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Vancouver

(Vanterm)

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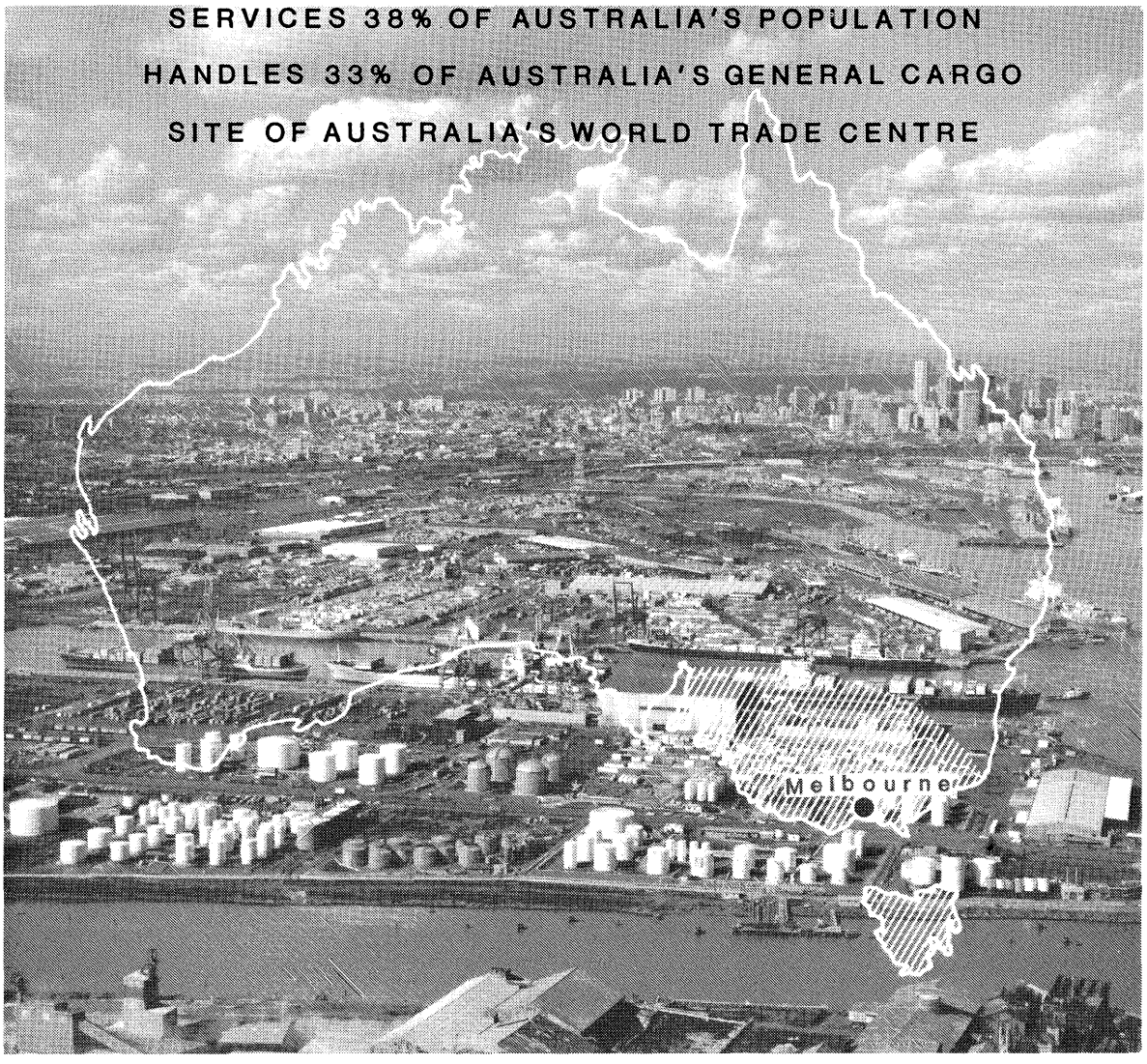
PORT OF MELBOURNE



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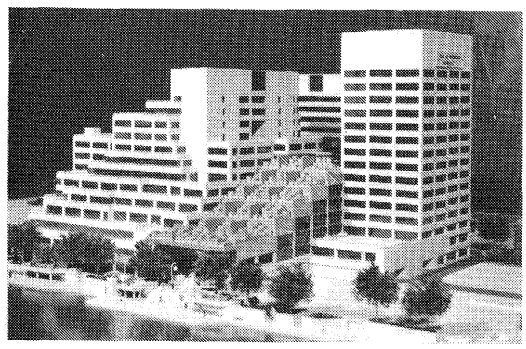

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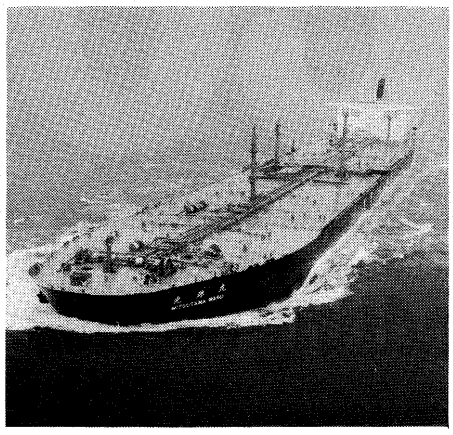

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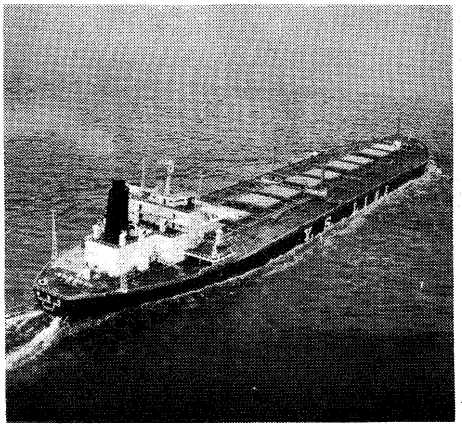

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PORTS and HARBORS

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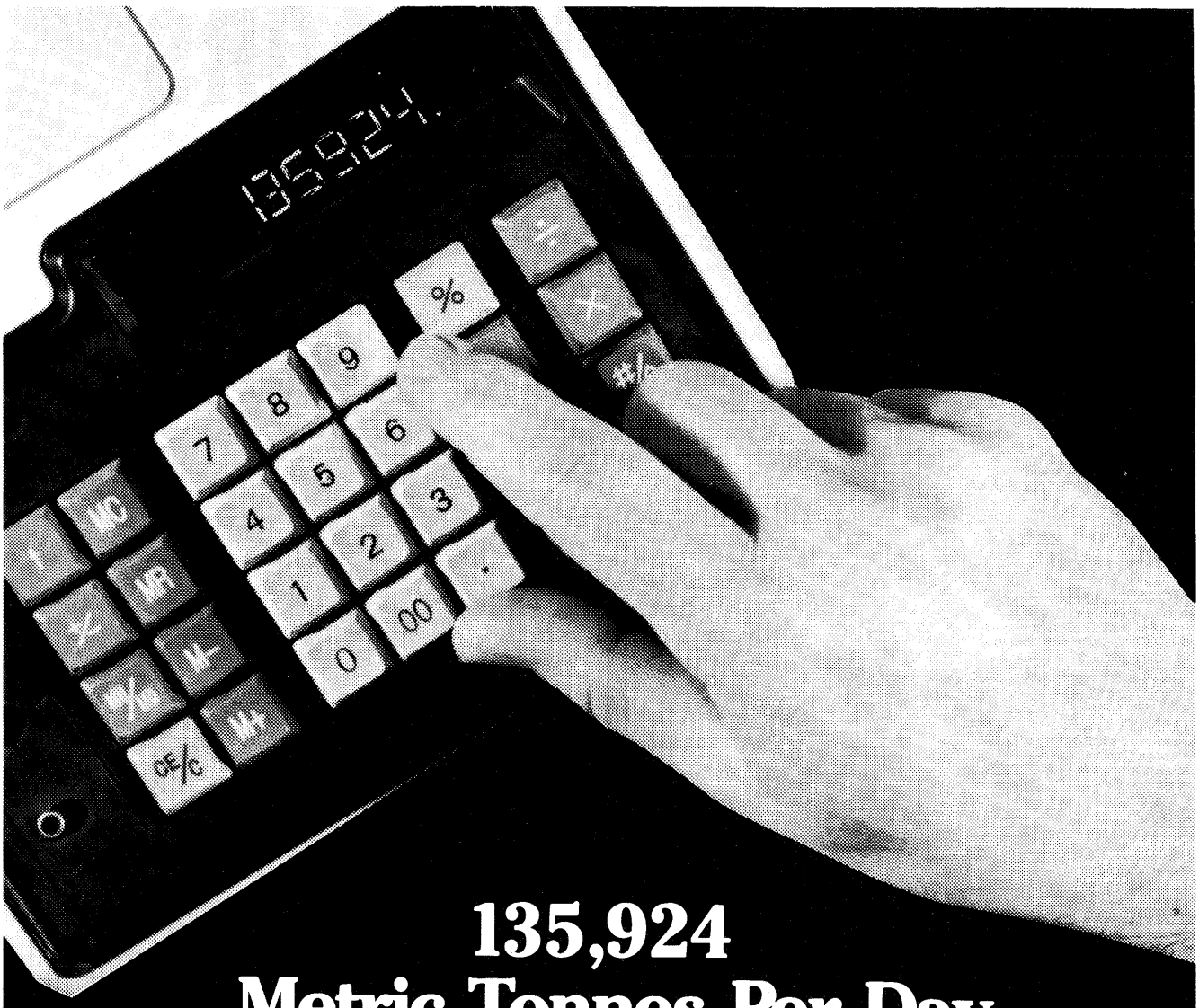

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IAPH announcements and news

PSA's Port Management and Operations Course to start August 3rd

The Port of Singapore Authority will be organising a high-level course on "Port Management and Operations" in Singapore from August 3–7, 1981.

The course is designed to review modern methods of port management including organizational theory, port management information systems, port investment planning, port marketing and port operations control. Port managers, planners, operators and regulators will be provided with an understanding of the concepts of modern port management and operations analysis as well as control methodology.

Course content includes the functions of a port, determination of operational requirements, design of port operations, controlling port operations, use of network techniques for port operations planning and design, port management functions, port organisation, port management information systems, the role and use of computers in port management, port economics, port pricing and setting of tariffs, port policy, port regulations, port financing, port project evaluation, port investment planning, port marketing, port environmental management, and future port developments.

Speakers are course director, Prof. E.G. Frankel, Department of Ocean Engineering, Massachusetts Institute of Technology, Prof. P. Wilmes, Head, Department of Systems Analysis, University of Louvain, Belgium, and Mr. J. Arnold, port economist and operations analyst. Tuition fee is US$895 per participant. Reservations should be sent Manager (Training), Port of Singapore Authority by telex No. RS 21507 or cable 'TANJONG' Singapore before 1 July 81.

Mr. R. Kondoh speaks about IAPH at the Propeller Club in Tokyo

Mr. Rinnosuke Kondoh, Under Secretary of IAPH spoke on the subject "Ports and the Community" as a guest speaker at the April 28th gathering of the Propeller Club of Japan held in the Foreign Correspondents Club in the Yurakucho area of Tokyo.

His speech is reproduced in this issue on page 10 for our readers' benefit.

Visitors

On April 7, 1981, Mr. John M. Pisani, Director, Office of Port and Intermodal Development, U.S. Department of Commerce, visited the head office and received by Dr. Hajime Sato, Secretary-General and his staff, during his recent orientation trip to this part of the world. On April 6, he visited the Ministry of Transport and met Mr. M. Yoshimura, Director-General of the Bureau of Ports and Harbours. In his six days stay in Japan, he visited major ports of Tokyo, Yokohama, Nagoya, Osaka and Kobe.

Mr. Michael Scorcio, Director of Community Relations, Port of Houston Authority, accompanied by his wife, visited the Head Office on April 28th and was met by Secretary General Sato and Secretary General Emeritus Akiyama as well as all staff members of the Secretariat.

Mr. Scorcio was the chief organizer of the 10th Conference of IAPH held in April, 1977, and his purpose in visiting Tokyo en route from Taipei was to meet the Head Office staff with whom Mr. Scorcio worked hard throughout the conference week in Houston and the happy reunion Mr. and Mrs. Scorcio have been looking forward to for four years, was finally realized when the couple were welcomed to the Head Office on the morning of the 28th.

They were visiting Taipei and Tokyo to attend the sister-cities and sister-schools events held in Taipei and in Chiba and Kanagawa Prefectures, Japan.

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Open forum:
Port releases:

Pepin announces Major Economic Expansion Project for West Coast: Port of Vancouver

Transport Minister Jean-Luc Pepin April 2, 1981 unveiled marine development and expansion projects worth $51.5 million, designed to increase trade and stimulate the economies of Canada's western gateway provinces.

"The projects we are announcing today will have a strengthening economic impact on British Columbia and Alberta, boost employment and encourage greater trade between Canada and the Pacific Rim countries," said Mr. Pepin.

The minister said this will be done through five projects:

1–Roberts Bank Dredging:

A $35,131,000 dredging and land reclamation contract for the Roberts Bank bulk terminal expansion project has been awarded to the Dillingham-Sceptre Dredging consortium of North Vancouver.

2–Vanterm Upgrading:

A three-year project, to start this year and costing $11,684,000, will provide Vanterm container terminal with a third container crane, enlarged cargo handling facilities, and installation of rail trackage and pavement.

3–Lynnterm Expansion:

The Lynnterm general cargo and forest products terminal will be expanded at a cost of $3,306,000, with work starting this year.

Port of Vancouver Master Plan

A $430,000 contract for the preparation of a master plan for the Port of Vancouver has been awarded to a Vancouver consortium and is designed to facilitate planning for the future.

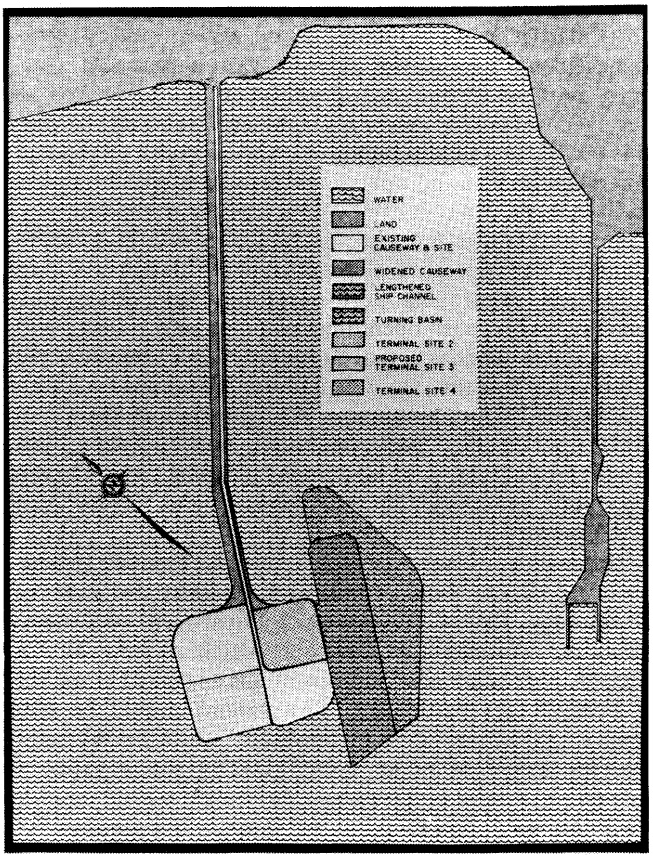
5–Burrard Street Viaduct:

A federal government contribution of $1,018,750 towards reconstruction of the Burrard Street Viaduct will provide an access route to the new proposed trade and convention centre on Vancouver's waterfront.

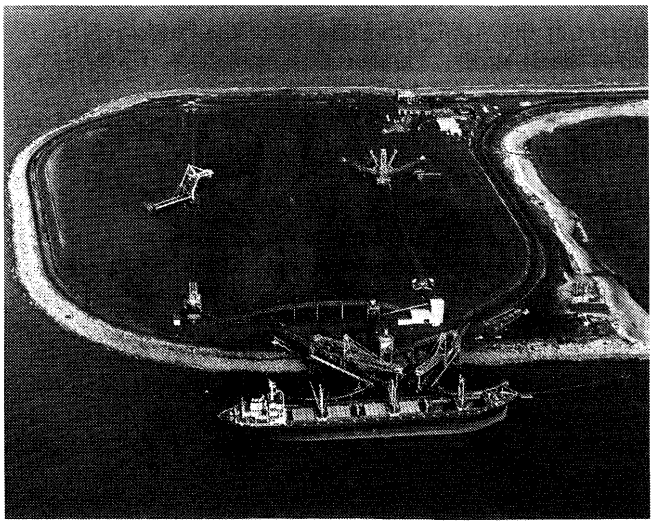
Roberts Bank

On the Roberts Bank project the main channel to the proposed three-terminal site will be dredged to a depth of 20 metres and the turning basin to about 12.2 metres. About 75 hectares of land, 25 per terminal, will be created. The causeway leading to the existing single terminal will also be widened to provide for the required additional rail and road facilities for the expanded outerport.

Dillingham-Sceptre, a joint venture of two Canadian companies, Dillingham Corporation Canada Ltd. and Sceptre Dredging Ltd., submitted the lowest of seven tenders.



Roberts Bank Expansion



Roberts Bank

"This National Harbours Board contract award will have significant economic benefits to Western Canada," Mr. Pepin said. "Not only will new jobs be created at the terminals but thousands of workers will be added to the workforce at new and expanding coal mines in southern Alberta and British Columbia.

"The Roberts Bank terminal now handles in excess of 10 million metric tonnes of coal a year. Each new terminal will be able to handle at least another 10 million tonnes annually," he said.

The dredging, scheduled to begin in September and to be completed by February, 1983, will be monitored to ensure that measures established by the Roberts Bank Environment Assessment Panel are implemented.

The panel has stipulated that:

- dredging be limited to the period from the beginning of September this year to the end of February 1982 and over the same period in 1982-83.
- work to be performed to ensure minimum disturbance of the local environment.

The first new terminal is expected to be ready for leasing in 1982 and operational by June, 1983.

The Roberts Bank terminal began operations in 1970 in conjunction with the signing of long-term export contracts with Pacific Rim customers for B.C. and Alberta metallurgical coal. Increasing demand for this and thermal coal has resulted in a need for greater handling capacity. Expansion at Roberts Bank was made possible by an agreement signed in August 1980 by Transport Minister Pepin and B.C. Development Minister Don Phillips. The federal-provincial accord has allowed the National Harbours Board to develop Roberts Bank for port purposes.

Total estimated cost of the project is $47,700,000.

Vanterm

The National Harbours Board will implement the three-year program on upgrading the Vanterm Container terminal starting this year. The program will include acquisition of a third container crane, upgrading the electrical power supply, enlarging the combined container freight station and general cargo shed, demolition of an old shed, and the paving and installation of rail trackage.

"The purpose of the program is to augment capacity at the Port of Vancouver to respond to significant increases in traffic and to improve the competitive edge in relation to the Port of Seattle for container traffic," said Mr. Pepin.

Vanterm, located on the south shore of Burrard Inlet, is one of the port's major facilities and handles about 25 per cent of the total general cargo traffic and 80 per cent of the containerized traffic.

Lynnterm

The National Harbours Board will start implementation of the two-year program to expand the Lynnterm general cargo terminal this year. It will include building an addition to the existing forest products/general cargo shed.

"The proposed expansion will enable Lynnterm to handle an incremental growth in volume of 200,000 tonnes of cargo by 1987," said Mr. Pepin.

Lynnterm, the second largest forest products terminal in Vancouver, began operating in mid-1977 and has recorded dramatic growth since its opening. Lynnterm handles about 26 per cent of total Vancouver lumber shipments, 37 per cent of total Vancouver plywood shipments, four per cent of total Vancouver pulp shipments and a significant amount of general cargo.

Lynnterm

Port of Vancouver Master Plan

The National Harbours Board contract for a port of Vancouver master plan will be awarded to a consortium made up of the following Vancouver firms: Delcan (De Leuw Cather, Canada Limited), C.D. Howe Western Limited, and Touche Ross and Partners.

"The Port of Vancouver is one of Canada's fastest growing ports, facing many challenges in seeking to meet local, regional and national interests with safe and efficient marine transportation facilities," said Mr. Pepin.

"The master plan will ensure that appropriate responses are made to changing demands."

The master plan will project cargo handling demands likely of affect the port and define the most effective means to respond to them. It will guide location and development of Public access and other non-cargo aspects of the port and ensure that the needs and concerns of adjacent communities and regions are taken into account.

(Continued from page 7)

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Ports and the Community

by Rinnosuke Kondoh
Under Secretary, IAPH

(Speech at the April Meeting of the International Propeller Club of Japan, at Tokyo, April 28, 1981)

Ladies and gentlemen, it is indeed my great honor and pleasure to address tonight the distinguished members and guests of this august organization of the maritime industry.

First of all, before your interest dries up and patience comes to a saturation point, because of my bad presentation in English, I would like to speak briefly about the International Association of Ports and Harbors, and then the subjects of Ports and the Community.

It was in 1951 when the idea of organizing an international gathering of port authorities took shape under the initiative of the late Mr. Gaku Matsumoto and with the support of the late Dr. Chujiro Haraguchi (then Mayor of Kobe City), whose common beliefs were that communications among world ports should be enhanced to cope with the increasing demands of seaborne traffic and to promote world trade.

In 1952 when the Japan Port and Harbour Association celebrated its 30th anniversary at Kobe, the 1st International Port and Harbor Conference was held, attended by 15 US West coast port delegates, representatives of six Asian countries and some resident diplomatic personnel. At this conference, it was resolved to create an international organization of port authorities.

At the 2nd International Port and Harbor Conference held in 1955 in Los Angeles, California, U.S.A., the establishment of the International Association of Ports and Harbors was decided, as the first international organization of port authorities.

IAPH today carries some 220 port authorities as regular members and 150 associate members of contractors, associations, consultants, manufacturers, shipping companies, spread over 75 maritime countries around the world. IAPH also keeps a good relationship with various international maritime organizations for mutual benefit.

Reflecting this unique position, IAPH has been granted a "consultative status" as a non-governmental organization by the United Nations and its agencies specialized in maritime, trade and development, namely the United Nations Economic and Social Council (ECOSOC), Inter-Governmental Maritime Consultative Organization (IMCO) and United Nations Conference on Trade and Development (UNCTAD).

Thus, IAPH has gradually become a truly international forum of ports and harbors of the world.

The Association meets once every two years. The 12th Conference of IAPH will be held, under the theme of "Port Contribution to Human Prosperity" in Nagoya next month, to be attended by 450 delegates and their ladies from more than 45 maritime countries all over the world, in addition to some 300 residents delegates.

Invited to the Conference are representatives of various international maritime organizations including International Chamber of Shipping, International Chamber of Commerce, Permanent International Association of Navigational Congresses, International Maritime Pilots Association, International Cargo Handling Coordination Association, Customs Cooperation Council, World Bank and many others.

