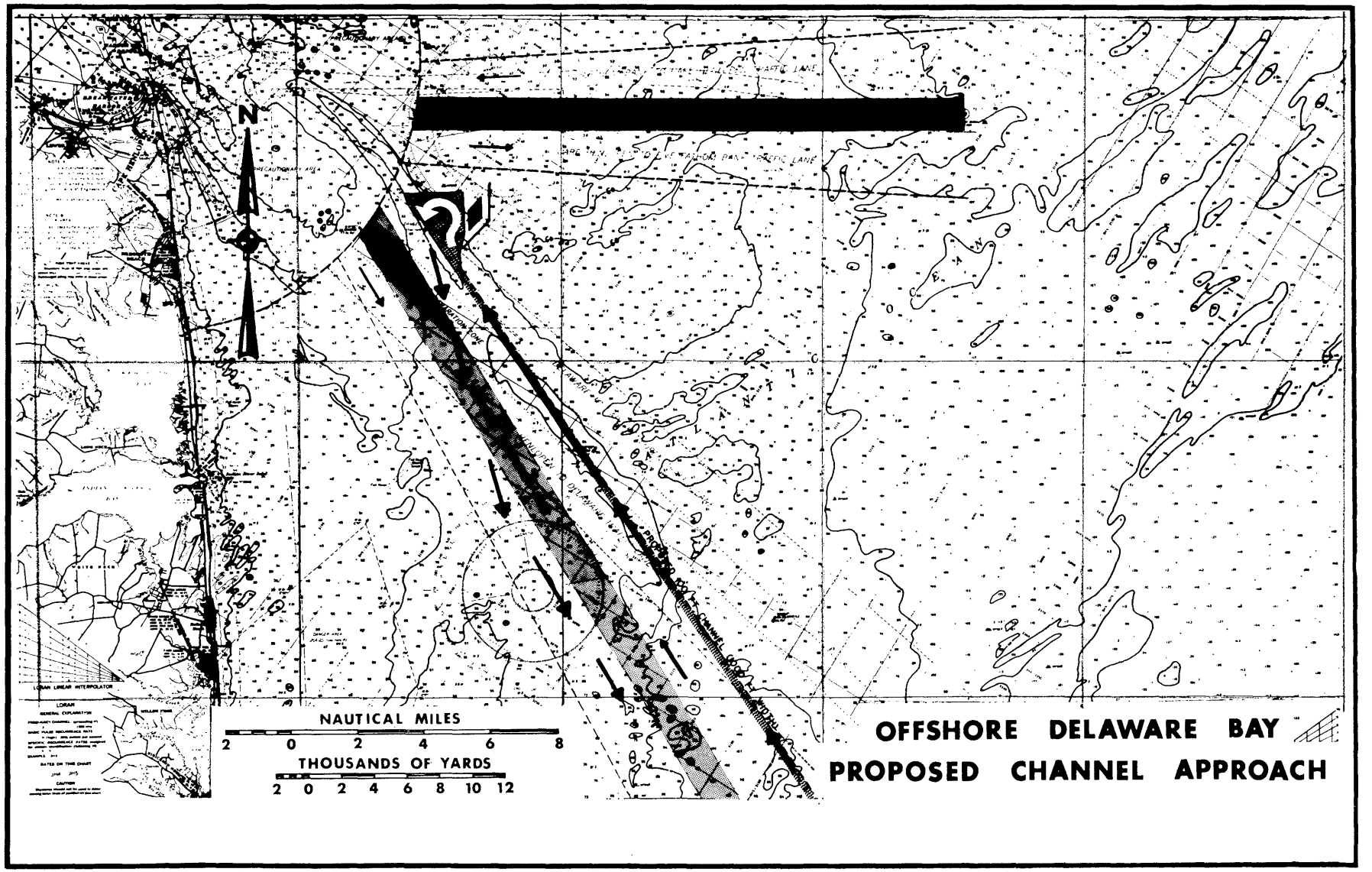


FIGURE Nº 3 - 2

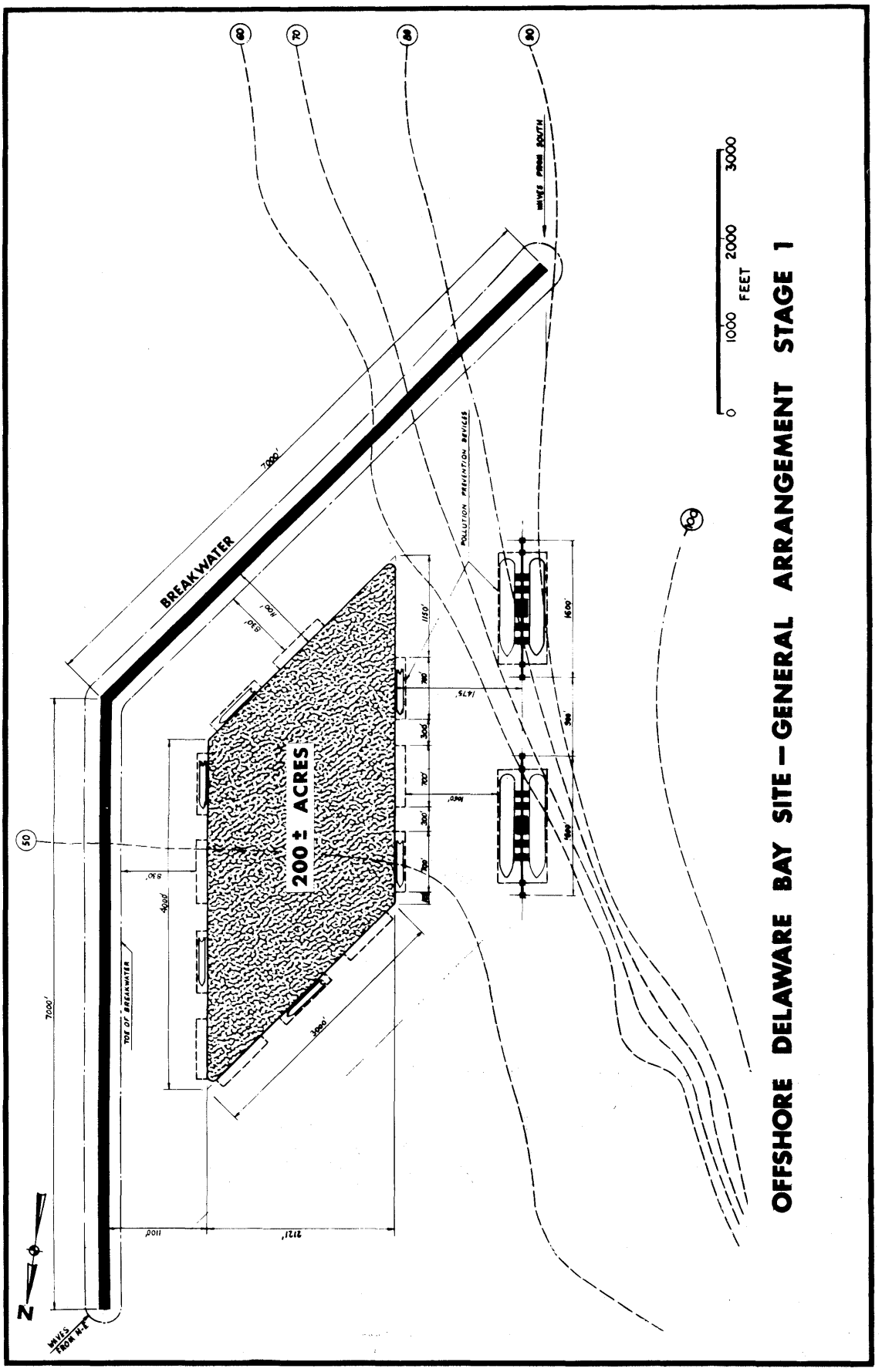
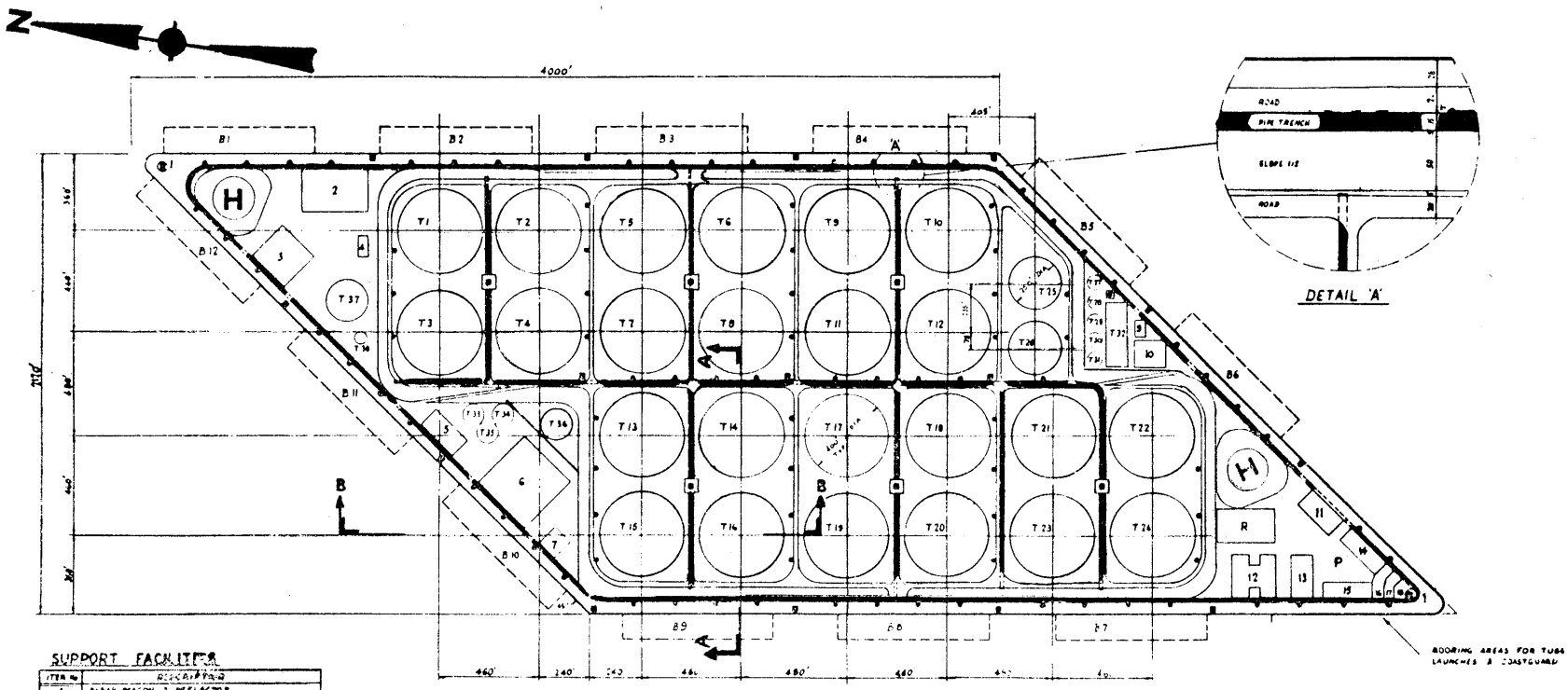

SOROS ASSOCIATES, INC.
OFFSHORE DELAWARE BAY SITE — GENERAL ARRANGEMENT STAGE 1
BREAKWATER
200 ± ACRES
POLLUTION PREVENTION DEVICES
TOE OF BREAKWATER
WAVES FROM N.E.
WAVES FROM SOUTH
0
1000
2000
3000
FEET
N

FIGURE N° 3 – 4



SUPPORT FACILITIES

ITEM No	DESCRIPTION
1	RADAR BEACON & REFLECTOR
2	STORAGE WAREHOUSE, 1 STORY
3	MAINTENANCE BUILDING, 2 STORY
4	GARAGE, 1 STORY
5	FIRE HOUSE, 2 STORY
6	POWER HOUSE & STEAM PLANT
7	ELECTRICAL EQUIPMENT BUILDING, 1 STORY
8	CONTROL BUILDING & OFFICES 2 STORY
9	UTILITY SHED.
10	TREATMENT PLANT.
11	FIRE HOUSE, 2 STORY
12	QUARTERS, MESS HALL & RECREATION, 2 STORY
13	OPERATIONS BUILDING, 1 STORY
14	CUSTOMS & COASTGUARD BUILDING, 1 STORY
15	ADMINISTRATIVE OFFICES, 1 STORY
16	COMMUNICATIONS BUILDING, 2 STORY
17	NAVIGATIONAL CONTROL BUILDING 3 STORY
18	WEATHER STATION, 4 STORY

TANKS

ITEM No	DESCRIPTION
T1 THRU T20	1000 000 BARREL OIL TANKS
T21 THRU T24	BALLAST WATER TANKS
T25, T26	SLOP WATER TANKS
T27 THRU T31	AERATION TANKS, 75 DIA.
T32	SETTLING & SKIMMING TANK
T33 THRU T35	FOAM TANKS, 100' DIA.
T36	POWERHOUSE FUEL TANK, 150' DIA. PART BURIED
T37	FRESHWATER TANK.
T38	F.W. STANDPIPE

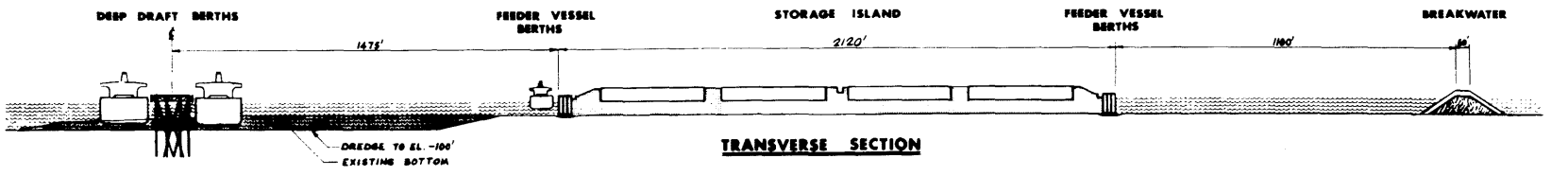
LEGEND

- FIRE MONITORS (SET AT EL. + 75')
- FIRE HYDRANTS SPACED @ 200' APART
- PUMPHOUSE WITH FIRE MONITORS
- B1 THRU B12 BERTHS FOR FEEDER VESSELS
- H HELIPAD.
- P PARKING AREA
- R RECREATION AREA
- PIPE TRENCH

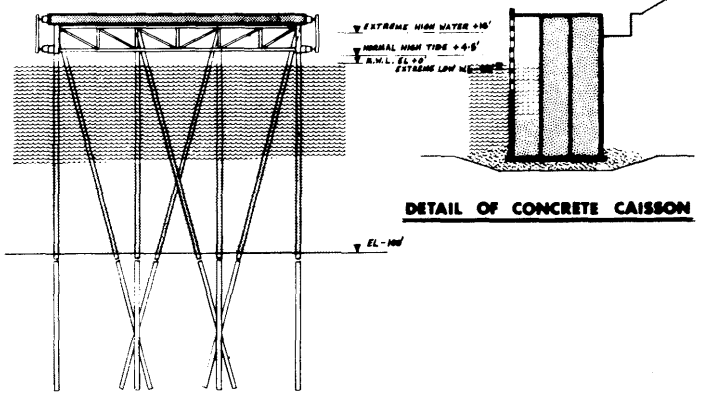
OFFSHORE DELAWARE BAY SITE — TRANS-SHIPPING ISLAND PLAN

FIGURE Nº 3 — 5

SOROS ASSOCIATES, INC.

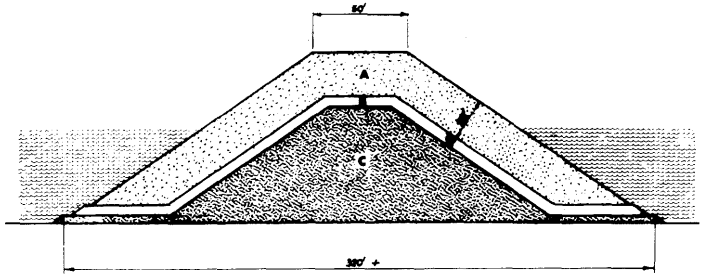


TRANSVERSE SECTION



DETAIL OF DEEP WATER PIER

DETAIL OF CONCRETE CAISSON



DETAIL OF BREAKWATER

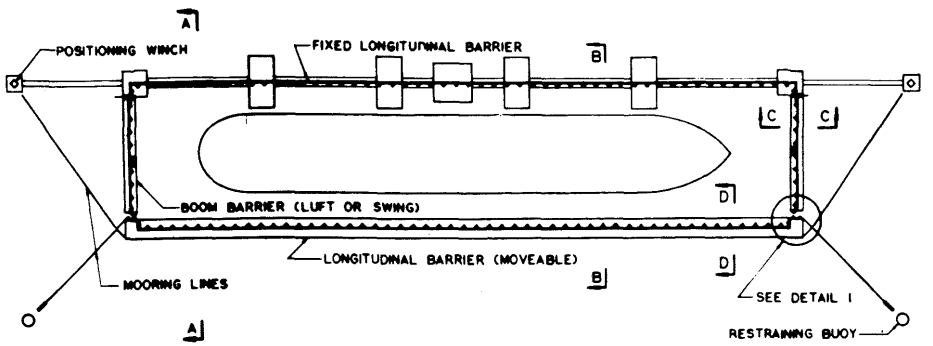
A 55# PRECAST CONCRETE ARMOR
B 3"-7" ROCK
C UP TO 5 TON QUARRY RUN.

