

PORTS and **HARBORS** July, 1968 Vol. 13, No. 7

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THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

A Star

THE PORT OF KOBE -Modern, Efficient Port With Elegance-

The Port of Kobe, a fine, natural port in the heart of the vital Osaka-Kobe industrial area of Japan, served as a main gateway for shipping and trade between Japan and the Asian continent from ancient times. Described as the "Naples of the Orient," Kobe is renowned for its scenic beauty with the Rokko Mountain Range forming a colorful background to the port city. The headland of Wada to the south at the mouth of Kobe Bay protects the port from high seas.

It passed 100 years since Kobe was opened as one of the first trade ports of Japan. Today it is one of the major export ports of Japan and handles cargoes representing 30 per cent of the value of Japan's total export trade.

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PORTS and HARBORS

Forum on Port Problems:

Holland's Assistance to Developing Ports By J. K. O. Heyligers

Secretary

Port Management of Amsterdam

Shipping and trading are important mainstays of the Dutch economy; so it has been for centuries, as the small strip of land, commonly called Holland, officially the Netherlands, does not-and hardly ever did - provide sufficient means to support its inhabitants. One of Holland's greatest assets is its geographical location at the mouth of three navigable rivers: Rhine, Meuse and Scheldt, carriers of a large amount of N.W. Europe's busy traffic. An initial disadvantage was the geological constitution of its soil, which, from a very remote past, has forced the inhabitants to a constant warfare with the elements. At first the people could do little more than defend themselves against the onslaught of the sea but, with techniques improving, they took the offensive, increasing the area of cultivable land and improving the natural conditions of their seaports.

Over the years these ports thereby came to profit from the advantages of their geographical situation, combined with the experience of their engineers. It, therefore, stands to reason that when in recent years several emerging nations, desirous of improving the standards of their own ports, looked for aid and advice, an appeal was made to the experience and know-how in this field available in the Netherlands. Dutch experts were invited to study and improve port constructions and their approaches in the new countries; young men from these countries

came to study in the ports of Amsterdam and Rotterdam.

Port Seminar

Initially the latter studies in Holland took place rather haphazardly: but soon, in order to produce a maximum benefit from a studyperiod in Holland, the International Technical Assistance Department of the Ministry for Foreign Affairs and the Netherlands Universities Foundation for International Co-operation (NUFFIC) took matters in hand and with the active co-operation of the Technological University of Delft and the port authorities of Amsterdam and Rotterdam, in 1965 organised a seminar for a selected group of about 25 port administrators.

This seminar proved to be a success. The number of applicants and the enthusiastic comments of participants, made it desirable to continue this activity and similar seminars have therefore been organised since, the fourth taking place in April-May of this year. A strict selection is always made among the candidates for the seminar and only persons who already hold a responsible position in the management of a port are admitted. Moreover, for practical reasons a working knowledge of English is required.

These seminars each last five weeks; the first and the fifth week as a rule consist of series of lectures at the International Courses department of the Delft University. The three other weeks are spent in the ports of Amsterdam and Rotterdam



Mr. J. K. O. Heyligers

and in one or more nearby foreign ports. Last year, for instance, the participants of the seminar attended the Antwerp ICHCA conference, this year the week abroad will be spent in some English North-Sea ports.

International Course in Hydraulic Engineering

Of an earlier date than the Port Seminar is the International Course in Hydraulic Engineering, also organised by NUFFIC at the Delft Technical University. Of special interest to ports are its branches on Tidal and Coastal Engineering and on Rivers and Navigation Works. This course takes 11 months, during which i.a. several field trips are made in Holland and in other European countries. Annually there are about 60 participants to this course, usually all with a grade in engineering. As is the case with the Port Seminar, the lectures are given by acknowledged experts, selected from various countries.

A new venture of the Delft International Courses will be an annual River Navigation Seminar, to be held for the first time in June of this year.

Fellowships

In principle for these courses and seminars a fee is charged, payable by the participant or his employer. In many cases, however, participants from developing countries receive a fellowship from the Netherlands' government, covering the costs of tuition, board, lodging and local travels. For courses of a duration of more than 3 months fellowships may include international travel expenses.

Consulting

In order to co-ordinate and stimulate the activities of Dutch consulting engineers abroad, a special Foundation was established in June 1951, named Netherlands Engineering Consultants "Nedeco". This organization is completely independent of contracting and manufacturing interests, both financially and with respect to its organization, while as a private body it is not, in its dealings, subject to any control by public authorities, nor does it receive any subsidies from the Netherlands government.

NEDECO has carried out many feasibility and justification studies in the fields of hydraulic engineering, transport engineering, agricultural engineering, etc. Many of these studies also comprised important economic and sociological aspects.

Since NEDECO is a central overall organization it can call in according to the problems at issue various experts or organizations available in the Netherlands, and to this end NEDECO obtains the cooperation of Consulting Engineering firms, of specialized engineers and other experts, and of various private and public institutions.

Thus NEDECO is co-ordinating engineering knowledge available in the Netherlands in such a way that it can act, as it were, as one single consulting engineering organization. In view of the complexity and the multipurpose character of presentday development work, this can obviously be very advantageous to countries requiring technical assistances of a complex nature.

Many of NEDECO's studies were assigned and financed by the Governments of both developing and developed countries, whilst several other surveys were carried out within the framework of international organizations. A good number of these were commissioned and paid for by the Netherlands Government.

In 1951, the year of foundation, NEDECO received four assignments. At the end of 1967 the total number of commissions had amounted to more than 150 spread over more than 50 countries and at that time NEDECO was dealing with 40 assignments simultaneously.

Thailand Project

As an example of NEDECO's activities, mention can be made of the work this organization over a number of years has been carrying out for the government of Thailand.

The Port of Bangkok, at present the only important ocean port of the country and handling per year some 6 million tons of seaborne goods (oil excluded), is separated from the open sea by 30 km of winding river and vast expanses of mud deposits through which the fairway is maintained by extensive dredging.

In 1961 the Thai Government anxious to reduce the cost of maintenance dredging, commissioned NEDECO to carry out studies with the object of advising the Government on measures to be taken to reduce the siltation in the access channel.

A team of 8 Dutch expert engineers started the site investigation in October 1961 and stayed in Thailand for well over a year, collecting data on the movement of silt, elaborating and interpreting the results and analysing the causes of shoaling. The remedial measures were studied in a large model constructed in Holland at the Delft Hydraulics Laboratory and representing a sea area of 10×20 m and a river length of about 40 m.

The study concluded that some reduction of dredging cost would, indeed, be possible by adapting the alignment of the channel, by relocating dumping grounds and by introducing a different dredging technique. Finally an economic review was made of the recommended measures.

At the same time and more or less connected with the above study, NEDECO also carried out at the request of the Thai Government a study and evaluation of the economic justification of the construction of an **entirely new port**, away from the muddy coast near Bangkok, more to the South East. This study entailed the preparation of a preliminary project to calculate the capital required for building the proposed port, covering the full outlay of all facilities and including the determination of port, warehouse and transport fees and earnings. Also the effects of the plan on the economic structure of the country in the near future were analysed, whereby an assessment was made with respect to the distribution of traffic between both the old and new ports and their respective functions to their hinterland.

The final report concluded that a new port would be quite feasible; and gave recommendations about the possible site of this new port, preliminary plans of its lay-out and its required facilities, its connection with the hinterland and the necessity (and difficulties) of the private enterprises involved in trade and industry adapting themselves to the new situation, either by transferring or by establishing branch settlements or both. Taking all this into account, the plan was found to be an economic proposition and it was recommended to proceed with final feasibility studies and preparation of a detailed design.

However, because of the large sums involved in such an undertaking, the Thai Government together with the World Bank felt that, before a decision could be taken, a careful assessment should be made of the possibilities of enlarging the capacity of the present port of Bangkok. To execute this assignment, NEDECO sent four experts out to Thailand for a period of 3-4 months. This team made a comprehensive analysis of the system at present used in port management and operation and made recommendations in the report, issued in December 1965, about questions of mechanisation, labour, administration, financial accounting, responsibility of top officials, etc. All the above studies were partly financed by the United Nations Special Fund.

The costs of the project, however, about \$50 million, seemed to present an insurmountable obstacle and for a few years little was heard of any progress. But congestions at the port of Bangkok increased and have now ultimately led the Thai Government to decide on the construction of the new port S.E. of Bangkok, named Laem Krabang.

This means that now a complete field survey is necessary, together with more thorough studies than the preliminary ones, mentioned above, on such matters as economies, port operations and port management. Moreover, these studies will include experiments in the great hydraulic laboratories of Delft and De Voorst. Lastly a complete plan will have to be drawn up and, on the basis of that, tenders sent out.

The Netherlands Government is prepared to cofinance this survey under the Netherlands bilateral Technical Assistance Programme.

Finance

This brings us to the matter of financing. NEDECO and the various Dutch harbour construction companies (such as Royal Netherlands Harbour Works Cy Ltd., Bos & Kalis, Adrian Volker, Van Hattum & Blankevoort and others) naturally have to be paid for their services.

As a rule this is done by the country where the work is carried out.

Through various media Holland helps in the financing. According to its own standards the Dutch at present are giving 0.7% of their national income to development work in general, which percentage the present government wants to raise to 1.0 by 1971. According, however, to the standards of Mr. Raoul Prebisch, secretary-general of UNCTAD, the Dutch aid at the moment is already 1.4% of the G.N.P.

This aid — part of which only goes, incidentally, to port development - is given in various ways, partly under multilateral, partly under bilateral programmes.

Multilateral aid is channelled via the World Bank, I.D.A., the U.N. Development Programme and other international organizations.

Bilateral aid is given when the World Bank, for the realisation of a development plan drawn up for a given country, has got together a club or consortium of donor countries willing to provide the necessary funds. The receiving country

may draw from the fund according to its own priority list, provided the projects chosen fit into the World Bank's development plan.

It may be expected that the amount of \$50 million needed for the construction of the new port near Bangkok will partly be provided by international sources of capital. In this connection it is interesting to note that for the realisation of a development plan the World Bank has organised a club of donor countries providing aid to Thailand: the Consultative Group of Thailand. Similar clubs or consortia exist for i.a. India, Pakistan, Tunesia and Colombia.

With regard to Latin America the Netherlands Government in general follows a somewhat different line, in that it there works in close co-operation with the Inter-American Development Bank. Following an agreement of September 1965 between the Government and I.A.D.B. loans are available for the financing of development projects in Latin American countries. Proposals to that effect can be put forward from Dutch side as well as by the Bank; they may regard projects suitable for independent financing by the Netherlands or projects suitable for financing by the Netherlands and the Bank jointly. Naturally the project must fit into an accepted development plan and have the approval of the parties concerned.

These loans run for a period of max. 25 years and carry an interest corresponding to the normal (6%)rate of I.A.D.B. loans, thus obtained may fully or in part be used for the purchase of Dutch equipment (dredgers e.g.) or the payment of services rendered by Dutch contractors.

Needless to say these and other loans are only partly used for port development projects. No figures are available, unfortunately, of the part used for this purpose, as the nature of the projects for which aid is given will, naturally, vary from one year to another.

This not only applies to loans but to all development aid in general. As stated above, 1.4% of the gross national product at the moment is given by Holland to de-

velopment aid; how much of it goes to ports cannot be ascertained. It may, nevertheless, in this connection be of interest to note that over the past 4 years the total amount of Dutch development aid was \$400,-000,000-and that the present government expects this figure to go up to \$750,000,000-over the next 4 years.

Considering the great role ports can play in the development of their hinterland, one may hope that a substantial part of these funds will be allocated to the improvement of existing and the founding of new ports in developing countries. This is a field, wherein Holland, with the know-how and equipment of its consulting engineers, its hydraulic laboratories and its dredging and harbour-construction contractors. can render valuable assistance. Not so long ago, in ruins after a devestating war, it was in need itself and got it. Thanks i.a. to Marshallaid the country got back on its feet and, like many others, is able now to help those who still require assistance. (Amsterdam, March 29th, 1968)

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Mr. Gengo Tsuboi

The overall demand for petroleum products of the world increased nearly fourfold during the 20-year period of 1938-58, namely, from 4.74 million BPCD (barrels per calendar day) in 1938 to 19.16 million BPCD in 1958, and it is estimated that the demand will further grow to approximately 38 million BPCD during the ensuing ten-year period ending in 1968. In other words, the demand for oil in the past almost doubled every ten years. In terms of percentages, it increased 9.9% in 1964, 7.3% in 1965 and 8.1% in 1966; although the percentage somewhat declined to 7.1% in 1967, it still represented a substantial growth in terms of quantity.

In parallel with, and reflecting, such a rapid growth of demand for petroleum products, on the other hand, the size of tankers also increased remarkably: the size of the largest tanker in service kept increasing from 16,500 DWT (T-2 Type) in 1944 to 33,000 DWT in 1952, to 100,000 DWT in 1959, to 1968, a super-mammoth tanker of 276,000 DWT made its appearance. such a steep increase in the size of tankers are attributed, above all things, to the persistent need for reduction of transportation cost of petroleum, not to speak of the revolutionary development in shipbuilding technology. However, the existing port facilities serving oil refineries are not adequate enough to receive these mammoth tankers. This situation gave birth to the idea of a central terminal system, under which crude petroleum would

be transported by mammoth tankers from a production center to a central terminal, from which point the crude petroleum would be delivered to oil refineries either by smaller tankers or through pipelines.