I am convinced that the result of debates and discussions to be made at the Nagoya Conference will produce another important milestone in the history of ports of the world.

It may be of interest to you, especially if you are philatelic, that the Japanese postal authority decided to issue a special commemorative stamp for the 12th Conference of IAPH. I hope you will buy some and keep some of them unused.

Also, I would like to point out that the Association is to celebrate its Silver Jubilee at the Nagoya Conference.

I am afraid that you have heard more than enough about IAPH, so, I think I had better put a stop to my propaganda about the Association. But, please note that I will be more than happy to answer any question about IAPH, later tonight or any other future time.

Now, ladies and gentlemen, I would like to proceed to the main part of my presentation about ports and harbors although I fully know that you are not at all laymen in port matters. On the contrary, I know that your experience and expertise are far more professional and mathematically accurate, even rigorously exact, than anyone else.

However, tonight I would like to bravely try and present some problem area as seen from the view point of P/A in general and try to refresh your understanding about ports, because I believe it is vitally necessary to have your continued understanding on the port's position and the problems they face today, as some of the problems are too great for the efforts of port authorities alone, unlike, over the past centuries when it was simply a matter of protecting your ships by breakwaters.

I imagine that no one would deny the importance of ports. It will never be necessary to illustrate how important a port is by quoting examples of land-locked countries. Ports are places where people can communicate with each other, different cultures and civilizations. Ports today do not only mean physical facilities intended for berthing ships and loading or unloading cargoes. Ports today are indeed very complicated social complexes and provide the very important socio-economic infrastructures for peoples and economics of all countries. As many port-people recognize today, ports are the places of concentration and integration of all sorts of commerce and industry. The employment secured from a port development is also in itself good propaganda. No question about this. Thus, the Port today is city or community where people live, businesses thrive and monies made.

What I wanted to emphasize here is that no one in the port scene dominates the others. One is a partner or entrepreneur of others and every one of them, whether or not he likes not to be, is connected with everyone else in an interdisciplinary way. Mutual understanding and care, which are being encouraged in any community, more so in a big city today, are quite important elements for the port community for its survival and future prosperity.

Business conduct in ports therefore, is not all strange or peculiar to any other business community or city life.

As the late Dr. Hagenaar of Rotterdam Port Management

said in his paper, no port is identical to another as in mosaic pattern. Reflecting the geographical or natural conditions, political systems, historical backgrounds and even people's character, there is ample variety in port organizations all over the world. This versatility sometimes cause difficulties to international traders to assess the ports' position in their business strategy. While on the other hand, capability and productivity of ships can quite easily be assessed numerically or even electronically today, of course allowing for natural phenomena such as typhoons, hurricanes what have you.

But, in the port-scene, things are much more complicated for many reasons including the discrepancies which exist in the degree of development of the physical facilities and business infrastructure, which may be concluded as a north-south gap, without even referring to the all difference problems of money and technologies.

This trend is particularly so these days, since the introduction of sophisticated modes of transport, which are all supported by technical innovations adopted at literally every corner of today's transport system.

Specialization, the size and the speeding-up of this introduced since the latter 1940s have brought into the port scene drastic changes.

In other words, the shipping companies, using their wisdom and cleverness accumulated during the past centuries, quickly adapted themselves to change. Containerization today is one of the typical examples of their achievements. They had to, because there was little alternative, but they could follow the command of the time and logic of economics as they had been sufficiently prepared to make the change in time.

While on the other hand, some ports, if not most of them, have been left behind. There are dozens of reasons for this, however, as what is most disadvantageous to the port is that no port can be constructed or sufficiently modified in a short time, even if the money were available. To construct a new terminal, a container terminal for example, costs at least three to four years, while a container ship can be put into service within say 10 months after laying down the first keel in a shipbuilding yard.

Accumulation of these inevitable differences steadily grew to a disconcerting level in various parts in the world.

Admitting the un-preparedness on the ports side, as the ports for many centuries have been quite silent internationally. As a matter of fact, until quite recent time, not many ports had been exposed to the logic of money-oriented business conduct. The requirement of shipping companies in older days, which was much more labour oriented than today's requirement, had been long lasting. Port authorities were in a position to keep the facility going nicely and smoothly just like a madame of boarding house kept her house nice and clean, but quite un-aware of the changes one block away.

But today, things are changing very quickly, leaving the ports behind the scene and leaving every increasing cost to port authorities to fill up the gap. Frustration accumulated within the parties is again a source of disconcert in the transport chain. This is particularly so in the countries whose economies are at a developing stage, I should say.

Generally speaking, however, the efficiency or dependability of ports is assessed on too many factors which are entirely beyond the control of port authorities, to an un-proportionately un-fair extent, I am afraid. Cumbersome procedures required for customs clearance or ships entry, road congestion, the glass-fragile pride of port workers, and papers and papers. How can a port authority cope with the situation without support of everyone concerned. Of course, I am not talking about any port or country in particular.

In this context, we must know that everyone involved in the transport chain, private or public sector alike, should know more about the importance of the responsibilities which rest on their shoulders, as port authorities are quite prepared to take part in the solution of any problem which may hamper the smooth movement of cargoes and ships in their port.

Among many critical issues now faced by port authorities worldwide in common, I would like to pick up the problems relative to the environmental protection as these problems are most likely to badly affect, unfortunately, not only the port authority but also others involved in seaborne transport.

Environmental problems do involve great items, from contamination of bottom sediments, without referring to the so-called public-nuisance-problems like dust, smell, noise, vibration, road congestion or anything else, although these are already big headaches for port authorities.

However, I must pick up the seriousness of the problem contained in the so-called 1965 London Convention on the Dumping of Dredged Material into Sea.

As the result of the Convention, even dredging work for maintenance of channels is gradually being made more difficult. You may know how the Port Authority of New York and New Jersey suffered from the stringent regulations imposed by the EPA when the Port Authority wanted to dredge a channel to receive the QE2 at its passenger terminal. Even a dredging work for maintaining certain water depths for ships are being threatened by environmental control. This is not at all an exceptional incident to New York. Many US ports today have a difficulty of the same nature. As a matter of fact, today the new development of port facilities which have to deal with the water and dredging is impossibly difficult to materialize, not because of money but because of environmental restrictions.

Gradually, but steadily, the problem is increasing. To keep a certain level of water depth is one of the most fundamental responsibilities of any port authority all over the world. Not all ports are free from the problems of silting up of the channel or quay-side. If and when the dredging work even intended for maintaining the minimum required water depth is to be banned or made too difficult because of protection of marine creatures, the effect will be serious for all bodies.

It will mean a life sentence, if not death sentence, to the port authority, if the depth requirement cannot be met. It is the life-sentence only for the port authority. It cannot be so, I am afraid. As I mentioned in the foregoing, since the port is a sort of community chain, linked with various interests, no one can be free from a change in one part of the community system. The life-sentence to the port authority may mean an arrest order, at least to shipping business in general.

You may laugh at this indication. You may say that it cannot be possible. But, I must remind you that the thing is coming very close to extremities and if poeple, particularly those who have direct interest in the maritime transport, sit

(Continued on next page bottom)

LOCODE — Code for Ports and Other Locations

Recommendation adopted by the Working Party on Facilitation of International Trade Procedures of the United Nations Economic Commission for Europe (Document: TRADE/WP. 4/INF.66 TD/B/FAL/INF.66)

At its third session held in October 1972, the Group of Experts on Automatic Data Processing and Coding, a subsidiary body of the Working Party on Facilitation of International Trade Procedures, agreed to include in its programme of work the following task:

> "To prepare codes for ports, carrier and ships' names and for type of movement."

The International Chamber of Shipping undertook the preparatory work on this item, which was subsequently divided into three separate items. As to the first item, a preliminary list of ports was prepared after consultation with the International Association of Ports and Harbors (IAPH). Contacts were also made with the Economic Commission for Latin America (ECLA) where a similar project was then under study.

At its eleventh session in September 1975, the Group of Experts considered the need for a comprehensive code covering all locations where goods are subject to Customs control, and the following task was included in the programme of work:

> "To establish the need to designate various locations involved in external trade (cities, ports, airports, border crossings, terminals, etc.) with a view to the subsequent creation of codes."

The secretariat was requested to pursue this task, which since then has been combined with the original issue on a code for names of ports.

After further consultations with the Economic Commission for Latin America (ECLA), with the Economic and Social Commission for Asia and the Pacific (ESCAP), and with the International Air Transport Association (IATA), the secretariat put forward proposals for a programme of action for the development of a code which was agreed by the Group of Experts at its fifteenth session in September 1977.

(Continued from page 11)

still and remain un-concerned, the situation is most likely reach that point in the very near future.

Shipping companies may say that you can move out. But, where to? You may further say that you can make smaller vessels. But, how soon and how can it be financed? I think there will be too many how-s.

My presentation is not at all intended to argue with what the enviromentalist have to say, nor intended to say that it is worthless to protect certain marine creatures. But, I would like to say that the 1965 Convention is intended to protect the marine environments, without no reference or consideration to the roles presently played by seaborne transport or port authorities and that the Convention has been ratified by your and our country-men.

And, furthermore, those people involved in environmental protection are deadly serious on the matter. I know that you have noticed that a certain bird, a frog, a grass or flower, pretty or not, edible or not, has stopped the construction of dams, airports, roads, power stations all intended for the public interest. I assume that many of you have cherished the idea of protecting the bird, the frog whatever. I did for the Toki bird, as a matter of fact.

Let me repeat that I am not saying the marine creatures should not be protected, or that dredged material should be dumped into sea limitlessly without care. And, I am not at all challenging the Convention and people who ratified it.

What I really wish to say that there should be some kind of sense of balance in the application of the Convention of this nature to the marine transport system, because there cannot be many alternatives available as far as marine transport is concerned.

I am happy and proud to tell you that IAPH has been active in this matter. IAPH has created an Ad Hoc Dredging Committee, under the initiative of Mr. A.J. Tozzoli, Director of Port Department of the Port Authority of New York and New Jersey, and presented a position paper of the world ports to the IMCO Assembly in London last year. We are planning to take active part in the IMCO Working Group's meeting in Halifax next month and other future meetings.

Mr. Kondoh (left) receives a plaque from President Richardson.

I sincerely hope that the situation will change before things get worse and too late. I believe that the roles played by seaborne transport will be understood by the people concerned. To this end, however, all of us, hand in hand, must work hard.

Before concluding my presentation tonight, I would like to assure you that port-people without exception are willing to serve you business men, help to you make more money and more importantly they are willing to be an active partner in the transport chain and the whole community surrounding the port.

I thank you very much Mr. President, for your kindness of inviting me to this gathering of wonderful people and giving me the chance of speaking for IAPH and world ports.

Ladies and gentlemen, I thank you very much for your attention, and wish you a very enjoyable Golden Week holiday.

A draft recommendation was submitted to the Working Party on Facilitation of International Trade Procedures, a subsidiary organ of the United Nations Economic Commission for Europe, and adopted at its twelfth session on 22 September 1980.

RECOMMENDATION

The Working Party on Facilitation of International Trade Procedures,

Being aware of the need for an internationally-agreed code system to represent names of certain locations of interest in international trade and transport;

Considering that the code system should be based on the ALPHA-2 codes for the representation of names of countries, adopted in International Standard ISO 3166 and recommended by the Working Party in October 1974;

1. Recommends that the five-letter alphabetic code system described hereafter should be used for purposes of international trade to designate location whenever there is a need for a coded alphabetical designation for representing the names of ports, airports, inland freight terminals and other locations where Customs clearance of goods can take place, or otherwise proposed by Governments;
2. Invites Governments to transmit lists of entities with code designations according to the established criteria and to ensure that each national list is continuously up-dated and communicated to the United Nations secretariat, responsible for the maintenance of the code system;
3. Requests the secretariat to establish, in co-operation with other interested organizations, a function for the continuous maintenance of the code system, and to make available, from time to time and on common data media, up-dated versions of the code.

LOCODE – Code for Ports and Other Locations

I. BACKGROUND

1. The identification of a particular location is frequently required in information interchange in international trade and transport, to direct the movement of goods–e.g. in addresses, in shipping marks, and in data elements identifying ports of call, ports or places of loading or unloading, ports or places of transshipment and destination, places of clearance by Customs, etc.

2. The names of such locations are often spelt in different ways and sometimes the same location is designated by different names in various languages (e.g. LIVORNO–LIBOURNE–LEGHORN; LONDON–LONDRES–LONDRA; WARSAW–VARSOVIE–WARSZAWA–WARSCHAU), which creates confusion and difficulties in data exchange. The identification in a unique and unambiguous way of any place involved in international trade is therefore an essential element for the facilitation of trade procedures and documentation. This can be achieved by using agreed, unique coded designations for such locations; this would have the added advantage of permitting an exchange of data in a more economical way.

3. For these reasons, the Working Party on Facilitation of International Trade Procedures agreed to include in its programme of work the tasks of preparing a code for port names and of establishing the need to designate various locations involved in external trade, with a view to the subsequent creation of codes.

4. There are several examples of location code systems in use, covering places in individual countries, or belonging to a certain category, e.g. airports. Many countries have developed code systems for distribution of mail which, however, sometimes include features reflecting methods of postal distribution rendering them less suitable for general trade purposes.

5. The first part of the task therefore was to prepare lists of the ports and other locations to be covered. It became necessary to establish criteria for the inclusion of names of localities and it was agreed to include–in addition to airports, inland freight terminals and maritime ports as defined for this purpose–other locations where goods can have their status changed from moving in international to national traffic, i.e. normally places with Customs clearance facilities (including locations referred to as "frontier crossing points"). Moreover, it was felt that any other locations could be included at the request of the Government concerned.

6. Major contributions towards the establishment of the entity list were made by the International Chamber of Shipping (ICS), the International Association of Ports and Harbors (IAPH), the Economic Commission for Latin America (ECLA), and the Economic and Social Commission for Asia and the Pacific (ESCAP). In addition, the secretariat had full access to the list of airports and other locations maintained by the International Air Transport Association (IATA). Contributions were also received from a number of Governments.

7. As to the code structure, particular attention was given to the three-letter alphabetical code already used within the air transport industry to designate airports and certain other locations. These codes have been widely used over a long period, have in most cases a mnemonic link to the entity name, and have been introduced in other applications, notably in the ports code developed by ECLA. It was, however, appreciated that the number of entities that could be foreseen, and the desirability of maintaining a reasonable mnemonic link, whilst at the same time avoiding duplication of code designations for entities with similar names, would require a code consisting of more than three alphabetic characters. The solution preferred was to add two characters designating the country in accordance with International Standard ISO 3166/1974 and recommended by the Working Party in October 1974, thus including a further element of identification and limiting the need for uniqueness of the location code for each entity to the country concerned.

8. The desirability of a numerical code alternative has been recognized, particularly for countries where the Latin alphabet is not widely used. This problem will be considered in connexion with the question of introducing a numerical country code. The need to add classifying elements to the basic code, for various purposes in particular user environments and applications, has also been demonstrated. To the extent that such classifying elements become generally required and accepted, they can be included in the code structure in the course of its continuous up-dating and maintenance.

II. SCOPE

9. This Recommendation aims at providing a list of those locations which are of interest in international trade and

transport and whose names need to be quoted in an unambiguous way in data interchange; it establishes coded representations of the names of such locations and gives guidance for their use as a basis for designation of subsidiary locations.

III. FIELD OF APPLICATION

10. This Recommendation applies in all cases where a coded representation is required for names of ports, airports, inland freight terminals, and other locations where Customs clearance of goods can take place, for use in information exchange between participants in international trade.

IV. DEFINITIONS

11. The following definitions have been adopted for the purposes of this Recommendation:

Airport: Any location with permanent facilities at which aircraft can load or discharge cargo moving in air traffic.

Inland freight terminal: Any facility, operated on a common-user basis and approved by Customs, at which cargo in international trade is received or dispatched.

Location: Any geographical place either with permanent facilities, including Customs control allowing goods to change their status from moving in international to national traffic or vice versa, or proposed by the Government concerned for inclusion in the location code.

Port: Any location with permanent facilities at which vessels can load or discharge cargo moving in maritime traffic.

V. REFERENCES

12. International Alphabet No. 2 (CCITT)
ISO 3166/1974 "Codes for the representation of Names of Countries"
IATA Location Identifiers Handbook, Seventh Edition, 1980
ECLA Ports Code, Edition March 1978
ESCAP Port Code of the World, 1979
UN/ECE/FAL Recommendation No. 3 on ISO Country Code–Codes for the Representation of Names of Countries

VI. DESIGNATION AND COVERAGE

13. The present code system may be referred to as the "United Nations LOCODE".

14. It is intended to cover airports, inland freight terminals, maritime ports and other locations as defined above, for purposes of international trade data interchange. Codes for entities are not mutually exclusive, and names and designations used in the code do not reflect any opinions concerning international, national, local or other boundaries, ownership or administrative jurisdiction, but merely aim at providing an unambiguous and unique code to represent the name of the entities included.

15. It is recognized that the coverage may not be complete for all applications, and that codes for entities which may not be of interest in international trade might be needed for domestic purposes in conjunction with the international code. Although such additional entities might not be included in the published code list, they may be included in the records and codes reserved as appropriate, in consultation with Governments and international bodies concerned, as part of the envisaged updating and maintenance procedures. It is also recognized that users might wish to make a selection of relevant entities from the published list, and that abridged versions might be established for particular applications.

VII. STRUCTURE AND PRESENTATION OF THE CODE

List of entities

16. The entity list is presented by country in alphabetical code order according to ISO 3166/1974 and with entities listed in alphabetical order within each country.

17. Entity names are given–whenever possible–in their national language versions as expressed in the Latin alphabet using the 25 characters of the character set adopted for international trade data interchange. Diacritic signs are ignored, rather than converted into additional characters (e.g., GOTEBORG for Gäteborg, rather than Goeteborg, Gothenburg, Gotembourg, etc.), in order to facilitate print-outs in the national language.

18. In countries with more than one national language, entity names may be different in the respective languages. In such cases, more than one name version may be included, with other versions placed within brackets, e.g.:
ABO (TURKU)
TURKU (ABO)

19. The Governments concerned have been or will be consulted regarding the most appropriate manner in which different name versions should be presented in the code.

20. In cases other than those referred to above, alternative name versions will be shown only as a transitional measure (e.g. after a name change) or if there is a risk of misunderstanding. However, they may be included in the record from which the code list is printed.

21. An entity name may be followed, after a comma sign, by an indication of geographical or administrative significance, such as the name of an island or of a State or department, when deemed desirable to enhance the use of the code, or when requested by the country concerned, e.g.:
DENPASAR, BALI
GALVESTON, TX

22. For subordinated entities, such as different airports or railway stations serving the same main location, outlaying ports of freight terminals, etc., the name of the main location is added after an oblique stroke (slant), e.g.:
HEATHROW/LONDON
TILBURY/LONDON

23. In these cases, sub-entities are also listed under the main entity with the names separated by a hyphen:
LONDON-HEATHROW
LONDON-TILBURY

24. There may be entries for cross-reference purpose only, **inter alia**, when names are changed, in which case the entity name will be followed by a colon, e.g.:
TORSLANDA/GOTEBORG:
See LANDVETTER/GOTEBORG

Code allocation

25. A code designation will be given to each location included and will consist of:
two letters identifying the country, according to the ISO 3166 ALPHA-2 Code for the representation of names of

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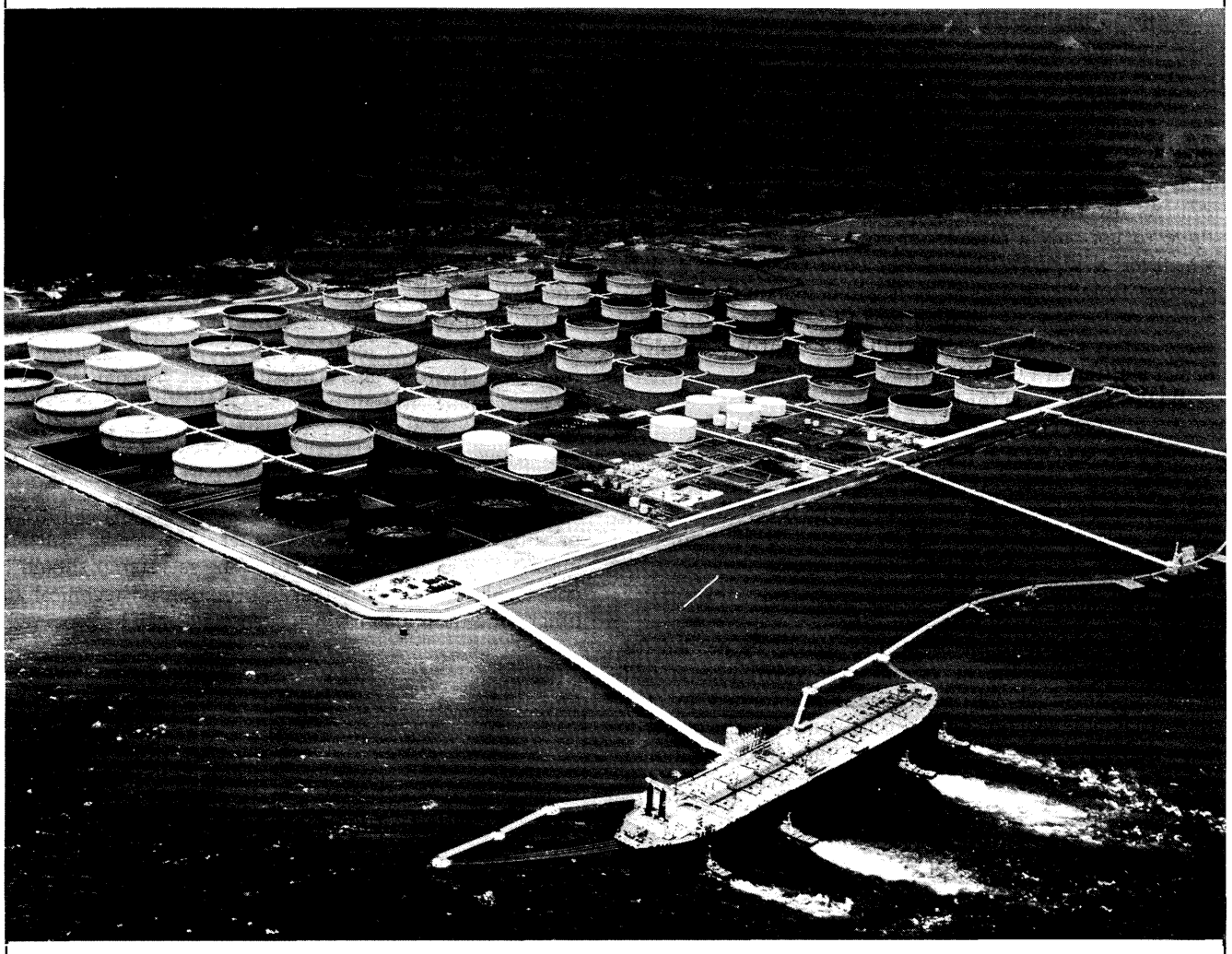
Port of Kiire



The world's largest tanker "NISSEI MARU" (484,337 DWT) assisted by a fleet of 4,000 B.H.P. tugs sides up to discharge a full cargo of valuable Arabian Light at the world's largest (6.6 million tons) storage farm. All are owned and operated by our group of companies. The investment is indicative of the Group's positive outlook and, confidence in the future of the petroleum, tanker and related industries and, as the trained eye will evaluate, we are well prepared to meet the demand for oil in the coming upsurge in the world economy.

