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Tanoura Container Terminal Port of Kitakyushu

Japan

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PORTS and HARBORS

Forum on Port Problems:

Freight Handling Charges, Who Should Fix Them, and How?

February 18, 1971

Auckland Harbour Board New Zealand

An independent national authority to supervise the costs of loading and discharging ships and to establish wharf handling charges is being sought by the Auckland Harbour Board.

The Board wants the authority to be independent of all waterfront activities and to fix wharf handling charges which shipping companies and stevedores would pass on to users.

At its monthly meeting this week, the Board decided to ask the Harbours Association to use its full influence to have the whole system of wharf handling charges reviewed.

The Board also decided to notify the New Zealand European Shipping Association that it was not prepared to comment on or approve any new wharf handling charges until it received full supporting information.

And it decided to ask the Harbours Association to seek an amendment to the Harbours Act to permit harbour boards to undertake stevedoring and wharfingering operations or to licence companies to do so.

These decisions followed a report from the Board's General Manager, Mr. R. T. Lorimer, who said that unsatisfactory and complicated methods of calculating wharf handling charges had been allowed to develop.

The Board had repeatedly drawn this matter to the attention of the Harbour Association and the association executive had recently expressed concern over the deterioration and trends of the system of calculating charges.

"The various harbour boards are now realising the serious shortcomings of the system and the lack of appropriate information and details, which prevent individual ports from obtaining details about any particular aspect of their trade," Mr. Lorimer said.

The association was seeking urgent discussions with the New Zealand European Shipping Association with the objective of introducing more satisfactory methods of computing and collecting wharf handling charges.

Mr. Lorimer said that the proposed authority would avoid the present situation of the shipping companies fixing freight rates, negotiating waterfront wages and passing on the shore costs through the wharf handling system.

"A remedy to control some aspects of freight handling costs lies in our own hands—that is, to ensure that rates are negotiated and settled by an independent authority," Mr. Lorimer said.

A properly supervised wharf handling charge system could then be evolved and the cost of ship loading and the resulting charges be made to bear some relation to the rest of New Zealand's industrial cost structure.

A member of the board, Mr. H. J. Lichtenstein, said that New Zealand's producers, importers and exporters were not being given enough consideration by the Waterfront Industries Commission.

Mr. Lichtenstein said he was alarmed at the continued lack of consideration for and co-operation with producers, and the continued refusal of the Commission to provide proper details on the wharf handling charges to all concerned.

He said there was a lack of interest by farmers, by Chambers of Commerce and shippers, who accepted the charges and left it to the Harbour Board to fight the battle.

Mr. Lichtenstein said that three years ago the Harbours Association tried to seek an amendment to the Harbours Act enabling harbour boards to undertake wharfingering or to license others to do so.

He felt this matter should not be allowed to lapse, and in view of the development of containerisation, harbour boards should have the power to license stevedores and have everything conducted in a businesslike manner. He therefore moved an amendment to Mr. Lorimer's recommendations to include a recommendation that the Harbours Act be amended.

Said Mr. Lichtenstein: "The power of harbour boards to license stevedores would apply not only to containers, but also to traditional shipping, and if this was maintained the boards would see that wharf handling charges were sound and businesslike."

Mr. Lorimer said there was nothing to prevent the Auckland Harbour Board using its own private legislation to introduce the licensing system, but it was more appropriate, and it would carry more weight with the Minister of Marine, if harbour boards throughout New Zealand agreed to the amendment.

Mr. Lorimer added that the Harbour Board was in favour, in principle, of such an amendment. The difficulty was in getting agreement from stevedores and shipping companies. For this reason the matter was to be discussed by the Harbours Association at its next meeting.

Volume Handling of

Forest Products

An address by G.A. Dawson, P. Eng., Special Projects Engineer

Swan Wooster Engineering Co., Ltd. Consulting Engineers 1525 Robson Street Vancouver 5, B.C.

> Saint John Port Day New Brunswick Monday, February 15, 1971

Introduction

It is a special pleasure to speak to you this morning as we, on the West Coast, feel we have common interests and activities connected with the sea.

My subject today is volume handling of Forest Products.

In order to cover such a broad subject in the time allowed, I shall try to describe in words, and pictorially, specific transport applications. When speaking of volume handling, these applications are but part of the total product distribution, and we find more and more emphasis by industry on thorough investigation of their total situation before commitments are made for significant change. For the purposes of this talk, Forest Products can be considered to include packaged lumber, plywood, baled pulp, newsprint and kraft papers.

Generally, we will mention traditional or historical systems by way of background and then proceed to describe the transportation, terminal and equipment requirements for certain systems. Where possible we will indicate the order of productivity which may be attained with various systems. We will present examples of systems and equipment recently put into service or under study, along with selected photographs or slides.

We hope to throw some light on what is needed to handle large volumes of wood products and pulp and paper in terms of physical facilities, transportation modes and equipment and to answer the question "Why do it that way?" PACKAGED LUMBER

PACKAGED LUMBER History

In the last decade the lumber produced on the West Coast has advanced from shipments in the loose form to almost 100% packaged (mainly wire strapped) containing a common specie and size of lumber.

Over the same period the largest ship handling forest products has increased from 15,000 deadweight tons to 45,000 deadweight. This last vessel carries a lumber load of over 22 million FBM. Some shipping experts are predicting that by the mid '70's, ships of 50,000 DWT will be commonplace in this trade.

Of particular significance is the change in the type of vessel from 'tween deck to the current open hatch bulk carrier. This has allowed greatly improved cargo stowage and handling efficiency.

In the past few years, there has been a tremendous activity in the development and installation of new cargo handling gear and attachments for open hatch bulk carriers. A major part of this activity has resulted from the cooperation of forest products companies on the West Coast and manufacturers and shipping people in Northern Europe. As a result, we now see vessels equipped with the following increasing capacity gear: 3 to 5 tons—winch and derricks 5 to 8 tons—revolving cranes 8 tons—velle gear

15 to 25 tons-gantry cranes

We will show examples of vessels equipped with some of the above types of handling equipment.

Traditionally, lumber for water shipment has moved from the larger mills directly to the ship at the mill dock. From the smaller mills, it was placed aboard open scows by crane and moved alongside the vessel at a berth usually some distance from the source of production. Here it was loaded by ship's gear.

In recent years, with ship load sizes increasing, the number of loading berths required to fully supply the ship has been up to six or more. Loading at a number of ports reduces the overall economy possible for the movements. Latterly, with the improved loading productivity, increased draft requirements and higher daily ship costs, it has become imperative to turn the ships faster and to have more of the products available at a minimum number of loading points in order to remain competitive in overseas markets.

The recently announced Seaboard Dock Assembly System terminal at Vancouver is a current example of a major new consolidated wood products facility predicted to maintain competitiveness. We will show a perspective of this terminal.

In the past few years we have seen lumber scow sizes increase from those handling a few hundred thousand feet to a substantial number of $\frac{1}{2}$ and 1 million foot scows. The maximum size now operating carry from 3 to 4 million FBM, and we hear consideration is being given to scows capable of lumber loads up to 15 million FBM for offshore movements.

Concurrently with the increase in scow load size, there has been a change in the loading and discharging technique. A number of producers find it economical to load lumber scows over floating ramps using large lift trucks. Others load and discharge scows by passing the load from the dock to the scow with fork trucks and vice versa.

Equipment for handling lumber in B.C. terminal operations has changed along with the change from loose lumber handling to high levels of packaged lumber.

Not many years ago, the two package straddle carrier was considered most efficient when compared with the solid tired lift truck of the day. The carrier could move lumber over rough yard areas at high speeds with good reliability while the lift truck with its solid tires and slower speed with the loose lumber loads of the day was not competitive.

Today's lift trucks, used in packaged lumber yard operations, are mounted on pneumatic tires, can travel at high speeds and, most important, are of higher capacity than carriers generally available. In addition, a lift truck operation requires fewer transfers of the load into high piled storage. Such storage minimizes the land requirements and fewer transfers reduce labour cost. These factors led to the increased popularity of lift truck systems in recent years.

Aside from water shipment of lumber products, there is a substantial rail movement from B.C. Interior mills. Here again, volume handling techniques and new railway equipment have improved the economy of distribution systems. Where lumber was loaded mainly on open staked flat cars and stick by stick into box cars only a few years ago, we now see specialized cars such as the bulkhead flat and wide door box cars used most intensively. Railway cars of 80 tons load capacity are in demand. Lumber cars of 100 ton capacity have been tested across North America under operating conditions over the past two years, and it seems probable that unit trains employing such equipment may become a reality.

Wood products trucks now in common use are the 40 foot semitrailer and a tractor-trailer combination composed of an 18 foot tractor flat deck and a 20 foot trailer flat deck.

Of course, along with the technical advances in transport, terminals and handling systems, uniformity in grading practices and inventory control are important. Lumber coding and computer assisted control systems are being increasingly applied.

TRANSPORTATION, TERMI-NALS AND EQUIPMENT

As you can see from the history of developments in volume handling of lumber, there are continuing changes. This is inevitable, and we are sure that the vigor shown in finding new and better ways of keeping Canadian products competitive in world markets will continue. Indeed, it will have to continue to remain competitive as other nations are actively seeking and instituting integrated forest product distribution systems of a highly efficient nature. We will have more to say about completely integrated distribution systems.

Up to this point, we have given a rough sketch of some of the factors involved in the development of modern volume transportation systems and handling of lumber.

Perhaps an illustration of what might comprise a modern export lumber terminal development would be helpful. Let us assume that an annual volume of 200 million FBM of packaged lumber is available from the supplying area, and that year round input transport may be by road and rail and export transport may be by deepsea vessel.

The physical facilities could include: a level sea front site, fenced and paved sufficient for about 10% of the annual throughput or about 14 acres; a single berth dock initially capable of handling vessels of 600 feet or more in length and 35 to 40 feet loaded draft; a railway siding for 10 cars and truck access to the site; longshoremen's facilities, office and gatehouse and equipment service and protection and maintenance facilities complete the main requirements.

Let us assume the use of fork lift trucks. If lumber input were split evenly between rail and truck, three large lift trucks (of 25,000 lbs. capacity) should handle the input volume.

For modern bulk ship lumber loading it is desirable to preassemble the cargo preferably within 300 to 400 feet from the dock apron. Such ships generally sling two to four $2' \times 4'$ packages per lift and can readily be supplied by fork lifts from lumber stocks which have been piled up to 8 packages high. Large capacity fork lifts can normally supply two cargo gear.

Specialized ships with gantry cranes usually prefer lifting a shipboard unit of two packages wide by 4 packages high comprising about 10,000 FBM or about 14.5 tons at average density. In order to keep up with the ship cranes, these units must all be pre-assembled one high with virtually 100% accessibility. Terminal storage density for this type of operation is thereby reduced and apron distances increased so that consideration should be given to other horizontal terminal transport systems such as large straddle carriers or high capacity tractortrailers.

Berth capacities ranging over 150 million FBM (about 300,000 tons) per year are now designed and under ideal, fully integrated systems, volumes of up to 250 million FBM or 500,000 tons per year are expected.

The foregoing is a very general treatment and does not include the many other important considerations. For instance, variations in deepsea terminal storage capacity can range roughly as follows:

for a 1 (+) billion FBM annual throughput—7%

for a 400 million FBM annual throughput—5%

for a 100 million FBM annual throughput—10%

The range of package lumber loading productivities with different types of vessels and gear are significant. Order of magnitude figures are:

Bulk-Bridge Crane Gear

-30 to 100,000 FBM/gang hour Bulk-Crane Gear

 $30{,}000 \ {\rm FBM/gang} \ {\rm hour} \\ {\rm Bulk-Velle} \ {\rm Gear}$

26,000 FBM/gang hour Bulk-Winch & Derrick

23,000 FBM/gang hour 'Tween Deck-Winch & Derrick

18,000 FBM/gang hour Deep Sea Barge

-over 100,000 FBM/gang hour

When we compare the above productivities with those attained in loading loose lumber at about 13,000 FBM per gang hour, we can readily see why the industry has been so active in seeking improvement.

We will now show a few selected pictures of the kinds of vessels,

developments and equipment used in the transportation and volume handling of wood products.

PULP AND PAPER History

The transport and handling of pulp and paper has been improved over the past decade at a pace similar to wood products.

Single rolls and bales used to be handled with rope slings and hand trucks for the movement into position in the holds of ships.

The ships used were mainly liners with 'tween decks, and, in some cases, more specialized pulp and paper ships capable of carrying loads of 2,000 to 5,000 short tons. These latter ships were equipped with winch and derrick gear and typically used the two roll Jensen (web) sling for loading. On the dock the products were handled in units of about 4,000 lbs., either palletized in the case of pulp, or in two roll units of newsprint or one roll of kraft paper handled by fork and clamp trucks.

Newsprint and kraft papers are sensitive to damage and there has been a continuing emphasis on the search for handling techniques which would significantly reduce damage and allow multiple unit handling to maximize economies of scale. Early in the 1960's paper rolls were successfully handled into rail cars using a lift truck equipped with a vacuum attachment. We understand this was at I.P.'s Arkansas mill in 1963. Late in the same year Bowaters in New York used vacuum trucks for newsprint movement from the ship to warehouse. By this time, West Coast industry, namely Crown Zellerbach and Mac-Millan Bloedel, were actively engaged in development programs dealing with vacuum handling. These activities were directed mainly to multiple roll handling for the transfer from dock to ship and vice versa. Previous to the West Coast trials on vacuum handling, Crown Zellerbach Corp. of San Francisco had developed a multiple roll mechanical head clamp system for their new specialized open hatch bridge crane ships, the M. S. Rondeggan and Besseggen. We understand this system has proven to be a highly efficient transport method. For reasons of the depend-

ability of damage reduction and the significant improvement in stowage to be gained by vacuum handling an extensive investigation and field program of vacuum handling has been carried out in cooperation with the Hyster Company of Portland, Oregon. In the meantime, the Norwegian firm of Munck proceeded independently to develop, test and market an extensive range of cargo handling attachments for multiple unit handling of all forest products integrated with dry bulk handling equipment. I'm sure you are all aware of the application of the above types of equipment to current dry bulk vessels.

Ships' bridge crane attachments for forest products handling now generally available have the following capacities:

Newsprint and paper rolls

-4 to 12 full size rolls, 16 tons Pulp

-up to 64-500 lb. bales, 16 tons Lumber

—up to 20 tons

We shall see some examples of the vessels and equipment in the pictures following.

So far we have been perhaps "tooting our horn" a little too much about Canadian and West Coast volume handling of forest products. The reason for this comment is that the most modern operating example of a truly integrated modern forest products development is that of the Swedish company, Svenska Cellulosa AB (SCA). I would like to tell you briefly about this development through quoting portions of a recent technical paper by Naval Architect, R. N. Herbert.

In 1965, after more than three years of study, SCA embarked on the creation of a rationalized distribution system to handle some 800,000 tons of products destined for central Europe and the U.K. Previously their products were loaded at more than 25 ports and discharged at 150 European ports. Individual shipments averaged 200 tons each and were conventionally routed and sold under traditional arrangements tending to inhibit efficient treatment as a whole.

The new system embodies the following principles:

* A centralized distribution organization inserted between production and sales with consequent realignment of internal profit centres.

- * A concentration of the ports of loading and discharge; the new terminals to be wholly under SCA's control, and functioning both as transit and distribution centers.
- * A specialized transport system including new ships, terminals, shore side handling equipment, inland truck, rail and barge subsystems, and commodity shipment units all integral with each other and entirely under SCA's control.

Detailed simulations of inventory and shipment control were carried out using scale models of the terminals, ships' holds and cargo shipment units. From this emerged a unique system, computer-assisted, for identifying and controlling each item passing through the chain from mill to customer. In contrast with conventional cargo loading, for instance, each shipload is preplanned commencing 10 days before arrival, including trim and stability calculations, and each cargo unit is then delivered to the apron and loaded aboard in pre-assigned numerical sequence.

Mr. Herbert concludes with the following pertinent statements. It should be clear that individual savings and efficiency gains within this system are achieved as a product of the whole, including especially the progressive efforts of those who make it function. Adoption of any single feature into other marine transportation systems without understanding or implementing this interrelationship would not necessarily guarantee improvement. It is the whole system which must be considered; its components work best when planned together with flexibility but without compromise on fundamentals.

We will show a few pictures of the system.

We touched earlier on the progress made in recent years on developments in ships' cargo handling gear for vacuum handling of newsprint and other roll paper products. We would like to tell you of what now might be called "first generation" finished forest products deepsea barging employing vacuum lift

truck stowage of cargo. In 1963 the last of a group of studies on deep sea newsprint distribution were completed by MacMillan Bloedel. These comprised the possibilities for bulk ship and specialized bulk ship systems, and, lastly, a deep sea tug and barge system. The tug and barge system appeared to provide the best answers. The system employs barges of 7,200 tons newsprint capacity towed by a tug of 3,500HP. Some of the factors which influenced a favorable decision for barging newsprint some 1,200 miles to California were as follows:

- 1. The successful long distance barge operations between the U.S. West Coast, Hawaii and British Columbia.
- 2. The cargo carrying capacity of an unmanned barge is much greater than that of the same size ship, resulting in lower total capital costs.
- 3. Under certain circumstances, barges may be used at loading or discharge ends as warehouses to reduce the number of product handlings and at times to relieve shore warehousing during periods of high inventories.
- 4. A covered barge with no interior house supports lends itself to development of the lowest cost cargo handling system with the potential for less damage.
- 5. Less labour intensive handling systems with greater man hour productivity and more accurate cost predictability are possible.
- 6. Lower port charges and lower daily vessel costs are obtained with an unmanned barge.
- 7. Greater scheduling flexibility and adaptability to more berth positions are benefits.
- 8. Very wide flexibility in regard to maximum and minimum rate of loading or discharging may be used to advantage.
- 9. Of course, the total economics of the system appeared better than ships.

In spite of these favorable factors there were some important considerations which were matters of conjecture until actual experience was gained. These were: service reliability, towing performance, load stability and newsprint damage.

All of these factors have proven to be superior to the estimated performance and we understand that the owners are pleased with the results of the system which went into operation in 1966.

Interest in this method of distribution is receiving increased attention and, as you may know, the Port of Saint John is about to witness the start of a similar operation from the MacMillan-Rothesay plant here.

We will show some slides of the original deepsea newsprint operation.

We see reports today of deepsea barge designs, mainly for liquid bulk cargoes, under consideration for barges varying from 16,000 dwt to 50,000 dwt, and tug powers which vary from some 4,000 to 7,000 HP and higher. Service speeds of 14 knots for some large units are being guaranteed.

A recent report published by the U.S. Maritime Administration suggests that barge-train systems for general cargo, bulk and containers are worthy of consideration.

It seems likely that examination of current barge distribution systems for possible application in the Maritime Provinces could lead to economic benefits.

TRANSPORTATION, TERMI-NALS AND EQUIPMENT

We believe the ingredients of a modern pulp and paper system to handle volume movements should be based on treatment of the system using the total distribution concept. This may involve a thorough examination of the physical characteristics of the finished products, with particular attention given to the development and integration of shipment units with the transport modes, having regard for marketing factors. The terminals, their associated equipment and vessels and their equipment should result from the basic product and marketing criteria.

Terminal input systems for pulp and paper by rail where possible should employ such equipment as cars of the wide door classification to allow full advantage to be taken of the capability of the loading and discharging equipment.

Where trucking is necessary, consideration of the use of covered equipment capable of side discharge may prove advantageous. If conditions allow terminal input or output by covered barge, the roll-on rolloff system may have outstanding merit.

A recent installation of the socalled "walking beam" conveyor system at Copenhagen is understood to be operating efficiently in the discharge of small specialized newsprint ships.

A "walking beam" is composed of two static side members, or beams, spaced to accept the product load. Between the side members is a movable beam which oscillates upward and forward lifting the load about one inch and carrying it forward the distance of the stroke, about six feet. We will show a picture of those at Copenhagen.

The temporary in-transit storage of pulp and newsprint can be provided at the terminal in warehouses using lift truck handling systems at overall area requirements of from 8 to 10 sq. ft. per short ton for medium throughputs. More sophisticated, and capital intensive, high stacking crane systems for large volume regular movements could be expected to approach 6 sq. ft. per short ton in area requirements.

It is interesting to note the comparative productivities of various cargo handling systems. Order of magnitude figures are as follows:

Newsprint

Newsprint loading into vessels operating 10 years ago averaged something less than 4 tons/man hour, using a 12 man gang. Newsprint loading into bridge crane ships in recent years has averaged about 14 tons/man hour, using a 6 man gang. Newsprint discharging by the walking beam system initially was operating at about 24 tons/ man hour, using a 2 man gang. Newsprint loading directly into deep sea barges is highly dependent on the product size handled but has generally been of a higher order than any of the above systems, peaking to over 60 tons per machine hour, using two or three machines in a four man gang.

Pulp and Kraft

The range of ship loading productivities in long tons per gang hour for different types of vessels

(Continued on Next Page Bottom)

Bubbler System Is Key to Keeping Great-Lakes–St. Lawrence Seaway Open to Year-Round Shipping

Seaway Port Authority of Duluth

Duluth, Minn., March 31: — Marine engineers who coordinated a late-winter de-icing project in the Port of Duluth-Superior agree that a bubbler system can keep most harbors in the Great Lakes-St. Lawrence Seaway system open to yearround shipping—and can do it economically.

This analysis follows completion of a pilot project in March by the U.S. Army Corps of Engineers which involved installation and tests of a bubbler system and icebreaking maneuvers.

The \$50,000 experiment, a subject of considerable interest throughout the Great Lakes marine indus-

and gear are approximately as follows: Pulp Kraft

Bulk-bridge crane gear 140 110 Bulk-crane velle gear 34 30 Bulk-winch and derrick

³³ 27 'Tween deck-winch and derrick

25 20

We will now see some pictorial examples of the things we have been describing.

In answer to the question "Why do it that way?" posed at the beginning of this talk, I believe we must relate the needs and progressive development of the forest products industry to the competition to be faced in the markets of the world.

We have attempted to show what others are doing. We must take note of advances elsewhere, but I firmly believe that we can together develop economic systems and procedures to suit the customers and improve the competitive position of the industry. try, is one in a rapidly unfolding series of events which in recent years has stretched commercial shipping on the lakes from $8\frac{1}{2}$ to 10 months.

The Duluth project involved placement of perforated pipe near the bottom of a main shipping channel. Compressed air was forced through the pipe and the air bubbles worked as agents to transfer warmer water from the bottom up to colder —or frozen—water at the surface.

Engineers said the bubbling phase of the test produced up to 30 feet of open water along two parallel lines in the project area and dramatically deteriorated surrounding ice. The two-week project concluded March 25 with icebreaking operations by the U.S. Coast Guard cutter Woodrush.

George S. Lykowski, Planning Division, Corps of Engineers North Central Division, Chicago, said the project "proves that major Great Lakes ports can be kept open to navigation throughout winter months."

On a broader basis, Lykowski said, the bubbler tests constitute a



The U.S. Coast Guard cutter Woodrush concludes a late-winter deicing project in the Duluth-Superior Harbor by breaking up ice in a main shipping channel where a bubbler system had been in operation.

"long step in satisfying ourselves that year-round shipping is econom-ically possible." He said the bubbler project complements numerous demonstration projects to be conducted during the next three years aimed at extending the navigation season.

