

PORTS *and* HARBORS

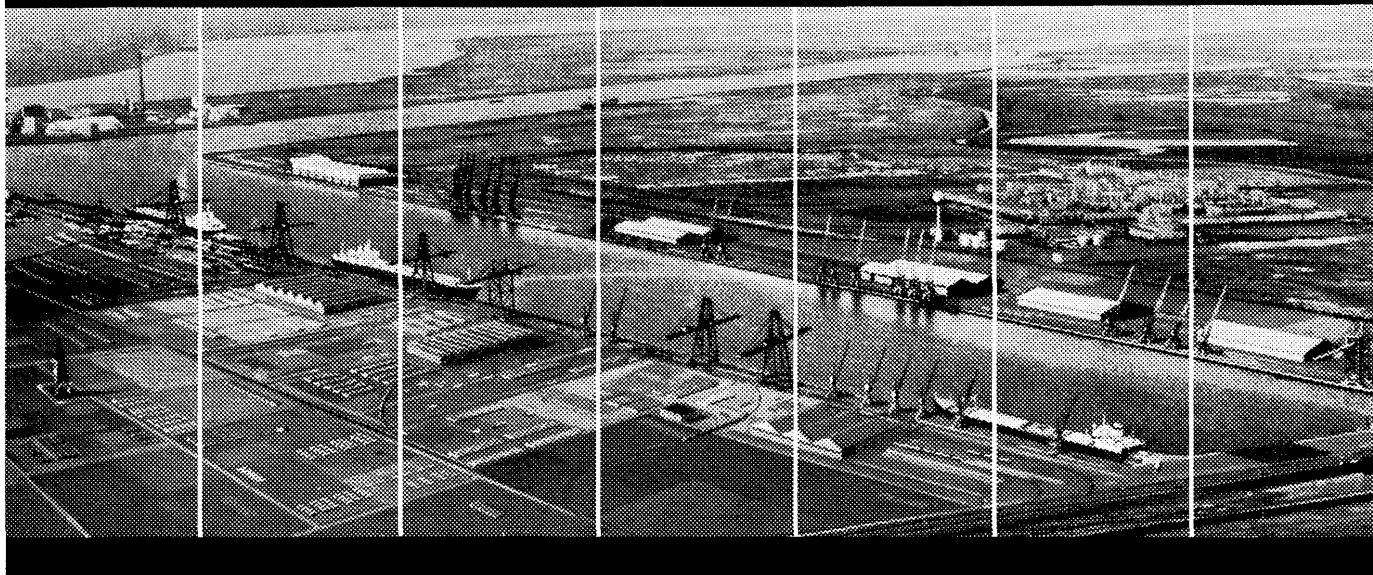
August, 1969 Vol.14, No. 8



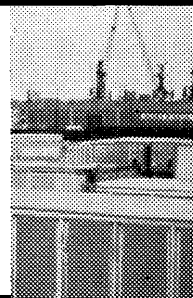
THE INTERNATIONAL ASSOCIATION
OF PORTS AND HARBORS

ANTWERP

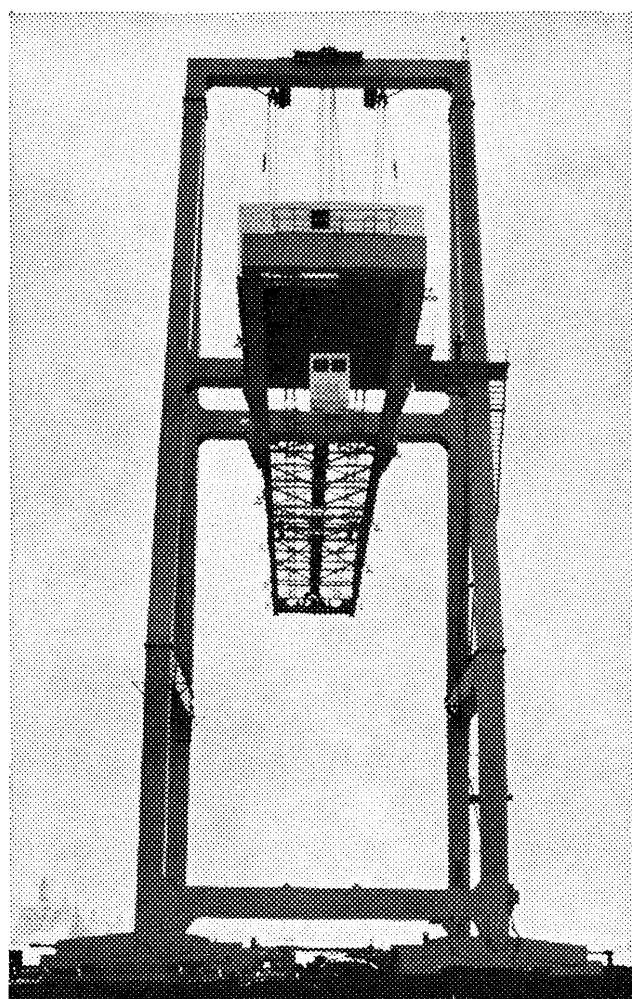
PREPARED FOR A NEW ERA IN MARINE TRANSPORT



- six new container terminals established along Churchill dock
- splendid location with respect to the North Atlantic sea routes
- twenty million tons of general cargo per year
- 12 ro/ro berths
- a vast array of handling equipment



*For information write directly to the
GENERAL MANAGEMENT, PORT OF ANTWERP, City Hall*



DOCKS BOARD PORTS —

Geared to the world of tomorrow

Fast turn-round of ships is essential to profitable operation. To economical freight handling. To trade expansion. And Docks Board port facilities speed the flow.

Roll-on/roll-off — the new, faster way to ship — is in operation at ports like Hull and Immingham, on the East Coast. At Grimsby, too, a terminal has been provided. Southampton has four services in full swing. And King's Lynn docks cater for the only roll-on/roll-off service from Britain to Hamburg.

Lift-on/lift-off, too. Last year Southampton handled thousands of containers by lift-on/lift-off — mostly to the U.S.A. Hull serves the Continent in this way. Container services from Garston and Newport speed cargo to Ireland.

The future: Container handling is a growing thing — and the Docks Board is planning more facilities to meet the demand. At Newport, work was recently completed on a new quay for container traffic, and packaged timber vessels already use part of a £2.5 million development. The first part of the multi-million pound ocean container terminal at Southampton is operational.

Other expansions include additional deep-water berths at Hull as part of the Docks Board's £71 million 5-year development programme; and a new roll-on/roll-off terminal at Swansea for a service to Ireland.

Find out what Docks Board ports can do for you.

Write to:

Marketing Manager, British Transport Docks Board,
Melbury House, Melbury Terrace, London N.W.1. Telephone: 01-486 6621.

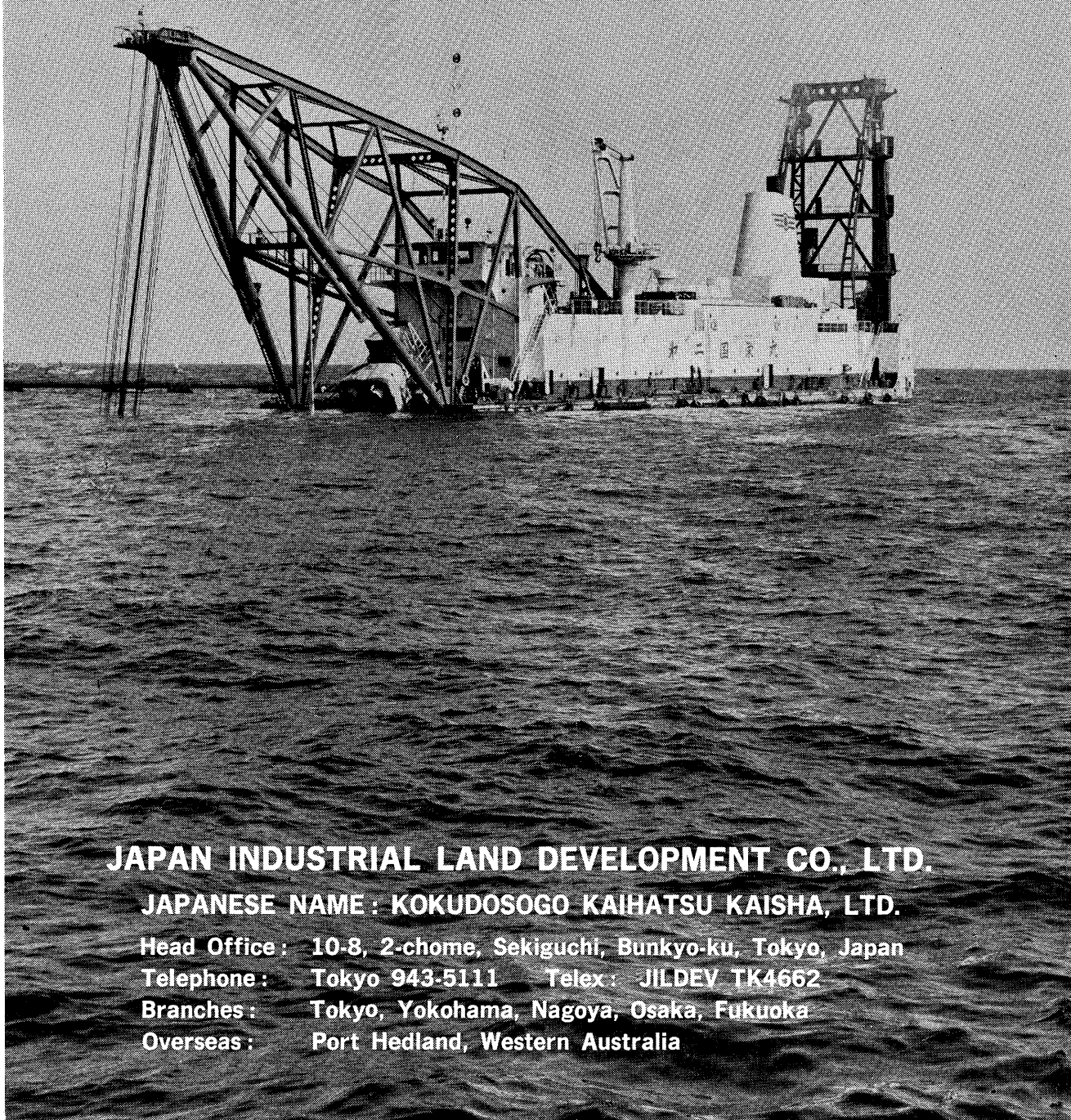
British Transport Docks Board
A NATIONWIDE PORTS SERVICE

HUMBER: HULL, GRIMSBY, IMMINGHAM, GOOLE. **EAST COAST:** KING'S LYNN, LOWESTOFT. **SOUTH COAST:** SOUTHAMPTON, PLYMOUTH. **SOUTH WALES:** NEWPORT, CARDIFF, BARRY, PORT TALBOT, SWANSEA. **WEST COAST:** GARSTON, FLEETWOOD, BARROW, SILLOTH. **SCOTLAND:** AYR, TROON.



Harbor Construction, Dredging, Reclamation

**with world's largest
8,000 P. S. dredgers**



JAPAN INDUSTRIAL LAND DEVELOPMENT CO., LTD.

JAPANESE NAME : KOKUDOSOGO KAIHATSU KAISHA, LTD.

Head Office : 10-8, 2-chome, Sekiguchi, Bunkyo-ku, Tokyo, Japan

Telephone : Tokyo 943-5111 Telex : JILDEV TK4662

Branches : Tokyo, Yokohama, Nagoya, Osaka, Fukuoka

Overseas : Port Hedland, Western Australia

PORTS *and* HARBORS

Published monthly by

The International Association of Ports and Harbors

Consultative Status, N.G.O., United Nations, IMCO

President:

V. G. Swanson
Chairman
Melbourne Harbor Trust
Commissioners

Executive Committee

Chairman:

V. G. Swanson
President, IAPH
Chairman
Melbourne Harbor Trust
Commissioners

Members:

Dr. Chujiro Haraguchi
Immediate Past President, IAPH
Mayor of Kobe

Howard A. Mann
1st Vice President, IAPH
Chairman
National Harbours Board
Ottawa

Ir. J. Den Toom
2nd Vice President, IAPH
Managing Director
Port of Amsterdam

C. Barrillon
Directeur General
Port Autonome de Marseille

Sidney A. Finnis
Chairman
British Transport Docks Board

Thomas P. Guerin
General Manager & Secretary
The Commission of Public Docks
Portland

A. Lyle King
Director
Marine Terminals Dept.
Port of New York Authority

Walter J. Manning
Director, Marine Works
Department of Transport
Canada

Goh Koh Pui
Chairman/General Manager
Port of Singapore Authority

Louis C. Purdey
Executive Director
Toledo-Lucas County Port Authority

Rt. Hon. Viscount Simon
Chairman
Port of London Authority

Gengo Tsuboi
Managing Director
The Japan Shipowners' Association

Head Office:

Kotohira-Kaikan Bldg.
1, Kotohira-cho, Minato-ku,
Tokyo 105, Japan
Tel.: TOKYO (591) 4261
Cable: "IAPHCENTRAL TOKYO"

Secretary General:

Toru Akiyama

Editor: Yoshio Hayashi

August, 1969 Vol. 14, No. 8

CONTENTS

| | Page |
|--|-------|
| Forum: | |
| Cargo Handling & The Impact of Unitised Methods of Conveyance of Cargo By Mr. W. H. Brotherson | 5 |
| Ports: | |
| Singapore, Pivot of South-East Asia The Port of Singapore Authority | 13 |
| Topics: | |
| Port Politics By Ing. J. L. Frias | 17 |
| Thames Outer Estuary Development from The PLA Monthly | 19 |
| Orbiter Probe (International News): | 22~36 |
| IAPH News | 22 |
| Mr. Finnis Passes Away | 22 |
| C.C.C. Press Release Customs Co-Operation Council, Brussels, Belgium | 23 |
| I.A.E.A. Report | 24 |

The Cover:

An approach from the sea showing
Singapore, the economic and
financial hub of South-East Asia.
The Port has one of the finest
natural harbours in this region, and
in 1968 handled over 128 million
nrt of shipping made up of over
32,300 vessels entering and clearing
the Port.

Our Experience In Containerization Plays A Leading Part In The Wide Pacific!



N.Y.K. has abundant experience in container service with Speed, Safety and Sureness and has various kinds of container to meet specific needs, serving between Japan and the U.S.A. with the full containerships: M.S. "HAKONE MARU" and M.S. "HARUNA MARU".

N.Y.K. will containerize Japan/Australia route in October this year, Japan/U.S. Pacific North-West & West Canada route in August next year.

N.Y.K. is also planning to containerize Japan/Europe route and Japan/New York route.



NIPPON YUSEN KAISHA

Head Office : Tokyo

PORTS *and* HARBORS

Forum on Port Problems :



Mr. W. H. Brotherson

Cargo Handling & The Impact of Unitised Methods of Conveyance of Cargo

Including Containerisation, on Ports of the ECAFE Region

By W. H. BROTHERSON

President,

Maritime Services Board of N.S.W.,
Sydney, Australia

It is my intention in this Paper to deal with the progress of unitisation and containerisation in Australia and to refer to the reasons which prompted the rapid development of these modern cargo handling techniques and to touch on the methods being adopted by port administrators in solving the resulting problems. In so doing, I believe I shall make a number of points relative to port development in other countries of the ECAFE region.

In pursuing this course I will be drawing, to a large extent, on personal experience gained in the Port of Sydney which, despite the differences in the nature of trade, port topography and geographic location applying in other ports of Australia, could be regarded as fairly typical.

In mentioning port topography, I might point out that the Port of Sydney, unlike the river ports of Melbourne and Fremantle, the other two container terminal ports in Australia, is a natural harbour and is landlocked with precipitous foreshores. As a result some difficulty is experienced in providing large areas of flat land in the port although the channels within Sydney Harbour are wide and deep and, in other respects, the waterway

is ideal for navigation purposes.

Port Administration in Australia.

Before entering into the subject of this paper, I feel it would be helpful to give you a brief outline of the systems of port administration which operate throughout Australia.

There are six States in the Commonwealth and port administration in each is the responsibility of the State itself. As a result the administration systems vary from State to State.

Generally speaking, the port authorities in New South Wales and South Australia administer all the ports in their respective States and are also the pilotage and navigation authority for the State. The ports in the States of Victoria, Tasmania and Western Australia are administered by individual harbour trusts whilst navigation and pilotage matters come under the jurisdiction of other bodies generally known as Marine Boards. In Queensland a Marine Board is responsible for navigational and pilotage matters throughout the State and is the port authority for the capital city port of Brisbane and a number of other smaller ports. Most of the remaining harbours in the State of Queens-

land other than Brisbane are, however, administered by local harbour boards.

The principal ports of Australia, so far as general cargo is concerned, are those located in the capital city of each State. Running from north to south on the east coast and then across to the west these are—

- (a) Brisbane—capital of the State of Queensland;
- (b) Sydney—capital of the State of New South Wales;
- (c) Melbourne—capital of the State of Victoria;
- (d) Hobart—capital of the State island State of Tasmania;
- (e) Adelaide—capital of the State of South Australia; and
- (f) Fremantle—the port serving Perth, the capital of the State of Western Australia.

The Australian Port Authorities' Association.

As is the practice with port authorities within national groups or geographic areas in other parts of the world, the individual port authorities in Australia hold membership of an association, known as the Australian Port Authorities' Association, with the aim of securing

uniformity of practice and promoting wider knowledge of methods applying in other member ports.

Conferences of the Association are held every two years, and between Conferences, a Permanent Committee of nine members meets at regular intervals to carry out the business of the Association.

Decisions of the Conference are not binding on the member authorities but the aims of the Association are achieved by voluntary co-operation.

Membership fees are based on the gross tonnage of shipping using the port or ports under the control of the member authority.

I mention this purely as background to the Australian scene. It is not directly related to my subject but I feel it will serve to allow a better appreciation of the shipping scene within Australia by having an understanding of the major ports and the method of administration.

AUSTRALIAN COASTAL TRADE.

Reverting to my theme and dealing first with developing trends in Australian coastal shipping, let me say that until comparatively recent times, goods transported by sea were handled in small parcels and were transferred from the ship's hold to the wharf shed, or vice versa, in small sling loads governed by the capacity of the ship's gear.

This method of operation, being labour intensive, resulted in frequent increases in freight rates in order to keep in step with the increased labour costs of the last two decades. As you are no doubt aware, Australia is a high cost labour country and, therefore, any increase in this cost component is of particular importance to us.

At the same time as freight rates were being increased, road and rail transport facilities were being improved and, as a result, coastal shipping could not compete with other forms of transport.

Other factors influencing the decline in sea transport around the coast of Australia were port delays and industrial disturbances, both causing the shipping services to become irregular and, because they were not dependable, less attractive to shippers.

It was not long before the stage

was reached where it was only in the long haul traffic or the trade with the island State of Tasmania that shipping was of any real consequence as a means of cargo transport. Apart from trade with the Western Australian and North Queensland ports there was very little movement of general cargo between mainland ports by shipping. Trade with the island State of Tasmania was, of course, a different matter but even in this trade, some inroads were made by air transport.

Roll-on/roll-off.

The first real evidence of a departure from the conventional methods of handling cargo came in 1959 with the introduction of a vehicle deck ship plying between Melbourne and Tasmania, using the roll-on/roll-off method of operation. The vessel, with its quick turn round time and decreased use of port labour resulted in regularity of services and reduction in handling costs.

