

# PORTS *and* HARBORS

APR.—JUN., 1967 Vol. 12, No. 2



5TH CONFERENCE SPECIAL ISSUE

THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

# THE PORT OF KOBE

## *—Modern, Efficient Port With Elegance—*

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

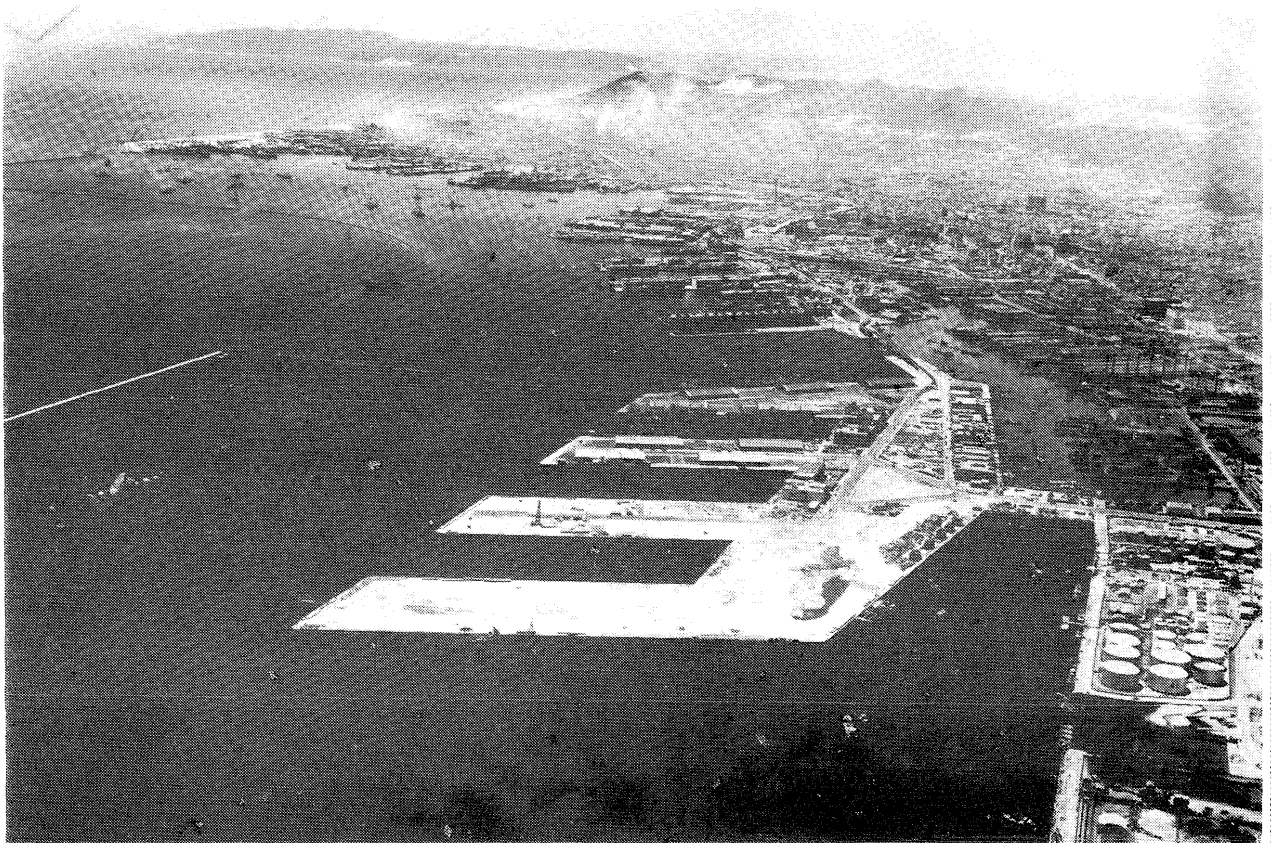
It is nearly 100 years since Kobe was opened as one of the first trade ports of Japan. Today it is one of the major export ports of Japan and handles cargoes representing 30 per cent of the value of Japan's total export trade.