Central Terminal System

Background and Current

Situation

By Gengo Tsuboi

Vice-President of

Tokyo Tanker Company

Now, let us examine the pattern of movement of crude petroleum, with a view to determining which regions of the world are likely to need such a central terminal system. The total volume of crude petroleum transported during 1966 was 16.89 million BPCD, of which 50% (8.51 million BPCD) was shipped to Western Europe, 15% (2.58 million BPCD) to the United States and 12% (2 million BPCD) was moved to Japan. Thus, the quantity shipped to these three regions represented 80% of the world's total shipment of crude petroleum. However, this fact in itself does not necessarily constitute a factor necessitating the construction of a central terminal system, for in terms of the ton-mileages involving sea transport, the United States which draws 66% of her imports from Venezuela, 1,800 miles away, and 15% overland from Canada does not need a central terminal system (see the table attached). Whereas, for Western European countries which are dependent upon the Middle East, 8,800 miles away via Cape of Good Hope, for the supply of 51% of their requirements (*), and for Japan which relies on the same region, 6,600 miles away, for the supply of 83% of her requirements, construction of a central terminal system is well justified. (*This figure having been derived from the data based on the condition as existed in the days prior to the second Suez crisis, one half of the total shipment was assigned to the route through Suez Canal and the other half to that via Cape of Good Hope.) More specifically, it can be concluded that the shipment via Persian Gulf-Western Europe route which accounts for 25% of the world's total shipment of crude petroleum and that via Persian Gulf-Japan route which represents 10% of the same could profit from a central terminal system. Needless to say, the quantity of marine transport of crude petroleum may not be the sole factor justifying the construction of a central terminal system, for the pattern of movement of crude petroleum has changed since the Suez crisis of last year and the percentage of increase in the demand for petroleum products varies from country to country. Nevertheless, even allowing for such possibilities, the above stated conclusion may still be valid, as witness the actual situation.

In Europe, central terminals have already been built-one at Lavera (near Marseilles) of France and another at Europoort (Rotterdam) of the Netherlands-which feed crude petroleum to oil refineries, and still another full-fledged central terminal system is being built by the Gulf Oil at the Bantry Bay. As was widely publicized in the press, the Central Terminal System, when completed on the Whiddy Island in the Bantry Bay on the Southwestern tip of Ireland, will receive crude petroleum from the Persian Gulf or from Nigeria by 300,000-DWT tankers and will deliver it to Gulf Oil Refineries in various countries of Europe by 80,000-DWT tankers

(see the figures attached). The Gulf Oil is also planning to construct another one in Okinawa. Under this plan, mammoth tankers of the Gulf Oil will haul crude petroleum from the Persian Gulf to the Bantry Bay via Cape of Good Hope, and on their return voyage they will call at Nigerian ports to load crude petroleum with low sulphur content for transport to Okinawa (to be ultimately delivered to oil refineries in Japan and other Far Eastern countries) and then will return to the Persian Gulf. This system of routing will not only reduce the unloaded mileage of a tanker to approximately 30%, thereby lowering the transportation cost, but will also offer an advantage in that the Gulf Oil is enabled to meet its customers' specific requirements for quality of crude petroleum. Recently, it was announced that a terminal capable of berthing at the same time two tankers, each with a capacity of 500,000 DWT, is being planned at a point 27 km off Le Havre of France, and the market was further animated by the reported plan of Spain to build a central terminal system of its own. Mr. W. Ashford, a London shipping broker, has made a very interesting calculation on the economic feasibility of central terminal system in Europe. According to his calculation, (1) the freight from the Persian Gulf to the Bantry Bay via Cape of Good Hope per a 300,000-DWT tanker will be \$2.22 per ton of crude petroleum; the charge for unloading and reloading at the terminal, \$0.35; and the freight from Bantry Bay to Rotterdam per a 80,000-DWT tanker will be \$0.52 per ton. Thus, the total freight per

ton will amount to \$3.09.

(2) In case crude petroleum is shipped per a 100,000-DWT tanker from the Persian Gulf to European ports via Cape of Good Hope and the tanker returns via the Suez Canal, the freight works out at \$3.50.

(3) In case it is shipped per a 200,000-DWT on the same route, the freight will be \$2.53.

This means that the cost of shipping per a 300,000-DWT tanker via a central terminal system will be higher than that per a 200,000-DWT tanker on conventional route, but lower than that per a 100,000-DWT tanker. Mr. W. L. Newton of the Petroleum Economics has made a similar calculation, and though somewhat at variance in details with that of Mr. Ashford, they agree in general conclusion. It must be added, however, that these calculations were made in the days prior to the second Suez crisis, and the fact that the Suez Canal is now closed to traffic must be taken into account. Furthermore, if one takes into consideration the changes that had taken place in the market condition, in the cost of shipbuilding and in the insurance rate on mammoth tankers, he would immediately be aware of the danger of accepting these figures as they are. However, as a general indication of the situation at a given period, they merit a due consideration.

In Japan, also, the idea of central terminal system or sea berth are being materialized. They are:

(1) Keiyo Sea Berth

Location: about 7 km off Anega-saki, Chiba Prefecture. Financiers: Idemitsu Kosan, Fuji Sekiyu, Kyokuto Sekiyu

Table: Import of Petroleum and Dependence on Foreign Supply of Major Countries (as of 1965)

Importing Countries	nercentages	BPCD	$1000 \text{ ton } \times \text{mile}$
Western European Countries	50.4	8,510,000	2,490,877,000
U.S.A.	15.2	2,575,000	647,277,750
Japan	11.8	1,995,000	295,738,750
Others	22.6	3,810,000	
Total	100.0	16,890,000	

Sources: 1) for the volume of import, "Statistical Review of the World Oil Industry, 1966. Kogyo and Maruzen Sekiyu. (2) Sea Berth

- Location: about 4 km off Ohgi-shima, Kawasaki City, Kanagawa Prefecture. Financiers: Showa Sekiyu, Mitsubishi Sekiyu.
- (3) Sea Berth
 Location: about 5 km off
 Tsurumi, Kanagawa Prefecture.
 Financier: Asia Sekiyu
- (4) Japan Petroleum Central Terminal System
 Location: Nakamyo-chisaki, Kiire-cho, Ibusuki-gun, Kagoshima Prefecture.
 Financiers: Nihon Sekiyu, Nihon Sekiyu Seisei, Koa Sekiyu.
- (5) Central Terminal System of Kyoseki Group Location: the Reclaimed Area of Sodega-ura, Chiba Prefecture.
 Financiers: Asia Sekiyu, Toa Sekiyu, Fuji Sekiyu.
- (6) Central Terminal System Location: 10 km off Mizushima Area, Okayama Prefecture. Financiers: Mitsubishi Sekiyu and Nihon Mining.
- (7) Sea Berth Location: Sakai District, Osaka City. Financiers: General Sekiyu and Kansai Sekiyu.
- (8) Sea Berth
 Location: 6 km off Yokkaichi, Mie Prefecture.
 Financier: Daikyo Sekiyu
- (9) Sea Berth Location: Kashima District, Ibaragi Prefecture.
 Financiers: Mitsubishi Yuka, Showa Yokkaichi, Shell Sekiyu.
- (10) Sea Berth Location: Onoda District, Yamaguchi Prefecture. Financer: Seibu Sekiyu

Why the multiplicity? Let us now look into the background of the planned central terminal systems.

1. Demands for Petroleum Products

The demand for petroleum products in Japan for 1966 is as mentioned above, and the author wishes to draw the attention of the reader not only to the voluminousness of demand but also to the large per-

²⁾ the 1000-ton/mile is equal to (Area Import) \times (Ocean Distance).



centages of increase of demand from year to year to the extent which was not matched by any country in the world. Surveying the movement of the imports of crude petroleum of Japan, one notices that it has been increasing at a yearly rate of no less than 24%, i.e., from 216,700 BPCD in 1956 to 674,000 BPCD in 1961, or 3.1 times in five years, and then to 1,807,100 BPCD in 1966, or 2.7 times in the ensuing five years. The plan for the import of crude petroleum during the next five years beginning from this year, drawn up by the Petroleum Council (See chart.), envisions an increase in the import at a yearly rate of 10%, and under this plan, the import of crude petroleum in 1972 would amount to 200 million tons. This may of necessity perpetuate a pattern of supply in which almost 90% of the requirement of this country will be imported from Persian Gulf over 6,600 miles of sea route.

2. Scales of Oil Refineries

According to a theory advanced by Mr. M. L. Newton of Petroleum Economics, the optimum size of a tanker in relation to a given oil refinery and the amount of capital it invests in its storage tanks is such that its cargo capacity is equivalent to ten times the daily refining capacity of the oil refinery. This would mean that the optimum size of a tanker for a refinery with refining capacity of 70,000 BPCD is 100,000 DWT and that that for a refinery with 100,000 BPCD is 150,000 DWT, or that in order to use a 200,000-DWT tanker to the best advantage, the oil refinery must have a daily refining capacity of 150,000 BPCD. When this hypothetical rule is applied to the present situation of this country, seven out of 37 oil refineries or 19% of the existing ones can justify the use of 150.000-DWT tankers. Furthermore, the above statement does not take into account the factors relating to storage tanks and port facilities. The average daily refining capacity of the oil refineries now operating in this country would place the optimum size of tankers at 80,000 DWT, but here again, it is inconceivable that a given oil refinery refines a single type of petroleum product. It, therefore, would lead us to conclude that the actual

daily refining capacity of a single type of petroleum product may be less than 50,000 BPCD.

3. Economic Feasibility of a Tanker

The principal objective of a central terminal system is to reduce the transportation cost of crude petroleum, which in turn presupposes the enlargement of hulls. In this connection, another calculation made by Mr. W. Ashford will be considered here. According to his calculations, the transportation cost of crude petroleum per 100,000-DWT tanker from Mina al Ahmadi in Persian Gulf to Yokkaichi, Japan is calculated at \$2.345 per ton, the same per 200,000-DWT tanker at \$1.598, per 300,000-DWT tanker at \$1.377 and further, the same per 500,000-DWT tanker at \$1,108. Converted in accordance with USMC (the U.S. Maritime Commission), it works out at -77.4%, -84.6%, -86.76% and -89.33% respectively. It must be noted that these calculations were made before the second Suez crisis and that they are based on the prices and wages prevailing before the devaluation of the sterling pound and on the assumption that the 500,000-DWT tanker will pass through the Strait of Malacca. It, therefore, follows that in case a tanker passes through Lombok Strait loaded and returns through the Strait of Malacca empty, the above-mentioned percentages must be upped by over one per cent at the USMC rate. As is obvious from these figures, the bigger the size of a tanker gets, the smaller the rate of decrease in the transportation cost becomes. But it is a proven fact that as the size of the tanker becomes bigger, the absolute value of the transportation cost per ton decreases, if not in inverse proportion to the rate of increase of its size. And the fact that orders for more than 150 tankers each with a capacity of larger than 150,000 DWT have been placed with shipyards speaks volumes for the advantage of bigger ships, and preference of bigger ships is the general tendency of the shipping industry of the world today.

It is reported that at present European shipyards are capable of designing 1 million-ton tankers, but in practice, the shipbuilding technology, the capacity of docks, and the problems relating to the approach and ocean lanes, to port and harbour facilities, to the storage facilities and to the security and risks still remains to be improved and solved. It is, therefore, presumed that while granting the possibility of materializing a 500,000-DWT tanker in the near future, an ultimate realization of a one millionton tanker will have to be pursued step by step.

4. Storing of Crude Petroleum

Japan, which depends on foreign markets for the supply of 99% of her requirements for crude petroleum, was abruptly forced, by the crisis of the Middle East of last year, to sense the impending necessity for storing crude petroleum to provide against such an emergency. In spite of such a need, oil refineries are concentrated in areas adjacent to heavily populated cities, in line with their policies of establishing refineries in consumption centers, thereby virtually precluding the possibility of acquiring land space for storage facilities of reserve crude petroleum.

Despite such a big demand, the majority of oil refineries are of small scale, nor are their storage tanks adequate, and the inconsistencies are further compounded by the rapid enlargement of the size of tankers. Considering these facts, it may not be too much to say that nowhere is the condition more riper than in Japan for the construction of central terminal systems. It is against these background that the plans for the aforementioned central terminal systems and sea berths have come to be conceived, and in the following pages, an introductory explanation of Nihon Sekiyu Central Terminal System will be given.

Japan Sekiyu Central Terminal System, Ltd. was founded on March 1, 1967, with a capital of ± 500 million for the purpose of constructing a central terminal system in the Kagoshima Bay referred to above to serve as a central distribution point of crude petroleum to oil refineries affiliated with the Nihon Sekiyu Group. Under the plan, this Central Terminal will receive cargoes of crude petroleum from the Persian Gulf by means of tankers with loading capacities of 350,000 DWT to 500,000 DWT, and will in



turn distribute them to its refineries at various localities by means of tankers with capacities ranging from 30,000 to 150,000 DWT, and its startup date of operation is set in October, 1969.

When completed, the System will comprise two million square meters of land, with sixty units of 100,000kl tanks constructed on it and equipped with four dolphin type berths which will be capable of berthing tankers from 30,000 DWT up to 400,000-DWT. Initially, the System plans to reclaim 100,000 square meters of land, with twelve units of tanks built on it and to construct one loading-and-unloading berth for tankers up to 400,000 DWT and to add another berth exclusively for loading tankers up to 150,000 DWT. The plan also envisions a gradual expansion of the facilities and land in keeping with the increase in the volume handled. Other storeside facilities include separators, guard basin and ballast tanks. Also included in the offshore facilities are such security measures as the dolphin type berths designed

to pump 20 cm/sec. in the case of a 370,000-DWT tanker, a control tower maintaining a 24-hour watch on the ship, one loading dock, and four 4,000-hp tugboats each equipped with a Foamite Monitor capable of 3,000-litre-per-minute blow.