SEQUENCE OF CONSTRUCTION

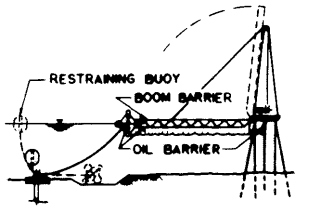
1- CONSTRUCT BREAKWATER IN STAGES.
2- CONSTRUCT ISLAND PERIMETER.
3- DREDGE MOORING AREA FOR LARGE SHIPS & START FILLING OF ISLAND AREA.
4- AFTER FILLING ISLAND TO APPROX. EL -10 FLOAT TANKS INTO POSITION.
5- CLOSE ISLAND PERIMETER & CONTINUE FILLING.
6- COMPLETE ISLAND & CONSTRUCT MARINE FACILITIES.

OFFSHORE DELAWARE BAY SITE — TRANS-SHIPPING ISLAND CROSS SECTIONS

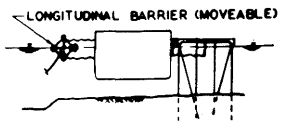
FIGURE Nº 3-7



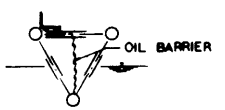
PLAN – SCHEMATIC ARRANGEMENT



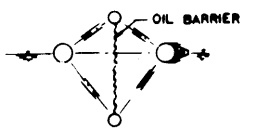
SECTION A-A



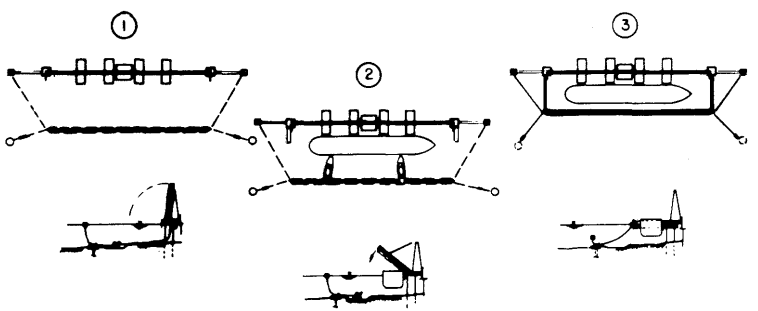
SECTION B-B



SECTION C-C



SECTION D-D



BERTH VACANT

- BOOM BARRIERS UP
- LONGITUDINAL BARRIERS SUNK
- RESTRAINING BUOY FLOATED

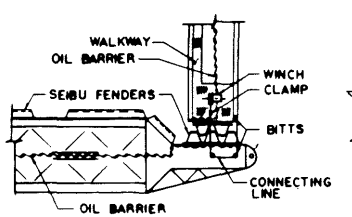
VESSEL BERTHING

- VESSEL EASED IN BY TUGS
- BOOM BARRIERS LOWERED
- TUGS MOVE OUT
- LONGITUDINAL BARRIER FLOATED

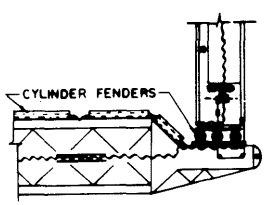
BERTH OCCUPIED

- LONGITUDINAL BARRIER HEAVED INTO POSITION AND CONNECTED TO THE BOOM BARRIERS

BERTHING PROCEDURE



DETAIL 1



DETAIL 1 ALTERNATE

POLLUTION CONTROL DEVICE

FIGURE Nº 3 - 8

SOROS ASSOCIATES, INC.

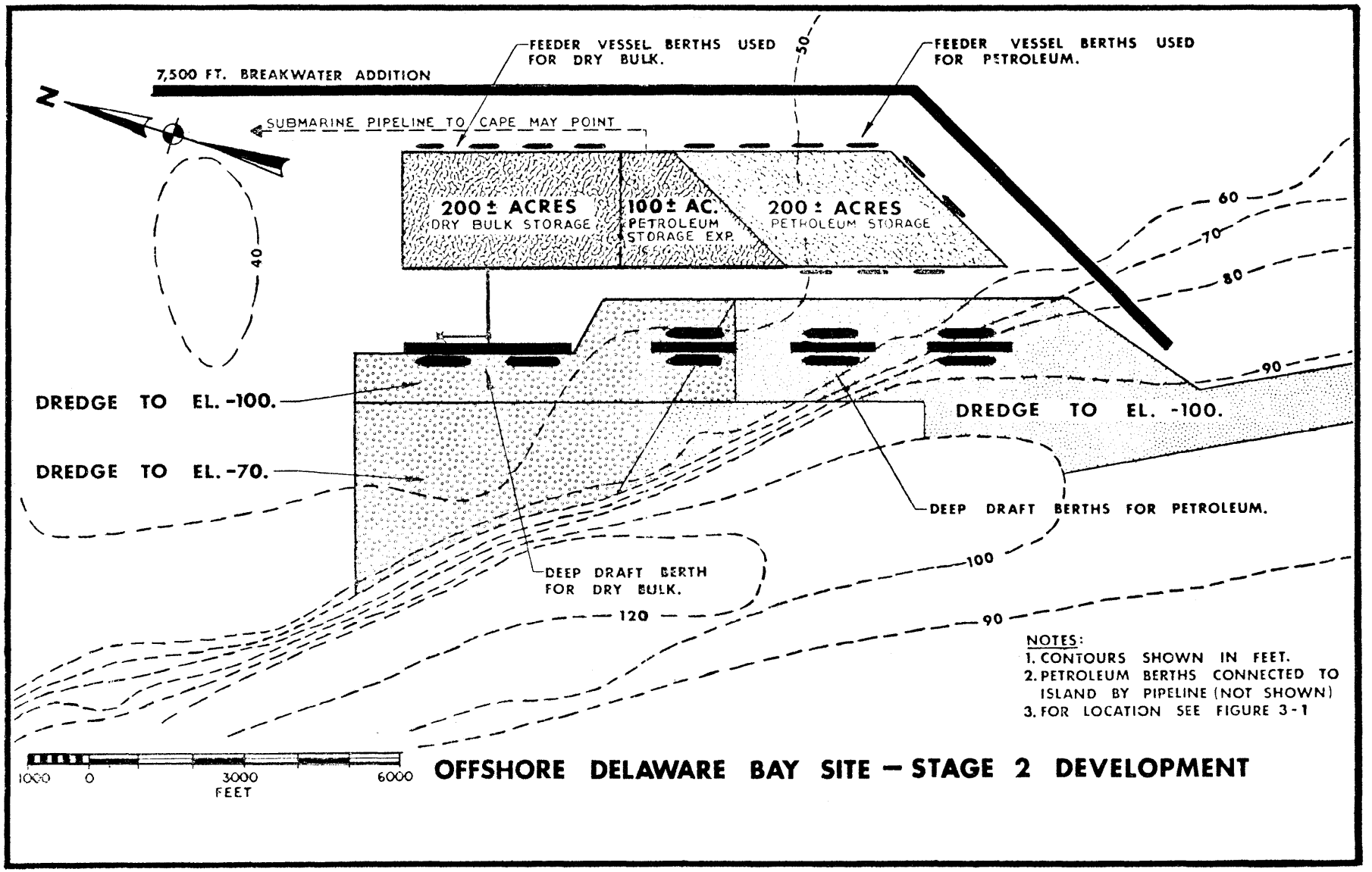


FIGURE Nº 3 - 9

£20 Million Order Placed for New Roll-on/Roll-off Ferries; £3½ Million Terminal to be Built at Hull

British Transport Docks Board
North Sea Ferries Limited

London:—A £20 million order for two second generation roll-on/roll-off ferries, the largest planned for service on the North Sea, has been placed by North Sea Ferries with the German shipyard, AG Weser Seebeckwerf of Bremerhaven, and to cater for them the British Transport Docks Board are to build a major new £3½ million passenger/freight ferry complex at Hull.

These two associated projects were announced in London today (Wednesday, 22 November) by Mr. Ian M. Churcher, Director and General Manager of North Sea Ferries and Mr. Kenneth Bantock, the Docks Board's Port Director, Humber.

The new 12,500 tons gross ferries are scheduled to be introduced by North Sea Ferries to their Hull-Rotterdam (Europoort) service in 1974, and will replace the two first generation ro/ro ferries, 'Norwind' and 'Norwave', which will be transferred to the Hull-Zeebrugge service.

The new ships will each have over 1,570 metres (nearly one mile) of deck space and be capable of accommodating up to 135 twelve-metre freight units and up to 252 cars, depending on the mix between freight vehicles and passenger cars. They will each carry up to 1,200 passengers.

(Continued from Page 18)

undoubtedly render the terminal economically feasible. There are technical problems involved in the design and construction of such a facility but these are not considered insurmountable. Additional study and laboratory testing of such features as the breakwater, and further research and development on pollution control systems and devices should fill in the gaps in our present engineering capabilities.

The new terminal will be sited on Hull's riverside adjacent to Victoria Dock, where a suitably large area of land is available for the extensive shore facilities required. It will provide deep-water berths capable of accommodating not only the large new second generation roll-on/roll-off vessels but also the even larger third generation ships planned for the 1980s. When completed it will become the base for all North Sea Ferries' roll-on/roll-off operations at Hull, leaving the existing berth used by the company at No. 5 Quay East, King George Dock, free to cater for other services or operators.

New Roll-on/Roll-off Ferries

The vessels have been designed to cater for more passenger travelling on holiday with cars as well as the business executive travelling to the U.K. and Continent. The embarkation of passengers both with and without cars will take place independently of the freight loading.

Every special and standard cabin has its own toilet and wash basin and the number of special cabins with shower facilities has been increased considerably when compared with the first generation vessels, and couchette cabins have been designed for those wishing privacy and willing to accept a lower standard of accommodation.

It is anticipated that these new vessels will have a turnround time in Hull and Rotterdam of 5¼ hours, during which time 2,000 passengers, 400 cars and upwards of 240 twelve-metre trailers can be handled.

When the new vessels come into service in 1974 it is anticipated that North Sea Ferries will operate a daily passenger/freight ro/ro service between Hull and Rotterdam (Europoort), and additional freight only ro/ro vessels to enable them to carry hazardous goods not permitted on passenger ships. This will release the two first generation ferries 'Norwind' and 'Norwave' for service on the Hull/Zeebrugge route in 1974, when it is planned to introduce a passenger/freight roll-on/roll-off service. A freight-only ro/ro service from Hull to Zeebrugge commenced on the 20th November 1972 with three sailings per week. This will increase later to six or more sailings a week, depending on the requirements of the trade.

In addition to the roll-on/roll-off services, North Sea Ferries also operate a container service five times a week from Hull to Rotterdam.

Main Technical Details

Length 153 metres (502 ft.); breadth 25.20 metres (83 ft.); draft 5.50 metres (18 ft.); decks—8; 12,500 grt; 3,800 dwt; 2 × 9000 HP Werkspoor, 16 TM 410 engines; maximum trial speed 18½ knots at 85% MCR.

Freight Capacity

1) 90 to 134-12 metre units plus 50 export cars, depending on the mix
2) 520, 14 ft.-long export cars
3) Power is available at 360/440 volts, 3 phase, 50 cycles
4) Ships ramp 9.40 metres (31 ft.) wide, three lane working
5) Deck height—free movement of vehicles up to 4 metres (13 ft.) in height

Passenger Accommodation

133 special cabins with 2 berths, with 3rd and 4th berth as required. Wash basin in cabin, own toilet and shower compartment.

177 standard cabins with 2 berths. Washbasin in cabin, own toilet compartment.

101 couchette cabins with 2 berths.

100 reclining seats in quiet lounge on 'C' deck.

Public Rooms

Cafeteria seating about 500.

Quiet lounge on 'C' deck with duty free bar and 100 reclining seats plus 300 other seats.

Continental lounge on 'D' deck, with duty free bar, colour television, (cassette and direct reception separately or together) to seat

(Continued on Page 28)

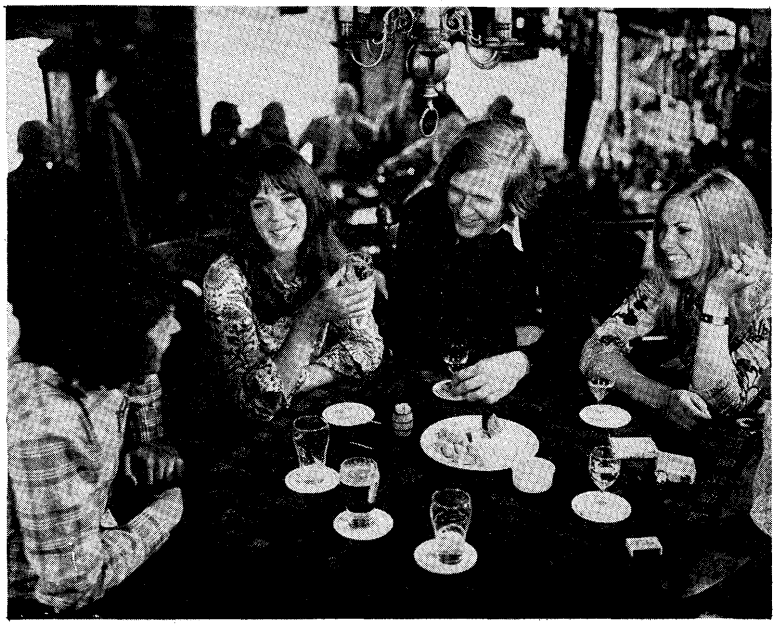
The 8th conference of the International Association of Ports and Harbors will be in Amsterdam and Rotterdam.

Coming?

A globe-spanning network, flights straight to Amsterdam. Lots of thoughtful extras-including a booking office right at the congress centre, where you need it. For KLM's the airline with the difference. The airline that cares, start to finish, in the air and on the ground.

KLM's the airline for you.

We have a home country perfect for conventions, too: Plenty of scope for sightseeing and after-hours fun. Great congress centres in Amsterdam, Rotterdam, The Hague and Utrecht. It's a country that welcomes strangers—that has reserved a special welcome at Amsterdam's RAI and in the Port of Rotterdam for Port and Harbor's people, May 6-12, 1973. Will we be flying you there?



KLM

about 440.

Quiet reading and writing rooms on 'C' deck—one on the portside and one on the starboard side.

Games room on 'D' deck—fruit machines, etc.

Snug bar and dance space on 'B' deck aft, with duty free bar and 230 seats opening on the open 'Moonlight' deck.

Perfume and gift shop on shopping concourse on 'D' deck.

Duty free spirits, cigarette and tobacco shops on shopping concourse 'D' deck.

Entrance Hall, Purser's Office, Information Centre on 'C' deck.

DETAILS OF NEW TERMINAL

Terminal Area

The riverside roll-on/roll-off complex will be extensively landscaped and will initially cover an area of approximately 6 hectares (15 acres), with a further 6½ hectares (16 acres) available for future extension. It will include a large passenger terminal building, 92 metres (302 ft.) long and 32 metres (105 ft.) wide, with a spacious embarkation lounge; a riverside amenity area; marshalling areas for 400 cars and tour coaches; Customs and Immigration facilities; and RAC and AA offices.

To cater for ferry passengers travelling without cars, taxi ranks and public transport facilities will be provided and high-level covered walkways incorporating a passenger conveyor will give a direct link between the terminal's embarkation lounge and the ships at berth.

Freight vehicle parks totalling four hectares (10 acres) will also be provided for the temporary transit accommodation of inward and outward semi-trailers and will include a Customs inspection shed measuring 100 metres (328 ft.) by 15 metres (50 ft.).

Berth Layout

Roll-on/roll-off berths will be provided for two vessels to be dealt with simultaneously, enabling the terminal to cater for the daily sailings by passenger/freight and freight-only vessels on both the Rotterdam and Zeebrugge services.

The design of the berth layout will incorporate a piled T-head jetty extending 120 metres (400 ft.) into the river, with a jetty head measuring 60 metres (200 ft.) by 30 metres (100 ft.) overall. An approach road 10 metres (32 ft.) in width will give access to the jetty head, at each end of which will lie hinged steel bridges, 55 metres (180 ft.) long and 10 metres (32 ft.) wide, giving access for three lanes of cars and freight vehicles to the ferries' vehicle decks.

The two vehicle bridges have been designed with a range of operation of 12.5 metres (41 ft.) so that ferries of all sizes can be accommodated with equal facility. Small vessels with only 1 metre (3¼ ft.) freeboard at low tide, and large vessels with up to 5 metres (17 ft.) freeboard at high tide will be able to use the berths.

Wellington—New Zealand's Pioneer Port

Wellington Harbour Board

Wellington Harbour, or Port Nicholson, located at latitude 41° 18′ south, longitude 174° 46′ east, contains a sheltered natural landlocked harbour in excess of 19,000 acres with ample depths of deep water. Tidal range varies from 2 feet 6 inches (0.76 m) to 4 feet 6 inches (1.37 m). Depth of water at harbour entrance thirty eight feet (11.582 m) at mean low water.