Lykowski pointed out, however, that numerous other problems must be overcome before year-round shipping becomes a reality, particularly in keeping open the connecting rivers and locks within the Great Lakes-Seaway system. These are areas, he asserted, where problems will **not** be entirely solved through use of bubbler devices.

"We have just demonstrated that we can keep our harbors open," Lykowski stated. "Now it's time to take the next step."

The next steps will involve a three-year \$9½ million study-anddemonstration program by the Corps of Engineers starting this year. These program expenditures were authorized by Congress last year when legislation sponsored by U.S. Rep. John A. Blatnik (D-Minn.) was incorporated in the Omibus, Rivers and Harbors Act of 1970.

The bubbler, operational for 15 days prior to the concluding icebreaking maneuvers, produced some results which engineers said exceeded all expectations.

Kevin L. Carey, of the Cold Region Research & Engineering Laboratories, Hanover, N.H., and Courtland Mueller, Chief of Operations for the Corps' Lake Superior Area, who monitored test data daily, said the bubbler system melted approximately 400,000 tons of ice. They said ice thickness in the project area was reduced from 24 to 12 inches and offered virtually no resistance to the cutter Woodrush, which was halted several times before reaching the test region.

These figures are especially significant, Carey and Mueller said, when considering that the test was conducted in relatively cold and shallow water. The project area was in a channel 27 feet deep and in water where the warmest temperature recorded was only 33.1 degrees fahrenheit.

Based on the test data, engineers estimate that bubbler systems can be used in Great Lakes harbors and connecting waterways at a cost of

Port of Helsingborg

The Port of Helsingborg set up new records in traffic during 1970. An over all rise of no less than 20% reflects the undisputed standing as the predominant port in South Scandinavia. The total traffic volume is now 6.4 million tons annually, which means a rise of 1 million tons in a year.

There are many reasons for the rapid increase, and one of the reasons for that the Port of Helsingborg has reached her predominating position is the geographical location of the city. This is easily understood when you study a map of South Scandinavia. The European highways of E4 and E6 are practically directly connected with the port. This simplifies greatly the dispatch of goods to the final destinations, and shipments to Stockholm for instance are easily made overnight by road. The port is also directly connected with the Swedish State Railways' system, and a lot of imported goods is transported by rail from the port to the interior of Sweden.

Another reason that makes Helsingborg an attractive port is that

less than \$5,000 per mile—a figure they say includes all materials and installation costs.

John D. Officer, project engineer for the St. Lawrence Seaway Development Corp., indicated the Duluth project may be directly applicable to casing ice conditions in the Seaway.

After observing the icebreaking maneuvers of the Woodrush in Duluth, Office said installation of a bubbler system both above and below locks in the Lake Ontario-Montreal section of the Seaway could make icebreaking operations there "considerably easier."

Thomas F. Schweigert, federal cochairman of the Upper Great Lakes Regional Commission, said it is free from ice all the year around, which means regularity to the traffic.

The fact that it is very easy to make a call to the port contributes greatly to further the traffic—it takes only minutes from the sailing route in the Sound until berthing at one of the docks.

The Skane Terminal — Expansive Container Harbour of Helsingborg

The Port of Helsingborg was the first of all ports in South Scandinavia to operate a complete container terminal equipped with all necessary facilities. The Skane Terminal has rapidly developed a considerable traffic since it was inaugurated in August 1969. The new extension of the docks at the terminal has just been put into operations, and thus the container harbour offers 500 metres of quays over which the large container crane with 45 tons' capacity is working. The container crane operates over 3 rails and 2 files for lorries. Furthermore there are 2 rollon/roll-off ramps, ware-houses, handling equipment and 100.000 sq.m. of marshalling yard. The Skane Terminal is already the largest con-

the Duluth de-icing test is a development of significance throughout the Great Lakes region.

"It is important," Schweigert stated, "because the future economic expansion of the Great Lakes area, to a great degree, depends upon the amount of freight that moves through the Seaway. From the results of the bubbling tests, we are very optimistic about a substantial lengthening of the shipping season for Duluth-Superior."

The bubbler project, initiated by the Seaway Port Authority of Duluth, was financed by the Upper Great Lakes Regional Commission, U.S. Maritime Administration, Corps of Engineers and St. Lawrence Seaway Development Corp.



The Skane Terminal of Helsingborg is the largest container harbour of Scandinavia, next only to Gothenburg.

tainer port in Scandinavia next only to Gothenburg.

The automobile import to Helsingborg is concentrated to the terminal and the automobiles are discharged by the roll-off method. This service is supervised by personnel specially educated for the purpose.

The water depth in the container harbour is 11.5 metres, thus suitable for ocean vessels. The Skane Terminal enjoys regular traffic all days of the week except Sundays to a row of destinations including Felixstowe, Immingham, Middlesborough, Rotterdam, Bremerhaven, Oslo, Copenhagen and Gothenburg. There is also a rapid and regular container service to USA via Bremerhaven.

Helsingborg is the Largest Ro-Ro Port of Scandinavia

The roll-on/roll-off traffic is impressing with an average annual cargo volume of 3.3 million tons. The Port of Helsingborg has in service no less than 8 ramps for the roll-on/roll-off traffic, the main part of which is concentrated to the north harbour. Almost 1 million of motor vehicles and 205.000 railway waggons were shipped via Helsingborg during 1970. There were 13.8 million of passengers passing through Helsingborg to and from Denmark and Germany last year. This is by far much more than had all other South Swedish ports together during 1970. The total figure for the other ports including Malmo, Landskrona, Trelleborg and Ystad amounts to 12.1 million passengers.

New Handling System Successful

The cargo handling at the Port of Helsingborg including the Skane Terminal is managed by the Helsingborg Hamngods AB, also running the stevedoring organization. This is the name of the terminal company, which has established close co-operation with the port and customs authorities. The terminal company thus has the complete control over all cargo passing through the port, and takes full responsibility for it as well. The system has simplified the handling including documentation. The saving of time and by this agreement is monev obvious. The Port of Helsingborg has established herself as the port in Sweden that produces a very high loading and discharging rate, which results in extremely competitive harbour and handling dues. The high cargo handling productivity per gang is well known by ship-owners.

6 Million Cu.Ft. of Cold and Reefer Storage

Spacious cold and reefer storage on the quays in the Ocean Harbour of Helsingborg minimizes transports and decreases the number of reload-

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Trends and Forecasts In World Transport

by Lt. Col. C. Earle

Secretary General

International Cargo Handling Coordination Association (From Cargo Handling Quarterly, Melbourne, December 1970)

"Trends and Forecasts of Development in World Transport", the paper prepared and delivered by Col. Earle, was one of the most comprehensive and explicit presentations ever delivered to an Australian transportation audience. Comprising 42 foolscap pages and 13 pages of reference data, it was complemented with two extensive reports by the Economic Commission for Europe Committee on the Development of Trade and The Economic Commission for Europe Inland Transport.

"The steep rise in the cost of labour and the rise in the cost of capital equipment have now, themselves, given birth to the technological revolution," Col. Earle said. "The problem before the interna-

ings. The total volume of cold and reefer storage at Helsingborg is no less than 6 million cu.ft. including the main factories of Frigoscandia in the city of Helsingborg.

Animal Quarantine

Another fine service that Helsingborg offers known far away from the borders of Sweden is the animal quarantine ranking as one of the most modern of its type in Europe. The quarantine is equipped with superior technical facilities, and the animals are taken good care of by experts and veterinarians.

Future Prospects

Although the Port of Helsingborg already has advanced equipment, cranes, ware-houses and spacious marshalling yards with capacities and qualities exceeding the present needs the port is continuously looking out for new projects. Plans are already under way to increase the container terminal and funds have been reserved for another container crane and further handling equipment. tional transportation industry is no less than a part of the world-wide need to turn both these changes to the benefit of mankind."

The reasons for the changes are economic, the speaker said. Perhaps the least recognised cause of change is the growth of world trade. With a regular growth rate of six per cent compound yearly, any link in a transport chain, which was working to capacity, would either have to increase its capacity at a similar rate or be the cause of congestion.

The global increase in trade was in some measure accounted for by new trades between countries who have not previously traded together. This heralds the development of purchasing power, Col. Earle said.

Dealing with mechanisation, Col. Earle said it was found cheaper in high cost enterprises to mechanise handling of goods at every stage. This meant the assembly of the largest practicable unit loads as early as possible and for as long as possible during transportation. This in turn meant that the system becomes more capital intensive.

Dependence on high utilisation of mechanical equipment called for concentration of cargo at the right time at the right place with all that implies.

For transport operators, the terminal becomes the unavoidable high cost focus in his operation round which he tends to adjust movement schedules in order to cut down turnround time.

Both transport users and transport providers therefore seek to safeguard their interests.

"The transport user is properly concerned with the total delivered transport costs of his goods, in each case involving a journey in a single direction. The transport provider is concerned with the round trip or round voyage economics of the vehicles service he provides. Users and providers of transport who have a mutual understanding of each other's special interest will continue to succeed.

Concerning the matter of volume in cargoes, Col. Earle dealt with the several changes which have occurred in container sizes and discussed stowage factors in ships carrying them.

"The trend to greater volume is visible in wide hatches and rectangular holds in conventional newbuildings as well as in container and pallet load ships," he said.

On physical distribution: Col. Earle said that because of large owners of cargo viewing transportation costs as strangling their business they have applied the management technique known variously as physical distribution, total transportation or business logistics systems. This required major planning and detailed scheduling of inward movement of raw materials and their storage and manufacture as well as storage of manufactures and their outward shipment.

"The co-ordinated result affects stock levels, inventory, investment and provides an integrated system. The function is also geared to sales and marketing departments and new packs will not be introduced without thoroughly checking that their dimensions are modular to pallets, storage space or containers used in the overall transport system.

"But what of the little man or indeed their own smaller customers? Col. Earle asked. Are they to be ignored or crushed in this greater process?

"Ignored they would not be so long as they are seen to have a commercial value. Crushed they need not be, so long as they can have a commercial value. Crushed they need not be, so long as they can show their commercial value," he said.

In his remarks concerning the structure of commerce, air freight, management control and documentation, ICHCA's Secretary-General dealt at length with the problem of documentation and the receipt of

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Significant Growth Patterns At Port of Oakland

Growth, both in terms of facilities and their usage, was the major development at the Port of Oakland during 1970.

The Port, which includes marine terminals facilities, Oakland International Airport, Port of Oakland Industrial Park and Jack London Square, experienced significant growth patterns in each of those areas.

Marine Terminals

Although final statistics are not yet available, preliminary figures

documents as a key to early clearances of import cargoes by consignees. The arrangements which have been achieved between the Australian and New Zealand governments and shipowners respecting documentation and customs clearance of goods shipped across the Tasman could well be an example for shippers in other trades to examine.

In this limited space it is not possible to report fully on all the various important aspects of transportation which Col. Earle discussed. However, before concluding his remarks, he examined operational changes and the work of the shipping conferences, the contribution to better transport economics by the barge systems of carrying unitised (which includes containerisation) cargoes and the port interface.

In connection with shipping, conferences, Col. Earle's conclusion was that change will come upon the conferences, in part unavoidably, and in part because of the need for shipowners to display their work in the market place.

"The conferences, world-wide, have done and continue to do a worthy public service and there was a need for greater understanding between the transport users and transport providers, of the single journey and round voyage economics upon which the other de pends," he said. indicate that a record 5,588,013 tons of cargo passed over Port of Oakland wharves during the year just concluded. The figure surpasses 1969's record cargo total by 319,216 tons.

Of the 1970 figure, some 3,677,-671 tons of freight were containerized, compared with 3,001,172 container tons the previous year.

The overall 1970 tonnage mark further establishes Oakland's position as Northern California's largest port, now by a margin of about 1.7 million tons annually.

Port Executive Director Ben E. Nutter attributed the marked shipping increase to a full year of container service by Johnson Line and Seatrain Line as well as the establishment of United States Lines container service at Oakland.

U.S. Lines in late September made Oakland the West Coast base of operations for the company's new 15,000 mile "sea bridge" service that links Europe, the United States and the Far East in one container operation. Tonnage generated by the weekly U.S. Lines service was a major factor in the Port's solid fourth quarter cargo figures.

Accompanying the 1970 Oakland shipping boom was an expansion of port facilities, highlighted by continued development of the Seventh Street Terminal

Construction activities neared completion on the three-berth, 35acre Public Container Terminal portion of Seventh Street. A container crane was added there with another crane assembled at the site for February, 1971, installation. The latter structure will be Oakland's tenth container crane, more than any other port in the world except New York.

Five berths are now in service at Seventh Street, two are under construction and one is planned for the future. The 140-acre \$35 million shipping complex is scheduled for completion in May.

A recent Port-conducted study

revealed that as of December, development of Seventh Street Terminal had generated 1,000 permanent jobs for area residents.

Included in the new positions are jobs for longshoremen, truck drivers, equipment operators, clerical personnel and others.

The survey indicated that 2,000 additional shipping-related positions were indirectly attributable to terminal development.

About 35 percent of the jobs are being filled by members of minority groups. It is expected that the terminal will provide additional employment for area residents when development it completed.

Three steamship companies during 1970 announced their intentions of basing operations at Seventh Street during the coming year.

Pacific Australia Direct announced plans to begin a new rollon, roll-off operation in April while two European carriers, East Asiatic Line and Blue Star Line (Scanstar), completed plans to begin West Coast-to-Europe container service in June.

In still another major shipping development, the Port reached an agreement in December with Seatrain Lines to purchase that company's 33-acre container terminal for \$20 million and lease it back to the steamship firm. Under terms of the lease Seatrain will pay the port an estimated \$1.5 million annually.

A preferential assignment agreement gives the company primary use of the terminal's two berths and two container cranes, but allows either the Port or Seatrain to assign the marine terminal area on a secondary basis to another steamship line. A portion of the site will be occupied exclusively by Seatrain for administration offices and a container freight station.

To make the acquisition the Port will issue certificates of indebtedness in the full amount of the purchase.

The Port earlier in the year began development of a 52-acre parcel of land adjacent to the Seatrain site. When completed, the wharf there will be contiguous with Seatrain's existing wharf to, in effect, produce four in-line quay-type berths served by four container cranes.

Overall, there will be a total of 85-acres for container service in the Port's Middle Harbor area.

To finance development of the facility as well as other projects, the Port sold \$6 million in revenue bonds on Mar. 25 and \$8.5 million in bonds in September.

The entire proceeds of the first bond issue were earmarked for demolition of old docks, construction of a 1,670-foot-long concrete wharf, installation of a container crane and paving a container storage area at the Middle Harbor site. Proceeds of the second issue are being used for development of Middle Harbor Terminal, construction at Seventh Street Terminal, runway extension at Oakland International Airport and for a parking garage at Jack London Square.

Bonds from both issues will be retired with operating revenue of the Port and are not a City of Oakland obligation. They do not constitute a claim against the tax base of the city.

Oakland International Airport

Despite the economic slump which cut deeply into the nation's air travel industry, Oakland International Airport traffic aboard scheduled airlines increased fractionally during 1970.

Some 1,857,615 travelers flew to and from Oakland aboard scheduled carriers during the year, compared to 1,855,094 in 1969.

Charter traffic, however, reflected the depressed air travel picture as Oakland International had some 67,000 fewer charter travelers than during the previous year.

Air freight shipments in 1970 registered a dramatic 95.6 increase over 1969. Shipments from Oakland grew from 7,861,000 lbs. in 1969 to 15,378,000 lbs. last year. The increase was primarily attributable to the establishment of Universal Airlines operations at Oakland.

Universal in April became the first air-cargo carrier to base its operations at Oakland International. The company established corporate headquarters at Oakland Industrial Park later in the year. Universal is the fourth large supplemental carrier to have headquar-

Canadian Engineers Awarded Project in Yemen

Swan Wooster Engineering Co., Ltd. Vancouver, Canada

Vancouver, February 1:—Cancon Engineering Services Ltd., a Canadian consortium of consulting firms, will design and supervise the construction of a \$2 million deepsea salt-loading facility at Salif, in the Yemen Arab Republic (at the southern end of the Red Sea). The assignment is being carried out by

ters in the Oakland area. The others are World Airways, Trans International Airlines and Saturn Airways.

Perhaps the major development at the Airport, however, concerned the findings of an important regional study. Known as the Bay Area Study of Airport Requirements, the investigation indicates that by 1985 Oakland could be handling as much as 41 percent of the region's air passenger traffic, about 29 million people annually.

Comprehensive expansion plans are being formulated by a newlycreated Airport Planning Dept. to meet that expected passenger influx.

Industrial Park

During 1970, development of the Port of Oakland Industrial Park proceeded at a rapid pace.

Mostly barren land just five years ago when the Port began an accelerated development plan for the area, the 300-acre industrial park is now the home for 147 firms.

At year's end only five parcels of land remained available for sale or lease before development of the giant complex is completed.

Ryan, Marocco & Co. in September made the largest purchase in the history of the park when they bought 17.6 acres of property for \$2.3 million.

The company plans to construct a large garden court office complex on the parcel. The building is intended to provide aviation-oriented office space that has become more in demand with the growth of the Swan Wooster Engineering Co. Ltd., a major partner in Cancon.

Financed by the Kuwait Fund for Arab Economic Development, the "World Bank" of the Middle East—the award follows extensive field investigations conducted last summer by Swan Wooster person-

airport.

The firm also began construction of twin two-story garden-type office buildings in the vicinity of the record purchase.

Jack London Square

Jack London Square continued to grow in popularity as entertainment center for the East Bay.

Preliminary figures indicate that more than five million people visited the square during 1970, spending approximately \$10 million.

A ninth restaurant, Panelli's Mast, was opened on the square in September.

Another major addition was a restored Klondike log cabin in which 21-year-old Jack London endured the Yukon winter of 1897–98 while prospecting for gold.

The cabin has been furnished with genuine artifacts to fit the description of the cabin described in London's short story "To Build a Fire." Appropriately, the structure was rebuilt on the Mall at the foot of Webster Street, near another famous London haunt—Heinold's First and Last Chance saloon.

As successful as 1970 was, Port Executive Director Ben E. Nutter expects this year to reflect even more significant growth.

"With the addition of major marine terminal facilities and new shipping services, the beginning of a long-range development program at the airport and the completion of the Industrial Park, the coming year could be the most significant in the Port's 116-year history". he said.



nel.

One of the first major engineering projects awarded in Yemen since cessation of a bitter, sevenyear civil war, the job is a breakthrough for Canadian engineering, as other projects in the area are largely inter-governmental economic aid—with governments like West Germany, China and Russia all participating. At present, Canada does not supply aid to the Arabian peninsula.

Yemen is one of the most undeveloped countries in the world. Isolated by its mountainous topography and an "Immam" who ruled with absolute power until overthrown in 1962, Yemen is 75,000 square miles in area, and has a population of 5 million. Unlike most of the peninsula which is mostly desert, Yemen has high mountains and interior plateaus, but there is still very little rain. 2700 years ago the Sabean and Minaen kingdoms flourished and this area was the source of frankencense and myrrh which were carried by camel caravans into Egypt and other parts of the biblical world. Yemen, at the time known

as Arabia Felix or Happy Arabia, is reported to have had a population of 20,000,000 people. Archeological possibilities are many as the country is as yet largely untouched by scientists and tourists.

During the last outbreak of civil war, in August 1969, Cancon's General Manager, Mr. Buck Bohna, visited Yemen at the Yemenese Government's invitation. He returned in November with other Cancon members — aerial survey from Underhill Enspecialists gineering geological Co., and and geographical specialists from J.C. Sproule and Associates to develop specifications for aerial photography and surveys, which were required for Yemen's first reliable topographical and geological maps. The Cancon team, which preceded a 6-man World Bank reconnaissance team by 4 months, also studied water supply problems in the principal cities, dock and harbour development requirements, and the fifty-year old salt mining operation at Salif. Although some antiquated mechanical equipment was in use, the operation was primitive. Ships were loaded by lightering from the end of a shallow water jetty, so it took weeks to load one 10,000 dwt ships.

The on-site investigations carried out by Jim Armstrong and Stan Headrick, two marine civil engineers from Swan Wooster's Vancouver office, confirmed the existence at Salif of a natural deepwater harbour, 60 feet in depth, and less than 1,000 feet offshore. All the detailed information necessary for the final-stage design and construction of a major bulk materials handling terminal was gathered at this time.

Swan Wooster is staging the development of facilities to handle 1,000 tons of salt per hour, rising to 2,000 tons per hour, to be loaded in 50,000 dwt vessels initially, and up to 150,000 dwt vessels later. First stage involves a dolphin berth and single quadrant shiploader, with provision for a dual quadrant loader when required.

Already Canadian contractors are expressing interest in bidding for the construction work, which will be open to contractors and suppliers all over the world.

IMCO As Seen by IAPH

Reports by observers from IAPH at IMCO sessions

Report No. 12

- Date: 15th/19th March, 1971 Place: IMCO Headquarters in London
- Session: 23rd Session of the Maritime Safety Committee, I.M.C.O.
- Observer from IAPH: L. C. Hill. Harbour Master, Mersey Docks & Harbour Board.