A second vehicle deck ship combining roll-on/roll-off with lift-on/lift-off operating methods was introduced to the trade shortly afterwards and since that time others have been brought into service to ply between various Australian ports, notably in South Australia and between Sydney and Tasmania, resulting in a resurgence of coastal shipping to interstate destinations.

It is not only the new vessels, however, but also the improved handling methods which have played an important part in the rejuvenation of the Australian coastal shipping industry.

Restricting myself at this stage to the roll-on/roll-off services and using trade between Sydney and Tasmania as an example, I would point out that apart from commodities which are purely of a bulk nature, such as oil, wheat, caustic and wood pulp, the entire trade between Sydney and Tasmania is now unitised.

At present, there are no containers of the large international 20' x 8' x 8' variety employed in the Sydney/Tasmania trade but there are a large number of small containers used to handle shipments for individual consignees or consignors

and sometimes these are clasped together and are handled into and out of the ship in large units. In addition, a great deal of the trade is handled on large pallets or flats.

The shipping companies concerned do not use wharf areas for the preparation of the units, nor do they operate depots for the distribution of the cargoes handled. Forwarding agents assemble the cargoes in their own depots, which are distributed around the city and near city areas, and deliver the pre-assembled units to the wharves. In many cases, the units are placed on flat wheeled platforms, commonly referred to as "dollies" and the unit and the dolly are loaded on board the ship to move to the destination in this form. In other cases, the unit is taken aboard the ship through the stern ramp by use of large fork lifts and is loaded as a unit in this way.

It is interesting to note that trade with Tasmania has increased substantially since late in 1964 when the first of the vehicle deck vessels plying between Sydney and that State was introduced, but the situation is highlighted when it is pointed out that, prior to 1964, there were 20 small ships serving the trade whereas now there are only four engaged regularly in the service, one of these being employed solely in transporting bulk wood pulp and another being a conventional general cargo vessel brought into service to meet peak periods of demand. This latter vessel is now being converted to a unit load type.

The Port of Melbourne is much closer to Tasmania than Sydney and consequently handles a much larger volume of cargo to Tasmania than the latter port. There are now three vehicle deck vessels engaged in the trade between Melbourne and Tasmania and the total number of vessels formerly employed in the trade has been reduced on a somewhat comparable basis to the reduction previously mentioned as applying to the Sydney/Tasmania service.

The manner in which the tonnage of cargo handled between Melbourne and Tasmanian ports and Sydney and Tasmania since the roll-on/roll-off methods were introduced, is illustrated in the follow-

ing comparative figures showing total trade handled since 1956—

| Year. | Sydney/ Tasmania. '000 tons. | Melbourne/ Tasmania. '000 tons. |
|-------|------------------------------------|---------------------------------------|
| 1956 | 309 | 630 |
| 1957 | 299 | 682 |
| 1958 | 351 | 749 |
| 1959 | 346 | 815 |
| 1960 | 339 | 1,014 |
| 1961 | 305 | 1,080 |
| 1962 | 304 | 1,189 |
| 1963 | 370 | 1,314 |
| 1964 | 422 | 1,449 |
| 1965 | 474 | 1,546 |
| 1966 | 586 | 1,636 |
| 1967 | 579 | 1,764 |

As pointed out, while the trade has been increasing in the manner indicated, the number of vessels has been reduced to a fraction of those formerly employed.

At this stage, it would be of interest to point out that, in Sydney, practically all of the general cargo trade with Tasmania is handled through two berths, one of which handled some 226,000 tons of cargo during the financial year ended 30th June, 1968, and the other handled 181,000 tons. It is anticipated that the annual throughput of this latter berth will be increased to approximately 290,000 tons next year when a vehicular deck vessel to be introduced into the Sydney/New Zealand trade will commence using the same berth. The Australia/New Zealand trade is presently handled by conventional ships.

Containerisation.

The remarkable success achieved by the consolidation of several tons of cargo into a unit in the roll-on/roll-off trade between the mainland of Australia and Tasmania, had its counterpart in the decision of an Australian Shipping Company, Associated Steamships Pty. Ltd., to introduce a container service into the comparatively long haul route between Melbourne and Fremantle, a distance of some 2,000 sea miles.

The vessel, the cellular container ship "Koorunga", which first commenced service in 1964, was, in fact, the first ship in the world to be built specially as a cellular container vessel although there were others in service in other parts of the world, notably in the United States, which had been converted for the purpose.

It will be noted, therefore, that a cellular container service has been operating in Australian coastal waters for some four years so the implications of the system are by no means new to the area.

The container concept is, of course, well known now and there is no need for me to explain the principle here.

Associated Steamships Pty. Ltd. will shortly take delivery of two new 10,000 tons (deadweight) container vessels for use in the feeder services carrying containers between the major centres and the terminal ports of Sydney, Melbourne and Fremantle. This is a matter I will deal with in more detail later but at this stage I would point out that the vessels, apart from handling this overseas trade will also be used to carry interstate cargo in containers as necessary. In my view the improved interstate service resulting from the introduction of these feeder ships will attract considerable tonnages of interstate cargo now conveyed by other means and do much to regenerate the movement of goods interstate by sea. This view is based on the huge success of the container ship which has been in operation between Melbourne and Fremantle.

Side Port Loading Vessels.

At the present time there are two vessels which have been converted to side port loading, engaged in the service between Australian east coast ports and New Guinea and the Australian National Line is considering the possibility of converting some vessels made redundant following its employment of vehicle deck ships to side port loading with the intention that they be used in the trade between Melbourne, Sydney, Brisbane and North Queensland ports.

The provision of the side port openings enables the speedy loading and discharging of pre-palletised cargo by fork lift, with the resultant reduction in stay in port time and, consequently, handling costs.

Experience gained in the operation of one of these vessels shows that the previous round trip time between Sydney and New Guinea has been reduced from one month to eighteen days.

AUSTRALIAN OVERSEAS TRADE.

Turning from Australia's coastal shipping trade, which I feel is on the threshold of an era of prosperity and growth because of the now emerging cargo handling techniques, particularly by the wider use of containers, let me now deal in general terms with the overseas trade.

Because Australia is an island continent and depends on shipping for the transport of its overseas trade, it has not been subject to the competition from road and rail suffered by the coastal shipping industry. The handling methods, although improved from time to time basically are the same as have been in use over the years and freight rates increased to a degree which exercised the mind of all those in the industry, finally prompting the Federal Government to suggest alternatives. Australia, because of its geographic isolation, is at a disadvantage with most other trading nations located at reasonable distances from its neighbours and consequently freight rates are an important factor in the national economy.

The increases in overseas freight rates, although partly resulting from the higher costs involved in providing and maintaining vessels were substantially brought about by the high labour costs in the shipping operation and it became essential to devise some improved technique for the discharging and loading of ships.

A meeting was convened in Canberra in May, 1966, at which representatives of commerce and the major shipping lines serving Australia attended. This meeting was under the sponsorship of the Commonwealth Government. The question was posed as to whether the interests of all would be served by the introduction of containerisation into the Australian/overseas trade and clear indications emerged that certain interests were receptive, particularly those representing British shipping. Decisions quickly followed which made it clear that containers would become a feature in the Australian overseas scene and, in addition, the unit cargo or Skandia ships, primarily serving Northern Europe, were commissioned and

commenced service.

Unit Load Vessels.

Although both containerisation and unitisation represent major departures from the conventional cargo handling technique, unitisation is the less radical of the two and for this reason, perhaps, made its appearance on the Australian scene first.

Again, it is not intended, nor is it necessary, to describe the operation in detail but let me say that it comes in many forms, all of which are now being practised in the services operating to and from Australia.

The early unit cargo ships were often referred to as Skandia ships and as the name implies, the technique involved in the operation of the ships originated in the Scandinavian trade. The first to visit Australia was operated by the Transatlantic Steamship Co., but other Lines have since introduced similar vessels into various services. There are now 20 unit cargo ships regularly visiting Australian ports with four more scheduled to enter service by June, 1969.

Although arrangements of the various unit cargo vessels are not all identical, essentially they all have open hatches so that the cargo, which is generally contained on a large metal flat, 15' long by 8' wide, can be handled in and out of the ship vertically without the need for man handling and 'tween deck stow. Invariably the cargo is lifted on and off as a unit and this causes the handling rate to be speeded up greatly. It also results in a considerable reduction in turn-round time. Experience in the Port of Sydney, based on surveys I have had conducted, shows that a berth used by a unit cargo vessel is occupied for only 60% of the time it would be needed for a conventional type vessel handling the same tonnage of cargo.

A further advantage relates to the labour content of the operation. Without being precise in this regard, it would be true to say that the total waterside labour force employed in a unit cargo operation would be little more than half that engaged in the handling of the cargo of a conventional ship.

At present, the main trade served

by unit cargo vessels is that with Europe, including the Mediterranean ports. A major item of import into Australia from Scandinavia is paper in reels. This is a commodity considered more suitable for handling in units than in containers and it is this type of consideration which has influenced the Scandinavian operators to develop the unit cargo ships.

Apart from Europe, other services in which unit cargo vessels operate are between Australia and South Africa, East Africa and Japan.

These ships operating in Australian waters carry their own cranes and it is not uncommon to see 20 or 30 containers included as deck cargo.

Of interest is the fact that the latest unit cargo vessels have been designed to permit an increase in their length without great difficulty and, in this way, to convert them to a cellular container operation. This is the answer of the shipping operator to the uncertainty which exists as to the ultimate method of cargo handling likely to prevail.

Vehicle Deck Ships.

Still within the category of a unit load vessel, the vehicle deck ship, although in service for some years in the coastal service, is about to make an appearance in Australia's overseas trade. It is expected that two such vessels will be commissioned early next year in the Australia/New Zealand trade, one operating from Melbourne and the other from Sydney and each serving the North Island of New Zealand.

The two new ships will each be capable of lifting 4,000 tons of unitised cargo in three cargo decks. Loading operations will be over a terminal ramp and through a stern door at the main deck level. Internal cargo lifts of 30 tons capacity will be used to transfer loads from the main to the upper and lower cargo decks and non mobile cargo will be carried on large cargo flats.

The use of cargo lifts to move the goods from the main vehicle deck to the upper and lower decks is a new arrangement devised by the company with a view to eliminating ramps within the vessel.

Still a further move to unitisa-

tion in the overseas trade comes with the Australian National Line concluding an arrangement with Kawasaki Line of Japan under which each of the Companies will introduce a vehicle deck vessel employing the roll-on/roll-off method of loading to be operated as a joint service between the two countries.

When considering vehicle deck vessels in the Japanese trade, it should not be thought that the loading of the vessels will involve goods being carried predominantly on wheeled platforms as is done in many other vehicle deck operations.

These ships will have three cargo decks, one of which is an upper or weather deck, and the others are an upper and lower vehicle deck. Space will be provided on the weather deck for 165 standard 20' x 8' x 8' containers (loaded two high) which will be handled by shore cranes. If the ships were to be fully loaded with containers of this size, the overall capacity would be 560 containers in each ship. Access to the upper vehicle deck will be through a stern ramp and an in-built ramp will serve the lower vehicle deck. However, a hatch on the weather deck will permit loading by shore cranes direct to the upper and lower vehicle decks so that it will be possible to load or unload unitised cargo carried in the vehicle decks simultaneously through the stern door by the use of mobile handling equipment or through the hatch on the weather deck by shore cranes.

In effect, it is a marriage of the unitised roll-on/roll-off and container ship. The Australian National Line has had extensive experience in the operation of vehicle deck vessels and is very confident that this operation provides the advantages of all recent systems in one ship.

Cellular Container Operations.

Apart from the interstate container trade I mentioned earlier as having been in operation since 1964 between Melbourne and Fremantle, and the containers being carried by unit cargo vessels, Australia has not yet had the experience of catering for container ships on a large scale.

Early next year, however, a service using cellular container vessels will be introduced between the United Kingdom and Australia with the first vessel expected to come into

operation in March.

The container trade with the United Kingdom will be handled by two British Consortia formed to embrace the major shipping interests at present operating in this field.

One of the Consortia is known as Overseas Containers (O.C.L.) and the other as Associated Container Transportation Ltd. (A.C.T.)

A total of nine ships will be involved, six operated by O.C.L. and three by A.C.T. In addition, the French shipping company, Messageries Maritimes, has also indicated that it will operate a cellular container ship in conjunction with these nine vessels of the two British Consortia.

The ships of the British Consortia have different dimensions but broadly the specifications are as follows—

Length: 745 feet

Beam: 100 feet

Tonnage: Approximately 27,000

Speed: 21½ knots.

Each of them is capable of carrying approximately 1,100 20' × 8' × 8' containers, some of which will be refrigerated.

An interesting aspect of the operation of the British Consortia is their decision that the overseas container vessels will call only at three ports on the Australian coast, Sydney on the east coast, Melbourne in the south and Fremantle in the west. This will allow the large overseas container vessels to move around the Australian coast quickly and, as a result, it is anticipated that they will each make five or six trips a year compared with the little more than two trips a year generally accepted as the potential of a conventional general cargo ship in the same trade. In other words the heavy capital expenditure involved in the provision of the ship and associated containers will be kept employed to the maximum extent possible, the ship being at sea a great deal more than has been the practice.

Containers originating or destined for States other than those in which the terminal port is located or even for major centres within that State will need to be transported from and to the terminal by other means of transport.

All interests showing an inclination to operate container services, appear to agree that the number of

ports to be visited by large cellular ships should be limited and this point is made by way of information for the benefit of those who may have to face the problems associated with the provision of container terminals.

The means of achieving feeder services from the terminal ports in Australia is not entirely clear at the moment so far as A.C.T., one of the British Consortia, is concerned, the thought being that the containers may well move to or from the feeder port by rail. In the case of O.C.L., however, it has been announced that the feeder services will be undertaken by the coastal container ships of Associated Steamships Pty. Ltd. This Company, as already mentioned, has been operating a cellular container ship service between Melbourne and Fremantle for a number of years and is at present building two large cellular ships for operation around the coast. No doubt other companies operating in Australian waters, such as the Australian National Line and the Union Steamship Company, will introduce shipping services as a supplement to the feeder routes of Associated Steamships Pty. Ltd.

It is also anticipated that cellular container vessels will commence operations between Australia and Japan in 1970, this being apart from the joint service to be operated by the Australian National Line and the Kawasaki Line using vehicle deck vessels carrying containers. The present intention is for three cellular container vessels, owned by Japanese companies, to be introduced into the Japan/Australia trade but it is possible that further vessels owned by companies at present engaged in the Australia/Japan trade will be integrated into the service. It is proposed that the Japanese vessels be capable of carrying 1,000 containers each.

The Farrell Line, which operates between Australia and the east coast of America also plans to convert to container operations in 1970. The tentative plans announced by the company envisage that five container vessels, each equipped to carry 1,000 standard containers, will operate in the service between the east coast of North America and Australia and New Zealand.

Facilities for New Cargo Handling Methods.

I have traversed the various proposals for the introduction of new methods of cargo handling into the overseas trade with Australia involving, as they do, the use of vehicle deck, unit cargo and cellular container ships and the major impact of these new methods, so far as port authorities are concerned, has primarily related to the provision of special port facilities to cater for the changed methods.

In the case of the vehicle deck vessels, using the roll-on/roll-off method, a ramp for stern loading is an obvious necessity. Unit cargo vessels, because of their fast loading and discharging rate, require extensive transit shed accommodation and substantial associated flat land to marshall the unitised cargoes. The cellular container vessel, of course, requires specialised cranes and a large area of land adjacent to the berth for the marshalling of containers.

There is one common factor, however, and this is that whatever type of operation is involved, the wharf deck must be capable of withstanding the heavy axle loadings imposed by mobile equipment used for handling the heavy containers and unit loads.

In the case of the Port of Sydney an axle loading of 100,000 lbs has been adopted as the standard for all new wharf construction.

In fact, it is a point of interest to note that one factor which has caused many of the facilities in a number of ports to become redundant is that relating to the heavy wheel loadings of the new cargo handling methods. Over the years, sling loads have been small and the facilities have invariably been designed to match this type of loading but it becomes evident that the design of the berths has become quickly outmoded by the bulking of general cargo, whether it be in units or containers.

It is not my intention to describe in detail the facilities being provided at the various Australian ports to meet the demands of the newly emerging cargo handling techniques but perhaps I could make a general observation and say that a general

cargo berth to cater for unit cargo vessels and even for modern conventional general cargo vessels should have large areas of associated land. In my view an area of approximately $\frac{3}{4}$ of an acre to every 100 lineal feet of wharf face, exclusive of internal roads and other non-productive areas, should suffice.

In addition, with the unit cargo vessel, it is more and more necessary that a large cargo shed be provided, having regard to the fast loading and discharging rate of the vessels. In Sydney, three new single span sheds have been provided, each being 500' long by 150' wide and these have proved to be very satisfactory for the type of vessel now in service.

A number of surveys into the operating rate of unit cargo ships have disclosed that the berths referred to are capable of a maximum throughput of 175,000 tons per annum when used by conventional ships, but have a throughput of 225,000 tons per annum when used by unit cargo vessels. By contrast, a container terminal has an annual throughput of 1,000,000 tons.

The use of wharfage space to full advantage relies, to a great extent, on the speedy delivery of goods from the wharf and the figures I have quoted are based on a less than ideal situation in Sydney where some delay in the clearing of wharf sheds has become evident because road vehicles have been operating only during normal daytime working hours.

The Australian Chamber of Shipping is working on this problem now but a survey by the Board indicates that, if road transport worked over a broader spread of hours, the berths to which I referred previously as being capable of a throughput of 225,000 tons per year, would be capable of handling 275,000 tons when used by unit cargo ships. The impact of the reduced rate of deliveries on the provision of costly berths is obvious.

It is relevant to point out that in terms of the policy adopted some years ago by the Australian Port Authorities' Association, storage charges are made on goods which remain on wharf premises beyond a given period of time following the final discharge of a ship. This demurrage charge, when applied gen-

erally, has the effect of penalising owners who do not remove cargo from the wharf in a reasonable period and although revenue accrues as a result of this charge, the port authority is best served by the quick clearance of goods from the wharf and the concentrated use of the costly facilities.

In the case of port installations for the handling of cellular container vessels, there are two schools of thought so far as one aspect of the operation is concerned. One school favours the depot or freight station, where the containers are packed and unpacked, being adjacent to the terminal where the containers are marshalled after being discharged or prior to shipment, whilst the other prefers the depot being removed from the port area to a centre adjacent to the main source of trade, that is, in the area where the importers and exporters are grouped.

It must be conceded, of course, that the geographic location of industry in relation to the port in the various countries would have a great bearing on the choice in this regard.

In Australia the facilities being provided by the port authorities for the two Consortia about to enter the Australia/U.K. container trade, and by the Consortia themselves, provide for the depot and terminal being in separate locations. In Fremantle, where a common depot will serve both Consortia and in Melbourne where two separate depots will be established, they are in close proximity to the wharfage area but in Sydney the Consortia have each established depots at a distance of some twelve miles from the port. The wharfage area is used as a container terminal only and loose goods are not handled there. The Sydney depots are linked to the terminal by rail and about 50% of the containers will arrive at or be taken from the terminal by this means. The remaining 50% will comprise full container lots going direct from terminal to store or store to terminal in the case of exports.

In Sydney and Melbourne, both the British Consortia will operate through terminals controlled by Seatainer Terminals Limited, a com-

pany specially set up for the purpose. The policy of the company is to use the terminal area for high density stacking of containers up to five high.

Ships will be served by shore based cranes with a capacity of 45 tons and designed to lift two 20' \times 8' \times 8' containers simultaneously. With a realistic operating cycle of 12½ lifts per hour, the cranes will be able to lift 25 on and 25 off per hour—a total handling rate of 50 containers per hour.