What was the reason that led to the selection of Kiire-cho, of all places? In selecting a site for the central terminal system, the following points were considered: (1) the possibility of acquiring a large area of land at a cheap price, (2) a site bordering on the sea with a sufficient depth of water for mammoth tankers to approach without hazards, and (3) a location as close to refineries as possible, thereby affording cheaper cost of local transportation. Seen from these points of view, Kiire best met these requirements in that it has a shoal with a depth of one to three meters, extending 1,500 meters into the sea, thus enabling it to be reclaimed at a low cost, that the shoal is followed by a sudden depression of 30 meters in depth. Moreover, from the view-(Continued on Next Page Bottom)

Safety Considerations in the Use of Ports and Approaches by Nuclear Merchant Ships

By W. T. Worts

Port of London Authority

(Etracted from) Report on Meetings of Consultants, organised by the International Atomic Agency, held in Vienna, Austria, 9th to 13th May, 1966 and 18th to 22nd March, 1968.

Introduction

1. In 1966 the International Atomic Energy Agency invited the International Association of Ports and Harbours to send a representative to a meeting of consultants to consider the "Safety Evaluation of Harbours and Narrow Waters" in connection with visits by nuclear merchant ships. The Association asked the Port of London Authority to nominate a representative and it

point of the Nihon Sekiyu Group which has oil refineries on both northern and southern shores of the Honshu, the location of Kiire at the southern-most tip of Japan is an ideal one. The only drawback of the site of Kiire—that it lies in the path of frequent typhoon—is amply compensated for by the otherwise favourable climatic conditions, and the conditions favouring the selection of a site at Kiire are the easy access for ships and the cooperative mood of the local population.

All things considered, the ultimate objective of a central terminal system is to ensure a stable and dependable supply of crude petroleum and to promote the reduction of transportation cost. However, the recent economic situation, accentuated by the increase in the cost of shipbuilding of larger ships, higher interest rates and the increase in the rate of insurance for larger ships, runs counter to our endeavours, and it is to be hoped that our sustained efforts and perseverance toward the direction of reduced transportation cost will eventually be rewarded with fair success.

was decided to send Mr. W. T. Worts, of the Authority's Director-General's personal staff, who was also a member of the Board of Trade Standing Advisory Committee on the Carriage of Dangerous Goods in Ships and the Home Office Standing Advisory Committee on Dangerous Substances, U.K.

2. The first meeting was held at the Agency Headquarters, in Vienna on the 9th May, 1966, and the proceedings terminated on the 13th May, 1966, when a Draft Paper entitled "Safety Considerations on the Use of Ports and Approaches by Nuclear Merchant Ships" was submitted to the Agency. A resume of the proceedings is given in Part II of this report, and a list of those attending is given in Appendix B hereto.

3. The Agency informed the group that the Draft would be edited and circulated to member States for examination and comment, and it was requested that, until such comments had been received, the Draft should be treated as confidential and not circulated within any organisations. The Agency would, in due course, examine the comment received and would then decide whether it would be necessary to re-convene the group for further consideration of the Draft. In view of this request no report of the meeting was submitted to the Association.

4. The Draft, which comprised some 15 pages with an Annex and Bibliography, was circulated by the Agency in April, 1967, and some 48 pages of comments were received from 27 States and Organisations. The Agency decided that the group should be re-convened to consider the points raised and meetings were held, in Vienna, from the 18th to 22nd March, 1968. Those present included 7 of the original group with 5 new members.

5. The Final Draft was handed to the Agency on the 22nd March, 1968, the format of the Draft is given in Appendix A (attached).

6. The Agency agreed that the document would be published as an on-sale booklet as part of the Agency "Safety Series". The Agency stressed the importance that the bibliography, which was to form part of the publication, should be as extensive as possible and said that the members of the Group would be asked to submit suggestions as early as possible. The Agency have since approached each representative for suggestions and replies are being collated.

7. The Agency anticipate that publication will be in the latter half of 1968.

Signification Points Discussed During Meeting 18th to 22nd March, 1968.

1. Nature of Paper and Format

It was agreed that the Paper should be so drawn up that it was clearly of an informatory nature and for guidance only. The Paper should not have the precision of a technical or legal document and therefore could not be interpreted as infringing sovreign rights of any State, this latter problem had been raised by more than one member State. In the same way the Group agreed that involvement in nuclear liability was to be avoided. Many of the problems in port evaluation involved considerable technical complexity but the Paper was to strike a balance between overmuch vagueness and complicated detail, the drafting of the Paper would therefore require careful wording. Finally, the Paper was to be complete without recourse to Annexes other than details of the personnel comprising the Group and a bibliography which was to be as extensive as possible.

2. Safety Assessment of the Ship

The Safety of Life at Sea Conference (1960) provides for the preparation of a "Safety Assessment" of a nuclear ship which should be available to any State that was receiving such a vessel. The detail provided in this Assessment could be expected to give adequate detail to enable the host State to independently assess and evaluate the safety of the ship. This would be a task for suitably qualified engineers, both mechanical and marine and would involve reactor and physics specialists. There are conflicting views on the methods of assessing the safety of reactors, even in the field of land based reactors of which there is a considerable reservoir of experience. Some assessments are based on the "Maximum Credible Accident"-i.e. the accident that would involve the maximum release of radioactive material. without regard to the probability of such a mishap occurring. Some assessments take into account a spectrum of accidents with statistical probability being used. It is to be noted that whatever method is used will result in a "reference accident" figure regarding a release of radioactive material and it is this figure that is important in port evaluation although it should be appreciated that such a figure is not statistically 100% accurate. The engineering problems are extremely complicated and the Group agreed that the Paper would refer to the methods of reactor safety assessment in general terms.

3. "Reduced Power" Concept

The amount of radioactive material in a reactor is related to the power of the reactor and the amount of "fission products" formed in the reactor is in turn related to the power history of the plant-i.e. whether the plant is at high or low output and for how long power demands have been made. It follows that, if the reactor power is reduced, the amount of activity in the reactor will also be reduced. The view had been advanced that, by stipulating a reduction in power, i.e. speed, for a specified time before a nuclear ship arrives in port, the "reference accident" release of activity would be reduced, and might, in respect of certain berths, be of worthwhile consideration in port evaluation. However, opinion among reactor specialists is divided. Apart from the validity of this "reduced power"

concept, there are operational objections to restricting a ship's Master's freedom to use whatever power he wishes, e.g. under potential collision conditions, and the Group agreed that, on balance, no account should be taken of this concept in port evaluation although it might be useful in the case of some berths in ports that are approached by long inland water passages when the ship would, in any case, be proceeding at reduced speed.

4. The Disposal of Radioactive Material after Accidental Release from a Nuclear Ship

In the event of an accidental release of radioactive material from the ship it is clear that the material will be carried downwind gradually dispensing with a consequent reduction in the degree of hazard to personnel exposed in its path. There are numerous methods of calculating the spread of airborne material and different data will be provided according to the formula selected. The Group agreed not to recommend any particular method but would provide for adequate references in the bibliography to enable the competent experts of the "host" country to decide which formula to adopt. It had been suggested by one of the member States that calculations regarding atmospheric dispersal would be too unreliable for use but the Group were of the opinion that the accuracy of the forecasts for dispersal were likely to be higher than some of the calculations involved in the Safety Assessment and Reference Accident. It is necessary to establish a basis for probable dispersal in order to make any port evaluation at all and it should be accepted that any dispersal pattern postulated is for planning purposes only and not to be taken as an accurate forecast of post accident conditions.

5. Acceptable Radiation Doses

In the event of an accidental release of radioactive material it night be necessary to clear personnel from those areas in which, under the previously estimated safety and dispersal calculations, the radiation hazard might be harmful. It is a truism that "all radiation is harmful" to some degree, however slight, e.g. a normal chest X-ray radiography but for practical purposes, and

especially for emergency situations, there is a requirement for the establishment of the amount of radiation above which definite damage might be sustained. A number of member States were of the opinion that the Group should recommend a specific figure, but there is no internationally accepted standard for such a "reference dose". The figures used in different countries vary quite significantly and the Group agreed that it was for each State to set its own standard "reference dose"... and that the bibliography to the Paper would give the maximum references for information in this field.

6. Supply of Health Physics Equipment

The nature of radiation is such that subjective detection is impossible and it is, therefore, necessary to use special meters for detection and measurement. Several States referred to the problems of supply of such equipment, suggestions varied from the extreme of permanently fixed monitoring equipment at the berth and surroundings to be operated as a routine by port personnel, to the other extreme view that the nuclear ship should be responsible for the supply and operation of all health physics equipment. It did not seem to be sufficiently appreciated that, while the operation of such instruments is comparatively simple, the consequent interpretation of the readings requires considerable expertise. The Group considered it unlikely that the necessary specialised knowledge would be found in normal port personnel, at least for some considerable time. It would be for each State to decide the source from which proper assistance and equipment could be drawn. The Paper confines comment to the need for the availability of health physics equipment.

7. Port Emergency Schemes

There is a need for administrative arrangements and liaison to be established in advance of a visit to a port by a nuclear ship and several States had suggested that copies of port emergency plans, from those ports that had already received nuclear ships, should be included in the Paper. However, emergency arrangements must be closely related (Continued on Next Page Bottom)

By Charles Barrillon Director General

Port of Marseilles Authority

The Port of Marseille has an annual traffic of about 56 million tons of oil products, more than 50 million tons of which is imported crude oil.

The bulk of this traffic has been met up to now by the Lavera oil basins, completed by a berth constructed on buoys in open roadstead, served by pipeline.

These installations, which have proved very satisfactory until now, will be completed within a few months by new installations adapted to the generation of the vessels of 225,000 to 250,000 tdw, more than 160 of which will soon be ploughing our oceans.

These new installations will be developed in the Gulf of Fos.

From autumn of this year, 2 tanker berths will be opened for service one with an anchorage of 20 metres, the other of 23.50 m.

The oil basin under development, opposite these berths, has a maxi-

to the topography of the port, facilities available, whether the port is tidal, whether the berths concerned are within enclosed docks, the type of administration and executive/ administrative chains of command, and the administration of the areas outside the area of the jurisdiction of the Port Authority. All these factors are essentially local in application and the Group agreed that it would be unsound to select either one or a few available port emergency schemes as patterns to be followed by other ports. The bibliography would include reference to plans known to have been drawn up by certain ports (mainly for the n.s. "Savannah") and it would be for individual States, if they so wished, to make application to the ports concerned for copies of their schemes.

mum width of 700 m, and will be dredged to a depth of 22 m below the zero recorded on marine charts. This depth will be reached at the end of 1969. But with the opening of the first berths, the basin under development will already offer an anchorage of 20 m below the zero recorded by marine charts. This anchorage will make it possible to receive fully loaded the largest vessels on the sea at that time.

The access channel to the basin has a maximum width of 250 m and will be dredged to a depth planned at 22 m to 25 m below the zero of marine charts. The depth of 20 mbelow this zero will be reached in the autumn of 1968 and that of 23 m at the end of 1969.

The first 2 berths which will be opened for service this year are situated on the western side of a dyke extending from the shore, the rectilinear terminal branch of which is more than 1000 m long. It will be able to accommodate whenever necessary, a third berth on the landward side; it will be possible to add a fourth berth simply by extending the dyke 250 m.

Each berth will be served by a 54" pipe for crude oil. These pipes will lead into a first manifold situated at the landward end of the dyke, whence 42" pipe-lines will deliver the crude oil to a delivery manifold more than 5 kilometers inland, at the centre of gravity formed by new depots set up by the SPLSE (The Society of the South European Pipe Line) and the refineries of the region.

At the first stage, 3 42" pipes will assure connection between the 2 manifolds.

The present storage capacity available is 2,300,000 m³, near the delivery manifold.

The land necessary has been set aside, so that this capacity may be extended, as need be, up to a minimum total of 7 million m³.

From the end of this year, a berth specialising in the traffic of refined products will be opened for service at the landward end of the dyke.

It will be able to accommodate ships of 50,000 tons dead weight.

These installations to be operated for service from the autumn of this year will make Marseille the first European Port capable of receiving, at any time and fully loaded, the largest tankers transporting the



General view of Marseilles

Gulf of Fos Extension by Marseilles Port Authority



crude oil destined for the European refineries.

The first installation will be completed, on demand, by specially studied accommodation for the generation of tankers which will follow that of 225 to 250,000 tons.

Projects are ready, at this very moment, in particular economic projects, which allow for a new basin which would be constructed in very quick time, and would be capable of berthing 2 super-tankers of 500,-000 to 1 million tons.

In fact, the site at Fos is regarded in a very favourable light since at the very opening of the Gulf the natural depth is 50 m below the zero recorded by marine charts.

The projects, as they are shown

on the adjoining diagram, require a basin dredged to a depth of 35 m below the zero of the marine charts.

It will be possible to increase this depth, if necessary, without having to dredge resistant materials.

Different loading berths for ships of 100,000 tons dead weight are planned to accommodate the fragmentation of the cargoes of the

Gulf of Fos Development



Dock No. 1 under construction. The dike and oil berths.

super-tankers: 2 berths for ships of 100,000 tons are planned for each super-tanker berth.

Buffers proportionate to the size of the new ships will be placed with facility at the landward end of the dyke. Also, the storage capacity at present available can be easily increased to adapt to new needs. It will be possible, eventually, to transport the cargoes towards the centre of Europe by a particularly economical doubling of the pipe at present used by the Society of the South European Pipe Line.

One of the essential advantages of the Fos site is the permanent

possibility of adapting it, as new needs demand, by continuous and particularly economical development, whilst taking into account the evolution in the size of ships, without any important alteration necessitating burdensome investments before receiving the first supertanker.

It will thus be possible to gain experience of these new ships through a limited number of vessels, thanks to a site which can be equipped progressively at low cost. This will allow the shipping companies to introduce into service at the outset only a limited number of vessels, before taking the decision to construct in large number the tankers of the new generation. The characteristics of these may thus be fixed through knowledge of the situation, after really thorough use in particularly favorable conditions of a few prototype vessels which may be received without putting their European port of descharge to important accommodation expenses.