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(Continued from page 14)

countries, and UN/ECE/FAL Recommendation No. 3;
three letters identifying the location within the country. These letters are either:

- obtained from the IATA list of Location Identifiers; or
- obtained from the Government concerned; or
- selected by the secretariat after consultation with national or international bodies as appropriate or, if such consultation has not been possible, in accordance with the following principles:
  - the three first letters of the entity name;
  - the two first and the last letter of the entity name;
  - the first letter, one letter of significance within the name, and the last letter;
  - initial letters of composite names;

  always choosing the first possible alternative which does not result in duplication of code within the country.

26. When codes have had to be selected by the secretariat, they will be presented as interim codes pending confirmation.

27. As the IATA code, at least for some time, will continue to use only a three-letter code, it is understood that whenever a separate three-letter code appears as a data element to indicate a location it will designate the name of airport or location as adopted by IATA; whereas the same three letters preceded by the ALPHA-2 country code might depict a different LOCODE entity, e.g.

PAR = IATA code for Paris, France
(LOCODE = FR PAR)
GB PAR = LOCODE for Par, United Kingdom

28. The code list is also available in alphabetic code order.

29. For ease of reading, the country and location elements of the codes will be separated by a space in the print-out. In actual use, this space could be suppressed.

Classification

30. Some classifier functions which might be needed for particular applications in various user environments will be incorporated in the data record maintained by the secretariat but will not normally be shown in the printed-out code list. However, because of their more common nature, those indicating category, geographical area and status will be shown after the location code itself as follows:

30.1 A **category classifier** in the form of a numerical digit where
- 0 indicates unspecified function;
- 1 indicates waterborne transport function;
- 2 indicates railway transport function;
- 3 indicates road transport function; and
- 4 indicates air transport function.

30.2 A **geographical classifier** for sea ports, in the form of three numerical digits indicating the geographical area where the port is located.

30.3 An optional **status classifier** in the form of two digits indicating particular status, e.g. place acceptable for Customs clearance.

31. A code followed by a group of digits "1234" means therefore that all four specified functions apply to the location. A positive indication of absence of a function will be expressed by a hyphen in the place of the digit; "1-34" will designate a location without a railway transport function. The absence of a classifier will mean that no information is available. The presence of the digit "4" will inform users that the code shown is an approved IATA code which can be used in documents and interchange. The code O will mean that the criteria for inclusion apply, e.g. by the presence of a Customs clearance function, but that no information is available regarding the specific transport mode functions of the location.

Subsidiary location

32. The codes can be extended by the addition of further characters to indicate subsidiary locations, such as areas of a port, different railway stations at the same location, or terminals at the same airport, etc. Such code extensions would be optional at the discretion of Governments or local authorities concerned. However, if notified to the secretariat, they will be incorporated in the data record for the locations in question; they could be made available to interested parties on request.

Examples of possible construction of subsidiary codes:
DE HAM 1 73 = Pier 73, Port of Hamburg
US NYC 2 G = Grand Central Station, New York
US NYC 2 P = Pensylvania Station, New York

33. The presentation of the code list will be in the form of a computer or word processor print-out, normally including all categories of locations listed alphabetically within each country. It will, however, be possible to print out all locations of one category, e.g. maritime ports, in a separate listing, or to group locations in one country according to functions. There is also a possibility of grouping locations by geographic region or sub-region by aggregation of countries, or of maritime ports in geographical areas.

34. Annexes to the main list will include the codes for geographical area and for particular status.

35. The code list can be made available in the form of print-out on paper and on other data media, such as magnetic tape and punch cards. The secretariat should be contacted in order to obtain information on technical and other conditions under which such media can be procured.

Innovated Operation Systems of Container Terminal

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Innovated systems by Mitsubishi Heavy Industries, Ltd., namely TRAVERSER System and MACS System have been simulated by the computer to examine their storage capacity and handling ability.

As a result, it is concluded that MHI systems have capability of 288000–304000 TEU/berth per annum which is about twice of that of conventional systems in Japan, such as Straddle Carrier System and Tyre-mounted Transfer Crane System.

1. Preface

For more than ten years, since commencement of the international container transportation, three major operation systems have been firmly established worldwidely, i.e., Straddle Carrier System, Transfer Crane System and All Chassis System.

However, according to the development of containerization, the innovated system beyond the limit of above-mentioned conventional systems has just been developing in recent years. For example, Matson Navigation Company, Ltd. in U.S.A. has introduced an innovated system, called "Mousetrap System", into her terminals in the West Coast, and Europe Container Terminus B.V. (ECT), one of the largest terminal operators in Rotterdam, has just been developing another system involving the new type of container crane.

The following four requirements will become very important to the design of container terminal, severals of which are of course purposed by the above-mentioned terminals.

(1) To utilize the terminal area highly. (It has become difficult worldwidely in economical and environmental points of view to obtain ample space in portal division.)
(2) To handle containers efficiently. (It makes not only higher services to consignee/consigner, but also faster the turnover of containership.)
(3) To save man-power effectively. (Corresponds to provide for the increase of labour's wage.)
(4) To perform fool-proof operation thoroughly. (Skillful labourers cannot be easily hired.)

Innovated systems by MHI, TRAVERSER System and MACS System, which incorporate the above-mentioned four requirements have been simulated by the computer to examine their storage capacity and handling ability. As a result, it is concluded that MHI systems have capability of 288000–304000 TEU/berth per annum which is about twice of that of conventional systems in Japan, such as Straddle Carrier System and Tyre-mounted Transfer Crane System which have also been simulated on the same premises.

The concept of MHI innovated systems and their simulation results are reported in the following chapter.

2. General concept of MHI innovated systems

It is difficult to accomplish all of the four requirements imposed on innovated systems, for they run counter with each other in some cases. Therefore, four requirements must be ordered according to their priorities, depending on the district where container terminal is constructed.

The following priorities were introduced to the development of MHI innovated systems for leading countries as for containerization.

(1) To have capability of throughput, as twice as that of conventional systems to the same area with high handling ability.
(2) To have a potentiality of full automation of yard operation.

Innovated systems are restricted to have neither requirements of improvement and new facilities to LO/LO containerships, most popularly served in the world, nor to containers standardized by ISO.

2.1 TRAVERSER System

2.1.1 Layout and system organization

In one of the conventional systems, Transfer Crane System, containers are rounded by several sets of trailers between a container crane on apron and a transfer crane in the yard.

However, in this system, containers are traversed by a

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facility installed to a container crane, called traverser, which connects directly both equipment with each other as shown in **Fig. 1.** As a result, the following effects can be accomplished safely without yard trailers drived by man-power.

(1) To minimize the cycle path of both equipment, container crane and transfer crane.

(2) To operate simultaneously and safely without interferring with each other.

(3) To save man-power by performing automatic control to traverser.

The layout and side-view of TRAVERSER System adopted to the site of 300m x 280m are shown in **Fig. 2**

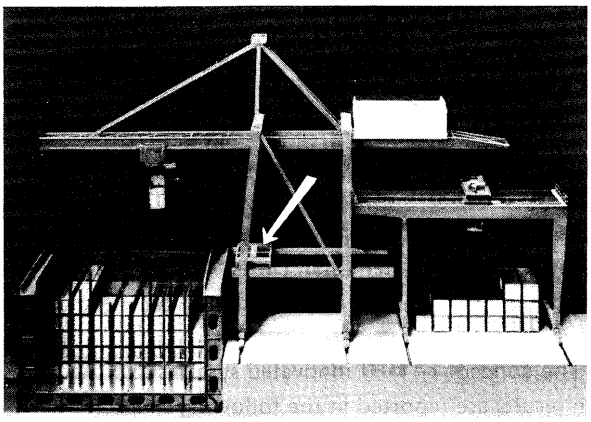

Fig. 1 Proto-type of TRAVERSER System

(2) and (3), respectively. The marshalling yard is divided into three blocks, the first, the second and the third block named orderly from shore side.

Containers stacked in the second or the third block are also transferred without yard trailers to a container crane on apron by co-operating of transfer cranes and various type of traversers, connecting two blocks with each other. Especially the traverser between the first and the second is travelled independently of the movement of transfer cranes, so that high shipside handling ability can be obtained by supporting transfer cranes in the first and second blocks to minimize the travelling frequency and distance.

2.1.2 Handling procedure

2.1.2.1 Shipside operation

Fig. 2 (1) shows the procedure of shipside operation in the case of loading onto containership from the first block.

(1) Stage 1: An outbound container is picked up by the transfer crane at Ⓐ, and put onto the traverser, which is located at land-side position of the container crane, at Ⓑ, after travelling and traversing of the transfer crane. (While, the container crane is handling the proceeding container to be loaded.)

(2) Stage 2: The traverser accommodating the outbound container moves to sea-side position of the container crane. (While, the transfer crane just starts the next operation.)

(3) Stage 3: The container crane picks up the outbound container at Ⓒ from the traverser and loads the con-

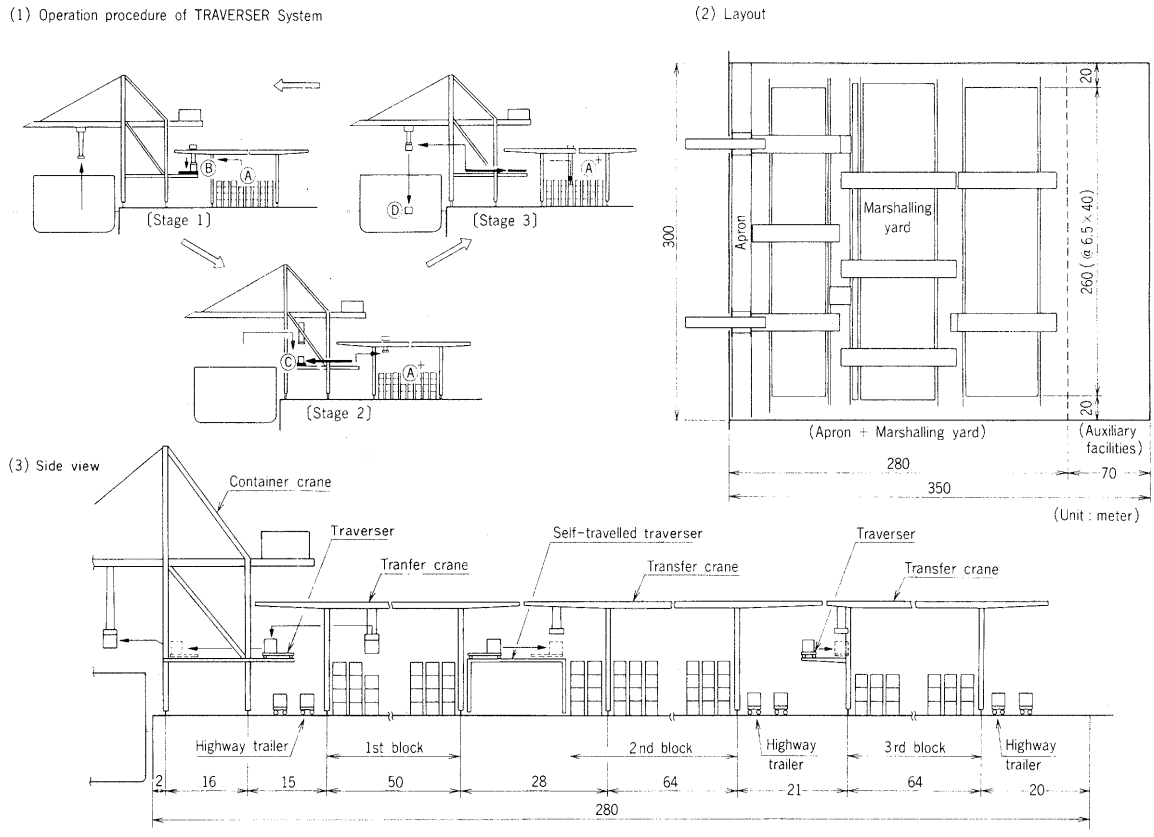

Fig. 2 TRAVERSER System

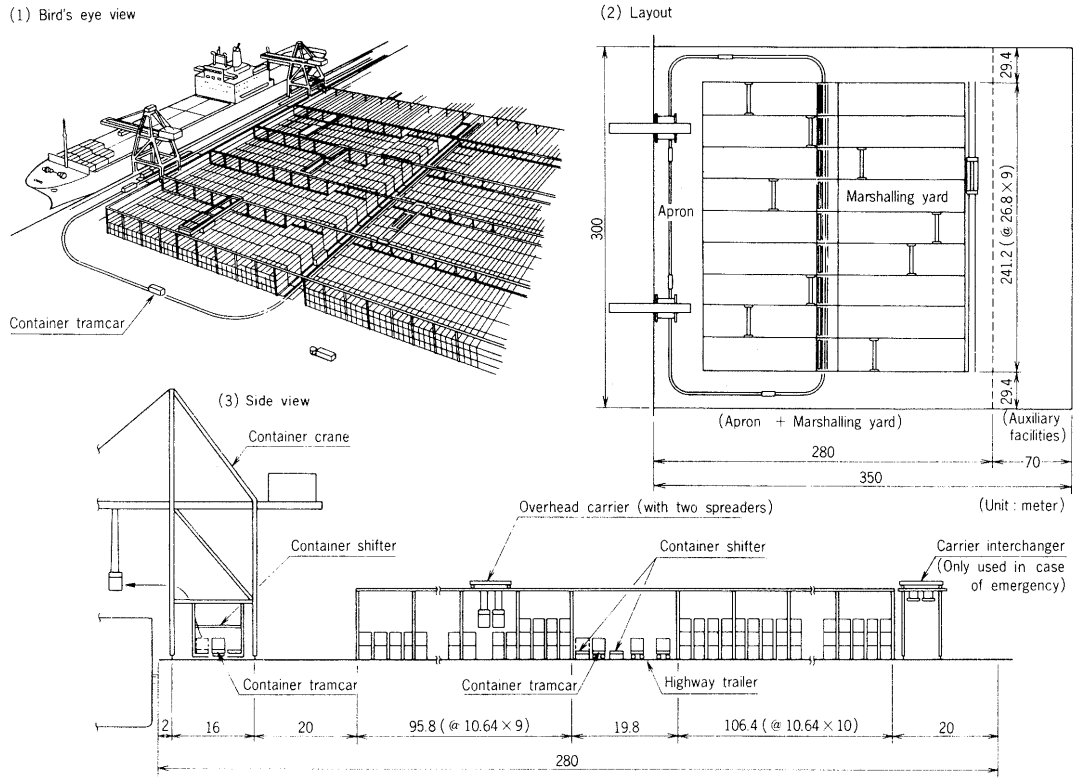

Fig. 3 MACS System

tainer onto a ship after traversing. (While, empty traverser comes back to land-side position.)

The container crane is operated continuously by repeating the above-mentioned procedure to have higher shipside handling ability than that of conventional systems by being co-operated with one or more transfer cranes according to the requirement.

Unloading from a ship is operated by the inverse procedure to loading and the handling of containers in the second or the third block is operated by the same procedure through traversers between yard blocks, as already described. Dual operation can be also performed to get shorter cycle time and pass per container, where containers are alternately loaded and unloaded onto/from a ship during one cycle of container crane.

2.1.2.2 Gateside operation

It is the same as that of Transfer Crane System, one of conventional systems, in which a container is received or delivered at the nearest point of its yard location, by the transfer crane from or to the highway trailer.

2.2 MACS System (Mitsubishi Automated Container Handling System)

2.2.1 Layout and system organization

Fig. 3 shows the bird's eye view, layout and side view of MACS System. This system is purposed to be automated as improved and developed Straddle Carrier System, with overhead carriers located on the bridge girder constructed in the yard. Container cranes on apron are connected with overhead carriers by container tramcars rounded on a looped rail track.

The effects obtained are as follows.

(1) To increase the number of slots enormously.

(2) To simplify the rehandling operation for delivery of loaded containers. (This is obtained by two spreaders installed to overhead carrier in case of stacking in two high, same stacking as in Straddle Carrier System.)

(3) To save man-power by automating yard equipment.

Overhead carriers are allocated to every yard block arranged perpendicularly to the berth line, and travelled along the boundary between blocks. Consequently, overhead carriers never interfere with each other during container handling.

A following container tramcar happens to be incapable of going ahead, while the proceeding one is stopped and being operated, as a result of circulation of all tramcars on a rail track in the same direction. To ease up the traffic jam, container shifters are installed to every container crane and to every yard block, which prevent the queing of tramcars to save their waiting time.

2.2.2 Handling procedure

2.2.2.1 Shipside operation

Following shows the procedure of shipside operation, in the case of loading containers onto containership from the yard.

(1) An outbound container is picked up by the overhead carrier located in the block, and put onto the container shifter.

(2) The container shifter transfers the container to a container tramcar. The container tramcar rounds to the container crane.

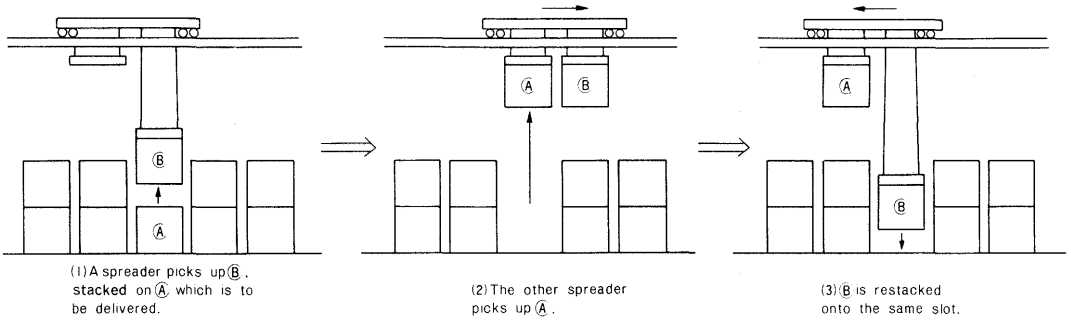

Fig. 4 Pick-up method by overhead carrier with two spreaders on MACS System in the case of delivering operation

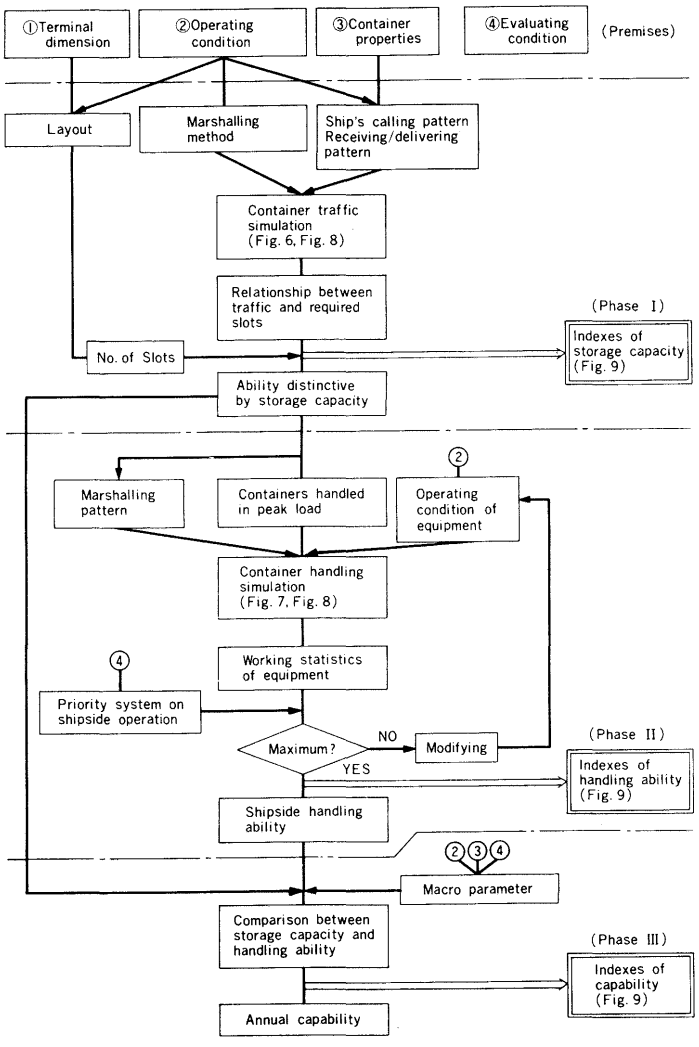

Fig. 5 General flow chart of working procedure

(3) The container shifter installed to the container crane transfers the container to itself from the container tramcar. The container crane picks up the outbound container from the container shifter and loads the container onto a ship.

The container crane is operated continuously by repeating the above-mentioned procedure to have high shipside handling ability. Unloading from a ship is operated by the inverse procedure to loading. In addition, dual operation can be also performed, for this system just like as TRAVERSER System.

2.2.2.2 Gateside operation

A container is received or delivered in the switching position located in the middle of each block, by the overhead carrier from or to the highway trailers.

As one of the special characteristics of MACS System, the lower one of containers stacked two high is easily picked up at delivering, by an overhead carrier with two spreaders, as shown in **Fig. 4.**

3. Simulation

3.1 General aspect of simulation method

3.1.1 Working procedure

Four operation systems, i.e., two MHI innovated systems as described in chapter 2, and two conventional systems in Japan, i.e., Straddle Carrier System (hereinafter called S/C System) and Tyre-mounted Transfer Crane System (hereinafter called T/C System), were simulated under the same procedure, as shown in **Fig. 5.**

The procedure was divided into three phases, taking into consideration the peculiarity of container terminal, that is, the traffic and properties are widely varied day by day.

(1) Phase I

The calling of containerships is characterized as regular and weekly service. Therefore, at first, container traffic simulation is to be performed throughout one cycle of terminal situation, i.e., one week, for deciding the weekly ability distinctive by storage capacity.

Practically, this value is obtained from the maximum slots of the terminal layout, using the relationship between required slots and weekly throughput plotted in several cases, for example, where terminal handles containers of 2000, 4000 or 6000 TEU in a week.

(2) Phase II

Container handling simulation is to be performed on the most congested day, which is selected according to the result of container traffic simulation described in Phase I, regarding to each characteristics of equipment. Required number of equipment and other handling indexes are obtained by trial and error.