In parallel with the recent growth of Japan's economy, ships and cargoes arriving at Kobe from abroad have been increasing in number and tonnage. This growth has made the expansion of waterfront facilities here essential. In the light of this demand, the construction of the Maya pier terminal was undertaken in the eastern section of the Port in fiscal 1959 to increase foreign trade facilities. The Maya terminal, to be completed at a total cost of ¥22 billion by the end of fiscal 1966, is to be a massive and up-to-date unit of four piers capable of accommodating eighteen 20,000-tonners at one time. In order to deal successfully with containership services, preparations are in full swing to make the Maya Pier No. 4 a container terminal to welcome the first container carrier in the summer of 1967.

On the other hand, to connect the Maya terminal now under construction and the Shinko pier terminal already in operation, a semi-suspension bridge, the first of its kind in this part of the world, was completed in June, 1966. This bridge has contributed to a great improvement of the port facilities and functions.

Thus, the Port of Kobe handles more than 7,200 foreign service ships and 42 million tons of foreign and domestic cargoes yearly. It is under a rational management with the motto of "inexpensive, speedy and reliable cargo handling."

With the objective of preparing itself for the world's expanding economy, the Port of Kobe has taken a step forward this year in greeting the container-ship age by beginning its five-year project to construct a 1,000-acre island for increased facilities.



# At Sea or in Port IHI is a Leader



In ports and harbors throughout the world increasing trade volume is posing new problems in cargo handling. Faster and more efficient stevedoring methods and bigger and better port and harbor facilities are being called for.

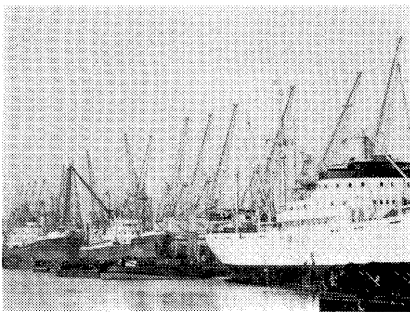
IHI, the builder of the 210,000 DWT "Idemitsu Maru," is responding to this call.

IHI wharf cranes, ship loaders and unloaders, container cranes and portable air conveyors are playing a key role in facilitating the movement of cargo in many parts of the world.

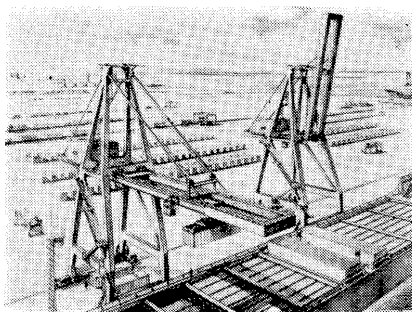
In port and harbor construction, IHI dredgers have established outstanding records of achievement. IHI has directed great efforts to improve the efficiency and operating economy of its dredgers. The latest technical advances such as remote control and automation systems have been incorporated in their manufacture.

In these and many other ways, IHI is contributing its share to expanding trade and creating a better, more prosperous world to live in.

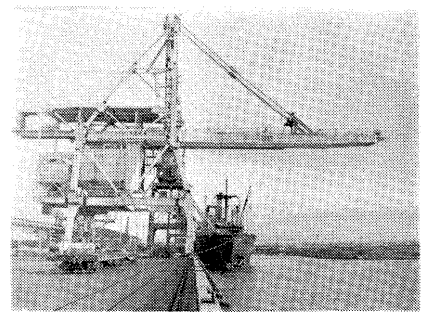
MATERIAL HANDLING EQUIPMENT • IRON & STEEL MANUFACTURING MACHINERY • CHEMICAL INDUSTRY MACHINERY • POWER GENERATING MACHINERY • ATOMIC POWER MACHINERY & APPARATUS • AIRCRAFT ENGINES • COMPRESSORS & BLOWERS • SHIPS • LAND & MARINE ENGINES • PULP AND PAPER MANUFACTURING MACHINERY • CONSTRUCTION MACHINERY • STEEL STRUCTURES • AGRICULTURAL MACHINERY • CEMENT PLANTS