For all these reasons, the new oil installations of the Port of Marseille in the Gulf of Fos may be tomorrow an essential trump in developing the oil fleet and the crude supply in Europe. (April 1968)

FOS 1968 INTO SERVICE



FOS: Ore berth, oil berths, and containers berth under construction.

ORE BERTH : MAY

- 50 Feet Draught
- 2 Travelling Gantry Cranes
- 150 Acres Terminal
- 20 Acres for Ore Storage
- 4 Railway Tracks for Loading

OIL BERTHS: AUTUMN

• First in Europe

for

Fully Loaded

210.000^T Tankers

Port of Marseilles Authority. 23 Place de la Joliette (2e).

State Aid Urged for Port of New Orleans By J. Melton Garrett, President

Board of Commissioners of The Port of New Orleans

Editor's Note---

This is an excerpt from a speech to legislators and wives made by J. Melton Garrett, president, Board of Commissioners of the Port of New Orleans, at the New Orleans Board of Trade recently:

The entire state is proud that Louisiana boasts America's second largest port. The statewide pride is justified because this port is owned and operated by the state of Louisiana. The Board of Commissioners is a creature of the state and the benefits derived from this port reach every corner of Louisiana.

Why does the port of New Orleans need money? We need it for capital improvements. There has been considerable misinformation throughout the state concerning our requirements. The fact is that this port does generate sufficient revenues for both its operating costs and the servicing of some \$61.4 million of outstanding bonds. But the port's income is not sufficient to permit the Board to issue additional bonds for capital improvements.

During the 20-year period ending in 1967, the Board spent more than \$129 million on new port facilities and on the modernization of existing facilities. The port has consistently plowed back all net gains from its operating revenues into the facilities expansion and upgrading program.

Changing technology in world shipping involves the use of containerized and unitized cargoes for which specialized facilities are needed. The container ships are larger and faster than conventional cargo ships and require improved cargo handling equipment, with wharves of greater berth length and water depth. The construction of new terminals for servicing of full container vessels is an urgent requirement in our port.

Furthermore, we must provide for the expansion of the port to allow for the growth in its business. In 1967, the port handled 5.4 million tons of general cargo over its publicly owned facilities. By 1972, the volume of general cargo is projected to reach 6.6 million tons, and by 1977, 10.6 million tons. New facilities to handle the increased volume of commerce are needed and are scheduled in the capital program. This business will go elsewhere if we can't build the wharves to handle it.

How much money do we need? All of our legislators have been sent copies of a summary of the Gulf South Research Institute report on the port. We employed GSRI last summer because we thought it necessary to have an independent objective research group thoroughly evaluate our port's operations. GSRI'S conclusions were much the same as our own.

The report said, and I quote: "Unless the massive capital facilities program currently underway to replace obsolete facilities and expand general cargo capabilities is continued, the port of New Orleans will not be able to accommodate future demands for port services and will undoubtedly suffer a competitive setback."

The capital facilities program to which GSRI referred will cost \$77 million during the five-year fiscal period ending in 1971-72.

We can bring to completion all projects presently under contract with funds on hand. GSRI suggested that another facet of our capital program would best be assigned to another state agency. But this would still leave us approximately \$60 million short of our needs.

GSRI verified that the Board has made a concerted and continuing effort to trim operating costs and to eliminate all non-essential services in the interest of economy. Further, GSRI noted, it is not possible on a competitive basis to raise port charges to generate revenues adequate to support the capital facilities program.

Recently, I made a public appeal for state support. I said we could no longer go it alone. The GSRI study backs up this statement. GSRI said implementation of this minimal facilities program will require additional revenues from the state.

This conclusion was drawn after a study revealed most ports with which we must compete receive a substantial portion of their capital funds from tax supported sources. This port receives for the servicing of \$11.6 million of outstanding bonds, a small portion of the state gasoline tax. In 1967, this amounted to just over \$1 million. Proceeds from this tax under the present arrangement will decline to only \$500,000 in 1979 and later years as these outstanding bonds are retired.

GSRI studied operations of a number of ports, including those of Houston, Gulfport, Seattle, Philadelphia, Baltimore, and the Virginia State Port Authority. Each of the ports studied now receives or has received a greater share of funds from public sources than does this port.

As I said earlier, all Louisiana is strongly affected by conditions of this port.

These figures from GSRI show why:

(1) The state government alone received \$16,900,000 in sales and income taxes during 1966 from direct port activities.

(2) Louisiana's citizens earned income in 1966 from this port's activities estimated at \$689 million.

(3) This port handles about 82 per cent of all manufactured products exported from Louisiana, and approximately 10,700 manufacturing jobs in the state with payrolls of \$62.5 million can be attributed

(Continued on Next Page Bottom)

The Port of Cairns

By M. J. Sargent

Secretary The Cairns Horbour Board Australia

The Port of Cairns, due to its situation, is really Australia's gateway to the Far East, as it is the first Port of call of commercial importance for overseas shipping entering Australia from the north.

It is situated on the western side of Trinity Inlet on the inner edge of Trinity Bay.

The Port is controlled by the Cairns Harbour Board, which was constituted a corporate body by Act of Parliament on 20th December, 1905 and came into operation on the 1st January, 1906. This Board consists of ten members in-

solely to operations here.

(4) Louisiana-produced agricultural export passing through the port in 1965 totaled nearly \$100 million, and it is estimated that 19,800 agricultural jobs throughout our state can be attributed to activity at this port.

These figures make it apparent that the success or failure of this port in meeting its challenges can greatly affect the well-being of farmers in Winn parish or office workers in Shreveport. This is why I have said that the problems of this port represent a problem for all Louisiana.

Governor McKeithen has given a sympathetic ear to our problems. He has promised to help and we will be grateful for his assistance. We wish to thank the legislature for all aid given to the port in the past. We hope that we will continue to receive assistance in the future as such aid is vitally important to the economy of the state. cluding the Chairman of the Board.

The Cairns Harbour Board district embraces the City of Cairns and the neighbouring Shires of Mulgrave, Mareeba, Atherton, Eacham, Herberton, Etheridge and Douglas.

The District covers an area of 41,685 square miles with a population of 70,093.

This Harbour can be classed as one of Australia's greatest natural sheltered harbours, as the high mountain ranges by which it is surrounded (except to the north) offer ample protection from the winds.

The entrance to the Cairns Harbour is through a channel 5 miles long 200 feet wide carrying 23 feet L.W.O.S.T. with a rise of up to 9 feet ordinary spring tides and 6 feet at neaps. After passing through the Channel the Inlet widens to 1,300 feet, which gives a commodious swing basin for ships of 1,000 feet. The Inlet runs for about 5 miles past the main wharves with varying depths up to 30 feet L.W.O.S.T.

There are nine berths at the Port:--

Berths Nos. 1-6 consist of 1,950 lineal feet of reinforced concrete with a depth of water of 28 feet L.W.O.S.T.

Berth No. 8 is a reinforced concrete wharf 450 lineal feet with a depth of water of 30 feet L.W.O.S.T. This berth is a fertilizer berth and alternate oil berth.

Berth No. 10 is of timber construction 250 feet in length with a depth of water of 28 feet at L.W.O.S.T. This berth is an oil berth.

Berth No. 12 is a reinforced concrete wharf 600 lineal feet with a depth of water of 35 feet at L.W.O.S.T. This berth is used exclusively for the loading of bulk sugar.

The oil berths Nos. 8 and 10 are connected by pipeline to adjacent oil tank farm installations.

All the wharves, excepting the oil berth at No. 10, have spacious sheds, and all wharves are served by concrete road approaches.

Nos. 1, 2 and 3 wharves have rail tracks at rear, Nos. 4 and 5 wharves have rail tracks front and rear and No. 8 Wharf has rail tracks on the front of the wharf.

The large areas available behind the wharves facilitate service to



Aerial view of Q.S. Terminal and wharf, Nos. 10 & 8. Wharves and reclamation and inlet water around Admiralty Is. (1965)

The city of Cairns with shipping at wharves



shipping.

The Cairns Harbour Board has leased the shed on No. 1 Wharf to Amagraze Limited, which Company has converted it into a cold storage shed of 2,000 tons capacity, essentially for meat for export, but providing also for other export cargoes.

With early projected developments of containerised cargo to the Port of Cairns, the Cairns Harbour Board has made provision for specialised facilities for unitised and container cargoes. It is anticipated that these facilities will be in operation prior to June, 1969.

In addition to the above wharves, the Harbour Board has provided, upstream from the Bulk Sugar Terminal, facilities for small craft trading between Cairns and small ports north of Cairns.

The Board has constructed facilities, up Trinity Inlet, known as "Swallow's Embankment" for the discharge of cattle ex cattle ships to holding yards adjacent to the meatworks. These facilities were constructed primarily to bring cattle by sea from the Gulf of Carpentaria and Cape York Peninsula Ports to Cairns.

Additional Bulk Molasses storage facilities have been constructed at this Port. Total capacity for bulk molasses at the Port is 18,700 tons.

Other facilities provided by this Port Authority include:----

- A. An up-to-date mechanical workshop.
- B. Small craft slipway to accommodate vessels of a maximum length of 50 feet or 50 tons weight.
- C. Oil bunkers at No. 10 Wharf.
- D. Mobile Cranes, Forklift trucks (including battery electric forklifts) and crawler tractor dozers for working in ships' holds.
 E. A Tug is available for any

towing purposes.

In addition to the above facilities a privately owned Dry Dock has been constructed on land leased from this Board. This Dry Dock has a length of 200 feet and breadth of 40 feet. Dewatering rate is 4,000 to 5,000 gallons per minute. Draft of vessels which can be accommodated is equivalent to the height of the tide at the particular time.

The principal Imports and Exports are as follows:---

IMPORTS. Petroleum products (Bulk), Fertilizer (Bulk), Fertilizer (in Bags), Rock Phosphate, Sulphur, General Cargo, Galvanised Iron.

EXPORTS. Sugar (Bulk), Molasses (Bulk), General Cargo, Meat, Timber, Plywood, Minerals, Tallow, Hides.

For the year ended 30th June, 1967 total Imports were 233,508 tons and total Exports 353,772 tons.

Aerial view of Bulk Sugar Terminal taken on 27.7.66. Vessel shown is "OCEANIC" 10,967 t.g.r.



During the same period 485 vessels aggregating 1,232,754 tons gross entered the Port of Cairns.

The Cairns Harbour Board, subject to Government approval, will in 1969 commence a programme of Channel Improvement Dredging. This project includes the deepening and widening of the Channel.

TOURIST CENTRE. The Port of Cairns is also the gateway to the

tropic north which has become the tourist Mecca of Australia.

Cairns and District are rich in the natural and varied scenic attractions such as Green Island on the Barrier Reef the Atherton-Evelyn Tablelands with their volcanic Lakes, the scenic highways and Australia's most beautiful scenic railway—a masterpiece of engineering between Cairns and Kuranda. Over 200,000 tourists visit Cairns annually and acclaim Cairns and District a "Tourist Paradise".

The waters near Cairns are famous for big game fishing and world and Australian records have been set for game fish, particularly marlin.

This sport has attracted big game fishermen from U.S.A. and all parts of Australia.

The Port of Tampa

The Tampa Port Authority

Fla. U.S.A.

Tampa is Florida's fastest growing seaport and during 1967 nearly 26 million tons of cargo were handled, an increase of seven per cent over the previous year.

Complementing this growth rate is a \$38 million expansion program now under way in the port. Private capital is investing \$31 million of this amount and the Tampa Port Authority has sold \$7.07 million worth of self-liquidating bonds to be used for port improvement.

This tremendous investment of

private capital reflects private industry's faith in the future of the Port of Tampa.

Tampa Port Authority's part in the port redevelopment project consists of dredging a new channel and turning basin which is East of the City of Tampa in what is known as the Hillsborough-McKay Bay area. The new channel will be 34 feet deep, project depth at the present time for Tampa Harbor. The channel will be 1,000 feet wide and the turning basin will have a width of 2,700 feet.

Spoil from this dredging project has been deposited on both sides of the channel.

On the eastern shore, Eastern Gas and Fuel Associates of Boston, Massachusetts, has under construction a phosphate barge terminal which will be used by the Ohio River Company, a subsidiary of Eastern Gas. Capital investment in this barge terminal will be \$13 million. It will be capable of handling up to 10 million tons of phosphate annually.

Adjacent to the barge loader the Seaboard Coast Line Railroad is constructing a new ship-loading facility at a cost of \$18 million which will handle upward of 12 million tons of phosphate each year.

These adjacent facilities will concentrate the major portion of phosphate handling in one location in the port. Loading will be fast and



Aerial view of Port of Tampa

economical for both water and land carriers.

On the western side of the channel approximately 400 acres of new land will be available on deep water for development of deep water terminals and port-oriented industry. This property is a part of Tampa Port Authority's Hookers Point property and administered by the Port Authority. The relocation of major port interests is expected at the site in the future.

This new port concept, now nearing completion, is the culmination of years of planning by the Tampa Port Authority and is part of the modernization programs which have made Tampa the largest port in tonnage between New Orleans and Norfolk, Virginia.

One third of the cattle exported from the United States in 1967 went through the Port of Tampa, a total of 4,000 head. The cattle were handled through a special water-side penning facility completed in 1967 by the Tampa Port Authority. This facility, built to meet USDA requirements, has no equal in the United States, according to U.S. Department of Agriculture officials who have inspected it.

Cattle shippers were extremely pleased with the physical layout and efficient operation of the plant. The Port Authority has been informed by shippers that at least 5,000 more head will depart from Tampa this year.

Phosphate rock mined in areas near the Port of Tampa was the major cargo exported through the port in 1967. In all, 12 million tons left the port in ships and barges. During the same period nearly 7 million tons of petroleum products entered the port for distribution throughout fast-growing central and southern Florida.