(3) Phase III

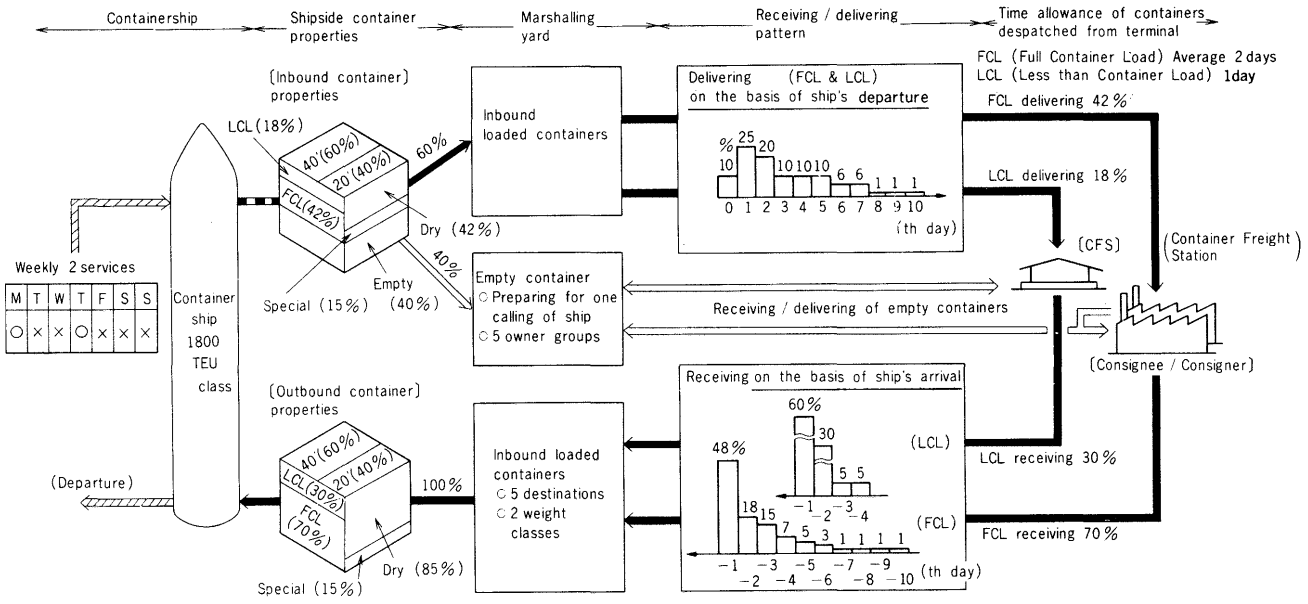

Fig. 6 Container flow model

Table 1 Equipment used for four systems

Item \ Operation system		TRAVERSER	MACS	Straddle carrier (S/C)	Tyre-mounted transfer crane (T/C)
Container crane		Max. speed	Traversing 150 m/min. Hoisting/lowering (no load) 50 (120) m/min.		
Main yard equipment	Name	Rail-base Transfer crane	Overhead carrier	Straddle carrier	Tyre-mounted transfer crane
	Travelling	100 m/min.	180	400	90
	Traversing	240 m/min.	120	–	35
	Hoisting/lowering (no load)	50 (120) m/min.	20 (40)	12 (13.8)	7.5 (15)
Auxiliary equipment		• Traverser	• Container shifter • Container tramcar	–	• Yard trailer

Annual capability of the terminal is determined for each operation system, through total evaluation of the results from Phase I and Phase II.

3.1.2 Premises

The following premises, referred to the condition of typical Japanese container terminals, were assumed to all four operation systems.

3.1.2.1 Terminal dimension

The terminal is of 300m x 350m (=10.5 ha), the berth length and the depth, respectively. The major part, 300m in length x 280m in depth from shipside (=8.4 ha), is to be allocated for apron and marshalling yard. The remainder, 2.1 ha, is reserved for auxiliary facilities, gates, CFS, maintenance shop, administration office, etc. Simulations were concentrated on the major part of 8.4 ha.

3.1.2.2 Operating condition

(1) Working hours

Daily working hours are assumed as follows.

	Shipside	Gateside	
Monday-Friday	16 hrs	8 hrs	Effective one year is assumed to be 50 weeks.
Saturday	8 hrs	8 hrs	
Sunday	off-duty		

(2) Equipment

Table 1 shows the kinds and principal characteristics of simulated equipment for each operation system. In the simulation, all equipment are assumed to be operated with the highest maneuverability. Two container cranes are assumed to be provided in each operation system.

(3) Marshalling yard

Terminal layout of each system was designed in consideration of the theoretical stacking tiers as shown in **Table 2.** Containers rehandled before loading onto a ship and after unloading from a ship are to be within 10% of whole containers. Information required for yard operation are to be obtained in advance.

(4) Ship's calling pattern

As shown in **Fig. 6,** containerships are to call at the

Table 2 Theoretical stacking tiers for four systems

(Tiers)

Kinds		Operation System / Symbol	TRAV-ERSER	MACS	S/C	T/C
Dry container	Out-bound	h_1	4	3	3	3
	In-bound	h_2	3	2	2	3
Empty container		h_3	4	3	3	4
Special container		h_4	1–2 (Common to operation systems)			

terminal twice a week, regularly on every monday and every thursday, and the number of containers loaded/unloaded is to be constant over 50 weeks. The type of ships is of 1800 TEU class, midship section of which is adopted for calculations of cycle time of container cranes.

(5) Receiving/delivering pattern

This is also shown in Fig. 6. The peak duration in a day as receiving/delivering is assumed to be of 4 hours in the morning, during which 55% of total highway trailers through a day are to arrive at the terminal.

(6) Stock of empty containers

The amount of loaded containers onto one calling ship is to be reserved as minimum stock of empty containers.

3.1.2.3 Container properties

The properties at shipside operation are shown in Fig. 6, which illustrates the ratio of loaded containers and empty containers, of 20 footers and 40 footers and of door-to-door containers (FCL) and consolidated containers (LCL) respectively for inbound and outbound. These are all indicated in TEU (20 footers equivalent unit) ratio, which can be translated into box ratio by multiplying 0.7 to them. This factor is introduced from the fact that the ratio of

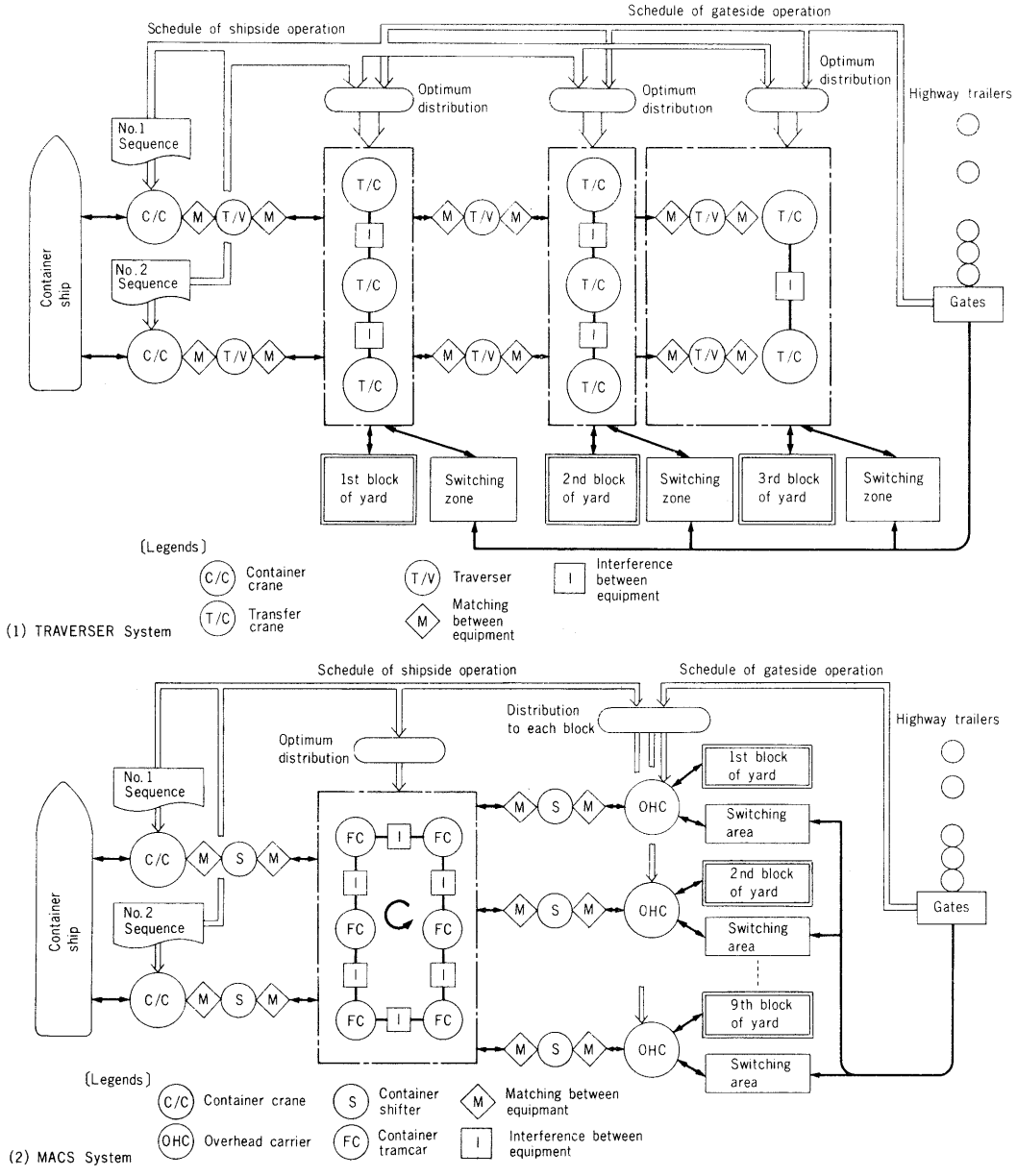

Fig. 7 Simulation model of container handling

40 footers is 60% in TEU base.

3.1.2.4 Evaluating condition

The net efficiency of container crane must be maximized as far as possible, for the quick despatch of containership, on which the first priority is assigned. Moreover, the total time consumed to the shipside operation per ship is to be within 2 days.

On the other hand, the gateside operation, receiving and delivering, is assumed to have the enough ability, that is, to finish the operation to highway trailers arrived in the morning at least by noon.

3.1.3 Container handling simulation

The models of TRAVERSER System and MACS System are shown in **Fig. 7.**

In general, waiting time losses happen when two or more equipment are operating simultaneously in the same yard. These are divided into two categories. One is caused by interference between equipment and the other by the requirement of co-operation with each other.

These conceptions were programmed into simulation study. **Fig. 8** shows the outline of output items obtained by simulation program.

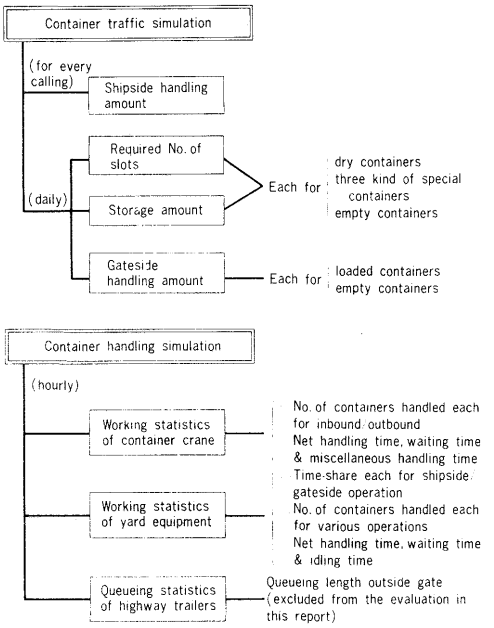

Fig. 8 Output items of simulation programs

3.2 Results of simulation study

3.2.1 Total comparison

Terminal must be evaluated by two different groups of indexes. One group is related to storage capacity, that is, how many containers can be stacked simultaneously in the terminal, the other is to handling ability, how many containers can be transferred from marine transportation to in-land or vice versa. They are shown in **Fig. 9,** with the indexes of capability, as for the total evaluation of both storage capacity and handling ability.

3.2.1.1 Indexes of storage capacity

(1) No. of slots [s]

This index shows how many slots can be allocated in the terminal for each operation system in TEU unit.

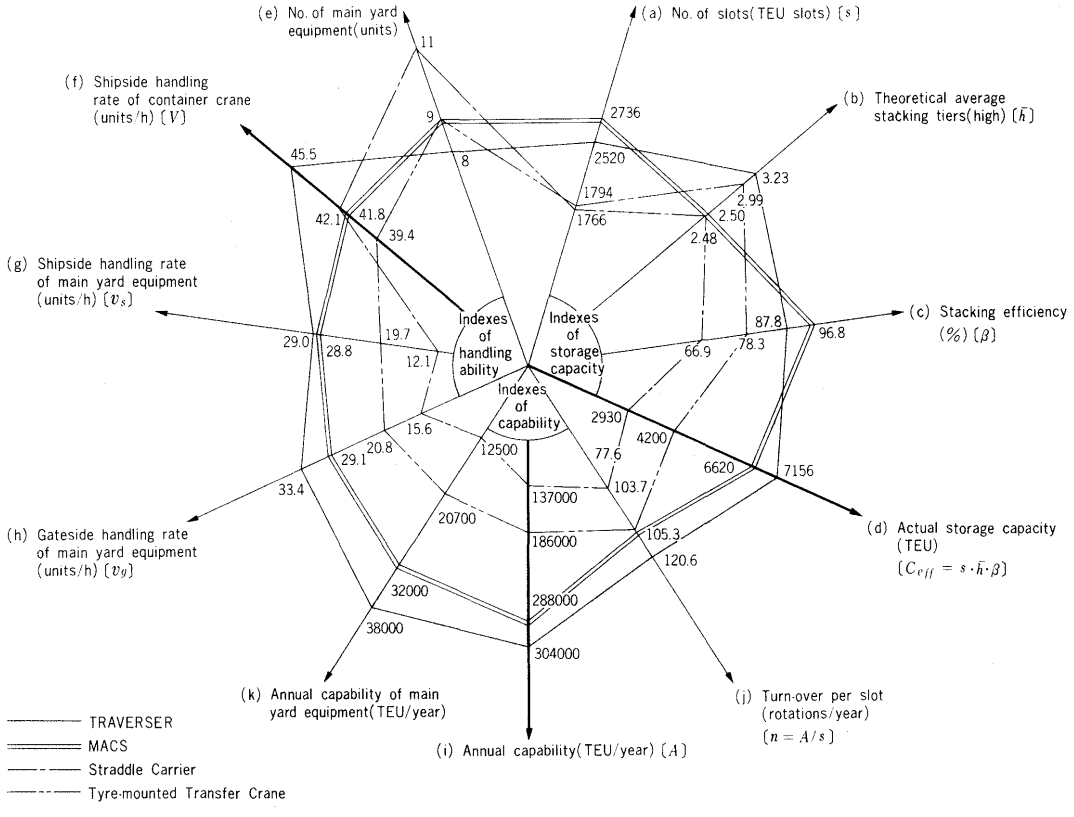

Fig. 9 Total comparison of four systems

Table 3 Comparison of various kind of indexes of storage capacity

Index \ Operation system: Symbol / Unit	Symbol	Unit	TRAVERSER	MACS	S/C	T/C	Remarks
No. of slots	s	TEU slots	2520	2736	1766	1794	Horizontal utilization of terminal area
Theoretical average stacking tiers	$\bar{h}$	Tiers	3.23	2.50	2.48	2.99	Max. vertical utilization of slot
Stacking efficiency	β	%	87.8	96.8	66.9	78.3	Stacking efficiency of storage capacity
Storage capacity	$C=s\cdot\bar{h}$	TEU	8146	6842	4372	5358	Max. storage capacity in consideration of container properties
Actual average stacking tiers	$h=\bar{h}\cdot\beta$	Tiers	2.84	2.42	1.66	2.34	Vertical utilization of slot in consideration of container handling
Actual storage capacity	$C_{eff}=s\cdot\bar{h}\cdot\beta$ $C_{eff}=C\cdot\beta$ $C_{eff}=s\cdot h$	TEU	7156	6620	2930	4200	Storage capacity in consideration of container handling

Innovated systems have a higher value than that of conventional systems. That is, MACS System and TRAVERSER System have the value of 1.5 times and 1.4 times, as conventional systems, respectively.

(2) Theoretical average stacking tiers [$\bar{h}$]

This index shows the average value of several theoretical stacking tiers, shown in Table 2, weighted by the share of slots allocated to each kind of containers, therefore, corresponds to the maximum vertical utilization of slot on the container properties concerned.

(3) Stacking efficiency [β]

This index shows the effective utilization of storage capacity [$C=s\cdot\bar{h}$] on the condition that containers are marshalled so as to be handled without too much trouble, which depends on ship's calling pattern and receiving/delivering pattern to be assumed. MACS System has the highest value because of almost 100% efficiency to inbound containers as a result of its easy rehandling procedure shown in Fig. 4.

Moreover, both innovated systems have higher efficiency than conventional systems as a result of easier accessibility to every slot where the designated container is located.

In case of TRAVERSER System, transfer cranes can be driven simultaneously both on travelling and traversing. In case of MACS System, overhead carriers never interfere with each other. Consequently, both innovated systems have no problem to introduce the effective marshalling method that one slot is identified to one attribute of containers. While, in case of conventional systems, one block composed of two or more slots is usually identified to one attribute to avoid interference and loss among equipment.

Table 3 shows various indexes of storage capacity, including the complex parameters, that is, storage capacity [C], actual average stacking tiers [h] and actual storage capacity [C_{eff}].

(4) Actual storage capacity [$C_{eff}=s\cdot\bar{h}\cdot\beta = C\cdot\beta = s\cdot h$]

This integrated index shows the maximum potentiality of container stacking on the condition not to disturb container handling so much. Thus, this value is the fundamental measure of storage capacity.

TRAVERSER System has the highest (7156 TEU) of four systems, 2.4 times as of S/C System (2930 TEU) and 1.7 times as of T/C System (4200 TEU), as a result of the even contribution of s, $\bar{h}$ and β to C_{eff}. MACS System has the second highest (6620 TEU), 2.3 times as of S/C and 1.6 times as of T/C, as a result of the highest s and β to C_{eff}.

It is concluded that both innovated systems are in higher class concerning storage capacity, further than conventional systems.

3.2.1.2 Indexes of handling ability

(1) Number of main yard equipment

This index shows the required number for container handling of both shipside and gateside simultaneously on the condition that two container cranes can be operated almost up to their maximum efficiency.

(2) Shipside handling rate of container crane [V]

This index shows the maximum rate per container crane supported by yard equipment which must perform gateside operation at the same time, therefore, is the basic value of shipside handling ability.

TRAVERSER System has the highest (45.5 units/h), 4–6 units higher than of S/C System (42.1 units/h), MACS System (41.8 units/h) and T/C System (39.4 units/h), for the shortest cycle pass of container cranes of four systems. On the contrary, in case of T/C System, the time loss for the adjustment to transfer containers between the spreader and yard trailer makes the rate a little lower.

(3) Shipside handling rate of main yard equipment [v_S]

This index shows the co-operated average rate with container crane for shipside operation. (Consequently,

V/v_S is the average number of main yard equipment grouped per container crane.)

It is understood that in case of conventional systems, the handling ability is achieved by large number of equipment with small handling rate, contrary to innovated systems.

(4) Gateside handling rate of main yard equipment [v_g]

This index shows the average receiving/delivering rate of containers from/to highway trailers per yard equipment, therefore is the handling rate of container traffic through gates.

TRAVERSER System has the value as 2.1 times as of S/C system and 1.6 times as of T/C system, while MACS system has the value as 1.9 times and 1.4 times, respectively. These show that yard equipment of innovated systems are designed in huge scale.

3.2.1.3 Indexes of capability

(1) Annual capability [A]

This index shows the maximum capability of terminal throughput evaluated by both storage capacity and handling ability.

TRAVERSER system has the highest value of 304000 TEU/year, as 2.2 times as of S/C System (137000 TEU/year) and 1.6 times as of T/C System (186000 TEU/year). MACS System has the second highest of 288000 TEU/year, 2.1 times and 1.5 times, respectively. That is, both innovated systems have about twice a capability as of S/C System. It is concluded that the most important target imposed on innovated systems has been fulfilled.

(2) Turnover per slot [$n=A/s$]

This index shows the annual productivity per slot, almost proportional to actual average stacking tiers [h]. Consequently TRAVERSER System has the highest, followed by MACS, T/C and S/C.

On the other hand, concerning turnover per terminal [$N=A/C$], which is proportional to stacking efficiency, MACS, TRAVERSER, T/C and S/C are in order of the higher value.

(3) Annual capability of main yard equipment

This value shows the annual capability per main yard equipment in the terminal. TRAVERSER System has the value of 38000 TEU/year, as 3.0 times as 12500 TEU/year of S/C System, and 1.8 times as 20700 TEU/year of T/C System, while MACS System has the value of 32000 TEU/year, 2.6 times and 1.5 times respectively. It is concluded that TRAVERSER System is the highest as for the capability per yard equipment.

This value also equals to the productivity per maximum number of drivers required for yard equipment, except for T/C System (which requires additional 8 drivers for yard trailers), considering that auxiliary equipment can be fully automated in case of innovated systems, and is not needed in case of S/C System. These suggest that innovated systems have higher productivity as for man-power further than that of conventional systems.

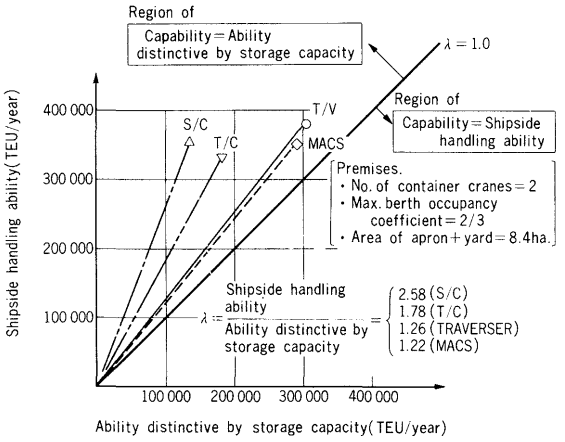

Fig. 10 Comparison between ability distinctive by storage capacity and shipside handling ability

3.2.2 Capability

As described in previous section, the capability of the terminal can be obtained by evaluating totally both storage capacity and handling ability which are two major indexes. Simulation study was performed on the condition that the handling rate of container cranes should be maximized for the quick despatch of containership, with the gateside handling ability not less than the ability distinctive by storage capacity. **Fig. 10** shows the comparison between ability distinctive by storage capacity and shipside handling ability obtained by the procedure above-mentioned. Shipside handling ability is greater than the ability distinctive by storage capacity for all systems.

Both innovated systems are situated to the nearest to the balanced line of two abilities, that is, have the storage capacity balanced with the shoreside handling ability of container cranes and their available operation hours through a year. On the contrary, S/C System has the great margin of shipside handling ability, so the expanding of storage capacity (for example, transferring the CFS outside the terminal) should be required to the increase of capability.

3.2.3 Yard equipment

3.2.3.1 Shipside operation

The handling rate of container crane depends on the number of co-operated main yard equipment, which is shown in **Fig. 11.** That is, the net efficiency of container crane varies with the number of co-operated main yard equipment, and their own net efficiency also varies. The relationship in case of loading is different from that in case of unloading, because of the difference of stacked location.