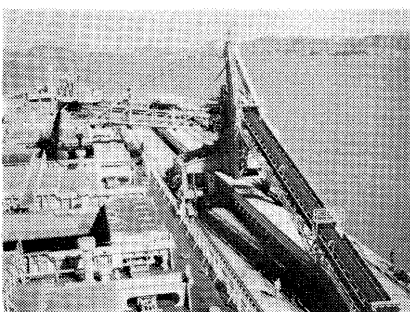
Twenty-five IHI wharf cranes at Calcutta Port, India



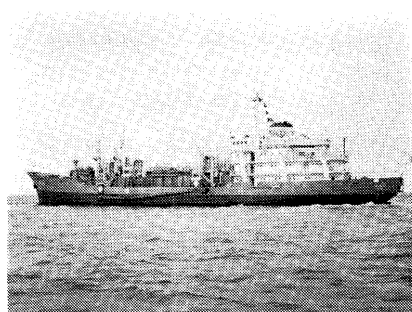
25-30 t, 6x8x6-foot IHI shore container crane



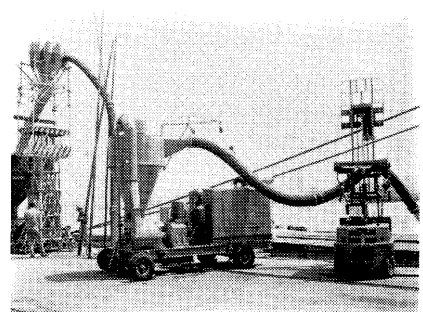
750 t h IHI unloader at Port Tacoma, U.S.A.



6,000 t h IHI iron ore shiploader at Port Vitoria, Brazil



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# PORTS *and* HARBORS

## *Farewell To Tokyo— Melbourne Beckons For 1969*

On May 13, 1967 morning, the week-long Fifth General Meeting of the IAPH in Tokyo was adjourned. It is claimed that 604 delegates from 38 nations have taken part. In the afternoon, foreign delegates departed for Kyoto where they had a series of sightseeing. On May 15 they attended the Centennial Ceremonies of the Port of Kobe.

The IAPH Newsletter has printed interim news on the Conference as released by the Conference Office, but here we shall spare more space for information selected from the

Conference minutes and records kept for compilation of the Conference Report which should come out soon.

In the Secretary General's Report submitted to the First Plenary Session held on May 9 is included information on membership. During the last two years from the 4th Conference in London until April 30, 1967, 62 new members were admitted, including 35 Regular Members, 2 Corporate Supporting Members, 24 Individual Supporting Members, and 1 Honorary Member, making

the total membership as of the above date 240, from 48 countries. (See Page 8) There were several withdrawals and change of status cases, like corporate supporting members becoming regular members and vice versa.

### **Constitution Amendments**

At the Second Plenary Session held on May 10, several amendments were made to the Constitution. Now "Secretary General" will be used in place of the old "Chief of the Central Secretariat", and the



At the Opening Session, Prince Takamatsu comes in and takes seat to the accompaniment of "koto" music and amid the standing ovation by all present.





**Lord Simon, President, addresses the Opening Session from the rostrum on the left. To the right of the rostrum are seated, from left to right; Mr. F. Posthuma, Mr. John P. Davis, Mr. Gaku Matsumoto, Mr. V. G. Swanson, and Dr. Chujiro Haraguchi.**

“Central Secretariat” is henceforth to be called the “Head Office.”

The most important change was made in the phrasing of Article II—Objects and Purposes, which is now to read as follows:

“The object of this Association shall be to increase the efficiency of ports and harbors through the development and dissemination of information useful to port and harbor administrations and through providing them with an opportunity of associating together, all for the purpose of furthering knowledge in the fields of port organization, management, administration, operation, development and promotion; thereby advancing international friendship and understanding and the growth of waterborne commerce.”

The new wording emphasizes practical objects of the Association, rather than the indefinite object of promoting world peace and welfare of mankind.

Another amendment affects the eligibility to Regular Membership. The Sec. 2 of the By-Laws is now to read: Regular members of this Association shall consist of public and governmental departments, boards, commissions, agencies, authorities and organizations and other bodies, whether public or private and whether incorporated or unincorporated, which, in the public interest, exercise powers, jurisdiction or authority or are charged with duties with respect to the planning, development or operation of one or more ports or harbors or with respect to the construction, operation or maintenance of piers, wharves, terminals or other port or harbor facilities or improvements.