Agenda

- Adoption of the agenda (MSC XXIII/1/1; MSC XXIII/1/1; MSC XXIII/1/1/Add. 1; MSC XXIII/1/2; MSC XXIII/1/ Supp. 1)
- 2. Report of the Secretary-General on Credentials (MSC XXIII/2)
- Status of the IMCO Convention and of other Conventions deposited with IMCO (MSC XXIII/3: MSC XXIII/3/Add. 1)
- Report of the Sub-Committee on Safety of Navigation (MSC XXIII/4; MSC XXIII/4/1; MSC XXIII/4/2; MSC XXIII/ 4/3; MSC XXIII/4/3/Add. 1; MSC XXIII/WP. 2; MSC XXIII/10(d)).
- Report of the Sub-Committee on Containers and Cargoes (MSC XXIII/5; MSC XXIII/ 5/1; MSC XXIII/5/2; MSC XXIII/5/3)
- 6. Report of the Sub-Committee on the Carriage of Dangerous Goods MSC XXIII/6)
- Report of the Sub-Committee on Ship Design and Equipment (MSC XXIII/7; MSC XXIII/ 7/Add. 1; MSC XXIII/7/Add. 1/Corr. 1; MSC XXIII/WP. 1)
- Limitation of tank size of tankers from the point of view of preventing pollution of the sea. (MSC XXIII/8; MSC XXIII/8/1; MSC XXIII/8/2; MSC XXIII/8/3; MSC XXIII/8/4; MSC XXIII/8/5; MSC XXIII/10(d))
- 9. Report of the Sub-Committee on Subdivision and Stability (MSC XXIII/9)
- 10. Marine Pollution:

- (a) Report of the Sub-Committee on Marine Pollution
 (MSC XXIII/10(a); MSC XXIII / 10 (a) / 1; MSC XXIII / 10 (a) / 2)
- (b) Marine pollution activities of the United Nations organisations (MSC XXIII/ 10 (b); MSC 10 (b) / Add. XXIII / 1; MSC XXIII / 10 (b) / 1; MSC XXIII / 10(b) / 1/ Add. 1; MSC XXIII/10(b)/1/Add. 2; MSC XXIII/10(b)/1/ Add. 3; MSC XXIII / 10 (b) / 2; MSC XXIII / 10 (b) / 3; MSC XXIII / 10 (b) / 4; MSC XXIII / 10(b)/4/Add. 1.)
- (c) Acceleration of the Maritime Safety Committee's work programme to achieve early implementation of effective measures to prevent marine pollution, and to prepare for the 1973 Conference on Marine Pollution, pursuant to Assembly Resolution A.176
 (VI) (MSC XXIII/10(c); MSC XXIII/10(c)/1)
- (d) Comparison of the efficiency of the various preventive measures considered adoption of priorities (MSC XXIII/10(d))
- 11. Search and rescue operations and organization (including report on the Search and Rescue Seminar) (MSC XXIII/11)
- 12. Number of persons allowed on board existing passenger ships resulting from increase in liferaft capacity (MSC XXIII/12; MSC XXIII/12/1)
- 13. Consideration of a draft recommendation concerning safety requirements for special purpose ships (MSC XXIII/13)
- 14. Reports submitted under Regulation 19 of Chapter I of the 1960 Safety Convention (MSC XXIII/14; MSC XXIII/14/ Add. 1)
- 15. Relations with the United Nations and its Specialized Agencies (MSC XXIII/15; MSC

XXIII/15/1; MSC XXIII/15/ 2)

- 16. Future work programme:
 - (a) Long-term work programme, including future conferences (MSC XXIII/16; MSC XXIII/16/1; MSC XXIII/16/2; MSC XXIII/16/2; MSC XXIII/16/3; MSC XXIII/16/4)
 - (b) Programme of meetings for 1972/1973
- 17. Date of next session (MSC XXIII/17)
- Any other business (MSC XXIII/18; MSC XXIII/18/1; MSC XXIII/18/1; MSC XXIII / 18 / 2; MSC XXIII / 18 / 2 / Add. 1; MSC XXIII/18/3; MSC XXIII/18/4)
- 19. Consideration of the Report of the Committee on the work of its twenty-third session.
- Supplementary Agenda item 2 Consideration of proposed amendments to the 1960 Safety Convention recommended by the Sub-Committee on Radio communications (MSC XXIII/Supp. 2)
- Supplementary Agenda item 3 Marking of life-jackets (MSC XXIII/Supp. 3).
- Text of Report
- Item 4. Safety of Navigation and Routing
- (a) Traffic Separation Scheme for the Dover Strait

The U.K. delegation introduced the topic with particular reference to the recent collisions in the Dover Strait, and recommended that the Maritime Safety Committee should decide to make it mandatory for all ships using the separation scheme to follow the recommended direction of traffic flow. It was subsequently unanimously decided to recommend to the Solas convention that "Where the Organisation has adopted traffic separation schemes which specify one way traffic lanes, ships using those lanes shall proceed in the specified direction. Ships crossing the lanes shall do so as far practicable at right angles". It was also decided to recommend to the Sub-Committee on Safety of Navigation to study the possible extensions of traffic separation schemes proposed by the United Kingdom representatives. It was also noted that a study of traffic separation zones for the Malacca Straits and other parts of the world was also being made.

(b) Unification of Buoyage Systems for Wreck Marking

In view of the problems associated with the marking of wrecks, it was recommended that I.A.L.A. should be asked to study the question of a buoyage system to be used in international waters and to make suggestions to the Sub-Committee on Safety of Navigation which should consider them and report to the Maritime Safety Committee.

(c) Collision Regulations

It was recommended that the Working Group on Collision Regulations should also be asked to look at the Rules in the revised Collision Regulations to accommodate the requirement to follow prescribed directions of traffic on a compulsory basis.

Item 5. Report of the Sub-Committee on Containers and Cargoes

The Sub-Committee's main work has been in connection with the Preparation of an International Convention on the Safe Intermodal Transport of Containers. A meeting with the E.C.E. group of Rapporteurs on Container Transport will be arranged to discuss editorial changes to the Draft and in the meantime the Committee "approved in principle" the first draft.

Item 6. Report of the Sub-Committee on the carriage of Dangerous Goods

The Sub-Committee had now completed the last volume of the Dangerous Goods Code (Class 1-Explosives) but doubts were expressed by some delegations about the Draft text of Volume 1. Explosives -set out in Annex II to the report. The U.K. delegation proposed that the work programme (Handling of Dangerous Goods in Ports) should be given higher priority. The Committee approved amendments to the International Maritime Goods Code and also suggested that the amendments to the International Maritime Goods Code and also suggested that the Sub-Committee on Fire Protection should be requested to recommend an appropriate text on fire protection on board roll on/roll off ships carrying dangerous goods.

Item 8. Limitation of Tank Size of Tankers from the point of view of Preventing Pollution of the Sea

The U.K. proposal to limit oil

Annual Report of Tampa Port Authority

Tampa, Florida, U.S.A.

(Special to Ports and Harbors)

The final authorization by Congress of the Tampa Harbor Deepening Project, which calls for increasing the depth of the channels from 34 to 44 feet, was the highlight of 1970 for the Port of Tampa.

Authorization came in the closing days of the year with the passage by Congress of the 1970 Rivers and Harbors Bill. The signing of the bill by President Richard M. Nixon on January 3, 1971, was the culmination of more than ten years of effort by the Tampa Port Authority. Authorization was а tremendous forward stride and was a goal achieved. But, now it becomes the point of departure for a new effort: that of procuring the funds for actual construction. Even while the passage of the bill was assured, the Port Authority was working toward obtaining these funds.

Although no funds were requested in the President's budget message, sent to Congress in January, 1971, Port Authority members expressed themselves as not chagrined, pointing out that many difficulties have been overcome in the past and that efforts to obtain funds

outflow by limiting the maximum size of tanks to 30,000 m³ was approved by the Committee and this proposal would be submitted to the Assembly with proposals for its implementation.

Item 10. Marine Pollution

The Committee discussed the Report of the Sub-Committee on Marine Pollution and endorsed the Draft Resolution to achieve early implementation of effective measures to prevent Marine Pollution, and to prepare for the 1973 Conference on Marine Pollution. The Australian representative asked that the Great Barrier Reef be afforded the same

would continue unabated.

Earlier in the year, the Tampa Port community and the Port Authority were gratified when the Board of Review for Rivers and Harbors scaled up the harbor project, calling for channel depths of 44 feet instead of the 42 feet which had originally been recommended in 1969 by the office of the District Engineer, U.S. Corps of Engineers, Jacksonville. At the same time the cost of the project was also increased from an estimated \$80 million to \$103 million. The Board of Review noted that the increased depth was necessary for added safety to navigation.

Further impetus was given to the Harbor Project when the Port Authority in October arrived at an agreement with the Water Resources Division of the U.S. Geological Survey of the U.S. Department of the Interior. This agreement provided for the Geological Survey to make an in-depth study of Tampa Bay, the flow of water, the formation of the Bay bottoms and water quality. This step was taken to provide data to insure that the extensive dredging which will be required to complete the deepening pro-

measure of protection as was enjoyed by other coastal areas and the Committee approved the proposal in principle. It was arranged that the Australian delegation should produce a draft amendment and resolution for submission to the next meeting. Some measure of the importance attached to the Pollution problem may be gauged by the United States "Water Quality Improvement" Act of 1970 whereby all vessels equipped with toilet facilities would be required by 1977 to be fitted with an acceptable water treatment system. The implications of this Act to foreign shipping were noted.

ject will not interfere with the natural environment of the Bay.

Assurance was given by the scientists of the Geological Survey that spoil could be so placed as to enhance the quality of the Bay rather than to damage it. Data collected will be computerized so as to provide a mathematical model of the Bay. This model will then be used to arrive at decisions where spoil should be placed.

Beside the authorization of the Harbor Deepening Project, the year 1970 was a full and fruitful one for the Port of Tampa and the Tampa Port Authority: All previous cargo tonnage records were shattered; phosphate shipping was removed to the East Bay Channel and Turning Basin; plans for the construction of new terminals on the East Bay Channel and Turning Basin were formulated; the Tampa Port District was extended to include all of Hillsborough County; two derelict ships which had plagued the port for years were finally removed; and pollution problems were well on their way to being solved.

Mrs. Helen Delich Bentley, Chairman of the Federal Maritime Commission, on a visit to Tampa in June, said in a speech at the "Salute to Port Industry" dinner: "Size for size and cargo for cargo handled, the Port of Tampa is the equal of any, and one that may well be labelled a world port."

Pointing to the port as an economic asset, Mrs. Bentley declared it "helps ease our gold flow, keeps Americans employed and contributes to this nation's fiscal responsibility and stability."

Mrs. Bentley's remarks were highly gratifying to the port community and the knowledge that the port was so recognized on a high federal level contributed greatly to morale.

During the year a total of 32,381,-597 tons of cargo were handled through the port, an increase of 13.53 per cent over 1969, and the best year in the history of the port. General cargo tonnage increased 141,098 tons to 1,141,435 tons.

Phosphate and phosphatic products shipped amounted to 14,957,-006 tons, an increase of 2,262,599 tons over the previous year. Of Increases were also enjoyed in bulk petroleum products, sulphur, grain, potash and petro-chemical products.

Banana imports continued to increase and the port retained its dominance in this field.

The Seaboard Coast Line Railroad began shakedown operations at its new, automated phosphate elevator during the summer and by fall was completely operational. The old, worn-out elevators at Port Tampa and Seddon Island were closed down. The Port Tampa facility was dismantled. Traffic at Port Tampa continued, however, as several petroleum terminals are located there.

The closing of Seddon Island elevator caused much speculation as to what would be done with Seddon Island itself. No definite plans had been established at the close of the year although the railroad indicated the property was for sale.

The opening of "Rockport", as the Seaboard Coast Line named its East Bay terminal, resulted in the largest phosphate loading complex in the world on the East side of Tampa Bay. Rockport joined Eastern Associated Terminal which had become operational the year before and the International Minerals and Chemicals Corporation's elevator at Port Sutton.

The Port Authority made the decision to name new planned terminals on the West side of East Bay Channel and Turning Basin in honor of retired U.S. Senator Spessard L. Holland. Senator Holland was highly instrumental through the years in helping the port to obtain final authorization for its harbor deepening project. At the same time plans were under way to issue bonds in the amount of \$3 million to begin the first phase of construction of the terminals. It is expected this will be accomplished during 1971 and work begun. It is contemplated that several million more dollars will be spent in the next several years.

The Hillsborough County Legislative Delegation passed a bill during the regular session extending the port district to include all of Hillsborough County. This step was taken in order that port areas which had built up in recent years and which were outside the port district would come under the jurisdiction of the Authority.

Two derelict vessels, the "SANTA ANA" ("LEUWARD-EN") and the "MACHOTE", both of which had lain in Garrison Channel for several years, were finally removed under the leadership of the Authority. Much credit for the final removal must be given to the Hillsborough County Legislative Delegation, the Coast Guard, and the U.S. District Attorney. The ships became a pollution menace before they were removed, making it necessary for the Port Authority Operations Department to deploy its oil boom around the bulk for several weeks.

The ships were finally sold to Italian ship wreckers. One, the "MACHOTE," sank in the Atlantic while being towed to Italy.

The Port Authority played a large role in the final passage of the Oil Pollution Control Act of 1970 by the Florida legislature. Many suggestions made by Port Director Guy N. Verger were incorporated in the Act. The law, while not the first in the United States, is a model and has substantially contributed to retardation of oil pollution in Tampa Harbor. The Authority's contributions to the Act were the subject of a paper by Mr. Verger which has been accepted for publication by the International Association of Ports and Harbors.

Much, of course, was learned concerning control of oil spillage when the "DELIAN APOLLON" went aground in Weedon Island Channel in February resulting in a disastrous spill which covered several square miles of the Bay. The Tampa Port Authority contributed leadership and material to the cleanup operation.

The Tampa Port Committee for Spillage Control was formed under the auspices of the Authority. Twenty companies operating in the port joined forces and contributed \$3,500 each for containment and cleanup equipment. Approximately half of this was spent on

(Continued on Page 23 Bottom)





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IAPH News

Orbiter Probe

IAPH News:

Travelers

• Mr. A. H. Honeyfield, Deputy Chairman of Bay of Plenty Harbour Board, Mount Maunganui, New Zealand, visited the IAPH Head Office, Tokyo, to see the Secretary General Mr. Toru Akiyama, on Thursday, March 15, 1:30 p.m. At the reception held Friday evening 6:00 p.m. at the Tower Room, WTC Building, Tokyo, Mr. Honeyfield was flanked by shipping company representatives from New Zealand.

• The City of Portland and The Port of Portland held a reception at 5:30 p.m. on April 23, 1971 in the Rose Room of the Palace Hotel, Tokyo. The occasion marked the opening of the newly located Tokyo

(Continued from Page 21)

new equipment by the end of the year.

During the year the Authority voted to set aside the Cockroach Bay area on the East side of Tampa Bay as an aquatic preserve in order to retain this area in its natural state. In December, the Board formally adopted a resolution providing for a moratorium on all residential dredge and fill operations in those areas of Tampa Bay under its jurisdiction.

The Authority also deeded a spoil bank known as "Picnic Island" at Port Tampa to the City of Tampa and the City and County announced plans to develop the island as a public park. In exchange, the Authority was given title to the area known as Maritime Homes by the City. This area, located on Hookers Point on the East Bay Channel and Turning Basin, is ideally suited to further port development.

The Authority purchased the Old Naval Reserve Training Cenoffice of The Port of Portland and the introduction of the Port's new Japanese representative, Mr. Tsuguo Iwamoto. At the reception with Mr. Terry D. Schrunk, Mayor of City of Portland, were three commissioners of the Port, the Executive Director and the Marketing Director.

Correction

In the May 1971 issue of Ports and Harbors, page 23, in a boxed article titled "Information Wanted", the 9th line should have ended with double closing quotation marks, to make the preceding four-line paragraph one independent quotation.-Ed.

ter property from the General Services Administration of the Federal Government. This property, adjacent to the George B. Howell Maritime Center, is also ideally suited to port development.

The Port Authority's financial operating efficiency continued to prevail even during these times of constantly rising operating costs. The net income from operations was \$293,829 for fiscal year 1969–70 even though operating costs increased 12.4 per cent over fiscal 1968–69.

The income from operations will be utilized to improve the Port of Tampa and Port Authority facilities through capital improvements, port development projects and studies, as well as payment of bond interest and principal.

The policy of investing all funds not immediately needed produced \$131,104 in interest income from investments in certificates of deposit and U.S. Treasury Bills.

Fixed assets of the Authority increased \$778,714 over the previous year.



Mr. John E. (Jack) Lloyd

New Port Manager

Ottawa, March 31: — The appointment of John E. (Jack) Lloyd, a chartered accountant, as port manager at Halifax was announced today by the National Harbours Board. The appointment is effective April 1.

The Board also announced that Raymond V. Beck, port engineer and acting port manager for the last year, becomes deputy port manager.

In making the announcement, Louis R. Talbot, Vice-Chairman of the Board, said Mr. Lloyd recently has completed a fact-finding mission at United States Atlantic Coast ports on container traffic trends in the North Atlantic, financial relationships of State Governments with port authorities, the organizational structure of U.S. port authorities and the role of the U.S. Federal Maritime Commission. (National Harbours Board Press Release)

Coal Export Study

Vancouver, B.C.:—In a joint venture with the South Africa consultant, Keeve Steyn & Partners, Swan Wooster Engineering Co. Ltd. has been retained by the Transvaal Coal Owners Association of Johannesburg, South Africa, to study various methods of assembling, loading and exporting East Transvaal coal.

Produced by member collieries of the Transvaal Coal Owners group,

The Americas

the coal will be exported through a new port which will be developed by the South African Railway at Richards Bay, Natal, some 100 miles north of the existing coal shipment port of Durban. From the collieries, the coal cars will be assembled in the Witbank area, then hauled 350 miles by unit train to Richards Bay. The target is to export 10 million short tons of coal each year, 3 million tons of which is expected to be coking coal for Japan. The balance will probably be made up of thermal coal.

It is also expected that a substantial portion of Natal coal now being exported through Durban will be diverted to the new terminal in 1976, when the new port is scheduled to open. The terminal will be designed to accommodate bulk carriers up to 150,000 DWT; adequate provision will be made for the possibility of even larger vessels in the future. The initial phase of the consultants' study will consist of a complete transportation systems analysis to determine the cost efficient method of organizing the coal movement and the cost of facilities which will be necessary at both the mines and the ocean terminal. (Swan Wooster Engineering Co., Ltd.)

Coal to Japan

Ottawa:-A deal involving shipment of 7 million tons of coal for 20 years, reported to be one of the biggest in Australian history, may be short circuited by conservationists. Daniel K. Ludwig, U.S. shipping magnate, plans to build a 40-mile private railway to carry coal from the Clutha mine, west of Sydney, to an area just south of the city for shipment to Japan. He plans to use ships of 250-350,000 tons loading at a facility one mile offshore. The dump to feed this dock would be established on the cliffs inshore. The catch is that these cliffs are the most famed beauty spot in New South Wales. Conservationists see danger to the area's white sand beaches from coal dust blowing from the 1-million ton cliff top dump and have threatened to take legal proceedings on grounds the state government had no jurisdiction in providing a permit for a shore-to-ship

conveyor. (Canada Japan Trade Council Newsletter, March)

Halifax Container Terminal

Ottawa:—With annual sales already running at the \$4-\$5 million level, Halterm Ltd., Canada's largest container terminal at Halifax, is already a proved "profitable venture", according to the Financial Post of Feb. 27. With a capacity between 90 and 100 thousand containers, Halterm earns between \$40 and \$50 per container landed and loaded. (Canada Japan Trade Council Newsletter, March)

Growing Vancouver Port

Ottawa:—Acting Port Manager of Vancouver, William Duncan, recently predicted tonnage handled by the Port would increase by 50% over the next three years. (Canada Japan Trade Council Newsletter, March)

1 Mn.-ton Container Port

Baltimore, Md.:—Baltimore became a million-ton container port during 1970, figures just released by Baltimore's Port Authority revealed today. Well over 100,000 containers were handled which allowed the Port of Baltimore to retain its title as the second largest container port on both the U.S. East and Gulf Coasts.

Combined with 692,452 containerized tons handled at the state agency's Dundalk Marine Terminal, and more than 400,000 tons moved by Sea-Land Service, Inc. put the 1970 container total well over the million-ton mark. Unfortunately, figures for additional container cargo, carried by conventional ships and that handled at other private terminals, were not available. These would increase the above totals.

Most significant, the port, while handling this phenominal increase in containers, had no congestion, compared with other ports. The reasons for this include the adequate space planned into the container terminals, good labor supply and relations, and highly efficient distribution systems through 3 major U.S. railroads and the super highways which serve over 150 licensed trucking companies. Each month records at Dundalk Container Terminal were successively set and broken, as the Port of Baltimore registered the best year in its long history (established 265 years ago, in 1706). Future prospects indicate even greater records for the months and years to come.

During 1970, Dundalk Terminal alone handled 52,417 containers to and from 411 vessels. To this total must be added the volume handled by Sea-Land, Prudential-Grace Lines, conventional ships and private terminals of the port.

Compared to previous years, the 1970 Dundalk totals appear even more dramatic: in 1969, the terminal handled 229,948 tons of container cargo; in 1968, only 77,455. In 1967, the first year of containerization, the tonnages were so low as in other ports—that reliable individual statistics were not kept.

The Port of Baltimore's growth has been so tremendous that by the autumn of 1972 the port will have 7 huge bridge-type container cranes operating just at Dundalk Terminal, on six specialized berths designed for the exclusive handling of containers. There are 4 high-speed, heavy duty gantry cranes with spreaders also readily available.

In addition, the construction of two new Container Freight Stations (CFS) will give the Baltimore Port Authority facility a total of 195,000 square feet of container consolidation space. There is already one 65,000-square-foot CFS in use near Dundalk's Berth 8.

Current staff projections indicate a continuing growth of container tonnage in the years ahead. With its existing and planned facilities the Port of Baltimore will be ready and waiting to handle it. (Port of Baltimore News Release)

Baltimore Port Director

Baltimore, Md.:—Joseph L. Stanton, Executive Director of the Baltimore Port Authority, has been named a member of the American Association of Port Authorities' Committee on Environmental Affairs, the agency announced today.

Appointment of the Baltimore Port Authority head to the newly

(Continued on Page 26)

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created AAPA committee is viewed as a reflection of the growing concern for environmental consideration relative to port development.

Additionally Mr. Stanton has been appointed to the Board of Directors of the International Association of Ports and Harbors, an organization with World-wide membership.

This appointment—as one of four directors from the United States reflects the Port of Baltimore's continued importance at the international level, as well as its expanding local and nationwide position.

Mr. Stanton was also elected to the three-member Executive Committee of the American ports body. The Baltimore Port Authority Executive Director is a former president of the AAPA, whose membership includes all major ports in the Western Hemisphere.

The Baltimore Port Authority has long been an active member in the two port bodies, and World port affairs. (Port of Baltimore News Release)

Great Lakes vs. East Coast

Baltimore, Md.: — Ports on the East Coast of the United States have been found more economical than Great Lakes ports for the shipment of the government's defense cargoes, a recent Pentagon study shows.

In reporting that it cost the government \$415,000 more to ship 69,-000 tons of cargo through the Great Lakes than it would have cost if Baltimore or other East Coast ports had been used, the Defense Department said it had concluded that continuation of the "Lakes" program would be uneconomical.

Compiled by the Department of Defense and the Government Accounting Office, the experimental study found that it cost (on a measurement-ton basis) an average of \$5.13 a ton for line handling, \$7.08 for port handling and \$28.89 for ocean transportation through the Great Lakes.

This compares to an average of \$7.30 a ton for line handling, \$4.77 for port handling and \$22.98 for ocean transportation when East Coast ports are used.

U.S. Senator Joseph D. Tydings, an outspoken critic of concessions

regarding shipping via the Great Lakes and St. Lawrence Seaway including proposals that tolls on the Seaway be permanently cancelled called the experiment "an outrageous waste of federal expenditures."

"The St. Lawrence Seaway route costs more, not less" than shipment via the East Coast, the Maryland legislator told his Senate colleagues following release of the Pentagon report. In a speech in the Senate floor, Mr. Tydings pointed out that United States-flag steamship lines attempting to serve the Great Lakes had been forced to leave the trade because they were "unable to make a commercial success of scheduled service through the Seaway.

"The fact is that Baltimore and her sister ports provide better service," the Senator declared, recalling that at the experiment's inception he had labeled the test "contrary to economic good sense".

Defense Department officials nevertheless went ahead with it because of the increasingly bitter battle between Great Lakes and East Coast interests over cargo movement and shipping services.

The test showed beyond doubt that the military would save money by sending its cargoes by rail to East Coast ports and then shipping them by ocean carrier. (Port of Baltimore News Release)

1971 Seaway Season

Duluth, Minn., April 20:—Duluth-Superior will launch its 13th season as a world port Wednesday when the French bulk carrier Christine becomes the first oceangoing ship to arrive at the Head of the Lakes in 1971.

The opening will be two days earlier than the start of international shipping here in 1970, which began April 23 with the arrival of the Norwegian freighter Norse Carrier.

Guthrie-Hubner, Inc., Duluth agents for Union Industrielle & Maritime (UIM Line), owners of the Christine, said the 495-foot vessel is scheduled to load approximately 10,500 tons of wheat at two Duluth elevators operated by Cargill, Inc. The grain cargo, being shipped by Catholic Relief Service, new York, is destined for Civitavecchia, Italy. The Christine, which discharged cargo in Rouen, France, was the second oceangoing ship to enter the Great Lakes via the St. Lawrence Seaway this season and has an approximate three-day lead over several other "salties" now en route to Duluth-Superior.