The net efficiency of main yard equipment is lowering down rapidly as increasing the efficiency of container crane up to 100%, which shows that the marginal efficiency of main yard equipment to the shipside operation is lowering down. The values of (f) and (g) shown in Fig. 9 correspond

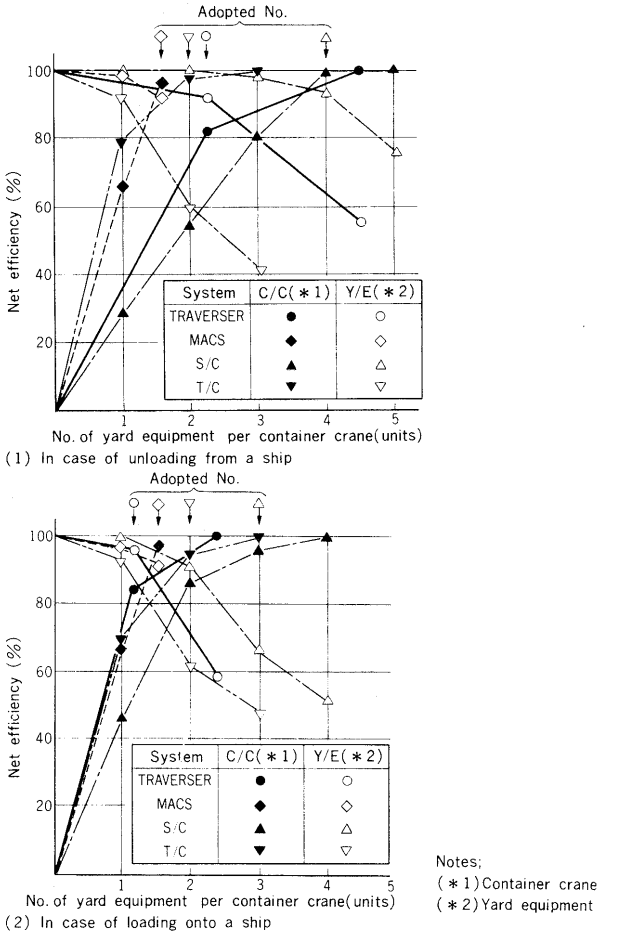

Fig. 11 Relationship between No. of main yard equipment and net efficiency at shipside operation

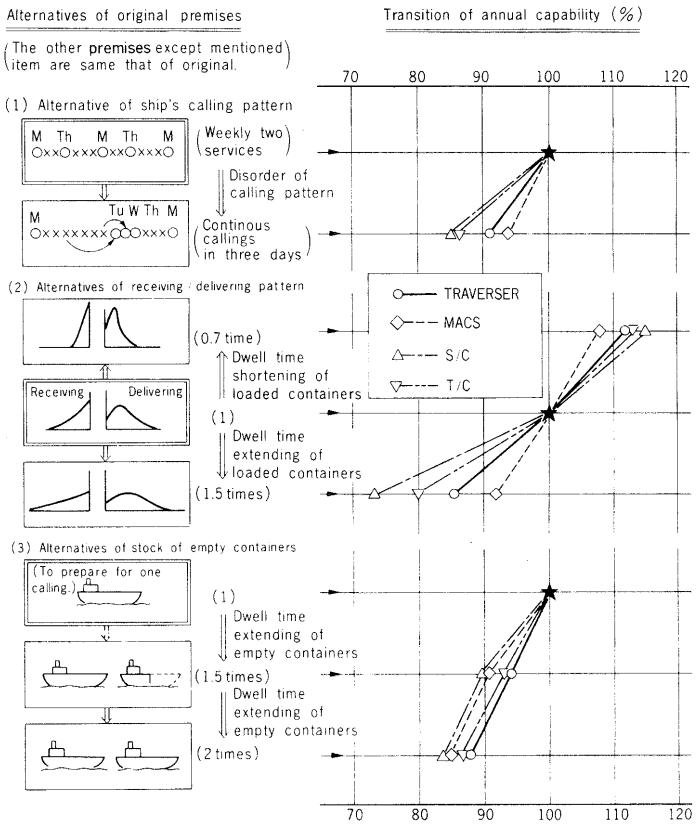

Fig. 12

Transition of annual capability for alternatives compared with original premises

to the adopted number of yard equipment in Fig. 11 which maximizes the net efficiency of container crane on the condition that the shipside operation should not disturb the gateside operation or that the efficiency of yard equipment should not be too much decreased.

TRAVERSER System has the highest speed of shipside operation (45.5 units/h) of four systems as a result of its theoretical cycle time (66.3sec) of container crane, shorter (about 20sec) than that of other three systems (83.5–88.5sec). In another point of view, Fig. 11 also shows that S/C System has high flexibility of preference of either shipside handling ability or net efficiency of main yard equipment, as compared with other three systems.

3.2.3.2 Gateside handling ability

The gateside handling ability per main yard equipment can vary with the interference among yard equipment, the amount of receiving/delivering or their location and sequence to be handled. However, almost constant ability is obtained, in case that the number used to the shipside handling is less than the adopted number described in previous section. The value of (h) in Fig. 9 is related to (e), (f) and (g).

3.3 Transition of annual capability for alternatives compared with original premises

The premises described in 3.1.2 usually vary with the port location, where container terminal is constructed, ship operator and sailed routes to be accepted.

The simulation studies were performed also for the alternatives of five cases, shown in **Fig. 12.** In every case, one of three major factors, ship's calling pattern, gate receiving/delivering pattern and the stock of empty containers, is varied independently from the original premises described in 3.1.2.

3.3.1 Alternative of ship's calling pattern

This is the case that containerships arrive at the terminal in three continuous days.

Considering the yard allocation of containers over these three days, empty containers stacked in the terminal have been changed to the outbound loaded containers, received and stacked to the terminal before ships' arrival. On the contrary, almost all of the slots allocated to outbound loaded containers have been rearranged to inbound loaded containers after ships' departure.

It is recognized that terminal has varied not only on the situation of the amount of stacked containers, but also on their properties, as compared with original premises in which the regular service is assumed. Extra slots are required temporarily over three days during which container ships arrive day by day. Slots are totally required up to those required for inbound containers corresponding to three ships' callings plus outbound to one calling (or in-

bound to additional one calling).

MACS System is influenced in the least on its annual capability by the change of calling pattern, because of almost complete stacking efficiency of inbound loaded containers nearest to 100%, while the capability of conventional systems highly decrease, because of the extreme lowering of stacking efficiency of inbound containers at the time when containers have not been yet remarshalled. To increase these stacking efficiency, the rehandling should be operated in the earlier stage than that of premises described in 3.1.2.2(3).

3.3.2 Alternatives of receiving/delivering pattern

Alternatives consist of two cases, one is the shortening of receiving/delivering pattern and the other is the extending. MACS, TRAVERSER, T/C and S/C are in order of the less influenced rate on their capabilities.

Considering the stacking efficiency of loaded containers over the arrival and departure of a containership, the efficiency is worst on the day when outbound containers just have been marshalled to prepare for ship's arrival or on the day when inbound containers have not been yet remarshalled after ship's departure.

On these days, many slots are required for the stacked containers. The stacking efficiency of innovated systems is relatively on the same level as in case of original premises, compared with that of conventional systems, because the marshalling method of innovated systems is based on every slot, on the other hand, the method of conventional systems is based on the block composed of two or more slots. Consequently, both innovated systems have the annual capability on the same level for the alternatives to original premises.

3.3.3 Alternatives of the stock of empty containers

Alternatives consist of two cases, one is the enlarging of empty containers to 1.5 times as compared with that of original premises, the other one is to 2 times.

As shown in Table 2, the theoretical stacking tiers of empty containers are four high in TRAVERSER System and T/C System, and three high in MACS System and S/C System. This is why the latter systems require more slots for empty containers than the former, thus the net utilized slots for loaded containers decrease proportionally to their requirement for empty containers. Consequently, MACS and S/C tend to decrease on their capability more than TRAVERSER and T/C.

There are many reasons why the stock must be enlarged, that is, the increasing of sailing routes of containerships, owners of containers and the ratio of damaged containers. Under these situations, operation systems with high stackability would be preferable.

Required number of main yard equipment may also change by the alternation of premises, as compared with that on original premises (refer to (e) in Fig. 9). However, any operation system has higher handling ability than ability distinctive by storage capacity, as a result of increasing or descreasing the number of yard equipment used.

Turnover per slot (u = annual capability/slot) is also changed by the alternation of premises in the equal manner to annual capability, because of the constant value of slots for any alternatives.

4. Conclusions

It has been confirmed by simulation study on the model of Japanese typical terminal, that both TRAVERSER System and MACS System have the capability as more than twice as that of conventional systems to the same area.

4.1 TRAVERSER System

It is concluded that this system has annual capability about as twice as of conventional systems, 2.2 times as of S/C System and 1.6 times as of T/C System.

The actual storage capacity is greater than that of conventional systems, 2.4 times as of S/C Systems and 1.7 times as of T/C System. In addition, this will become higher in the case that terminal handles few special containers which cannot be highly stacked or handles many empty containers which can be highly stacked.

The shipside handling rate of container crane is 4–6 units/h greater than that of conventional systems, which corresponds to additional annual handling ability of 30000–50000 units.

TRAVERSER System requires large scale of capital investment to rail-based transfer cranes of huge span length, then more containers must be handled up to the capability. On the other hand, the area required to the same capability as conventional systems is only as half as that required to conventional systems.

4.2 MACS System

It is concluded that this system has also annual capability about as twice as of conventional systems, 2.1 times as of S/C System and 1.5 times as of T/C System.

The actual storage capacity is also greater than that of conventional systems, 2.3 times as of S/C System and 1.6 times as of T/C System. The shipside handling rate of container crane is same as that of conventional system. Working hours must be extended, or the number of container crane must be increased to get higher shipside handling ability.

On the other hand, MACS System has higher gateside handling ability than TRAVERSER System, because of the easier procedure on rehandling. As for the capital investment and the area required to the same capability as of conventional systems, the same conclusions are obtained as of TRAVERSER System.

4.3 Conventional systems

They are second to innovated systems as to the storage capacity, handling ability and capability. However S/C System has flexibility to increase the annual capability over 137000 TEU/year, obtained from simulation study, by changing the row number of slots per yard block, for example. On the contrary, T/C System has no more poten-

tiality to exceed its capability of 186000 TEU/year obtained by simulation.

In case of S/C System, the calculated number of main yard equipment, 11 units, is the same as the actual number. Therefore, the annual capability obtained by simulation study may be feasible. While, in case of T/C System, the calculated number, 9 units, is as twice as the actual by following reasons.

Actual terminals of T/C System in Japan have not yet fully utilized its storage capacity, otherwise would be supposed to fall into disadvantage of the low net efficiency of transfer cranes as a result of interference with each other, especially on the road at lane changing that was excluded from simulation study. If the actual situation is to be caused mainly by the interference above-mentioned, the simulated annual capability could not be achieved.

S/C System is suitable for container moving, but not for container storing, then needs to have wider area to increase its annual capability, for example, by transferring CFS out of terminal. In another point of view, S/C System has the highest flexibility of four systems for the container operation, but will be hardly automated as a future requirement.

On the other hand, T/C System has the storage capacity between those of innovated systems and of S/C System, to say, preferable to container storing. There remains some problem on shipside handling, that the net efficiency of transfer cranes are decreasing as increasing the number cooperated with a container crane, or shipside handling ability are decreasing as decreasing the number. The same consideration on MACS System would be required to increase the handling ability more than the value calculated by simulation. The automation can be easily introduced, on the contrary to S/C System.

As described above, TRAVERSER System would belong to the system with high storage capacity as a result of improvement of T/C System, and MACS System would have high gateside handling ability as a result of improvement of S/C System. In addition, TRAVERSER System is preferable to the terminal which handles a large scale of LCL cargo, while MACS System is to the terminal of FCL cargo.

5. Future program

The simulation studies on both conventional systems and MHI innovated systems were performed in consideration of their each characteristics, but some factors had to be excluded from these studies, that is, the interference of tyre-mounted equipment with each other on the road, for example, for lane changing in case of T/C System, and the limitation of queue length and waiting time outside gate for all systems. The interference would decrease both shipside and gateside handling ability and the limitation to queue would increase the required number of yard equipment, therefore, actual value may be different from that obtained by simulation.

As for the further study to realize these innovated systems, three subjects may be considered; economic study, development of optimum system of equipment control and information processing. The economical condition to innovated systems must be studied comparing to conventional systems.

The multi-purpose simulation programs for the study above-mentioned, can be adopted to wide range of conditions, and are confirmed to contribute the planning of container terminal.

The authors thank for the co-operation of N.Y.K. Line, very much.

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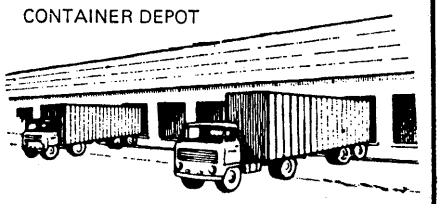

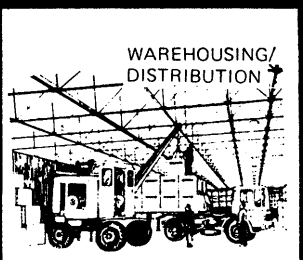

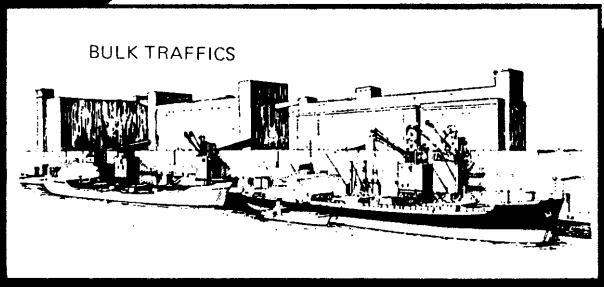

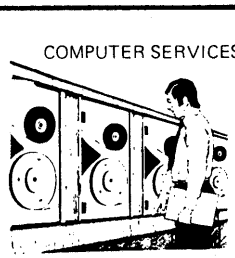

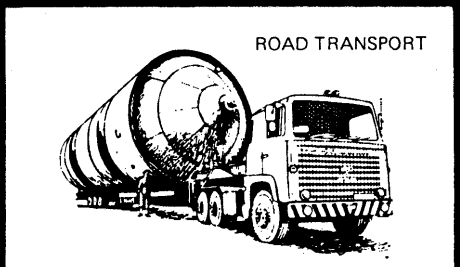

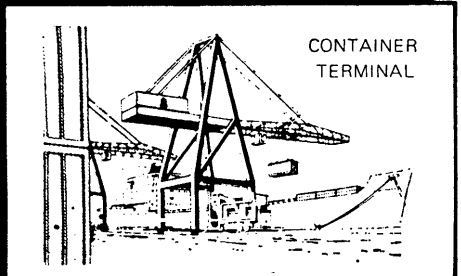

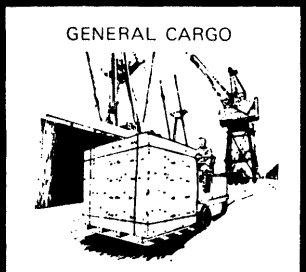

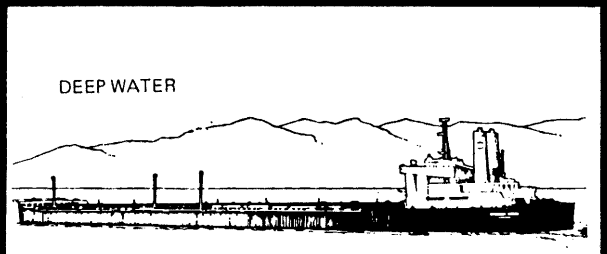

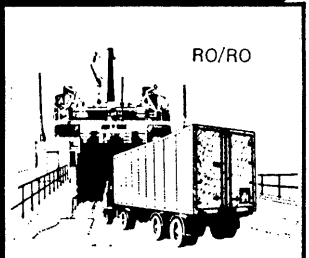

steadily building its services to industry -on land and sea

Clydeport is not only a superb natural estuary with every modern quayside facility. It also offers a growing range of shore-based activities which provide a comprehensive transport and business service.

Marketing Department
CLYDE PORT AUTHORITY
16 Robertson Street, Glasgow G2 8DS, Scotland
Telephone 041-221 8733 *Telex 778446*

Annual Report 1980: Nanaimo Harbour Commission (Extracts)

1. Chairman's Report (extract)

For three successive years business in the Port of Nanaimo has continued to show healthy growth, but at the end of 1980 the Nanaimo Harbour Commission can truly report a boom year.

As this annual report shows, trade through the port grew by 34 per cent in 1980, a significant and highly satisfactory increase over previous record year-end figures.

The increase is mainly due to a continuing growth in exports of lumber, up to 782,212 metric tons over the Assembly Wharf, a jump of more than 200,000 metric tons over 1979.

These figures are particularly pleasing, but also are the results of a year of overall progress and development.

PORT TRADE GROWING

Statistics for 1980 show the Port of Nanaimo continues to grow as a collector port for the Central Vancouver Island region, and indications are the trend will strengthen.

Exports form a growing list of client shippers continued to favor the healthy Japanese market, but other traditional buyers showed strong increases through the year. Exports to the United Kingdom more than doubled in 1980 and Europe, mainland China and Australia made advances.

SUMMARY OF CARGOES

During 1980, 171 vessels with total net registered tonnage of 1,983,057 entered the Port of Nanaimo to load or discharge cargo.

Exports over the Nanaimo Assembly Wharf were (metric tonnes)—

Lumber	653,398
Pulp	91,643
Plywood	17,871
Newsprint	16,130
Kraft linerboard	126
Shingles	549
Logs (Brereton)	16,559

More than 110.6 million gallons (some 4.7 million tonnes) of petroleum products in 260 barges were shipped into Nanaimo for distribution on Vancouver Island in 1980.

CP Ferries carried 52,421 commercial highway trailers between Nanaimo and Vancouver through the year in addition to 15,388 ferried rail cars.

BC Ferries handled 1,266,600 commercial and passenger vehicles into Nanaimo's Departure Bay and a total of 3,330,027 passengers.

INVESTMENT AND MAINTENANCE

A major investment in fixed assets at the Nanaimo Assembly Wharf was $302,146 for rebuilding the approaches to B and C berths in preparation for Ro-Ros. The first Ro-Ro was loaded at B berth in September, and proved Nanaimo is now capable of handling every kind of cargo-carrying vessel.

Paving was done and new lighting was also installed in the Assembly Wharf area to a value of $52,838. More storage space was added by the demolition of the old Kerr-McGee warehouse, drainage and water services extended, and the yard area approach trestle resurfaced. New Assembly Wharf portals were also erected, and major renovations made to the longshoremens' lunchroom.

$226,344 was spent on the purchase of new cargo handling machinery.

Salaries and wages for commission staff and longshoremen employed at the Assembly Wharf totalled $1,894,000. With administrative, operating and maintenance expenses added, it is estimated more than $3.5 million was injected into the local economy by the Nanaimo Harbour Commission.

NEW MILLS OPENED

1980 saw the official opening of two ultramodern sawmills in the Port of Nanaimo, and both have made strong contributions to the vitality of the harbour area.

The $17 million Mayo Forest Products mill on the Assembly Wharf sawed its first log March 17, and Doman Industries of Duncan completed building their $25 million mill at Duke Point in October.

The Doman company has since confirmed its intention of building a $100 million thermo-mechanical pulpmill adjoining the sawmill and expect to proceed with plans in 1981.

PORT DAYS

Nanaimo Port Days attracted capacity crowds on a series of harbour tours September 26 and 27. The charter vessel Bastion City showed approximately 600 locals and visitors the extent of the port and how it operates.

NEW PORT BEGUN

August 7 was a particularly big day for the Nanaimo Harbour Commission when we became a signatory and partner in a $20.5 million agreement to build a deep-sea port at Duke Point, the 350-acre industrial park being built by the B.C. Development Corporation three kilometers south of Nanaimo.

The Nanaimo Harbour Commission, in cooperation with federal and provincial governments, will invest in excess of $40 million in the two-berth facility which is scheduled to open in September 1981. When complete the docks will effectively double Nanaimo's export capacity.

Dillingham Corporation has begun work at the site, and is confident of meeting the September target date. In the meantime, the B.C. Development Corporation has nearly completed site preparations, and with the interest already expressed by industry, the Nanaimo Harbour Commission is confident of a successful future there.

NANAIMO TO HOST CPHA

At the October annual convention of the Canadian Ports and Harbours Association in Halifax, Nanaimo won the honour of Presidency of the Association for 1981, and will host the national body at its next annual meeting in Nanaimo, in September.

I took it as an honour for the Nanaimo Harbour Commission to be accorded the CPHA leadership, and see it as an acknowledgement of the efforts of previous Comis-

(Continued on page 31 bottom)

Annual Report 1980: Cairns Harbour Board (Extracts)

1. Chairman's Report (extract)

Detailed throughout this Report are the financial results of the Board's operating accounts, and it is pleasing to note that all accounts except hire plant recorded an excess of income over expenditure. Included in the operating account Wharves is income derived from tonnage dues on trawlers and the special Levy of one cent a kilogram on prawns. Income derived from and expenditure incurred within the industry will be separately accounted for in future years. This procedure would have materially affected the year's result from shipping.

Confidence in the future of the Port of Cairns is possibly better reflected by the statistical data, development within the Port and the demand for land, particularly with water frontage.

The year did not pass without raising problems and demands which the Board found difficult to solve or satisfy. This area is principally confined to the fishing industry and small craft facilities. However, plans have been prepared for the development of the foreshores north of the Marlin Jetty to cater for pleasure game fishing and charter vessels.

M. BORZI, O.B.E.
Chairman

2. Shipping and Trade

A shipment of 7 695 tonnes of copper ore on the "Regent Fleur" to Japan in April of this year was the first bulk consignment of minerals to be loaded in the Port. The bulk loading facility was constructed by Mareeba Mining & Exploration Pty Ltd. at No. 5 Wharf with a back-up storage shed at the rear. It is expected that five or six shipments will be made in 1980-81 and may be progressively increased.

Overall trade through the Port was 831 733 tonnes, compared to 807 475 tonnes the previous year. The principal export commodity, raw sugar, decreased by 19 475 tonnes. This product is controlled by seasonal conditions rather than demand; molasses—42 184 tonnes, petroleum products—11 525 tonnes, maize—6 381 tonnes, fruit and vegetables—6 697 tonnes are among the items included in the total exports of 457 049 tonnes.

Imports of 374 684 tonnes were principally petroleums—down 12 272 tonnes, fertilizers—up 25 064 tonnes and general cargo—up 13 795 tonnes. Both imports and exports on the coastal trade showed satisfactory improvement.

Eleven tourist vessels of a combined gross registered tonnage of 180 752 tons made Cairns a port of call within the year. The stay time in port is generally from 12 to 24 hours, which gives passengers adequate time to visit Green Island, the Atherton Tablelands, a trip along the Cook

(Continued from page 30)

sioners and staff that Nanaimo now enjoys its prominent place in the ranks of national ports.