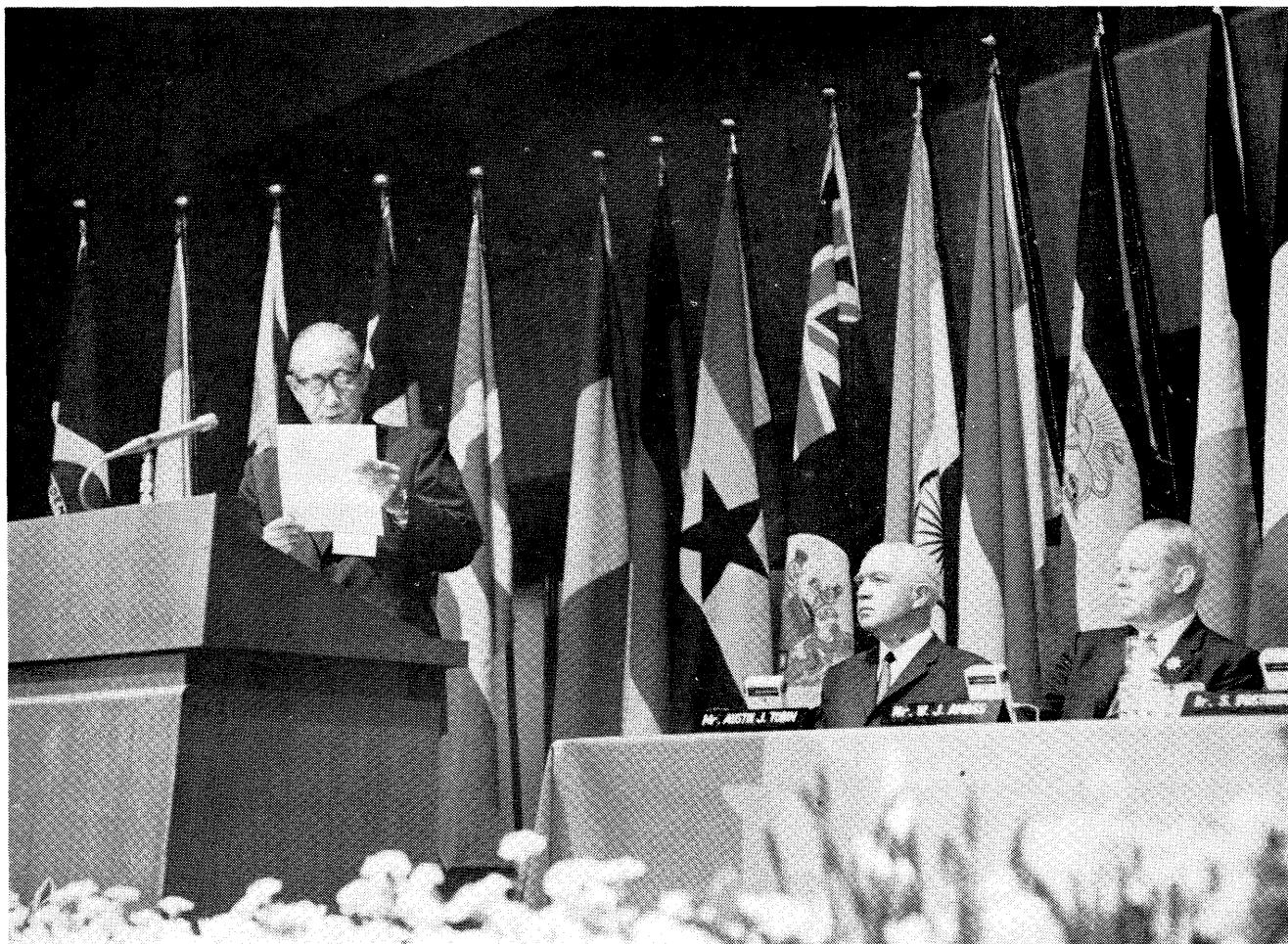
You will note that the old item 2 of Sec. 2 has been deleted, but in its place is inserted a clause saying, “This shall only be prospective in application and shall not affect the membership status of any international or local association, organiza-

tion or body that is a Regular Member as of May 12, 1967.”