During 1967 more than 4,000 vessels entered and cleared the port with cargoes which included chemicals, bananas, potash, steel, liquor, and nearly 2 million tons of miscellaneous packaged merchandise.

The policy-making Board of the Port Authority consists of five members, appointed by the Governor of Florida for staggered four-year terms. The present Board is chair-

Orbiter Probe

IAPH News:

Large Ships Committee

Ir. F. Posthuma, Managing Director of Rotterdam Port, Chairman of the Committee on Large Vessels, has announced his plan for convening a 3-day interim meeting of his Committee in Rotterdam this fall at a date yet to be finalized, with a view to assuring progress in preparation for the Melbourne Conference in 1969.

An 18-page thesis titled "Some Observations on Large Vessels" compiled by Rotterdam Port Management has been sent by the Chairman to all the Committee members. The Committee members have been called upon to send their comments on the given material directly to the Chairman at an early date, and also to prepare speeches respectively for the Rotterdam meeting.

Container Committee

Among the members of this Committee reported in the last issue, Mr. Jose A. Cruz of the Philippines retired from the Government serv-

manned by James S. Wood, president of Superior Fertilizer and Chemical Company of Tampa. Other members include Walter A. Baldwin, Jr., insurance company executive, vice chairman; Delmar Drawdy, paint manufacturing executive and G. J. McCulloch, president of an electronics manufacturing firm, members; Walton C. Touchton, Jr., president of drug store chain, secretary-treasurer.

The Port Director is Jack P. Fitzgerald and other members of the Port Authority staff include Guy N. Verger, deputy port director; J. Lucian Gilbert, director of trade and development; Allan Schrader, director of engineering; R. B. Hinkley, director of finance; James Bloodworth, attorney; Ben H. Fowler, director of traffic and Thomas J. O'Connor, director information-advertising. ice. To take his place, Mr. Carlos L. Castillo, Acting Director of the Bureau of Public Works, has been appointed to the Committee by Dr. Haraguchi, President.

ILO Seminar

The International Labour Office (ILO), Geneva, in collaboration with the Government of Colombia, is going to organise a Seminar on Dock Labour for Latin American Countries in Barranquilla, Colombia from 5 to 14 November 1968.

The Seminar is to be attended by some 30 participants representing government departments charged with dock labour questions, port authorities, port employers and dockworkers' unions. The proceedings will be conducted entirely in Spanish, and the programme of the meeting is to include such questions as labour-management relations in ports, regularisation of employment, organisation of work and output in ports, turn-round of shipping, social consequences of the introduction of cargo-handling techniques, new training, welfare, safety and hygiene in dock work, and an account of the maritime and port activities of the United Nations and other intergovernmental organisations.

IAPH is invited by ILO to be represented at the Seminar, and the Secretary General is currently taking steps for possible cooperation.

'Portless Port' Era

San Francisco, Calif.: — Fewer ports will be needed in the age of containerization and transmodal shipping, according to R. P. Holubowicz, vice president of the Ingalls Shipbuilding Division of Litton Industries.

He predicted the emergence of the "portless port," noting that as more freight moves in containers or other units—the port will become "merely a link in the overall system of transportation."

The traditional concept of a port

as a place where cargo is sorted, stored, inspected, marketed and packaged will no longer be valid, he said.

Mr. Holubowicz said that the giant containerships of the future will bypass smaller ports and call only one "load center."

Coastal, feeder and ferry services will be used to bring cargo to smaller ports in areas where inland transportation systems are poorly developed, he said.

He made it clear that the use of feeder services for handling breakbulk cargo can be "ruled out almost automatically as being uneconomical." (Pacific Shipper, June 3)

Standing Pat

Ottawa, June 14, 1968:—The St. Lawrence Seaway Authority will not be prepared to negotiate a wage settlement in excess of that recommended by the Conciliation Board appointed to investigate the current dispute involving Seaway workers. This was made clear today in an announcement by Dr. Pierre Camu, President of the Seaway Authority.

Labour negotiations on the Seaway have been underway since December of 1967. In the process of negotiation and conciliation, in dealing with some forty demands put forward by Union representatives, all matters other than the general wage increase have been resolved satisfactorily. Union representatives originally requested a wage increase of twenty percent in 1968 and the Authority originally offered a two and a half percent wage increase for 1968, to be followed by a three percent increase in 1969. The unresolved matter of wage increases was referred to a Conciliation Board late in March and the Board's report, dated May 29th, recommended a wage increase of six percent in 1968, to be followed by a further six percent in 1969.

The Union nominee to the Board declined to join in the report and instead recommended increases of nine percent and nine percent. The Union subsequently announced its rejection of the Conciliation Board recommendation, indicating that it would accept the minority recommendation of its nominee as an acceptable basis for settlement of the dispute. The Union has set a strike date for 8 A.M., Friday, June 21st.

The Seaway Authority, in announcing its decision not to go beyond the 6 percent and 6 percent recommended by the Board, points out that Seaway wage rates compare extremely favourably with those throughout Canadian industry generally, both as regards income levels and rate of increase. (St. Lawrence Seaway Authority)

1967 Annual Report

Ottawa, May 30, 1968: — The 1967 Annual Report of The St. Lawrence Seaway Authority, released to-day, indicates that, while traffic decreased due largely to a shipping strike and a reduction in wheat sales, 1967 was a year of improvement in service to users of the system.

Total cargo tonnage, which includes both bulk and general, decreased by about 10%. General cargo, however, recorded the highest tonnage in the history of the Seaway, amounting to 6.0 million tons in the Montreal-Lake Ontario section and 5.0 million tons in the Welland section, an increase of 8.6 and 6.7 per cent respectively over 1966.

Greater service was provided to Seaway users through a number of improvements in the physical facilities of the system and in the traffic control procedures. Using closedcircuit television and telemetry, centralized control at the Welland section has improved the scheduling of vessels and has resulted in substantial reductions in lock-cycle and round-trip transit times. It is being introduced with further refinements and improvements to the Montreal-Lake Ontario section.

In the spring of 1967, agreement was reached with the United States concerning the level and sharing of Seaway tolls. The agreement provides for the continuance of the existing schedule of tolls on the Montreal-Lake Ontario section of the Seaway, with an increase in Canada's share of these tolls from 71 to 73 per cent. The agreement also provides for lockage fees on the These Welland section. fees, amounting to \$20.00 per lockage, were applied at the beginning of the 1967 season. They will increase by \$20.00 yearly increments to \$100.00 per lockage in 1971.

The total toll income of the Authority was \$17.3 million, the same as in 1966. The combined net operating profit of the two sections of the Seaway before interest, was \$3.7 million compared with \$3.3 million in 1966. The combined net loss exceeded the comparable 1966 figure of \$13.28 million by \$50,000.00. (St. Lawrence Seaway Authority)

Fastest Ore-Loading Port

London: — By this autumn the Iron Ore Company of Canada will have the fastest capacity iron ore loading dock in the world at Seven Islands—it will be able to load ore carriers of 150,000 to 200,000 tons at a rate of 15,000 tons an hour.

The ore will be loaded by two travelling shiploaders, fed by conveyors connecting with the stockpiled ore. The 770-ft.-long dock will be built of concrete cribs, each weighing 5,000 tons, and sunk on to a prepared crushed dock mattress. A minimum draught of 60 ft. will be provided.

Design and supervision of the project is being done by the C. D. Howe Co., Montreal-based engineering consultants and specialists in bulk materials handling. Quebec Engineering Ltd., was awarded the first construction contract.

The project sums up the latest trends in the world iron ore industry, and also helps to etch out the likely future for the Lower St. Lawrence North Shore, a desolate region.

The great North Shore boom began at the start of the 1950s as markets emerged for millions of tons of the rich iron ore lying in the Quebec-Labrador Trough.

The Iron Ore Company, owned by a group of big U.S. steel firms with participation by the Hollinger-Labrador group, lesses of the properties, was the first in production.

Next came Quebec Cartier Mining (U.S. Steel Corp.) to the west of the now well-known Schefferville and Carol Lake mines of the Iron Ore Company. Cartier started shipping in 1961, and then Wabush Mines, in which the major interest is held by the Steel Company of Canada and Dominion Foundries, Hamilton.

The three North Shore ports east of Comeau Bay were all hewn mainly from rock and can take large oceangoing vessels. Because of the prevailing winds during winter, they are easily kept clear of ice.

Before about \$2 billion was spent on Quebec-Labrador iron development, Comeau Bay was a small pulp and paper town. Then in 1957 came the Canadian British Aluminium smelter and, more recently, the Cargil grain elevators.

To the east of Seven Islands is the port of Havre St. Pierre, from where the Allard Lake ilmenite ore of Quebec Iron and Titanium is shipped to Sorel.

In the early 1960s there was a tapering-off in the growth of world steel demand, particularly in the main U.S. and European markets, plus strong competition from new mines in Africa and Australia.

Iron ore producers of Quebec-Labrador, to keep up with technical developments in steel-making, turned to upgrading their ore and putting it through pelletising plants.

This trend to higher efficiency is continuing all the time with faster shiploading and other advances.

What is the future of the North Shore? While copper, nickel and other minerals may be developed in the hinterland and brought down to port for transportation to markets, the possibility of another big iron ore development in the Trough is unlikely.

This is because of the saturated state of world ore markets.

Further grain storage capacity could be built — possibly on both North and South Shores, but the investment has to be tied to the total volume being moved through the whole St. Lawrence system.

The South Shore's big advantage is its existing railway system and some transportation experts think the arrival of the unit-train concept may make elevators at Gros Cacouna or lower down economic.

Thus the lower St. Lawrence will depend in the foreseable future mainly on iron ore. (Lloyd's List, June 5)

Fruehauf Acquires PACECO

Alameda, Calif.:—Fruehauf Corporation has acquired Paceco, Inc. of Alameda, Calif., world leader in the design and construction of container, trailer and bulk commodity handling systems.

William E. Grace, president and chief executive officer of Fruehauf, said the assets and liabilities of Paceco were acquired by the issuance of 306,400 shares of Fruehauf's common stock. The acquisition is effective as of January 1, 1968.

Paceco, formerly Pacific Coast Engineering Company, markets its giant cranes and other cargo handling systems under the name of "Portainer," "Shipstainer" and "Transtainer." These units are used in the transportation field to load and unload container ships, piggyback trailers, and bulk commodities.

In business for over 47 years in the San Francisco Bay Area, Paceco also builds dredges, offshore platforms, barges, tugboats, hydroelectric cranes, gates and hoists, as well as custom equipment for general industry.

Paceco currently has approximately 600 employees in the United States. As a division of Fruehauf, its sales for 1968 are estimated to be in the \$20 to \$25 million range.

Grace said the acquisition of Paceco was a further step in the planned expansion of Fruehauf's Total Transportation goal of providing transportation equipment to each of the four modes . . . road, rail, sea and air. Fruehauf—headquartered in Detroit—is the nation's largest manufacturer of truck-trailers and the world's largest producer of intermodal shipping containers. (Paceco News)

Economic Impact Study

Baltimore, Md.:—Maryland Port Authority has authorized a study aimed at determining the economic impact of the port of Baltimore upon the state of Maryland.

The Authority has contracted with Dr. Stanley J. Hille and Dr. James E. Suelflow, professors of transportation in the College of Business and Public Administration at the University of Maryland, to conduct the study.

The study will determine both the direct expenditures made in the State for wages and salaries, services, materials, equipment and supplies, and local and state taxes as a consequence of the existence of the Port of Baltimore as well as the secondary effects of the above expenditures that can be attributed to the "muutiplier effect."

The study report will set forth separately the economic impact in terms of dollars per ton of general cargo and several categories of bulk cargo.

The report is scheduled to be completed by September 15, 1968.

The results of the study can be used to guide port development, to support requests for harbor improvements and to demonstrate the value of the port to the City and State. (Maryland Port Authority News Release)

Freezer at Pier

Boston, Mass.: — The Massachusetts Port Authority is completing plans to install a huge freezer at Commonwealth Pier.

The Authority has advertised the project for construction bids, and it is anticipated that a general contractor will be named sometime after the middle of March.

The freezer will be constructed as a joint venture with private businessmen, under the terms of a lease between the Authority and Pier Cold Storage & Warehouse Company. The lessee will amortize the cost of the freezer over a 20-year period.

Executive Director Edward J. King estimates that the cost of construction will be about \$1 million.

It will accommodate 11 million pounds of frozen food, and is expected to stimulate the importing and exporting of fish, meat and other food items through the Port of Boston.

Designed by Henschien, Everds & Crombie of Chicago, it will take some nine months to build. (The Port, MPA, February)

Begun in 1805

Los Angeles, Calif: — The first shippers to use the Port of Los Angeles were the Franciscan monks,

The Americas Tiles Landed in Oakland



When you get right down to it, working with tile can be fun, says pretty Joyce Donati, who displays some of the many VICO ceramic tile handled and distributed by Amsterdam Corp. Amsterdam has just opened a distribution center for the 11 Western States at the Port of Oakland's 9th Ave. Terminal and, according to West Coast manager Howard Johnson, handles enough tile each month to cover three football fields. States Line and d'Amico Line carry Amsterdam's cargoes, most of which are produced in Japan, England and Italy. (Port of Oakland)

who under the tireless efforts of Father Junipero Serra, built the Mission San Gabriel Arcangel forty miles from San Pedro.

By oxcart and with Indian labor, these monks trudged the forty miles across rough ground with loads of hides and tallow. In 1805 the brig "Leila Byrd," its holds loaded with cloth and sugar and household goods from Boston, dropped anchor at the Port. The monks took the cargo in exchange for the tallow and hides, and in a small adobe warehouse halfway between Point Fermin and Timm's Point, the transaction was noted—the first official record.