Expected to arrive over the weekend are another UIM ship, the Ondine, due to load grain; the Norwegian tanker Anette, which will load fats and oils for United Kingdom ports; the Italian freighter Mar Tirreno, inbound from Antwerp, Belgium, with general cargo, and the Greek freighter Aristoteles, due to load grain.

Traditional welcoming ceremonies honoring the first oceangoing ship of the season will be held aboard the Christine following her arrival and will be attended by local marine, governmental and civic officials.

The 1971 opening follows a record season for the port in the volume of international tonnage handled. Last year import-export cargoes totaled 4.6 million tons to erase the previous record of 4.2 million tons set in 1966.

The 1971 interlake navigation season began April 12 when the ore carrier Wilfred Sykes arrived in Duluth-Superior to load taconite pellets for Indiana Harbor, Ind. (Seaway Port Authority of Duluth)

Trial Shipment

Galveston, Texas, March 26: ---An experimental shipment of three containers filled with canned goods from California traveled over the Southern Pacific Railroad to Galveston this week where it was loaded on the Lykes' vessel. MARJORIE LYKES, for on shipment to Antwerp, Belgium. This marks a first in this type of movement which made use of a new type of transportation service offered by the Southern Pacific Marine Transport Company of San Francisco, a division of the Southern Pacific The S.P.M.T. is a Company. Non-Vessel Operating Common Carrier and will issue in California a through bill of lading to Europe which is bank negotiable at that time. This represents quite a saving in time over the old system of waiting for loading aboard a vessel

and using the ocean bill of lading for collection.

J. D. Burnett, Manager-Marketing Southern Pacific Marine Transport, Inc. of San Francisco, was in Galveston to observe the transfer of the three containers to the Lykes'vessel. Mr. Burnett has been working on this type of movement with the Port Authority at Galveston for sometime and the success of this trial shipment suggests that there will be many more similar shipments not only of California canned goods but other products from the Western States. The principal reason for changing to Galveston, according to Mr. Burnett, is rising costs by Pacific Coast steamship lines which must negotiate the Panama Canal in order to reach European ports. This routing by the Southern Pacific Railroad to Galveston of course avoids this expense and delay.

M. G. Maher & Co. were the freight forwarders who handled the documentation of this movement. (News from The Port of Galveston)

Grain Exports

Galveston, Texas, March 26: — The Galveston Wherves and the Bunge Corporation of New York today jointly announced extension of the lease on Elevator B through the year 1990.

Wharves Chairman Harry H. Levy, Jr., said the Port is pleased to have reached the new agreement, which, he said "insures longterm benefits to the local economy in retaining substantial export trade in grain products through Galveston."

Levy also said that Bunge and the Galveston Wharves are presently studying the feasibility of providing a 40-foot draft at the Elevator, since it is felt that grain exports can be significantly increased with a deeper draft capability.

Owned by the Port of Galveston, the 7.3-million-bushel capacity grain facility has been under lease to Bunge, a major U.S. grain exporter, since 1964. Last year Bunge handled 35 million bushels of grain into export through Elevator B.

Bunge has announced that it intends to make several major im-



Galveston:—Picture shows Lykes SEABEE ship tied up at its West Gulf Terminal on Pelican Island, Galveston, located on the north side of the Galveston ship channel. Barge marshalling yard at left. Construction contracts signed between Lykes and Port of Galveston today. See also Ports and Harbors, July 1970, Page 34. (News from The Port of Galveston, April 8, 1971)

provements to the elevator in the near future. A good volume of exports is anticipated in the foreseeable future. The elevator operates with a personnel of about 50 at present.

Since Galveston was established as a major Gulf port in 1854, grain exports have been a leading factor in the port's economy, and with the opening of Elevator B on May 9, 1931, that facility began its vital role in making the Port of Galveston a continued success. A national record for grain exports was set by the Port of Galveston for 1951, with total exports of 122,282,910 bushels of grain. Of this record, Elevator B also set a record by loading 88,647,710 bushels, the largest of any one house for a single year up until that time, but eclipsed since then. (News from The Port Galveston)

Long Beach by 1973

Long Beach, Calif.:—The Port of Long Beach, already the largest dry cargo port and leading foreign trade port on the West Coast—with Japan its No. 1 customer—has recently launched a \$30-million expansion program which will create the biggest container complex in the entire Pacific by 1973.

This three-year project, now well underway, centers around the most extensive container complex ever built. The four major terminals total 249 acres, which together with 50 acres of related railroad yards, will provide "America's Most Modern Port" with nearly half a square mile of container facilities.

The solid-fill piers and a container rail and truck station were financed through sale of Series A Harbor Revenue Bonds, the first in port history. Increased revenues expected from the expansion will cover the bonds three times over.

Sea-Land Service, Inc., pioneer operator of container ships and the Port's first container tenant, will occupy an entirely new terminal being created through an 84-acre addition to Pier G by the spring of 1973. Totaling 100 acres and served by giant dockside cranes, the facility will be the firm's largest and principal terminal on the Pacific Coast. Sea-Land's con-

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tainer rail and truck station of $16\frac{1}{2}$ acres will be fully operational in the spring of 1971.

At the same time, Pier J south of Sea-Land's present terminal is being enlarged by 40 acres to accommodate Kerr Steamship Company's new marine terminal, designed to handle containers, automobiles and other cargoes.

Another phase of the expansion is creation of additional container facilities at Berths 243–244 on 24 acres of existing Pier J land.

Transocean Gateway's container terminal near the end of Pier J is the only facility on the West Coast open to any shipline. It covers 18 acres, and an adjacent 13 acres are also available for expansion.

These improvements will largely complete the Southeast Basin Master Plan. No expansion of facilities towards the Long Beach Breakwater are involved and all land fill lies within the present confines of the Southeast Basin.

With Port business booming—up 40 percent in the last two years alone—new industries and businesses are constantly being attracted to the harbor and environs.

During the past ten years, this entirely man-made facility has more than doubled in size and activity, handling 22.2 million tons of cargo valued at \$1.76-billion in 1969–70.

Port facilities—present and future—provide Long Beach and the Pacific Coast with an efficient and inexpensive gateway to the world. The next three years will see this dramatic growth continued. (Port of Long Beach News)

"Ocean '71 " Conference

Los Angeles, Calif., March 12:— The problems of small boat facilities and pollution control were discussed by two Los Angeles Harbor Department officials today (Friday, March 12) at a conference on marine recreation and conservation.

Addressing the "Ocean '71" conference and exhibition, being held in Long Beach and sponsored by the American Society for Oceanography, were Donald A. Walsh, Port of Los Angeles planning and research director, who covered the problems small pleasure craft pose for commercial vessels using the port—or vice versa, depending on one's point of view and Captain Lionel H. de Santy, port warden.

While pleasure craft do get in the way of commercial vessels, particularly on holidays, Walsh said, the pressing problem is overcrowding limited port facilities as small boats become more and more popular.

"There just isn't enough available vacant space for new marina demand," Walsh said, "while the recreation boaters create an additional parking problem."

The ultimate answer, he predicted, will be dry storage of small craft, using a minimum of port frontage as boats are stowed apartmenthouse style. He added less parking space is needed, both because there are no boat trailers to be parked and because, studies indicate, boat owners will share rides to dry storage facilities.

Captain de Santy spoke on the problems of improving water quality in a major industrial port to the point it will support sea life—and noted the Port of Los Angeles has had some substantial success.

"Marine flora and fauna returned to Los Angeles inner harbor in the spring of 1970," De Santy told the conference. "We now see schools of fish in the inner harbor, including anchovies, mackerel and bonita.

"Al Hanson, the port's contract diver, recently observed sea lions in the Cerritos Channel.

"The last time I saw sea lions in Cerritos Channel was 1936, the year 1 obtained my pilot's license for these waters."

The problems are not yet all conquererd, however, De Santy noted. He said the Harbor Department currently spends \$140,000 annually just on spotting and removing surface debris from the Port's waters. (Port of Los Angeles)

Board Chairman

New York, N.Y., Apr. 8:—The Commissioners of The Port of New York Authority today reelected James C. Kellogg, III of New Jersey to his fourth term as Chairman, and Hoyt Ammidon of New York to his second term as Vice Chairman. The elections were held at the Commissioners' Annual Meeting at 111 Eighth Avenue this afternoon.

Mr. Kellogg has been a Commissioner for the past sixteen years and was Vice Chairman for eight years. Mr. Ammidon has been a Commissioner since 1968.

The Board of Commissioners of the Port Authority has twelve members, six of whom are appointed by the Governor of New Jersey and six by the Governor of New York for overlapping terms of six years. They serve without compensation.

Austin J. Tobin was reelected Executive Director, a post he has held since 1942. He began his Port Authority career in the agency's Law Department forty-four years ago.

Sidney Goldstein was reelected General Counsel. He has been a member of the Port Authority's Law Department for thirty-seven years and General Counsel since 1952. (News from The Port of New York Authority)

Delaware Bay Bulk Port

Tokyo, February 5:—Japan will benefit when the first U.S. deepwater offshore bulk materials terminal is completed in Delaware Bay to handle export coal and ultimately receive foreign iron ore.

Japan is a major importer of U.S. coal along with Italy, France, Spain, Brazil and Holland.

Zapata Norness Inc., an international bulk shipping, marine service and natural resources firm, has announced that it has completed the preliminary design, engineering and environmental studies necessary to develop the new bulk materials terminal.

Zapata has formed a subsidiary, Zapata Bulk Systems, Inc. to build and operate a proposed \$160 million terminal about three to four miles offshore the lower middle Delaware Bay, subject to the approval of the Delaware Legislature.

Zapata indicated that the first stage of the terminal operation would handle only coal. Plans call for an initial capacity of about 20 million tons annually. Incoming iron ore shipments would begin in the late 1970's, and no oil would be handled at the proposed terminal, the company said. Michael R. Naess, a Zapata executive vice president and president of Zapata Bulk Systems, said that a preliminary study of the environmental aspects of the terminal in relation to the Delaware Bay area indicated that the environmental effects of the construction and operation of the terminal would be minimal and solvable.

Mr. Naess said that in 1974 there will be an international fleet of about 700 ships in service exceeding 100,000 deadweight tons which will be unable to arrive or depart fully loaded from any existing East Coast-Gulf Coast port. More than 375 of the 700 vessels will be in excess of 20,000 deadweight tons, he said, pointing out that "it is inconceivable that the U.S. should not participate in this developing ocean transportation revolution, since the very competitive position of the United States is at stake."

The terminal would be located on a 300-acre island composed of material dredged from Delaware Bay. The coal would be barged north 160 miles to the proposed terminal from Hampton Roads, Virginia, where it would be loaded on oceangoing carriers for delivery to foreign markets. Plans call for maintaining a 40,000 ton self-unloading barge at the coal railyard docks at all times to speed the unloading and reutilization of the coal hopper cars, which now must wait in a storage capacity for ships to pick up the coal for foreign distribution. (Falcon News Release)

Offshore Terminals

New York, N.Y.:—The Maritime Administration has awarded Soros Associates, New York City, a contract to study the feasibility of multipurpose offshore terminals.

The study is designed to help pave the way for the introduction of supersized bulk carriers—along with the economies inherent in using these vessels—into U.S. foreign trade, Andrew E. Gibson, maritime administrator said.

There are more than 200 ships of 100,000 deadweight tons and greater in the world fleet. They are barred from using nearly all U.S. ports because of channel depth limitations, he said, and shippers...would benefit from lower transportation costs if these ships were used.

Soros Associates will perform three tasks under the contract—

- 1. Project geographically bulk-cargo shipment requirements for U.S. industry over the next 30 years.
- 2. Compare alternative methods of using "supersized" ships to carry these cargoes, including the use of feeder vessels and pipelines, and even the possibility of moving user industries to sites where these ships can berth.
- 3. Formulate advanced concepts in design, construction, and operation of offshore island terminals. (Soros Associates)

Admiral Holmes

Admiral Ephraim P. Holmes, U.S. Navy (Ret.) has been named executive director of the Virginia Port Authority. The appointment of the former Commander in Chief U.S. Atlantic Fleet was announced at the regular meeting of the VPA Board of Commissioners March 17. The Admiral will assume his executive duties on April 1.

Admiral Holmes, who retired after forty years of active Naval duty in September 1970, fills the post vacated by Blair P. Wakefield, whose resignation from the top Authority position became effective November 30, 1970. (Virginia Port Authority)

Slight Upturn in 1970

Portland, Oregon, March 16:— Foreign waterborne commerce tonnage through Portland harbor took a slight upturn in 1970—reaching a combined import and export total of 10,572,484 tons.

This was up from 10,560,856 short tons in 1969 but still below the record high of more than 13 million in 1968. As in 1970, a major factor in keeping the figure below 1969 was a continued decline in inbound petroleum due to pipeline receipt from refineries in the Puget Sound area.

Wheat, lumber and scrap metal continued to lead the commodity list. There were 2,522,389 tons of wheat, 541,822 tons of logs and 325,-976 tons of scrap metal. Each was

significantly higher than a year ago. Over all increase was due to more

outbound cargo—up from 3.9 million to 4.2 million tons. Inbound cargo dropped about 300,000 tons.

The United States replaced Norway as top flag in the harbor with 179 vessels. Norway dropped from 169 to 132 and Japan remained third with 121, down from 149.

Japan remained top recipient of cargo from Portland, but Korea jumped from fourth in 1969, ahead of India and Taiwan, into second place. Canada and Japan stayed one-two on the import list followed by Mexico, Virgin Islands and Brazil. Australia dropped from third to seventh.

Value of 1970 cargo was \$1.2 billion with Japan leading important and export dollar value lists. (Port of Portland)

American Flag Vessels

San Diego, Calif., April 6:--One of San Diego's business giants is quietly promoting American flag vessels and the Port of San Diego.

Fed-Mart Corporation's Bernard Goldberg, director of imports, is now in the Far East selecting merchandise for Fed-Mart's 44 stores throughout the southwest. His letter of credit stipulates use of American flag vessels for all Fed-Mart shipment to the U.S., and "via Port of San Diego."

In calendar year 1969 Fed-Mart imported through the Port of San Diego 12,236 packages weighing 572,246 pounds.

According to William L. Dick, Trade & Community Relations Director for the Port of San Diego, "this is a unique and highly commendable public service. It comes at a time when this country is attempting to build American maritime trade. It is a significant assist to Port of San Diego's shipping volume and a meaningful addition to the area's economy.

In the firm's 1970 annual report Sol Price, chairman of the board and president notes: "we enter the year with confidence, enthusiasm and determination to keep our company growing; help solve some of our country's problems."

Fed-Mart's actions certainly meet

the critera established for helping to solve some of our country's problems by promoting American flag vessels and the Port of San Diego, Dick notes. (Port of San Diego News Release)

Minister Tours Port

Melbourne:—The most comprehensive study tour of the Port of Melbourne ever made by any member of the Victorian State Legislature was undertaken by the Minister of Public Works, Mr. Murray Byrne, last month when he made an all-day inspection of port facilities and installations.

The Minister was accompanied on the tour by Mr. J. F. Porter, the Secretary of the Melbourne Harbor Trust Commissioners — the Port Authority for Melbourne—and Mr. G. Macdonald, the Chief Engineer of the Commissioners.

Mr. Byrne, who is the Minister responsible for the administration of the Melbourne Harbor Trust Act, was first apointed to the State Ministry in June of last year, but it was only last month that a busy work schedule allowed him the first opportunity to inspect the Port.

The Melbourne Port Authority was first established in 1877 by the Melbourne Harbor Trust Act of the Victorian Parliament, and as such is one of the old port authorities in the world.

The Minister of Public Works is also the Minister through whom the Commissioners approach the Governor-in-Council for consent to regulations, and amendments to regulations, they are empowered to make under the Act.

Mr. Byrne, who made the tour by both launch and car, took a very keen interest in everything he saw, particularly in the major development projects either planned or already under way.

The tour included the administrative offices of the three main branches of the Port Authority—the Secretary's Department which deals with all administration and finance; the Chief Engineer's Department which deals with all construction, planning and design; and the Harbor Master's Department which deals with all marine activities and navigation.

Mr. Byrne was especially interested in the station building, equipment, and personnel of the Port Emergency Service, the highly specialised and mobile uniformed force trained to deal with any and every type of marine emergency in the Port of Melbourne. The Service deals with outbreaks of fire and fire prevention, salvage, rescue, first aid in all accidents, security, investigations and prosecution of all types of pollution and other offences. The Service, equipped and trained to work on land, and on or under the water, is unique in Australian ports.

Mr. Byrne, who, as Minister of Public Works, is involved in port activities and the waters around the entire Victorian coast, spent some time discussing pollution and other problems with the various officers of the Service.

Mr. Byrne also saw the Port's Shipping Control Centre which coordinates and directs all shipping activities and requirements in the port area. The inspection also included the Williamstown Workshops and Slipways, which is a small ship repair maintenance yard, and which also undertakes some small shipbuilding work. (Melbourne Harbor Trust Port Gazette, March)

Container Flow

Melbourne:—Plans to re-organise the flow of containers through the container terminal on the West side of Swanson Dock in the Port of Melbourne are expected to turn the terminal into the busiest in the world.

The terminal owned and operated by Seatainer Terminals Pty. Ltd. on land leased from the Port Authority, is being geared to handle a container flow of 200,000 a year.

In order to put the plans into effect, more land is required, and negotiations are in progress with the Port Authority for an additional area of approximately 9 acres on the north side of the existing 24 acre terminal.

The existing operation was designed around a main 5-high container stack, through which containers flowed between ship and shore, and to and from road and rail transport by means of three twin lift bridge cranes working over the whole stack.

Portainer cranes on the wharf actually lift the containers on and off ships.

However, with the tremendous increase in the container flow, and increasing problems associated with road and rail transport, it is intended to establish a separate new export park on the additional nine acres being sought, and to re-design the existing paved area outside the main terminal into a new import park.

It is intended to receive most export containers from road and rail at the export park at times convenient to both rail and road hauliers, and then to feed the containers into the main stack as it suits the scheduled work programme of the terminal.

It is also intended to take import containers out of the main stack each night for re-locating at the import park on a trailer basis for pickup by road again at times convenient to the land hauliers.

As 50 per cent of all export containers through Swanson Dock come by rail, it is hoped to have an additional rail terminal at the new export park area, and this matter is also being negotiated with the Port Authority. Export containers are at present passing through the terminal by rail between Adelaide, the South Australian capital 440 odd miles to the west; Shepparton, 120 miles to the north; and Mildura, 360 odd miles to the north west.

It is hoped that the import park will have containers placed on trailers which should suit road hauliers, as they will have easier and unrestricted access to collect their loads. The company anticipates that delivery to road or rail will begin within 24 hours from the time the containers are taken out of the ship.

The new re-organised container flow has become necessary, because both the frequency of ship arrivals and the volume of containers now passing through the terminal, were far greater than originally anticipated and for which the facilities were designed. (Melbourne Harbor Trust Port Gazette, March)

Port of Townsville

Port Statistics (July 1, 1969-June 30, 1970)

1. Ships that called at the Port

Asia-Oceania

Total gross-tonnage ...2,517,174 2. Tonnage of cargo handled at

the Port

(1) Imports:									
Intra-state						30	4,	38	2
Inter-state						12	5,	80	3
Overseas .						.4	5,	06	0
Total						47	5,	24	5
(2) Exports:									
Intra-state						.1	4,	06	1
Inter-state						12	3,	16	7
Overseas .						79	1,	71	5
Total	•					92	8,	94	3

(3) Grand-Total of Imports and Exports:1,404,188 (Extracted by T. Nakanii, IAPH Under Secretary from "Port of Townsville — Townsville Harbour Board Report")



Tokyo, April 5: - Mr. K. W. Moore of Overseas Containers Limited's Far East Trade Division, who is visiting the Far East during March and April 1971. (OCL Press Release)

Pleasure Boating

Hong Kong, 15 April:-Because of the rapid growth in pleasure boating throughout the Port Shelter area, on the scenic eastern seaboard of the New Territories, the Marine Department has opened a new licensing station at the Sai Kung Wholesale Fish Market.

The new station undertakes the licensing and necessary control of marine activities in the district. Previously this was done by a licensing team which made weekly visits to the area.

A spokesman for the Marine De-

JUNE 1971



Tokyo, April 21:---Mr. A. J. Butterwick (center), Director of Marketing of Overseas Containers Limited (OCL), Britain's largest container shipping consortium, arrived in Tokyo Tuesday evening (April 20) with Mr. Wolfgang Buschhorn (2nd from left), Managing Director of M&O Container Transport GmbH, the OCL agents in Germany. Accompanying them were Mr. A. V. K. Murray (left) and Mr. David Gledhill (2nd from right), both Directors of Butterfield & Swire (Japan) Ltd., the OCL agents in Japan, and Gordon Robb (right), OCL's Marketing Manager for Japan. The five took part in OCL's Far East marketing meeting held last week in Hongkong in preparation for OCL's Far East/Europe through-transport container services scheduled to start in early 1972. Butterwick and Buschhorn will pay a brief visit here before flying home. (OCL Press Release)

partment said both the Port Shelter and Rocky Harbour areas were becoming increasingly popular with the general public for swimming and pleasure boating. In addition, an increasing number of mechanised fishing vessels and pleasure craft was seeking licensing facilities at Sai Kung. Since several beaches on Kau Sai and other islands in the Sai Kung area had been gazetted recently as public beaches, under the control of the Urban Services Department, it was necessary to keep fishing and other native-type craft under observation and control. (The Week in Hong Kong)

Hong Kong

Port Statistics during April 1, 1969—March 31, 1970

I. VESSELS

- 1. Number of Vessels Entered and Cleared
- (1) Ships entered: (2) Ships cleared:
- 2. Nett Tonnage of Ships En-
- tered and Cleared

•
(1) Ships entered:
Ocean-going22,695,820
Others
Total
(2) Ships cleared:
Ocean-going22,434,053
Others4,418,545
Total26,852,598
(3) Grand-Total53,962,276
II. PASSENGERS
(1) Passengers landed:
Ocean-going
Others1,216,252
Total1,238,982
(2) Passengers embarked:
Ocean-going $\dots \dots \dots 22,131$
Others1,202,050
Total1,224,181
(3) Grand Total $\dots 2,463,163$
III. CARGO
(1) Cargo landed Tons Dead-
weight:
Ocean-going \dots
Others $$
(2) Composite to ded. The Deed
(2) Cargo loaded Tons Dead-
$\begin{array}{c} \text{weight:} \\ \text{Opper mains} \\ O$
Otherr 156.015
Total 2 070 552
(3) Crand Total 12,805,253
$NB \cdot The Items "Others" in$
the above table include
"River-Streamers", "Hydro-
foils". "Junks". "Mechanized
, j

Vessels of 300 tons net and



Tokyo, April 22:—All set for launching, the British India cargo ship Mulbera, 13,300 dwt, gets a final touch of paint at Swan Hunter's Neptune shipyard. She is one of 29 ships worth £140 million being built for companies of the P&O Group. The massive ram bow improves the ship's hydrodynamic qualities. With a service speed of 19 knots, she will trade between Australia and the Persian Gulf, covering the 4,700 miles between Freemantle and the Gulf in 10 days. British India, a member company of the P&O Group, are represented in Japan by Swire Mackinnon. (P&O Information Service)

under", etc.