The crane will move containers to a point where they will be collected by mechanical equipment and moved within the influence of a gantry crane which will be used to stack them in the manner indicated.

It will be realised that this high stacking of containers at the wharf terminals is not practised in other parts of the world but the major British operators intend using the method in the British terminal ports as well as those in Australia.

Some critics have claimed that confusion could result from this method of container stacking but essentially the same system has been in use for some years in the container service operating interstate between Melbourne and Fremantle in Australia. The Company operating this service is a partner in Seatainer Terminals Ltd., the terminal company for the British Consortia in Australia, and there is no doubt that because of its experience, the system will produce a successful and economic operation.

Essentially, the shipping plan is arranged in the terminal area and the stow of the ship is simulated there before the ship arrives, the containers on shore being stacked so that the first container lifted goes to the lower hold and so on. The high stacking of the containers close to the ship eliminates a great deal of the time spent in transporting containers over a large area of land to bring them to the side of the ship or take them away from it ready for delivery to an importer.

So far as port authorities are concerned, a great deal of benefit can accrue from such a system as in most areas port land is either very scarce or expensive to create. A great deal of interest will be created in seeing this new method in opera-

tion.

An aspect of advantage to the operator relates to the rental commitment he needs to meet so far as terminal operation is concerned.

In Sydney the major leased terminal has an area of 12 acres and the rental becomes minimum when compared with the very large areas employed in many other parts of the world. Could it be that much of the rental paid for these lands is unwarranted when one imagines the containers scattered one and sometimes no more than two high over a vast area of high cost land.

Finance.

It was mentioned earlier that the high port labour content in the overall movement of goods to and from Australia by sea has been responsible, to a large extent, for regular increases in freight rates. It was announced recently, however, that shipping freight rates on certain of Australia's exports to Britain and Europe are to be reduced, the rates on wool by 4½% and on refrigerated cargoes such as meat, dairy products, eggs, etc., by 2%. It is a point of interest to note that this adjustment in freight rates marks the first occasion that they have been reduced since the war.

The freight rates between Australia and the United Kingdom and European ports are adjusted at regular intervals following negotiations between representatives of shipowners in the Australia to Europe Shipping Conference and the Federal Exporters Overseas Transport Committee.

In announcing the recent reduction in freight rates, it was stated that a system of rationalisation introduced a couple of years ago to obviate conventional cargo ships calling at the same port to compete for cargoes offering and the increase in the number of unit cargo vessels introduced to the service had brought about the reduction but, without doubt, a factor making this rationalisation possible has been the modernisation of port facilities to handle the larger tonnages of cargo discharged or loaded from the conventional vessels and to meet the rapid movement of cargo with the use of unit cargo ships. Port authorities in Australia, together with the shipping interests, have risen to

the occasion and in many cases the streamlining of administration and controls within port areas has facilitated the movement of goods through port areas.

In the early discussion as to the possible reduction in freight rates which might result from the introduction of container ships into Australia's overseas services, ship owners have generally taken the view that it cannot be expected that there be early dramatic reductions because of the number of redundant ships resulting from the introduction of the new and costly container ships and because of the vast capital expenditure involved in the introduction of the new system. They have said, however, that it can be expected that at least freight rates will become stabilised and that reductions could be considered at a later date.

Much the same attitude must be adopted by port authorities which are committed to very heavy expenditure in constructing container facilities for these vessels.

It is true that these new facilities when used intensively by fast operating ships, such as the unit cargo or container carriers, have a greater throughput than those which have been used to cater for the slower conventional cargo handling operators. However, in many ports the existing facilities would normally be serviceable as wharf units for many more years but they have become redundant and are being replaced, with the heavy capital expenditure involved in such replacements simply because of the needs of change. Apart from the obvious difficulty associated with the raising of new capital, invariably there is no appreciable increase in volume of trade and the new and the old capital invested in the redundant structures then require to be serviced from the traditional sources — charges on goods and ships.

Because of its reducing commitment to build and maintain a large number of wharves in a port, the port authority, like the ship owner, would see its financial obligations stabilising as time goes on and consequently port charges would do likewise but this is in the future rather than the present.

The immediate problem is to fi-

nance the facilities needed for the emerging cargo handling techniques.

Because of the wide variation in costs in different parts of the world, chiefly because of the labour factor, it would serve no useful purpose if I were to detail the costs involved in providing the various types of facilities in Australia.

It is relevant to say, however, that the ports in Australia, unlike some in other parts of the world where port facilities are provided as a means of attracting business to a particular city or State, are conducted in such a way that it is expected that those using the port facilities should meet the cost of their provision.

The Australian port authorities charge wharfage or harbour rates on goods handled over the wharves, this charge being levied on the owners of the goods, and the ship owners pay tonnage rates based upon the tonnage of the vessel and the length of time it occupies a particular berth. In addition, should a ship operator desire the exclusive use of a particular facility, invariably he is expected to pay an economic rental based on the value of the facility.

SUMMARY.

It has been my endeavour to give an impression of the Australian scene as it exists at the moment, but I feel it is incumbent upon me to try and relate our experiences in Australia to what could well happen in the near future in other ports of the ECAFE region if it is not, in fact, already happening.

It may well be that the reasons I have advanced for the introduction into the coastal trade of Australia of the vehicle deck ship, the unit cargo type and the cellular container ships to overcome such things as the high cost of port labour, do not exist to the same extent in other ECAFE ports but it is most probable that these ports will be required to provide facilities for the unloading of ships which have loaded in ports where conditions such as are applying in Australia prevail.

In other words, the facilities required for the new methods of cargo handling are required virtually at both ends of the trade since the means by which the ship is loaded

with its heavy units need to be duplicated at the point of discharge.

I do not think there can be any doubt that the use of cellular container ships will spread but, as is the case in Australia, the number of terminal ports will be restricted, the main factors determining the ports to be selected being geographic location in relation to concentration of markets and the ability of the port to provide the type of facilities required by the vessels.

Generally speaking, it won't be only you, as port administrators, who will decide whether or not your port will become a container terminal port, a container feeder port or a port for the handling of unitised cargoes. This will also be the function of the shipping operators. At the same time, it would be well to have all the possibilities in mind and to plan for whatever eventuates.

It is generally accepted that, to be a viable proposition, a container terminal would need to handle a concentration of cargo extending as high as one million tons per year. This need not necessarily be cargo generated in or discharged for ultimate delivery within the immediate hinterland of the port area served by the container terminal but some of it could be transshipment cargo handled by feeder service to some other nearby port. The point I am making, however, is that, in my view, unless it can be seen that there would be a prospect of a port handling a high volume of cargo in container each year, the likelihood of it being selected as a terminal port is remote.

As I mentioned earlier, the provision of a container terminal is a costly undertaking and, by way of illustration, I could point out that one item, the crane to be installed by my Board, will involve an expenditure of some \$800,000.

Nominally, one million tons of cargo would be represented by approximately 50,000 container movements per annum and, when one considers that it is possible during 20 hours of one day to handle 1,000 containers on and off a ship, in accordance with the crane cycle I referred to earlier, it follows that the crane need only be operated for 50 days in each year, or, an average of one day per week in handling this

volume of cargo.

In other words, even ignoring the heavy overhead costs of operating the crane, it will be necessary, if the operation is to embrace only 50,000 containers per year, to charge an amount of approximately \$1 per container to service the capital involved in the provision of a crane which is only one element of a container facility. To contemplate a minor container operation in such circumstances would not be economically realistic.

If, however, it is determined that a port is to become a container terminal port and consideration is being given to the facilities needed, it could be borne in mind that, although it is planned in Australia to stack containers up to five high in the terminal area, this can only be achieved by the use of sophisticated equipment. In Sydney, where a second terminal area is being provided to meet the requirements of other operators who have not yet indicated firm requirements and who, it is anticipated, would not handle sufficient trade to warrant the establishment of an exclusive use terminal, facilities are being provided which will only involve the stacking of containers two high. In this case it is planned to use a side loader for terminal purposes.

In order to achieve a throughput of the order of one million tons per year, and assuming that the inward and outward trade is evenly divided with each container holding a nominal 20 manifest tons of cargo, it will be seen that the terminal area must be capable of accepting 500 inward containers and 500 outward containers each week. There is the need, however, to handle some empty containers and we can assume that in round figures it would be necessary to accommodate say 650 containers in and 650 out per week.

On this basis, and without going into a lot of detail, the requirements of a container terminal would be served by allowing a wharf face of 850 ft. in length (having regard to the size of the ships now intended for the Australian trade) and an apron 125 ft. deep on which the wharf crane moves, thus providing an area approximating 2½ acres for the apron. A stacking area of some six to eight acres on which

containers would be stacked two or more high, depending on throughput, would also be required so that the total area of the terminal, including the land embraced in the apron, would be of the order of eight to ten acres.

To this, however, must be added the depot area. It could be located at some distance from the port, if rail and road facilities are adequate, as is the case in the Port of Sydney, but otherwise an additional area of land will be required in proximity to the terminal for this purpose. Obviously, the needs of the depot will vary according to the trade and, in Australia, as cellular ships have not as yet been operating in the overseas trade, it is difficult to be precise in regard to the depot requirements.

I feel that it is fair to say, however, that the needs of the depot will gradually diminish as time goes on. This has been the general experience in other parts of the world where depots have been operated over a few years.

Initially, many business establishments will not be geared to handle containers and in these circumstances considerable tonnages of cargo which otherwise would be carried in containers on a store-to-store basis, will need to be processed through depots. In addition, a great deal of packaging material at present in use is not of a module which can be satisfactorily and economically used in the packing of containers but when this, and other teething problems, are overcome, more and more goods will be moving in containers direct from store to store and will not pass through the depots.

It is obvious that the container system provides the greatest benefit when depot handling is eliminated.

As indicated earlier, only a limited number of ports in any area will become container terminal ports but quite a number will fulfill the role of feeder ports. The number of containers these feeder ports will be required to handle will vary and the type of facility needed to service the containers will depend to a large extent on the volume of trade.

In Australia, those capital city ports where considerable numbers of containers will be discharged or loaded but which will not occupy

the role of terminal ports, are providing wharfage with bridge type cranes to handle the containers. These berths vary to only a minor extent from those provided in the major terminal ports as they are, of necessity, fully equipped to cater for the container trade in their capacity as feeder ports.

In the smaller provincial ports, however, the berths being provided for the reception of containers have no special features other than that the wharf decks have sufficient strength to withstand the heavy axle loadings imposed by the mobile equipment transporting the containers and in many instances 26 ton lift wharf cranes are being installed.

So far as facilities for unit cargo ships are concerned, as I mentioned earlier a back-up area of approximately $\frac{3}{4}$ of an acre to each 100 lineal feet of productive wharf face is in my view a desirable feature, particularly as these vessels often handle a limited number of containers. A berth of this type with a length of about 700 feet has been proved, in the Port of Sydney, to have a potential throughput up to 275,000 tons per annum, subject to the effective use of shore-based transport.

The vehicle deck concept, although another form of unitised cargo handling, is becoming increasingly popular with the Australian operators and is a method which, I feel, could have a definite potential in short haul trades.

When used in conjunction with offsite consolidation areas, as is the method employed by the use of forwarding agents in Australia, it does not require excessive amounts of wharfage area. As indicated earlier, one roll-on/roll-off berth in the Port of Sydney will be handling in excess of 290,000 tons per annum and this berth has an area of only $3\frac{1}{2}$ acres. The only essential feature of such a berth, apart from the ramp, is that it have a surface capable of withstanding heavy axle loadings. It follows too that a shed is needed as many of the units are not covered as are containers.

In conclusion, I would like to say that the unitised methods of conveyance of cargo, including containerisation, have made a definite

Singapore, Pivot of South-East Asia

The Port of Singapore Authority

Singapore, an island Republic of 225 square miles with a population of 2 million people, owes much to its strategic position in this region for what it is today.

It is a Port that has grown steadily over the past 150 years. Today, it is an important entrepot centre in South-East Asia and the converging point for ships and cargoes from every corner of the world. It is also one of the largest storing, blending, refining and distributing centres for mineral oil in this region.

Situated at latitude $1^{\circ} 16'N$ and longitude $103^{\circ} 51'E$, the island Republic stands at the gateway between the Indian Ocean and the South China Sea right in the heart of a whole expanse of consumer markets which are backed by a wealth of natural resources and raw materials.

It is fortunate to have a natural deepwater harbour which is navigable throughout the year. Its well-sheltered anchorages and wharf facilities are free from violent winds and other natural hazards making it an ideal Port for international traffic. The Eastern and Western Roads in the Singapore harbour provide unlimited anchorage facilities for vessels of any draft ranging from mammoth tankers and bulk carriers to small cargo ships. Coastal vessels and small harbour

impact on the ports of Australia and I have no doubt that the same impact will be made on other ports of the ECAFE region. It is the responsibility of the port administrator to be ready for these new methods when they manifest themselves and, although the degree of impact will vary from port to port, problems will be inescapable.

I trust that my thoughts on the matter will be of some assistance in meeting these problems.

craft are anchored in the Inner Roads sheltered by a detached mole adjacent to the mouth of the Singapore River.

A stretch of 3 miles of marginal wharves used by some 3,000 vessels every year is operated and maintained by the Port of Singapore Authority. These wharves are capable of accommodating 30 vessels at any time. The majority of the berths have a depth of 33 feet at LWOST.

A new bulk-handling port is being developed by the Economic Development Board (since 1 June 1968 the Jurong Town Corporation) in the north-western sector of the Port in the Damar Laut Channel. This harbour known as the Jurong Wharves serves the new Jurong Industrial Estate situated at the south-west corner of Singapore Island. There are 3,000 feet of deepwater wharves (depth 36 feet) available to shipping. A stretch of 1,260 feet of coastal berths (depth 16 feet) has also been completed. Ancillary shore facilities include some 35,000 sq ft of covered storage and 100,000 sq ft of hardstanding. The Port of Singapore Authority is at present providing the management expertise for various operations including cargo-handling, fire and tug services and police security measures.

At the North and South Piers of the Telok Ayer Coastal Wharves and Lighterage Basin, shallow-drafted vessels of up to 14 feet can moor alongside to load and discharge cargo. Lighterage is a private enterprise and its activities are concentrated mainly in the Basin and the Singapore River. Ships also anchor in both the Inner and Outer Roads for cargo to be worked overside to and from lighters. These lighters help to convey cargo to and from the Telok Ayer Basin and the Singapore River on the banks of which are situated many private



First Phase of the East Lagoon Project, providing four deepwater berths, completed in 1962. The Second Phase covers the construction of a Container Complex, now under way and when ready will provide for two berths for container ships and a crossberth for feeder service. The first container berth together with the feeder berth is due to be completed by the end of 1970 and the remaining container berth a year later.—The Port of Singapore Authority

warehouses. Transshipment cargoes are also frequently interchanged by means of lighters between the Roads and the PSA wharves.

There is a total of 17 marine terminal berths owned and operated by 5 of the world's largest oil companies in the Port. The maximum loaded draughts at these berths range from 36 feet to 45 feet at LWOST. Three of these 5 companies have refineries in Singapore while another company is in the process of constructing a fourth refinery.

Singapore is also preparing to handle the 200,000 dwt ton plus tankers and 2 mooring systems are being built to accommodate them. One of these schemes, a conventional buoy mooring system, will be completed by the end of the year and the first tanker is expected in

early 1970 with its first load of crude for a leading refinery in the Republic.

Shipbuilding/shiprepairs is another important industry of the Port and there are now shipyards in Singapore capable of drydocking vessels of up to 90,000 dwt and building ships of up to 6,000 dwt. One shiprepair yard is already in the process of constructing a drydock capable of handling tankers of up to 200,000 dwt.

The Port of Singapore Authority

It was on 1 April 1964 when the Port of Singapore Authority was established to control and regulate navigation and shipping in the whole Port Area. This statutory body under the control of 14 members (all of whom are appointed by the Minister) took over the func-

tions previously provided by the Singapore Harbour Board as well as the administration of approximately 125 square miles of water within Port Limits.

Subject to the various provisions in the Ordinance, the main duties of the Port of Singapore Authority are as follows:

- (a) to provide and maintain adequate and efficient port services and facilities in the Port.
- (b) to regulate and control navigation within the limits of the Port and the approaches to the Port and to provide pilotage services.
- (c) to promote the use, improvement and development of the Port.
- (d) to carry out such other duties as are imposed upon the



A sectional view of the Port's fine natural harbour, seen from the West Wharf. The wharves totalling about 3 miles are fully mechanised to ensure quickest turn-round of vessels at all times. Work along these wharves are on a round-the-clock basis with a 3 shift system.—The Port of Singapore Authority

Authority by the Ordinance.

Since the second year of its formation, statistics of shipping and cargo tonnages handled at the Port have been at a steady increase (chart attached). Shipping tonnage has been increasing by approximately 14% per year:

1964 — 81.5 million tons (n r t)
 1965 — 90.4 million tons (n r t)
 1966 — 103.1 million tons (n r t)
 1967 — 117.3 million tons (n r t)

Continuing this trend of steady increase, shipping activities at the Port for 1968 reached yet another peak. Vessels totalling close to 32,400 entered and cleared the Port registering an increase of about 11.2 million n r t or about 11% over 1967. The 1968 figure being around 128.5 million n r t.

The cargo tonnage handled drop-

ped to 18.1 million tons in 1964, steadied in 1965 at 21.3 million tons, then rose to a new record of 26.6 million tons in 1966 and yet another record in 1967 of 30.3 million tons. Cargo tonnage for 1968 rose from 30.3 million tons in 1967 to about 35.2 million tons in 1968 increasing by about 16%.

The Authority's development plans which have recently been introduced to provide better services to users include the following:

24-Hour Cargo Handling Service

Firstly, in order to help ease congestion and the speedy turnround of vessels, a Limited Third Shift was introduced at the wharves on 3 June 1968 making the PSA a 24-hour Port. The three shifts are:

First Shift —

7.00 a.m. to 3.00 p.m.

Second Shift —

3.00 p.m. to 11.00 p.m.

Limited Third Shift —

11.00 p.m. to 5.00 a.m.

This has enabled vessels to be unberthed overnight to provide free berths the next morning for arriving vessels and thus improve the turnaround of vessels utilising the wharves as well as maximising the use of the wharf and godown facilities.

To further streamline the entire operations along the wharves, the Authority also introduced an improved single shift gang ordering system on 29 May 1968. Before the introduction of the new system, gang orders particularly for the Second Shift had to be placed for



Cargo operations at the PSA wharves are carried out by the Authority's own trained labour with the aid of mechanical equipment. The Authority has over 30 mobile cranes with capacities of 2~27½ tons, over 200 forklift trucks capable of lifting up to 18,000 lbs, over 10 towing equipment up to 40 tons capacity and over 142 trailers up to 25 tons capacity.—The Port of Singapore Authority



The interior of one of the Port Authority's modern portal-frame structures for covered storage purposes. The Authority has over 1.3 million sq ft of transit sheds, 295,000 sq ft storage warehouses, 218,000 sq ft leased warehouses, and open storage space (concrete surface) totalling 855,000 sq ft. In addition, there are car parks with a total of 66,000 sq ft.—The Port of Singapore Authority

more than 24 hours in advance. With the revised system, labour requisitions for the Second Shift may be placed not later than 9.00 a.m. on the same day when the shift is to be worked. This means that the Second Shift requirements can be booked within 6 hours of the need giving all concerned a better opportunity to assess accurately their requirements. Ordering of gangs for the First Shift is still made before 1.00 p.m. the previous day while labour requisitions for the Limited Third Shift are placed not later than 11.00 a.m. on the same day it is required.