A hundred years later the ninemile long breakwater was completed and the little harbor became a fullfledged Port.

Today, the great Port of Los Angeles exceeds all other Pacific Coast ports in total cargo tonnage handled, a leadership established and maintained since 1923.

Those first exports of hides and tallow have been replaced with petroleum products, iron ore and minerals, and although cloth and sugar are still imported, they are last on the list headed by oil, steel and bananas.

One of the world's largest manmade harbors, the Port of Los Angeles encompasses more than 7,000 acres of land and water and represents on investment of \$200,000-000. (Port of Los Angeles News Release)

1968-69 Budget

Los Angeles, Calif.:—A \$22,226,-793 budget for operation and further development of the Port of Los Angeles during fiscal 1968-69, beginning July, was approved yesterday (Wednesday, June 19) by the Los Angeles Board of Harbor Commissioners. The budget will be financed entirely by Harbor revenues and construction bond fund income.

Estimated gross receipts from operation of the municipally-owned Port are again at an all-time high, with the figure of \$12,677,000 topping the previous year's projection, according to Harbor Commission President Gordon G. MacLean.

Receipts are expected to come from the following major sources:

Shipping services, \$7,463,000; land, building and wharf rentals, \$3,743,000; oil royalties, warehouses, terminal railways and concessions, \$675,000; and non-revenue reimbursements (sale of materials and services, deposits and miscellaneous non-operating revenue, etc.), \$796,-000.

Funds remaining from the current year and the revenue bond sale of 1965 totaling \$9,549,793, added to the above receipts, give the total budget figure, MacLean said.

Principal expenditures listed in the new budget are capital improvements, including construction bond fund projects, \$9,972,306; salaries, \$5,552,416; bond redemption and interest, \$2,367,743; materials, supplies, services and equipment, \$2,-614,238; and the unappropriate balance, \$1,000,000. (Port of Los Angeles News Release)

Coal, A New Export

New Orleans, La.:—Major export movements of coal from Oklahoma's newly-revived coal mining industry are taking place at the port of New Orleans.

The high-grade coking coal is be-

tities for use in manufacturing coke for steel production. Heretofore, most American coal destined for Japan was mined in northeastern states and moved through the port of Norfolk.

The new coal movement originates in mines owned by the Howe Coal Company at Howe, Oklahoma and is being imported into Japan by Sumitomo and Mitsui trading companies, which then supply the coal to several steel manufacturers. Current plans coordinated by the Japanese and American companies hopefully involve supplying Japan with 12 million tons of coal over a 12-year period. The port of New Orleans hopes to attract a major portion of the movement. The first 3,500-ton test shipment reached Japan in May.

The coal arrives at the port's Public Bulk Terminal via hopper cars of the Kansas City Southern Railway Co. and is moved by conveyor and dump truck to an open storage area, from which it will eventually be recovered by mechanized loaders and a conveyor system for delivery to bulk-carrier vessels.

Storage pads now in use for coal at the terminal offer a total capacity of 48,000 tons, with the possibility of more storage being developed in the future.

Ultimately, transportation costs are expected to be cut to a minimum as the movement develops by hauling the coal in unit trains madeup of 80 to 90 125-ton hopper cars. The mines at Howe are located within easy reach of the railroad.

It is expected that, with the opening of the Arkansas River navigation link with the Mississippi River, barge traffic will also play an important part in bringing coal from other mines as well as many other products of industry and agriculture from Oklahoma and Arkansas to the port of New Orleans. (Port of New Orleans Press Release)

Leading Port

New York, N.Y.:—The Port of New York continues to maintain its position as the busiest port in the nation according to 1967 figures for activities of ocean-going vessels. According to statistics recently released

Ben E. Nutter in S.F.



San Francisco, Calif., May 28:—Brig. Gen. William M. Glasgow, Jr., new South Pacific Division Army Engineer who assumes command in June, was recently welcomed by Ben E. Nutter, Port of Oakland Executive Director, at a Marine Affairs Conference luncheon in San Francisco's World Trade Club. The South Pacific Division annually oversees civil and military construction in five states totaling \$150 million, including key navigation projects. California ports coordinate their requests to Congress for funds through the Marine Affairs Conference, of which Nutter is a former chairman. (Marine Affairs Conference)

by the Maritime Association of the Port of New York, a total of 22,930 ship movements were reported for New York, representing 21.4 per cent of all ships arriving at or departing from the eleven major seaports of the United States during the last calendar year. Vessel traffic at New York was nearly 80 per cent greater than that reported for the second busiest port, Philadelphia. Both ports reflected a one per cent decrease in vessel activity in 1967 as compared with 1966.

Analysis of the types of vessels moving through the Port of New York reveals that 5,198 were tankers and 17,071 were in dry cargo trade. Another 661 were passenger ships. The largest number of vessels served the United Kingdom and northern Europe, with Norwegian-flag ships accounting for the most arrivals and departures. (Via Port of New York, March)

Bridge-to-Bridge Radio

New York, N.Y.:—In mid-April radio telephone communications for merchant vessels entering or leaving New York Harbor will become fully operational. This additional vessel traffic safety aid, termed "bridge-tobridge" in the trade, has been made possible by an agreement between the United New York Sandy Hook

The Americas

Pilots Benevolent Association and the United New Jersey Sandy Hook Pilots Benevolent Association and the leading shipping trade associations. The new system, considered especially valuable in reduced visibility and in relatively narrow, congested channels, calls for each of the 155 Sandy Hook pilots to carry a portable radio telephone set while performing his duties. Institution of the system to a large extent is due to the satisfaction of individual pilots with the equipment made available to them since 1964 by The Port of New York Authority for use aboard ocean-going vessels entering and leaving Port Newark and Elizabeth-Port Authority Marine Terminal.

Nearly 23,000 vessels enter or leave the Port of New York yearly, 95 per cent of which are piloted in and out by members of the two pilot associations. The port pilots will talk to each other from ships' bridges on 156.65 megacycles. In addition the sets will have second frequency—156.9 megacycles—to be used, with some limitations, as a "house" channel for pilot communications with their own headquarters.

The bridge-to-bridge communications system supplements, but does not replace, the recognized signals by lights and whistles and the established steering rules. Since the Sandy Hook pilots guide most of the large ships into and out of the port, application of the new system will be virtually all inclusive. (Via Port of New York)

Go For Pallets

Philadelphia, Pa.: — Expanded service to handle cargo in whatever form it is presented for export has been announced by four lines serving the Ports of Philadelphia.

Stuart J. Sobelman, president of B. H. Sobelman & Co., Inc., Philadelphia agents for the companies, listed them as the Maersk Line, Finnlines, Concordia Line and Columbus Line.

According to Sobelman, efforts are being made to provide ships that can handle cargo in whatever form it is presented with the variety of accommodations being offered to best serve the interest of the cargo owner.

He feels, however, that the long range interest of shippers will best be served by concentrating on a unitization system of handling cargo with emphasis on palletization. "As in any situation, generalization is dangerous. But we must recognize that some cargoes lend themselves to containerization and others to different kinds of packaging," Sobelman states.

He calls unitization "the key to cheaper ocean transportation." It permits one man using a forklift truck to move tons of cargo quickly, saving money at both the plant and the dock. When this is combined with vessels that have flush decks where forklifts stow, load and unload cargo and vessels with sideports for easy access to cargo areas, it presents a new concept in cargo handling.

Sobelman also makes the point that most warehouses are equipped to handle palletized cargo moved by forklifts. (DRPA Log)

Maritime Day

San Diego, Calif.: — National World Trade Week and Maritime Day abservances in San Diego last week were termed "highly successful" by individuals and organizations who took part in the two-fold program of boosting America's place in the world trade community.

Don L. Nay, Port Director, said the open house at Tenth Avenue Marine Terminal May 19 was the "most successful" event of its kind at San Diego, and that a Maritime Day luncheon May 22 was a followthrough success.

Port officials estimated attendance at the terminal open house at "a conservative 8,000 persons." Visitors consumed 30 gallons of coffee, large quantities of doughnuts, and wore down Sea Scouts and members of the Port staff who acted as guides through the terminal facilities.

The Maritime Day luncheon featured Henry Roloff, executive secretary of the Pacific Coast Association of Port Authorities. Jointly sponsored by the Port of San Diego and the Propellor Club, San Diego Chapter, the program drew an estimated 250 civic and business leaders.

Postmaster Ralph S. Colonell, master of ceremonies, reminded luncheon guests that the city's mail trucks also are helping the maritime observance with mounted Maritime Day posters that carry the slogan, "America's Ships Deliver the Goods."

August Felando, Propellor Club president, presented a brief explanation of the significance of Maritime Day. Roloff, who spoke on the importance of export trade to the economy of the West Coast and activities of the PCAPA in stimulating trade through western ports, was introduced by Nay. (Port of San Diego Newsletter)

Illustrated Atlas

San Francisco, Calif.:—The first "atlas" to promote trade with Golden Gate ports is being published by the Marine Exchange. "Every other major port complex in the United States—in fact in the world —has such an atlas, handbook or directory" said Gen. Tripp, Promotion Committee Chairman of the Marine Exchange, "so it has been a serious gap in our sales arsenal".

Over two years in planning, the Golden Gate Atlas will cover all regional ports: San Francisco, Oakland, Sacramento, Stockton, Redwood City, Alameda, etc. It will detail port facilities and services, plus air, truck, and rail transportation. There will be special sections on oceanography, the "Big Ditch" project and a comprehensive background survey of the economic growth and future of the entire area.

"Our work at the Marine Exchange is not merely to encourage more ship traffic, but also to inform businesses and nations around the world of what our entire Northern California economy offers in terms of facilities, services, products and investment opportunities", said Tripp. "The purpose of the Atlas is to get that information into the hands of American industry elsewhere in the nation and key agencies and firms abroad."

The Atlas will contain over 150 pages with extensive photographs, maps and illustrations. It is scheduled for publication this Fall. (Marine Exchange of the San Francisco Bay Region)

New Grain Terminal in Seattle



This is an artist's sketch of the proposed export grain terminal and mile-long marine view drive, looking north toward the Naval Supply Depot. Nearly three miles of rail trackage would be installed by the Great Northern Railway (center).

New Grain Terminal

Seattle, Wash.: — Construction of the Port of Seattle's new \$13-million grain terminal got underway officially Friday morning, April 19, when U.S. Senator Warren G. Magnuson dumped the first of 1.8 million yards of fill at the Pier 86 site. Senator Magnuson spoke briefly at the informal outdoor ceremony attended by officials of the Port of Seattle and Cargill, Inc., before activating the dump truck's mechanism for the symbolic first load.

Port engineers estimate that more than a year will be required to complete the fill for Pier 86, which will be located on the northeast corner of Elliott Bay, near Smith Cove. Completion of the five-millionbushel terminal is slated for 1970.

Features of the grain terminal include unloading facilities for rail cars and trucks, rail-car marshaling yards capable of holding up to 300 of the new 100-ton cars, a ship-loading rate of 3,500 tons per hour and water depth at the berthing area of 70 feet, more than enough for the largest grain ship afloat or being planned.

In conjunction with the construction of the grain-export facility, the City of Seattle plans a mile-long marine drive bordering the shore of Elliott Bay, offering visitors an unobstructed view of the grain terminal operations and Elliott Bay activities.

Prior to the shoreside program, Senator Magnuson took a tour of Port of Seattle docks on board the yacht "Thea Foss," provided by the Foss Launch & Tug Co. Hewas accompanied by Port Commissioners and officials affiliated with maritime organizations and firms. Among the latter was Walter B. Saunders of Minneapolis, vice president of the grain division of Cargill, Inc. Cargill leases the Port's present grain facility at Pier 25 and will operate the new Pier 86 terminal.

Terms of Lease

The lease of the yet-unbuilt Pier 86 facility to Cargill has been finalized for a term running 20 years

Asia-Oceania

plus six five-year extensions.

The Port of Seattle will receive \$600,000 a year rent for the \$10million elevator, more if construction costs of the facility exceed \$10 million.

Cargill will also pay \$60,000 annually in taxes on the facility.

Under its current lease of the Hanford Street Grain Terminal, the Port receives an annual \$285,000 in rent from Cargill. However, with the completion of the new facility, Cargill plans to double its annual grain shipments out of the Port of Seattle. (Port of Seattle Reporter, May)

Record Wheat Loading

Fremantle: — Of the millions of bushells of bulk wheat exported from Western Australian ports each year, approximately half is shipped through the Port of Fremantle.

During the year 1966/1967 nearly 1,400,000 tons (52.3 million bushells) of bulk wheat were loaded at the port, and this figure could well be exceeded in the current year as more than 400,000 tons were loaded during the quarter ending on 30th September, 1967.

During this period a Western Australian record was established when the bulk carrier "Chennai Perumai" loaded 36,100 tons of wheat in 24 hours of working time, averaging 1,504 tons per hour, while in the same week four ships loaded full cargoes totalling 110,000 tons, a fifth ship topped up with 2,373 tons and a sixth was ready to move under the loading spouts of the grain gallery.

The last-mentioned ship, the Israeli bulk carrier "Har Castel", topped up with 9,020 tons of wheat additional to the 27,624 tons loaded in an Eastern States port, and left the Port of Fremantle carrying an Australian record cargo of 36,644 tons.

On departure, the draft of the "Har Castel" was 34'6" fore and aft which with a two-foot tide gave the ship a clearance of 3'6". This is the minimum depth of water under the keel permitted within the Port's Inner Harbour where a minimum of 36 ft. of water is provided.

The Port of Fremantle is well

equipped for the loading of bulk grain, with its deep water and modern facilities for the rapid loading of large bulk carriers by means of transfer and shipping galleries drawing grain from a 4,000,000 bushell capacity terminal constructed in close proximity to the loading berth.