(Extracted from "Annual Departmental Reports 1969-70" published by Mr. K. Milburn, J. P., Director of Marine, Hong Kong by T. Nakanii, IAPH Under Secretary)

New Book:

"The Major Ports of India"

By Satkartar Batra, published in August 1970 by The Kandla Commercial Publications, THX-12, Adipur, Kandla, India. Price Rs. 30.00. The Introduction by the author reads as follows:

Shipping practices and requirement of documentary procedures differ not only from country to country but from port to port. This is what makes shipping a subject of absorbing interest. The diversity in practice stems obviously from the historical background of each port which has been responsible for the evolution of different conventions based on age-long traditions. To a student of shipping, this diversity is nodoubt a matter of everlasting interest. However, to a user, specially a ship-owner, the different practices followed at different ports and the different requirement are probably a matter of much concern, and so far as his trading interest is concerned, he would like to lay his hand on some source which would readily give him the datails of requirments at a particular port. This is what has been made available in this book so far as the Indian Major Ports are concerned. The desire of a ship-owner and ship-master has been kept in view while explaining the various requirements at each of the Indian Major Ports. The historical background and all other information of each port which the respective Port Authorities and other concerned with the ports were kind enough to make available will be of immense interest to everyone. In addition, information about shore charges at the major ports have also been included.

Foreword by Dr. K.R.V. Rao, Education Minister of India, runs as follows:

The importance of ports in the economic development of a developing country like India, which possesses a coastline of about 5,700 kms. and as many as 165 working ports, needs no emphasis. The eight major ports of India handle about 55 million tonnes traffic per annum. The detailed information about each of the major ports is available in their administrative and/or annual reports. But a comprehensive compilation of information about all the major ports, which proves handy was the long felt need. This is fulfilled by Shri Satkartar Batra's book-'Major Ports of India.' In this book the Author has compiled the wealth of data relating to various aspects of each of the major ports of India. The information compiled in the book covers history of each of the major ports, facilities available, traffic handled, port dues, rates and charges, formalities and procedure required to be completed for the overseas trade, etc. Besides it also contains lists and addresses of official and non-official organisations connected with ports and shipping. It is a comprehensive commercial directory which will be useful to all those who are connected with shipping, commerce and industry. New Delhi

August 10, 1970

V.K.R.V. Rao

Inchon Harbour, Korea

Tokyo: — Société Grenobloise d'Etudes et d'Applications Hydrauliques (SOGREAH) has been chosen by the Korean Construction Ministry as consulting engineer for designing and building Inchon sea lock.

Inchon sea lock consists in fact of two locks, one for 10,000 ton vessels, the other for 50,000 ton vessels.

The lock connects the sea to a wet dock, enabling vessels to enter the port of Inchon, where shipping movements had been limited considerably owing to the very high tides (maximum 11 metres).

Hitherto, large vessels used the port of Pusan, in the south of the country, about 350 km from Seoul. The port of Inchon lies only 40 km from the capital and will be used by the industries around it. The sea lock will therefore play an important part in the economy of Korea. (French Technical Bulletin, No. 1, 1971)

Refuse Disposal

Auckland, N.Z., March 24:—The Auckland Harbour Board believes that the problem of refuse disposal in the greater Auckland area will have to be solved on a regional basis to prevent undue tipping encroachment on the Waitemata and Manukau Harbour foreshores.

Concerned that Auckland's foreshore tips are in some instances reaching ultimate capacity, the Board is to defer all applications for refuse tipping in the Waitemata harbour until completion of the foreshore study it is carrying out in conjunction with the Auckland Regional Authority. The Board will take the same action over the Manukau Harbour pending completion of an appropriate study which it intends to carry out with the Auckland Regional Authority or other local bodies. It will also ask the Regional Authority to look into the problem with a view to finding alternative re-

fuse disposal methods on a regional basis.

Reporting to the Board, the Chief Engineer, Mr. R. A. J. Smith, said disposal of refuse by local authorities at approved areas on the foreshores of both harbours had been undertaken for many years. However, the question of further use of foreshores for tipping now required detailed consideration within a total assessment of future refuse disposal in regional Auckland. Mr. Smith said the Board's processes of approval for tipping on the foreshores it controlled included safeguards against pollution and health hazards but actual tip-working and local authority control had left a lot to be desired. Cooperation from these authorities regarding public complaints had not always been easy to obtain.

Another consideration was that the Board was concerned with preserving the natural resources of both harbours as much as possible and this was the prime reason for the Waitemata Harbour study. Mr. Smith said organic refuse could be dealt with by composting of incineration and inorganic refuse could to a large extent be handled by incineration also. These processes could involve large capital investments and the Department of Health would have to investigate the possibility of such facilities on a local or regional basis.

"As the region grows the problem of domestic and industrial waste disposal increases also and the problems now apparent in overseas countries are presumably approaching in the Auckland area," Mr. Smith said. "It is doubtful if each local authority can find a complete solution to the problem and perhaps responsibility to resolve, control and operate the whole process of refuse disposal should be undertaken by an over-riding body such as the Auckland Regional Authority. Proposed local body amalgamations also influence the matter."

The General Manager of the Board, Mr. R. T. Lorimer, said that communal incineration or composting seemed necessary to solve the problem. "Local authorities have to think of the long term effect of continued tipping," Mr. Lorimer said "This Board has a responsibility to preserve the Harbour waters and foreshores for all types of use and we cannot just go on filling them up. I expect the local authorities to support us in our stand on the matter." (Auckland Harbour Board)

Centennial Gift

Auckland, N.Z., March 24: — The Auckland Harbour Board is to present 57 acres of scenic bushland and foreshore to the people of Auckland as a Centennial gift, to be used for picnic and recreational purposes.

The Board is also leasing at a nominal rental a further 1,100 acres of scenic reserve to the Auckland Regional Authority for use by the general public. This land is 21 miles from the city centre. Both gifts mark the Auckland Harbour Board city centennial anniversaries which fall this year.

The Chairman of the Board, Mr. R.C.F. Savory, said: "I firmly believe that recreational space for Aucklanders is of the utmost importance, particularly in view of population growth. We hold the foreshores of the Manukau, one of Auckland's twin harbours, in trust for the people, and we want to see all sections of the community making the fullest possible use of them. I think, therefore, there is no more suitable occasion than at present to transfer this land for such a purpose." (Auckland Harbour Board)

Portainer Crane

Auckland, N.Z.:—The \$1 million Portainer Crane, ordered by the Auckland Harbour Board for operation at the new container terminal, is now in working order.

It was officially handed to the Board today (Friday, January 29) by Mr. A. P. Wickens, Director in Charge of Overseas Interests, for Vickers Ltd, London, on behalf of the builders of the massive 153 ton crane, Vickers Hoskins Pty Ltd. of Australia. It was received on behalf of the Board by the Chairman, Mr. R.C.F. Savory.

Sir Leslie Rowan, chairman of Vickers (England) Ltd, hoped to attend the commissioning, but was

Asia-Oceania

unable to leave Britain at the last moment, owing to unforeseen circumstances. This morning other directors of Vickers Hoskins, their wives, members of the Harbour Board, officers and invited guests, saw the crane in action when Harbour Board engineers and staff gave a twenty minute demonstration, including single and twin lift operation. Later they attended a function at Trillo's of Westhaven.

The twin-lift crane is capable of lifting two containers with a combined weight of up to 45 tons. In a four minute cycle of operation the crane can handle four containers, moving two from the ship to the wharf and placing another two on the ship from the wharf. This system is operated by one man from a control cabin slung beneath the main boom of the crane.

Handling rates of more than 600 tons an hour are attainable with the crane and a full container ship could be turned round (i.e. brought into port, emptied and re-loaded ready for departure) in a day. The crane will empty and re-load its first container ship in May, when the "Columbus New Zealand", of the Columbus Line, comes into Port.

Work on the container terminal began three years ago when land was reclaimed for the 1500 ft quay and adjacent terminal facilities. This, the first phase, is nearing completion, and the second phase a further 300 ft of wharf will be added in the next year or so. The total project is due for completion by 1975.

The wharf built so far is "tied back" to the reclaimed land every 20 ft by 60-ton capacity cables anchored in concrete blocks. This is to minimise movement in the event of earthquakes. There will be two container terminals in New Zealand, the other is under construction at Wellington. (Auckland Harbour Board)

6 Million Tons

Whangarei, N.Z.: — Whangarei Harbour has topped the 6-million ton mark for cargo in a single year for the third successive year—and remains the only New Zealand port to have done so.

The total for the 1969-70 year, which ended on September 30, was 6,195,800 tons. (Points North, November, 1970)

Lot to Learn Yet

Whangarei, N.Z.: — Companies and harbour boards abroad are finding that there is still a lot to learn about the handling of containers, said Mr. W. Hawthorn, a member of the Northland Harbour Board, after attending in Sydney the Conference of the I.C.H.C.A. (International Cargo Handling Co-Ordination Association).

Captain J. Kirkham, a Board pilot, attended the Conference with Mr. Hawthorn.

Mr. Hawthorn said that operators were learning in stages about containers—their handling, their documentation and their passaging.

It was already clear that some ports, like Sydney and Brisbane, did not have sufficient land for the efficient handling of containers. There was a general trend overseas towards the creation of completely new ports, with deep water and plenty of space for the handling of containers and of bulk carriers.

Mr. Hawthorn and Captain Kirkham also attended a Conference of the West Australian Ports' Association in Perth, and visited ports throughout Australia. (Points North, November, 1970)

Container Port To Be

Whangarei, N.Z.:—Mr. D. A. Highet, Government M.P. for Remuera, believes that Whangarei will become a container port. He says the rapidly increasing use of containers makes this "inevitable."

After a world trip with a fourman Parliamentary group, he said he considered that the decision to have only two container ports initially was a sound one.

Speaking at a luncheon meeting of the Marsden Electorate Na-

tional Party Women's Organisation, he said that at Oakland, California, cargo tonnages had tripled in the three years since the introduction of containers.

Fears of wharf labour redundancy had proved groundless, he said. A 25c per ton levy had been made on all cargo to provide a redundancy fund.

The fund had built up to \$25 million without any sign of redundancy, so that last Christmas a bonus had been paid to every wharf worker.

He said that supporting services such as rapid rail were financed in the United States by sales tax.

"Everywhere in the States there is a minimum of 5 per cent sales tax, at retail level, on all goods except groceries and medicine," he added.

Footnote: — The Minister of Transport, the Hon. J. B. Gordon, has stated that Marsden Point, Whangarei, could become a container terninal in the future. He referred to the possibility of Marsden Point becoming an international container terminal for the South Pacific area, feeding out containers to Australia and other Pacific countries. (Points North, November, 1970)

New Chairman

Karachi: - Commodore Anwer Saeed, T.Pk., P.N. has taken over as Chairman, Karachi Port Trust, w.e.f. 1st January, 1971. Commodore Anwer Saeed has been appointed Chairman of Karachi Port Trust for a period of 2 years in the first instance. Before joining K.P.T., Commodore Anwer Saeed was the Commodore-in - Charge, Karachi, Pakistan Navy, and Principal Officer, Mercantile Marine Dept. Karachi. He was also a Trustee, representing Pakistan Navy on the K.P.T. Board since July 1969. Commodore Anwer Saeed was elected Vice-Chairman of K.P.T. Board for the year 1969-70. (K.P.T. News Bulletin, January 15)

Europe-Africa

Engineering Services

Karachi: — An Agreement for Consulting Engineering Services for the design of Eight Shipping Berths under the Third Project of Karachi Port was signed between the K.P.T. and the firm of O. Prof. Dr.-Ing. Erich Lackner, Consulting Engineers of West Germany. Prof. Lackner is the Chairman of the European Committee of Waterfront Structure and Quaywalls and a reputed international expert on Port Structures. (K.P.T. News Bulletin, August 15, 1970)

Bangkok

 Tonnage of Cargoes discharged at the Port of Bangkok during 1970

2. Tonnage of Cargoes loaded at the Port of Bangkok during 1970

Total Outward ...4,963,722

3. Foreign Outward Vessels at the Port of Bangkok during 1970

N.B.: Above figures were obtained by composing the data which appeared in several editions of the following magazine.—T. Nakanii, IAPH Head Office

JUNE 1971

Consultative Board

Antwerp:-For quite a while already a Consultative Board, consisting of representatives of the port authorities, the employers and the labourers' unions, has been in existence in Antwerp. This Consultative Board meets monthly to deal with specific problems. It was now decided to start a "General Meeting for Port Consultation", comprising 45 delegates: 15 from the port authorities, 15 from the employers and 15 from the labourers. This new body is to probe into the general port problems jointly and periodically, thus acting as a general meeting to assist the more restricted Consultative Board. (Antwerp Port News)

Container Traffic in 1970

Antwerp:—The favourable impact on the evolution of container traffic exercised by the comprehensive container handling equipment which for the last years has been at the disposal of the Antwerp port customers results once more from the statistics which have been published for the year 1970.

Containerized goods traffic amounting to about 0.6 million tons in 1968 and to about 1.2 million tons in 1969 lept up to 2.2 million tons over the year 1970, i.e. an 85 per cent increase compared with 1969.

Provisional figures for the aggre-

gate seaborne general cargo traffic in the port of Antwerp during the first eleven months of 1970 amounted to about 21 million tons. The aggregate seaborne general cargo traffic over 12 months consequently can be evaluated at some 22.9 million tons.

The above mentioned figures reveal some interesting aspects. Indeed, the total general cargo traffic in the port of Antwerp amounted to about 20.6 million tons in 1969, the figure of 1.2 million tons of containerized cargo thus representing about 6 per cent of the general cargo traffic. In 1970 this percentage rose to about 10 per cent, considering the fact that 2.2 million of the circ. 22.9 million tons of general cargo arrived at or left the port in containers.

Consequently the percentage of containerizable cargo which is actually containerized is constantly growing.

The total number of containers handled in the port of Antwerp in 1970 was 167,789 units (against 100,442 units in 1969) of which 92,150 incoming and 75,639 outgoing (against respectively 51,369 and 49,073 in 1969). This is an increase of respectively 79 and 54 per cent in 1970.

The bulk of containerized cargo still comes from or is bound for North America. Here too the increase was very important in 1970: 68,147 containers (39,639 incoming and 28,508 outgoing) against 38,850



Europe-Africa

containers (22,442 incoming and 16,408 outgoing) in 1969.

For North America the tonnage rose from 272,370 tons of goods unloaded and 213,653 tons of goods loaded in 1969 to 549,912 tons of goods unloaded and 358,908 tons loaded in 1970, thus resulting into a total increase of 102 and 68 per cent respectively. The favourable evolution in 1970 also appears from the container traffic with Great Britain, the Far East and Australia.

Statistics mentioned on page 6 do not include the total traffic of 22, 831 empty containers which arrived at or left the port of Antwerp by ocean-going vessel, or the number of pallets and flats; the tonnages indicated are these of goods conveyed, exclusive of the tare weight of the containers. (Antwerp Port News, February)

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1, Kotohira-cho, Minato-ku, Tokyo 105, Japan

Container Future In the Port of Bremen

Reception held in New York by Bremer Lagerhaus-Gesellschaft

The number of containers handled in the Ports of Bremen again rose considerably in 1970. Bremen and Bremerhaven were able to increase their leading position in overseas container transport and they were also able to increase their lead over other continental ports. This was the tenor of a speech made by the Chairman of the Bremer Lagerhaus-Gesellschaft, Herr Gerhard Beier, at a reception held by the BLG for American and Japanese shipping experts in the Whitehall Club, New York, on February 5th, 1971.

In his speech Herr Beier pointed out that last year a total of 111,961 containers of the 20', 35' and 40' types with a tonnage of 1.382 mill. tons had been shipped via Bremen/ Bremerhaven. He remarked that the conversion of these figures onto a 20-ft basis was only for comparipurposes. This conversion son resulted in a figure of 194,544 units for 1970. In all other respects, however, the Ports of Bremen referred to the actual number of units.

In detail, Herr Beier stated the following figures in container transport for 1970:

Number		Weight
Actual	20'	
Total	basis	
Import		
55.263	95.632	669.821 t
Export		
56.638	98.912	711.737 t
Total		

111.901 194.544 1.381.558 t Herr Beier continued by stating that this number exceeded the 1969 results by 53% in number and by even 68% in weight. In 1969, 73.334 containers (118.001 on a 20' basis) with a tonnage of 822.129 tons had been moved. All seven full-container lines calling at Bremen/Bremerhaven were able to participate equally in this growth. It was especially remarkable that only about 10% of the containers had been shipped in the port-toport-to-port door or service, whereas 90% had been shipped in the cheaper door-to-door service. The high percentage in the door to door service was achieved by no other port. This shows that the Ports of Bremen are ideally suited to container transportation. Bremen/Bremerhaven fill the requirements of this system of transport in every respect.

The proportion of containerized cargoes of the total amount to general goods handled in 1970, which was 11.9 million tons, has increased from 7% to 11%. For the current year the Ports of Bremen can expect further increases. In spite of the fact that already 70% of the goods shipped to and from the U.S.A. via Bremen/Bremerhaven are containerized, such goods that did not seem suitable for containers at first are gradually being carried by container shipping lines. In addition to this, other factors, such as services to Australia and the Far East, will guarantee a new record turnover in the Ports of Bremen.

Generally speaking, the prospects are viewed optimistically in Bremen, because in the spring of this year a new terminal, the "Terminal on the Sea", which is indeed second to none, will be put into operation. In April the official opening of the first berth, which will have two container bridges and about 200.000 square metres of marshalling area, will take place. This will considerably increase the capacity of the Ports of Bremen. Two further berths with 2 container bridges each will follow, one of which will be officially opened in autumn. When fully completed, the "Terminal on the Sea" will have three berths with

a quay length of over 1.000 metres, 6 container bridges and a marshalling area of 450.000 square metres.

Herr Beier added that this terminal marked the beginning of the container future of these ports. All those factors that the shipping companies consider to be prerequisites for optimal container transportation are ideally present in this terminal. Among these prerequisites are both an ideal geographical position from a transport point of view and also the technical equipment and facilities. Herr Beier said that all these factors would enable the Ports of Bremen to increase even further the number of containers, which had so far been handled in the Neustadt Docks in Bremen itself and also in the Nordhafen in Bremerhaven. This number is already higher than that of other ports. Herr Beier concluded his speech by saying that computercontrolled movements, closed-circuit television. the fact that all those persons directly or indirectly concerned will be present in the socalled "gatehouse", and an improved organisation would guarantee this increase in achievement and efficiency.

Bremen, 8th February, 1971

Rail Haulage Closed

Liverpool, 11th March:—Dockside rail services to all berths in the area from King's Dock to Herculaneum Dock in the Southern zone of the Mersey Docks and Harbour Board estate are to end at the close of work on April 30.

This decision has been taken by the Dock Board following an examination of the viability of rail haulage operations in the dock area south of Liverpool Pierhead. The object was to assess whether or not the service could be maintained until the eventual closure of the south docks system as a whole.

The examination showed, however, that the dock rail service in the area was incurring a substantial deficit and that could not be accepted in present circumstances.

All interested parties have been advised by the Docks and Commercial Manager, and arrangements have been made by British Rail for sending stations to be informed. Additional cartage facilities will be available from Canada Dock Station to serve the South Docks area.

A spokesman for the Dock Board said: "The withdrawal of rail haulage will increase only marginally lorry traffic in the south docks and no difficulty is anticipated from the extra road traffic particularly in view of the increasing use of existing export lorry appointment schemes and the proposals to introduce similar import lorry appointment schemes in May.

Information concerning alternative cartage offered by British Rail can be obtained from Mr. Arthur Harris, B.R. Cartage and Terminals Superintendent (telephone 051-7098292, Ext. 2330). (Mersey Docks & Harbour Board)

Chairman's Statement

London, 15th April:—The Chairman of the Port of London Authority today expressed his serious concern about recent inaccurate and misleading Press reports on the future of the Port of London. It is not true that "most London docks may be closed in 18 months."

The real facts are:

- 1. The progressive closure of conventional cargo berths has been proceeding steadily for some years, in accordance with the plan formulated in 1967 and updated in January, 1970.
- 2. The principal reason behind this rationalisation is the advent of containers. This has drastically decreased, and continues to lessen, the tonnage of conventionally handled cargoes everywhere. The rationalisation programme so far has closed two out of the P.L.A.'s five major dock groups and reduced the number of employees by 25%.
- Over 2¹/₂ million tons of general cargo is expected to pass through Tilbury container berths in 1971, but less than 10% out of the very nearly 60 million tons throughput in the Port will be conventionally handled in the docks. Incidentally, this makes Tilbury one of the leading international container docks.
- 4. Despite the national dock strike which cost the P.L.A. some £34

million, the net revenue deficit on trading account for 1970 is expected to be of the order of one million pounds.

- 5. The March increase in import and export charges related to conventional cargoes and not to containers.
- 6. The rationalisation plan is regularly reviewed and communicated to employees, the trade unions and port users. Arrangements have already been made for the next stages to be announced next week. (News from PLA)

Vehicle Appointments

London, 5th April:—British India and Union Castle Lines, who operate a joint service from East Africa to London, have arranged with the Port of London Authority to introduce yet another vehicle appointment scheme for import cargoes. This new scheme will cover berths No: 28, Royal Albert Dock and No: 10 in King George V Dock for all vessels of the joint service arriving after April 12th, 1971.

The scheme is designed to speed up the collection of landed goods from the quayside sheds and give more efficient use of dock labour resources, and to reduce lorry waiting time to the minimum so giving hauliers opportunities of greater vehicle utilisation.

The procedure will be for the importer, or his haulier, to make an appointment for the collecting vehicle as soon as PLA advise that the goods are clear of customs and ready for delivery. A telephone application can be made between the hours of 1030 to 1715 Mondays to Friday, to: 01-476 1652 for 28 berth R.A. Dock and 01-476 2805 for 10 berth, K.G.V. Dock and details should be given of the consignment, Bill of Lading number, name of ship and date of ship's arrival. An appointment will then be agreed for one of the five periods into which the working day-covering both shifts---is divided for the scheme. These periods are:--(1) 0700-0800, (2) 0800-1100, (3) 1100-1400, (4)1400-1700, (5) 1700-2100.

Every endeavour will be made to meet particular requirements of

Europe-Africa

hauliers but early application will make this easier.

The scheme is expected to assist importers seeking the benefits of the Transit Charge arrangements by prompt collection of goods. The PLA have published a leaflet outlining their procedure and method of assessing charges and importers will find this a useful guide. It urges early application and the keeping of agreed appointments. Vehicles failing to do so will only be dealt with after those taking up their priority and PLA draw attention to the fact that missed appointments may put the benefits of Transit Charge at risk. (News from PLA)

Survey for Port User

London, 15 April:—An extensive survey within the U.K. of U.K./Far East trade carried out by the British Transport Docks Board is proving extremely useful in building up a picture of equipment and inland depot requirements for the container services due to begin operating from Southampton at the end of the year, a spokesman for OCL and Ben Line (Containers) Ltd. (part of the ACT group) said today.

The two container consortia selected Southampton as the main U.K. base for the two million tonsa-year Far East trade and the Docks Board offered to carry out the survey to assist with planning. It is believed to be the first occasion that a British port authority has provided detailed market research for a customer as part of its "after sales" service to a major user.

"We had obviously carried out our own studies of requirements in the Far East trade," said Mr. Richard Denning of OCL's Far East Trade Division, "but the detailed figures which the Docks Board study has produced provided us with a valuable confirmation."