24 Hour Berthing/Unberthing

In conjunction with the introduction of the Limited Third Shift, a new 24-hour berthing and unberthing service was also implemented. This new service started on 31 May 1968 enables vessels to be taken out at night after completion of cargo handling so that berths will be made available for other vessels at day-break. Where operationally possible, vessels are also brought in at night.

Computer Facilities

Towards the end of 1967, the Authority also introduced an Integrated Billing System with the use of a computer bureau's facilities. This step has been taken with a view of providing more efficient and better services to all Port users. In December 1968, the Authority took delivery of its own computer which besides taking over the billing application will also computerise the payroll for all 10,300 employees of the Port.

Port Development and the East Lagoon Container Complex

With a view to expanding its wharf and warehousing facilities to cope with the rapid growth of shipping and cargo tonnages, the Authority has also a number of other major projects under development or consideration. The East Wharf Berths at Godowns 44/45 and 46/47 will be extended by 400 feet to cater for larger and longer vessels now visiting the Port in increasing numbers.

The coastal quay and shore facilities at North Wall of the Empire Dock and Telok Ayer Basin will be improved and modernised. It is also proposed to establish a warehousing

complex on a 30-acre site adjacent to the Port. This complex which will be connected to the main wharf area by an overhead bridge or tunnel will have multi-storyed warehouses with a total projected covered storage area of 1.25 million sq ft for bulk-breaking, packaging, processing and other warehousing activities.

In anticipation of Combo vessels and purpose-built container ships operating in the Pacific and South-East Asia from Europe, America, Japan and Australia by 1970/71, Singapore in the centre of this region is now preparing itself to face the new situation.

The Authority proposes to provide a stretch of 2,250 feet of marginal wharves for container vessels and a crossberth of 700 feet for feeder services. A diaphragm breakwater of approximately 250 feet will also be provided to ensure adequate protection to shipping within the area during the monsoon period. There will be a back-up area of approximately 100 acres of land, a large part of which is reclaimed land. There will be 34 feet of water alongside the crossberth and 41 feet of water alongside the other berths.

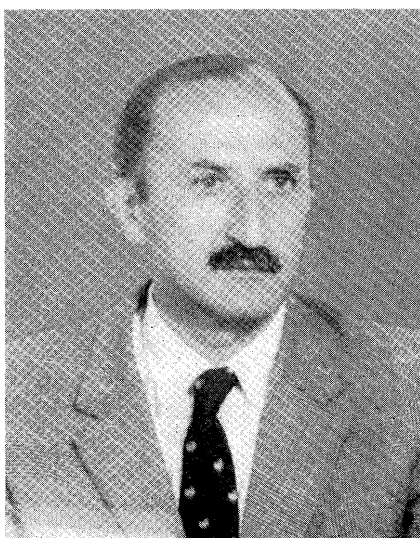
The project for the construction of container berths and handling facilities is now being implemented in stages with the reclamation work having been completed in July 1968. The dredging part of the project involving the removal of 1,200,000 cubic yards of soft materials and 180,000 cubic yards of hard materials is under way and completion is expected by the second quarter of the year. Tenders for the civil engineering work involving the construction of the wharf infrastructure were received in September 1968 and work is expected to commence early this year. The construction will consist of 2,950 feet of reinforced concrete wharves of which about 1,950 feet will be of the relieved retaining wall-type and the remainder the conventional open-piled type. The breakwater will be of steel sheet piling. It is expected to complete the first container berth together with the crossberth for feeder vessels by the end of 1970. The whole scheme is expected to be completed by 1971.

Port Politics

By Ing. J. L. Frias

Chairman
Administration General de Puertos
Argentina

Paper presented at
IAPH Melbourne Conference, March, 1969
(Shorthand Record of Simultaneous Interpreter)



Ing. J. L. Frias

When we met at the Fifth Conference of IAPH in Tokyo in 1967, which all of us who were there recall with such pleasure, man had not yet reached the moon. Now, only two years later, we have overcome space. Space has been conquered. The evolution of means of transport has been extraordinary and continues to become more and more so.

This has manifested itself also in the maritime point of view. On the occasion of the Fifth Conference we observed a ship under construction of 295,000 tons, and now we are talking about using other ships of 500,000 tons and even perhaps one million tons. This rapid transformation of ships and the whole sys-

A shore-based container crane will be installed along the container berths.

It is envisaged that the utilisation of Singapore as a container Port in South-East Asia will substantially increase its transshipment responsibilities. This will necessitate the operation of feeder services to other ports. For this reason, the East Lagoon Container Complex will also have adequate facilities for feeder service vessels in the form of the 700-foot crossberth.

The cost of the East Lagoon Container Complex and ancillary services is estimated at S\$77.6 million.

Ad Hoc Container Facilities

In view of the increase of containerised cargo passing over the Authority's wharves, a temporary Container Yard with Freight Station facilities has been provided pending the completion of the East

Lagoon Container Terminal project. The Container Yard is large enough to handle about 250 ISO 20-foot containers while some 31,000 sq ft of covered storage with modern ramp facilities has been provided to expedite the stuffing and unstuffing of containers. The sheltered bays of the Freight Station ensure that stuffing and unstuffing operations are carried out methodically without interruption during inclement weather.

These ad hoc container facilities commenced operation in October 1968.

Five Year Improvement Plan

In recognition of the need to plan in advance these and other required facilities in the years ahead, the Authority's development plans over the next few years will involve capital and renewal expenditure amounting to S\$164 million.

tem of transport and cargo handling requires, of course, the rapid adaptation of port facilities. It is a violent change.

The reduction of costs and the increase in speed are the latest desires of our era today, and this requires working out plans and projects on a basis of the greatest urgency; but they must be dynamic so that the installations and facilities can be built rapidly and can be modified so as not to lose step with technical progress and fall behind in the keen competition for getting international cargoes.

This problem is almost always at the same time an important factor in the economics of the various countries whose foreign trade depends to a large extent on maritime trade—maritime transport—which is the case of my own country, Argentina, where about 99 per cent of our foreign trade is by sea.

The inability of port facilities to use new systems of sea transport might even come to the point of paralysing the whole economy of a country if freight and operating costs can not be reduced to the same extent as they are in other countries, thus enabling the national product to be sold on the international consumer market at competitive prices. The modification of ports should be such as to make it possible to handle ships with a low freightage, and the facilities should be such as to ensure that ships can be loaded and unloaded rapidly and cheaply and be capable of adapting themselves dynamically to this constant progress of technical and economic advancement; but will all ports and countries be able to do the work and build the facilities which require such great investment?

The problem has been raised and discussed on a number of occasions, and the answer in most cases has been in the negative, either because past technical or financial possibilities do not exist or because the yield which you get from this investment would be such as to be rather doubtful in terms of justifying this investment.

Obviously there are similar problems in the ports as there are in the economy of a small shop—or a supermarket: A supermarket has a

limited number of small businesses, and the same thing has happened with the ports. This will, I feel, be the fate of all port systems in the world. Concentration of cargo and specialisation of harbours are the requirements of all systems of modern sea transport.

The problem is a world-wide one; we have it in States, Departments or Provinces, in all the countries of the world. It will have to be faced by all of us if we are not going to waste our efforts and money.

One form of finding a solution is through working out port policies which are well defined. How can these port policies be formulated and developed? We must realise that we have, in the areas of study and planning, to evaluate the real capacity and the potential capacity of all facilities. We have to look at the access to them, we have to look into present facilities and future possibilities of movement of types of cargo. We have to analyse market production and consumption on the hinterland. We have to work out, on the basis of this, all the various plans and requirements and the places where such facilities should be built.

If the information has been properly obtained, plans and forecasts can be carried out within logical margins of probability, taking into account, of course, the economic possibilities of each port undertaking. For example, in Argentina, of a total number of about 100 harbours now working (that is river ports and sea ports) we have intended to reduce the number to not more than 15 which are considered of national interest, and the development and equipping of one of them is being planned on the basis of its being 40 feet deep, which means it will have a great capacity for storage of grain in silos. We intend to build a new specialised port for the transhipment of bulk cargo in ships of 40 to 50 ft. draught.

I must add that in our country, as far as bulk cargo is concerned, we only feel the need of operating great volumes with these grain ships and ore ships but not tankers, which would give the most yield.

We have excluded from the great investment the Port of Buenos

Aires, a port which moves about 30 million tons a year, as it would cost too much to deepen the port.

In port policy we also include the classification of ports and their specifications, thus meeting general interest and taking into account the conditions, and technical and economic possibilities of each port.

Policies have to be a matter of guide lines. We are not trying to eliminate free competition because we consider that this is the main stimulus for technical and economic progress. On the contrary, we tend to favour competition among various undertakings, but it must be within the framework of an overall plan which will avoid the wasting of efforts and great investments where the yield would be rather doubtful. This will make possible the sharing of interests in various businesses. For example, in the case of two neighbouring ports which have similar activities, we are going to work towards the specialisation of each port for a given activity in accordance with what the port policy would counsel, with efficient installations making possible the use of these facilities by various companies, including the port authority of the nearby ports who shall be affected by this measure.

It is obvious that any port concentration also requires a good, basic understanding and people will have to get together to see that their interests are met, but it is obvious that some will be given priority and others will come in second place.

One of the most important factors for the development of port policies is one which is very real for all ports in the world, and this factor is the one referring to port administration and management of the various ports which are basic if the plans are to be worked out and are to achieve the maximum results from the target set. This problem has been analysed and studied by many specialists, and we have discussed it in conferences with the IAPH. The various advantages and disadvantages of the different systems have been discussed; ports which are administered and/or controlled by national or federal governments, by provincial

governments, municipal governments, joint undertakings and private companies. Each country has a different situation and a different way of looking at things, and you cannot lay down a blanket rule which would be ideal for all and each government.

However, in spite of this, taking into account the national and private interests which are at stake in the port operations, I feel that—even in spite of the differences which may exist in the different countries—we can lay down certain basic premises. These are as follows:

1. There must be a real and actual co-participation, a sharing, between states and private enterprise in planning, administration and operation of ports and their activities, defending the interests of all parties.

2. The state must be basically one which lays down guide lines and provides the money and offers the maximum facilities, assurances and guarantees to all the private undertakings which provide services or administer either partially or totally any given port.

The state must carry out in the port only those tasks which, because of their volume or importance, cannot be performed by private undertakings. To the extent that private enterprise is able to perform them, these tasks should be transferred to private enterprise. We must not overlook the fact that the state in most cases has to intervene in all port business with contributions of capital which is required for great installations and facilities or investments which generally cannot be borne by private companies, since these would give rise to a considerable increase in the rates of the services which they would provide and would mean that the ports would be very expensive and would not be competitive.

I feel also, in connection with harbour management, that the ports must indeed be efficient and economical. They must not overlook the enthusiasm and patriotism which government officials may have in carrying out their duties, but it is impossible to forget the value of money. The success or failure of any business is really known when

Thames Outer Estuary Development

**from The PLA Monthly
April, 1969**

Off the south-east coast of Essex, between the estuary of the Thames and that of the Crouch, lie the famous Maplin Sands, some 46 square miles of lonely sandbanks, most of which dry out at low tide. Today, as you watch them from the deck of a PLA Harbour Service craft, you hear the distant cries of seabirds and occasionally, the dull thud of an explosion borne on the wind, for the area is used by the Ministry of Defence as a firing range. Often, there are black dots moving in the misty distance and the binoculars reveal that these are gambolling seals. The Maplins are not much different today from what they were some nine or ten thousand years ago when the receding ice of the last age was followed by the drowning of the Thames estuary. At every high tide, the grey North Sea sweeps across the sands and floods into such places as Havengore Creek and many other little inlets where once smugglers landed contraband cargo.

Now, the immense power of technology and the rapid growth of population and therefore industry have caused a 20th-century generation of Thamesmen to cast speculative eyes on the area. Their plan is to reclaim the area from the restless tides; to add 46 square miles, no less, to the land area of Britain.

The proposal was announced to a large gathering of press and other interests recently at a press conference in the PLA boardroom by the newly-formed Thames Estuary Development Co. Ltd. The company is unique in that, as the PLA Chairman, Lord Simon, said, "it is being undertaken by a consortium which includes a statutory port authority—the PLA, a local authority—the County Borough of Southend and private enterprise represented by two firms of civil engineers—John Howard & Co. Ltd., and John

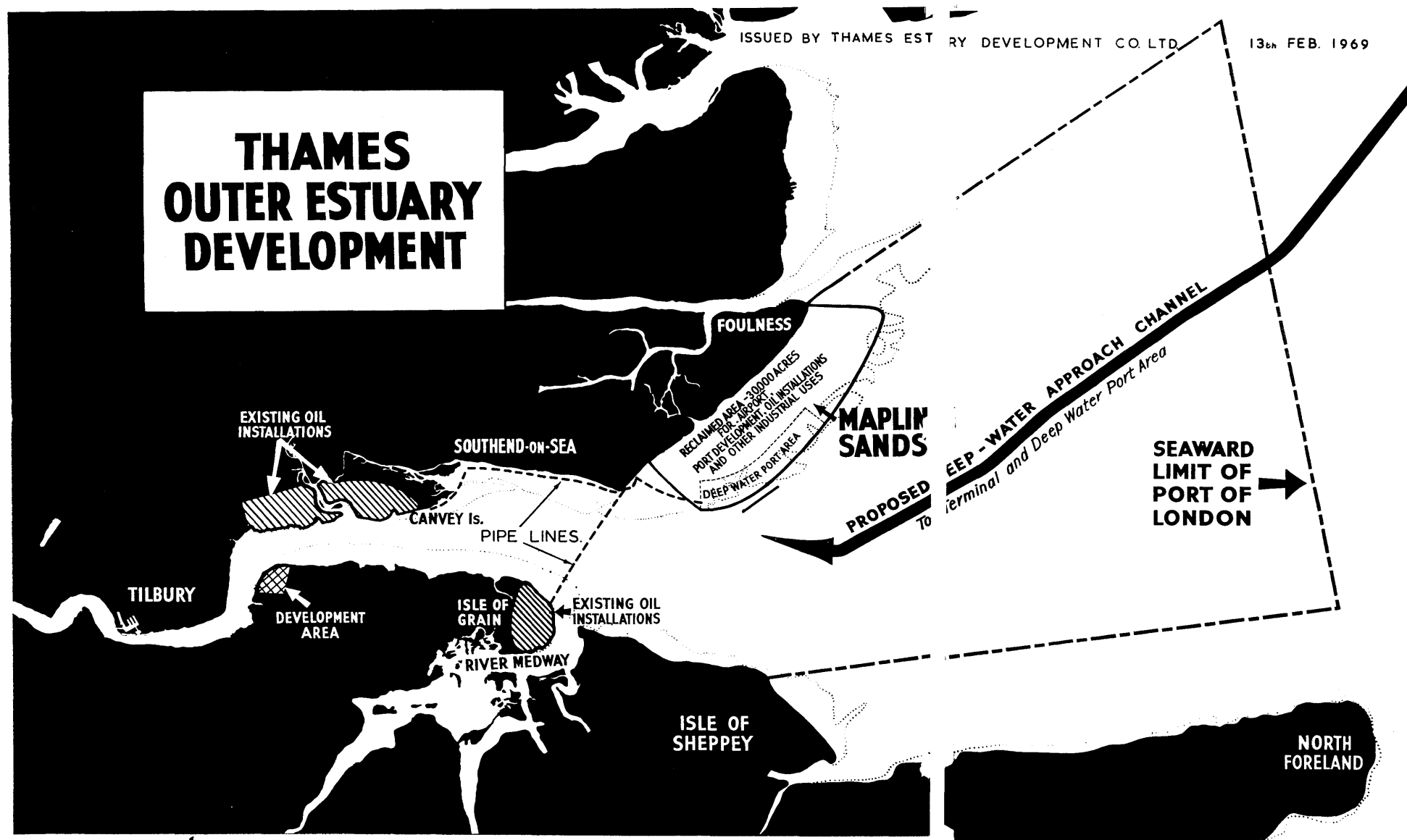
Mowlem & Co. Ltd., and by another private enterprise—London & Thames Haven Oil Wharves Ltd." . . . "Two leading merchant banking houses are co-operating with us—Lazard Brothers & Co. Ltd., and Hambros Bank Ltd."

In passing, one cannot help recalling that such an enterprise is in keeping with the best traditions of the Thames. For nearly 400 years companies of merchant adventurers have been assembling themselves from the ranks of city financiers, corporations, even the Crown, ship-owners and merchants, in order to undertake some spectacular new "venture". In just such a manner was the Hudson's Bay Company formed, the East India Company and many more. Now, with the world mapped, explored, widely developed, with no new worlds to conquer, in short, the City of London turns its restless commercial energies to its own doorstep and joins forces with the newer, estuary town whose progress has gone in step with that of London's.

It is an interesting scheme, on the

you have to take the money out of your own pocket or when it actually starts going into your own pocket.

I have tried to give you a little summary of the background and experience which we have had in this connection. I have had a lot of experience myself, trying to reduce costs, which is a matter of great concern to us, and trying not to be left behind in the rapid development of modern progress and technology.



grand scale, and as we suggest on another page, if it did nothing but rid urban areas of the hideous noise of jet aircraft, it would earn the thankful blessing of millions of people in south-east England. But it is not tied to the provision of a suitable site for London's third airport; the scheme would be viable, it is believed, irrespective of that. "The object of the exercise," stated Lord Simon, "is to plan for a development of the Maplin Sands, off Foulness Island . . . the proposal we are now setting out to examine in depth is the practicability of dredging a deep water approach to the outermost limits of the Port of London, and with the spoil to reclaim a large area of land upon which would be constructed new port facilities and upon which there would also be room for the third London airport, if that was the de-

cision of the Roskill Commission and the Government, as well as intensive industrial development." Lord Simon went on to point out that if Britain is to compete successfully in international trade in the years ahead, "we must have the means and resources in our ports to attract and hold that trade, and I believe that this is an area in which we could achieve this aim, because preliminary studies have encouraged us to believe that deep water can be brought to our own doorstep and because, in relation to Europe, no more favourable location could be found".

The primary objective of the company is to make a detailed study of the possibilities of a development of this kind. "It is not possible at this point in time to say precisely how long the planning stage will take. It is our hope that the work

may be completed in two years. It will involve the construction of a very large model, and this may be a major source of expense."

The plans of the company, Lord Simon said, were compatible with the Government's recent White Paper proposals on the reorganisation of British ports and the Minister of Transport had given to the PLA his agreement to their proposal to participate.

Both Lord Simon and Mr. Dudley Perkins, the PLA's Director-General, are on the Board of the new company and Mr. Perkins continued the press conference explanation of the scheme with further details.

The purpose of the initial study is to find out if it is feasible to provide a deep-water open dock for bulk carriers, i.e. a marine terminal without locks; a deep-water oil ter-

minal capable of receiving very large tankers; an airport away from towns and precious country, if the Roskill Commission so recommend and the Government accept that this is the best site; and industrial development of a kind which could sensibly be associated with a new seaport and a new airport in this area.

Material dredged from the proposed 90 ft. channel (at high tide) would be used to reclaim the Maplin Sands area. "If 90 ft. of water can be achieved," went on Mr. Perkins, "it would be possible to receive tankers fully-laden up to 500,000 tons deadweight.

"This would be accompanied by the building of bulk storage tank farms and pipelines to existing or new refineries; e.g. pipelines could be built to existing refineries at

Shellhaven, Coryton and the Isle of Grain and any new refineries to be built in the area in the future.

The comparison with Rotterdam's Europort Development is obvious."