#### **Panel Discussion**

The Panel Discussion on Containerization Problems was held on May 12 afternoon. The Moderator was Mr. A. Lyle King of Port of New York Authority, and four Panelists were: Mr. V. G. Swanson, Chairman of Melbourne Harbor Trust Commissioners, Ir. F. Posthuma, Managing Director of Port of Rotterdam Authority, Mr. Dudley G. Perkins, Director General of Port of London Authority, and Mr. Fujio Yoneda, of Japan Ship-owners Association.

This new attempt was a success indeed in it that questioners were shot back with replies on-line and real-time. Suddenly the wealth of knowledge crystallized on the rostrum loomed large, and the conviction was affirmed that no other organization in the world could ever hope to stage such a valuable panel.



**Mr. Ryokichi Minobe, Mayor of Tokyo, reads his address in English at the rostrum as Mr. Austin J. Tobin and Mr. W. J. Amoss look on.**

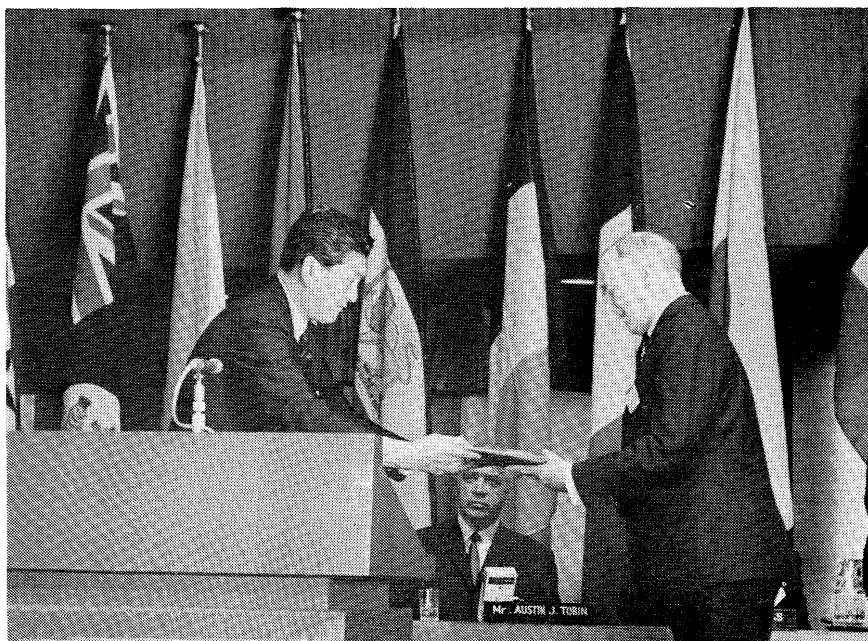
Every minute spent was fraught with new revelations and advices. The two hours reserved for it seemed brief, but was effectively spent. There is no doubt that a hundred good questions dawned on each delegate later as afterthoughts. For the details of what were said, you are referred to the Conference Report now under compilation.

#### **10-Minute Speeches**

Another new program of this Conference was 10-minute Speeches, 17 of them were delivered over two days, as follows:

#### **May 9**

1. Mr. W. J. Manning, Director of Marine Works, Canada, on "Local Harbour Commissioners for Harbour Administration".
2. Mr. Yu-Ching Wong, Deputy Director of Kaohsiung, China, on "A Brief Report on Ports of Taiwan".
3. Mr. Kalafatovich Valle Mateo,



**At the Opening Session, Lord Simon receives the first sheet of the Japanese memorial postage stamps from an official of the Ministry of Posts & Telecommunications, as Mr. Austin J. Tobin looks on.**

Director Ejectivo, Administracion Portuaria del Peru, on "Sobre Program de Desarrollo Portuaria del Peru", read by Comm. Granadino M. Carlos, Director of Maritime Terminal, Callao, Peru.