Geographically the central capital port of New Zealand situated at the southern end of the North Island on Cook Strait which separates the North and South Islands, combined with splendid accommodation and specialized facilities afforded to shipping, establishes Wellington as the chief distributing Port of New Zealand. It is the nearest major port of call for overseas vessels passing through the Panama Canal for or from North America, Canada, the United Kingdom and European Ports.

The modern, efficient, clean, fast growing Port of Wellington under the jurisdiction of the Wellington Harbour Board has quickly pioneered the way for the specialization of port facilities as required for rapid shipping communications and rapid cargo shipments needed in todays and tomorrows Load Centre container port systems.

More than 10 years ago, the Port of Wellington pioneered roll-on roll-off facilities in New Zealand with the construction of special terminal facilities for two New Zealand Railways stern door rail/road ferry vessels of over 4000 gross tons, linking Picton in the South Island. More than a thousand sailings each way per year, convey over a million tons of rail-road cargoes and cars across Cook's Strait. Thereby the country's complete railway system of rolling stock has been fully intergrated in the national network.

This terminal was shortly followed by two further linkspans for the increased cargo shipped in palletised or unitised form in roll-on/roll-off vessels.

The year 1966 pioneered the introduction of the roll-on/roll-off overnight ferry sailings of 176 miles to Lyttelton in the South Island. A linkspan was provided to give access to stern doors enabling all cargoes to be loaded on wheels. Today this service has the world's largest overnight passenger roll-on/roll-off vessel of 9,000 tons gross operating this service from Wellington.

In 1969 the Board completed another linkspan and associated back-up area costing two and a half million dollars. This terminal heralded the introduction of a regular Trans-Tasman (New Zealand—Australia) roll-on roll-off pallet container cargo service pioneering a two weekly service with Australian Ports and intergrating the New Zealand Coastal roll-on services. Three vessels up to 4,500 tons gross provide this service.

In order to provide port facilities for two new Rail Road Ferry vessels of 6,000 tons which will supplement this year the North Island—South Island Wellington-Picton cargo service, the Board has completed a second two deck linkspan with associ-

Aerial Photo of Wellington Harbour or Port Nicholson. (N.Z. Aerial Mapping)

ated reclamation for railway marshalling back-up areas.

The Port of Wellington with four linkspans has more roll-on roll-off facilities for trading vessels than any other New Zealand port.

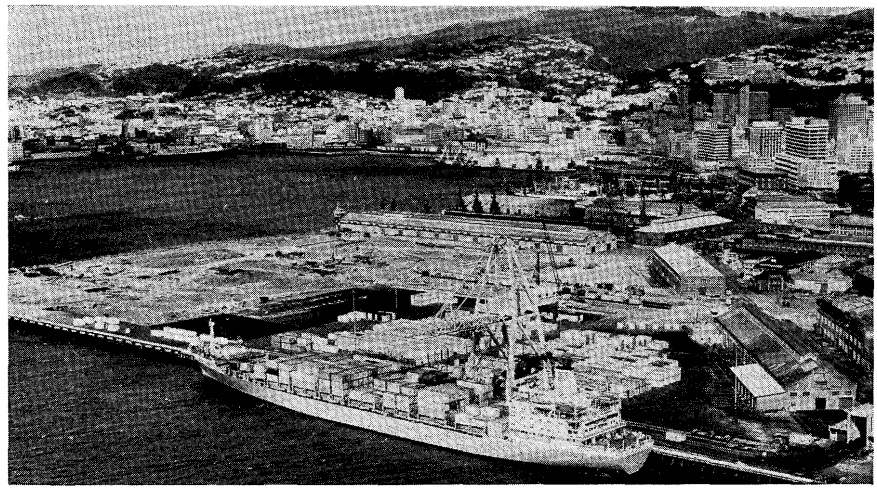
From 1966 this Port pioneered containerization to New Zealand. Following recommendations made by the New Zealand Ports Authority into the economics of containerizing New Zealand's overseas trade, the New Zealand Government approved the recommendations for the development of Wellington and Auckland as Container Terminals.

To meet the requirements of container shipping in order that the Port of Wellington will continue to be a major distributing port linking New Zealand with other competitive national markets of the world, the Wellington Harbour Board, following discussions with interested organizations, and with Government approval, commenced development of the Thorndon container complex, at an estimated cost of $10 million.

Thorndon Container Wharf situated south of Aotea Quay breastwork, consists of a pre-stressed pile and reinforced concrete structure 84 ft wide extending for 1,900 ft which provides two container berths each 950 ft in length with a depth of water alongside of 40 ft to 45 ft.

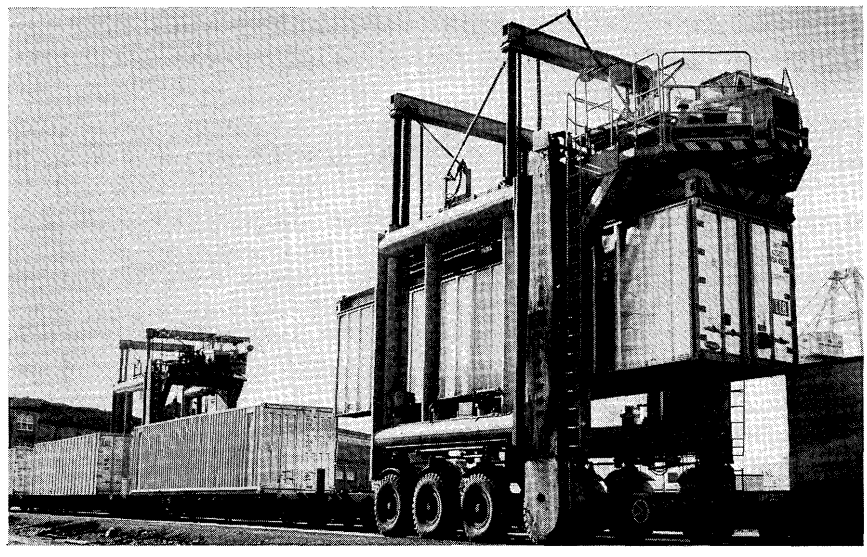
The Board owns and operates a 45 ton twin-lift quayside container crane with 115 ft waterside outreach and 35 ft landside outreach to service the 1,900 ft quay frontage. A second 32½ ton single lift crane will also be constructed on the quay frontage.

Behind the breastwork the Board has reclaimed 34 acres with 4 million cubic yards of fill in depths up to 55 ft of water.



Aerial Photo of two berth Thorndon Container Wharf.

Board's 45 ton Crane working "Australian Exporter."



Straddle Carriers off loading containers from railway waggons.

The northern and southern berths have back-up working areas of 10 acres and 24 acres respectively. A total of 50 acres can be made available, as trade demands.

Berth 2 or Common User Terminal has been leased to a terminal operating consortium on behalf of certain Shipping Lines. The ten acre Container Park has ground-level outlets for 218 clip-on refrigerated containers and space for over 700 general cargo containers in a two high stack. Several straddle carriers, forklifts and a Drott travel lift are used for the movement of containers. A break bulk depot of 33,000 sq. ft with rail access provides packing and handling space under cover for loading or unloading less than container loads. Office space is also available for the administration of the Terminal. This Terminal is capable of a throughput of 25,000 containers each way per year, i.e. equivalent to half a million tons of cargo.

Adjacent to the Terminals the New Zealand Government Railways are providing a 32½ ton rail/road Goliath transfer crane, together with six rail tracks 1,000 feet in length and will control the transfer of all refrigerated and general containers between rail and road, or terminal transport.

Berth 1 is due for completion in 1973. This 24 acre area is initially capable of a throughput of 24,000 containers each way per year.

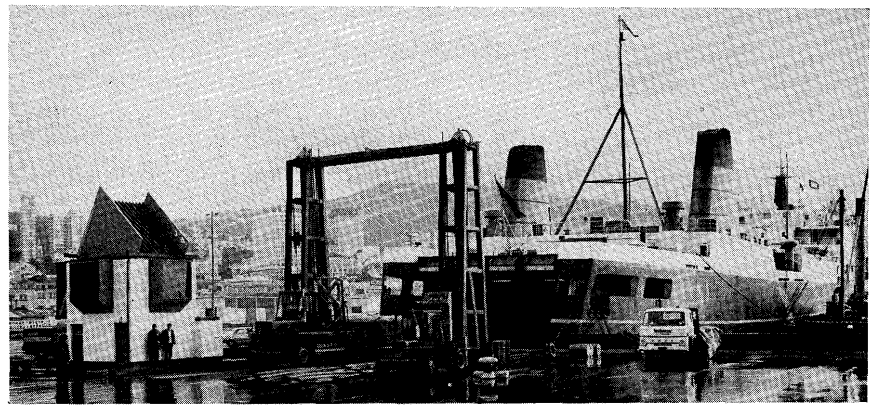
The Board owns and operates two new identical tugs, each has twin diesel engines developing 2,700 horsepower, Voith Schneider propulsion giving a speed of 12 knots, guaranteed bollard pull of 28 to 31 tons, and an action radius of 1,000 miles. Latest fire fighting monitors, salvage pumps and winch of 22½ ton pull fitted with heavy ropes are available.

Each tug has the latest navigational aids and V.H.F. communication equipment installed.

These tugs are among the most powerful of their class in the world, and are painted bright red, a colour which can be seen in all weathers.

The opening in June 1971, of the Wellington Container Wharf Berth 2, together with the arrival of the first cellular containership to New Zealand pioneered a new era in the country's maritime history. It is also

Linkspan—bridging Lyttelton Ferry Vessel



Linkspan—bridging Trans Tasman Vessel "Marama"

fitting that this had taken place at the Port of Wellington as the Capital of New Zealand.

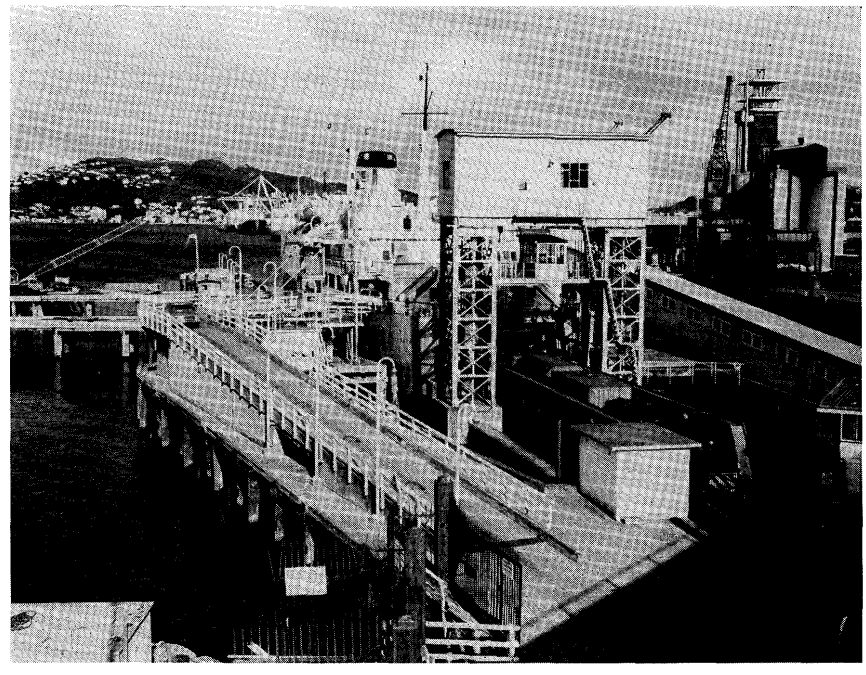
The Port of Wellington with good road and rail connections and being the only North Island port with rail/road ferry sailings to the South Island, means that every railhead in New Zealand is a suburb of Wellington. It therefore follows that the port of Wellington because of its geographical position in the centre of the country is the only regional Port whereby containers could be discharged and arrive by rail at destination within 24 hours, whether it be to the extreme north of the North Island or extreme south of the South Island. From origin to destination, speed in transit is the condition precedent of a successful containerized service.

The Port of Wellington pioneered the inauguration of containerization from New Zealand to the United Kingdom and the Continent, with the direct loading in September 1972 of New Zealand's container cargo in the commencement of a new regular container ship service.

It is also fitting that simultaneously at Tilbury and Liverpool in the United Kingdom, the first regular cellular container ship was loading containers for New Zealand and it was natural that New Zealand containers are to be discharged at Wellington through the Capital's specialized port facilities for rapid redistribution throughout the country.

This rapid development of container facilities at Wellington has already proved the success story of the decade. Within a fifteen month period of the first cellular ship service to a New Zealand Port, this Port has handled more than 13,500 containers and the increased number of regular container ships from Wellington, opening container doors to East Coast and later West Coast North America, Australia and now the United Kingdom, speaks well for the anticipated increases in volume

Board's Tug "Toia"



First Rail Road Ferry Terminal (North Island's only Rail/Road Linkspans connecting New Zealand's railway network.)

of tonnages to and from these countries.

Within the next twelve months the Port of Wellington will service more than twenty-four regular full, or semi-container ships, together with Lash ships, linking the round the world container and unit load concept.

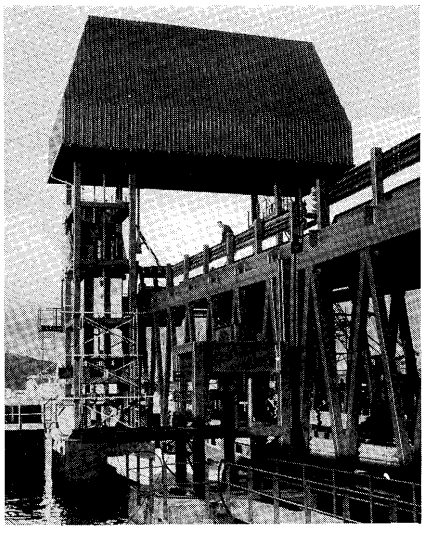
Early in 1973 the Port of Wellington will welcome new revolutionary transportation Lash ships (lighter aboard ship) trading with containerized cargo to and from our Pacific neighbours.

To handle this increased tonnage volume of container cargoes the Board has continuously improved facilities for rapid movement to shipping and plant in order to provide a reliable world container transport port link.

The Board has also pioneered imaginative contemporary architecture with its newly constructed buildings painted brightly in modern purples, oranges, deep blues etc. all of which add to the pleasant aethetic appearance and working environment for shipping companies staff and waterside workers alike. These buildings namely the Overseas Passenger Terminal, Trans Tasman complex, Second Rail-Road Terminal and Overseas Incinerator Building, add new lustre to a changing waterfront scene.

Marine Museum

The Wellington Harbour Board was constituted in 1880 and since that date the Board has acquired a most valuable and irreplaceable collection of items in its archives with particular reference to the history of the Port of Wellington.



Second two-deck Rail Road Ferry Linkspan (North Island's only Rail/Road Linkspans connecting New Zealand's railway network.)

In order to stimulate public in-

(Continued on Next Page Bottom)

Affix stamp here

The International Association of Ports and Harbors

Kotohira Kaikan Building,
No. 1, Kotohira-cho, Minato-ku,
Tokyo 105, JAPAN

Orbiter Probe

IAPH News :

New Members

Regular Members

1. Nanaimo Harbour Commission
   P.O. Box 131, Nanaimo, B.C. Canada
   (Mr. J. Dunham, Port Director)
2. South Carolina State Ports Authority
   P.O. Box 817, Charleston, South Carolina 29402 U.S.A.
   (Mr. W. Don Welch, Executive Director)
3. Central Board of Polish Sea Ports (status changed from Associate Member)
   Gdynia, Zgoda 8, Poland
   (Mr. Kazimierz Chyzy, General Director)
4. Tanjung Priok Port Administration
   Jalan Raya Pelabuhan No.: 9
   Tanjung Priok
   Indonesia
   (Mr. Junus Effendy Habibie, Port Administrator)

All were approved by the Secretary General on January 1, 1973.

Travelers

• Mr. Jervis S. Finney, Maryland State Senator, U.S.A., called at the IAPH Head Office on Tuesday, December 5, 1972 and had conversations with Mr. Toru Akiyama, Secretary General, and Mr. Katsuya Yokoyama, Deputy Secretary General. Mr. Finney said he wanted to say "Hello" for Mr. Joseph L. Stanton, Baltimore Port Administrator.

terest in New Zealand's history and the need to preserve not only something of the past but also of the present for future generations, the Board in April 1972 pioneered the establishment of New Zealand's first Harbour Authorities Marine Museum located within the precinct of the Board's property.

Ports of ECA

A conference of Port Managers and Maritime Officials of East, Central and West African States was held in Freetown, Sierra Leone at the invitation of the Sierra Leone Government from 9–13 October, 1972 in accordance with the Programme of Work and Priorities adopted earlier by the United Nations Economic Commission for Africa, headquartered in Addis Ababa, Ethiopia. (See Ports and Harbors, September, 1972 page 32.)

At the above-mentioned Port Management Conference, "The Association of Port Management of West and Central Africa" was formed with headquarters at Lagos, Nigeria, according to Mr. Geo. Downie, Senior Regional Transport Adviser, ECA. The membership of the new association is open to all maritime countries in the range Mauritania to Zaire inclusive with membership facilities available to the adjoining land-locked countries. The first President will be Mr. P. O. Aggrey, General Manager, Railway and Ports Authority, Takoradi, Ghana and the Secretary is Monsieur Laurent Odah, Director General of the Port of Abidjan, Ivory Coast.