Over 5,000 questionnaires were sent out by the Docks Board to shippers, importers and other relevant interests in the U.K. with the aim of producing reliable up-to-date data concerning the volumes of different types of cargo moving between a range of U.K./Far East destinations, the frequency of shipment, specific requirements as to re-

Port of Le Havre General Cargo

Evolution according to type of transportation



frigeration, and so forth.

Cargo tonnages were successfully requested both in terms of deadweight and measurement, and the Docks Board's computer was used to produce calculations of container flows for specific origins and destinations.

A spokesman for the Docks Board said today that the Board had been using market research techniques for several years to establish the traffic potential of its ports.

"On this occasion our research was offered as part of our after sales service with the intention of helping our customers to plan their operation, particularly Containerbase and other similar developments," he said.

"We understand that the results of the survey are providing a useful basis in assessing to what extent the inland container depots that have already been developed, primarily for another trade, would also be appropriately located for the Far East trade, and where additional facilities are likely to be needed."

The Far East container service will be accommodated at part of a $\pounds 14$ million extension of the Southampton Container Terminal at present under construction on land reclaimed from the River Test. (British Transport Docks Board)



LASH Boom

Bremen:-A boom seems to be intimated in the field of the liner services trading with the large lighters, on the LASH, or Seabee, principle, which the European as well as the American shipping companies are intending to develop-operating between the USA-East coast and Europe. The forerunners of the development, which represents a logical extension of the container principle, in the sense of a further acceleration of the time of turnround of the highly capitalised ships; are the two barge-carriers "Arcadia Forest" and "Atlantic Forest" (43,-

JUNE 1971

500 tdw-78 lighters with each having up to 370 tons burthen), which have been running since September 1970 in the New Orleans to Bremerhaven liner service of the Central Gulf Contramar Line; who have taken the ships on a long term timecharter from the Norwegian A/S. Moslash Shipping Company of Kristiansand. A second liner service has been established by the American Prudential-Grace Lines, with 'piggy-back' freighters, from the USA-East coast to the Mediterranean. Trading here is the lighterfreighter "Lash Italia" (29,463 tdw), as the first of a total of five specialised ships which are being built for in Bremen-at present being built, or on order, in the USA and in Belgium. They are intended for the further freight trade between Europe and the USA and will be launched within the next two years -the last at the beginning of 1973. The second 29,463 tdw Lash-freighter for the Mediteranean service will be delivered by the Avondale shipyard in New Orleans in March 1971 to the Prudential-Grace Lines. The last three of this series will follow-up to November 1972. Six Lash-freighters of the same type are being built by the American shipyard for the Pacific Far East Lines in San Francisco-the first of which will be put into operation in the liner service to Europe in September 1971-and the last in February 1973. Two 43,000 tdw Lash-freighters being built by the Cockerill shipyard in Hoboken/ Belgium, are intended for the establishment of an Holland-America Line and Hapag-Lloyd AG joint service between the USA-Gulf and European ports. The first should be delivered in November 1971, the second in May 1972. Finally, the Lykes Lines in New Orleans intend to place the first of three SEABEEcarriers (33,350 tdw) into service at the beginning of 1972 (the last in July 1972), for the USA/Europe run, among which is their "Standard

Line", plying between New Orleans and Bremerhaven. Bremerhaven has qualified as the first LASH-port on the European Atlantic coast ever since September 1970. (Bremen Air Mail, April)

Fast Containership Clearing

Bremen, 1 April:—The container terminals Bremen/Bremerhaven were again able to prove their efficiency, as not less than 14 fullcontainerships were cleared within only 7 days. Apart from the Australia to Europe Container Service and the United States Lines, all the full-container lines calling at the Ports of Bremen were concerned. In detail, the vessels in question were the "C.V. Staghound" of the

this American shipping company.

Europe-Africa

Twelve further units of this type are --according to the information of

the Institute for Maritime Economy

Europe-Africa



American Isbrandtsen Lines (Container Marine Lines Division), the "Weser Express" of the Hapag-Lloyd AG, the "Transindiana" of the Seatrain Lines, Inc., the "Jacksonville" of the Sealand Service, Inc., the "Atlantic Star" of the Atlantic Container Line, Ltd., the "Euroliner" of the Seatrain Lines, Inc., the "Transidaho" of the Seatrain Lines, Inc., as well as the feeder vessels "Karen Oltmann", "Birka", "Greyhound" and "Weser Carrier". Of these feeder-vessels the first three even called at Bremerhaven twice in one week. These 14 vessels moved a total of 4.503 containers.

The Ports of Bremen put up excellent performances in clearing these 14 vessels. For example, the Bremer Lagerhaus-Gesellschaft required only 231/2 hours to move 948 containers shipped by M.S. "C.V. Staghound". In one shift alone it was possible to discharge and load 460 containers. This was an achievement of more than 62 containers per hour on an average, using two container-bridges.

M.S. "Euroliner", calling at Bremerhaven for the first time on her maiden voyage, was cleared in a record time, too. The 1.136 containers, which were loaded or unloaded in Bremerhaven, were 'over and done with' in only 19 hours. In this case, about 60 containers an hour was also an above-average achievement.

These results, which were achieved in the Neustadt Docks in the city of Bremen itself and also in the Nordhafen of Bremerhaven, will be quite normal as soon as the Bremer Lagerhaus-Gesellschaft have put their "Terminal on the Sea" in operation in Bremerhaven. The first berth of the terminal, which will have an area of 450.000 sq. metres, will be in operation for the first time on the 21st April clearing the M.S. "Encounter Bay". The second berth will follow at the end of September 1971 and the third berth in spring 1972. Container movements will be computer-controlled and this will guarantee an improvement in the handling of both vessels and containers. (Via Bremen Bremerhaven)

Praise for the Port

Lourenço Marques:—The telegram and letter hereunder reproduced speak of the esteem in which are held the work and staff of the port of Lourenço Marques. This is what the Captain of the steamer Infante D. Henrique, of Companhia Colonial de Navegação says:

«Chief wharf Inspector Pires, Lourenço Marques:

Grateful I thank you for the attention given to the vessel under my command by all the staff which allowed a quick dispatch of the vessel considering the great tonnage work-

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ed. Cordial regards Vasconcelos Sá, Captain.≫

For their part, the Companhia Industrial da Matola sent the port Director a letter reading:

≪Dear Sir,

It is with great pleasure that we offer expression of the gratitude of our principals for the efficient manner in which the loading of 5008 cases of general cargo was effected, to the ship \ll ELIAS L \gg register 627/70, berthed at $\ll F \gg$ shed.

In fact if it was not for the extraordinary spirit of collaboration existing amongst all the officers of the C. F. M. who were concerned with the said loading, it would not have been possible to obtain the excellent results, which earned the admiration of four clients. Indeed, the loading of that cargo, effected in a little more than one day, represents, no doubt, a record.

Thus, in satisfaction of the request made by our Principals, we take this

opportunity to send you our compliments for the success reached, because as Portuguese we feel proud with the work done.

With our best thanks, which we extended to the staff you have under your orders, we remain, etc. (Boletim Portos, Caminhos de Ferro e Transportes de Moçambique)

Roll on/Roll off Cars

Barcelona:-In the near future, the sea service between Barcelona and the United States will be reinforced by modern ships of ≪Lash≫ type from the Ship Company named \ll Prudential-Grace Line \gg , whose fleet has increased by the adquisition of 22 new ships. These ships are specially designed for the transportation of 73 barges or 1,500 containers and it is estimated that the crossing between Barcelona and New York will be covered in five days. (Puerto de Barcelona Boletin Informativo)

Investments in Ports

Barcelona:-Investments in Spanish Ports reached to near on three thousand million pesetas in 1969, practically the total credit available in accordance with the forecast from the General Direction of Ports and Maritime Signals. An amount of Ports and Maritime Signals. An amount of 3,553.4 million pesetas was allocated for work and purchases, to be used throughout the above mentioned year, among which the most outstanding is the construction of a containers quay of 220 meter long. The port with the largest total amount of general cargo in 1969 was Barcelona, followed by Bilbao.

The port with the largest general loading through the year 1969 was Barcelona's, followed by Bilbao. (Puerto de Barcelona Boletin Informativo)

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Present and Future Container Facilities in Major Ports of the World (4)

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• Supervised by Mr. Ben E. Nutter, Chairman of the Committee on Containerization of IAPH

• Compiled by Miss Kimiko Takeda, Under Secretary of IAPH Head Office

(This series shall last until the June issue. Presented roughly in the order of arrival.)

Houston, Tex., U.S.A.

PORT OF: ______ DATE: ______ DESIGNATION OF TERMINAL: _______Mmarves 8, 17, 20, 23, 26,29 OPERATOR OF TERMINAL: ______Port of Houstan Authority

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	6		
Length of each berth	600 to 700 feet		
Land area of each terminal	55.2 acres total		
Dimensions of each terminal	varies		
Depth of water at berths	36 feet MLT		
CONTAINER CRANE			:
Number of container cranes		1	
Lifting capacity of each		40 long tons	1. Sec. 1. Sec
Reach on waterside from front edge of berth		113 feet	
Reach on landside from deck rall		30 feet	
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	×	×	
HODE OF ODEDATION			
TITLE OF OPERATION			
franstatter operation			
Straddie Garrier operation			
Chassis operation	×	×	
CONTAINER PACKING OR FREIGHT	and the second sec		
Dimensions			
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes		
	Signat	ure: R.P. hard	

Houston, Tex., U.S.A.

PORT OF: Houston DATE: 4-13-71
DESIGNATION OF TERMINAL: <u>Barbours Cut</u>
OPERATOR OF TERMINAL: <u>Port of Houston Authority</u>

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths			20
Length of each berth			800 to 1300 feet
Land area of each terminal			590 acres total
Dimensions of each terminal			1600 feet x 875
Depth of water at berths			50 feet MLT
CONTAINER CRANE			
Number of container cranes			30
Lifting capacity of each			40 long tons
Reach on waterside from front edge of berth			113 feet
Reach on tandside from deck rail			30 feet
MODE OF MANAGEMENT			
I. Exclusive lease for specified users			some
2. Preferential use			some
3. Open to all callers			some
MODE OF OPERATION	the state of the s	1	
Transtainer operation -			× ·
Straddle Cerrier operation			×
Chassis operation			x
CONTAINER PACKING OR FREIGHT			
Dimensions			10 @ 40,000 square feet
ALL BOLD CONTRACTOR TO TONULAL			1
RAILROAD CONNECTION TO TERMINAL	the second se		

Houston, Tex., U.S.A.

PERATOR OF TERMINAL: Sea-L	and Service, Inc.		<u></u>
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1		
Length of each berth	558 feet	· ·	
Land area of each terminal	17.5 acres		
Dimensions of each terminal	1173 feet x650 feet		
Depth of water at berths	36 feet MLT		1. S. S. S.
CONTAINER CRANE			· · · ·
Number of container cranes	1		
Lifting capacity of sach	27.5 short tons		
Reach on waterside from front edge of berth	77 feet		
Reach on landside from deck	30 feet		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	x		
2. Preferential use			
3. Open to all callers			
MODE OF OPERATION		1	
Transtainer operation	1.1	a second	199 <u>1</u> - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
Straddle Carrier operation	1	a standard see	
Chassis operation	x	· · · · · · · · · · · ·	
CONTAINER PACKING OR FREIGHT			
Dimensions	46,700 Sq. Ft.		
RAILROAD CONNECTION TO TERMINA		1	
(Yes) (No)	Yes		

Acajutla, EL SALVADOR

PORT OF: ACAJUTLA

DATE: 23 de diciembre de 1970

DESIGNATION OF TERMINAL: MUELLE "B" OPERATOR OF TERMINAL: COMISION EJECUTIVA PORTUARIA AUTONOMA

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	R		
Length of each berth	168 m.		
Land area of each terminal	110,000 m. ²		_
Dimensions of each terminal	344 x 320 m.		la 10 Turkov
Depth of water at berths	10 y 12 m. NMMVMD.		
CONTAINER CRANE			
Number of container cranes	1		a da ser da ser
Lifting capacity of each	25 TM.	· · · ·	2 4 C
Reach on waterside from front edge of berth	12.3 m.	-	
Reach on landside from deck rall	7.7 m.		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	140		
2. Preferential use	No	-	-
3. Open to all callers	sl		
MODE OF OFERATION			
Transtainer operation	No		
Straddle Carrier operation	No		
Chassis operation	SI SI		1.5 ° - - 1.5 A
CONTAINER FACKING OR FREIGHT			
Dimensions		_	
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	st		- -

Signature:

45

Long Beach, Calif., U.S.A.

DATE: _____April 16, 1971 PORT OF: LONG BEACH, CALIFORNIA DESIGNATION OF TERMINAL: Berths 232-233-234 OPERATOR OF TERMINAL: Will Be "K" Line

	IN OPERATION *	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL	* Berths 232-233.		Is To Total:
Number of berths	This area now operated by Sea-Land Service,	1	3
Length of each berth	Inc., but will be va-	1170 ft.	2300 ft.
Land area of each terminal	new terminal on Pier	51, 5 Acres	69 Acres
Dimensions of each terminal	G is completed.		
Depth of water at berths		42 ft.	34-42 ft.
CONTAINER CRANE			
Number of container cranes		2	
Lifting capacity of each		30 Tons	
Reach on waterside from front edge of berth			
Reach on landside from deck rail			
MODE OF MANAGEMENT			****
 Exclusive lease for specified users 			
2. Preferential use		x	x
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			
Chassis operation		х	
CONTAINER PACKING OR FREIGHT			
Dimensions			60,000 sq. ft.
RAILROAD CONNECTION TO TERMINAL	-	Service	Service
(Yes) (No)		Available	Available
	Signati	ire: Bolk	~

Lee Sellers, Director of Port Operations

Long Beach, Calif., U.S.A.

ORI OF: LONG BEACH, CA	LIFORNIA	DATE: April 10	, 1971
DESIGNATION OF TERMINAL:	Berth 243-244		
DPERATOR OF TERMINAL:	Not Yet Designated		
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		2	
Length of each berth		(Total) 1350 ft.	
Land area of each terminal		24.2 Acres	15.8 Acres
Dimensions of each terminal			
Depth of water at berths		42 ft.	
CONTAINER CRANE			
Number of container cranes			
Lifting capacity of each			
Reach on waterside from front edge of berth			· .
Reach on landside from deck rail			•
MODE OF MANAGEMENT			
1. Exclusive lease for specified users			
2. Preferential use			
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			
Chassis operation			
CONTAINER PACKING OR FREIGHT	1		
Dimensions			
RAILROAD CONNECTION TO TERMINAL		-	
(Yes) (No)		Yes	Yes

Lee Sellers, Director of Port Operations

Long Beach, Calif., U.S.A.

PORT OF: LONG BEACH, CALIFORNIA DATE:____ April 16, 1971

DESIGNATION OF TERMINAL: _____ Public Container Terminal OPERATOR OF TERMINAL:____ Transocean Gateway Corporation

-	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL	_		
Number of berths	3		
Length of each berth	700 ft.		
Land area of each terminal	33 Acres		
Dimensions of each terminal	600' x 2400' (Approx.)		
Depth of water at berths	35-37'		
CONTAINER CRANE			
Number of container cranes	1	1	1
Lifting capacity of each	50 Tons	50 Tons	50 Tons
Reach on waterside from front edge of berth	110 ft.	110 ft.	110 ft.
Reach on landside from deck rail	55 ft.	55 ft.	55 ft.
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			÷
2. Preferential use by T.O.G.	x		
3. Open to all callers	x		
MODE OF OPERATION			
Transtainer operation	x	x	
Straddle Carrier operation	x	x	
Chassis operation	x	x	
CONTAINER PACKING OR FREIGHT			
Dimensions	290' x 100'		65,000 sq. ft.
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes	Yes	Yes

Lee Sellers, Director of Port Operations

Long Beach, Calif., U.S.A.

DESIGNATION OF TERMINAL:	Sea-Land Service, Inc.		1993
PERATOR OF TERMINAL:	Sea-Land Service, Inc.		
	IN OPERATION	UNDER CONSTRUCTION	
TERMINAL	BERTHS 232-233	Berths 227 thru 230	Torone Pent
Number of berths	2*	4	Ī
Length of each berth	(Total) 1130 ft.	(Total)2600 ft.	
Land area of each terminal	17.5 Acres	87± Acres	
Dimensions of each terminal	1400' x 570' (Approx.)	2760' x 1360' (App	rox.)
Depth of water at berths	31-34 ft.	42'	
CONTAINER CRANE			
Number of container cranes	2	4	
Lifting capacity of each	27-1/2 Tons	40 L/Tons	
Reach on waterside from front edge of berth	104 ft.	115 ft.	
Reach on landside from deck rail	50 ff.	175 ft.	
MODE OF MANAGEMENT		····	
 Exclusive lease for specified users 			
2. Preferential use	x	x	
3. Open to all callers			

Transtainer operation Straddle Carrier operation Chassis operation х х CONTAINER PACKING OR FREIGHT 120' x 600' (L.C.L.) Building on 16.3 Acres 14,700 sq. ft. Bldg. Dimensions on 3.3 Acres RAILROAD CONNECTION TO Yes plus rail to truck & truck to rail transi station. (Yes) (No) No * These facilities will be vaca now under construction for Sea-228, 229, 230 are completed an Signature: Bellan Lee Sellers, Director of Port Operations ted when those -Land at G-227, ad occupied

Port Containerization ... Worldwide

PORTS and HARBORS

Bombay, INDIA

PORT OF: BOMBAY.	DATE : JANUARY 28, 1971.
DESIGNATION OF TERMINAL :	BERTH NO.12-B, ALEXANDRA DOCK.
OPERATOR OF TERMINAL :	BOMBAY PORT TRUST.

1	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
CERMINAL			
Number of berths	-	-	Proposal under con- sideration for developing one of the existing berths in Alex. Dock for container bendling.
Longth of each herth	-	_ '	180 metres.
Land area of each terminal	-	-	6.45 acres (could be developed to 10 acres at a later date).
Dimensions of each terminal	-	-	180m x 145 metres (could be increased to 180m x 225m at a later date).
Depth of water at berths	-	-	10.36 metres (34 feet) below impoun- ded level.
CONTAINER CRANE			
Number of container cranes			
Lifting capacity of each	-	-	8
Reach on waterside from front edge of berth			Yet to be decided.
Reach on landside from deck rail			}
MODE OF MANAGEMENT			
1. Exclusive lease for specified user	3) Yet to be
2. Preferential use 3. Open to all callers	-	-	decided.
MODE OF OPERATION			
Transtainer operation Straddle Carrier operation Chassi: operation	-	-	Yet to be decided.
CONTAINER PACKING CR FREIGHT STATION			
Dimensions	-	-	Yet to be decided.
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	-	-	Connected by road & Rail.

/ / / / / : 27.1.71

Bombay, INDIA

PORM OF: BONNAY DATE: JANUARY 28,1971
DESIGNATION OF TERMINAL : SHEVA BASIN (PROPOSED)
OFSRATOR OF 2ERMINAL : BONBAY FORP TRUSP

	IN OPERATION	UNDER CONSTRUCTION	PUPUT PL PLAN
TERMINAL			
Number of berths		-	One
Length of each berth		- 1	300 metres
Land area of each	-	-	15 Acres
Dimensions of each terminal	-	-	300 metres x 200 metres
Depth of water at berths	-	-	13 metres
CONTAINER CRANE		,	
Number of container cranes	1	}	
Lifting capacity of each		}	
Reach on waterside from front edge of berth	-	- {	Yet to be decided
Reach on landside from deck fail		}	
MODE OF MANAGEMENT)	
1. Exclusive lease for		{	
specified users	-	- {	Yet to be
2. Freierential use		}	decided.
3. Open to all callers		}	
MODE OF OPERATION			
Transtainer operation)	
Straddle Carrier operation	_	_ }	Yet to be
Chassis operation		}	decided.
CONTAINER PACKING OR FREIGHT			
STATION			1
Dimensions	-	-	Yet to be decided.
RAILROAD CONNECTION TO TERMINAL.			W133 b.
(yes) (No.)			connected by both Evil

Calcutta, INDIA

POurColeutta		DATS:			-
DESTOR NOT OF PERMITERS	ntaine	r Ternir	al, Hei	Lilla	
OPERAJO: OF THEM INAL :	cutta	port com	ud ssio	1079	_
•	IN OPE	nation	UND SR TIO Z	CC. SALU	- Coruis PLAN
Tennin'i,					
Number c." borths	x		1		3
Length o.; such berth			720		720
Land area of such terminal		50 c	cres a	ipix.	
Dimensions of each terring		6500	x 600	apoz.	
Robert of which man Births COMMATING CHANG				•	
Number of container or Los	x		1.		5/6
Lifting capacity of each		30 to	ons pay	1024	•
Reach on waterside from front edge of borth	,	107:	6=		
Reach on landside from deck rail		801			
MODA OZ INVIONZET				4	
1. Exclusive lease for specified users	x	:		1	
2. preforential use					
3. Open to all callers					
MODE OF OPIS AN ICH					
Transfainer operation	z	¥.	ard sta	of the by	
Straddle Carrier operation					
Chassis operation					
CONTAINS: PACKING C. M. IGHT STATIOS					
Dimensions	x	1	04,000	sg.ft.	208000
RAILROAD COMMECTION TO TERMIN	AL.				
(Yes) (No)			Yes		

bignature

Port Containerization ... Worldwide

Yokohama, JAPAN

PORT OF: YOKOHAHA DATE: January 30, 1971 DESIGNATION OF TERMINAL: Koumoku Container Terminal OPERATOR OF TERMINAL: Daido Unyu Co. Lrd., Kanto Yusen Unyu Co. Ltd.,

Japan Co	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	3		1
Length of each berth	No.1-No.3 (250m)	No.3 berth will	300m
Land area of each terminal	No.1 (82,600m ²)	add more 50m ren	5611 .
Dimensions of each terminal	No.2 (80,800m ²) No.3 (78,400m ²)		
Depth of water at berths	No.1-No.3 (-12m)		-12m
CONTAINER CRANE			
Number of container cranes	No.1-No.3 (Aunits)	ı	3 :
Lifting capacity of each	30.5t		
Reach on waterside from front edge of berth	28.8m		
Reach on landside from deck rail landside	7.5m		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	×		
2. Preferential use	S.,		
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation	×		
Straddle Carrier operation	×		
Chassis operation	×		
CONTAINER PACKING OR FREIGHT	No.1 (64.3m×40.8m=	$2,620m^2$)	
Dimensions	No.3 (85.11m×110.11m=	3,420m ²)	
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	no	no	
Slanature: Ochim			

Yokkaichi, JAPAN

DESIGNATION OF TERMINAL: PUBLIC CONTAINER TERMINAL

FORT OF: YOKKAICHI

OPERATOR OF TERMINAL: YOKKAICHI WAREHOUSE CO., LTD.				
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN	
TERMINAL				
Number of borths	1			
Length of each berth	804 feet			
Land area of each terminal	7.77 acres			
Dimensions of each terminal	426ft x 793ft			
Depth of water at berths	36feet NLLM			
CONTAINER CRANE				
Number of container cranes	l			
Lifting capacity of each	37.5 Long ton			
Reach on waterside from front edge of berth	105.3 feet			
Reach on landside from deck rail	63.7 fect			
MODE OF MANAGEMENT				
 Exclusive lease for specified users 		-		
2. Preferential use				
3. Open to all callers	x			
KODE OF OPERATION				
Transtainer operation				
Straddle Carrier operation	х			
Chassis operation	1			
CONTAINER PACKING OR FREIGHT				
Dimonsions	100,000 square			
RALLROAD CONNECTION TO TERMINAL				
(Yes) (No)	YES	l		

Signature: S. Zansha

DATE: Dec, 16th 1970

Yokohama, JAPAN

PORT OF: <u>VOKOHAMA</u> DATE: <u>January 30, 1971</u> DESIGNATION OF TERMINAL: <u>Daikokucho Container Terminal</u> OPERATOR OF TERMINAL:

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths			2
Length of each berth			250m
Land area of each terminal			
Dimensions of each terminal			
Depth of water at berths		1	-12m
CONTAINER CRANE			
Number of container cranes			2units/berth
Lifting capacity of each			
Reach on waterside from front edge of berth			
Reach on landside from deck rail landside			
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			×
2. Preferential use			
3. Open to all callers		-	
MODE OF OPERATION			
Transtainer operation			
Straddie Carrier operation			
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions			
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)			
		Órkie	d

Yokkaichi, JAPAN

PORT OF: YOUKAICHI		DATE: Dec, 24th 1970	
ESIGNATION OF TERMINAL:	KASULI		
PERATOR OF TERMINAL:	NOT DECIDED		
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		2	2
Length of each berth		820 feet	820 feet
Land area of each terminal		5 acres	5 acres
Dimensions of each terminal			
Depth of water at berths		39feet HLLW	39feet NLL
CONTAINER CRANE			
Number of container cranes		4	4
Lifting capacity of each		37.5 Ton	37.5 Ton
Reach on waterside from front edge of berth		105.3 feet	105.3 feat
Reach on landside from deck rall		83.7 feet	83.7 feet
MODE OF MANAGEMENT		1	
 Exclusive lease for specified users 			
2. Preferential use		x	х
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation		x	х
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimonsions		50,000 square	50,000 :
RALLHOAD CORRECTION TO TERMINA	L	1064	
(Yes) (No)	1	no	1:0

Signature: S. Tanaha

Port Containerization ... Worldwide

Kaohsiung, CHINA

FORT OF: KAOHSIUNG

DATE: DECEMBER 23, 1970 DESIGNATION OF TERMINAL: SECOND CONTAINER TERMINAL (PIER 63, 64, 65 # 66) OPERATOR OF TERMINAL: KACHSIUNG HARBOR BUREAU

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		4	- S.
Length of each berth		250 motors	
Land area of each terminal	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	112 acros	
Dimensions of each terminal		1000 motors x 450	
Depth of water at berths		nctors 12 mctors	
CONTAINER CRANE			
Number of container cranes		·· 4 ··	
Lifting capacity of each		45 ton	
Reach on waterside from front edge of berth		101 foot	
Reach on landside from deck rail		43 feet	
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use		Not decided yet	
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddie Carrier operation		1.1.1	and a state of the
Chassis operation			
CONTAINER PACKING OR FREIGHT		25-atom - 107 5	
Dimensions		meters	
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)		Ycs	
•	Signat	The Lee Lin	chih.