4. Mr. Robert L. M. Vleugels, Director General of the Port of Antwerp, on "The Impact of I.M.C.O.—Resolution A 48 (111) on Harbor Dues and Other Port Revenues".
5. Dr. F. Marques Da Silva, Port of Lisbon Authority, Portugal, on "Ever Increasing Use of Specialization in Harbor Exploitation".
6. Sidney A. Finnis, Managing Director of British Transport Docks Board, U.K., on "Managing a Group of Ports".
7. Mr. K. Yomota, Director of Bureau for Ports and Harbours, City of Kobe, Japan, "On Relationship between Port Management and In-Port Transport companies at Kobe".
8. Mr. James M. Gifford, Director General, National Ports Council, U.K., on "Management and Supervisory Training in the Port Industry".

#### May 12

9. Mr. Jorge L. Frias, Administrador de Puertos, Argentina, on "Nuevo Reglamento de Trabajo Portuario en la Republica Argentina".
10. Mr. Reginald C. F. Savory, Chairman and President, Harbours Association of New Zealand, on "Port Labour Problems".
11. Mr. J. Eldon Opheim, General Manager, Port of Seattle, Wash., U.S.A., on "Container Research and Planning for Transpacific Service".
12. Mr. Harm Westendorf, General Manager, Freie und Hansestadt Hamburg, Behoerde fuer Wirtschaft und Verkehr, on "The Importance of Consolidated Cargo to a Universal Port—and Vice Versa".
13. Mr. Y. Mizuno, Chairman, Japan Container Association, on "Containerization".
14. Mr. Clifford A. Dove, Director General, Mersey Docks and Harbour Board, U.K., on "Port

## I.A.P.H. Membership

(As of April 30, 1967)

Countries	Regular	Supporting		Total
		Corporate	Individual	
Argentina .....	1	—	1	2
Australia .....	5	7	—	12
Belgium .....	1	1	1	3
Brazil .....	—	1	1	2
Burma .....	1	—	—	1
Canada .....	4	—	2	6
Ceylon .....	1	—	—	1
China .....	4	3	1	8
Colombia .....	1	—	—	1
Denmark .....	3	1	1	5
Ecuador .....	1	—	1	2
Eire .....	1	—	2	3
France .....	2	—	2	4
Germany .....	2	—	—	2
Ghana .....	1	—	—	1
Hong Kong .....	1	—	1	2
India .....	1	—	1	2
Iran .....	1	—	—	1
Israel .....	1	—	—	1
Italy .....	1	—	1	2
Jamaica .....	1	—	—	1
Japan .....	34	35	12	81
Kenya .....	1	—	—	1
Liberia .....	1	—	—	1
Malaysia .....	3	—	—	3
Malta .....	—	—	1	1
Mexico .....	—	—	2	2
Netherlands .....	2	—	—	2
New Zealand .....	3	1	—	4
Nigeria .....	1	—	—	1
Norway .....	2	—	—	2
Pakistan .....	2	1	—	3
Peru .....	1	—	—	1
Philippines .....	—	1	—	1
Portugal .....	1	—	—	1
Singapore .....	1	—	—	1
South Arabia .....	1	—	—	1
Spain .....	2	—	—	2
Sweden .....	2	1	2	5
Syrian Arab Rep. ..	—	—	1	1
Thailand .....	1	—	1	2
Turkey .....	1	1	1	3
United Kingdom ...	10	—	2	12
Uruguay .....	—	—	1	1
U.S.A. ....	22	9	10	41
Venezuela .....	2	1	—	3
Vietnam .....	1	—	—	1
Yugoslavia .....	—	1	—	1
<b>Total (48) .....</b>	<b>128</b>	<b>64</b>	<b>48</b>	<b>240</b>



## Honorary Members

**H.I.H. Prince Nobuhito Takamatsu**, Japan (1959)

**Admiral C. G. Manuel Zermeno Araico**, Secretary of the Navy, Mexico (1959)

**The Hon. T. Hale Boggs**, Member of House of Representatives, U.S.A. (1963)

**Mr. John P. Davis**, Former President (1965)

**Mr. Benjamin J. Roberts**, Canada (1967)

**Mr. John-Iwar Dahlin**, Sweden (1967)

**Mr. Lloyd A. Menveg**, Los Angeles, Calif., U.S.A. (1967)

**General Jen-Ling Huang**, the Republic of China (1967)

**The Rt. Hon. Viscount Simon**, Immediate Past President (1967)

**Mr. Gaku Matsumoto**, Immediate Past Secretary General (1967)

Development and Containerization".