At the Conference, I.A.P.H. was represented by Mr. R. O. Ajayi of the Nigerian Ports Authority, Lagos. Mr. Downie goes on to say that a similar regional association is likely to be formed on the Eastern Coast of Africa early in 1973 and possibly in North Africa, towards the end of 1973.

BOOK: THE UCICH REPORT

London, 30th November: — In February 1972 a questionnaire was distributed to ICHCA's 800 corporate members. The questionnaire was entitled UCICH-the Use of Computers in International Cargo Handling. The study was a natural follow-up to discussions within ICHCA at national and international level on this important topic.

The impact of computers has been the theme at many ICHCA meetings since the 1969 Conference in Gothenburg and some of the special problems caused by computerization have been discussed within the Association's Computer Compatibility Committee. During these discussions a need to know more about how computers are employed in connection with transportation and handling of goods was felt, as questions about the present state and about what is likely to happen in the future have been left unanswered.

To provide a platform for the further discussions and to disseminate some experience of computer applications, ICHCA Sweden decided to sponsor the UCICH study. Apart from the statistics, the report provides information about present and planned EDP routines, thus making direct exchange of ideas and experiences possible between ICHCA members.

The UCICH study was conducted on behalf of ICHCA Sweden by Jan Jagerstrom Management Systems Consultants and is available at £1.25 from ICHCA, Box 2553, S-403 17 Gothenburg 2, Sweden. (ICHCA Press Information)

BOOK: JANE'S FREIGHT CONTAINERS 1972-73

London, 30 November, JANE'S YEARBOOKS:—The fifth edition of JANE's FREIGHT CONTAINERS, which covers all aspects of container development throughout the world, is published in London today (in America shortly by McGraw Hill).

In his Foreword the Editor underlines the trend towards roll-on vessels on the ocean routes in view of the high costs of providing and operating today's sophisticated lift-on terminals. The trend towards roll-on in the short sea trades is increasing also. This is due, to some extent, to these vessels having to use expensive ocean lift-on terminals and to the fact that cargo interests often prefer to have their individual shipments supervised through transit

procedures by their own employee, the driver. Moreover, in some European trades road vehicles may be preferred to containers for groupage operations.

The proliferation of operators on the trans-Pacific trades is examined: the amount of traffic available per container space has been estimated to fall from just over twenty freight tons per container space available in 1972 to under fourteen freight tons per space in 1974, although traffic is expected to increase from 8.4 to 11 million freight tons in the same period. Moreover, the fall-off of military traffic in this trade will not assist operators and some rationalization of service must take place.

A new section covering military equipment has been included this year. The results of a survey of defence force capability in moving military cargoes by air, sea and land have been published and it must be stressed that it is only a fair cross-section of the equipment in current use with the defence forces of the world. The survey shows that, except for one major power, the 20 ft container has not yet been accepted as a means of land or sea transport. Next year the section will concentrate solely upon military equipment within unitized systems.

"Trends for the Future" includes a mobile containerized hospital, hovercraft for container carriage and for lighterage operations and a rail-on system. The section on airships has not been repeated this year but developments in this field, together with new photographs, are given.

The layout of the book has now been established: port facilities, services and traffic together with national and international railway services and facilities are first described; then follows detail on the container, roll-on and barge-carrying vessels. Services and container fleets of operators and leasing companies. Manufacturers of containers and handling equipment together with repairers, testing and cleaning services are described. Sections on air freight and international standards are followed by Military Equipment and Trends for the Future. There is a comprehensive index.

The majority of entries include full listings of address, telephone, telex, directors, officials and executives. About 4,000 addresses are included and practically every entry in the book has been updated since the fourth edition was published in 1971.

JANE'S FREIGHT CONTAINERS 1972–73
Publication date: 30 November 1972
Price: £12.95
Published by: Sampson Low, Marston & Co., Ltd.

NPC Book:

Traffic Through British Ports

—New NPC survey reveals extra tonnages—

National Ports Council
London

Replies to a questionnaire recently circulated by the National Ports Council in connection with the survey which the Council is currently carrying out of ports not included in the National Dock Labour Scheme have revealed an extra three million tons of traffic not previously included in the regular statistical returns made to the Council by port authorities and other port operators.

The Council's latest **Digest of Port Statistics,*** published today, states that 59 additional ports and wharves which had not previously made a statistical return to the Council were included in the survey. Nine of these undertakings reported individual traffic levels (in 1971) of 100,000 tons or more per annum—these accounted for an aggregate of 1,931,000 tons, predominantly consisting of limestone rock, aluminum ore, grain and other bulk traffic: all except two of these undertakings handled only their own traffic.

If this 'new' traffic is disregarded, on the basis of past returns the total traffic through ports of Great Britain dropped slightly in 1971 in comparison with 1970—343.2 million tons against 346.6 million tons.

This drop was largely due to a decline of over nine million tons in coastwise movements of coal, and 3.7 million tons in imports of basic materials. Crude petroleum traffic continued to increase—from 102.0 million tons to 107.8 million tons—and there was an increase of 1.5 million tons from 16.8 m. to 18.3 m. in exports of manufactured goods.

The largest decrease in traffic was at ports in the South East, from 117.2 million tons to 110.0 million tons, due to decreases in oil traffic through terminals on the Medway and Thames estuary. Traffic was also down in the North East (from 34.3 million to 32.4 million tons); Yorkshire and Humberside (from 33.3 million tons to 29.9 million tons) and the South West (from 13.7 million to 13.2 million tons). All other regions showed an increase: Wales and Monmouthshire from 61.6 million to 64.3 million tons; North West from 47.1 million to 50.4 million tons; Scotland from 28.4 million to 31.7 million tons; and East Anglia from 9.0 million to 9.3 million tons.

The 1971 traffic through individual major ports (with 1970 figures in brackets) was as follows:

London
52.4 million tons (56.1 million)
Milford Haven
42.5 million tons (40.6 million)
Liverpool
31.3 million tons (28.9 million)
Southampton
27.6 million tons (27.2 million)
Medway
22.3 million tons (26.2 million)
Tees and Hartlepool
21.9 million tons (22.2 million)
Immingham
16.7 million tons (21.6 million)
Clyde
16.4 million tons (14.6 million)
Manchester
16.0 million tons (15.2 million)
Forth
9.2 million tons (8.1 million)
Swansea
6.9 million tons (7.7 million)
Bristol
6.3 million tons (6.5 million)
Newport (Mon)
6.1 million tons (3.1 million)
Tyne
6.0 million tons (7.1 million)
Hull
5.9 million tons (7.1 million)

The 176 tables in this latest issue of the **Digest** cover capital expenditure, labour, goods traffic analysed both on an overseas trading area and commodity basis, and passenger traffic. Information on shipping movements which is normally included in the **Digest** will be issued this year as a separate supplement. 19th December, 1972.

* **Digest of Port Statistics 1972.** Published by the National Ports Council, Commonwealth House 1-19, New Oxford Street, London WC1A 1DZ. Price £5.00.

Cargo Value More Than $5.7 Billion

Ottawa:—The 70,783,000 tons of cargo carried on the St. Lawrence Seaway during the 1971 shipping season had an estimated total commercial value of more than 5.7 billion dollars.

The season, which opened March 29, 1971 and closed January 8, 1972 on the Welland section, was the longest since the Seaway opened in 1959 and saw new cargo tonnage records set on both the Welland and Montreal-Lake Ontario sections.

A report prepared by the Economics and Research Branch of the Authority shows that the cargo moved during the 1971 season had an F.O.B. (Free on Board) value of $5,235,699,474.

The commercial, or C.I.F. (Cost, Insurance & Freight) value was computed by adding 10 per cent to the F.O.B. value for a total of $5,759,-269,421.

Wheat, corn, barley, soybeans, bituminous coal, iron ore, stone, salt, fuel oil, and manufactured iron and steel accounted for over 83 per cent of the 1971 cargo tonnage. Actual commodity values were assigned to these tonnages to compute their F.O.B. values.

Values of the "Other" commodities were determined on the basis of representative samples. These apply to agricultural, mine, manufactured and animal products not specifically listed in the accompanying table.

For the remainder of the commodities, a value was reached by adding a general price level index of 3.4 per cent to estimates which had been made in prior years.

Iron and steel were the most valuable types of commodities carried on the Seaway with 6.3 million tons

having an estimated F.O.B. value of $917,611,028. Iron ore held the top spot in the number of tons moved, with 16,654,795 tons having an F.O.B. value of $217,011,979.

Wheat was in second place with its 10,186,795 tons having an F.O.B. value of $602,141,452 or just over 25 per cent of the total value of all agricultural products shipped through the Seaway.

The 3,645,427 tons of gasoline, fuel oil, lubricating oils and greases and other petroleum products had a combined F.O.B. value of $165,347,-851.

On a per-ton basis, machinery and machines were the most expensive items on the Seaway with an F.O.B. value of $1,788.82 a ton. The 103,-362 tons of this equipment shipped had a total F.O.B. value of $184,-896,013.

Statistical Sources

Vessel transit data is recorded by the Authority on a day-to-day basis and is reported in exact numbers.

Cargo tonnages and commodity statistics are obtained from manifests submitted by vessels up to 14 days after passage. Publication lead time therefore requires minor estimations for certain of these figures.

(The St. Lawrence Seaway Authority Monthly Traffic Review, November)

Bids on Locust Point Project

Baltimore, Md., Dec. 22:—The beginning of construction work at the port of Baltimore's south side Locust Point Marine Terminal moved a step closer to reality today.

The Maryland Port Administration, an agency of the Maryland Department of Transportation, announced an apparent low bid of $1,112,800 for work involving demolition, fill and grading at the South side site. The bid was submitted by the C. J. Langenfelder and Son construction company of Baltimore.

Apparent second lowest bidder for the project was the Regal Construction Company, Inc., of Upper Marlboro, Md., with a tally of $1,157,000.

Commercement of this filling project will be the first step towards the development at south side of a proposed $15 million, three-berth marginal cargo handling terminal. The MPA holds approximately 30 acres of land at the location with riparian rights, a total development area of 125 acres. A marine terminal already exists on the north side of the Locust Point peninsula and has been under MPA operational control since 1964.

The area to be filled at south side is located between the MPA fruit pier and Western Maryland Railway's Pier 9, Port Covington Marine Terminal. Work involved includes the furnishing and placement of approximately 270,000 cubic yards of borrowed excavation along the north shore of the Patapsco River, general grading, removal and disposal of unsuitable materials, installation and maintenance of temporary drainage ditches and structures and other related work.

Among other work to be included in the process of building the new terminal is bulkheading, which is expected to be the next project to come up for bid in three or four months, according to Robert L. Nelson, MPA director of engineering. Additionally, paving, general pier construction and the dredging of a deeper ship channel near the site must be undertaken to complete the facility.

Bids submitted to the MPA for the south side filling work are subject to review and tabulation by the Port Administration's Department of Engineering prior to the official low bidder being announced. The official low bids will then be sent for approval to the State Attorney General, the Maryland Department of Transportation, the Department of Public Improvements, and, finally, to the Board of Public Works, who award the construction contract. (News from Maryland Port Administration)

Tokyo Trade Development Assistant Appointed

Baltimore, Md., December 11:—The Maryland Port Administration today announced the appointment of Kentaro Kaku as a representative of its trade development team in the Far East.

Mr. Kaku will assume his duties as assistant regional manager in the MPA Tokyo office today, Joseph L. Stanton, Maryland Port Administrator, said. He will operate out of the same office as, and serve as assistant to, Tadanobu Watanabe, trade development director—Far East.

The Tokyo office is one of six trade development locations, including three overseas, which the Port Administration, an agency of the Maryland Department of Transportation, maintains outside of Baltimore. The others are in London and Brussels, in Europe; and New York, Pittsburgh and Chicago, stateside. All are under the supervision of Joseph J. Giancola, MPA director of trade development.

Fluent in English as well as Japanese, Mr. Kaku, 38, is a native of Tokyo and a graduate of Hitotsubashi University. In 1957, he joined the Tokyo Keiki Co., Ltd., leaving in 1962 to work for the Nippon States Marine Agency, now known as Nippon Maritime Co., Ltd.

While with Nippon, Mr. Kaku gained an extensive background in the foreign traffic field by handling shipping work both in the field and the office. He was appointed manager of the export department in the company's Osaka office in 1966 and in 1969 was chosen to head the traffic department in Nippon's Yokohama location.

In 1971, the trade and shipping specialist resigned from Nippon to engage in personal activities. Included among his business prior to joining the MPA was software sales for the Univac Computer system.

Mr. Kaku lives with his wife and two sons in Kawasaki City, a suburb of Tokyo.

The addition of Mr. Kaku to the Far East staff is part of an MPA program to secure much needed assistant managers for all of its field offices which do not already have them. The additional personnel provides the port of Baltimore with the necessary sales expertise required for this highly competitive and expanding field. (News from Maryland Port Administration)

New Vice-President

Houston, Texas (Walter P. Moore and Associates Inc.):—Jerry P. Turner, who in his fourteen years as its executive director literally changed the face of the Port of Houston, has joined the firm of

Walter P. Moore & Associates, Inc., Consulting Engineers, as vice president.

Turner left the Port of Houston Authority on September 30th after a career of more than forty years in port construction, operation and administration work here and in Mobile, Alabama. He had previously stepped down as executive director of the Port of Houston in May of 1971 but remained for another year and a half as a special consultant to the Board before leaving to joint the Moore organization.

In his new work he will be encharged primarily with developing, planning and management of port and industrial installations for the Moore firm, which over the last 42 years has served as consulting engineers on some 6500 buildings throughout the nation.

When Turner came to Houston in February of 1957, the public wharves consisted of 19 docks, most of them old, with 15 old transit sheds and a storage shed. When he left last month, the Port Authority had 49 docks, 21 of them brand new and the remainder renovated in first class condition.

Additionally, it has a bulk materials handling plant with two docks—one of Turner's first projects when he took over the reins of the Port—as well as a 6 million bushel grain elevator (compared to 3 million bushel capacity before Turner), 10 new transit sheds, 2 new storage warehouses, miles of new roadways and rail trackage as well as numerous other improvements.

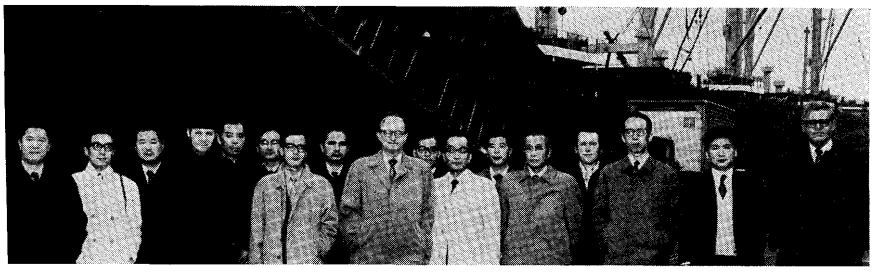
In all Turner directed the planning and construction of more than $80 million worth of improvements at the Port of Houston, and among his more recent was the beginning of the new facility at Barbours Cut at the mouth of Galveston Bay to handle the gigantic new container and barge-carrying vessels now coming into service.

In addition Turner negotiated the purchase and take-over of the 8 wharves of the Anderson, Clayton Company's Long Reach Docks on the southside of the Ship Channel, as well as the port development at Humble Oil and Refining Company's gigantic industrial complex of Bayport just above Clear Lake off Galveston Bay.

He was responsible also for planning and construction of the Houston World Trade Center—the first of its kind in the world and today a model structure in the housing of consulates, steamship agencies, freight forwarders and other related to the maritime industry.

"We consider Jerry Turner just about the top man in the country insofar as port development is concerned, along with industrial plants and facilities", said Walter P. Moore, Chairman of the Board of the firm. "He brings to our firm a knowledge and expertise in these fields that will contribute greatly to our operations."

Among some of the better-known 6500 structural designs of the Moore firm are the Astrodome, Rice Stadium, office buildings for the Houston Natural Gas Co., United Gas Co., Houston Lighting & Power Co. and American General Ins. Co., the Regency Hyatt Hotel, M. D. Anderson and Methodist Hospitals, Astroword, and many buildings at the Universities of Texas, Rice, Houston, A&M and others.



The Japan Container Association sent a survey team studying U.S. Atlantic and Gulf Coast ports to the Port of New Orleans recently. Here the group, accompanied by port and steamship officials, tours the Napoleon Avenue wharf, where much of the port's import tonnage from Japan is handled. The team was under the leadership of Minoru Ashizawa, secretary-general of the Japan Container Association. The group also toured the port's new France Road Container Terminal. Japan is the number one customer among world nations dealing with the Port of New Orleans.

New Commissioner Selected

New Orleans, La., Dec. 15:—John Meghrian, general manager of the New Orleans Division of Todd Shipyards Corporation, has been named by Louisiana Governor Edwin Edwards to serve on the Board of Commissioners of the Port of New Orleans.