Kaohsiung, CHINA

PORT OF: KAOHSIUNG DATE: DECEMBER 23, 1970 DESIGNATION OF TERMINAL: FIRST CONTAINER THERE THE INAL (PILE 40. 61 AND 42) OPERATOR OF TERMINAL: KAOHSTUNG HARBOR BURLAU

/	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL		·	
Number of berths	3		
Length of each berth	210 meters		
Land area of each terminal	15.4 acros		
Dimensions of each terminal	Borths are three	es f	1. A.
Depth of water at berths	trapczoid 10.5 meters	•	
CONTAINER CRANE	· · · · · · · · · · · · · · · · · · ·		
Number of container cranes	Nil		
Lifting capacity of each			
Reach on waterside from front edge of berth			
Reach on landside from deck rali			
MODE OF MANAGEMENT		1	
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers			
MODE OF OPERATION		<u> </u>	
Transtainer operation			
Straddle Carrier operation			
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions	2600 Sjuare seters		
RAILROAD CONNECTION TO TERMINAL	1		
(Yes) (No)			
· · · · · · · · · · · · · · · · · · ·	Signat	uro: Lee Lim	chih

Kaohsiung, CHINA

DATE: DEC.A.BER 23 1970

PORT OF: KAOHSLUNG DESIGNATION OF TERMINAL: THIRD CONTAINLY TERMINAL (PIEK 68, 69 & 70) OPERATOR OF TERMINAL: KAOHSTUNG HARBOR FURBAL

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		1	- 3
Length of each berth		4	300 motors
Land area of each terminal		i	100 acros
Dimensions of each terminal ·		1	900 motors x 450
Depth of water at berths			meters
CONTAINER CRANE			as motors
Number of container cranes			
Lifting capacity of each		1 A.	Not dcolded yet
Reach on waterside from front edge of berth		1	
Reach on landside from deck raii		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	
MODE OF MANAGEMENT			
1. Exclusive lease for specified users			
2, Preferential use			Not decided yet
3. Open to all callers	-		·**.
MODE OF OPERATION			
Transtainer operation			adates a composition
Straddle Carrier operation			Not decided yot
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions			Not decided yet
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)			Yos
· · · ·		Leo Li	cl.1

Penang, MALAYSIA

OPERATOR OF TERMINAL: PE	SNANG PORT COMMISSION		
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	Infra-structure for 2	erths (at present us	d as conventiona
Length of each berth	563 ft.		(cerus)
Land area of each terminal	6 acres		
Dimensions of each terminal	563' X 190'		
Depth of water at berths	32 ft. N.A.C.D.		
CONTAINER CRANE			
Number of container cranes	Nil - but a 50 ft.		
Lifting capacity of each	rail track has been built into the guay		
Reach on waterside from front edge of berth	apron to provide for a container crane if and when the need		
Reach on landside from deck rail	arises.		
MODE OF MANAGEMENT			
I. Exclusive lease for specified users			
2. Preferential use			
3. Open to all callers	X (intended)		
MODE OF OPERATION			
Transtainer operation	Not decided		са
Straddle Carrier operation		• :-	
Chassis operation		i i i i i i i i i i i i i i i i i i i	a a la color. A color a color a
CONTAINER PACKING OR FREIGHT			
Dimensions	No immediate plans		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes	1. <u>1</u> . 1. 1.	ï



Swettenham, MALAYSIA

PORT OF: Fort Swettenham (Malaysia) DATE: Srd February, 1971 DESIGNATION OF TERMINAL: __ Common usery Terminal OPERATOR OF TERMINAL: Port Swattenham Authority

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		2	
Length of each berth		1050*	
Land area of each terminal		25 acres	
Dimensions of each terminal		1600' x 1300'	
Depth of water at berths		(Irregular shaps) 42 [†]	42" MLLW
CONTAINER CRANE			
Number of container cranes			2.
Lifting capacity of each			Under study
Reach on waterside from front edge of berth			Under study
Reach on landslde from deck rall			Under study
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers			X
MODE OF OPERATION			
Transtatner operation			
Straddle Carrier operation		10	x
Chassis operation			x
CONTAINER PACKING OR FREIGHT			
Dimensions			Under study
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)			Yes
,	Signati	Sound M	inages

Port Swettenham Authorit

Esbjerg, DENMARK

PORT OF: Esbjerg, Denmark DATE: ____December, 18, 1970. DESIGNATION OF TERMINAL: <u>Container Terminal, Vestre Dokkaj</u> OPERATOR OF TERMINAL: Port of Babjerg OPERATOR OF TERMINAL:

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths			1
Length of each berth			
Land area of each terminal			10,000 sq.m.
Dimensions of each terminal			
Depth of water at berths			6.7 m MLWS
CONTAINER CRANE	· · · · · · · · · · · · · · · · · · ·		
Number of container cranes			1
Lifting capacity of each			32 tons
Reach on waterside from front edge of berth			24 m
Reach on landside from deck rall			30 m.
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			no
2. Preferential use			no
3. Open to all callers			yes
MODE OF OPERATION			
Transtainer operation	· · · ·		
Straddle Carrier operation			
Chassis operation			×
CONTAINER PACKING OR FREIGHT			
Dimensions			no
RAILROAD CONNECTION TO TERMINAL			Ves
(Yes) (No)			· · · · ·

Signature:

Esbjerg, DENMARK

OPERATOR OF TERMINAL:

PORT OF: _____ Esbjerg, Denmark DATE: December 18, 1970. . DESIGNATION OF TERMINAL: _____ Railway-container terminal

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL Number of berths			
Length of each berth Land area of each terminat	7,000 sq.m.		
Dimensions of each terminal			
CONTAINER CRANE			
Number of container cranes	1		
Lifting capacity of each	40 tons		
Reach on waterside from front edge of berth	span 20 m		
Reach on landside from deck rail			
MODE OF MANAGEMENT	· · · · · · · · · · · · · · · · · · ·		
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	yes		
MODE OF OPERATION	special container		
Transtainer operation	for Ålborg, Århus	1	
Straddle Carrier operation	and Copenhagen	}	
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions		1	
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)		<u> </u>	

Signature:

Esbjerg, DENMARK

FORT OF: Esbjerg, Denmark DATE: December, 18, 1970. DESIGNATION OF TERMINAL: _____ Passenger terminal with roll-on/roll-off_____ OPERATOR OF TERMINAL: DFDS - The United Steamship Co.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
Number of berths	1		
Length of each berth	110 m		
Land area of each terminal	appr. 8,000 sq.m.		
Dimensions of each terminal	passengerterminal		
Depth of water at berths	6,7 m MLWS		
CONTAINER CRANE			
Number of container cranes	-		
Lifting capacity of each	-		
Reach on waterside from front edge of berth	-		
Reach on landside from deck rail	-		
MODE OF MANAGEMENT			
I. Exclusive lease for specified users			
2. Preferential use	yes		
3. Open to all callers			
	roll-on/roll-off		
	lorries,		
	slave trailers		
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions			
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)			

Signature:

Esbjerg, DENMARK

ORT OF: Esbjerg, Denmark DATE: December 18, 1970. ESIGNATION OF TERMINAL: DFDS-Godsterminal (The United Steamship Co.'s General cargo Terminal) PERATOR OF TERMINAL: DEDS

·····	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL		extension	extension
Number of berths	1		1
Length of each berth	140 m	1. A.	1997 - A.
Land area of each terminal	40,000 sq.m.	12,000 sq.m.	28.000 sq.m.
Dimensions of each terminal	240 x 130	1.	and the second second
Depth of water at berths	6.7 m MLWS		
CONTAINER CRANE			
Number of container cranes	-	1	
Lifting capacity of each	-		
Reach on waterside from front edge of berth	-	н. С	
Reach on landside from deck rall	-		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use	yes		
3. Open to all callers	no		
MODE OF OPERATION			
Transtainer operation	roll-on/roll-off container on		
Straddle Carrier operation	slave trailers		
Chassis operation			
CONTAINER PACKING OR FREIGHT STATION			
Dimensions	2,000 sq.m. 35 х бо щ	4,000 sq.m. 40 x 100 m	
RAILROAD CONNECTION TO TERMINAL	no, but in the back	-	
(Yes) (No)	ground there is a railway-container		
	terminal.		

Århus, DENMARK

PORT OF: Århus , Danmark. DATE: December 14, 1970 DESIGNATION OF TERMINAL: Public container terminal OPERATOR OF TERMINAL: Port of Århus Authority

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1	ı	
Length of each berth	looo feet	1150 feet	
Land area of each terminal	ll acres	12 acres	
Dimensions of each terminal	lovo feet x 500 fee	5 lo6o x 500	
Depth of water at berths	53 feet	36 feet	
CONTAINER CRANE			
Number of container cranes	1	-	
Lifting capacity of each	50/35 tons	32	
Reach on waterside from front edge of berth	53/76 feet	92 feet	
Reach on landside from deck rall	59/82 feet	88 feet	
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	x	x	
			1.1.1
MODE OF OPERATION			
Transtainer operation			
Straddie Carrier operation			
Chassis operation	x		
CONTAINER PACKING OR FREIGHT			
Dimensions	41.500 squarefeet		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	уея		•
	Signat	ure: Dami	had
	۰.	A. Damkja	0 ±

Esbjerg, DENMARK

FORT OF: Esbjerg, Denmark DATE: December 18, 1970. DESIGNATION OF TERMINAL: Bacon Container Center BSC + DFDS OPERATOR OF TERMINAL:

	IN OPERATION	UNDER CONSTRUCTION	EUTURE PLAN
TERMINAL			
Number of berths	l		
Length of each berth	100 m		an an an Arran an Ar
Land area of each terminal	36,000 sq.m.		
Dimensions of each terminal	300 x 150 (inregular shape)		
Depth of water at berths	6.7 m MLWS		
CONTAINER CRANE	•		
Number of container cranes	-	1. T	
Lifting capacity of each			
Reach on waterside from front edge of barth	-		
Reach on landside from deck rail	-		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	-		
2. Preferential use	yes		
3. Open to all callers	no		
NODE OF OPERATION			
Transtalner operation	roll-on / roll-off container on		
Straddia Carrier operation	semi-trailers	}]
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions			
RAILPOAD CONNECTION TO TERMINAL	no, but at the		
(Yes) (No)	inal there is a		
J.	terminal Signat	ure:	

Copenhagen, DENMARK

HMJ/BH. PORT OF: COPENHAGEN DATE: 21st December, 1970. DESIGNATION OF TERMINAL: Levantquay Container Terminal OPERATOR OF TERMINAL:_____The Port Apthority of Copenhagen

TEDMINAL	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
I CIVITIAL			
Number of berths	2		
Length of each berth	800'		
Land area of each terminal	20 acres		
Dimensions of each terminal	1500'x570' (irregul	r	
Depth of water at berths	(snape) 32'9" (no tide)		
CONTAINER CRANE			
Number of container cranes	1		-
Lifting capacity of each	31.5 long ton		
Reach on waterside from front edge of berth	92'		
Reach on landside from deck rail	88'6"		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	x		
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation	x		
Chassis operation	x		
CONTAINER PACKING OR FREIGHT	···		
Dimensions	50.000 sq.feet		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes)
	Signatu	ire: The	

HITACH

J.G. Rode (Chief

Port Containerization ... Worldwide

Barcelona, SPAIN

Tol 0" Barcelona. ____ -----UESICATIC: 0. 1084-011: Adosado Quay (Muelle Adosado) OPERATOR OF TERMINALS _____ Sea Land

	IN OFTRATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of verths	1		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
Length of each berth	240 m.		
Land : ea of each terminal	12.960 m2.		100 C 100 C
Dimonstons of each terminal	240 m × 54 m		
Depth of water at berths	12		
CONTAINER CRANE			
Imber of container cranes			
Liftin, capacity of each			
Reach on waterside from front edge of berth	(Mobile Cranes		
Reach on landside from deck rall		•	an irii '
MODE OF MANAGEMENT			
 Ex: usive lease for specified users 	×	1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 -	
2. Preferential use		1. 	
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation	• .		
Straddle Carrier operation			
Chassis operation	×		
CONTAINER PACKING OR FREIGHT STATION			
Dimensions	1, 200 m2		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes	Ì	
	Signat	ure:	ρ

Barcelona, SPAIN

PORT OF- Bancelooa DATE: DESIGNATION OF TERMINAL: New Terminal INveyo Ter OPERATOR OF TERMINAL: Junta del Puerto

 • • • • • • 			
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			Extension to
 Number of berths 		1	1
Length of each berth		220 m.	320 m.
Lend area of each terminal		63, 644 m2	117.144 m2
Dimensions of each terminal		220 m x 250 m	460 m × 250
Depth of water at berths		(irregular shape) 14 m.	14 m.
CONTAINER CRANE			
Number of container cranes	1	1	
Lifting capacity of each		50 Tm	
Reach on waterside from front edge of berth		36 m	
Reach on landside from deck rail		22 m	
MODE OF MANAGEMENT		1	
 Exclusive lease for specified users 			
2. Preferential use			4
3. Open to all callers		×	×
MODE OF OPERATION			
Transtainer operation		×	×
Straddle Carrier operation		×	×
Chassis operation		×	×
CONTAINER PACKING OR FREIGHT		-	
Dimensions		3,900 m2.	
RAILROAD CONNECTION TO TERMINAL			
(Yes). (No)		Yes	.t
5	Signa	ture:	>

Barcelona, SPAIN

PORT OF:___Barcelon DATE: December 1,970 DESIGNATION OF TERMINAL: Costa Quay (Muelle de Costa) OPERATOR OF TERMINAL: Junta del Puerto

Troutes	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berth:	3 .		
Length of each berth	133 m.		
Land area of each terminal	36,000		
Dimension, of each terminal	400 m x 90 m		
Depth of water at berths	12 m;		
CONTAINER CRANE			
Number of contairer cranes	з		
Lifting capacity of each	15 Ton (m. tandem)25		
Reach on waterside from front edge of berth	ton) 17 m,		
Reach on landside from deck rail	20 m.		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	×		
MODE OF OPERATION			
Transtainer operation	×		
Straddle Carrier operation	×		1
Chass1¢ operation	×		
CONTAINER PACKING OR FREIGHT			
Dimensions	3, 600 m2		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (ND)	Yes		

Rijeka, YUGOSLAVIA

PORT OF: RIJEKA DATE: 18th January, 1971 DESIGNATION OF TERMINAL: TEMPORARY CONTAINER TERMINAL OPERATOR OF TERMINAL: PORT AUTHORITY RIJEKA

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		ı	
Length of each berth		190m	
Land area of each terminal		3240m ²	
Dimensions of each terminal		165mx20m	
Depth of water at berths		5-7m	
CONTAINER CRANE			
Number of container cranes		2 floating cran	s
Lifting capacity of each		100/25t = 30/1	5t
Reach on waterside from front edge of berth		-	
Reach on landside from deck		20m	
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3, Open to all callers		x	
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			* 1 T
Chassis operation		Χ	1.1.1
CONTAINED PACKING OD EDGICUT			2012
STATION	1, per 161-181-1		
Dimensions		150mX30m or 4500m ²	
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)		YES	
PODUZEÓE ,	LUKA" RIJERA -		7
R I J Područ	je.ka ≎ignatu šje.razvoja	ire:	

Port Containerization ... Worldwide

Kingston, JAMAICA

DATE: 26/./7/ FORT OF: KINGSTON, JAMACH, W. E. DESIGNATION OF TERMINAL: KINGSTEN HIMARIES, NEW BART WEST, KINGSTEN, FR. OPERATOR OF TERMINAL: KINGSTEN WARKES LTD. KINGETEN, TANACA, WI.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			7
Number of berths	3		GOD FT.
Length of each berth	6 00. PEET.		8 44 4 54
Land area of each terminal	8 Acres		0 TERES
Dimensions of each terminal	SEE ATTACHED	PLAN	
Depth of water at berths	35 pett.		
CONTAINER CRANE			
Number of container cranes	A ANE WITH BOOK	к. Ъ	CRANE ON
Lifting capacity of each	140 TONS	-	900 POOT RAILS.
Reach on waterside from front edge of berth	52,000 KBS AT 50P	·E/	To BE DECIDED
Reach on landside from deck rail	52,000 LBS AT SO	reet	to be decided
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	×		
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			
Chassis operation	×		
CONTAINER PACKING OR FREIGHT			
Dimensions			
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	No	L B.	yes
	SIgnat	In: Mpe	leve.

Avonmouth, U.K.

PORT OF: DATE : Avonmouth December 1970 DESIGNATION OF TERMINAL: "N' Shed OPERATOR OF TERMINAL: Bristol Steam Navigation Co.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	One		
Length of each berth	512 feet		
Land area of each terminal	4 acres		
Dimensions of each terminal	140' x 120'		-
Depth of water at berths	(ILLOGUIAL SHape)		
CONTAINER CRANE	20		·····
Number of container cranes	One		
Lifting capacity of each	30 ton		
Reach on waterside from front edge of berth	42'		
Reach on landside from deck reil	80'		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	x	: · · · ·	
2. Proferential use	-		
3. Open to all callers	-	1997 - Sec. 19	
MODE OF OPERATION			
Transtainer operation	FRAM system similar to transtainer		
Straddle Carrier operation	-		
Chassis operation	x		
CONTAINER PACKING OR FREIGHT			
Dimensions	Not on site		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Усз		

Signature:

Port of Spain, TRINIDAD

POR OF PORT OF SPAIN.	TRINIDAD	DATE: 22ND DECEMBER, 1970
DES GNATION OF TERMINAL:	PORT OF SPAIN WHARVES	

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
ERMINAL			
Number of berths	1	-	1
Length of each berth	600 ft	-	600 ft
Land area of each terminal	9 acres	-	12 acres
Dimensions of each terminal	600 ft x 600 ft	-	
Depth of water at berths	321	-	35*
CONTAINER CRANE			
Number of container cranes	FLOATING BARGE CRAN	s -	-
Lifting capacity of each	60 Tons	-	-
Reach on waterside from front edge of be<u>c</u>h Barge	40 ft	-	-
Reach on landside from deck rail	40 ft	-	-
ODE OF MANAGEMENT			
. Exclusive lease for specified users			
2. Preferential use			
3. Open to all callers	x	-	x
MODE OF OPERATION			
Transtainer operation		}	
Straddle Carrier operation		• • • • • • • • • • • • • • • • • • •	x
Chassis operation	x		x
CONTAINER PACKING OR FREIGHT			
Dimensions	20,000 sq.ft.	1	20,000
RAILROAD CONNECTION TO TERMINAL		1	1
(Yes) (No)	No-	-	No.

Avonmouth, U.K.

PORT OF: Avonmouth DATE: December 1970 DESIGNATION OF TERMINAL: "T" Berth Ocean Container Terminal OPERATOR OF TERMINAL: Port of Bristol Authority

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths		One	
Length of each barth		660 feet	10 acres
Land area of each terminal		6 acres	to be
Dimensions of each terminal		1850' x 180'	1.001
Depth of water at berths		36 feet	, ,
CONTAINER CRANE		50 1000	
Number of container cranes		One	
Lifting capacity of each		30 tons	
Reach on waterside from front edge of berth		84*	
Reach on landside from deck. rail		96*	
MODE OF MANAGEMENT			
i. Exclusive lease for specified users		-	
2. Preferential use		-	
3. Open to all callers		I	
MODE OF OPERATION			
Transtainer operation		-	X similar design
Straddle Carrier operation		-	
Chassis operation		X also side-loader	
CONTAINER PACKING OR FREIGHT		in use	
Dimensions	Not at berth		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)		Үев	

Signature:



L

Clyde Port, U.K.