Mr. Perkins emphasised that the company's aim is to explore the possibilities. "There are many imponderables facing us. First, the Maplin Sands belong to the Ministry of Defense and have been used by them for at least 100 years as a firing range for testing new weapons. . . . The Government may decide that they shall not move. A decision not to move them would kill this plan and also a new airport."

He went on to point out that the physical effect on the estuary of this massive dredging and reclamation project will be tested on a large model of the outer estuary. This

testing could take 18 months to two years. "We must know," said Mr. Perkins, "what effect the work of reclamation and other works would have on the estuary channels and whether, if a channel giving 90 ft. of water at M.H.W. were dredged, it could be maintained at reasonable cost. Thirdly, such a major development of a port requires the consent of the Minister of Transport under Section 9 of the Harbours Act, 1964, and any associated development would be a matter for the Government in the light of their regional planning.

"This is why we emphasise that the express objects of the Consortium are to investigate and to plan. . . .

"One important possibility is that the container ships, of say the third generation, looking fairly far ahead, may be so large that only a deep-water dock in this area could receive them. . . .

"We believe that from this country's point of view, this venture could well turn out to be one of the greatest development projects of the century."

Sir John Howard, who is the managing director of the new company, underlined the fact that the proposals could be a viable proposition whether or not the Government decided to site a third airport here. "But," he continued, "the siting of the airport there would have a material effect in cheapening the cost of reclaiming the land required for both the airport and docks and is, therefore, worthy of serious Government consideration."

The recent terrible accident at Gatwick would probably never have happened, he said, if the same plane, in the same conditions, had been landing at Maplin Sands, where it could have pancaked safely on to sand flats.

Concerning the need for the Ministry of Defence to move their firing activities from the Maplin Sands area, he pointed out that the costs of doing so would be more than covered by the sale value of the land which they would realise.

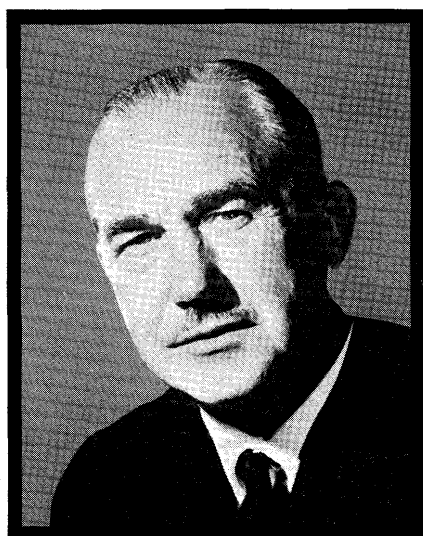
"Question time" brought to light some misgivings by local and industrial interests. Mr. Perkins reassured one enquirer that no-one was going

(Continued on Next Page Bottom)

Orbiter Probe

IAPH News :

Mr. Finnis Passes Away In London



The Late S. A. Finnis

Mr. Sidney Finnis, O.B.E., E.R.D., Chairman of the British Transport Docks Board, died at his London home in the early hours of July 4, 1969, after a short illness, according to a letter from Mr. R. L. J. Wills, C.B.E., M.C., Vice Chairman.

"His passing is a great shock to all of us who have been connected with him personally in the Docks Board and his wise counsel and leadership will be sorely missed not only in Board affairs but also throughout the port industry", Mr. Wills wrote.

to start drawing oil pipe-line routes without full consultation with all concerned and that, in any case, the proposal at present was to explore possibilities, not more. Nor, he replied in answer to another question, would any new docks which might eventually prove feasible take work away from the existing docks because the Maplin development would bring entirely new traffic, of a kind which could not possibly come to these shores without such facilities as were being contemplated.

Sir John Howard, questioned on the costing for an airport, said that detailed examination had shown that 7,000 to 8,000 acres would be required for an airport and that the

total cost of reclamation there, together with the protective banks and the construction of four runways of 12,500 ft.—very much longer than those at Heathrow—would be about £50 million. Land reclamation itself, he said, would cost between £3,500 and £5,000 per acre to raise the land to a workable level. But he emphasised that it had to be borne in mind that land is being created from the sea; no valuable agricultural land is being absorbed, a tremendous asset. He also reminded those present that the financing, for the airport would be from City and not Government sources. (At least one taxpayer present thought this a thundering good idea!)

Help Wanted at UNCTAD

A vacancy exists in the Secretariat of UNCTAD for an economist to work on the economic issues involved in the development of ports in developing countries. The duty station is Geneva, but frequent missions may be expected. The man appointed is likely to be a graduate in Economics and to have several years experience working in a port (or airport) on either general administration or development plans. He will join a team headed by a systems analyst and including an engineer and an economic geographer; the whole team works under the overall supervision of a senior economist. Salary in accordance with age and experience on official UN scales. The appointment may be for a fixed term of two years or on a probationary basis with the possibility of a career appointment. Fluency in English is essential. French or Spanish highly desirable.

For further particulars and application form please write to Office of Personnel, UNCTAD, Palais des Nations, Geneva.

IMCO Agreement

London: — Leading maritime nations May 23 reached a compromise agreement on a universal ships' capacity measuring system which rejects displacement as a basis for establishing weight.

Countries representing about 75 per cent of the world's merchant fleets agreed to measure both gross and net tonnage by volume.

Instead of deducting operational space-line machinery and crew room—from the gross tonnage to get the net, both figures will now be calculated separately.

In a few years time there may be only one international system to measure tonnage and not the six existing now—the Oslo Convention System, used by most European countries, and one each by the

C.C.C. Press Release

Customs Co-Operation Council Brussels, Belgium

New International Customs Arrangements for Transit Traffic

Brussels, June 13, 1969—Large savings in time and in cost are expected from new customs procedures proposed to meet the needs of operators carrying goods across many national frontiers. A new draft International Customs Transit Convention (ICT Convention) is being circulated to Member and Observer governments to the Customs Co-operation Council and to the many international commercial organisations

United States, Soviet Union, Britain and the Suez and Panama Canal authorities.

The universal system calls for gross tonnage to represent the overall volume of the ship, and the net tonnage to be as useful capacity.

The talks began May 27, sponsored by the U.N. Inter-governmental Maritime Consultative Organization (IMCO). Forty-eight of the 61 member nations attended.

By adopting the proposal to work out tonnages by volume, the conference reversed an earlier decision by its plenary in favor of displacement.

A quick poll taken in the technical committee showed the displacement principle could not muster sufficient support for ratification.

Major opposition came from the United States, Soviet Union, Japan and Scandinavia. Britain and France were for displacement.

The conference also decided on universal metric measurement. Until now some countries used meters and others feet to determine volume.

The new convention becomes effective two years after 25 nations have ratified with IMCO. IMCO secretariat sources would not hazard a guess of how long this could be. (Japan Times)

tions who assisted in its preparation. It embodies new concepts designed to match changing patterns of international traffic, particularly the wide-spread use of inter-modal containers.

In the past, an international transit operation has involved one vehicle, one carrier, and one carnet (combining the control document and the guarantee required for the carriage of uncustomed goods). The Customs would seal the vehicle, which entered the transit arrangement in the country of exportation. The carrier, who accompanied the vehicle throughout its journey, was required to produce the carnet at very frontier crossed on the way to its final destination. If there was a change of carrier, a new operation had to be started.

Containerisation presents new problems. A container might be loaded in one country, travel to the frontier or port by road or by rail, be exported to a second country by air or by sea, and be taken by a different carrier to its final destination by road, rail or inland waterway, over one or more frontiers. There may be sections of a journey where a guarantee is required and other sections (such as by sea or air, or where the carrier is a railway authority with a special arrangement with its national customs) where no guarantee is required.

In 1967 the Permanent Technical Committee of the Customs Co-operation Council set up a Special Working Party to examine such problems.

The Working Party decided that the old carnet system must be replaced by one which took account both of changes in carrier and of the intermittent need for a guarantee. It also recognised that it would not always be necessary for a cargo to enter a customs transit

system at the beginning of its journey. A carrier might wish to commence his journey without any customs transit formalities and yet be free to enter a customs transit arrangement at a later stage of the journey, without delay or difficulty at that time.

The Working Party therefore proposes (1) to divorce the guarantee from the control document; (2) to make the new procedure so flexible that it may be commenced either in the country of exportation or at a later stage in the journey; and (3) to allow for the possibility that the responsible carrier of the goods may change several times during the course of a single journey.

The guarantee will be operated through a network of guaranteeing associations covering the territories of the contracting parties to the Convention. Each national guarantee association within the network will approve carriers for whom it is prepared to act as a guarantor. Those carriers which it approves will be issued with a guarantee card recognised by the customs authorities in other countries where it has associates. The card will provide cover for all journeys undertaken by the carrier during its period of validity. The goods are not the subject of the guarantee so much as the activities of the carrier. It follows that normally there will be no need for the customs to check the value of the cargo at the points of control. It will be sufficient for them to be satisfied that the carrier is in possession of a current and valid guarantee card.

The draft Convention provides for an exporter to be able to ask the customs in his country to seal his loaded container if there is the possibility that the container will enter the ICT transit procedure at a later stage of its journey. When the container is presented for sealing, the Customs will ask the exporter to produce a document showing the contents of the container, which the person responsible for loading will certify as accurate. Details of the seals will then be marked upon it. Provided it contains the minimum information prescribed by the Convention, this "Goods Manifest" may be a normal commercial

document.

At the stage in the journey where the container enters the transit procedure, the carrier will complete a simple declaration and attach it to the Goods Manifest bearing the details of seals. If a guarantee is required for any section of the journey for which he is responsible, the carrier will produce his guarantee card.

The carrier will take with him a master copy of the declaration for production at frontier control points. If the container is subsequently carried by another means of transport, this master copy will be handed over to the new carrier. At each frontier a copy of the declaration will be deposited with the customs.

The Convention is not limited to containers alone. The procedure, which was devised to meet the growing problem of containers, will be available for all other means of transport. The Convention does not distinguish between them. So long as a vehicle, container or inland waterway vessel conforms to the agreed international standards of Customs security for sealing purposes, it will be accepted within the new procedure. The term "transport unit" has therefore been used to cover all these means of transport.

Advantages and Future Developments

The whole emphasis of the new procedure is on reduction in cost and delays. Having the container sealed in advance in the exporting country will minimise delays which might arise at "bottlenecks" such as large ports.

The Customs in the exporting country will not be asked to examine the cargo when the container is sealed. But if later a serious discrepancy is found between the cargo and the statement in the Goods Manifest, the Customs who sealed the cargo will make any necessary enquiries to check the accuracy of the Goods Manifest.

Co-operation of this kind between customs authorities of different countries will cut down the duplication of control which has often occurred in the past. It will also

Extracts from Safety Series Brochure No. 27 "Safety Considerations in the Use of Ports and Approaches by Nuclear Merchant Ships." The Brochure (20 pp., 14.8 × 21 cm, paper-bound: 1968) is priced at U.S. \$1.00; 8/4 stg. The report is also published in French. The publishers are International Atomic Energy Agency, Vienna, Austria.

1. PURPOSE AND SCOPE

1.1. The purpose of this guide is to set forth considerations pertinent to matters of use of ports and harbours¹ by nuclear merchant ships, to indicate the factors which are important to a port safety evaluation and to provide guidance as to various procedures and precautionary measures that may be employed.

1.2. Such guidance as is set forth herein is in no sense to be regarded as mandatory and nothing in this guide is intended to define, interpret or modify international law or conventions applicable to the opera-

enable them to control irregularities more effectively. This will help to keep the cost of premiums for guarantee cards as low as possible.

Transport operators can expect great benefits from the use of a pre-arranged guarantee which is separate from the cargo document and which can be used specifically for those parts of a journey where a guarantee is required. The guarantee card will remain valid for a period of time and will cover all journeys made within that period. This will cut out the need for journey by journey arrangements.

The acceptance of commercial documents as Goods Manifests for customs purposes avoids duplication of labour.

With experience of the new procedure, further simplifications can be introduced. The Convention provides for groups of countries to join together to form regions (ICT areas). Goods passing through these regions will be subject to controls

tions of nuclear merchant ships. It is recognized that individual countries will wish, at the present time, to judge each situation involving the use of their ports and approaches on their individual merits in accordance with their own procedures and safety standards. Nothing in this guide is intended to be construed as limiting or detracting from the exercise of such governmental rights.

1.3. This guide is primarily concerned with matters of safety to be considered when a nuclear ship operates to a port in the course of normal commercial operation. Repair work on the reactor plant and nuclear fuelling are not considered since these operations require separate safety considerations.

1.4. The manner in which the safety evaluation of the ship's reactor is carried out and the safety criteria used have been excluded from consideration in this guide.²

1.5. No recommendations have

only at the frontiers of entry into and exit from the area. The consequent saving of time at intermediate frontiers is expected to reduce operational costs considerably.

The Customs Co-operation Council has to date 60 Member Nations. It is not of course the only body working to provide new customs facilitation for container traffic. The Economic Commission for Europe has been carrying out complementary work through its Working Party on Customs Questions Affecting Transport. The two organisations have collaborated closely at all stages. This has demonstrated again that Customs organisations do not wait for events to overtake them but that they work together to adapt Customs controls to the needs of the changing world of commerce.

It is hoped that the Council will be in a position to adopt the Convention and open it for signature in June 1970.

I.A.E.A. Report

been made regarding reference doses to individuals or populations which might be adopted for port safety evaluation, or for planning for possible emergencies.³

¹ Throughout this document the word port implies a port or harbour.

² In both these areas references are supplied in the bibliography which it is hoped will provide guidance for those concerned with these matters.

³ In both these areas too references are supplied in the bibliography.

— deleted —

3. GENERAL FACTORS IN THE SELECTION OF BERTHS

3.1. In most ports there are several locations or berths where a ship may be moored. A list of advantages and disadvantages relating to these berths can be drawn up to make the selection easier. These factors from a safety viewpoint might be grouped as follows:

- (a) factors influencing the relative probability of an accident occurring due to external causes, such as shipping channels, shipping frequencies and speeds, location of airports and flight paths, tidal and meteorological conditions affecting navigation, collision statistics and any unusual dock operations;
- (b) factors influencing the dispersal capability of the environment, such as frequencies and times of prevailing and extreme meteorological, tidal and water flow (flushing) conditions; these might be of particular interest in some geographical and climatological areas with great seasonal variations (monsoons, river currents, tides);
- (c) factors having a bearing on the potential consequences of an accident, such as surrounding land use, ease of fire fighting, towing, radiation monitoring and other services and depth of water to facilitate ship movement.

3.2. On the basis of such considerations some locations can be tentatively selected. Estimates can then be made of the radiological consequences should some unforeseen event result in an accidental release

of radioactive materials at these locations. A comparison of the estimates made for the various berths can provide further guidance as to the relative advantage of one berth versus the other. When examined together with the probability of the postulated event, an indication of the relative risk of experiencing an unacceptable situation can be obtained.

— deleted —

CAB Ships, 100 Knots

London: — Hovercraft-type ships operating on the North Atlantic at a speed of 100 knots, and perhaps nuclear powered, should be possible within the next ten years, says Mr. Cameron H. Parker, managing director of John G. Kincaid & Co., marine engineers, Greenock. Such a vessel, a contained air bubble (CAB) ship, he says in a brochure to celebrate the centenary of his firm, could complete the Europe-U.S. voyage in 48 hours.

A 5,000-ton CAB ship for container service has been proposed, says Mr. Parker, and the propulsion system suggested is eight marine gas turbines each developing 25,000 h.p. The speed of the CAB ship would be highly reliant on wave height, and it would not be possible to maintain 100 knots with a wave of more than 5 ft. without a substantial increase in power, he adds. The proposed vessel would achieve about 80 knots for 200,000 h.p. against a wave height of 10 ft.

Mr. Parker points out that although weather would restrict operations to a considerable extent, weather routing could be usefully employed due to the shortness of the voyage. In an age where man has journeyed successfully to the moon and back, one now accepts as a matter of course that today's forecasts are tomorrow's realities. But it seems likely that control over the weather will forever defy the ingenuity of man. (The Dock & Harbour Authority, February)

Port Planning

Toronto: — Two yardsticks by which business progress may be

measured are growth and expansion. And growth and expansion have been the story of Port of Toronto since the mid-1950's.

In 1955, the Port's first marine terminal (No. 27) to handle overseas cargo was officially opened. This was followed by Marine Terminal No. 28 (1957), No. 29 (1959), No. 35 (1962) and No. 51 (1966). In 1968, the Port announced it was undertaking a massive redevelopment scheme (see Port of Toronto News, July 1968) which would include a new Outer Harbour as just one of the highlights. A new Outer Harbour in Lake Ontario would ensure expansion room for new facilities and terminals for many years into the future.

Three years ago, the Port announced the construction of Marine Terminal 51 as the first step of a multi-stage, 10-berth, three-terminal project on the easterly side of the Eastern Channel. The \$2,000,000 terminal was completed in approximately seven months, adding some 140,000 square feet of the Port's inside storage area and helped to ease the year-end shipping rush in 1966.

This month, the Port has under design the second step of this program—the development of a 93,000 square foot container warehouse with facilities capable of stuffing and unstuffing containers. The million dollar development is to be located to the lakeside of Marine Terminal 51, nearly equal-distant from the Ship Channel and the Eastern Channel.

As business in future years demands, additional cargo-handling terminals will be erected south of Marine Terminal 51 between the proposed container warehouse and the Eastern Channel, thus placing the warehouse in the position of a focal point for the entire surrounding area.

The warehouse to be initially constructed is in itself, only the first part of a three-stage program. Stages two and three, both of which will be the same size as the first, will be built as cargo movements increase, thus making possible an inside storage area of nearly 300,000 square feet.

Starting date for actual construc-

tion is yet to be announced, but in the meantime, the container handling is being carried out in special sections of the Port's other terminals as in the past two years.

According to present projections, the second stage may well be required by 1975 or sooner. This building will have drive-in facilities for both trucks and rail cars, to allow for easily accessible inland transportation. The primary use of the warehouse will be as a place for the storage of goods and as an operational site for the break-bulk and consolidation of freight moving in containers or other unit loads. The prime purpose is port oriented warehousing; public warehousing is a secondary interest. The Port is also giving consideration to including a refrigerated area in the second stage if this particular type of storage is needed.

The warehouse is essentially away from the water for several reasons:

- the area in question cannot really be used for a marine terminal site for a short time exchange of cargo between ship and terminal because of its inaccessibility to the water.
- the land at this particular locale is not as valuable as opposed to that at the water's edge. Therefore, by constructing the warehouse away from the more valuable and water accessible areas, they may be used for marine terminal development.
- travelling time from ship to warehouse for the cargo is not a major factor because of the time-saving machinery which can be utilized.

All of this is just a token of projects to come in the future as the Port of Toronto moves ahead to keep its position as one of the best equipped and busiest Ports on the Seaway. (Port of Toronto News)

Strike Ends

Boston, Mass.:—It lasted 102 days, but the longest strike on the Hub's waterfront facilities finally ended on April 2.

When agreement was finally reached between the Boston Shipping Association and the International Longshoremen's Association, signalling the reopening of the last closed port on the Eastern Sea-

board, operations at the MPA's piers resumed almost immediately—despite a moderate rain squall the first day.

As reports of the contract negotiations indicated a settlement was near, Massport Port section personnel, working under the direction of Thomas T. Soules, Port director, and Joseph J. Connolly, superintendent of marine terminals, had been making quiet preparations for the return to work. Efforts were undertaken to clear the piers of what little cargo remained in storage in them.

Most piers were as bare as Mother Hubbard's proverbial cupboard on the first day the longshoremen returned to work. This situation did not last long as the men got down into the 18 or so ships tied up at the piers, many of them for a month or more, and started clearing them of cargo.