A native of New York, Meghrian attended the Business Administration school at City College of New York. After attending Kings Point Marine Academy, he began his career in the marine industry in 1945. He was an engineer on board American flag vessels until 1952, when he became associated with Combustion Engineering Company. In 1958 he joined Todd Shipyards as a quality control engineer at the San Francisco Division. In 1962 he left Todd and went with New York Shipbuilding Corporation in Camden, New Jersey, where he held important positions in Naval Nuclear Construction and in the machinery division. He joined Todd Shipyards in 1967, was named assistant general manager the following year, and in 1970 was named general manager.

Edwards selected Meghrian from a list of three nominees submitted to him by seven New Orleans trade-oriented civic groups. Port Board members receive no salary or remuneration of any kind for their work on the Board. Meghrian succeeds Harvey H. Loumiet, Jr., who resigned from the Board in July of this year. Meghrian both resides and works on the West Bank of the Mississippi River at New Orleans. It is a constitutional requirement of the state that one of the port Board members works and resides on the West Bank.

Meghrian will serve as finance chairman of the Board of Commissioners. Other Board members are Richard B. Montgomery Jr., president; Eads Poitevent, vice-president;

View of The World Trade Center from the Hudson River. Lower Manhattan's famed financial district is to the right of the twin towers. The Trade Center is being constructed by the Port Authority of New York and New Jersey as a new headquarters for international trade.

James E. Smith, secretary, and Frank G. Strachan, treasurer.

Meghrian is married and the father of two sons. He belongs to a number of civic groups, including International House, the Chamber of Commerce, the New Orleans Board of Trade, the Propeller Club, the Plimsoll Club, and the Society of Naval Architects and Marine Engineers. (News from Port of New Orleans)

Old Finger Pier Into Modern Recreational Facility

Philadelphia, Pa., Dec. 15:—Center City's first year-round indoor tennis facility will mark its official opening at noon, Monday, with City and port officials, along with professional tennis celebrities participating in a ribbon cutting ceremony and exhibition tennis match.

The activity will take place at Pier 30 South, formerly an old and under-utilized finger pier which has been dramatically transformed into a modern and beautiful recreational facility.

Pier 30, located at Delaware Avenue and Bainbridge Streets, is adjacent to the sprawling Penn's Landing complex currently underway along the Society Hill waterfront.

Eight championship courts in the fully-enclosed and renovated pier are featured with ultra modern DeVoe lighting and electric heating systems. On the pier's second level there is an attractive viewing lounge along with air conditioned clubhouses with lockers, saunas, showers and a fully-stocked pro shop.

Paul V. Stonerod, Jr., President of Pier 30 Tennis Corporation, a division of Landtect Corporation, City Representative and Director of Commerce, Harry R. Belinger, and Philadelphia Port Corporation Executive Director Irvin J. Good, will officiate at the ribbon cutting.

Following remarks by Mr. Belinger, representing Mayor Frank L. Rizzo, at the ceremony, invited guests, including many leaders of the port community will gather to watch several exhibition doubles matches. Among those scheduled to play are former U.S. Davis Cup and Wimbledon Champion Vic Seixas and the current Wimbledon Veterans Doubles Champion Dick Sorlein, Victoria Tennis Club Pro John

Sheaffer, Deputy City Representative Donald K. Angell and Deputy to the Mayor Michael Wallace.

The new tennis courts will be available to members 16 hours each day, all year-round.

Through a long term lease with the Philadelphia Port Corporation, the Pier 30 developers have spent about $500,000 in upgrading and modernization of the pier. During the past few years it has experienced little use as a facility for waterborne commerce.

"Through the combined efforts of many interested people we have been able to convert the pier which eventually would have been torn down into a viable recreational center," said Frederic A. Potts, President and Chairman of the Board of the Philadelphia Port Corporation.

Mr. Stonerod explained conversion of the pier began after negotiations were successfully concluded with the Port Corporation last August.

"Through the help of the City and port officials, we were able to cut through a great deal of red tape to complete the job quickly without sacrificing quality." Stonerod declared.

Stonerod noted the present facilities can provide membership for more than 2500 tennis enthusiasts.

Stonerod said that George Maguire, popular tennis instructor, formerly head pro at Philadelphia Country Club, will head up the professional staff at Pier 30. (News from Philadelphia Port Corporation)

Vessels Calling on Port

San Diego, Calif., Dec. 19:—Vessels calling on the Port of San Diego the first three weeks of December represent a large number of the world maritime markets and products.

BARGE NEHALEM, U.S. vessel, Sause Brothers Ocean Towing Company, arrived Dec. 8 and discharged 2,659,909 board feet of lumber before returning to Coos Bay, Oregon.

GEIRA, Norwegian flag of Star Terminals Incorporated, arrived Dec. 8 from Philadelphia with 905 tons of newsprint. She departed the next day for Long Beach.

BARGE NESTUCCA, U.S. vessel, Sause Brothers Ocean Towing Company, arrived Dec. 9 from Coos Bay and discharged 2,696,588 board feet of lumber before returning to the Oregon port.

BARGE UT 15, a U.S. flag vessel operated by the California Molasses Company, arrived Dec. 13 and discharged 3,000 tons of molasses. She departed the next day for Los Angeles.

ORIENTAL JADE, of Liberian registry, arrived Dec. 15 from Yokohama. Fifty-six passengers departed and 670 tons of general cargo was offloaded. The ORIENTAL JADE left the next day for Long Beach.

Another vessel, the NANOOSE CARRIER, a Canadian Transport line ship, arrived today, December 19, from Long Beach discharging newsprint and will return to Canada just after Christmas.

And the DOUNG MYUNG, a Korean Shipping Corporation vessel out of South Korea, arrived Dec. 17 from Long Beach. General cargo was unloaded before departing the next day for San Francisco. (Port of San Diego News Release)

RED TAPE TEAM HUDDLES—San Francisco, December 7:—Key players in the game strategy to win stakes totaling $6-plus-billion annually recently conferred in San Francisco. The pot—to cut the estimated costs of processing paperwork to move the nation's annual world trade—is a target of a joint industry-government task force. Representing major participants were John Greene (left), Marine Exchange facilitation chairman (and General Steamship Corporation vice president); Arthur E. Baylis, national director of the National Committee on International Trade Documentation; N. Thomas Harris, Compliance Bureau director, Federal Maritime Commission; and Harold Harriman, chief of the Department of Transportation, Office of Facilitation's key division charged with cutting "red tape". The experts joined with Golden Gate Customs Brokers and Freight Forwarders Association officers and Marine Exchange steamship members to review accomplishments, and to plan 1973 goals for reducing further procedural and documentary bottlenecks still plaguing international commerce. (Marine Exchange of S.F. Region)

Pilot Charges Revised

San Diego, Calif., Nov. 29:—Pilotage charges for ships using the Port of San Diego have been revised, the first such change in over 60 years.

The Board of Port Commissioners of the San Diego Unified Port District voted to revise the rates by making the length of each vessel rather than its draft and net tonnage the basis for charges for services of the four harbor pilots now assigned to San Diego Bay.

The change will mean that each cargo ship will pay an average of $230 for arrival or departure from the harbor, an increase of about $20–$30 over the old rate. The raise in rates will become effective January 1, 1973.

Charges were first established in 1911 with pilotage matters later coming under California jurisdiction. In 1971 responsibility for administration of pilot personnel and operation was shifted to the San Diego Port District.

Current cost of living and the pilot's operating expenses were offer-

POINTING THE WAY TO A BETTER FUTURE—San Francisco, December 15:—George Brokaw (San Francisco District Customs Director), right, assures James J. Burns (Thornley and Pitt), left, that the Customs Officials will do their best to cooperate with Golden Gate Custom Brokers and freight forwarders. Ted L. Rausch (Ted L. Rausch Co.) and Albert Bergesen (Acting Regional Commissioner of Customs) look on. The congenial meeting was held recently at the San Francisco Customs Brokers and Freight Forwarders Association's annual Christmas luncheon at the Red Knight Inn. The association also holds regular professional meetings to consider industry problems and progress. (Marine Exchange of S.F. Region)

ed by the group's spokesman in requesting the increase in charges.

The new rates are comparable to other Pacific Coast ports, but about 15 percent higher than existing charges in Los Angeles and Long Beach. (Port of San Diego News Release)

Land Transaction Arrangements

Seattle, Washington, October 24: —Big news at the Port of Seattle Commission meeting October 24 was approval to proceed with acquisition of the Pier 19 Shell Oil facility on the East Waterway and Harbor Island. This 10.5 acre site with a 970-foot pier is valued at approximately $1.5 million, plus an undetermined amount for tanks, pipes, relocation of the entire business and 2 acres of leased land. Cost of these extra items is being discussed with Shell. This site is needed to connect the Port's 54-acre container terminal on the north side of Pier 19, and Terminal 20 on its south side. The total berth length of the three terminals amounts to 6,056 feet, more than 1.1 miles, about 10 ship lengths, and the whole east side of Harbor Island. Of this total berth length, over 4,000 feet will be designated as full-container terminal. Expansion of the Japan Six Lines' container service, introducing a fourth vessel in a few months, plus the new Russian container service and other new services expected by year's end, have all caused priority development of this segment which has long been on the back burner for programming.

An additional $10 million was approved for expected costs after plans and specs are prepared by the Port for demolition of two older transit sheds at Terminal 20's north end, replacement of its old wooden apron with a concrete apron, and necessary work to permit Shell to continue business for the next several months to two years. This phase will run about $3.4 million. The next phase is demolition of Shell's buildings and tanks, replacement of Pier 19's wooden apron and pier with concrete and additional earthwork again for Shell's pipelines. This phase is pegged at $4.6 million. Lastly, a container crane and three supportive straddle trucks will cost about $2.1 million.

Additional acquisition of sites in the Port's industrial Development District on the Duwamish River was granted in the proposed purchase of 5 acres for $400,000, including uplands and land under water, at Pioneer Marine Yard (Harbor Island Supply), adjacent to Terminal 105. This is the third purchase in this area; two sites were purchased in March, 1972, also adjacent to 105. The marina will be leased back to the former owners until such time as the Port can expand its log loading terminal (105).

Another major land transaction was approved in the Port's lease/sell arrangement with the Coast Guard for Piers 36 and 37. A year's work and $1.1 million is needed to bring these areas up to Coast Guard specs for the berthing of their cutters and ice breakers. If the Port acquires Piers 90/91, the Port would sell Piers 36/37 to the Coast Guard, otherwise a lease arrangement will remain in effect.

Approval was granted to sell Piers 60 and 61 to the City of Seattle for $575,000 for the City's proposed waterfront park which will cover this area plus Piers 57, 58 (City owned) and Pier 59 (under negotiation).

Temporary noise barriers will be built at Pier 86 to shield railroad noise from Queen Anne residents. The experimental barriers will cost $12,000 including monitoring of noise levels.

Sea-Tac Airport took a back seat to waterfront activity this meeting. Authorized was preparation of plans and specs to create an artificial pond in the North Clear Zone for an estimated $260,000 for completion next summer. This pond will replace artificial Evergreen Lake which the Port removed during its expansion program. The promise to replace it will now be kept. The project will be funded 51% by the federal government. The pond is considered a necessity for the residential area's drainage.

The federal grant offer of $4,326,-219 from FAA was accepted for 285 acres of land in the airport development, approach, clear and transition zone areas. FAA involvement is about 51% participation of the total costs.

Next meeting is November 15. (News Release from Port of Seattle)

Japanese Christmas Oranges

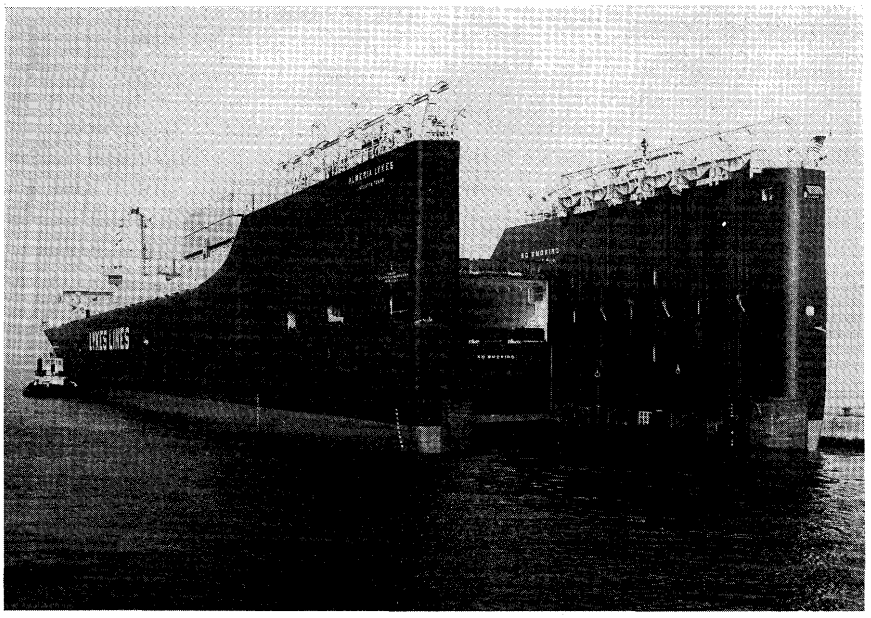
Seattle, Washington, Dec. 8:—The little zipper-skinned Japanese Christmas oranges arrived today—2-1/2 million of them—on the Sea-Land containership "Elizabethport". These "Unshu" mandarin oranges arrived at the Port of Seattle's Terminal 5 from Kobe, Japan, in 17 large vans. This first-of-the-season delivery marks the fifth year these traditional Christmas stocking stuffers have come to Seattle for distribution to the four non-citrus growing states of Washington, Oregon, Idaho and Montana. Federal bans kept the little Unshu from the U.S. for 27 years until the Kimura brothers of Seattle—Minoru, Eiji and Taky—succeeded early in 1968 in getting the restrictions lifted. Minoru and Eiji died early in 1968 after succeeding in their lifelong battle to let the oranges enter the U.S. However, they never saw the first oranges arrive in Seattle in November, 1968. Younger brother Taky today carries on the tradition and he is the sole importer to the U.S. for these thin-skinned sweet and seedless mandarins through his Great Empire Trading Co., Seattle.

Taky is importing 63,000 boxes this year for the four-state distribution—federal restrictions forbid distribution to any other states except Alaska, where oranges are not exactly plentiful, and to Hawaii. This represents 3.2 million oranges or 567,000 lbs. or 284 tons, however you like your statistics.

Three ships will carry this year's total load, all from Kobe. The "Elizabethport" today is first with the most (49,300) boxes, followed soon by the "San Francisco", also a Sea-Land Containership. Next week the "Atlantic Phoenix" of Phoenix Container Lines, brings the final load of 5,000 boxes to the Port's Pier 46.

Greeting the first load today were Taky, his wife Peggy and their 14-month old son Andrew Minoru, named for Taky's late brother. A host of federal agents inspected random samples looking for possible contaminants which are never there. Inspectors represented the U.S. Dept. of Agriculture's animal and plant quarantine division, the U.S. Food & Drug Administration, and the ever present Customs Service.

Kimura said grocers in all four states will have them in ample time for Christmas. (News Release from Port of Seattle)



The Seabee vessel "Almeria Lykes" on the occasion of her visiting the port of Antwerp. (Port of Antwerp Promotion Association)

Antwerp Welcomes Seabee Vessel

Antwerp, 10 November:—Within the framework of its maiden voyage to Western Europe the SEABEE vessel ss Almeria Lykes, of the American shipping company Lykes Bros Steamship C° Inc. called at the port of Antwerp.

On this occasion this new "barge intermodular system", which actually is the combination of the Lash and the container transportation techniques, has been introduced to the Antwerp public.

The Almeria Lykes is the second one in a series of three sister ships. She has a length of 266.7 m, a beam of 32.3 m and a deadweight capacity of 44,300 lt. Her cargo capacity amounts to 38 barges but in place of these barges she can take 1,784 20′ containers as well. The barges are handled by means of a hydraulic lift with a 2,000 t capacity, this in contrast with the Lash-vessels, where the barges are braught on board by means of a gantry.

The barges have a capacity of 863 metric tons. With an interior length of 25 m they can easily be loaded with for instance iron and steel, which is particularly important for a steel-port such as Antwerp.

For the return-voyage to New Orleans the Almeria Lykes takes 17 barges on board, of which 7 in Antwerp, 8 in Hamburg or Bremen and 2 in Le Havre.

In view of the large amount of cargo offered in the port of Antwerp, Mr. Fr. Nemec, President of the Lykes Bros S.C., who, together with Mr. J.G. Tompkins, continental director of the Lykes Lines Agency Inc. and Mr. A. Scheirs, managing director of Ahlers N.V. (Antwerp) presented the new vessel to their guests, stated that the Seabee-vessels will call at the port of Antwerp regularly.

Moreover, Lykes Bros Steamship Co. Inc. has appointed Antwerp as centre of their European organization.

Agent of the Lykes-services for Belgium and Luxemburg is the firm Ahlers N.V. (Antwerp). (News from Port of Antwerp Promotion Association)

Change of Name

London:—Effective 1st January 1973, Dock and Harbour Authorities Association will be known as BRITISH PORTS ASSOCIATION. Address: 3 Queen Square, London WC1N 3AR. Telephone: 61-278 6995/8.

Opening of New Freightliner Terminal

Felixstowe, 28 November:—Today's official opening of the new £200,000 Freightliner Terminal at the Port of Felixstowe marks another significant step in the development of Britain's fastest growing port and completion of the first phase of the Dock Company's current £8 million expansion programme.