The grain terminal, completed in 1964, substantially replaced horizontal grain storage sheds formerly used for this purpose, the terminal incorporating the original hospital silo in its construction and operation. This modern installation with its ancillary facilities has greatly increased the grain handling potential of the Port. (Port of Fremantle Quarterly Journal)

Mobile Conveyors

Sydney:—The Maritime Services Board has let a \$160,000 contract to Buck Industries Pty. Ltd. for the construction of two mobile conveyers.

The conveyers will be for use at the Ports of Newcastle and Sydney.

In announcing this, Mr. W. H. Brotherson, President of the Maritime Services Board, said that the loaders will be capable of being towed through the streets from wharf to wharf and they will have a capacity to load certain types of bulk cargoes at rates of up to 600 tons per hour.

They are also capable of loading bagged products and the Board anticipates that there will be considerable demand for their use in the two ports.

It is expected that the first of the two loaders will be available for use by October and the second by December of this year. (The Maritime Services Board of N.S.W.)

Iron Ore Pellets

Tokyo: — The first commercial shipment of iron ore pellets to be made by an Australian producer has left the port of Dampier in Western Australia. Some 69,000 tons of pellets made at Hamersley Iron Pty. Ltd.'s new plant at Dampier were loaded into the Yashimasan Maru and the ship sailed April 2 for Japan.

It was the 140th cargo dispatched

from Dampier since iron ore shipments began in August 1966.

The consignment of pellets will go to Yawata Iron and Steel Co., Ltd., under a contract to supply six major Japanese steel mills with 17,-900,000 tons of iron ore pellets over a 10-year period.

When the contract was signed in August 1965, Hamersley Iron agreed to make the first shipments in April 1968.

The new plant at Dampier has a production capacity of two million tons of pellets a year and was officially opened March 15. (Japan Times)

Haldia Port

Calcutta:—Indian engineers have begun work on a vast new port at Haldia, in West Bengal, which will double cargo capacity in the Calcutta area.

Designed as a sister-port to Calcutta, and under the same port authority, Haldia will handle deepdraft vessels of up to 60,000 tons which cannot cross the sandbars of the Hooghly River to reach Calcutta.

It will also save other shipping runs of two to three days up and down the river, and delays in overcrowded Calcutta.

The port at Haldia, 65 miles downstream from Calcutta, will be ready by 1970-71, with a capacity of 10 million tons of cargo a year the same amount Calcutta now handles.

The Haldia project will see the fulfillment of an idea first considered more than half a century ago when it became evident that the silting up of the Hooghly River and the overcrowding of the port and city of Calcutta demanded a drastic alternative, either through the construction of a giant ship canal from Calcutta downstream to the point known as Diamond Harbor, or through the selection of a new port site.

Haldia will be an important new outlet for northeastern India to the Bay of Bengal.

Together with Calcutta, it will serve a hinterland of 500,000 square miles with a population of 180 million ranging from the tea and jute (Continued on Next Page Bottom)

Port of Yokkaichi, Japan Eyes 35 Berths

Yokkaichi, Japan:—They Yokkaichi Port Administration Association (YPAA) has come out with a ¥72,-

areas of Assam and West Bengal, to the landlocked Himalayan states of Nepal, Sikkim and Bhutan; and from the agricultural plains of Uttar Pradesh to the industrial area of Bihar, West Bengal and Orissa with its rich coal and iron mines, and engineering products.

For the Haldia site, the Indian Government has bought a 20 square miles of agricultural land on the west bank of the Hooghly, where the river runs wide and straight to the sea.

Work has begun on the main dock basin which will have seven berths, to handle coal, iron ore, fertilizers and chemicals, grain and general cargo.

An oil jetty has already been built to unload tankers and to pump crude oil through a pipeline to the state-owned refinery at Barauni, 350 miles away in Bihar.

Ultimately, Haldia will have its own refinery.

Over the next 20 to 25 years Haldia will be developed into an industrial city and port of 3 million people.

It will ultimately be capable of handling four million tons of coal a year, revolutionizing the coastal traffic which carries the coal of northern India to the industries of the south.

It will also be capable of handling two to three million tons of iron ore, up to 5 million tons of oil, a million tons of rock phosphates and a million tons of other cargo.

At the same time the city will act as a countermagnet to Calcutta, to relieve its urban congestion as well as port traffic. (Japan Times) 400-million master plan for the development of the Port of Yokkaichi into as big a trading port as that of Nagoya with a total of 35 berths.

The association at the same time mapped its third five-year plan (fiscal 1968 \sim fiscal 1972) with a budget of ¥18,900 million.

Both plans will be submitted to the Council for Ports and Harbors in June after obtaining approval of the Mie Prefectural Assembly and the Yokkaichi Municipal Assembly.

According to YPAA officials, their master plan is in line with the anticipated growth of sea cargoes in and around the Bay of Ise in the decade ahead.

Specifically, they said, shipments from ports within the bay are estimated to total 340 million tons in 1985—more than five times as much as the present 63 million tons.

And out of this total, as much as 110 million tons as compared with the present 22 million tons will have to be handled by means of public pier facilities within the bay.

With this in view, the officials said, their new master plan calls for expanding the port's cargo marshaling capacity to about 20 million tons a year by fiscal 1985.

This would mean that Yokkaichi will cease to be only a subport to the Port of Nagoya and take rank as one of the key ports within the Bay of Ise, they said.

According to the plan, the land needed for the port's expansion will mostly be reclaimed from the sea in the Kasumigaura and the Asake areas in the outskirts of the city.

Specifically about 3,430,000 square meters of land will be reclaimed at Kasumigaura and an additional one million at Asake for construction of public pier facilities with a total of 26 berths.

Besides, the port's two key sealanes — No. 1 and No. 2 will be expanded and two additional lanes will be established. One huge breakwater each will be laid out for vessels moored at Kasumigaura, Asake and Azuma at the same time.

All these projects are to be completed by fiscal 1980.

Under the port's next five-year development plan, which will be part of the long-range master plan, the Kasumigaura reclamation project will be carried forward for construction of a four-berth Kasumiga-



Port of Yokkaichi

Asia-Oceania

Container Crane in Tokyo Port



ura Pier by its target year (fiscal 1972).

Besides, the port's No. 1 lane will be widened from the present 200 meters to 300 meters. Simultaneously, another lane or the port's third with a breadth of 300 meters and a water depth of 12 meters will be cut through. (Shipping and Trade News)

Better Container Crane

Tokyo:—IHI (Ishikawajima-Harima Heavy Industries Co., Ltd.) of Japan recently completed a container crane with a hoisting load of 30 tons, at the container terminal at Shinagawa pier in Tokyo Bay.

For efficient handling of containers, it is necessary to carry a container to the appointed position accurately, therefore the swaying caused by ropes during the handling of containers has to be reduced. The new container crane employs a unique sway-damping device which was also developed by IHI to handle this problem.

With its unusual form of ropesuspension and a simple transmission mechanism consisting of gears and clutches provided on the hoisting equipment, each sheave interferes with the other's revolutions caused by swaying, thereby causing a strong damping effect against swaying.

Although the device does not require any power source, and is almost the same as the conventional hoisting equipment in its shape, weight and cost, its sway-damping effect is exceptionally high. In addition, it is possible to tilt the hoisting equipment in accordance with the list of a ship, or to slew it, thereby greatly facilitating container handling operations.

IHI is the largest crane maker in Japan and the products manufactured to date number over 9,000 units and include approximately 150 varieties.

Port Charges Opposed

Tokyo:—The Japanese Shipowners Association (JSA) and the Japan Tanker Owners Association (JTOA) will ask the Okayama prefectural government not to enforce a prefectural ordinance imposing a ¥4 per ton fee on ships for and above 5,000 gross tons entering the Port of Mizushima.

Fujio Yoneda, vice-president of JSA, and Sanpei Yamaji, president of JTOA, are scheduled to visit Okayama City June 10 to hold talks with Governor Takenori Kato.

The Okayama prefectural assem-

bly has enacted the ordinance.

In an area adjacent to Mizushima port a big petrochemical industrial center was built and the number of large-size tankers entering the port is increasing.

Shipping circles have staged a campaign against the ordinance on the grounds that imposition of the fee will be a big blow especially to tanker operators.

The eight major ports of Tokyo, Kawasaki, Yokohama, Nagoya, Osaka, Kobe, Shimonoseki and Kita Kyushu have planned to impose a per ton entrance fee of ± 2 for and above ships of the 500 gross tons class.

Shipping circles also opposed these plans because they now pay the tonnage dues as well as the special tonnage dues and payment of an additional fee will adversely affect their business.

The port authorities are pushing preparations for early imposition of the entrance fee to cope with a rise in expenses for operation of the ports.

The eight ports are stipulated as "specific ports" in the Port and Harbor Law, and as such they are required to seek approval by the Transport Council, an advisory organ to the Transport Minister, for putting into practice the plan to impose the fee. (Shipping and Trade News)

CTS's Favored

Tokyo:—The Ministry of International Trade and Industry plans to construct 16 central terminal stations (CTS) for imported petroleum in various parts of the country.

These stations will be capable of storing 7 million kiloliters of crude oil that would be enough to meet the nation's requirement for 15 days.

At present, Japan has a storage capacity equivalent to 45 days' supply. When all the 16 stations are completed, the country will be able to keep a 60-day stock of crude oil.

The ministry considers the increase of the crude oil storage capacity is vital in view of the operation of super-tankers expected in the near future.

Japan imports 99 per cent of its domestic consumption of crude oil, most from Middle East countries, where the political situation is not always stable.

The construction of central terminal stations, the ministry believes, will insure a steady supply of lowcost crude oil.

MITI plans to offer positive assistance to private oil firms by giving them special tax privileges and other forms of financial help. (Japan Times)

All Time Record

Chittagong:—An all time record was created by the Chittagong Port Trust in the month of April, 1968 in handling the highest volume of Imports and Exports through the Port in one month. The Port handled 412,972 tons of traffic as against the previous record of 403,706 tons, created in the month of August, 1965.

Considering that at the time of Partition, the Port could handle only 0.5 million tons per annum, we certainly have gone ahead. This has been possible due to co-ordinated efforts of staff, officers, dock labour and the Users of the Port. Our target on completion of Tihrd Five Year Plan is 6 million tons per annum. (The Chittagong Port Trust, Port Bulletin)

New Lighterage Berths

Karachi:-1. The Minister for Defence, Home and Kashmir Affairs, Government of Pakistan, Vice-Admiral A. R. Khan, H. Pk., H.J., H.Q.A. commissioned the 1,200 feet long New Lighterage Berths in the Port of Karachi at an impressive and colourful ceremony on the evening of Wednesday, the 3rd April, 1968. The function was attended among others by the members of the Diplomatic Corps, high Government and Military Officials, Trustees and Officers of the Karachi Port Administration, and the elite of the city. The New Lighterage Berths have recently been completed under the Second Karachi Port Project and are the first addition to the Port's dry cargo handling facilities since Independence (1947).

2. Presenting the address of Welcome to the Defence Minister, the

Chairman of the K.P.T., Commodore Mahmud-ul Hasan, S.K., T.Pk., P.N., highlighted the streamlining of the Port and Shipping Sector under the dynamic regime of President Feild Marshal Mohammad Ayub Khan, explained the phenomenal increase in traffic at the Port from about 7 million tons in 1966 to over 9 million tons in 1967, and outlined the manner in which the Port met the challenge by working round the clock, and effectively utilizing all possible resources and facilities, to the admiration of the shipping and commercial world at large. The K.P.T. Chairman also described the new scheme launched by the K.P.T. Administration for meeting the immediate short term requirements of the Port, and phased programme for major developments in the Western Backwaters as an eventual solution for the Port's future requirements.

3. The rapid rate of economic growth generated in the country during the decade of Reforms and Development has resulted in an enormous increase in the volume of traffic handled at the Port of Karachi. The traffic which was about 4 million tons in 1958 has increased to more than 9 million tons during 1967; the major rate of increase having occurred during the last two to three years. The K.P.T. Administration has, therefore, launched a number of schemes during the Second and the Third Five-Year Plan periods to meet the increased volume of traffic. These schemes aim to remodel, modernize and increase the cargo handling facilities and in consequence the capacity of the Port.

4. One of the most important and major scheme launched during this period is the Second Karachi Port Project, which envisages not only the renovation and reconstruction of old Port facilities, but also the provision of new and additional facilities within the harbour waters. This project comprises of the following six schemes:—

- (i) Construction of a new Bulk Oil Pier to accommodate oil tankers of upto 32,000 tons capacity.
- (ii) Widening of one mile length of the main shipping channel

from 600 feet to 1,100 ft. and deepening from 29 ft. to 34 ft. below low water, and the reclamation of foreshore land with the dredged spoil.

- (iii) Reconstruction of the remaining 4 East Wharves berths—
 No. 1 to 4—on modern and uptodate lines to accommodate not only cargo vessels, but also passenger liners.
- (iv) Construction of 3 additional deep water berths with all requisite facilities for cargo handling at the West Wharf —one berth provided with a passenger terminal for Intercontinental passenger lines. This scheme also includes the construction of 2 lighterage berths.
- (v) Rehabilitation of Manora Breakwater by providing large size precast concrete armour blocks.
- (vi) Preparation of a Master Plan for the future expansion and development of the Port during the course of next 25~ 50 years. (K.P.T. News Bulletin)

Record Traffic

Karachi:—About 8.5 lacs tons of cargo was handled in the Port of Karachi during the month of January, 1968. This constitutes a Record as the tonnage is the highest ever handled in any one month in the Port; the previous highest figure being about 8.2 lacs tons which was handled in the month of March, 1967.