Don J. Rawlins,
Chairman

2. Balance Sheet as at December 31, 1980 and 1979

ASSETS

	1980 $	1979 $
CURRENT	2,942,892	1,817,563
FIXED		
Fixed assets	8,963,709	8,382,380
Less: Accumulated depreciation	3,635,595	3,209,922
	5,328,114	5,172,458
DEFERRED CHARGES		
Harbour development costs	485,455	236,387
	8,756,461	7,226,408

LIABILITIES

	1980	1979
CURRENT	427,421	234,942
DUE TO CONTRACTORS		
Holdbacks	–	38,569
LONG TERM DEBT		
Due to Canada	–	16,043
Less: Portion due within one year	–	16,043
	427,421	273,511

EQUITY

Government of Canada's Contribution	3,322,049	3,322,049
Nanaimo Harbour Commission		
Accumulated earnings beginning of year	3,751,041	3,093,469
Excess of revenues over expenses for the year	1,376,143	657,572
	5,127,184	3,751,041
Capital loss on disposal of fixed assets	(120,193)	(120,193)
TOTAL EQUITY	8,329,040	6,952,897
	8,756,461	7,226,408

3. Statement of Income for the Year ended December 31, 1980

	1980 $	1979 $
REVENUE		
Harbour dues	90,104	84,326
Property rentals	212,205	188,725
Commercial Inlet Basin	115,963	97,121
Assembly Wharf	3,817,008	2,700,334
Other	232,813	122,348
	4,468,093	3,192,854
EXPENSES		
(Depreciation)	(425,673)	(439,581)
	3,091,950	2,535,282
NET INCOME FOR THE YEARS	1,376,143	657,572

Highway or a train ride to Kuranda.

One hundred and eight overseas and 327 coastal vessels entered the Port within the year.

Shipping problems that the Board is faced with include the accommodation for the ever-increasing number of fishing vessels, principally trawlers, private and charter vessels, and sporting craft.

During the year, a 51-berth trawler base was constructed in Smiths Creek at a cost of $1.148 million.

Water is available at each berth, and a number of single-phase coin-in-the-slot power meters have been provided on each jetty; a fuelling facility has been installed on D. Jetty. Adjacent to C. Jetty, an amenities block consisting of showers and toilets has been constructed, and two lessees are to construct a ships' chandlery store and kiosk, and a repair facility and travel lift.

3. Development

At a completion cost expected to exceed $8 million, a base is to be constructed for the Australian Navy. The land area of approximately 2.5 hectares will accommodate offices and workshops, and this part of the contract to fill the land was completed prior to 30th June, 1980. Dredging of the area between No. 10 Oil Wharf and the Bulk Sugar Terminal Wharf No. 12 is in progress. The dredge can be seen pumping spoil through a pipeline to the shore and on to the top end of the Board's reclamation area approximately 1 kilometre from the base. Construction of the wharves should commence at an early date, and Naval vessels now berthed at No. 1 Wharf should transfer to the base by the end of 1981.

The demand for ship repair facilities has prompted expansion and redesign of some of the present leases at Senrab Point where Tropical Reef Enterprises have installed a new slipway which will accommodate vessels to 800 tons. An additional area is being developed within the Commercial Fishermen's Base. North Queensland Engineers and Agents Pty. Ltd., the largest ship construction and repair company in the area, are also expanding and updating their works.

Within the reclaimed area in Smiths Creek, the Board constructed a barge loading ramp at a cost of $30,000. The ramp is 7 metres wide and 21 metres long, with adequate deep water. Users of the ramp principally service gulf and peninsula ports.

4. Balance Sheet as at 30th June, 1980

30-6-79 $		30-6-80 $
4,216,448	CAPITAL	4,681,224
798,378	RESERVES	836,961
6,752,921	SUBSIDIES AND NON-REPAYABLE ADVANCES FOR CONSTRUCTION	7,383,626
$11,767,747		$12,901,811
	REPRESENTED BY	
81,889	CASH AND BANK BALANCES	118,152
1,035,107	INVESTMENTS	1,545,231
290,101	SUNDRY DEBTORS	431,604
12,118	STORES ON HAND	14,478
15,200	PREPAYMENT	14,750
68,902		
1,365,513		
	Add–	
567,893	LONG-TERM INVESTMENTS	443,457
4,905,405	FIXED ASSETS	4,829,825
371,690	WORK IN PROGRESS	1,750,044
11,832,062	ASSETS PROVIDED BY LESSEES	11,832,062
19,042,509		20,945,400
	DEFERRED LIABILITIES–	
4,175,723	Debenture/Inscribed Stock Loans	5,144,005
2,488,553	Sinking Fund Loans	2,516,556
303,344	Security Deposits	288,713
73	Provision of Maintenance	94,315
7,274,762		8,043,589
$11,767,747		$12,901,811

5. Income and Expenditure Account for the Year ended 30th June, 1980

	30-6-80 $	30-6-79 $
INCOME		
WHARVES (Harbour Dues and Tonnage Rates)	1,414,681	1,200,366
LANDS AND TENANTEE BUILDINGS	325,912	235,643
SMALL BOAT HARBOURS FACILITIES	53,832	53,272
CONVEYOR SYSTEMS	1,662	2,384
HIRE PLANT	58,093	62,236
INCOME QUARRIES–RIVER SAND DREDGING	51,373	35,693
WORK OTHER THAN HARBOUR BOARD	290,733	72,015
TOTAL OPERATING INCOME	2,196,286	1,661,684
NON-OPERATING INCOME	167,333	136,107
TOTAL INCOME	2,363,619	1,797,701
TOTAL OPERATING EXPENDITURE	1,902,481	1,542,179
Excess of operating Revenue over Expenditure	(293,805)	(119,505)
NON-OPERATING EXPENDITURE	16,570	33,496
Excess of Income over Expenditure	(150,763)	(102,521)
TOTAL EXPENDITURE	1,919,051	1,575,675
Excess of Operating and non-operating Income over Expenditure	444,568	222,026
	$2,363,619	$1,797,701

Annual Report 1979/80: Gladstone Harbour Board (Extracts)

1. Chairman's Review (extract)

The year ended 30th June, 1980 will be regarded as one of the most significant in the history of the Gladstone Harbour Board.

It was a year which saw completion of Stage I of the Clinton Coal Facility and the commencement of major Port facilities associated with new industrial developments in the Gladstone area.

On 7th May, 1980, Sir James McNeill, K.B.E., Chairman of The Broken Hill Proprietary Company Limited, formally opened the Clinton Coal Facility in the presence of The Hon. J. Bjelke-Petersen, M.L.A., Premier of Queensland. The opening of this facility heralded a new era in the handling of coal at Gladstone. Even as Stage I was being opened, tenders were being called for Stage II, which will result in doubling the present 600,000 tonne stockpile space.

Contracts were let and work is currently under way on the provision of new Port facilities to cater for the Clinker Works to be operated by Queensland Cement and Lime Company Limited at Fisherman's Landing, and for Comalco's Aluminium Smelter at South Trees. In each case a major wharf and causeway are being constructed.

As a venture between the State Wheat Board, other grain interests, and the Harbour Board, a further 6,000 tonnes of silo storage was erected at Auckland Point for the handling of growing tonnages of grain from the Callide/Dawson district and the Central Highlands.

The Board has also proceeded with the construction of a new tug base between Auckland Point and Barney Point.

Dredging of approach channels to the Clinton Coal Wharf and the Fisherman's Landling Clinker Wharf was also completed during the year.

In addition to the above, the Board's own workforce was engaged on an extensive reclamation programme mainly in the Clinton area and also in the development of the Board's Industrial Estate between Auckland Inlet and the Calliope River.

The Board commenced operation of the Clinton Coal Facility, continued to operate Auckland Point Coal Loader, and carried out routine maintenance throughout the Port.

Cargo throughput for the year was 17,105,301 tonnes, an all-time record for the Port and a 6.4% increase over the previous year. The cargo was handled in 459 vessels of 12,032,459 gross registered tonnes. With the exception of 1,871 tonnes of heavy equipment, the entire cargo was handled in bulk.

Coal remains the single largest cargo handled and represents 41% of the throughput, whilst approximately 54% of the cargo handled was products associated with the Alumina Refinery operated by Queensland Alumina Limited.

Harbour Dues collected amounted to $1,848,197, and Tonnage Rates were $342,807.

As revealed by the Financial Statements, the Board's finances remain in a sound condition. Port Charges are kept under close scrutiny, and during the year only minor increases occurred reflecting changes in monetary values.

As mentioned earlier, massive developments are currently taking place in the Port of Gladstone. Further industrial expansion is planned and the Board works closely with Government Departments; in particular, the Department of Commercial and Industrial Development, and the companies concerned, to ensure appropriate planning undertaken to best utilise the Port's potential for future expansion.

Considerable discussions have taken place regarding the provision of Port facilities with companies connected with proposed new industries. These include interests associated with the development of the Rundle Oil Shale deposits, the developers of a major coke works, and Alcan's proposed Aluminium Smelter.

The area west of the Calliope River is favoured for future development. Heavy demand for land in this area indicates that massive reclamation will be required. To assist in ascertaining the effects of such reclamation of flows in the Harbour, the Board established a Hydrographic Review Group which commenced its studies during the year. The Group's first report is expected soon.

In recent years it has been uppermost in the Board's thinking that Gladstone Harbour must be developed to accommodate vessels in the 120,000 deadweight class, and following drilling of the seabed, a report released during the year showed that no difficulty exists in dredging the Port to take vessels of this class, and policy formulated by the Board indicates that dredging will proceed as soon as suitable financing arrangements can be made.

For many years the Board has been aware of the protective value offered to the Harbour by Facing Island. During the year, the Board acquired leases covering the majority of the Island. This now places the Board in an able position to determine its future management.

Gladstone Harbour and the nearby Barrier Reef are popular with boating enthusiasts. To date, the Board has managed the Auckland Inlet Smallboat Harbour to cater for boating in the area. The growth in popularity in this field both as a business and pastime is recognised by the Board and during the year it adopted a conceptual plan for the construction of a large marina complex in the bunded area west of Auckland Inlet. The total development is a long term project but initial works will commence in the 1980/81 Financial Year.

A.W. O'ROURKE
Chairman

(Continued on next page)

2. Balance Sheet as at 30th June, 1980

1979 $		1980 $
18,455,510	Accumulated Funds	20,960,336
	Represented by:	
6,167,697	Current Assets	3,969,072
	Deduct:	
392,612	Current Liabilities	1,510,922
5,775,085	WORKING CAPITAL	2,458,150
	Add:	
	Fixed Assets	
	Wharves & Services	1,903,647
	Land & Buildings	12,148,113
	Smallcraft Facilities	230,541
	Conveyor Systems	433,494
	Administration Building & Equipment	732,025
	Plant & Equipment	710,086
	Channels & Swing Basins	1,362,509
	Causeway & Bridge	866,371
	Work in Progress	31,995,768
25,099,639		50,382,554
30,874,724		52,840,704
	Deduct:	
	Long Term Liabilities	
	Security Deposits	25,049,341
	Loan Indebtedness:	
	Treasury Loans	1,278,896
	Inscribed Stock	3,883,283
	Debenture Loans	1,738,972
		31,950,492
	Less:	
	Sinking Fund	70,124
12,419,214		31,880,368
18,455,510		20,960,336

3. Income and Expenditure Statement for year ending 30th June, 1980

1979 $		1980 $
	Income	
	Wharves	
	Harbour Dues	1,848,197
	Tonnage Rates	342,807
	Rental	150,206
	Miscellaneous	90,216
2,247,542		2,431,426
	Land and Buildings	
202,107	Rental	265,963
	Smallcraft Facilities	
28,412	Mooring and Berthing Fees	31,348
	Conveyor Systems	
2,110,808	Handling Charges	2,661,570
4,588,869		5,390,307
	Deduct	
	Direct Expense Wharves	
	Operation and Maintenance	255,148
	Depreciation	247,630
391,066		502,778
	Land and Buildings	
	Operation and Maintenance	63,435
	Depreciation	86,306
121,338		149,741
	Smallcraft Facilities	
	Operation and Maintenance	48,254
	Depreciation	12,992
61,331		61,246
	Conveyor Systems	
	Operation and Maintenance	1,404,263
	Depreciation	435,611
1,638,701		1,839,874
2,212,436		2,553,639
	Gross Operating	
2,376,433	Surplus	2,836,668
	Deduct	
	Indirect Expense	
	Administration	443,157
	Interest	426,071
790,204		869,228
	Net Operating	
1,586,229	Surplus	1,967,440
	Add	
633,160	Non Operating Income	537,386
	Surplus Transferred to	
2,219,389	Accumulated Funds	2,504,826

(Turned back from page 36)

added to No. 1 reach leading lights on Matakana Island, and a new rear lead for No. 2 reach is under construction north of the Waikareao Estuary rail bridge.

– floating and shore plant, buildings, harbour facilities, slipway, wharves, hardstanding and so on.

- A replacement workboat is under construction and should be operational early next year.

J.W. Syme J.P.
CHAIRMAN

Annual Report 1980: Bay of Plenty Harbour Board (Extracts)

1. Chairman's Review (extract)

Trade and Shipping

Throughout the year export levels showed a steady national growth which in our Port's trans-Tasman and international trading resulted in a total cargo throughput of 3,782,613 tonnes, surpassing last year's record and maintaining the upward trend over the past five years in which a trade gain of almost 1.6 million tonnes has been made.

During the year 904,000 tonnes of logs and timber were exported to Japan, representing 39% of our export trade. Recently-announced reductions in Japanese log requirements in the first part of this new trading year, and a possible lower level of timber exports, will inevitably reduce our anticipated trade and revenue levels but it is hoped that the recession will be temporary.

During the year, 524 vessels—7 less than last year—uplifted or discharged 52,300 more cargo tonnes. This indicates a more efficient use of the Port's facilities with consequential savings to shippers and shipping companies, but the reduction in revenue and consequently the amount of finance available to service loans and fund capital works must be considered by the new Board.

Problems of shipping congestion experienced earlier in the year were overcome with the introduction of a new berthage policy for the more rational use of berths, and an increase in the number of permanent waterside workers. The more orderly arrival of ships in recent months has eliminated berthing delays and labour shortages, reducing ship turnaround time from arrival in the roadstead to departure.

Finance

The Board earned a gross income from port operations of $9,667,000, principally from wharfage, shipping services, and storage facilities a figure 14% higher than last year. This was due to the record tonnage handled and to the increase in charges introduced in May 1980. Other income from investments and rentals totalled $780,000.

However, consistent with the trend of past years, operating expenditure increased by 23% to $5,100,000, due mainly to continually increasing wages and material costs.

Loan interest payments were $1,600,000, 8.5% higher than last year, and payments to sinking funds and loan repayments were $1,100,000. Residual net revenue, supplemented by loan monies, financed capital works and improvements totalling $4,790,000, 31% lower than last year. Of this sum, approximately one-third was spent on completing the construction of the cement/tanker berth and the balance paid for major dredging projects, construction of the new berth for tugs, completion of the administration building additions, purchase of the No. 4 Cargo Shed, Workshop Extensions, and asphalting storage areas at the southern end of the main wharf, and those works for which loan monies were sought.

Loans

Loans totalling $1,744,000 were raised to finance construction of the bulk cement/tanker discharge berth, berth deepening works, sewerage reticulation, and final costs relating to the Forest Industry Terminal Complex.

Multi-Purpose Crane

The crane became fully operational in September 1979 and has since worked a total of 628 hours in loading 14 log ships, and in experimentally discharging phosphate from one ship. Every endeavour has been made throughout the year to obtain greater use of this expensive asset but the results, as yet, have been most disappointing. Its full utilisation is of great importance to the Board and the problems which have prevented greater use of the crane, particularly for the discharge of granular cargoes, must be resolved.

Bulk Cement/Tanker Berth

The development of this $2,600,000 facility, involving wharf construction, reclamation, and substantial dredging of the approach channel, swinging basin and berth, was completed on schedule in June 1980. The first vessel "Essi Gina" berthed on 10 July to discharge chemicals and with completion of product pipelines it has since been in full use by oil tankers. The shorter oil product pipelines have enabled white product tankers to reduce their discharge times by up to 27%. Removal of hazardous cargoes to this new berth has long been sought on safety grounds and the Board is investigating the installation of suitable booms around the berth both to contain any unforeseen spillages and to prevent foreshore pollution. Provision of this specialised berth of the main quay enables deeper draught tankers to discharge, provides greater flexibility in daily berthing arrangements, and has significantly reduced the need to shift ships on the main wharf during loading or discharging.

Plans are well advanced by Wilsons N.Z. Portland Cement to re-locate its bulk silos and distribution centre from Tauranga to a site adjacent to the new berth, and it is expected this will be completed during 1981.

Wharf Deepening

The progressive deepening of various wharf sections by sheetpiling, dredging and re-fendering to provide for deeper draught vessels, commenced during the year. The $400,000 Stage I involved the deepening of 70 metres at No. 3 Berth, 466-396 m, and 30 metres north of the crane berth, 1495-1525 m, and is substantially completed. These works will enable vessels to utilise an operative draught of 9.8 m from 0-466 m and also extend the Port's 10.7 m draught capability to betwen 1495-1842 m (347 m).

Stage II has just commenced and involved the deepening of a further 100 m of wharf, extending this year's works by another 50 m in each direction.

Sewerage Reticulation

The $600,000 Mount Wharf sewerage reticulation scheme is now almost finished and the last major contract, reticulating the southern end of the wharf area, will be let shortly. The principal works have been completed, all major connections have been made, and minor connections are dependent on completion of the Borough Council's outfall.

Sulphur Point Development–Boat Marina

The Board's planning objectives for this 90 hectare reclamation have been given wide publicity and general reaction to the proposals is most encouraging. Development of this large area will be staged over a period of years as and when trade and shipping justify Port expansion. Meantime, establishment of a marina is of pressing concern to many small-boat owners and the Board has been re-examining developmental and maintenance costs, which will be wholly borne by berth-holders.

The Board is seeking firm financial commitments from prospective berthholders, and is hopeful that sufficient support will be forthcoming to enable the 12 months' construction to commence about June 1981.

Port Facilities

- Demolition of the northern section of the original tug jetty, and its replacement by a 2 berth finger pier was completed during May. Materials for a protective floating tyre breakwater have been assembled and it should be installed shortly as a trial before work commences on the second finger pier.
- Substantial areas within the wharf complex have been asphalted to provide better storage and working conditions particularly in wet weather. Further work will be undertaken next year.
- Following expiry of Tasman Pulp and Paper Company's site lease early in the year, the Board negotiated terms of purchase of the 5,700 m² transit cargo shed, which has been leased back to the Company.
- Substantial maintenance, and several new works, have been undertaken on
  - various launching ramps and jetties, principally Fisherman's Wharf at Tauranga, boat ramp on the western side of the Sulphur Point Reclamation.
  - wharf lighting, buoys, beacons, leading lights and other aids to navigation. New side leads have been

(Turn back to page 34)

2. Statement of Revenue and Appropriation as at 30 September 1980

1979 $000	During the year the Board earned from:	1980 $000
5,014	Wharfage	5,743
2,369	Shipping Services	2,619
633	Storage	759
182	Slipway Hire	182
172	Plant Hire	267
227	Rents	308
254	Interest	472
91	Sundry Revenue	98
8,942		10,448
	and spent on:	
4,154	Operations and maintenance	5,085
1,475	Interest Charges	1,597
948	Depreciation	1,156
6,577		7,838
2,365	Leaving a net revenue of which was used:	2,610
982	– to repay maturing loans, and	846
333	– to increase accumulated funds	733
1,345		1,579
1,020	Leaving	1,031
948	which with – depreciation (not funded)	1,156
157	– receipts from sale of assets	47
279	– withdrawn from reserves	–
2,404	Contributed to Capital Works and Improvements	2,234
4,429	Additionally, loans were raised amounting to	2,556
6,833	Making total expenditure on Capital Works	4,790
35,820	Increasing the Board's total fixed assets to	39,450

3. Port of Tauranga Statistics

Trade:	1955	1965	1973	1975	1978	1979	1980 Record Year
Total port trade in manifest tonnes•	134,231	1,093,685	3,334,448	2,207,915	3,187,156	3,730,314	3,782,613
Coastal: Imports	28,229	204,265	667,780	634,857	705,804	796,553	771,080
Exports	6,858	27,005	27,414	26,603	24,501	34,434	33,304
Total	35,087	231,270	695,174	661,460	730,305	830,987	804,384
Overseas: Imports	6,232	287,692	360,268	471,138	580,326	625,359	698,148
Exports	92,912	574,723	2,279,006	1,075,317	1,876,525	2,273,968	2,280,081
Total	99,144	862,415	2,639,274	1,546,455	2,456,851	2,899,327	2,978,229
Total Import Trade	34,461	491,957	1,028,028	1,105,995	1,286,130	1,421,912	1,469,228
Total Export Trade	99,770	601,728	2,306,420	1,101,920	1,901,026	2,308,402	2,313,385

• manifest tonne = 1000 kg, 1 m³, or 1000 litres

Finance:	1955	1965	1973	1975	1978	1979	1980
Gross Earning - $							
Port Operations	39,653	869,372	3,049,297	3,142,138	6,852,245	8,461,450	9,667,060
Other Income	4,878	29,152	97,930	123,401	367,588	507,755	826,797
Operating Expenses - $	33,674	348,108	1,364,512	1,771,768	3,274,704	4,163,780	5,085,270
Interest and Depreciation - $	6,917	67,205	829,568	917,059	1,520,458	2,422,906	2,752,451
Balance for Capital Development and Loan Repayments - $	3,940	510,211	953,147	576,712	2,424,671	2,365,298	2,656,130
Percentage of Operating Expenses to earnings from Port Operations	84.92	38.84	44.75	56.39	47.79	49.21	52.60

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Our delivery record speaks for itself: more than 15,000 units supplied to material handling equipment users around the world. That includes the delivery of some 80 container cranes for major container terminals in the U.S., Asia and the Middle East.

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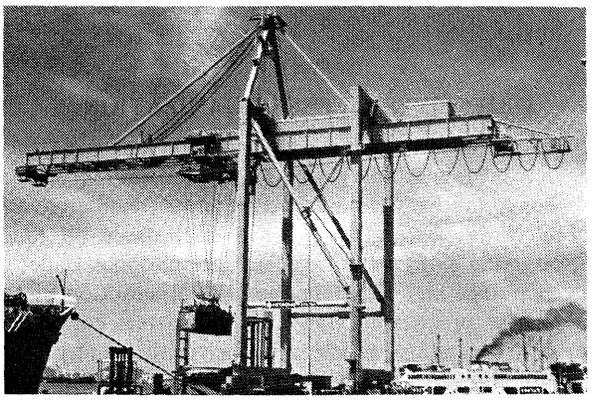

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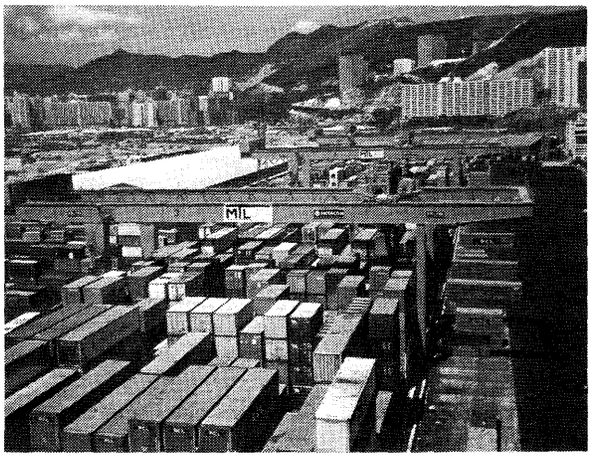
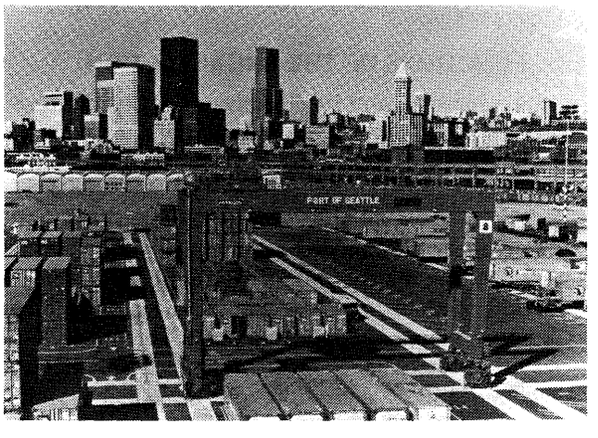
Ensuring efficient and precise container handling with the high-performance sway-stop system that reduces container sway amplitude to ±5 cm within five seconds of trolley stoppage.