Fast liner services linking the terminal with every part of the country will increase handling efficiency and speed throughput.

Daily Freightliner trains connect Felixstowe with Birmingham, Glasgow, London, Manchester, and through the national Freightliner network with all the major industrial areas of the UK. From Felixstowe a high percentage of Freightliner traffic is routed via Willesden, North London, from which 13 daily services radiate to all parts of the British Isles and via the 'landbridge' to Northern Ireland and Eire through Holyhead.

A 30-ton capacity 0-4-0 Morris Crane which spans two new rail tracks and two roadways can transfer up to 30 containers an hour. Container standage areas covering part of 60 acres of land recently acquired by the Dock Company beside the Freightliner Terminal are available, together with a modern container control and documentation centre. The new terminal, which has been built by the Felixstowe Dock & Railway Company for joint operation with Freightliners Limited, is less than 300 yards from the port's main deep sea container berths which already handle traffic for over 50 per cent of operators in the North Atlantic trade, as well as many of the major European lines.

Felixstowe is the twenty-eighth Freightliner terminal to be completed in Britain's national network of purpose-built road/rail container terminals. Feightliners Limited, a company jointly owned by the National Freight Corporation and British Rail, has operated at the Port of Felixstowe since 1968 and the company is confidently expecting their present share of container traffic to grow very rapidly.

Initially, there are six direct train services scheduled in and out of Felixstowe daily. To cope with further traffic demands, the Freightliner terminal has been planned and built to cater for a substantial increase in road/rail traffic during the next few years.

Development of the existing busy facilities for roll on/roll off, containers, general cargo, and bulk liquid products at Felixstowe during the next two years will double the port's total cargo handling capacity to over five million tons a year. (News from Port of Felixstowe)

Britain's Fastest Growing Port

Felixstowe, 28 November:—Containers — some 100,000 of them were shipped through Felixstowe in the past 12 months—have made the Port of Felixstowe famous but they represent only one part of the port's remarkable growth. Other key facilities are being expanded at Felixstowe to cope with the rapidly growing demand from shippers, agents, operators, and other port users. Particular care is being taken to avoid congestion and enhance the port's reputation for speedy, damage-free handling of all types of freight.

New roll on/roll off berths, additional quays for general cargo handling, and development of the oil and chemical storage and handling facilities provided by Felixstowe Tank Developments Limited are planned, together with a 700 ft. extension to the present container quay as part of the current £8 million reclamation and expansion programme.

Container services using the port include over half of the major North Atlantic lines and many leading European operators. A third giant Portainer crane is on order from Paceco-Vickers to equip the container terminal which will soon provide a total of some 2000 feet of quayside berths with additional uninterrupted storage and handling areas.

Major engineering and reclamation work is under way for the Northern development where two new roll on/roll off berths and extensive new quays will handle a variety of general cargoes as well as roll on/roll off vessels.

Improvements to the existing ferry terminal used by the Transport Ferry Service of Atlantic Steam Navigation will soon enable vehicles to be driven on or off the top deck of vessels via a new access ramp without impeding normal ro/ro movement to and from the lower decks.

Significantly, private interests and commercial companies are investing a further £12 million to develop over 150 acres for new warehousing and groupage facilities, cold stores, guarded lorry parks, and a lorry drivers' 'motel' outside the main dock area, bringing the total investment in the port and associated enterprises to well over £30 million since 1960. Felixstowe is Britain's nearest port to Rotterdam and is the leading port of entry for dried fruit and paper, and is among the top five UK ports for many other commodities.

By 1975 Felixstowe is expected to be handling twice its present annual tonnage of cargo and containers bringing the throughput up to five million tons a year. Britain's entry into the Common Market is also likely to create an additional one million tons of exports and imports annually at Felixstowe and the present expansion plans aim to make this extra increase possible while maintaining the port's high standard of service, good human relations, speed of handling, competitive costs and progressive management.

More than £700 million of visible trade flowed through the Port of Felixstowe last year and turnover of the Felixstowe Dock & Railway Company in the year ended June 30 1972 topped £4.3 million.

(Continued on Next Page Bottom)

Address of Mr. John Lunch

Speech in response to the Toast of "The Institute" at the Annual Dinner of the Humber District Branch of the Institute of Freight Forwarders, 30th November, 1972

Gentlemen:

I have been invited by you to respond to the toast to the Institute proposed by our guest of honour, Mr. Philip Chappell—something in which I take the greatest of pleasure.

You will notice that I refer to our guest for whilst I realise that I also am a guest of the Humber District Branch, nevertheless after seven months as President of your Institute I feel that I have earned the right to consider myself one of you.

In one short month we will be saying goodbye to 1972—a significant year and one in which the transport industry has faced considerable problems. However, one thing is certain and that is that 1973 will be equally demanding.

Since I became Director General of the PLA, I have undertaken some extensive foreign travel as part of a policy of seeking business by meeting the customer on his home ground. Indeed, I have only recently returned from an intensive business visit to Australia, New Zealand and South Africa, and I can bring you one dominant message from this visit. I would sum it up in a single phrase—OPTIMISM FOR BRITAIN.

I have never doubted the ability of our nation and I am now convinced that our prospects for a fair share of the potential growth in world trade are excellent—an opinion that is shared by most of our friends abroad. The only people who think that Britain is the Sick Man of Europe are the British—let us expunge the term and never use it again. Problems are very common throughout the free world—inflation, unemployment, industrial trouble, environmental problems. We have no more than our share—and we have successes and opportunities that are respected and indeed envied across the world.

What I find disturbing is the fact that one must visit foreign shores to get such an injection of confidence. It seems to have become a national habit to undersell ourselves—a tendency seemingly encouraged by our news media who so frequently report problems fully ignoring our successes.

Fortunately, people overseas have a healthy respect for Britain and our abilities. While our national habit of under-selling ourselves may be terribly British it seems to me to be a harmful marketing practice if carried too far. If our news media persistently tell us that we are not doing well—is there not a danger that ultimately our overseas buyers will believe this too?

For example, when I was in Australia the press reported well a survey carried out in a Continental country on the rating of leading businesses in the nine new Common Market countries. This showed a clear lead for British industry which had more vigorous and growing businesses than any of the other countries. This was favourably reported in Australia and New Zealand as encouragement for Britain in joining the Common Market. Imagine my astonishment on returning home to find that virtually no-one in Britain knew anything about it at all.

So as we join the enlarged Common Market on 1st January 1973—a historic moment for Britain—I bring you this encouragement from overseas. This confirms my belief that we join the Common Market with every hope of increasing our trade and competing successfully with our European partners in many fields.

Moreover, I believe that this enlarged community, one of the most powerful economic groupings in the world, offers opportunities for increased trade with the rest of the world, that is I look forward to growth in both short-sea trade and deep-sea trade. You as freight forwarders will I know play your part and be quick to seize your opportunities.

In grasping this challenge I urge you not to under-estimate yourselves—your competitors certainly don't. I doubt whether blushing modesty has much place in the business equipment of a nation about to accept one of the biggest economist and commercial challenges of modern times—there are no prizes for good losers.

I believe that in transport matters we in this country are second to none but we must not stand still. The service that you must provide for industry must be extremely professional and beyond reproach, in other words you must maintain and build on the high standards that you have set yourselves.

Gentlemen, our business is transport and we must ensure that the name of the United Kingdom is synonymous with all that is best in modern transport services.

However, be warned, demands made upon you as professionals will be matched by the demands made upon you as managers. Remember that all the sophistication of modern transport technology will fail you if you forget for one moment, that the heart of your business is people. The truth is that technology is not the main problem. The technological problems can be solved—the challenge to our skills lies in dealing successfully and sympathetically with the human problems of rapid change.

The new developments will cause concern and fears for job security—don't underestimate them — your people are your responsibility and

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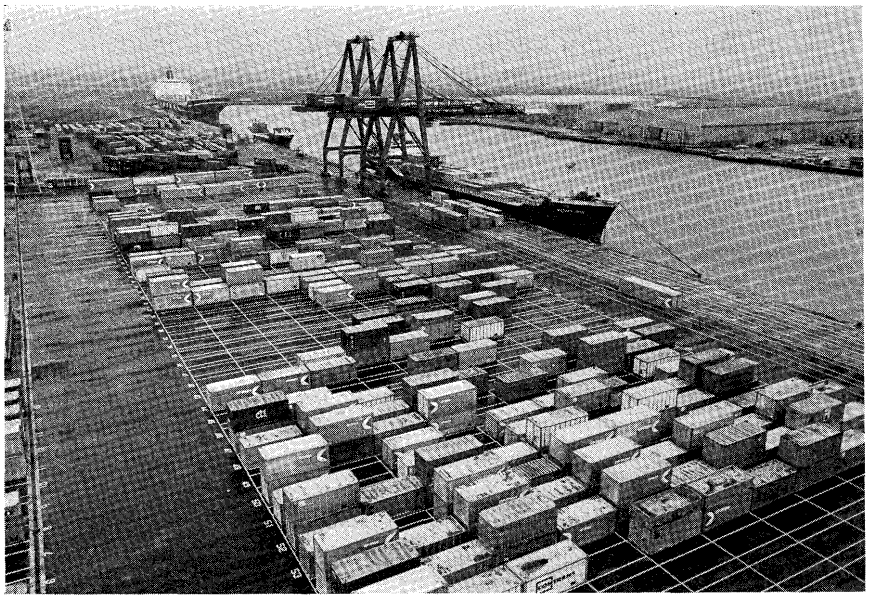
Altogether the company has grown from 8 employees in 1951 to more than 800 employees today, with a further 1200 people working for independent shippers, agents and operators, and allied services within the port complex. (News from Port of Felixstowe)

Tilbury Dock, London, in Action

(See front cover also.)

TILBURY NO. 39 BERTH—OVERSEAS CONTAINERS LIMITED—Container Service. O.C.L. are the long term lessees of this berth which has been designed to handle standard containers at speed and to allow for loading and unloading to be performed concurrently. The berth is the U.K. terminal for their Australia service. Associated Container Transportation Ltd. (2 vessels) and Australian National Lines (1 vessel) also use the terminal making a total of 9 ships on the run. Ultimately, with the inauguration of O.C.L.'s European container service there will be a vessel calling at the berth every 5 days.



TILBURY NO. 41/43 BERTH—(P.L.A. multi-user container berth) The terminal has been provided by the P.L.A. as a multi-user facility for those shipping lines who do not have their own container terminal. Straddle carriers are used to move containers to and from the cranes and to stack them in the stowage area. Delivery to and receipt from road vehicles is by the same method.

you will stand or fall according to your ability to turn your human resources to best account.

Turning to the domestic front, as I have said, 1972 has produced its share of problems and I can tell you that the way in which the leaders of the Institute of Freight Forwarders have handled the situation in taking active steps to make known the Institute's views has brought much credit to the Institute. This is good, and indicative of a vital, conscientious and highly responsible body and I urge you to continue to press your opinion and offer your advice in this way where you feel it is needed and where it will do the most good.

Well gentlemen, there it is—I believe that the future is bright and I believe we can be both encouraged and optimistic.

Let me say in conclusion that professionalism and good business sense will provide the foundations for your future prosperity and it is indeed prosperity for 1973 and the years to follow that I wish our guests here tonight and all members of the Institute. (News from PLA)

New Container Service for Hull

London, 3 November (B.T.D.B.) —A third lift-on/lift-off container service has been won for the Port of Hull and will operate between the British Transport Docks Board's container berth at Queen Elizabeth Dock and Hamburg.

The new service, operated by Streamline, a company formed by the Holland Steamship Co. Ltd. and Roever of Hamburg, will run initially on a three times a fortnight basis. The first vessel to operate on the service will discharge her cargo of 28 containers at Hull on Monday, 6 November.

A spokesman for Streamline said "It is anticipated that with the build up of cargo flowing in both directions, there will be a need to increase the frequency of sailings."

Local agents for the line are Holland Steamship Co. Ltd., Hull.

The other two container services from Queen Elizabeth Dock, Hull are a five times a week service run by North Sea Ferries to Rotterdam, and a twice-weekly service to

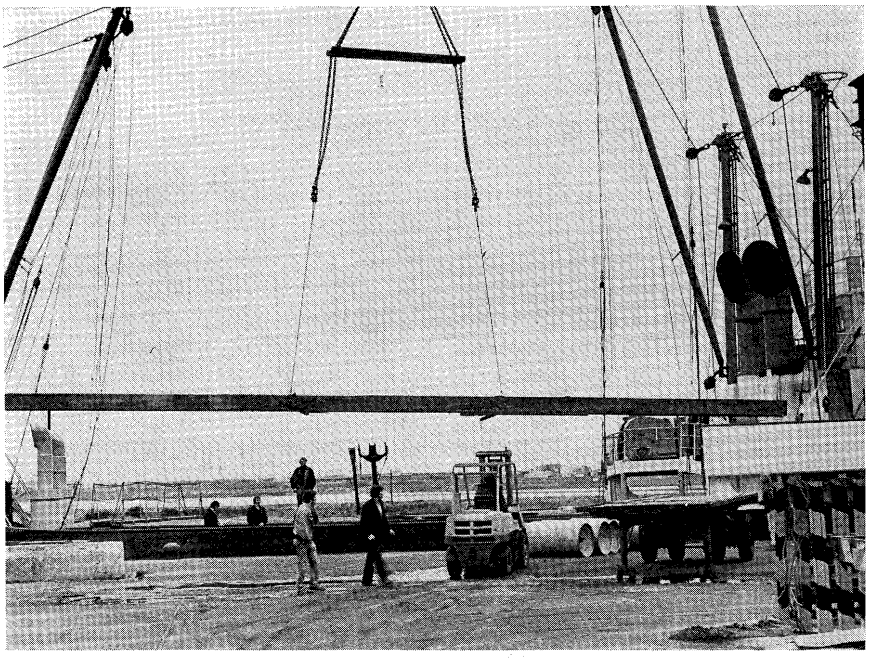
Rostock operated by Deutsche Seerederei.

H.R.H. The Duke of Edinburgh to Visit Research Base at Barry Docks

London, 8 December (B.T.D.B.) —H.R.H. The Duke of Edinburgh is to tour the Natural Environment Research Council's Research Vessel Base at Barry Docks during a visit to Glamorgan on Monday, December 11.

Barry has been the permanent base of the NERC research vessel fleet since January, 1969, when the British Transport Docks Board made available a 4½-acre site and 1,000 ft. of quay on the south side of No. 1 Dock. Since then a modern complex of laboratories, stores, workshops and offices has been constructed by the NERC to service their fleet and opened by the Secretary of State for Wales in September this year.

The Duke will tour the base with its Director, Capt. D.M.H. Stobie, D.S.C., and then inspect the research vessel Edward Forbes at her berth, before leaving the docks to continue with the rest of his programme, which includes the official opening of Glamorgan (Rhoose) Airport.



Manchester:—Included in the cargo of the "Eilenau" 1025 n.r.t. which recently discharged at Runcorn Docks from North German Ports was a 60 foot long pitch pine log weighing between 3 and 4 tonnes. The log which was imported by Mallinson and Eckersley Ltd., of Simmonswood, Kirby, Liverpool has been sold to Cubitts and Gott who are reconstructing a Windmill at Buttrams Mill. Woodbridge, Suffolk for the Department of the Environment. The log was originally shipped from Amapala in Honduras where it had taken some eight months to locate in the Forests. (The Port of Manchester)

New Molten Sulphur Terminal

Manchester:—On Monday 4th December Paktank Storage Company Ltd. will be officially opening their new molten sulphur installation at Runcorn. The storage terminal is linked by pipeline to Runcorn Lay-by, on the banks of the Manchester Ship Canal. Three 10,000 product ton tanks have so far been erected on the 3 acre site, and space is available for an additional tank in due course.

The terminal came on stream on 26th October and, by the end of the year, 52,500 tonnes of molten sulphur from Gdansk, Poland, is due at the site.

The liquid sulphur, which is supplied by Ciech Import and Export of Chemicals Ltd., one of the worlds leading sulphur producers, requires storage at a constant temperature of 275°F.

In the main the sulphur will go to sulphuric acid producers in the Merseyside area. Early in the New Year a new 10,000 tanker is due to enter the service.