The breakdown of the figure for January 1968, is as follows:—The Imports—Wheat: 167,371 tons: Fertilizers: 65,889 tons; Coal and Coke: 8,235 tons; Crude Oil and Petroleum products; 270,127 tons; General cargo: 127,306 tons— totalling to 638,928 tons. The Exports—Cement: 64,139 tons; Rice: 23,446 tons, Salt: 6,084 tons, Petroleum products: 28,600 tons; General cargo: 82,462 tons—totalling to 204,731 tons.

Since July 1967 to the end of December, 1967 the port had already handled about forty lacs tons of cargo. (K.P.T. News Bulletin)

Clyde Port Authority

Summary of Chairman's Report, Review for 1967 and the Annual Accounts

Glasgow, 23rd May, 1968:—The consolidated accounts show a surplus on the revenue of some £481,-550 which is considered satisfactory having regard to the present trends of traffic and the interest charges of over £1 m with which the Authority is burdened. This surplus has been achieved mainly by savings in expenditure. A loss of revenue of some £36,000 resulted from the application of the new Merchant Shipping (Tonnage) Regulations 1967 which is reflected in the reduced income from ships' dues.

During the year considerable progress was made on the various projects with which we are involved, the principal one being our Container Terminal at Greenock, the construction of which is proceeding satisfactorily. The Terminal is planned to be operational later this year by which time the Inland Clearance Depot at Braehead will be completed. This Customs approved clearance depot will be operated by a new Company, Clyde Container Services Limited, a consortium in which the Clyde Port Authority has the major shareholding.

The decasualisation of dock workers, which was introduced on 18th September, resulted in a smooth transition in the Clyde area and our reputation for labour relations and reliability of service has been further enhanced and is now second to none in the United Kingdom.

The major project completed during the year was the 80,000 tons extension to Meadowside Granary built at a cost of £1,525,000. This extension has enabled the granary complex to provide a quick discharge and consequently a speedy turn-round of vessels and has earned the reputation for being the fastest grain discharging unit in the United Kingdom. Additional facilities were provided at Yorkhill Quay for container handling and at King George V. Dock where an excellent new shed 390 ft. long with a clear span of 150 ft. and sited 100 ft. back from the cope, was erected at Berth 10.

Prince's Dock reconstruction included the installation of 20 new electric hydraulic level luffing portal cranes and new facilities to cope with the increasing strip steel exports were provided at Shieldhall Riverside Quay where a new 25-ton heavy lift crane was brought into commission.

Future Developments

In the latter part of the year the Authority reviewed the port facilities at Greenock with a view to determining the best use of the various dock areas in the future. In the review, cognisance was taken of the considerable importance of the shipbuilding and shiprepairing industry to the economy of Greenock. The policy of rationalisation and streamlining the whole organisation and administration continued throughout the year and the benefits of management accounting, organisation and methods and work study techniques applied throughout the Undertaking are now beginning to show in the form of increased efficiency in operation and savings in costs.

Staff training throughout the Authority was increased and now forms a vital part of the functions of the Personnel Section. The year

Ambulance Copter

Antwerp: — Owing to the extension of the port area, the time required for the transportation of injured workers to the hospitals by ambulance has become too long. Therefore the use of helicopters has been planned.

The "Caisse Commune d'Assurances du Batiment, du Commerce et de l'Industrie", an insurance organization which operates a clinic for injured workers, and with which more than 50% of the dockworkers are affiliated, is building a helicopter platform on the roof of its new premises. This platform, a metal con-

(Continued on Next Page)

saw the inauguration of an Employees' Liaison Committee and also the setting up of an internal newsletter—"The Trident"—which helps to provide a vital link towards a better understanding of the problems to be faced by both management and workpeople.

One of the most significant achievements in 1967 was the attraction of Murco Petroleum Limited to the Clyde, due to the existence of our natural deep water. It is the Authority's intention to exploit the deep water facilities available in the Clyde Estuary and to this end the Clyde Estuary Development Group has been formed representative of the Port Authority, the Local Planning Authorities and the Scottish Office.

The Authority have acquired Ardrossan Harbour Company which ensures an integrated port control of the whole Clyde area and are now promoting legislation to extend their jurisdiction to include all the likely industrial development areas in the Firth.

The following is a summary of the statistical and financial results for the year:—

Total net registered tonnage of shipping using the Port $= 10,717,9$	988 1	n.r.t.
Total tonnage of goods (imported and exported) 11,507,5	602 t	ns
Consolidated revenue £5,406,5	54	
Consolidated expenditure £3,845,	20	
Operating Surplus £1,560,8	34	
Interest Charges £1,079,2	84	
Consolidated surplus for the year \pounds 481,3	50	
Provision for extraordinary repairs and renewals £ 300,0	000	
Net surplus £ 181,5	50	

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struction of some 70 tons, has a surface of 625 square meters.

The city authorities are also planning the use of helicopters. Reportedly a first helicopter of the "Bell Jet Ranger" type will be rented from "Brussels Airways", a company located in the capital. This type of helicopter can transport two wounded persons and a passenger. (Antwerp Port News)

Container Service in

Action

Liverpool:—The £1 million Gladstone Container Terminal became operational today (Wednesday, 1st May), when the specially equipped container ship "Estremadurian", operated by Ellerman and Papayanni Lines, inaugurated the Company's new weekly container ship service to Portugal. She loaded containers for Oporto and Leixoes from the South Berth of the Terminal.

The South Berth, equipped with a 50 ton quayside crane and serviced by the first of 6 Clark Van Carriers and a Lancer Boss side loader for container handling, is fully capable of accommodating all the container services which are due to commence in the immediate future.

The "Estremadurian" will be followed on the berth tomorrow morning (Thursday May 2nd) by the U.S. Lines ship "American Veteran", scheduled to load containers for ports on the East Coast of the U.S.A.

The Gladstone Container Terminal will become fully operational in July with the commissioning of the first of two Stothert and Pitt 35 ton container cranes on the North Berth. These cranes are now in course of erection and the remaining Clark Van Carriers will be delievered in the course of the next two months. (Mersey Docks and Harbour Board)

Ships' Gear Show

London: — Ships' Gear International '68 sponsored by the British Marine Equipment Council is to be held at Olympia, London, July 29 through August 2, 1968.

Ships' Gear International 1968

will be the most important international technical exhibition of ships' gear equipment and materials.

In the first presentation in 1966 over 150 exhibitors from 11 different countries occupied 40,000 sq. ft. of stand space. In 1968 a vastly increased number of exhibitors will occupy over 70,000 sq. ft. The exhibition will show the latest and best in ships' equipment and materials.

In conjunction with the exhibition there will be a technical symposium at which the most forward thinking projects in marine subcontracting will be discussed.

Humber for 200,000T

Tankers

London, June 13:—Design modifications to the £3 M marine tanker terminal now under construction at Immingham which are to be carried out by the British Transport Docks Board will next year make it possible for partly-laden 200,000ton tankers to berth there, it was announced in London today.

These vessels will be able to reach Immingham carrying cargoes of up to 135,000 tons of oil on a draught of 42 ft.

The additional work which is expected to cost approximately £375,-000 has been requested by Humber Oil Terminals Trustee Ltd., (jointly owned by Continental Oil (U.K.) Ltd., Petrofina (Gt. Britain) Ltd., and Total Oil Great Britain Ltd.) who will lease and operate the terminal for three major oil companies with refineries nearby.

The modifications are needed to strengthen the dolphins and increase the energy-absorbing capacity of the fenders at No. 1 Berth to cope with the greater berthing impact of 200,000-ton vessels compared with that of 100,000-ton tankers. It has been estimated that a glancing blow from one of these giant vessels represents a force of about 500 tons against the berth.

No additional dredging will be necessary, the depth alongside the berth of 55 ft. at M.L.W.S. being adequate for the deepest draughted ships able to enter the estuary. (British Transport Docks Board)

Foresight in Planning

Bremen:-Simultaneous clearance of ten fully containerised ships, including heavy freighters of 100,000 deadweight tons, is the target of the Bremen ports' latest extension phase, scheduled for completion by 1970. At the present time the installations built so far can already cope simultaneously with seven container ships-three in the Neustadter Port, one in the Overseas Port in Bremen and three others in Bremerhaven. This does not include the semi- and part-containerised ships of German and foreign companies which do not require any special handling equipment.

Following enlargement of container installations in Bremen, extension operations are now concentrated on Bremerhaven, where an open 700 metre long quay facing the river is under construction complete with the necessary container overheads, road and rail connections and other facilities. Three 100,000 dwt vessels will be able to berth here. Together with the container installations already in operation in the "Nordhafen" - an inner basin independent of tides-the new river quay will form an overall complex: the Container Terminal Bremerhaven. The area between the two points will then amount to 480,000 square metres and include a packing centre, automobile yard, administration and clearance buildings and extensive open surface space. The installations are intended for use not only by container traffic, but also other modern transport methods, such as roll-on/roll-off and palette services. All these types of transport require extensive traffic space, which is already being created in Bremerhaven for the future. There is room for extension to a reserve area totalling some two million some two million square metres.

According to an examination carried out by a neutral body, Bremen/ Bremerhaven is the only European port served by three fully containerised lines on the U.S.A. run. All together ten full container vessels discharge and take on large-calibre containers every month in growing numbers at the Bremen ports' spe-

Europe-Africa

cial installations.

This leading position is due to the fact that Bremen, as Georg Borttscheller, Senator for Ports, Shipping and Transport, pointed out, in 1966 already built the first special installations for container traffic. Then, as now, Bremen was planning for the future. (Bremen Air Mail)

Hamburg Show

Hamburg:—An international exhibition dubbed "Container and Combined Transport" is to be staged in Hamburg October $3\sim7$, 1968, a folder from Hamburg announces.

Combined transport will be comprehensively presented on the Planten un Blomen exhibition grounds-through excursions to the port (roll-on/roll-off traffic), to the container terminal at Burchardkai (Europe's largest container loading berth, loading and unloading of containerships) and to the modern air freight hall at Fuhlsbuettel. Firms with world-wide reputation will demonstrate the latest technical developments.

Another exhibition, Ship and Machine International, to be held concurrently, will become an international information forum for shipbuilding, shipping and combined transport.

At another feature of the Exhibition, International Container Conference Hamburg, well-known experts from Europe and overseas countries will lecture on problems connected with combined transport. There will be opportunity for open discussion.

Hamburg and Finnlines

Hamburg: — From May on the Finnlines will be employing allround ships in their North America East Coast service and on the voyage out make Hamburg the only port of call. The vessels will be dispatched at the central Container Terminal on Burchardkai operated by the Hamburger Hafen- und Lagerhaus-Aktiengesellschaft. This news was given by Director General Piironen at a press conference in Hamburg of the OY Finnlines Ltd., Helsinki, and the above port operating group. According to Piironen, the reason for his company's decision was the satisfactory development of its service started around ten years ago from the Port of Hamburg.

Hamburg had, so to speak, become the second European home port of the Finnlines, Mr. Piironen said. The fast and reliable dispatch and the large amount of high-grade general cargo available was one of the main reasons for the Finnlines to foster cooperation with Hamburg for the future as well.

The shipping line will convert their cargo vessels "Finneagle", "Finnclipper" and "Finnforest", first put into service in 1962 and 1963, into "allround ships" for the transport of containers as well as other unit loads and conventional general cargo. They will be cut at hold No. 3 and lengthened by a new section around 14.7 metres long. Together with hold No. 3 this section will be constructed as an "open ship". Two modern ship cranes of 35 tons lifting capacity each will handle one container within six minutes. 84 40-ft. containers or a corresponding number of smaller ones can be accommodated in the "open space".

Director Werner Schroder of the Hamburger Hafen- und Lagerhaus-A.G. said that Hamburg appreciated the Finnlines as a good and understanding partner. Since 1958, the company had developed their Hamburg service rapidly so that now weekly sailings are offered to the North American east coast. The fact that from the beginning a direct service had been instituted between Hamburg and New York showed the importance the Finnlines had always attached to Hamburg as a continental port of call and supplier of cargo from an extensive European hinterland. The cooperation, proved and tested in the past, should now ---in face of the fundamental change in the structure of transport - be continued with new methods.

The new Finnlines "allround vessels", which will carry general cargo of all kinds as well as a considerable number of containers, Schroder continued to say, supplemented in an excellent way the all-container ships of the United States Lines shortly to sail from Hamburg, those of the Hamburg-American Line and the North German Lloyd, as well as the combination general cargo/container vessels of the Meyer-Line.

On the voyage out, the Finnlines will take over containers once a week in Hamburg exclusively and transport them to New York and outports. The allround ships will be dispatched at the central Container Terminal on Burchardkai. It is already proving to be of advantage that from the beginning this facility was designed for combined traffic at berths 1 and 2 and for all-container ships at berths 3 and 4. In this way it is possible to largely concentrate container traffic in one area of the port, with the land carriers, the shipping companies and cargo handling firms benefitting from this centralization.

In spite of the winter season, extensions to the Container Terminal are going ahead rapidly. In a matter of weeks berth No. 3, including 20,000 sq. metres of paved-in area, will go into service. The construction of the quay wall for berth No. 4 has been commenced, and the erection of the second 45-ton container handling bridge will start in May. (Ship Via Hamburg)

Second Container Show

Genoa: — The Second International Container Exhibition sponsored by the International Fair of Genoa is scheduled to be held in the Genoese Fairgrounds from October $19\sim27$, 1969. The first was held October $19\sim21$, 1967. (Fiera Internazionale di Genova)

Barcelona News

In January last, the Compania Trasmediterranea inaugurated a new quick service between Barcelona and the Canary Islands with the vessels "Ciudad de Compostela" and "Las Palmas de Gran Canaria".
Among the export goods of ever growing importance are Spanish made shoes. Large amounts were embarked in our Port during January mainly for Cuba, Russia, United States, Yugoslavia, etc.

Likewise the exports of trucks and industrial vehicles mainly for South and Central American countries are also increasing. (Puerto de Barcelona Boletin Informativo)

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