Rail-mounted transfer cranes

Improving overall work efficiency at large-scale container terminals with automatic crane positioning.



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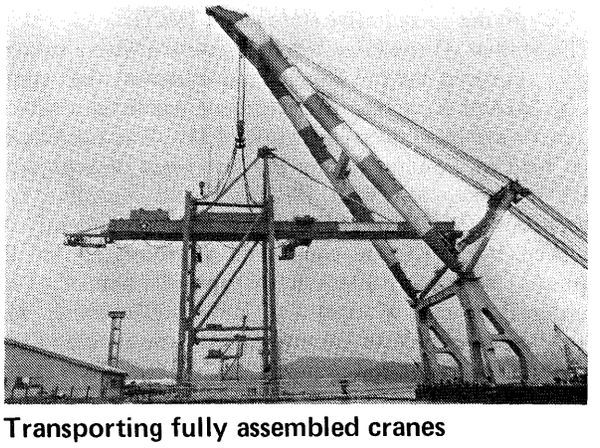

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Carrying fully assembled container cranes by large floating crane from our works in Japan directly to the installation site for greater savings in installation time, space and manpower.

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International maritime information: World port news:

IMCO Prize (Circular letter No.814)

To: IMCO Members and Non-IMCO Members
United Nations and Specialized Agencies
Inter-Governmental Organizations
Non-Governmental Organizations in Consultative Status

The Secretary-General has the honour to invite nominations for candidates for the IMCO Prize—the International Maritime Prize—for 1981.

The IMCO Prize was established by the Council of the Organization to be awarded each year to the person, organization or other entity adjudged by the Council to have made the most significant contribution to IMCO's work and objectives. A summary of IMCO's objectives and functions is given in Annex 1 to this Circular.

The Prize is to be awarded to individuals and non-governmental organizations or bodies; governments and inter-governmental organizations and entities are not eligible.

In accordance with the decision of the Council nominations for the Prize may be made only by:

(i) Governments;
(ii) organizations, bodies and programmes of the United Nations systems:
(iii) inter-governmental organizations with which IMCO has established co-operative agreements or arrangements; and
(iv) non-governmental international organizations enjoying consultative status with IMCO.

The winner of the Prize will be presented with a suitable trophy approved by the Council. In addition, the winner will be invited to present a lecture or paper on a subject related to the objectives and work of IMCO at a ceremony to be held in London during the last week of September 1982, in connexion with IMCO's World Maritime Day celebrations. This paper or lecture will subsequently be published by IMCO, if considered appropriate. For the purpose of presenting a lecture or paper the winner of the Award will be paid a stipend of US$1,000 together with appropriate expenses in connexion with travel to and stay in London for the period required.

Although the Prize will, in principle, by awarded annually, the Council may decide not to make an award in any year if, in its opinion, no suitable candidate has been nominated in that year.

The Secretary-General would be most grateful if nominations of candidates to be considered for the Prize in 1981 would be sent to him as soon as possible and, in any case, not later than 31 August 1981. Nominations should indicate clearly the name and designation of the authority submitting the nomination and bear an appropriate mark of authentication. A form of nomination is attached herewith (Annex 2). However, Governments and Organizations may submit nominations in other forms, provided that adequate information is given to enable the Council to assess the merits of the candidates concerned.

All nominations should be addressed to:

The Secretary-General
Inter-Governmental Maritime Consultative Organization
101-104 Piccadilly
London W1V OAE
England.

ANNEX 1

OBJECTIVES OF THE ORGANIZATION

The major objectives of the Organization are:

(i) to provide machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships; and to deal with administrative and legal matters related to the purposes of the Organization;
(ii) to provide for the consideration by the Organization of any matters concerning shipping and the effect of shipping on the marine environment that may be referred to it by any organ or specialized agency of the United Nations; and
(iii) to provide for the exchange of information among Governments on matters under consideration by the Organization.

FUNCTIONS OF THE ORGANIZATION

For the achievement of its objectives, the Organization:

(i) considers and makes recommendations upon matters within its competence that may be remitted to it by Members, the United Nations or any specialized agency of the United Nations or by any other appropriate inter-governmental organization;
(ii) provides for the drafting of conventions, agreements or other suitable instruments by convening such conferences as may be necessary and recommends the resulting instruments to Governments and to inter-governmental organizations for acceptance, implementation or enforcement as may be appropriate;
(iii) performs functions assigned to it by or under international instruments relating to maritime matters and the effect of shipping on the marine environment;
(iv) promotes measures for the effective implementation and enforcement of international standards and regulations adopted by the Organization or contained in international treaty instruments;
(v) facilitates, as necessary, technical co-operation within the scope of the Organization, including the provision of services and other appropriate assistance to Govern-

ments, particularly those of developing countries.

ANNEX 2

NOMINATION OF CANDIDATE FOR THE INTERNATIONAL MARITIME PRIZE, 1981

THE GOVERNMENT OF . . . . . .
(Name of country)
OR
THE . . . . . .
(Name of organization)
hereby nominates . . . . . .
. . . . . .
. . . . . .
(Name and brief description of candidate)
for the International Maritime Prize, 1981.
The following statement is submitted in support of the candidature:

(To be continued on a separate sheet or sheets if required)

For and on behalf of the Government of . . . . . or
. . . . . (Name of organization)
Signed: . . . . . .Date . . . . . .
Name: . . . . . .
Designations: . . . . . .
Official seal (where appropriate):

ICS annual meeting's debates

The International Chamber of Shipping, representing shipowners in 30 countries, has called on UNCTAD to beware the dangers of interfering with the efficient operation of international shipping.

Speaking after the ICS Annual Meeting (9 April 1981), Mr. Harry Beazley, the retiring chairman, said: "UNCTAD's objective is the increased prosperity of the developing countries, and no one should deny the legitimacy of that aim. But we in ICS represent the international shipping industry as a whole, and we know the importance of the economic, safe and efficient carriage of goods by sea."

"Many of us are sceptical about UNCTAD's involvement in the question of the bulk trades. Artificial constraints merely serve to reduce competitiveness and increase transport costs which is good for nobody, shipper or carrier, developing or developed. That is why the bulk trades must remain open to all carriers."

Mr. Beazley explained that the meeting had also debated the forthcoming UNCTAD discussions on open registries. "The attacks on open registries appear to have all the makings of a mediaeval witchhunt", he added. "Find a scapegoat and then look for ways of discrediting it. The strength of interest in open registries within ICS of course differs from member to member. But the competitive edge which they have brought to the international shipping industry and the benefits that has produced for the world economy are generally recognised. Everyone should consider carefully where the interests of the developing countries really lie".

The meeting also included the work of IMCO on its agenda. "IMCO has always commanded our full support", Mr. Beazley said, "and its achievements in the fields of ship safety and pollution prevention have been tremendous. But we share the views of those governments who have argued that it is becoming enmeshed in a web of detail. There is a danger that the pace of activity is outstripping the ability of both governments and industry to keep up. We shall be considering this problem further.

"We look forward", Mr. Beazley continued, "to the early entry into force of the MARPOL Convention, and we call on governments to redouble their efforts to ensure that the necessary reception facilities for oil and chemical residues are speedily provided."

The meeting also considered the growing involvement of the EEC in technical shipping matters. "In some ways we welcome this" said Mr. Beazley. "Taking the EEC draft Directive on Port State Control as an example, we welcome the evidence which this provides of the EEC's determination to weed out sub-standard ships. On the other hand, we are adamant that where shipping, an international industry, has to be regulated, it should not be on the basis of "unilateral" action. The Conventions, regulations and recommendations already adopted by IMCO should form the framework within which controls are exercised either regionally or nationally."

The Annual Meeting debated several other issues of current importance. Mr. Beazley emphasized, in particular, ICS' concern over weaknesses in worldwide search and rescue arrangements.

"Difficulties have been encountered in mounting an effective search of some areas in which ships have been lost", he said. "One thinks in particular of the "Berge Vanga" in October 1979. Only three governments (France, U.K., U.S.A.) have so far ratified the International Convention on Maritime Search and Rescue 1979 and we strongly urge all governments to take steps to do so as soon as possible. Not only is it an important measure in improving present search and rescue arrangements but it is also an essential prerequisite to the implementation of the Future Global Maritime Distress and Safety System currently under discussion in IMCO. ICS attaches the greatest importance to the successful development of this system."

Lord Inverforth elected chairman of ICS

At its Annual Meeting in London recently, the International Chamber of Shipping unanimously elected Lord Inverforth (U.K.) to succeed Mr. Harry Beazley as Chairman. Lord Inverforth is Chairman and governing director of Andrew Weir & Co. Ltd., of which Bank Line is the major subsidiary. He has been the U.K. representative on the ICS Executive Committee for the past four years. Mr. Beazley, Chairman of ICS for four years, has relinquished the office on his retirement from P & O.

Western coal exports

Demand for steam coal by the Pacific Asian countries is expected to grow substantially during the remainder of this century. Major buyers will be Japan, South Korea, Taiwan and Hong Kong. Projections by the Interagency Coal Export Task Force see demands rising from 43 million tons in 1985 to 90 million tons in 1990, and to between 202 and 220 million tons by the year 2000. But competition for that market is expected to be keen, particularly from Australia, Canada and South Africa, and possibly from other suppliers such as the Soviet Union and the People's Republic of China. U.S. competitiveness is constrained presently by the high cost of inland transportation and lack

of suitable West coast loading terminals.

With that in mind, the Western Coal Export Task Force of the Western Governors' Policy Office and the Japan Coal Development Company (JCD) have formally agreed to conduct a study of the issues related to the problems of expanding the export of Western U.S. steam coal to Japan and other Pacific Basin countries. The topics to be considered are: (a) the Pacific Basin market for Western U.S. steam coal; (b) Western U.S. steam coal supply; (c) coal transportation to those markets (overland, ports and sealift); and (d) institutional, legal and regulatory factors in Western U.S. steam coal export. (AAPA ADVISORY)

Brazilian ports news in brief

- During the first six months of 1981 the works at the Port of Imbituba shall be finished, preparing the port to handle 3.5 million tons of coal yearly, in a first phase.
- The river port of Santarém (State of Pará), on the right margin of the River Tapajós, is going to be an option for the outlet of the economic production of the Brazilian West-Center region. It is prepared to receive ships of up to 18,000 dwt.
- In October, last month under the administration of Cia. Docas de Santos, the Port of Santos handled 2,034,448 tons of cargo, totalling in the first ten months 19,855,216 tons of cargo.
- The Port of Rio de Janeiro shall handle in 1980 about 1.5 million sacks of coffea, doubling the amount handled last year. The forecast for 1981 is to handle 3 million sacks.
- Companhia Docas do Rio de Janeiro (CDRJ) completed the works for improvement of the Porto do Forno, specialized in salt handling, enabling that terminal to receive vessels of up to 15,000 dwt; before, the terminal could only receive ships up to 7,000 dwt.

- In November 1980, first month of the administration of Companhia Docas do Estado de São Paulo (Codesp), the Port of Santos handled 1,815,678 tons, 0.5% more than had been foreseen.
- The Port of Salvador is campaigning for an export corridor, like the ones existing in other large Brazilian ports. After the transfer to the Port of Aratu of all operations with bulk cargo, the Port of Salvador shall have its capacity for general cargo increased by 50%.
- The Administrations of the Ports of the States of Rio de Janeiro, Rio Grande do Norte and Maranhão have increased their respective joint stocks from Cr$ 1,041,947,840.00 to Cr$ 3,435,115,530.00, from Cr$ 510,778,208.00 to Cr$ 914,167,634.00 and from Cr$ 479,046,574.00 to Cr$ 597,696,141.00.

Port of Nanaino hits new high

1980 was truly a record year for the Port of Nanaimo.

When he presented the Nanaimo Harbour Commission's Annual Report to the Nanaimo City Council and the directors of the Nanaimo Regional District on March 12, NHC Chairman Don Rawlins pointed to two particular highlights of the Report—an increase of more than $1.5 million in assets over 1979 figures, and a net income of $1.3 million for 1980, almost double that recorded the previous year.

According to Report, revenues got a solid boost from increased traffic over the Inner Harbour Assembly Wharf. In 1979, the NHC earned revenues of $2.7 million at the Assembly Wharf, but in 1980 this jumped to $3.8 million. In all, revenue from harbour dues, property rentals, Commercial Inlet Basin and other areas were all up significantly over the previous year. Expenses were also up for salaries and wages, operating and maintenance, although down in administration, loan interest payments and depreciation.

In the final balance net income for 1980 was $1,376,143, almost double the $657,572 earned in 1979.

The Annual Report also detailed major increases in forest products exports out of the Port in 1980. During the year 171 vessels with a total net registered tonnage of 1,983,057 tons entered the Port to load or discharge cargo.

Exports over the Nanaimo Assembly Wharf included 653,398 metric tonnes of lumber, 91,634 MT of pulp, 17,871 MT of plywood, 16,130 MT of newsprint, 126 MT of liner board, 549 MT of shingles and 16,559,901 FBM of logs (Brereton scale). Total tonnage exported through the Nanaimo Assembly Wharf and Harmac Wharf amounted to 1,259,486 MT.

At the Assembly Wharf alone, export-import tonnages were up more than 200,000 MT over 1979.

In the areas of investment and maintenance, the Annual Report details major expenditure of $302,146 in 1980 to remodel the approaches to B and C berths at the Assembly Wharf in preparation for the arrival of Roll-On, Roll-Off vessels. The first of these new cargo giants loaded lumber at berth in September. Also at the Assembly Wharf, more than $52,000 was spent on paving and installation of new lights, building of new access gateways and renovations to the longshoremen's lunchroom. New machinery was bought costing $226,344.

In making his Annual Report presentation, Mr. Rawlins also outlined the expansion of port facilities now being constructed at Duke Point. The NHC is building a two-berth deep-sea port there and the first phase is expected to be completed September 1981. He told the meeting that planning has already begun on a second phase which would add two more berths, which could, if needed, come on stream as early as 1984.

Mr. Rawlins pointed out to the local government leaders that in the 21 years since the NHC was formed, it had contributed to dramatic growth in commerce on the waterfront, effectively adding to the industrial life of the area. He made particular reference to the growth of gross revenues in the NHC from 1973 onwards.

Mr. Rawlins emphasised that throughout the NHC's history all revenues generated by its port activities have remained in Nanaimo for reinvestment in expanded and improved harbour facilities.

Highest tonnage in 1980: Port of Saint John, N.B., Canada

The port of Saint John, New Brunswick, Canada attained its highest recorded tonnage in 1980 with the total cargo handled amounting to 16,285,051 metric tonnes, an increase of 1,245,560 metric tonnes over 1979.

The steady growth of container traffic, is reflected in the

965,320 tonnes handled, which is 67,587 tonnes greater than 1979.

Major additions to the port's facilities in 1980 included a new 20 acre terminal with a built in ramp landing platform to accommodate ro-ro vessels. A $7 million extension to Rodney Container Terminal has increased the length of the "marginal" pier to 640 meters. With a total pier length of 1013 meters, the terminal can now work three ships, all as large as the 265 meter VERRAZANO BRIDGE shown off loading in March (1981).

Chesapeake and Delaware Canal now open to large containerships

The long-awaited widening and deepening of the Chesapeake and Delaware Canal has been completed and the 46-mile long waterway is open to deep draft ship traffic.

The canal, now deepened to 35 feet throughout its main channel and approaches, has already recorded a noticeable increase in the number of large container vessels plying the route between the upper Chesapeake Bay and the Delaware River.

Forced to "take the long way around" because of the canal's previous limited depth, modern container ships, which average more than 700 feet in length and need a 32-foot depth in which to maneuver, have had to travel further to call at the port of Baltimore for many years.

Use of the C. & D. eliminates the need to sail around the Virginia Capes when going between the ports of Baltimore and Philadelphia and points north. The canal waterway is operated and maintained by the U.S. Army Corps of Engineers.

The canal serves as an important link between the Chesapeake Bay and the Delaware River, reducing the travel distance between Baltimore and Philadelphia by some 286 nautical miles, Baltimore and other northeastern ports by 147 nautical miles, and Baltimore and north European ports by 115 nautical miles.

Baltimore container volume at 2 million mark

It took 14 years to move a million containers through the port of Baltimore following the first direct containership service to the port in 1963. This milestone was achieved at Dundalk Marine Terminal in January 1977.

Thanks to continuing development of container trade and modern facilities and other improvements throughout the port, the Maryland Port Administration has now reached its second million container in only four years.

Dundalk Marine Terminal is Baltimore's center for container activity, accounting for three-fourths of the portwide totals. North and South Locust Point, Clinton Street and other terminals in the port handle container cargo in lesser quantities.

The DMT facility handled 245,977 containers last year holding a total of 2,847,121 tons of cargo, making Baltimore the second-largest in container cargo volume among all U.S. Atlantic and Gulf Coast ports.

A former municipal airport (Harbor Field) consisting of 365 acres, the Dundalk site was purchased by the MPA in 1959. It originally served as a facility for conventional breakbulk general cargo.

The growing importance of containerization in the 1960s led the MPA to prepare Dundalk for large container handling capability. An additional 200 acres were added at the terminal 12 years ago, new specialized container cranes were purchased, more storage areas created and other major improvements made.

Currently, the 550-acre Dundalk deep-draft terminal features six berths exclusively for container cargo, six for general cargo, 6 gantry-mounted container cranes of varying tonnage, 4 revolving cranes and a 70-ton mobile crane.

A new container berth is presently under construction providing a second roll-on/roll-off area to be supported by 14 acres of paved and lighted marshaling yards. Also a 100,000 square-foot shed and two additional container cranes are proposed.

These public facilities, plus similar ones offered by the private sector, have helped make Baltimore a leader among ports offering the best in container handling conveniences.

Other projects planned or already underway will assure that the port maintains a leadership position in containerization.

Dredging for a new tunnel under the Baltimore Harbor will generate a large amount of earth material that will be placed behind a bulkhead as fill in the Seagirt area of the port, northesat of the Dundalk terminal. Plans call for this area to be developed as a 120-acre container and general cargo facility.

In addition, another site acquired three years ago by the MPA at Masonville is scheduled for development as a 400-acre container terminal.

New Rubber Tired Transtainer® cranes delivered to Long Beach container terminal

Long Beach Container Terminal recently accepted delivery of two (2) Paceco Rubber Tired Transtainer® cranes to its container handling facilities at Pier J, the Port of Long Beach.

The two 30 Long Ton terminal cranes are first ones to be delivered and scheduled for operation in the new terminal.

Both cranes have spans of 74 feet and are capable of stacking 20′ and 40′ containers four high and six wide, while still having a truck roadway. They are equipped with reeved-in telescopic spreaders and air conditioning for operator comfort.

Final Risk Management Plan adopted: Port of Los Angeles

In recent action, the Los Angeles Board of Harbor Commissioners adopted the Port of Los Angeles final Risk Management Plan and approved its submission to the California Coastal Commission for certification.

The Risk Management Plan is a conditional requirement imposed by the Coastal Commission before delegating Coastal Act permitting authority to the Harbor Commission for hazardous liquid bulk cargo facilities included in the Master Plan for Los Angeles Harbor.

The adoption of the final Risk Management Plan follows public workshops and a public hearing on the subject.

Governor urges Oregon ports to capture coal business

"Oregon is open for business" and Governor Vic Atiyeh wants part of that business to be coal exports shipped out of Oregon ports to Pacific Rim countries.

Governor Atiyeh said that Astoria, Coos Bay and Portland have great potential and natural advantages as coal ports. He emphasized that "if World Coal Study predictions are correct, by the end of this century it will take every port site available on this coast to meet the 100-some million tons which will have to be shipped annually" to Pacific Rim countries.

Governor Atiyeh's comments were made before an audience of some 250 representatives from financial, transportation and shipping circles in Portland last February to attend a two-day workshop sponsored by the Governor's Coal Steering Committee.

Goals of that committee are to secure a significant source of income and jobs for Oregon by the development of coal facilities in the state. Also, to assure that Oregon maintains a competitive position to capture its highest potential share of the coal export market.

Governor Atiyeh said that our Asian trading partners will need 13 to 14 million tons of coal by 1985 and three times that amount by 1990.

Japan has made it a national policy to reduce oil dependence from its current level of 75 percent to 50 percent by 1990. Taiwan and South Korea have made similar national commitments.

The Port of Portland has a long-planned project and marketing effort to put on line a multipurpose bulk loading facility that would initially handle from 3 to 5 million tons of coal and eventually 10 to 12 million tons annually.

Port of Portland officials believe this facility could be ready to go on line by 1983 to serve bulk carriers that can be accommodated by the 40-foot Columbia River channel serving Portland. Cost of this facility has been estimated at $30 million.

Lloyd Anderson, Port of Portland executive director, said Portland is ideally situated to become a major coal export terminal. "The Port owns a 100-acre tract of land in the Rivergate Industrial District, zoned for heavy industry, prime waterfront property that is ready for immediate development," Anderson said.

Railroads are a key link in establishing coal trade through Oregon ports

Two of the three transcontinental railroads that serve Portland, Union Pacific and Burlington Northern, would need no system improvements to move coal in high volumes from the western coal-producing states to Portland.

As West Coast ports scramble to develop export coal facilities to meet the huge demand predicted by Pacific Rim countries, it is believed the unified state/port approach urged by Governor Atiyeh is unique among states on the West Coast.

1980 tonnage record "Surprisingly" good at Portland

"Considering the enormous project accomplished by the U.S. Army Corps of Engineers to reopen the Columbia River channel following blockage caused by the eruption of Mount St. Helens last May, you can say the Port of Portland wound up with a 'highly respectable' tonnage year," according to Port Executive Director Lloyd Anderson.

The respectable year Anderson refers to amounted to 2,650,881 tons of general cargo handled by Port facilities during 1980—down just 8 percent from the 1979 record-setting 2,880,407 tons handled by the Port.

Anderson said ship calls at Port facilities during 1980 were down 8.8 percent. "It was reassuring that 1,292 vessels called at our facilities during the year and that business returned to normal following complete restoration of the channel's 40-foot depth and 600-foot width last fall," Anderson said.