Observers said they expected the Port to remain exceptionally busy until the backlog of cargo is cleared in early May. Business could then slack off, but they are optimistic the strike did not appreciably damage the Port's long-term growth.

Especially significant in the development of the Port is that fact that it is the first signed labor agreement with the long-shoremen in the Hub for 10 years. This milestone in the development of the Port, combined with such Massport-sponsored projects as the recently-completed freezer on Commonwealth Pier, a proposed new public container facility in Charlestown, and the many smaller Port development efforts should make it possible for the Port of Boston to quickly regain whatever ground it may have lost during the prolonged strike—and then move forward on its firmest footing in a decade.

Much of the continuing development of the Port will depend on how well it is utilized by shippers in New England and across the country, they emphasized.

Edward J. King, MPA executive director, and other Massport staff members had constantly stressed throughout the strike that this contract and the manner in which it is implemented would be the single

most important factor in determining the future of the Port.

With further progress anticipated, a good foundation for competitive conditions, attractive to vessel operators, has been arrived at, they emphasized. (Massport Memo, May)

Rising Lakes Level

Buffalo, N.Y.:—There will be higher water levels on the Great Lakes this year, a contributing factor in greater tonages being carried on many of the bigger ships that stop at Buffalo and other Lake Erie harbors. The difference in Lake Erie of an estimated five-inch rise could mean as much as 50,000 tons additional tonnage for ships the size of the flagship Adam E. Cornelius Jr. of the American Steamship Company of Buffalo.

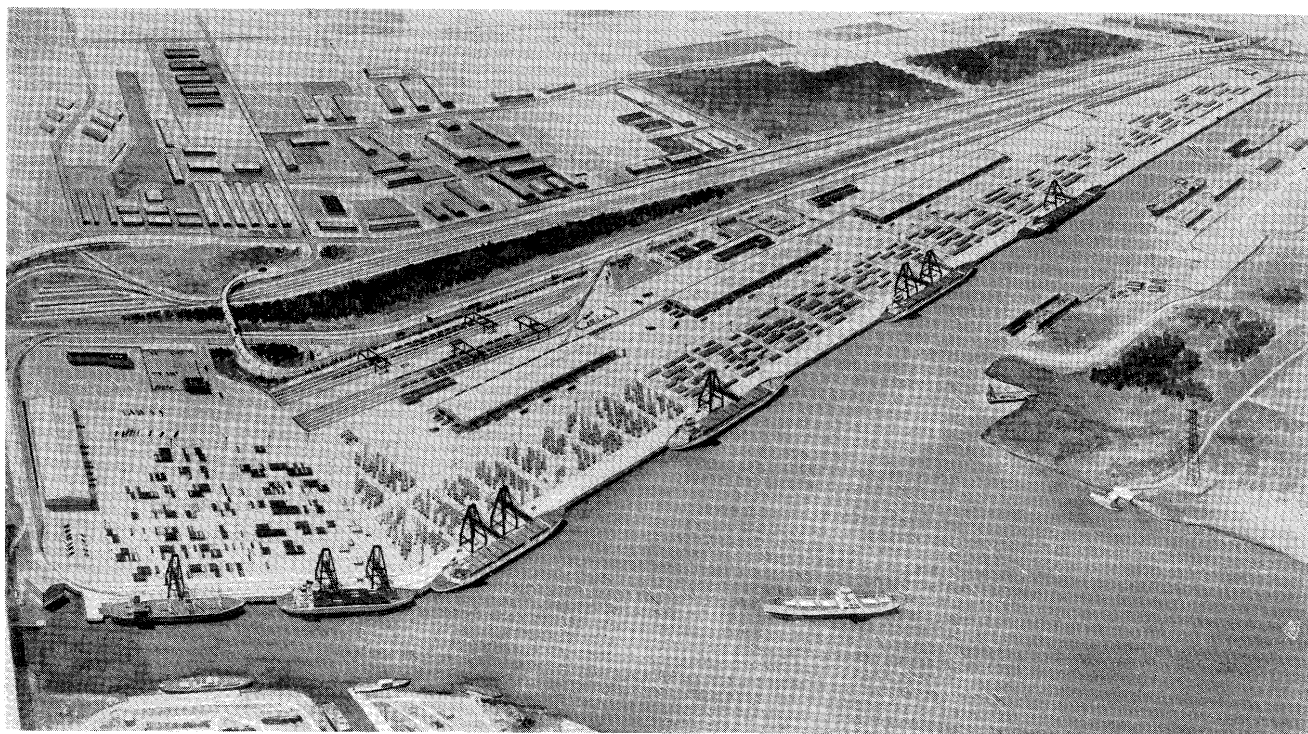
Based on a figure of 90 tons to an inch as computed by the Lake Carriers Association of Cleveland, it is possible for this 666-foot-long Buffalo self-unloader to realize an additional 450 tons per trip to Lake Erie and double that tonnage if loaded in both directions. The Cornelius, under ordinary conditions, could make as many as 60 trips throughout the course of the 1969 navigational season. This could mean more than 50,000 tons additional cargo compared with tonnage carried last year under Lake Erie's highest level.

Ships in the 730-foot class could realize as much as one extra trip with the higher water in Lake Erie. The average for ships of this size would round out to about 120 tons an inch of additional cargo. Self-unloaders do not spend as much time in port as ships that are unloaded by overhead buckets that dip into the individual holds.

In general, news of the levels of the Great Lakes for 1969 should be greeted with favor by boaters, commercial shipping and hydro-electric power interests. In some instances, according to the U.S. Lake Survey of Detroit, levels forecast for the next 6 months should rise as much as 11 inches. Lake Erie, the shallowest of the lakes, has an average depth of 58 feet.

The Lake Survey report said,

New Orleans Containership Terminal



A nine-berth containership terminal under construction. (Drawing by Kaiser Engineers)

"Being oriented generally parallel to the prevailing wind makes Lake Erie particularly susceptible to storms from the southwest. It is not uncommon for the lake to have as much as a six-foot difference between Toledo and Buffalo. The maximum ever recorded at Lake Survey water level gauges was in excess of 13 feet. For this reason, Lake Erie boaters should pay particular attention to their charts and the U.S. Weather Bureau forecasts. Lake Erie is expected to be at its highest level for 1969 about the end of June. The annual gradual decline will then start." (Port of Buffalo Progress Bulletin)

Submarine Piping

Los Angeles, Calif.:—If you really want to delve into something that's been buried for years, start inquiring about the pipelines beneath the waters of the Port of Los Angeles.

A labyrinth of between 12 and 15 miles of submarine pipelines lie beneath the harbor channel. These pipelines, ranging in size from four to 36 inches in diameter serve a multitude of purposes. All play an important part in the growing development of the greater Los An-

geles area.

Oil carrying lines are the most numerous. The Port of Los Angeles is one of the most important oil loading, receiving and bunkering ports of the world. More than a dozen oil companies maintain and use a total of 43,350 feet of submarine pipeline beneath port waters. These lines vary in size from the smallest to the largest recorded.

Pipes carry electric power, telephone, police and fire signal system conduits under the waters of the port for 18,100 feet. Port records show 4,900 feet of water mains beneath channel waters and 3,900 feet of sewer line pipe.

Harbor records indicate that the first submarine pipeline was laid across the main channel near the San Pedro and Terminal Island Ferry buildings back in the early 1920's. It was a sewer line. Old-timers of the port claim that a submarine line was laid beneath the Ford Avenue Bridge before 1920, however, to furnish water to the swank Brighton Beach recreation area and summer colony.

Most of the submarine pipelines are in specified and limited area, where warning signs at the sides of

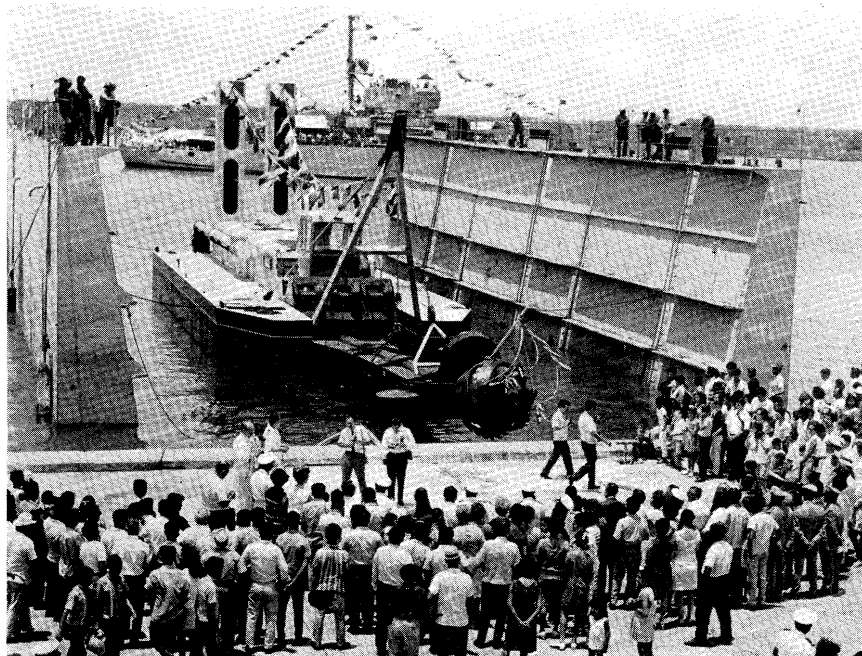
channels notify ships of the existence of the lines and thus prevent the unauthorized dropping of a heavy anchor in an area where a pipeline might be damaged.

Precautions against such an accident are provided by installation requirements. Deep trenches must be dug beneath channel bottom depths when a submarine pipeline laid. The trench must be built with care and must provide that the top of the pipeline is at least 10 feet below the average channel bottom depth. Oil pipelines, in most cases, are required to be 15 feet below the channel bottom. Sewer lines must be 20 feet below.

Submarine pipelines are very special. Not only does special care go into the preparation of the trench to receive the pipe, but the pipe itself gets special treatment. Most pipes used beneath port waters are of steel. All pipes are treated with several coatings before installation.

Each section of pipe is sand-blasted and covered with a coal tar primer, then wrapped with coal tar tape or covered with a coal tar enamel. Recently a special coal tar epoxy, similar to a plastic coating, was developed for the protection of

Dredge in Mexico



underwater piping.

Because oil is lighter than water and because empty lines are also buoyant, all submarine pipelines must be weighted down. Testing for pressure leaks is a major problem of installation. Many lines are encased in concrete after being installed. Then the trench in which they are located is filled with rock to help hold them in place and protect them from damage.

Properly installed and supervised submarine pipelines should cause little worry. Tests by the Los Angeles Harbor Department Research Laboratory have shown underwater pipes to be in excellent condition after 30 to 40 years of service. Most dangerous points and those watched most closely are the areas where pipelines enter the water and are exposed to air during low tide.

According to port officials, there has never been a major leak in oil, water, sewer or public utility conduit in the port, indicating that installations have been made properly and with care. (Port of Los Angeles)

Port of Good Luck

Los Angeles, Calif.:—Many a yarn has been printed about the

superstitions of the sea, but the Port of Los Angeles has come up with the newest and most modern one on record.

Early day sailors painted eyes on the bow of the ships to help guide them safely over dangerous seas. Good luck omens and such were a part of every ship.

Several years ago, a new steamship line brought its first new ship into Los Angeles Harbor.

Port officials presented the captain of the vessel a "First Arrival" plaque commemorating the first-time call at Los Angeles. The ceremony was short but impressive.

The vessel's trip was highly successful. The owner, very pleased, requested another plaque when the line's next ship arrived on its maiden voyage. It too had a successful voyage.

Five vessels arrived, then came a sixth new ship which called at San Diego Harbor, located about 125 miles south of Los Angeles.

Los Angeles Port officials were made aware of the new superstition of the sea when they received a request for a "First Arrival" plaque, for the sixth ship, "because ships of the line presented the plaques all had successful first trips."

A Port of Los Angeles emissary

delivered a Los Angeles Harbor "First Arrival" plaque, to the vessel at San Diego.

Rather unusual, but a new sort of modern superstition of the sea was born. (Port of Los Angeles News Release)

New Matson Terminal

Los Angeles, Calif.:—A major step toward ultimate construction of a multi-million dollar container facility was taken today (Wednesday, June 11) by the Los Angeles Board of Harbor Commissioners by their approval of an agreement between the Matson Navigation Company and the Port of Los Angeles.

Under the provisions of the agreement the Commissioners will request the City Council to authorize, by condemnation, the acquisition of approximately five acres of land owned by the Union Pacific Railroad Company, and acquire title to the Union Pacific property by direct negotiations.

The agreement further commits Matson to negotiate a long-term preferential berth assignment with the Harbor Department on the basis of a minimum-maximum guarantee for occupancy of the facility by Matson.

The new terminal, to be built by the Los Angeles Harbor Department at a cost of seven million dollars, will provide Matson with 1,500 feet of wharf, a container freight station, a second control tower, a truck scale, gate house and other facilities for operation of the firm's second major container handling site. Original location of the pioneering company's container operation is adjacent to the Matson cargo-passenger terminal at Berth 200 on the Wilmington side of East Basin.

Completion of the new terminal is expected in May, 1970. (Port of Los Angeles News Release)

Dredge Launched

Alameda, Calif., June 26:—A Paceco Pacer, the first 16 inch dredge with capacity to produce 1200 cubic yards per hour, was launched recently at the Mexican Naval Shipyard in Tampico.

Built for the Government of Mexico, it is also the first dredge to be built in that country. The hull and housing structure was fabricated by the Naval Shipyard. Paceco, a Division of Fruehauf Corporation, Alameda, California, supplied the design and machinery.

To achieve the high production capacity, the new dredge was equipped with a Jet Stream pump system. It is the first new dredge to be designed with a Jet Stream system to increase production at normal digging depths. In 1960 two dredges were built by Paceco with Jet Stream systems to dig at abnormal depths of 225' below the Volta River for the Government of Ghana, Africa.

Of portable design, the dredge can be disassembled for easy shipment and reassembled at different sites to provide greater use of the dredge. With 1500 HP on the main pump and 420 HP on the auxiliary engine the Mexican dredge has 1920 installed HP. (PACECO News)

Container Berth No. 2

Norfolk, Va.: — Norfolk City Council has given the Norfolk Port and Industrial Authority the word to proceed with development of Container Berth No. 2 at Norfolk International Terminals. On February 12 Mayor Martin was presented with a \$2.465 million check from the State of Virginia, representing the State's contribution to Norfolk port development.

\$1.5 million of that amount has already been committed by the Authority and \$900,000 will go toward construction costs of the new 850-foot berth, completion of dredging, renovation of three warehouses and construction of the fumigation plant. The berth, expected to be completed in 1970, will cost about \$4.5 million.

J. J. Gara, Chairman of Norfolk Port and Industrial Authority, said he is pleased by the Council's action. "We know that the City is under financial pressures for everything today. The Council should be congratulated for recognizing that the berth is crucially needed in the terminal's development," he said. (Port of Norfolk News Letter)

Puertos Amigos

Portland, Ore., June 3:—A Paraguayan port official arrived in Portland Tuesday for a three week study of Portland Commission of Public Docks' accounting procedures.

Dr. Cornelio Caballero, an economist with the National Administration of Navigation and Ports of Paraguay, will work with CPD controller, Mr. E. H. Smith, seeing how Portland handles accounting methods, budgetary and auditing procedures, port planning and expenditure control, investments and cost analysis.

His trip, under the Puertos Amigos program, is sponsored by the Organization of American states and is handled by the American Association of Port Authorities. Expenses are paid by the Inter-American bank. Caballero remains on full salary from the Paraguayan authority during his stay.

He leaves June 23 for further study in Wilmington, Delaware.

The Commission of Public Docks was picked partly because Portland, like Paraguay's capitol Ascuncion, is a river port.

1968 Tonnage Up

Portland, Ore.:—At the close of business 1968, Portland Public Docks had posted its second highest tonnage record in a row and had ended its 67th year of business with substantial investments in improved harbor facilities. The outlook for 1969 is just as optimistic.

A total of 1,937,000 short tons passed across the Commission's 23 cargo berths during 1968, a gain of some 200,000 tons over 1967, the previous year of record, which itself was up more than 100,000 tons over 1966.

Tonnage moving across the Commission's piers has nearly doubled in the past 10 years, records show.

Late in 1968, the Dock Commission dedicated the first phase of a \$9,000,000 combination container-general cargo pier adjacent to Terminal No. 2. During the past year

and a half a two-berth, 26-acre facility has been under construction.

Now completed is a quay dock 1,340 feet long and 58 feet wide, of prestressed concrete. Although yet to be equipped with cranes and sheds, the pier is receiving cargo, primarily automobile-carrying ships. Already more than 5,000 autos have been discharged here.

Phase II of the construction project, scheduled for completion in 1969, includes erection of a 40-ton capacity container crane similar to the one placed in mid-1968 at Terminal No. 4. Two 55-ton capacity whirley cranes will work with the container crane to provide full flexibility for all types of cargoes.

Work also will be completed this year on 10 acres of container storage yard and 16 acres of open area for other types of cargo. One large transit shed will be built to serve the two berths.

Upon completion of the complex, Portland will offer two of the coast's most modern container cranes serving a total of four berths, with approximately 32 acres available for container storage and sorting. (Portland Public Docks Harbor News)

More Cruise Service

San Diego, Calif.:—San Diegans who enjoy travelling or vacationing by sea will have a broader selection of cruise times and ships in 1969 than in many years.

In addition to merchant marine vessels with passenger facilities that call at San Diego on a regular basis, American President Lines has scheduled a series of cruises with stops at San Diego, Matson Lines will have its famed LURLINE call at San Diego before starting a vacation cruise, and Orient Overseas Lines will continue to have its vessels depart San Diego on around-the-world cruises on a monthly schedule.

The APL ships will cruise the Mexican coast on a schedule of departure from San Diego that include Sept. 26, Oct. 16 and 19, Dec. 6 and 29. The LURLINE will sail Dec. 6 from San Diego.

Reservations for voyages may be made through the shipping lines' agencies in Los Angeles. (Port of San Diego Newsletter)

Largest Container Crane

Savannah, Ga., June 23:—J. D. Holt, Executive Director of the Georgia Ports Authority, announced today that construction is underway at the GPA's Garden City Terminals in Savannah of a Container Berth featuring the Nation's Largest Container Crane.

The Container Terminal will be ready for operation by May, 1970, and is being built on a 20-acre site that will include a 16 acre back-up marshalling yard. Complete facilities for truck and rail, including double rail marginal tracks, with provisions for a third, will permit handling containers directly to or from rail cars. The high-speed Container Crane will have a capacity of 90,000 lbs., at an extended reach of 113½ feet, either seaward or landward.

The 768 foot long and 196 foot wide Container Multi-Purpose Berth addition will increase to ten the total number of ship berths at the GPA's Garden City Terminal and will provide over one mile of uninterrupted berth space.

The gauge of the gantry rails of the new crane will be 90 feet with a clearance under the boom of 107 feet. Lift above rail elevation will be 72 feet and below rail, 58 feet. Diesel electric powered, the crane will have a full load hoist speed of 100 FPM, a trolley travel speed of 400 FPM and a travel speed of 150 FPM which will make it not only the Nation's largest, but the world's fastest container crane.

The 120,000 square foot concrete deck and the 16 acre paved rear will provide storage for over 3,600—40 foot containers.

Commenting on the new Container Terminal, Holt said, "There have been only three revolutionary changes in the history of shipping—ships built of wood to ships built of steel, sail to steam and now cargo in containers. It is unanimously agreed by all in the shipping industry that one port in the South Atlantic will emerge as the Container Port on the Southern Seaboard. Savannah is the port."