-

		D1802	18 19 70
POUT OF: CI	ADEPORT	Ditte:	10,12,70
DESIGNATION OF TADMINAL:	CLIDEPORT CONTAIL	NET TEMPERATE, ORBENO	A.
OPERATOR OF TERMINAL:	CLYDE PORT AUTIO	KIII, SCOILERD	
	IN OPERATION	UNDER CONSTRUCTION	IN FUTURE PLAN
TIRMINAL			
Number of berths	1/2)Additional 336' of)quay to make 2 fu)berths	1) Additional 420° of 1) quay and back up) area
Length of each berth	850' riverside quay with moor- ing dolphins capable of tak- ing 2 vessels with combined length of 1150'	see above	see above
Land area of each terminal	22 acres	6 acres	9 acres
Dimensions of each terminal	see attac	ched sketch plan	
Depth of water at berths	42' L.W.O.S.T. (TI)	42* L.W.O.S.T. DAL RANGE 10 FEE	42' L.V.0.5.T. T)
CONTAINER CHANE			
Number of container cranes	2	1	} Not yet
Lifting capacity of each	35 tons	40 tons	planned
Reach on waterside from front edge of berth	105'	105'	for
Reach on landside from deck rail	45'	50*	}
MODE OF MANAGEMENT			
1, Exclusive lease for specified users	Container operators using the Terminal on	As "In Operation" but may be	
 Preferential use Open to all callers 	tractual basis are given ex- clusive use of	exclusive use.	
	specified period each week and is also open for us by other operate	ls 3 3e ors	
MODE OF OPERATION			
Transtainer operation	-		••• •
Straddle Carrier operati	on Combined straddle carrier tractor, trailer operati	i As befo and / on	re As before
Chassis operation			
CONTAINER PACKING OR FR STATION	EIGHT		
Dimension9	Open si 6 acres warehoi transi 500' x	tornge of plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus plus pl	
RAILROAD CONNECTION TO TELEVINAL			
(Yes) (No)	Yes	Yes	Yes
	:	SIGNATUS:	monest.
			Commercial Manager
		· · · · · · · ·	207
			al icio

Grangemouth, Scotland, U.K.

PORT OF: GRANGEMOUTH,	SCOTLAND	DATE: Sth	January, 1971
DESIGNATION OF TERMINAL:	Public		
OPERATOR OF TERMINAL:	FORTH PORTS AUTHORITY		

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of barths	,1		
Length of each berth	one deep sea and on	e short	
Land area of ach terminal	sea shir 8 a res		
Dimensions of weach terminal	1060 ft. x 320 ft.		
Depth of water at berths	25 ft. 6 in.		
CONTAINER CRANE			
Number of container cranes	2		
Lifting capacity of each	32 tons		
Reach on waterside from front edge of berth	65 ft.		
Reach on tandside from deck rall	15 ft.		
MODE OF MANAGEMENT			
1. Exclusive lease for specified users			
2. Preferential use			
3. Open to all callers	x		
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			
Chassis operation	x		
CONTAINER PACKING OR FREIGHT			
Dimensions	5,670 sq. ft.		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Yes		
	Signat	urez	

Leith, Scotland, U.K.

PERATOR OF TERMINAL: (FOR	TH PORTS AUTHORITY	Coltd.)	
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLA
TERMINAL			·
Number of berths	1.		
Length of each berth	750 ft accommoda	ting	
Land area of each terminal	3 acres		1
Dimensions of each terminal	550 ft. x 220 ft.		1
Depth of water at berths	(irregular snape) 26.4 ft.		
CONTAINER CRANE			
Number of container cranes	2		1
Lifting capacity of each	(a) $1 = 30 \text{ ton Trav}$	erser Gantry Cra	e
Reach on waterside from front edge of berth	(h) 1 4 20 ton sedt 48 ft. maximum	SH DEFFICK	
Reach on landside from deck rail	118 ft. 6 in.		ŀ
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	(a) above		
2. Preferential use	-		
3. Open to all callers	(b) above		
MODE OF OPERATION			
Transtainer operation	x		
Straddle Carrier operation	x		ŀ
Chassis operation		:	
CONTAINER PACKING OR FREIGHT			
Dimensions	67,500 sq. ft.		
RAILROAD CONNECTION TO TERMINAL			+
(Yes) (No)	Yes		

Signature:



Immingham, U.K.

 PORT OF:
 INSTRUMENT
 DATE:
 1251
 JENNORY, 1971.....

 DESIGNATION OF TERMINAL:
 'B' Line Torminal
 OPENNICK OF TERMINAL:
 'B' Line/ T.E. Kettlewell & Sona Lia.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAY
TEISAINAL			
Number of berths	l	1	
Length of each borth	300*		
Land area of each terminal	455' x 120'		
Dimensions of each terminal	Minimum 32		
Depth of water at berths			
CONTAILER CRANE			
Number of container cranes	l (Derrick)		
Lifting capacity of each	32 ton		
Reach on waterside from from edge of berth	55' - 80'		
Reach on landside from deck rall	90° - 115°		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Proforential use	x		
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation	x		
Chassis operation			
CONTAINER PACKING OR FREIGH	not normally		
DIMONS IONS	available		
RAILBOAD CORRECTION TO TERMINAL			
(Yes) (No)*	not direct		

Signature:

Garston, U.K.

PORT OF:	GARSTON		DATE:	22nd De	cember, 1970
DESIGNATION OF	TERMINAL:	North Dock Conts	iner Ber	th	
OPERATOR OF TER	MINAL :	Irish Sea Fern	ies Ltd.		
		IN OPERATION	INDER CON	ISTRUCTION	FITTINE DI AN
TERMINAL		IN OF CIVILIDA	1		101012 1214
Number of ber	ths	1	1		1
Longth of eac	h berth	2651 6"	1	1	1
Land area of	cach terminal	1.3 acres			1
Dimensions of	each terminal	400' x 165' (irregular shape)		1	
Depth of wate	r at berths	20' MH#S			ļ
CONTAINER CRAL	E				
Number of con	tainer cranes	l (Derrick)			
Lifting capac	ity of each	32 long tons			
Reach on wate edge of berti	rside from front	86' 6"			
Reach on land rall.	isido from deck	47° 6"			
MODE OF MANAGE	MENT				
1. Exclusive I specified u	case for sers	x			
2. Preferentle	1 uso		l		
3. Open to all	callers				
NODE OF OPERAT	TON		h		
Transtainer o	peration	1	i		
Straddle Corr	ier operation	1]		
Chassis opera	ation	x			
CONTAINER PACK	CILIS OR FIGTIGIN				
Distansions			1 .		
TRATURDAD CORRE	CITUS TO TENAINAL		1		
(Yes)	(No)	No			

Signature: J.K.Br. hop.

Goole, U.K.

 FORT OF:
 DOIL:
 DATE:
 7th January 1971

 DESIGNATION OF TERMINAL:
 North Side of Stachoge Dock
 Openvice Dock
 Openvice Dock

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	One		
Length of each borth	442		
Land area of each terminal	1.76 acres		
Dimonsions of each terminal	125ft x 615ft		
Depth of water at berths	18ft (constant level)		
CONTAINER CRAME			
Number of container cranes	One (Derrick)		
Lifting capacity of each	32-tons		
Reach on waterside from front cdge of berth	93 ft		
Reach on landside from deck rait	 125ft (excluding dead area caused by derrick legs) 		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			
3. Open to all callers	x		
MODE OF OPERATION			
Transtainer operation	· ·		1
Straddle Carrier operation			
Chassis operation	x		
CONTAINER PACKING OR FREIGHT	Backing undertaken		
Dimonsions	in various dock sheds		
RAFLEDAD CORNECTION TO TERMINAL			1
(Yes) (No)	Yes		L

* (at maximum radius - 15tons lift)

Signature:______Eucks Kanagur

Garston, U.K.

FORT OF: GARSTON DATE: 22nd December, 1970. DESIGNATION OF TERMINAL: Stalbridge Dock Container Berth OPERATOR OF TERMINAL: Canoods Containers Ltd.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1		
Length of each berth	482' 6"	1	
Land area of each terminal	3.0 acres		
Dimensions of each terminal	855' x 160' (irregular shane)		
Depth of wator at berths	26' MHWS		
CONTAINER CRANE			
Number of container cranes	1		
Lifting capacity of each	32 long tons		
Reach on waterside from front edgo of berth	51'		
Reach on landside from deck rall.	431		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	x		
2. Proferential use			
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation	x		1
. Chassis operation		1	ł
CONTAINER PACKING OR FREIGHT			
Dimensions		1	
RAILROAD CONNECTION TO TERMINA		1	
(Yes) (No)	310		

Signature: J.M.Nuches.

Port Containerization ... Worldwide

OHITACHI

JUNE 1971

Southampton, U.K.

OPERATOR OF TERMINAL: British Transport Docks Board

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
<u>TERMINAL</u> Number of berths Length of each berth Lend eres of each terminal Dimensions of each terminal Depth of wator at berths <u>CURTAINER GROUP</u>	1 1,000 ft. 20 acres Irregular 334 ft.	3 1 x 900 2 = 2100 Total 70 acre - 40/k2 ft.	Space available for a further 6,000 ft. of guay with ample back up areas.
Number of container cranes Lifting capacity of each Reach on waterside from front edge of borth	2 30 long tons 115 ft.	4 1 x 40 long ton 3 x 35 long ton 121 ft.	s As .roquired
Reach on landside from deck	80 ft.	95 £t.	
Hote of Konderen 1. Exclusive for specified usors 2. Preferential coumon ware 3. Open to all callors	•	2 1	As required
<u>NODE OF OPERATION</u> Transtainer operation Straddle Carrier operation Chassis operation	x x	x	es required
CONTAINER PACKING OR FREIGHT STATION Dimensions	Total 196,000 sq.f Undor cover 31,824 sq.	t. ct.	Extension by 100% plus
HATLEGAD CONNECTION TO TERMINAL (Yes) (No)	Not at present. Yes on completion of construction	-	Will bo available,
· · · ·	Signat	ure: 145~	in the second

Hull, U.K.

14 JAN 1971 PORT OF:___ DATE: HULL DESIGNATION OF TERMINAL: NO. 17 SHED BERTH - ALBERT DOCK OWERS DECEMBER OF TERMINAL; BRITISH TRANSPORT DOCKS BOARD OPERATOR AT TERMINAL: ASSOCIATED HUNDER LINES LTD.

1	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1		
Length of each barth	450 feet		
Land area of each terminal	variable		
Dimensions of each terminal	450 feet x 150 feet		
Depth of water at berths	23 feat		
CONTAINER GRANE			·····
Number of container crames	SCOTCH DERRICK CRAME		
Lifting capacity of each	32 TONS		
Roach on watersl ide from front edge of berth	74 feet		
Reach on landside from dock rail.	106 feet		
MODE OF NANAGEMENT			
1. Exclusive lease for specified users	-		
2. Proferential use	r		
3. Open to all callers	-		
WASE OF OPERATION			
PADE OF OFENITOR			1. Sec. 1. Sec
Transfalmer operation			
Straddle Carrier operation	-		
Chaesis operation	···· x ····		
CUNTAMER PACKING ON FREIGHT			······································
Dimensions	26,300 sq. feet		
RAILINGAD CONSIECTION TO TENNINAL			
(Yes) (No)	Yas		

Signature:__

Hull, U.K.

PORT OF:	HULL		date: 14 JAN	1971
DESIGNATION OF	TERMINAL:	LIFT ON/LIFT OFF TERMINAL	- "A" JETTY, ALEXANDRA	DOCK
OWNER BRERATOR OF TE	RMINAL:	BRITISH TRANSPORT DOCKS H	OARD	
OPERATOR AT T	TRALNAL:	ASSOCIATED HUMBER LINES I	IKITED	
		IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN

TERMINAL			
Number of berths	1		
Length of each berth	430 fest		
Land area of each terminal	1 ACRES		
Dimensions of each terminal 430 : + Ada Are	reet x 87 feet ditional Storage eas		
Depth of water at berths	27 feet		
CONTAINER CRANE			
Number of container cranes 2 x Sco	32 ton capacity toh derrick cranes		
Lifting capacity of each	-		
Reach on waterside from front 68 . edge of berth	feet 6 inches		
Reach on landside from deck rall,	111 feet		
MODE OF MANAGEMENT			
 Exclusive lease for specified usors 	-		
2. Preferential use	×		
3. Open to all callers	-		
NODE OF OPERATION			
Transtainer operation	-		
Straddle Carrier operation	-	l	· · · · ·
Chassis operation	×		
CONTAINER PACKING OR FREIGHT			
Dimensions	16,000 sq. ft.		
RAILROAD CONNECTION TO TERMINAL		1	
(Yes) (No)	No]	

Signature:

Hull, U.K.

.

ESIGNATION OF TERMINAL: B.V.D.J	B. CONTATION TRADUCTS OF	een alteanne	beer.	
OWNER	TRANSPORT BOCKS BOARD			
OPERATOR AT TERMINAL: BRITISH	TRAUSPORT DOCKS BOARD			
	IN OPERATION	UNDER CONST	RUCTION	FUTURE PLAN
TERMINAL				
Number of berths		1 1		
Length of each berth		900		
Land area of each terminal		28 ac	res	
Dimensions of each terminal		900 feet x 3	004.001	Eventual extension
Depth of water at borths		33 feet	mape)	feet (area 41
CONTAINER CRANE				
Number of container cranes		1		
Lifting capacity of each		35 to	ms	
Reach on waterside from front edge of borth		78 feet f	5 inches	
Reach on landside from deck rell,		126 feet 6 1	inches	
MODE OF MANAGEMENT				
 Exclusive lease for specified users 		-		
2. Preferantial use		-		
3. Open to all callers		×		l .
and the second		1		1
HODE OF OPERATION		1		
Transtainer operation		i -		l se state in
Straddio Carrier oporation		×)	1
.Chassis operation		x x	\$	
CONTAINER PACKING OR FREIGHT				
Dimonsions		Kone		
RAILROAD CONNECTION TO TERMINAL		¦		
(Yet) (No)		IIO		1

Signaturo:



PORTS and HARBORS

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London, U.K.

TERNINAL Number of berths Total quay length combined minist Land area of combined Dimensions of each terminals Depth of water at berths Potential depth of water CONTAINER CRANE Number of container cranes	IN OPERATION 3 1,700 feet 25 acres ,700 ft. x 702 ft. 42 ft. 2 10 tons single lift	UNDER CONSTRUCTION	FUTURE PLAN
TERGINAL Number of berths Total quay length Lend pres of mark terminals combined Dimensions of mark terminals Dimensions of mark terminals Depth of water at berths Potential depth of water CONTAINER CRAVE Number of container cranes	3 1,700 feet 25 acres ,700 ft. x 702 ft. 42 ft. 44 ft. 2 80 tons single lift	1	
Number of berths Total quay length combined Land area of acchined Dimensions of acchined Dimensions of acchined Dimensions of acchined Depth of water at berths Potential depth of water CONTAINER CRANE Number of container cranes	3 1,700 feet 25 acres ,700 ft. x 702 ft. 42 tt. 44 ft. 2 80 tons single lift	1	
combined Land area of saak forminals combined Dimensions of saak forminals 1 Depth of water at berths Potential depth of water CONTAINER CRANE Number of conteiner cranes	25 acres ,700 ft. x 702 ft. $42\frac{1}{2}$ ft. 44 ft. 2 30 tons single lift	1	
Dimensions of acek forminals 1 Depth of water at berths Potential depth of water CONTAINER CHANE Number of container cranes	,700 ft. x 702 ft. $42\frac{1}{2}$ ft. 44 ft. 2 30 tons single lift	1	
Depth of water at berths <u>Potential depth of water</u> <u>CONTAINER CRANE</u> Number of container cranes	$42\frac{1}{5} \text{ ft.}$ 44 ft. 2 30 tons single lift	1	
Number of container cranes	2 30 tons single lift	1	
111111-1	0 tons single lift		
Litting capacity of each 5		30 tons single lift 45 tons twin lift	
Reach on waterside from front edge of berth	109 ft.	115 ft. 6 ins.	1. A.
Reach on landside from deck raii	80 ft.	80 ft.	
MODE OF MANAGEMENT			
 Exclusive lease for specified users 			
2. Preferential use			1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
3. Open to all callers	x		
MODE OF OPERATION			
Transtainer operation	`		e fan y fer
Straddle Carrier operation	x		
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions	-		
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Na		4. A.

DATE: 28th January, 1971

London, U.K.

PORT OF: LONDON DATE: 28th January, 1971
DESIGNATION OF TERMINAL: No, 39 Berth, Tilbury Dock.
OPERATOR OF TERMINAL: Overseas Containers Ltd.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1		and the second second
Length of each berth	850 feet		
Land area of each terminal Annexe Dimensions of each terminal	13 acres 6 acres 850 ft. x 600 ft.		
Annexe Depth of water at berths Rotential depth of water	325 ft. x 806 ft. (irregu 42 ¹ / ₂ ft. shap	lar)	
CONTAINER CRANE			
Number of container cranes	1		1
Lifting capacity of each	22 ¹ / ₂ ton single lift 45 ton twin lift		30 ton single lift 45 ton twin lift
edge of berth	104 ft.		2
Reach on landside from deck rait	93 ft.	. · · ·) to be decided))
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	x		
2. Preferential use			4
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation Gantry Crane/ / Straddle Carrier operation	x		
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions			
RAILROAD CONNECTION TO TERMINAL	-		
(Yes) (No)	No		

Signature:_____

London, U.K.

PORT OF: LONDON DATE: 28th January, 1971
DESIGNATION OF TERMINAL: No. 40 Berth, Tilbury Dock
OPERATOR OF TERMINAL: United States Lines.

e a la construcción de l	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1		
Length of each berth	700 feet		
Land area of each terminal	11 acres		1. S.
Dimensions of each terminal Depth of water at berths Potential depth of water	700 ft. x 1, 179 ft. (irregular shape) $42\frac{1}{2}$ ft. 44 ft.		
CONTAINER CRANE	· · ·		
Number of container cranes	2		
Lifting capacity of each	30 tons single lift		
Reach on waterside from front edge of berth	109 ft.		
Reach on landside from deck rail	80 ft.		
MODE OF MANAGEMENT			
 Exclusive lease for specified users 	x		
2. Preferential use			
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation	x		
Chassis operation		· · · ·	
CONTAINER PACKING OR FREIGHT	63,000 square feet		
Dimensions	(situated away from the terminal)		
RAILROAD CONNECTION TO TERMINAL			7 · · · · ·
(Yes) (No)	No		a ser and

Manchester U.K.

PORT OF._____NANCHESTER DATE: 14th April, 1971
DESIGNATION OF TERMINAL: Manchester Container Terminal
OPERATOR OF TERMINAL: Manchester Ship Ganal Company

~~~~~	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1	1 (Ext. to berth i	n operation)
Length of each berth	550 ft.	350 ft.	
Land area of each terminal	9 acres	1 acre	
Dimensions of each terminal			
Depth of water at berths	28 ft.	28 ft.	
CONTAINER CRANE			
Number of container cranes	1	1	
Lifting capacity of each	25 tons	35 tons	
Reach on waterside from front edge of berth	59'	59'	
Reach on landside from deck rall	88'	· 881	
MODE OF MANAGEMENT			
<ol> <li>Exclusive lease for specified users</li> </ol>	x	×	
2. Preferential use			
3. Open to all callers			
MODE OF OPERATION	······		· · · · · · · · · · · · · · · · · · ·
Transtainer operation			
Straddie Carrier operation	×	x	
Chassis operation			
CONTAINER PACKING OR FREIGHT			
Dimensions		1	
RAILROAD CONNECTION TO TERMINAL			

B. Les - Assistant Manager Signature: (Verke and Plant)

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Port Containerization ... Worldwide

#### New Port, U.K.

PORT OF: Nouport (Non)	DATE: 12.1.71
DESIGNATION OF TERMINAL: Bant Look	
OPERATOR OF. TERMINAL: Inich Fornyways (Forry Trailors)	Ltd.

	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of berths	1	- 1	•
Longth of each berth	420 feet	-	-
Land area of each terminal	2 Acres	-	- :
Dimensions of each terminal	420 x 370 x 120 fe	et 🛥	-
Depth of wator at borths	25 Peot		
CONTAINER CRANE			
Number of container cranes	1 (Derrick)	-	-
Lifting capacity of each	32 tons	-	-
Reach on waterside from front edge of berth	55 feet	-	-
Reach on landside from deck rail.	90 faat		
MODE OF MANAGEMENT			
I. Exclusive lease for specified users			
2. Preferential use	x	-	-
3. Open to all callers			
MODE OF OPERATION			
Transtainer operation			
Straddic Carrier operation			1
Chassis operation	x	-	-
CONTAINER PACKING OR FREIGHT			
Dimensions	-	-	-
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	Ена	-	-
· · · · ·	Signat	uro: El Onhe In	en_

#### Lisbon, PORTUGAL

PORT OF: LISBON		DATE: 15	APRIL 71
DESIGNATION OF TERMINAL: ALC	INTARA-SUL		
OPERATOR OF TERMINAL: ADMINIS	TRAÇÃO-GERAL DO POR	TO DE LISBOA	
	IN OPERATION	UNDER CONSTRUCT	ON FUTURE PLAN
TERMINAL			
Number of berths	1		
Length of each berth	492 feet	•	
Land area of each terminal	3,20 acres		
Dimensions of each terminal	1122 feetx125 feet		
Depth of water at berths	28 feet		
CONVEXTORAL CRANE CONVENTIONAL CRANE Number of container cranes	2 (coupled)		
Reach on waterside from front	12 t		
edge of berth	40 leet		
Reach on landside from deck rall	48 feet		
MODE OF MANAGEMENT			
1. Exclusive lease for specified users			
2. Preferential use			
3. Open to all callers	×		
MODE OF OPERATION			
Transtainer operation			
Straddle Carrier operation			
Chassis operation Side-loaders operation	×		
CONTAINER PACKING OR FREIGHT			
Dimensions	2,10 acres		.
RAILROAD CONNECTION TO TERMINAL			
(Yes) (No)	уев		
	Signat	uro: fie	in having

#### New Port, U.K.

DATE: 12.1.71 PORT OF: Newport (Non) DESIGNATION OF TERMINAL: North Side South Dock OPERATOR OF TERMINAL: Newport Containor Terminal: Ltd.

•			
	IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
TERMINAL			
Number of borths	1	-	-
Longth of each borth	830 feet	-	
Land area of each terminal	4.5 fores		-
Dimensions of each terminal	440 x 400 fest	-	-
Depth of water at berths	35 fost		
CONTAINER CRANE			
Number of container cranes	l	-	-
Lifting capacity of each	35 tons	-	-
Reach on waterside from front edge of berth	115 feet	-	-
Reach on landsido from deck rail,	112 foot		
MODE OF HANAGERENT			
<ol> <li>Exclusive lease for specified users</li> </ol>			
2. Preferential use		:	
3. Open to all callers	x	-	-
MODE OF OPERATION			
Transtainer operation			
Straddio Carrier oporation (Sidoloadera) Chassis operation	x	-	-
CONTAINER PACKING OR FREIGHT			
Dimonsions	-	-	-
RAILINGAD CONNECTION TO TERMINAL			
(Yes) (No)	You		-
	Signal	ure: Ghotha	anan

#### Lisbon, PORTUGAL

		· · · · · · · · · · · · · · · · · · ·
IN OPERATION	UNDER CONSTRUCTION	FUTURE PLAN
2		2
574 feet		574 feet
7,15 acres		10,12 acres
1148 feetx278 feet		1148 feetx354
28 feet		40 feet
2		2
30 t		40 t
77 feet		110 feet
64 feet		80 feet
4		
	IN OPERATION 2 574 feet 7,15 acres 1146 feetx278 feet (trapezoid&l form) 28 feet 2 30 t 77 feet 64 feet	IN OPERATION UNDER CONSTRUCTION  2 574 feet 7,15 acres 1146 feetxo78 feet 2 2 20 t 77 feet 64 feet

Transtainer operation Straddie Carrier operation Chassis operation Side-loader operation CONTAINER PACKING OR FREIGHT STATION Dimensions 12,70 acres RAILROAD CONNECTION TO (No) yes (Yes) yes

Signature: n



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Subscription-U.S. & possessions, \$11. per year. Canada, \$13.
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Language-English

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JUNE 1971

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