Regardless of the problems given the Port by Mount St. Helens, grain tonnage through Port facilities increased 24.1 percent to 4,450,455 tons and import autos increased by 7.4 percent to 266,578 cars.

During 1980, container tonnage loaded by the Port increased 10.5 percent while discharged containers dropped 9.1 percent.

Hardest hit during the year was import steel tonnage, down 23.2 percent; log tonnage, down 13.1 percent, and lumber tonnage, down 1.6 percent from the previous year.

A reflection of Portland's growing trade with China was seen in the 14.6 percent increase in breakbulk general cargo discharged at the Port of Portland's highly diversified facilities.

Georgia Ports Authority develops reefer container monitor

Georgia Ports Authority in Savannah has installed a new monitoring apparatus for refrigerated containers. This "Ground Fault Monitoring System (GFM)" provides protection against low level ground faults. To our knowledge, it is the first and only such system in the world. Georgia Ports in conjunction with its consulting engineer prepared specifications for the system, having recognized the need for this type of protection.

The GFM provides both safety and cargo preservation benefits. It eliminates shock hazards attendant to hookup to field power when undetected faults exist within the equipment. In addition, by immediately identifying the faults, it prevents loss of temperature controlled cargo or damage to refrigeration machinery.

The monitoring system detects equipment failures instantly when the unit is plugged into the CONTAINERPORT power supply. Problems which develop after hookup

are likewise indicated immediately. When a technical defect exists within a refrigerated container, sensors open a circuit which activates a signal lamp and audible alarm. In this manner, maintenance personnel are immediately notified of the problem in order that they might accomplish the needed repairs.

1980—New absolute record for cargo turnover: Port of Antwerp

From data provided by the General Management of the port it results that 1980 has become a new absolute record year for cargo turnover in the port of Antwerp.

Compared to 1979 overall traffic of cargo increased by 2.2% and reached 81.93 million tons of goods, 46.5 million tons of which were incoming and 35.4 million tons outgoing cargo.

The overall cargo traffic increase can be explained by the ever growing transshipments of bulk cargo which showed an increasing tendency with loadings as well as with unloadings.

Total bulk traffic amounted to 53.47 million tons, representing a 6.6% increase over 1979. The largest growth was noted with outgoing bulk traffic which increased by 19.2% to 16 million tons while incoming bulk traffic increased by 2% to 37.4 million tons.

Although the supply of crude oil remained more or less status quo (c. 4 million tons), the incoming as well as outgoing traffic of oil distillates largely increased (+33%) with the result that in all 3.5 million tons more of oil products were shipped via Antwerp compared to 1979.

The growth of the total volume of bulk cargo can be explained furthermore by the huge increases in the coal and grain sectors.

For both kinds of cargo new records have been established: in all more than 6.8 million tons of coal (+ c. 31%) and more than 8.3 million tons of grain (+ c. 36%) have been transhipped.

Due to a decrease in the shipments of iron and steel-products, total general cargo traffic dropped by 1.5 million tons (−5%), thus reaching 28.46 million tons in 1980. In the sector of non-ferrous metals, however, an increase with 20% was noted due to the fact that last year over 800,000 tons of non-ferrous metals were transhipped via Antwerp.

Traffic of forest products (wood-cellulose and paper) also made large progress (+18%) and amounted to 1.6 million tons.

BTDB publish free guide to British ports

A new guide to facilities at 19 British ports has just been published by the British Transport Docks Board. The guide covers large and small ports on the south, east and west coasts of Britain, and is designed to provide essential information for shippers, shipowners, freight forwarders, receivers and exporters.

The BTDB is one of only a few port authorities in the United Kingdom to show an increase in market share over recent years, thanks to a policy of continuous investment in new facilities. It is unique in the choice of ports and diversity of services it offers, and the guide describes the lengths to which the BTDB has gone to cater to the exact needs of its customers and their specific industries.

The Board's experience in handling, among others, forest products, iron and steel, bulk traffics, project cargoes, vehicles, fruit and vegetables is second to none. The traditional methods of handling general cargo and the sophisticated computer techniques used for large quantities of containers are amply illustrated in colour throughout the publication.

Also described are the back-up services provided by the British Transport Docks Board in the shape of a Research Station, Computer Centre and Marketing Division. Basic information on the maximum size of vessel which can be received at individual ports and details of cranage, shed accommodation and ancillary facilities are included.

Copies of the publication can be obtained, free of charge, from the Commercial Director, British Transport Docks Board, Melbury House, Melbury Terrace, London NW1 6JY, or from Docks Managers at the Board's 19 ports.

Port of Esbjerg: continuing expansion

(Special edition of North Sea Observer: by Alfred Pedersen).

Only a little more than a century ago there was not much besides sand banks where now the port of Esbjerg lies. The first steamship entered the still unfinished harbour in 1873, ushering in an era of development that is still going on. Today Esbjerg is a bustling port, with a goods turnover that will shortly be nearing the four million tons/year mark.

Esbjerg's port is many things. It is still, despite the reverses that the North Sea fishing industry has gone through, a major home base for a good part of the Danish fishing fleet. It is Denmark's most important gateway to the North Sea and points west. Esbjerg is a major transit port, a transhipment point for North American wood products bound for Scandinavian destinations, and for many other types of cargo moving between Scandinavia and foreign destinations.

Esbjerg is also a port for Danish imports of many kinds. The country's entire import of citrus fruit is landed at Esbjerg and trucked to its many destinations throughout the country—an easier distribution system than the previous pattern of landings at different ports.

Esbjerg is Denmark's embarkation point for passenger traffic to England. The DFDS passenger fleet constitutes a floating bridge moving thousands and still more thousands across the North Sea. Without Esbjerg, surface travel between Denmark and England would be a complicated matter, indeed.

State-owned

Esbjerg differs from most other Danish ports in that it is a state-owned port, rather than a municipally-run affair. But despite the fact that a government ministry in Copenhagen exercises ultimate authority over the port, Esbjerg works closely with the many business and industrial enterprises that use its services. Port Manager O.F. Bache stresses this close co-operation with the port's customers in daily operations. Port users, such as Erik T. Møller, managing director of the Jutlandia Terminal, confirm this. "We enjoy

(Continued on page 46)

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(Continued from page 44)

an excellent co-operation with port authorities", said Mr. Møller.

Esbjerg offers an ice-free location on the western Jutland coast, close to the major shipping routes. The port has a stable workforce and extensive facilities and equipment to handle all tasks. The port area stretches over nearly three kilometres of seafront, from the fishing harbour in the north to the Vestkraft power plant site to the south. The Traffic Port (Trafikhavn) is used for bulk cargo while the ferry port handles ro-ro shipments of bacon and butter for the British market. Sønderhavn is flanked by a number of large terminals for imports and exports and is also home base for a fleet of offshore supply vessels. Østerhaven at the southern end handles the huge coal imports for the adjoining Vestkraft power station.

Port facilities

Port equipment includes a 36-ton gantry crane used for loading containers. There are two stationary 40-ton cranes, 12 mobile cranes, and considerable other cargo-handling equipment. Maximum water depth is 10.5 metres, dictated by the highwater mark through Graadyb Bar just outside the port. The main quay in the Traffic Port, which now has a 10.5-metre depth along about two-thirds of its approximately 700 metres of seafront, will soon be deepened along its entire length. Similiarly, the 10.5-metre depth along Europa Quays in Sønderhavn could be deepened to 12 metres, should the need ever arise.

There is other activity on the schedule, including the moles at the entrance to the harbour section that encompasses the Ferry Port, Dokhavn, Sønderhavn and Østerhavn. The new quay on which the Jutlandia Terminal is located will be extended by 50 metres to handle bigger ships and another 150 metres as a staging site for transhipment of steel pipe sections to be used for the Danish North Sea gas project.

Volumes handled

In 1979, 2,929 ships of about 5.7 million net register tons made use of Esbjerg harbour, an increase of about 314,218 nrt over 1978. Esbjerg handled nearly 3.6 million tons of cargo in 1979, including 678,000 tons of grain, fertiliser and feedstuffs for Danish agriculture; 713,000 tons of coal; and 422,000 tons of liquid fuels. Containerised exports, chiefly bacon and butter, ran to about 304,000 tons. For 1980, preliminary figures suggested that the cargo total would increase to around 3.8 million tons, perhaps more.

Natural outlet for the Paris area: Le Havre

It has long been common knowledge that Le Havre is a first-rate natural outlet for the import/export trade based on the Paris area and there are some significant figures on the subject in a statistical brochure published by the French Customs under the title, «Hinterland of the Main Ports of the Common Market». Total incoming seaborne traffic for the Paris area in 1979 amounted to 4,234,680 tonnes (pipelines excluded) and was worth 49.1 billion francs. Of this, 1,126,601 t, worth 10.3 billion francs, passed through Le Havre, i.e. 26.6% of the total by volume and 21.1% by value.

Outgoing traffic transiting via Le Havre came to 791,947 t, worth 11.9 billion francs, which was 20.1% of the total volume and 13.7% of the total value.

Of especial importance is the fact that, in terms of value, Le Havre is the main point of entry and exist in France used by importers and exporters working in the Paris area.

Record year for general cargo, containers and coal: Le Havre

1980 marked a turning point in the history of our port. Once famous for its great Atlantic liners, and then for oil, Le Havre has now entered a new era, that of general cargo and solid bulks. The policy of diversification put into effect over the last few years has begun to bear fruit, with best-ever figures for general cargo (particularly containers), coal and passengers.

General cargo amounted to 8.1 MT in 1980, a figure never previously reached at Le Havre (1979 = 7.6 MT). This was an increase of 6% definitely a good result in today's world and in a climate of international competition that is particularly fierce in Northern Europe.

Le Havre has very easily held its position as the leading French port for containers, 1980 being a particularly significant year in that for the first time over 500,000 containers were handled, the exact figure being 507,289 twenty-foot equivalent units, compared with 450,809 in 1979 (up 12.5%). Conventional traffic seems to have levelled out at 1.3 MT (down 2.3%).

Coal imports reached an all-time high of 6.9 MT, up by no less than 10.1% on the 1979 figure.

Imports of crude oil went down by 13.9% and amounted to 47.8 MT, compared with the previous year's 55.4 MT, in accordance with the government's stated aim of cutting back consumption. This entirely accounted for the drop in overall traffic of the port, which fell by a lesser amount (10.3%) to 78.9 MT, bunkering included.

Despite the large number of ports situated along the Channel coast, the number of passengers using Le Havre in 1980 reached a new record, 4.4% up at 985,990.

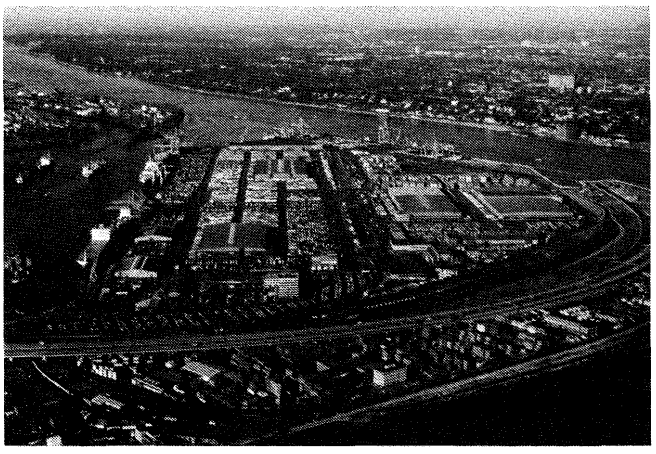
The overall trading results are therefore far from discouraging, for though there was a fall in actual tonnage, the big increases in a number of categories that are much more remunerative on a ton-for-ton basis have left us in a strong position for the future.

Worldwide consulting service: Bremen International

See the Jordanian port of Aqaba!. Total in 1976–just an arduous, troublesome, wearisome 600,000 tons. After engaging the PTC (Port & Transport Consulting GmbH) experts a new port operations organisation evolved, with modern handling equipment. Result: 1980 cargo-handling already 3 million tons; with 4 millions expected for 1981: -5, 6, even 7-times that of earlier handling volumes.

PTC is just one of more than 100 firms situated in the traditional, economically strong externally trade-orientated Bremen/Bremerhaven region which not only command excellent specialists well-versed in foreign markets, but also first-class experts in technical know-how and which in just this combination afford the warranty of the desired success with their advice. Active in all parts of the world, above all in the spheres of plant equipment investment and infrastructure projects, they are hard pressed to accommodate all offerings. A catalogue "Consulting Services of Bremen, Planning, Supply and Construction of Machinery, Investment and Infrastructure Projects/Activities and Areas of Operations of Companies in Bremen", published by the Chambers of Commerce of Bremen and Bremerhaven, is available in English and German. Furthermore the Chambers are, in specific individual cases, willing to name firms offering consultation, replanning, infrastructural measures, as well as delivery of machines and complete plants.

HHLA handled 433,000 containers in 1980, up 13%: Port of Hamburg



HHLA, Port of Hamburg, West Germany handled 432,808 TEU in 1980, an increase of more than 13% compared with the preceding year, it was announced by the Tokyo Office of the City of Hamburg.

In 1980, overall container cargo handling at the Port of Hamburg was approximately 783,000 TEU, therefore HHLA handled well over half (55.3%) of all containers shipped via the port.

The gross weight of HHLA overall container transshipment rose in 1980 to 3.84 million tons, with a growth rate of 10.3% compared to the preceding year.

The highest growth rate was registered by South Africa with 42.4% and East Asia with 35.9%. An increase of the South Africa area was possible because the South Africa Europe Container Service (SAECS), running six third-generaton containership, is still comparatively young and containerization of the trading area is still progressing rapidly.

A major contribution to the remarkable handling volume in East Asia traffic in the amount of 133,461 TEU was provided alone by the Trio Service which operates 18 third-generation containerships. It has to be borne in mind that in this trading area too a major portion of the handling operations is still carried out by conventional means, particularly in regard to the Peoples Republic of China. In 1981, a noticeable increase in container transshipment can also be expected for the East Asia trading area, since a new efficient fast container service went into operation at the beginning of the year.

About 75% of all containers handled by HHLA are house-to-house containers and the remaining 25% are port-to-port containers, for whose general cargo the HHLA has erected seven storage sheds with a total surface area of 143,000 sq.m. at the terminal. In front of the sliding doors of these sheds there is ample space for simultaneous unpacking and packing of hundreds of containers.

Update on Mina Jebel Ali

- The 4,000 sq. metre temperature-controlled warehouse will be completed in April.
- "Finishing touches" of the dredging of the basins will be finished by end of April, with the widening of the Approach Channel to carry on for several months later.
- Controlling water depth is presently –13.5 metre, high tide provides –14.25 metre.
- Additional paving around General Cargo warehouses now provides more than 130,000 sq. metre of open storage space.
- All but two offices on the ground floor of the Administration Building have been leased to shipping agents and Customs and Immigration representatives.
- Cargo statistics are given below:

	Y.E. 1980	1st quarter 1981
Total TEU throughput	63,792	24,912
Total Tonnage landed, including petroleum products	1,653,412	460,490
Total Tonnage loaded, including petroleum products	269,324	214,449

- New ro-ro terminal will be operational by the summer 1981 when over 30,000 sq. metre of paved area surrounding the 8,000 sq. metre warehouse will be complete.
- In March 1981, the Port Authority of Jebel Ali handled 11,257 TEU's. This is a record throughput for any single month since the Port became operational in July 1979.

$2.5 million floating ramp order for Melbourne's Webb Dock

The Australian National Line has placed a $2.5 million contract with Marine Development (Contracting) Ltd. of Glasgow, Scotland, for a floating pontoon ramp for the new No. 5 berth development at its Webb Dock Container Terminal in Melbourne.

The ramp, which will be capable of accepting all existing and planned stern door roll-on/roll-off vessels, will be the first of its kind to be installed at any port in Australia.

The ramp will be movable along the quayline at berths 4 and 5 and will allow various combinations of ro/ro and cellular container vessels to be berthed and worked simultaneously at the berths.

In addition the fact that the ramp can be moved away from the wharf face enabled the Port of Melbourne Authority, who have provided the wharf infrastructure, to reduce the planned berth length from 372 metres to 315.5 metres with a subsequent significant saving in capital cost.

The design of the new floating ramp was drawn up in accordance with The Australian National Line specification and the ramp will be capable of supporting four fully laden 22.5-tonne fork lifts at one time or alternatively a heavy load transporter with maximum load of 230 tonnes. It will also accommodate a "Luf Trailer" or "Roll Trailer" concept.

The new ramp is expected to be completed and inoperation by July 1982.

Negotiating to use Islands' 2nd container terminal: Port of Brisbane

(BRISBANE PORTRAIT): There is every reason to believe that the No. 2 container terminal, Fisherman Islands will be functional—as a container handling facility—by the end of the year.

Lease negotiations to cover the operation of the terminal have resumed between Seatainer Terminals Ltd and the Port of Brisbane Authority.

Seatainers is the biggest container handling group in Australia with facilities in Fremantle, Melbourne and Sydney.

The Authority's General Manager (Mr. F.M. Wilson) said he was pleased with the progress of the talks and he predicted that complete agreement would be achieved in the near future.

The parties were involved in preliminary talks last year but these came to a halt following a 'mark-time' decision by State Cabinet and while the Co-ordinator General (Mr. S. Schubert) carried out a study on the port's future needs.

On February 9 State Cabinet considered Mr. Schubert's interim report and decided:—

> that the decision, previously taken by the Port of Brisbane Authority, to negotiate a lease and licence with Seatainer Terminals Ltd. for the operation of the second container terminal complex at Fisherman Islands, be ratified and that the Port of Brisbane Authority be authorised to enter into lease and licence arrangements similar to those being finalised for the first terminal complex.

The decision was tantamount to complete support for, and vindication of, the policy-line adopted by the Authority as early as 1979.

At a press conference following the cabinet meeting, the Premier (the Hon. J. Bjelke-Petersen) said the government wanted the negotiations with Seatainers completed as soon as possible.

Although the official cabinet minute did not mention the future of bulk coal handling through the Fisherman Islands region, Mr. Bjelke-Petersen said the government also wanted the Authority to proceed with the construction of bulk coal handling facilities to cope with export production from the West Moreton and Darling Downs fields.

Referring to the decision relating to the No. 2 terminal, he said cabinet now was convinced that the time was right for a second container handling company to establish itself on the Fisherman Islands.

The Authority has long believed that the port needs competition between free enterprise groups in the container trade in order to promote greater efficiency and service.

At the moment, No. 2 terminal, Fisherman Islands is vacant.

However, all essential underground services (power, water, sewerage etc) have been completed. These, plus the container crane, wharf and terminal pavement were built and placed as part of the original general development programme.

Developments at Karachi Port bring significant foreign currency savings

Karachi Port Trust has for the first time started handling large sized tankers of 39 ft. draft in the deepened approach channel which has been dredged to a depth of 40 ft. under the FOURTH PROJECT OF KARACHI PORT. The first tanker arriving with a draft of 39 ft. was 'CHERRY PARK' which was successfully berthed at Oil Pier-IV, on 1st February 1981. This has now put Karachi Port in the forefront among deep drafted modern Ports for handling tankers . . . Handling of such deep drafted tanker would save about 10 million Dollars per annum in Foreign Exchange for the National Economy in the form of reduced freight rates for the import of Crude Oil and Oil Products.

The Oil Pier IV with modern loading arms and common usual pipeline was completed in early 1979, and the dredging of the approach channel was completed in December, 1980.

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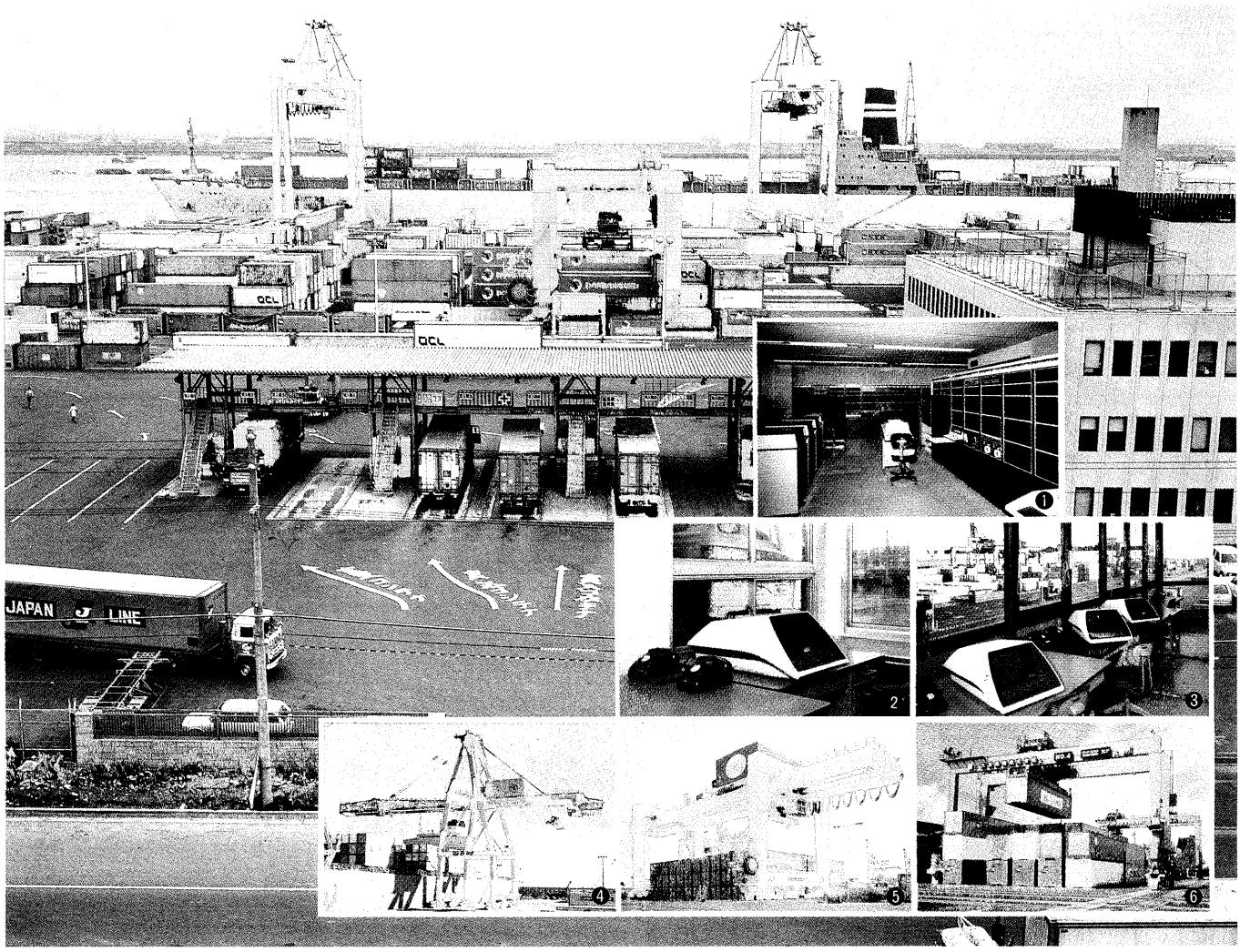

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