This major project by Paktank who also have other installations on the Manchester Ship Canal at Eastham and Ellesmere Port, reflects the confidence being placed in the Port of Manchester's services and facilities by many industrialists engaged in expansion plans in the North-West. (News from The Port of Manchester)

Koschnick Again in Japan

Bremen:—The President of the Bremen Senate, Burgomaster Hans Koschnick, flew to Japan again in November 1972, for consultation with the Japanese Minister of Trade, Hideyo Sasaki, as well as to visit the container terminals in Tokyo and Yokohama—and to hold a speech before the German Chamber of Industry and Commerce, on current economic problems. Koschnick, who, as acting President of the Federal Republic of Germany, greeted and accompanied the reigning Japanese pair on the occasion of their visit to the Federal Republic of Germany in September 1971, was also received in audience by Emperor Hirohito in Tokyo. (Bremen International 12-1972)

Europahafen Gets a New Look

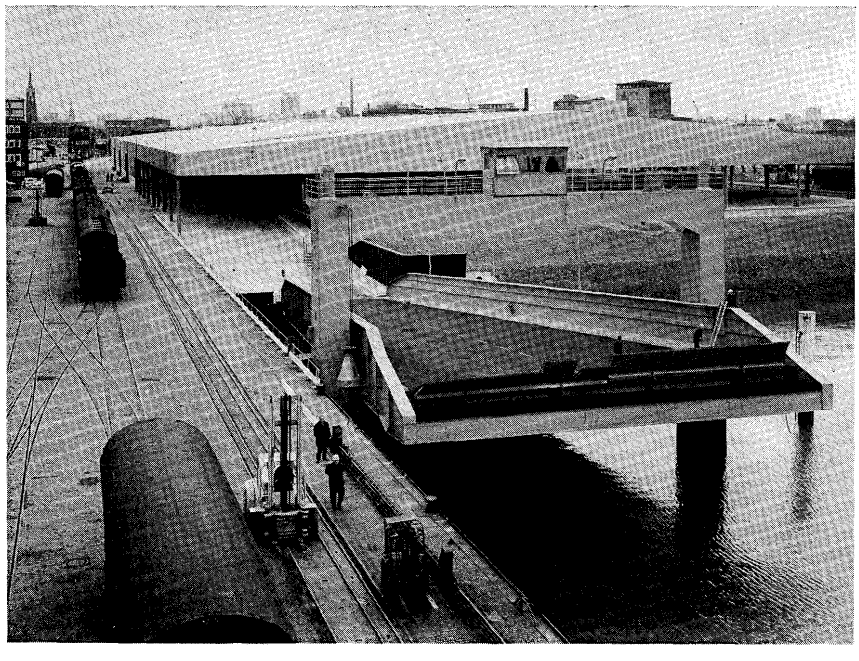
Official opening of the Ro/Ro-Terminal/Six times the amount of cargo handled

via Bremen Bremerhaven

A large number of representatives of public life were present at the official opening of the new roll-on/roll-off terminal in Bremen's Europahafen on 1st December. The new terminal was traditionally transferred by Bremen's Senator for Ports, Shipping and Transport, Oswald Brinkmann, to the Chairman of the Board of Directors of the Bremer Lagerhaus - Gesellschaft, Gerhard Beier.

The terminal, originally an idea initiated by the Argo and Finska shipping companies, was constructed by filling up 300 metres of the Europahafen at the end facing the city. In this way an area of 30.000 square metres was created at the top end of the harbour basin, which was built in 1888. The central point of this area is a shed of 22.000 sq. metres, consisting of a covered part of 13.000 sq. metres and an uncovered part of 9.000 sq. metres. The shed is connected to the stern doors of the ro/ro vessel by means of a descent, which is 115 metres long. Half of this descent is a firm sloping ramp and the other half is a movable bridge.

Mr. Oswald Brinkmann (left) shakes hands with Mr. Gerhard Beier.



The performance per shift is expected to be 2.500 tons, and this means that the ro/ro terminal, which was built at an expense of about 20 million Marks, will contribute towards a further increase in the amount of cargo handled. Such increase in performance have been characteristic of the Ports of Bremen in the last few years. After all, a conventional vessel would require nearly three days for the same amount of cargo.

In a speech made during the official ceremony, Senator Brinkmann mentioned among other things European policy with regard to the ports. The Senator rejected all previous ideas towards a mutual E.E.C. policy for the ports. He said, "Among these ideas we can find, above all, the contention that surplus capacities could be avoided by a central control over investments. It must be stated at this point, quite clearly and unmistakably, that such problems are unknown in the ports of Bremen and Bremerhaven". Instead, Senator Brinkmann stated that it was necessary to harmonize the European transport markets, as, in his opinion, the problems of the ports had their origins in distortions of competition in transport to and from the hinterland.

Before this, Gerhard Beier, speaking to more than 300 guests from home and abroad, had called attention to the enormous speed of technical and economic change today. This rapid progress, Beier said, could be clearly seen in the great amounts of investments that were necessary to be able to meet the requirements of the customers of the

ports. Beier emphasized that one of the foremost tasks of any enterprise was certainly to face up to such a challenge, but, in the background, it was becoming clear just how very necessary the process of adapting to technical/economic developments in sea transport was for the position and reputation of the German economy abroad. Above all, this adaptability was essential in the German ports. At the end of his speech, the Chairman of the Board of Directors of the BLG mentioned the discussions about the independence of the Hanseatic cities. Beier said, "An examination of the organizational structures of the most important ports in the world showed very clearly that an above-average degree of efficiency is present in those ports, in which the cities' themselves bear the political responsibility for the future development of the ports, and in which the contact between these politically responsible cities and the firms involved in the ports is very close. Such ports are those in the Hamburg/Antwerp range. All of us at the Bremer Lagerhaus-Gesellschaft, whether management or workers at this new terminal, will do our very best to underline the results of this examination."

Finally, on behalf of all the guests present, the Director of Finska, Lars Langenskiöld, expressed his thanks for this, as he said, perfect example of a ro/ro terminal. Langenskiöld ended his speech by proposing a toast to the Free Hanseatic City of Bremen. "May all the hopes and wishes which the Ports of Bremen set on this new ro/ro facility be fulfilled".

Bremen, 2nd December, 1972

Ponta Dobela

Lourenço Marques: — OBJECTIVE OF THE JOB: The ocean terminal of Ponta Dobela is destined to complement the port of Lourenço Marques to permit specialized traffic of bulk cargoes, so that it can handle large vessels, at least up to 250,000 tons deadweight.

Lourenço Marques is thus accompanying the world port tendencies for that type of cargo and ships.

The choice of the site is due to the easy obtention of depths compatible with large vessels, very close to the coastline, good meteorological conditions of swell and maritime currents. Besides this, the land accesses will be relatively easy to construct and the geology of the site is also favourable.

Ponta Dobela as it looks today

CHARACTERISTICS

The job consists of a maritime terminal about 1600 metres from the coastline with access by means of a jetty for the conveyor belts for the loading of the ores.

The terminal will be sited at a depth of 27.5 metres at low water maximum spring tides, permitting the berthing of ships of more than the 250,000 tons in view.

On the shore, besides the road and rail accesses, ample space will exist for stock piling, and the handling of the ores from their arrival, stock piling and shipment, will be mostly automatic.

The set up also includes works for the supply of water and electricity, telephones and telex communications, post office, town drainage and sanitation.

Education, health and medical aid are also, as it could not be otherwise, included in the programme.

The possibility is anticipated of the installation handling the shipment of coal, iron ore and phosphates, and will also permit the discharge of petroleum in bulk.

The capacity for annual traffic in the export of ores is 15 million tons and shipment into vessels will be able to be effected at the maximum rate of 10,000 tons per hour.

The capacity of the dumping area is about 2 million tons.

Initially it was anticipated that the cost would be 2 thousand million escudos, but more recent investigations anticipate a lower cost.

PRESENT POSITION

Investigations of the viability and the programming of the undertaking were placed in the hands of a specialized North American firm SOROS ASSOCIATES, who assisted by field work done by specialized departments of the C.F.M. and some contracting firms, carried out all the preparatory investigations which gave the conclusion of the viability of the undertaking.

Basic investigations included specialities of meteorology, Oceanography, topo-hydrography, geology, hydrology, civil; railway and roadway engineering.

The anticipated sequence of investigation and works will also include aeronautics, township planning, communications, sanitary engineering, mechanic and electrotechnics, transport and marine economy.

To this date, besides the firm SOROS ASSOCIATES, the following official services and specialized firms have co-operated with the C.F.M.:

The Meteorological Services of Mozambique
Civil Aeronautical Services.
Mozambique Institute of Scientific Investigation
Compagnie Generale Geophisique
Societé International de Travaux Sous Marins (SITRAM)
Empresa Técnica de Levanta-

Fremantle Port Authority—Capt. R. S. Campbell was appointed Harbour Master as from 13th July 1972. Capt. Campbell joined the Authority's staff in 1951 and he has previously held the positions of Deputy Harbour Master, Chief Pilot and Pilot in the Nautical Division.

mentos Aéroes (ETLAL)
Geotécnica e Minas Ltd.
(News from the Mozambique Harbours Railway and Transport Administration)

New Air-hoist for Pilots

Newcastle, N.S.W. Dec. 20 (Varley Aluminium Pty. Ltd.):—An improved version of the air-hoist used for lifting pilots up the side of high-freeboard vessels, providing greater safety and ease of operation, has been developed by Varley Aluminium Pty. Ltd., of Newscastle, N.S.W., Australia.

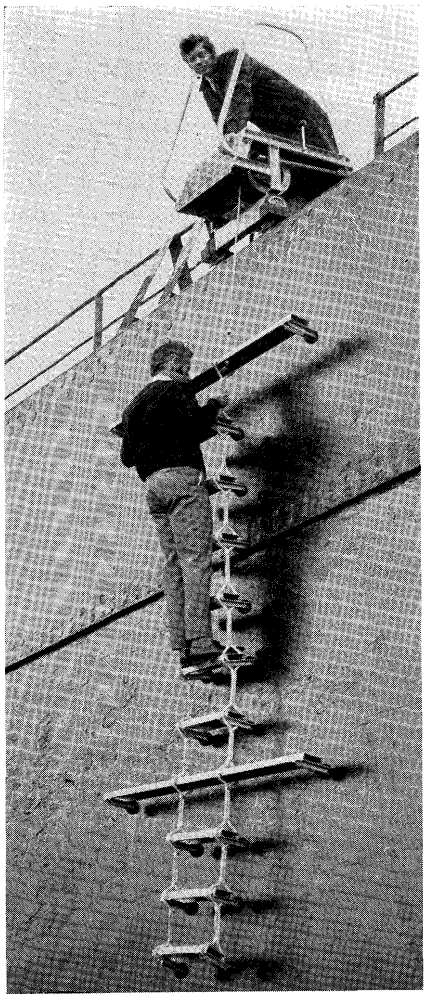
It reduces the physical strain and danger for the pilot, and will enable vessels to comply with the climbing-height limit currently being put forward by the European Pilots' Association.

Called the "Pilot's Pal", the new Varley hoist is designed for maximum strength and reliability, combined with light weight and resistance to the elements, and is approved by the Australian Commonwealth Department of Shipping and Transport.

It operates from the ship's normal air supply, using a Holman "Rotomotor" 1.68 kW (2.25 hp) reversible air motor, through a worm reduction gearbox, giving a maximum lift speed of 21.3 m/min (70 ft /min).

The dual inhaul cables are 20 mm (25/32 in) stainless steel braided wire rope of 2,800 kg (6,150 lb) breaking strain, wound on to cast aluminium grooved drums.

The pilot access ladder is 3 metres (9ft 10 in) long, consisting of 10 specially fabricated non-slip aluminium rungs each 485 mm (19.1 in) wide and spaced 300 mm (11.8 in) apart, with an extended stabilizing rung at the top and the mid-section, and all fitted wih a nylon shell roller at each end to reduce friction.



Varley "Pilot's Pal"

Grip ropes are braided terylene, strongly cleated around the rung ends.

The non-slip aluminium platform and upper step are fitted to a hot-dip galvanized steel support frame, which retracts inboard on runners when not in use.

The Pilot's Pal is supplied with 18 metres (59 ft) of hose, having a quick-action bayonet connector which couples to the filter/regulator unit for the air motor.

Identification Numbers to be Shown on Boat Registrations

Sydney, 4th December:—Details of the serial numbers of engines and the numbers or marks used for the identification of hulls of vessels will be required in future to be shown on applications made to the Maritime Services Board for the registration of vessels in terms of the Water Traffic Regulations—N.S.W.

These details, together with the registered number issued by the Board, will, in turn, be shown on the registration papers.

The system is to commence on and from 1st January, 1973.

This was announced in Sydney to-day by Mr. W. H. Brotherson, President of the Maritime Services Board, who said that, as from that date, applicants for original registration or further registrations will be required to complete a statutory declaration providing the information sought.

He said the application form to be used would include the statutory declaration and the owners of boats with a registration which expires during January will receive official notification, together with the prescribed form, during the next few days.

Mr. Brotherson said that the Board had decided to include details of the numbers and/or markings on the hull and engine or engines following representations by the Police Department.

The information would assist the police in their investigations following loss or theft of a vessel and particularly in cases where an engine had been removed from a vessel.

He added that the information

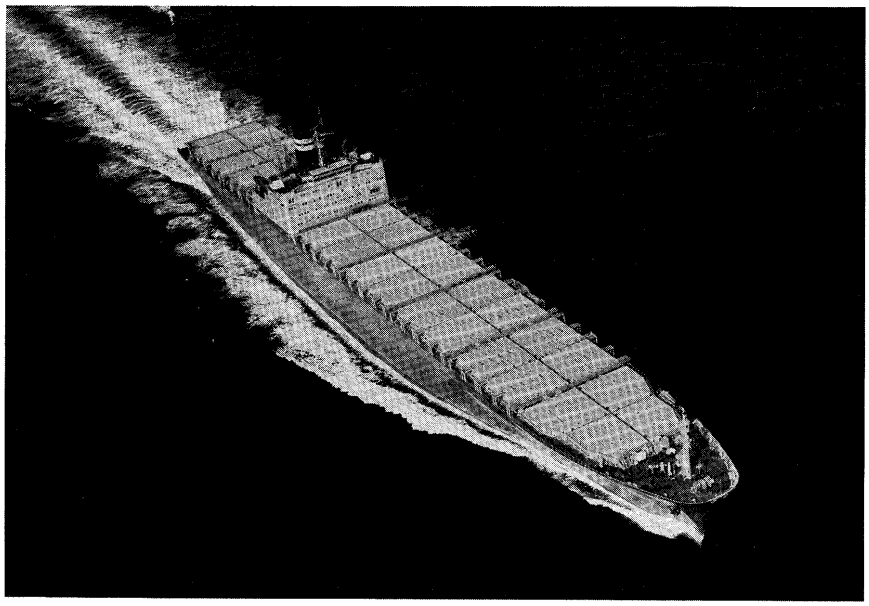
Correction

In the last (January) issue of this magazine, on page 50, the bottom photograph should have been placed in the middle.

would also be of assistance to the police in the tracing of the owners of boats in the event of accidents.

Mr. Brotherson pointed out that it is quite common for boat owners to have more than one engine for use with the one hull and provision is made in the statutory declaration form for listing the details of each engine used in connection with the registered vessel.

He said that, in the event of an engine changing hands during the currency of the registration or of an owner purchasing a new engine for use with a hull he already has in his possession, full details must be furnished to the Board. (The Maritime Services Board of N.S.W.)



Triple-Screw Containership "Toyama"

New LNG Carrier Design

Tokyo, Oct. 16:—IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.), Japan, has succeeded in developing a new design for an LNG (Liquefied Natural Gas) carrier.

The LNG carrier employs a new tank system, the "IHI Flat Tank System", with a completely unique tank design and insulation system as compared with conventional LNG carrier tank systems.

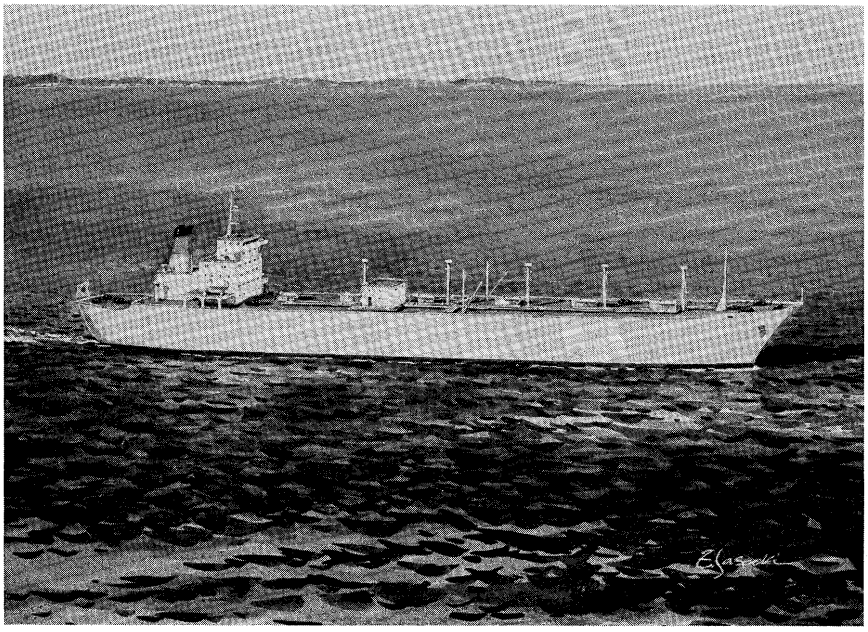
The material used for tanks is aluminum alloy plates, 15 to 25 mm thick, which have enough strength to withstand elongation and ductility at a temperature as low as 162°C below zero. The tank has six flat faces and the sectional form at each corner consists of special fair curves. This tank design was developed so as to fully absorb deflection of the tank by the liquid pressure and contraction of tank resulting from cryogenic temperature of 162°C below zero at each corner with the special sectional form.

The insulation system surrounding the tank has a sufficient insulating capacity and sufficient strength to transmit the tank pressure and dynamic loads to the main hull. A second barrier is also provided as a temperature barrier to protect the inner hull from ductile fracture in case of leakage of LNG from the tank.