Holt added that "The 4½ million dollar decision on the part of the Authority is based upon a careful

analysis of Savannah's unique position as related to other ports in the South Atlantic. Of primary importance is the fact that Savannah handles substantially more general cargo than any other competing ports in the South Atlantic, much of which can and will be containerized.

Secondly, Savannah is exactly midway between Hampton Roads and Miami, making it possible to draw containerized cargoes from a tremendous hinterland without penalizing the shipper with the added costs of shipping to North Atlantic Ports.

Negotiations have been completed with a number of the steamship lines assuring Savannah of container service to the important trading areas of the world." (Georgia Ports Authority News Release)

More Container Berths

Melbourne:—Work on the construction of the Port of Melbourne's common user container berth, known as No. 1 East, Swanson Dock, is progressing satisfactorily.

The first stage involving the rear section of the 800 ft. long berth was completed last month.

This work involved the driving of 648 timber piles behind a wall of steel. The piling ranged in length from 60 to 85 feet. Thru sand filling was poured behind the steel sheet piling, which supports the reinforced concrete deck which is 25 inches thick.

Engineers from the Trust, working on the berth, cast the concrete decking directly on the sand filling, after trimming it to grade.

Dredging in front of the steel sheet piling has commenced to allow piles to be driven, which will support the front section of the wharf deck.

Tenders have been called for the driving of the piles, which will be 20 inches in diameter steel cylinders, filled with concrete. This section of the berth is expected to be completed early next year.

Tenders have also been called for the construction of a twin-lift container handling crane. The estimated cost of the common user berth and the crane is more than \$2 million.

When the berth becomes operational, it will have a guaranteed depth of 33 ft., but provision has been made in the design for this depth to be increased to 42 feet.

Meanwhile the building of No. 2 West Swanson Dock is well in hand. The rear section of the extension to 1,500 ft. of berthage has been completed, and dredging in front of the steel sheet piling has commenced.

A contract for the driving of 188 piles for the front section of the extended berth has been awarded to West Pile Pty. Ltd., at an estimated cost of \$160,000. The Company expects to commence pile driving operations soon, and the front section of the berth is expected to be operational by the end of this year.

The proposed entry of Japanese shipping lines into the container trade between Japan and Australian ports will see this new "heart" of the Port of Melbourne put to even more work in the near future.

The Trust, in constructing these additional container berths, for the ever-growing tonnage of "pure" container ships, is ensuring that it will have adequate berthing facilities to handle these vessels which are expected to use the berths in the near future.

Coinciding with the construction of additional berthage in the Swanson Dock Container area, a new roadway system is also being built which will link Swanson Dock with adjoining Appleton Dock.

Break bulk depots in the Appleton Dock area already constructed or in the process of being completed will be linked to the container berths at Swanson Dock by an internal road system that will allow road transport carrying containers to the depot to by-pass busy Footscray Road.

The internal road system is expected to be completed towards the end of this year. (Melbourne Harbor Trust Port Gazette)

M.S.B. Office in Newcastle

Sydney, June 10:—The Hon. R. W. Askin, M.L.A., Premier and Treasurer of New South Wales will open the new office for the Newcastle Branch of the Maritime Services Board at 3.30 p.m. on Fri-

day next, 13th June, 1969.

The President of the Maritime Services Board, Mr. W. H. Brotherson, said today that the Premier had agreed to officiate at a ceremony which will take place in the main public hall of the new office and to unveil a plaque commemorating the opening of the building.

The office building is on the corner of Newcomen and Scott Streets on a site formerly occupied by the Commercial Hotel which was established in 1865 and was a well known rendezvous of seafarers from all over the world.

The new building has five floors plus parking space in the basement.

Mr. Brotherson said that at this stage the Maritime Services Board will occupy the three lower floors and the top two will be available for letting until such time as they are needed by the Maritime Services Board.

The Consulting Architects were Messrs. Stephenson and Turner and the Contractor was the local building company, F. H. Compton and Sons Pty. Ltd. The cost was approximately 1.2 million dollars. (The Maritime Services Board of N.S.W.)

Information Service

Sydney, May 23:—A Port Operations and Information Service to provide details of shipping movements in Sydney Harbour on a 24 hour per day basis will be set up by the Maritime Services Board and will commence operating on 2nd June, 1969.

This was announced by Mr. W. H. Brotherson, President of the Maritime Services Board who said that the increase in the size of ships using Sydney Harbour had brought about the need for co-ordinating the flow of shipping traffic in and out of the Port of Sydney to ensure the expeditious movement of vessels in safety.

He said that the Service will provide information to Pilots and Exempt Masters when moving in the harbour channels as an aid to safe navigation in the port.

Mr. Brotherson said that the V.H.F. Radio Service which has been operated by the Board for some years for the Ports of Sydney, Newcastle, Botany Bay and Port

Kembla will be integrated into the Port Operations and Information Service.

The new service will be manned continuously on a watch-keeping basis, each watch being under the control of a qualified Master Mariner, and will be established in the Communications Room at the Maritime Services Board's Head Office in Sydney.

Mr. Brotherson explained that ships will not be permitted to enter the harbour channels on arrival at Sydney or leave their berths on departure without the permission of the Port Operations Officer acting for the Harbour Master and, when under way, they will be in radio communication with the Port Operations Officer and with each other so that the location and progress of all ships under way will be known at all times.

As soon as the arriving ships are secured at their berth or anchorage, the Port Operations Officer will be advised and he will also be advised when outward bound ships are clear of the port area. (The Maritime Services Board of N.S.W.)

Wharf Cranes Ordered

Sydney, May 12:—The Maritime Services Board of N.S.W. has let a \$1.3 million contract to Altikar Pty. Ltd., for four level luffing wharf cranes.

This was announced in Sydney today by the President of the Maritime Services Board, Mr. W. H. Brotherson, who said that three of the cranes are for use in Sydney and one in Newcastle.

Mr. Brotherson said that the first of the cranes to be delivered will be installed at No. 1 wharf, Throsby Basin, Newcastle, towards the end of this year. The wharf at Newcastle is due to be opened for cargo handling in August of this year.

Of the three cranes to be installed in Sydney, two will be placed on the new No. 11 Wharf at Woolloomooloo, now under construction, and the third will serve Nos. 8, 9 and 10 Berths, Darling Harbour.

The 26-ton lifting capacity of the cranes will allow of their use in the handling of all types of heavy general cargo, including containers

and unit loads but they will also be suitable for handling bulk cargoes and for fitting with grabs.

The Woolloomooloo berth will have a surrounding area of three acres and will be particularly suited for the handling of bulk cargoes. (The Maritime Services Board of N.S.W.)

Remodelling Passenger Terminal

Sydney, May 12:—The Maritime Services Board of N.S.W., at its meeting in Sydney on Thursday, 8th May, 1969, decided to let a contract for the remodelling of the passenger terminal at No. 13 Pyrmont.

In announcing this today, the President of the Maritime Services Board, Mr. W. H. Brotherson, said that the \$355,000 contract had been let to J.P. Cordukes Pty. Ltd.

Mr. Brotherson said that the work will take forty weeks to complete and will result in the provision of a modern passenger facility of high standard.

He said that the existing berth was completed twenty years ago.

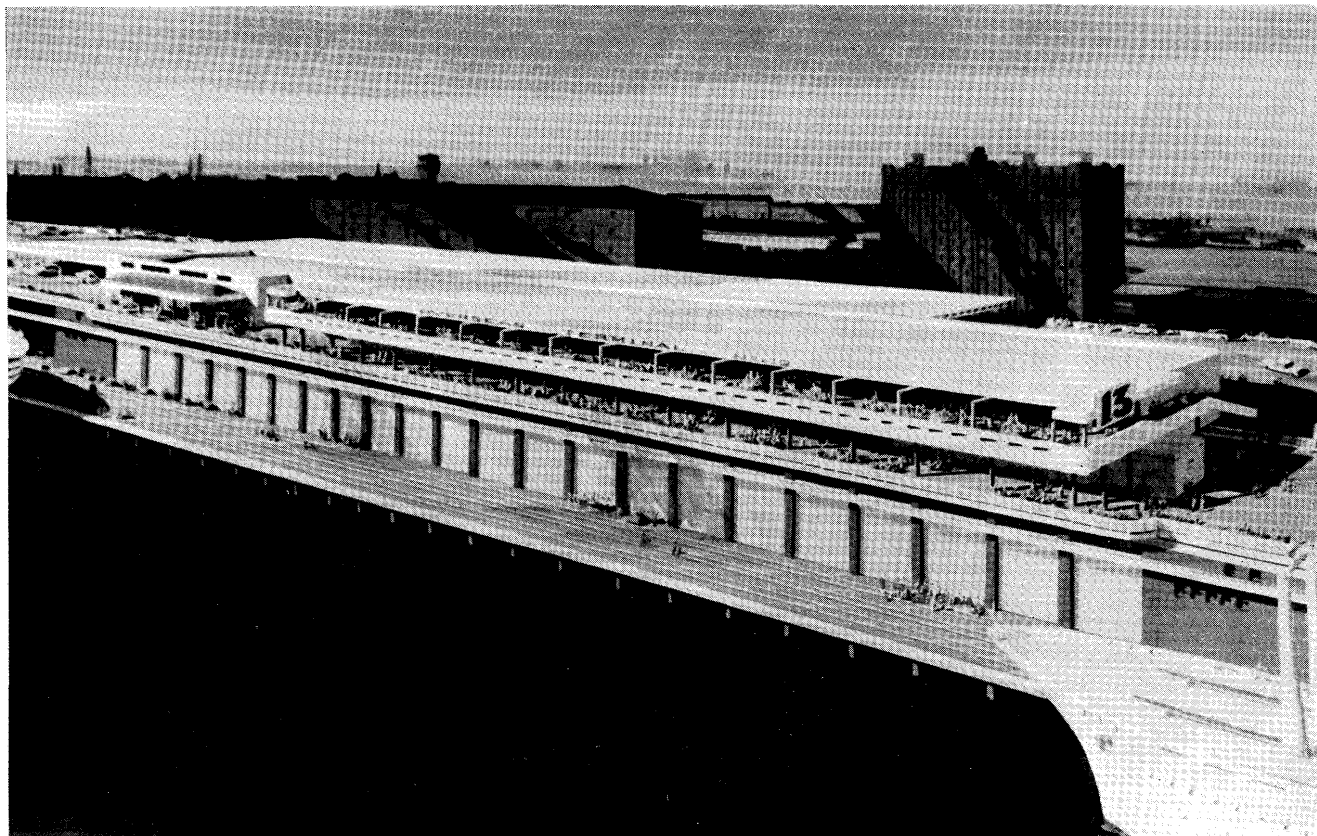
Apart from the contract let to J.P. Cordukes Pty. Ltd., a large amount of money will be involved in the purchase of modern furniture and furnishings for the reconstructed building. (The Maritime Services Board of N.S.W.)

Far East Confab

Tokyo:—The First Far Eastern International Transportation Conference sponsored primarily by the National Defense Transportation Association, Yokohama-Tokyo Chapter (President, Colonel Jack S. Tabb, U.S. Army Transportation Command, Japan), and co-sponsored by the World Trade Center Club of Japan and the International Association of Ports and Harbors, was held February 16~18 at Hotel New Otani, Tokyo.

During the Conference, three panels were staged, Ports and Harbors Panel, Pacific Basin Transportation Symposium, and Personnel Property Shipping Panel, of which the first was of particular interest to us it was a virtual IAPH Panel, with so many familiar names, such

Remodelling Passenger Terminal



as, Moderator, Dr. Fujio Matsuda, Director, Department of Transportation, State of Hawaii; Dr. Hajime Sato, Director-General, Japan Port and Harbor Association; Mr. Ben. E. Nutter, Executive Director and Chief Engineer, Port of Oakland; Mr. A. M. Eschbach, Chief Engineer, Commission of Docks, Portland, Oregon; Mr. Curtis E. Simmons, Traffic Manager, Port of Seattle; Mr. Clifford O'Hara, Director of Port Commerce, The Port of New York Authority; Mr. James Addison, President, New Brunswick Development Corporation, Canada; Mr. H. R. Wood, General Manager, Vancouver Wharves Ltd., British Columbia, Canada; Mr. Ian S. Ross, President, Swan Wooster Engineering Company Ltd., Vancouver, B.C., Canada.

Salvaging Barges

Chittagong:—During the cyclones of 1960 and 1963, a number of barges and boats sank in the river bed in front of jetties No. 1-6

which are going to be reconstructed. Before taking up the work of removal of these wrecks it was considered essential to carry out survey by a team of Salvage Experts. The services of two American Diving Experts viz. John Malatich and Mr. Jim Kendall were requisitioned through the Port Consultants M/s. Frederic R. Harris Inc. The Diving Experts arrived at Chittagong on 8th April 1969 with all the necessary gears and equipment. They have since made extensive survey of the wrecks.

Opportunity of the visit of these two Diving Experts was availed for making a survey of the wreck of the ship 'Golconda' which sank in the river channel near Gupta Training Wall in the year 1940. The survey report of these two Experts is expected to pave the way for ultimate removal of 'Golconda' wreck which would prove extremely helpful for navigation of larger vessels in the Port. (The Chittagong Port Trust)

Better Cargo Clearance

Chittagong:—There has been an overall improvement in the clearance of cargo from the Chittagong Port since January, 1969. On 26th January, 1969, against the total storage capacity of 335,000 tons, a quantity of 215,594 tons of cargo were lying in Ports sheds and open dumps. As a result of special efforts made by all concerned, this quantity was reduced to 141,794 tons on 10-4-1969. This position reflects an improvement to the extent of 34.26% clearance of cargo during the period under review. The break-up of the comparative storage position of cargo, by principal commodities, during the period, is given below:—

| Commodity. | Ground balance of cargo (in tons) as on | |
|------------|---|-----------|
| | 26. 1. 69 | 10. 4. 69 |
| Foodgrain. | 25,044 | 9,022 |
| Cement. | 19,956 | 13,369 |

| | | |
|-------------|--------|--------|
| Fertilizer. | 6,272 | 102 |
| Coal. | 85,063 | 59,791 |
| G/Cargo. | 79,259 | 59,510 |

Total:— 215,594 141,794
(The Chittagong Port Trust)

More Berths at Karachi

Karachi, June 19:—Modernization of Karachi Port trust at a cost of U.S.\$30 million is likely to ease but not entirely solve West Pakistan's increasingly complicated ship-handling problems.

Work on the plan, approved by the executive committee of the National Economic Council (NEC) last month, will begin shortly.

Included in the cost will be U.S.\$25 million earmarked for the construction of eight multi-purpose and dry cargo-handling berths, while \$6 million will be spent on mechanizing port facilities and modernizing existing cargo-handling equipment.

But while the entire project, when completed, should "greatly expand" the port's present ship-handling capacity, said the *Morning News* in a recent editorial, "improvement programs will not really overcome the central problem of providing adequate port facilities for West Pakistan's spiralling needs.

The editorial said what West Pakistan needs is a second port to serve this sprawling wing of the country which also provides trade routes for mountain-locked Afghanistan and Azad Kashmir up north.

Pakistan's own economic growth, too, has increased its need for better and more efficiently run port facilities.

Twenty years ago, Karachi, the only existing port in West Pakistan, handled a bare 2.8 million tons of cargo.

Today, with the country's expanded trade and industrial development it is reported to be handling over 9 million tons per annum, more than double its actual capacity.

"Under these circumstances," said a Karachi port trust official, "port congestion is inevitable if not desirable."

The official also said the projected improvements will bring the expansion of existing port facilities

to saturation point when Pakistan's trade could suffer for want of a second port.

But a second port considered four years ago for Somiani 50 miles north of Karachi, with a navigational depth of 50 feet and able to accommodate ships up to 40,000 tons, appears to have been shelved.

Commenting editorially on this, the *Morning News* called on the government to decide on the construction of a new port as Karachi "cannot indefinitely serve the entire western province" with the country's "upsurge in development and trade." (Shipping and Trade News)

Entrepot Area

Manila, June 15:—President Ferdinand E. Marcos last week signed into law a bill providing for the establishment of an entrepot area at the Port of Mariveles, Bataan, just outside Manila Bay.

The entrepot will be used to store, assemble and reship goods to other countries without paying Philippine customs duties, and as a customs port of entry into the Philippines.

International shipping no longer will have to enter Manila Bay to unload small cargoes in the crowded bay.

Imported goods intended for the U.S. naval base at Subic Bay and the nearby Navy-oriented town of Olongapo also will be able to use the Mariveles entrepot which is only 25 miles south of Olongapo. Goods entering at Manila are 90 miles from the Subic area.

A foreign trade zone authority will be set up to direct establishment of the entrepot area and a new customs division at Mariveles will handle goods entering through the entrepot.

No date has yet been set for the start of operations at Mariveles. (Shipping and Trade News)

Larger Vessels in 1968

Antwerp:—A classification of the incoming vessels by draught and deadweight tonnage shows an increase of the number of large vessels. In 1968 1,133 vessels with a draught of over 30 ft entered the

port as compared with 1,067 in 1967, an increase of 66 units. Whereas the number of vessels with a draught between 30' and 35' diminished, the number of vessels with a draught of over 35 ft went up. The number of vessels draughting 39 ft or more, practically doubled in 1968 as compared with 1967. This clearly indicates the shifting to larger vessels in the ore and oil transportation.

Up to now the number of vessels with a draught of 42 ft is very limited. As works to improve the navigability on the river are proceeding, an increase of this class can also be expected in the future.

Number of vessels with a draught of 30 ft or more

| Draught | 1968 | 1967 | Difference | % |
|---------|-------|-------|------------|--------|
| 30' | 134 | 152 | -18 | -11.9 |
| 31' | 104 | 134 | -30 | -22.3 |
| 32' | 75 | 88 | -13 | -14.7 |
| 33' | 56 | 72 | -16 | -22.2 |
| 34' | 57 | 70 | -13 | -18.5 |
| 35' | 52 | 66 | -14 | -21.2 |
| 36' | 100 | 90 | +10 | +11.1 |
| 37' | 110 | 92 | +18 | +19.5 |
| 38' | 163 | 159 | +4 | +2.5 |
| 39' | 168 | 102 | +66 | +64.7 |
| 40' | 86 | 33 | +53 | +160.6 |
| 41' | 26 | 8 | +18 | +225.— |
| 42' | 2 | 1 | +1 | +100.— |
| | 1,133 | 1,067 | +66 | +6.1 |

The classification of the vessels by deadweight tonnage shows the same evolution.

Number of vessels with a deadweight of 40,000 tons or more






| Deadweight | 1968 | 1967 | Difference |
|------------|------|------|------------|
| +40,000 | 280 | 236 | +44 |
| +50,000 | 86 | 139 | -53 |
| +60,000 | 43 | — | +43 |
| +70,000 | 46 | — | +46 |
| | 455 | 375 | +80 |

The figures for 1968 cannot be compared with the 1967 figures as all vessels of 50,000 tons and more were then brought together in one group. Nevertheless figures clearly show an increase in the group of larger vessels.