15. Mr. John T. McCullough, Executive Editor of Distribution Age, U.S.A., on "The Impact of Containerization on the World's Ports".
16. Mr. R. K. Trimmer, Chairman, Northland Harbor Board, New Zealand, on "Cargo Handling by the Rolling Method".
17. Mr. Le Bourgeois, Technical Adviser, U.N., on "Facilities for International Organization Cooperation in Ports and Harbours".

### Honorary Members

At the Closing Session on May 13, fifteen members were appointed Founder Members with the same privileges as the Life Supporting Member in recognition of their meritorious service and of their contribution to the establishment of the IAPH. Their names are listed on Page .

At the same Session, 6 new Honorary Members were nominated. Their names are listed on Page along with other Honorary Members, but herebelow are summarized pleas for nomination as presented by Mr. Swanson of Australia.

Mr. Benjamin J. Roberts of Canada, was President of this Association up until the conference in Los Angeles. Mr. Roberts was Chairman of the National House of

Lords of Canada, and vacated the presidency when he changed his appointment and became Chairman of the St. Lawrence Seaway Authority;

Mr. John-Iwar Dahlin of Sweden. Mr. Dahlin was the first Vice-President of this Association and stepped up to the Presidency following the resignation of Mr. Roberts. Mr. Dahlin was the first European member and has attended all meetings since the inception of this Association;

tion;

Mr. Lloyd A. Menveg of Los Angeles. Mr. Menveg was the second President of the Association. He made very effective efforts to lead the Association during a very critical part of the Association. To our regret it was necessary for him to leave the position of President due to vacating his position on the Board of Commissioners in Los Angeles;

General Jen-Ling Huang of the

## Founder Members

**Mr. Arthur W. Nordstrom**, U.S.A.

**Mr. Bernard J. Caughlin**, U.S.A.

**Dr. Chujiro Haraguchi**, Japan

**Mr. Dudley W. Frost**, U.S.A.

**Mr. Gaku Matsumoto**, Japan

**Mr. Gengo Tsuboi**, Japan

**Mr. Hisato Ichimada**, Japan

**Mr. H. J. Legg**, U.K.

**Mr. John P. Davis**, U.S.A.

**Mr. Lloyd A. Menveg**, U.S.A.

**Mr. Shizuo Kuroda**, Japan

**Dr. Tadashi Hida**, Japan

**Mr. Toru Akiyama**, Japan

**Mr. Yasuo Abe**, Japan

**Mr. Yonekichi Yanagisawa**, Japan

## ***Impressions of Tokyo Conference***

*By W. H. Brotherson, President*

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

*On returning to Sydney after my all too brief stay in Japan, the thought which is uppermost in my mind is of the great kindness of the Japanese people.*

*Perhaps it was to be expected that the conference staff and the Japanese delegates would display these characteristics. They, after all, were the hosts and would be anxious to please their guests, but it went much further than this. Even in the streets of a busy city such as Tokyo, the people bustling to and fro intent on their everyday business activities were the essence of courtesy and friendliness and went out of their way to be helpful.*

*One of the lasting impressions my wife and I brought with us when we returned home from Japan, was the care and attention given to the young people of the country. Their home training appears to have engendered an obedient and respectful attitude towards their elders and it appeared perfectly obvious to us that the well being of the children was of prime importance to the Japanese people. Their grooming, the selection of their clothing and their personal cleanliness were most impressive and indicative of a healthy future for the country.*

*As a visitor to Japan, I was also greatly impressed by the colourful national costume of the Japanese women. I recall the young ladies, clothed in their kimonos, who were employed as lift attendants at the Tokyo Prince Hotel and I feel bound to express the hope that this*