Thus, the IHI Flat Tank System has simple construction allowing a complete analysis of stresses, and high reliability of material at cryogenic temperature. Therefore, U.S. Coast Guard approved classification of the system as "Leak-before-failure tank", which is the severest of safety standards for ships.

When compared with conventional Membrane and Self-Standing types, the IHI Flat Tank System has the following features:

1) The plates used for tanks are thicker and of sufficient strength.
2) The welding of joints can be carried out automatically on both side, which gives excellent reliability.
3) Since the welding length is shorter, complete and highly reliable quality control can be performed by X-ray tests.
4) The manufacture and installation of tanks becomes easier. (Nippon P.R. Counsellors, News Release)



LNG carrier designed by IHI

Triple-Screw Containership "Toyama"

Tokyo, December 12:—The 52,200-gt high-speed container-ship "Toyama" was recently delivered at the Tamano Works of Mitsui Ship-

building & Engineering Co., Ltd. to her owner, Wilh Wilhelmsen, Norway.

This vessel is the second 3-diesel engine 3-propeller shaft containership following the "Elbe Maru" for Mitsui O.S.K. Lines which was built at the same yard in March 1972 and is now serving the Europe/Far East route with satisfactory results.

The "Toyama" driven by a main propulsion plant with a combined total output of 78,600 bhp marked a maximum speed of 30.57 knots on her trial runs and has a container loading capacity of 2,208 units. She is one of the 6 containerships to be placed on the Europe/Far East route by the Scan Dutch group. (Mitsui Shipbuilding & Engineering Co., Ltd. Shipyard Bulletin)

Port of Penang Ready to Handle Containers

Penang: — The Penang Port Commission has recently purchased new equipment costing more than $300,000 to equip the Port with adequate facilities for handling containers. The new equipment has had its trial runs and is now ready for operation at Butterworth Wharves. The following items make up the range of container handling items now available at Butterworth to Port users.

(a) One new heavy lift Coles self-propelled, diesel electric, one-man operated mobile crane with unlimited full circle swinging in either direction. The crane has a 40 ft. jib and is capable of lifting loads up till 30 tons.
(b) One Champion tractor for hauling trailers with containers.
(c) Four trailers each with a capacity of 20—23 tons and
(d) One container spreader sling for handling 20 ft. container. One more is currently under construction in the Commission's workshop.

The Penang Port Commission formulated plans as early as 1967 to equip the Port with adequate facilities to meet the container era. In keeping with this objective, berths Nos. 4 and 5 at Butterworth were specially designed to handle container traffic with provision being made for the installation of wharf cranes. With the purchase of the new equipment, containers can now be handled at any of the berths at Butterworth. All the five berths will cater for both feeder and semi-container vessels. The Port of Penang is initially expected to handle these types of vessels only.

A recently published article on container traffic indicates that this port will handle a substantial quantity of cargo in containers during 1973 and this is expected to increase to about 600,000 tons by 1976. It is expected that cargo to be dealt in containers will be mainly made up of freezer and general cargo.

As it is not intended to provide shore cranes at the moment, ships will be required to use their own equipment to load and discharge containers. Containers will be moved from ships' side to a Marshalling Yard by the prime mover and trailers. Stacking and unstacking of the containers at the yard will be done by the heavy lift crane.

As an interim measure, the Marshalling Yard will be located at the site adjacent to the Timber Shed. This area is large enough to handle about 112 containers at any one time. As the volume of containers increases, the 10 acres of land reserved adjacent to godown A.6 will be developed into a container freight station and will incorporate all essential facilities. This will include the provision of a

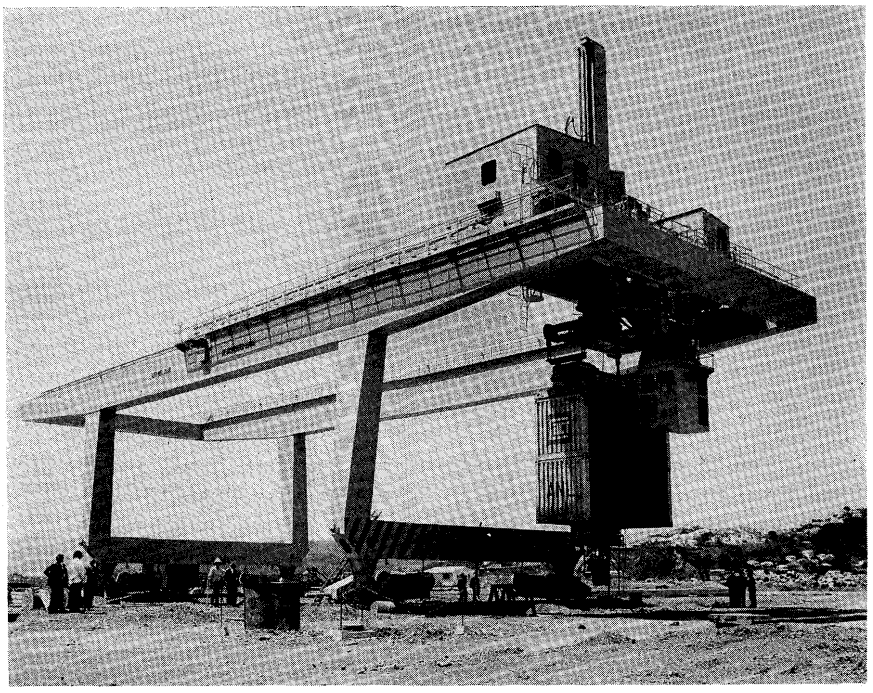
Mr. R. W. Carr (right), Chairman of the Auckland Harbour Board, shown at the November meeting with Mr. L. D. Nathan who had just completed 25 years unbroken membership of this New Zealand port authority to which members are elected every three years. To mark the occasion the Auckland Harbour Board presented Mr. Nathan with a rare print of the first Auckland Anniversary Regatta held at the end of January, 1862. Mr. Nathan, whose grandfather established the family business in the Auckland area in 1840, is a well known New Zealand merchant and yachtsman. He was Chairman of the Auckland Harbour Board from 1955 for two years, is still chairman of the Board's finance committee and has been a member of many special sub-committees. (Auckland, November 30, 1972)

yard office with accommodation for all related departments and a railway siding.

Besides handling containers the heavy lift crane will be also used to handle ordinary loads up till 30 tons. This is in fact a further improvement to facilities provided at Butterworth as prior to the purchase of this crane, the lifting capacity on the shore at Butterworth was restricted to 10 tons only. Loads up to 30 tons in weight can therefore now be handled directly at Butterworth Wharves. (Berita Pelabohan, October, 1972)

Goliath Container Crane

Auckland, N.Z., Dec. 15:—Standing out in dominant bright yellow paint in the container handling area at the Port of Wellington, New Zealand, is the new Stothert & Pitt 32½-ton Goliath 2-6-2 ordered by New Zealand Railways. It weighs a gross 350 tons, straddles six sets of rail tracks between bogeys and can serve an additional two sets on each side via the cantilevers.



New Wellington Goliath container crane successfully passed load tests before being handed over to New Zealand Railways. Main structure was fabricated by Fletcher Bernard-Smith, a leading New Zealand heavy engineering company.

The main structure was fabricated by Fletcher Bernard-Smith in the company's workshops at Otahuhu. The machinery and electrical equipment was supplied by Stothert & Pitt of England through its New Zealand agents, Richardson McCabe & Co. Ltd.

This $1,000,000 crane is the third container crane built by Fletcher Bernard-Smith. The other two are the main container complex quay cranes at Auckland and Wellington.

Erection began on the Wellington site on June 19 and loading tests were done between November 15-25. These involved a 25% overload of 40.2 tons and a stability test of 50.1 tons lifting to the extremes of the cantilevers. They were completed without a hitch.

Dimensions are: 80′ highest point; 164′ span; 43′ width to bogey centres; and 78′ rail span. The full container lift height is 28′, which means there is a capacity for double stacking.

The crane was built on a temporary site and extension rails have yet to be built on which to move it to its permanent avenue of travel. When this is complete, its permanent rail tracks will be extended to serve the whole length of the container area. The eight railway tracks on which the container rolling stock will be shunted will also be laid to the full extent.

In operation, the crane will travel up and down the lines of container railway wagons, either unloading and stacking on one side under the cantilever extension, or loading the wagons in the reverse order. Straddle trucks move the containers for stacking or direct to the main crane used for servicing the ships.

The crane moves on four long-travelling 3-wheel bogeys, each driven by separate geared-up 40 bhp electric motors. There are two separate 40 bhp motors and gearboxes for the cross traverse and a 260 bhp motor and gearbox for the hoist.

The central column and driver's cabin can slew 340° to rotate the load as required and it can also tilt containers 5° endways at either end. Handling capacity is a designed 15 lifts per hour.

The spreader for grabbing the containers is also adjustable electrically and can handle 20, 30 and 40 ft containers. (Ken Placek, G. Hugh Sumpter & Assocs, Auckland 51-796)

40th Conference of H.A.N.Z.

Wellington, N.Z.:—The Harbours Association of New Zealand announces that the Fortieth Conference of the Association will be held at Nelson, New Zealand during the period 13th–16th March 1973 both dates inclusive.

Mr. Stanley Johnson, C.B.E., Managing Director of the British Transport Docks Board, will be the guest speaker.

The President of the Association, Mr. R. K. Trimmer, who is also Chairman of the Northland Harbour Board, extends a warm invitation to IAPH to be represented at the Conference.

Further particulars will be obtained from Mr. R. E. Dawson, Secretary, The Harbours Association of New Zealand, General Buildings, 38/42 Waring Taylor Street, Wellington, 1, New Zealand.

Heading Towards A Record Year in Containers

Singapore, 9th November:—The Port of Singapore is heading for an all time record in the handling of containers and containerized cargo.

The first seven months of this year saw 156,830 tonnes of containerized cargo passing through the port.

This figure represents a 71 per cent increase over the 91,312 tonnes handled for the whole of 1971.

The number of containers handled for the same period also went up to 10,741 compared to the 9,613 last year.

This increase can be attributed to the Port of Singapore Authority's (PSA) newly-commissioned Container Terminal which is fast becoming a major stop for all container ships plying along the Europe-Far East route.

Since the East Lagoon Container Port was opened in June this year, more than a dozen third-generation container ship arrivals have been made to the port by vessels of the Trio Group and ScanDutch.

This included the 59,068 g.r.t. 'Tokyo Bay', reputed to be the world's largest and fastest container ship afloat today.

PSA's Container Port—coming up at a cost of S$137 million—will soon see the entry of yet another container consortium called the Mediterranean Club who are operating from the Mediterranean ports to the Far East.

The Mediterranean Club will inaugurate its service with the maiden call to Singapore of the 'Mediariana' on November 22.

Added to this, scheduled container ship arrivals over the next few months as indicated by their operators show at least one container vessel calling at the Port of Singapore every five days.

The modern and sophisticated terminal—the newest in the Far East and the first in South East Asia—has handled over 3,400 containers since its opening till September. The bulk were 20-foot ISO Containers while 40-footers accounted for 13 per cent.

Facilities at the Container Port comprise 914 metres (3,000 feet) of fully equipped marginal wharves with a minimum depth of 13.41 metres (44 feet) enabling three third generation container ships to berth at the same time.

The first berth is already operational and the second is scheduled to be completed by the end of this year. The third berth should be ready at the end of 1973.

There is also a completed Feeder Berth of 213.36 metres (700 feet) with a minimum depth of 10.36 metres (34 feet) for feeder service vessels.

A back-up area of 40.47 hectares (100 acres) complete with freight stations and ancillary facilities ensure a swift turnround of containers and container ships through the Port.

The three Container Freight Stations provide a total of 20,902.5 sq. metres (225,000 sq. ft.) of covered space for storage and stuffing/unstuffing operations. There are also facilities for refrigerated containers at the Container Port.

In addition, the PSA is developing an Inland Container Depot of 72.84 hectares (180 acres) at Bukit Timah to meet future demands. (Press Release from The Port of Singapore Authority)

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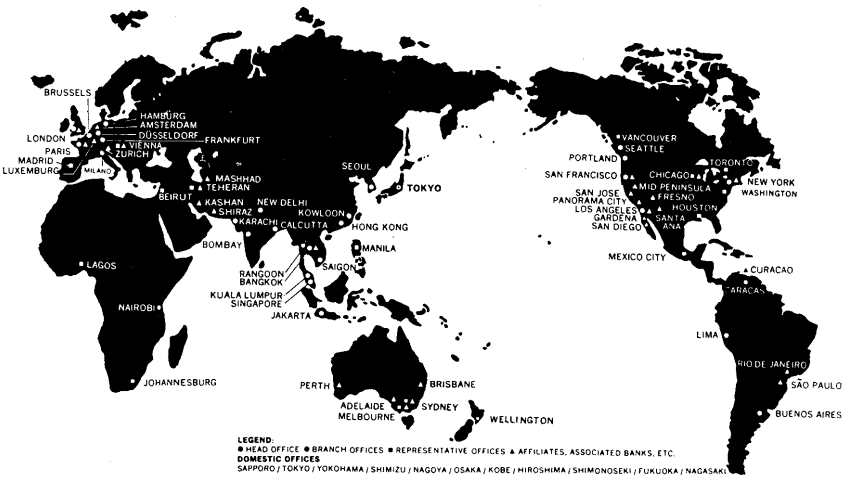

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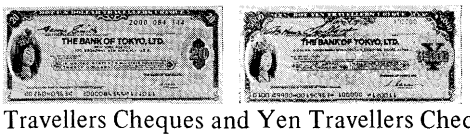

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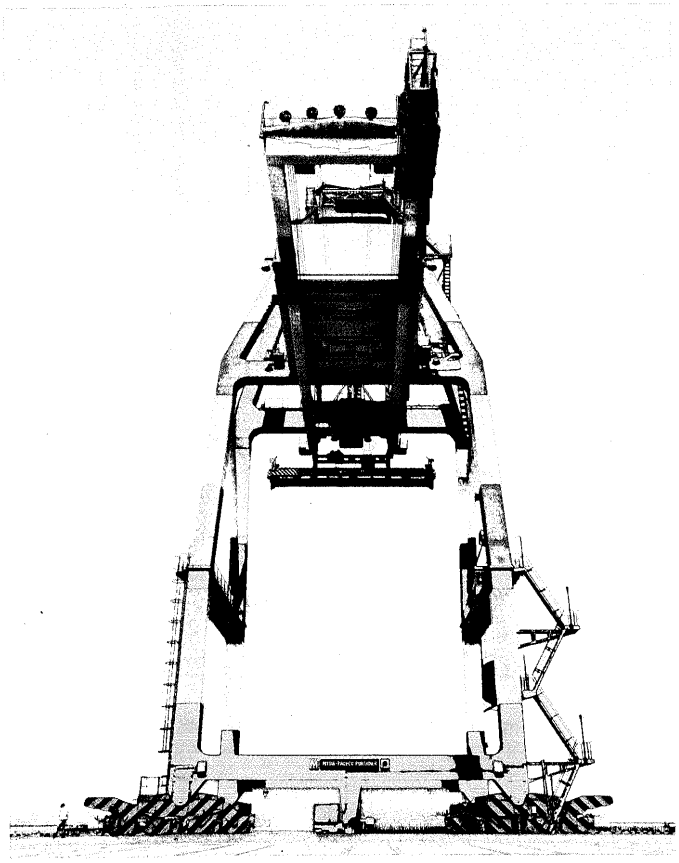
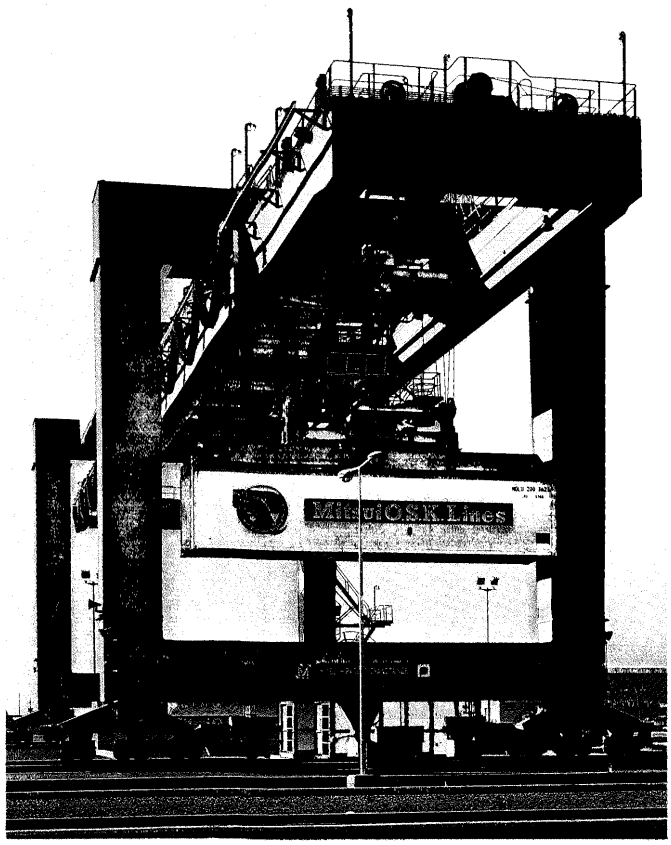
Push-Button Container Terminal by MITSUI-PACECO





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