Top figures for the loadings were 79,400 tons of crude oil in the tanker traffic and 72,800 ton of iron ore in the dry cargo traffic. (Antwerp Port News)

Rotterdam's Trade 1967/1968

Source : C.B.S.

| INTERNATIONAL GOODS TRAFFIC | | JANUARY / DECEMBER 1968 / 1967 X 1000 T. | | | |
|--|-------------------|---|---------|----------|------|
| | | 1967 | 1968 | absolute | in % |
| SEA - BORNE GOODS TRAFFIC  | Imports | 69,808 | 76,778 | + 6,970 | + 10 |
| | Transit | 36,181 | 42,331 | + 6,150 | + 17 |
| | Unloaded | 105,989 | 119,109 | + 13,120 | + 12 |
| | Exports | 22,916 | 24,516 | + 1,600 | + 7 |
| | Transit | 12,447 | 13,257 | + 810 | + 7 |
| | Loaded | 35,363 | 37,773 | + 2,410 | + 7 |
| | Unloaded + loaded | 141,352 | 156,882 | + 15,530 | + 11 |
| | | | | | |
| INLAND-WATER TRANSPORT  | Imports | 3,492 | 4,870 | + 1,378 | + 39 |
| | Transit | 8,203 | 8,267 | + 64 | + 1 |
| | Unloaded | 11,695 | 13,137 | + 1,442 | + 12 |
| | Exports | 8,111 | 9,325 | + 1,214 | + 15 |
| | Transit | 31,612 | 36,784 | + 5,172 | + 16 |
| | Loaded | 39,723 | 46,109 | + 6,386 | + 16 |
| | Unloaded + loaded | 51,418 | 59,246 | + 7,828 | + 15 |
| | | | | | |
| GOODS TRAFFIC BY RAIL  | Imports | 683 | 904 | + 221 | + 32 |
| | Transit | 245 | 369 | + 124 | + 51 |
| | Unloaded | 928 | 1,273 | + 345 | + 37 |
| | Exports | 452 | 506 | + 54 | + 12 |
| | Transit | 331 | 519 | + 188 | + 57 |
| | Loaded | 783 | 1,025 | + 242 | + 31 |
| | Unloaded + loaded | 1,711 | 2,298 | + 587 | + 34 |
| | | | | | |
| GOODS TRAFFIC BY ROAD  | Imports | 819 | 979 | + 160 | + 20 |
| | Transit | 735 | 817 | + 82 | + 11 |
| | Unloaded | 1,554 | 1,796 | + 242 | + 16 |
| | Exports | 951 | 1,168 | + 217 | + 23 |
| | Transit | 1,056 | 1,190 | + 134 | + 13 |
| | Loaded | 2,007 | 2,358 | + 351 | + 17 |
| | Unloaded + loaded | 3,561 | 4,154 | + 593 | + 17 |
| | | | | | |
| ROTTERDAM-RHINE PIPELINE  | Outgoing | 14,725 | 16,684 | + 1,959 | + 13 |
| | | | | | |

Hamburg News

Skoda Exports via Hamburg

All private cars and tractors of the Skoda works, Czechoslovakia, with destination King's Lynn are now being shipped via Hamburg. The British affiliate, Skoda (Great Britain) Ltd., channels its Skoda cars exclusively via King's Lynn and plans to considerably expand these imports.

Two sailings a week from Hamburg to King's Lynn are offered by the Washbay Linie in charge of these shipments. The vessels are dispatched at the roll-on/roll-off facility operated by the Hamburger Hafen-und Lagerhaus-AG.

75% of Citrus Fruit imports

The citrus fruit season 1968/69 reached its peak in January, and the thirteen heatable fruit sheds experienced their busiest period. The dispatch of fruit vessels in the port has been further rationalized in the past two years, resulting in a still faster and smoother discharge. In addition, more than 50% of the fruit are now pre-sorted according

to size in the ports of shipment and accordingly stowed in the holds, which considerably accelerates discharge. In Hamburg, part of the goods are transferred immediately into waiting goods trains for further transport.

During the 1967/68 season around 581,300 tons of oranges and 61,500 tons of grape fruit were imported into the Federal Republic. Countries of origin were Spain, Morocco, Greece, Cyprus, Turkey, South Africa, Brazil, the USA and Israel. Jaffa fruit had a share of 25% in the imports of oranges, and 74% in the case of grape fruit. More than 25% of Israel's total harvest was absorbed by West Germany.

Around 75% of these imports were channelled via Hamburg last year. In addition, considerable quantities went in transit to other EEC countries. The annual deliveries of tropical and semi-tropical fruit now amount to 1.1 million tons.

General Cargo Facility

A new handling facility for gen-

eral cargoes of all kinds is at present under construction at the Predöhl-kai in the Waltershof harbour basin. Following the completion of the quay wall, surface constructional work was recently taken in hand. The steel skeleton of the large storage shed is already in position, and two 25-ton cranes are approaching completion. In spring the all-purpose facility of the Euro-Kai KGaA. with good road and rail connections will start its activities.

General cargo and container ships can be dispatched at the 214-metre long quay wall with a depth of water alongside of 11 m. There will be 20,000-sq. m. of container marshalling yards, a shed with a capacity of 30,000 cu. m., a weighing-bridge for vehicles (60 tons), connections for refrigerated containers, a container repair service.

The two cranes, with an outreach of 36 m. each, will handle either individually or coupled, any kind of general cargo, unit loads, flats and containers up to 40 ft. The Euro-Kai, whose shareholders are old-established Hamburg companies, is investing 6 million DM for the first building stage, in addition to more than half of that sum found by the Hamburg government for infrastructure works. Further extensions are planned.

Major German Seaports

The ten most important seaports of the Federal Republic handled 106.8 million tons of goods last year. This made up for the decline in 1967 to 98.2 million tons and even exceeded the previous peak of 100 million tons handled in 1966.

The increase in outward bound shipments by approximately 10% (+1.9 million tons) was mainly made up by high-value general cargo. However, the overall rise was mainly accounted for by imports going up by 6.5 million tons over the previous year, chiefly because of higher arrivals of raw materials. With a rise by 2.7 million tons the share of general cargo in the total increased to 26.5%. Its rate of growth reached, in fact, a new record with almost 11%. Outgoing, the rise was 9.6%, incoming shipments went up by 12.3%.

In the bulk goods sector, which

rose by a bare 6 million tons, the main contributions came from increased imports of ores (+2.1 mill. tons) and petroleum (+3.3 mill. tons).

New Wage Rate Agreement for Port Workers

A new wage rate agreement has been concluded between the Central Federation of German Seaport Operators and the Public Services and Transport Trade Union, headquarters in Stuttgart, for port workers of the German seaport operators which went into force on February 1st, 1969.

The basic wage for the 1st shift was raised by 8% from DM 31 to DM 33.50. The original demands of the ÖTV trade union were for an increase to DM 35.—or 12.9%. The extra rates for night, Sunday and holiday work as well as overtime work were raised in corresponding percentages to the basic wage increase. (Ship Via Hamburg, February, March)

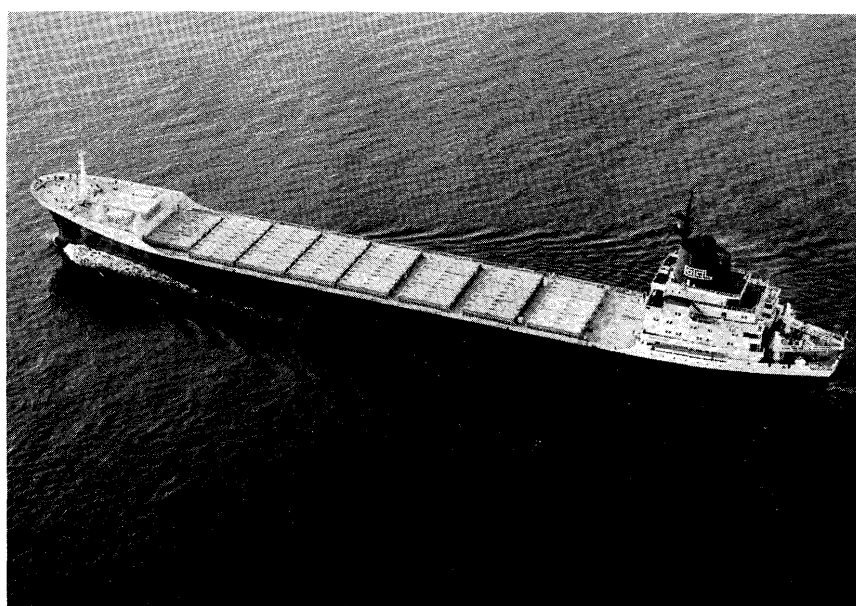
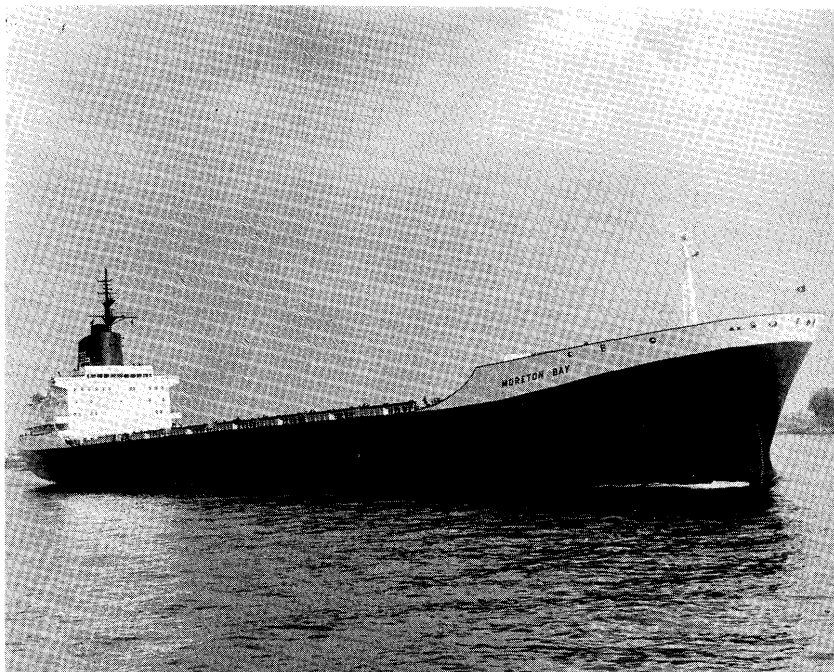
"Moreton Bay" for OCL

Hamburg: — After the successful conclusion of several day's trials in the North Sea, the "MORETON BAY" was handed over on June 13th, 1969 to her owners, the Peninsular & Oriental Steam Navigation Co. The P. & O. is a member of the consortium Overseas Container Ltd. (OCL), which placed an order in 1967 for five container ships with the Hamburg shipyards Howaldtswerke, Deutsche Werft and Blohm + Voss.

Four of the ships were built by what is now the Howaldts-werke-Deutsche Werft AG, while one was built by Blohm + Voss. The order for a sixth ship was placed with the Fairfield yard in Glasgow. Immediately after the orders were placed, the Hamburg yards formed a container-ship consortium for co-operation on all aspects of technical design and to apportion and coordinate the construction work.

The "MORETON BAY", built by Blohm + Voss, is the fourth ship of the series to be delivered. These are the largest all-container ships in the world now in service, and are being operated on the Britain-Australia run, for which the actual

For Britain-Australia Run



sailing time will be 23 days.

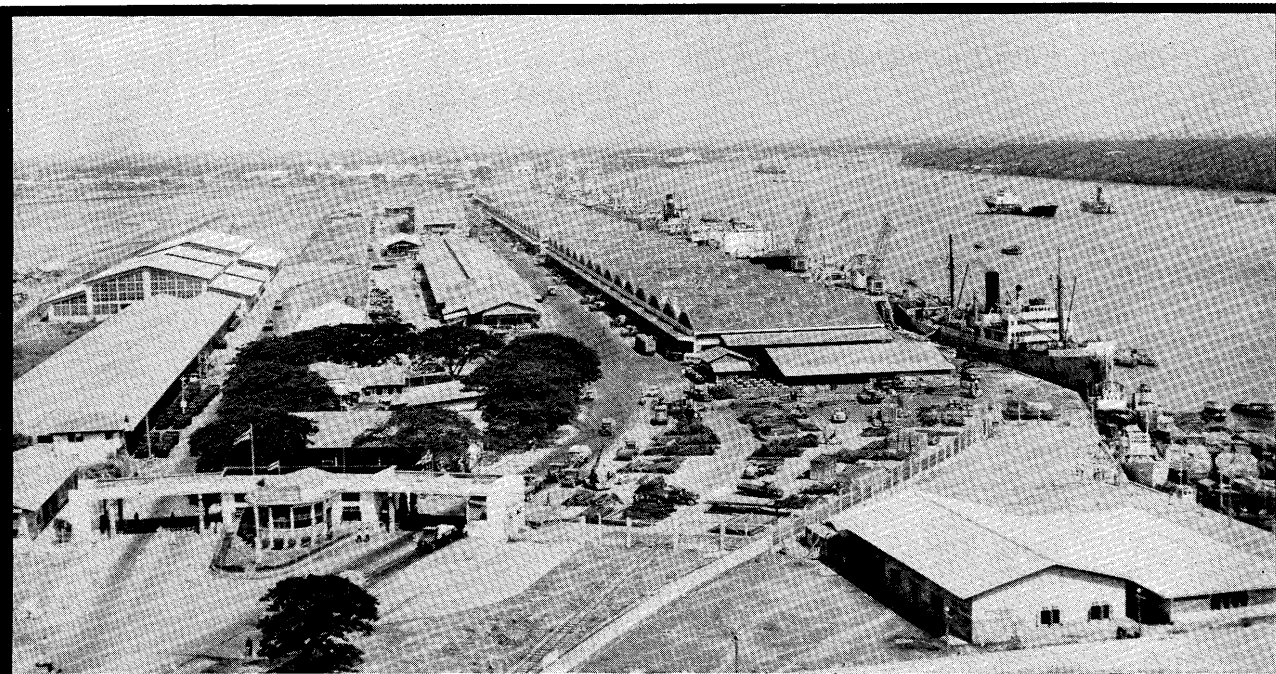
The only points of call will be the container terminals at Tilbury, Melbourne, Sydney and Fremantle. Feeder services will link the Australian terminals with Adelaide and Brisbane as well as ports in Tasmania and North Queensland.

By employing the most modern container loading bridges operating on the twin-lift system it is possible to load and discharge these ships—carrying capacity 1,300 20-ft. con-

tainers—in less than 48 hours. By making suitable modifications it is also possible to handle 40-ft containers.

In order to avoid loss or damage in heavy seas, the 526 containers carried on deck are secured by special lashings. The ship is also fitted with stabilizer tanks to reduce roll in a seaway.

The propulsion machinery consists of a 32,450 shp Stal-Laval geared steam turbine which gives



PORT OF BANGKOK

THE GATEWAY FOR INTERNATIONAL TRADE AND SHIPPING TO THAILAND

the ship a speed of 22 knots. Steam is generated in two Foster-Wheeler boilers built under licence by Blohm + Voss, normally rated at 48 and 53 tons/hr respectively at 510°C.

The accommodation on the "MORETON BAY" is of an unusually high standard, and includes single cabins for each of the crew of forty-five. An open-air swimming pool is also provided for their recreation.

A comprehensive system of navigational aids of the most modern type ensures that the strict time schedule necessary in container transport can be adhered to under all normal conditions.

The principal particulars of the "MORETON BAY" are as follows:

| | | |
|----------------|------------------------------|--------|
| Length overall | abt. 227.30 m | 745'9" |
| Length b. p. | 213.36 m | 700'0" |
| Beam moulded | 30.50 m | 100'0" |
| Depth moulded | 16.46 m | 54'0" |
| Max. draught | 10.67 m | 35'0" |
| Deadweight | abt. 29.150 long tons | |
| Class | Lloyd's Register of Shipping | |
| Gross tonnage | abt. 27.000 GRT | |
| Engine power | 32.000 SHP | |

| | |
|-------------------|-------------------|
| Service speed | 22 knots |
| Container | 20' × 8' × 8' ISO |
| Total | 1300 |
| including | 304 insulated |
| (Blohm + Voss AG) | |

Barcelona-Bilbao Route

Barcelona:—As we were about to close this number, we received advice of the authorization granted by the General Customs Administration to establish a new line of combined transports which may mean a considerable increase in traffic, and with new perspectives for the Port of Barcelona.

The fact is that authorization has been granted for a new system of operation by which containers may be loaded and cleared through the Customs in the Port of Bilbao to be transported overland and loaded at the Port of Barcelona, or in reverse, to receive containers in Barcelona Port which would continue their course and be unloaded in the area of the Port of Bilbao.

This system of transport opens a

combined short circuit line of transport through the Iberian Peninsula, practically joining the shipping lines, with terminals in Bilbao and Barcelona, through the overland transportation of containers between both ports.

We hope that this possibility to reduce the time required for transports, which otherwise would have to go all round the Peninsular, will in the future allow a special increase in traffic between the Atlantic and the Mediterranean.

Transport of containers between Bilbao and Barcelona will be effected especially by means of standardized trains. Therefore we have already commenced in this Port to provide special equipments to carry the containers from the railway platforms to the trucks, or vice-versa, in order to make possible every kind of combination of movement of containers.

Expanding on this same theme, we may say that on the 16th February next the construction work for the containers terminal will be awarded. (Puerto de Barcelona Boletín Informativo, January)

PATENTED NON-INCLINING BUOY

PATENT No. SHO 38-20927



NON-INCLINING BUOY

PEG-TOP BUOY (inclining)

While ordinary mooring buoys bob and weave, exposing their underside when pulled by a large vessel, our patented Non-inclining Buoys always keep an even keel regardless of the size of the tanker to which it is tied. This is because of an ingenious device in the buoy-head. The buoy is equipped with a movable arm and hinge anchored at the center of gravity of the buoy. To this arm is attached a base chain which assumes the proper radius the ship & moored rope require.

Thus the chain inclines in place of the buoy, keeping the buoy always even since the buoy always faces in the direc-

tion of the pulling force. Non-inclining buoys are designed, manufactured and installed by Hamanaka.

Hamanaka has been privileged to construct the Tokuyama Seaberth (Idemitsu Refinery) in 1966, consisting of seven Non-inclining buoys. Each month these buoys moor the world's largest tanker, "Idemitsu Maru".

Since 1951, we have successfully installed more than 360 buoys. Our experience in submarine pipeline construction is vast. We most respectfully request the opportunity to be of service in submarine oil pipeline and seaberth construction, and stand ready to offer practical suggestions at any time.



HAMANAKA CHAIN MFG. CO., LTD.

TOKYO OFFICE : YURAKUCHO BLDG., YURAKUCHO 1-5, TOKYO

Phone (213) 8681

CABLE ADDRESS : "CHAINBEST" TOKYO

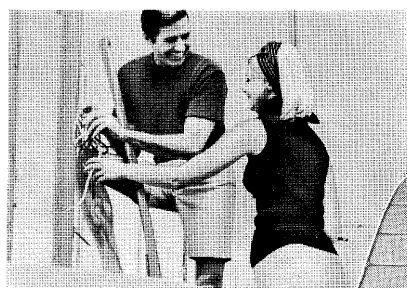
FACTORY :

SHIRAHAMA, HIMEJI, JAPAN

Phone (0792) 45-5151

THE WORLD OF SEIKO TIME:

Sleek...Luxurious...Precise



Ref. 53023

In this busy world of ours, times have changed.
And Seiko, the world's largest jeweled-lever watch manufacturing company, have changed time.

They have made it more accurate. More dependable.
And at the same time, more realistically priced.

As a result, Seiko time has become the standard of excellence in more than 80 countries of the world.

Take this handsome watch, for example. Automatic winding, waterproof and shock-resistant. With precision

21-jewel movement. Day/date window. And instant date resetting.

Wherever you go, whatever you do, enjoy the world of Seiko time.

You will love every minute of it.

Head Office: Seiko Watches—
K. Hattori & Co., Ltd., Tokyo, Japan.

SEIKO
Modern Masters of Time