*national dress, which so impressed me, will withstand the ravages of westernisation and will be retained as a feature of Japan, not regularly seen in similar circumstances in any other part of the world. . . .*

*I must admit, however, that the salient feature of my visit to Japan was the Conference. It can only be described as being successful in the extreme and having placed the seal of adulthood on our Association. To my mind, the Association was born in London and nurtured to maturity in Tokyo. It is inevitable that from this day forward it will grow in stature.*

*The Conference staff and officials were obviously busy and, at the time, it was not altogether possible to convey appreciation for the attention and meticulous care given to the wants and personal requirements of the great many delegates attending from so many different countries of the world. For my part, I would like now to take this opportunity of expressing my personal thanks.*

*The visit to Kobe was, of course, a highlight and was a never to be forgotten experience for my wife and myself. The official activities associated with the anniversary celebrations of the port were so well organised that they could not fail to be successful, but the night spent at Arima Spa will, I am sure, long be remembered by all who participated. The dinner tended by the Mayor of Kobe, the charming surroundings and the old-world atmosphere of the hotel, all combined to provide an unforgettable experience.*

Republic of China. General Huang was the second Vice-President of the Association. He later became President, succeeding Mr. Menveg. General Huang was also most helpful in the direction of the Association during a critical period. He was President during the New Orleans Conference.

Lord Simon, our current President shortly will be our past president. I think most of you are completely familiar with Lord

Simon's contribution to this Association;

And finally, Mr. Gaku Matsumoto, who has been our Secretary General since the inception of the Association and I need add no more because I would concur, I know you would all concur about all the things that have been said about him.

### **Mr. Gaku Matsumoto**

Also at the above Session, Mr. Nordstrom of U.S.A., a good friend of Mr. Gaku Matsumoto, read a

resolution in a following tone:

"Whereas, largely through the efforts of Mr. Gaku Matsumoto an International Port and Harbor Conference was held at the City of Kobe, Japan, in 1952, during which Conference it was resolved that a further conference should be called in the near future for the purpose of seriously considering the formation of a permanent international port and harbor association; and,

"Whereas, following the termination of that Conference, Mr. Matsumoto labored long and assiduously to develop the framework for such a permanent association; and

"Whereas, Mr. Matsumoto urged, encouraged, and succeeded in securing the holding of the Second Port and Harbor Conference in Los Angeles, California, in November, 1955, at which Conference the delegates thereto resolved to form a permanent organization, and adopted a Constitution and By-Laws, thereby bringing this International Association of Ports and Harbors into being; and

"Whereas, Mr. Gaku Matsumoto was then appointed the Chief of the Central Secretariat of this Association, which title has since by appropriate amendment of the By-Laws been changed to Secretary General; and

"Whereas, since 1955 and his said appointment, Mr. Matsumoto has for more than eleven years labored diligently and unceasingly, with foresight, understanding and rare acumen, to guide, encourage and promote the growth and development of this Association until now its future is certain and it can only continue to grow and prosper; and

"Whereas, but for the vision, perseverance and dedication of Mr. Matsumoto to the promotion of this Association, it would not have been founded and would not have grown and prospered to the extent of being able to now proudly take its place among the world's great organizations; and

"Whereas, Mr. Matsumoto's compensation has been, instead of monetary, the satisfaction and pleasure derived from seeing this Association and its membership grow, thrive and prosper;

"Now, Therefore, Be It Resolved

by the International Association of Ports and Harbors in a plenary meeting of its members, held the 13th day of May, 1967, That Mr. Gaku Matsumoto, as Chief of the Central Secretariat and now Secretary General, has executed the duties of said office with the highest degree of efficiency and success and has thereby given to this Association and to each and everyone of its members, through his devotion, services, aid, and counsel, benefits of inestimable value; and that this Association and its members do hereby wholeheartedly thank and highly commend Mr. Matsumoto therefor, and, while deeply regretting the great loss that will be sustained by reason of his resignation, wish for him a continued long and happy life that he has so fully earned and that he so richly deserves; and

"Be It further Resolved, that, as a token of the esteem and friendship that the members of this Association have for him, a retirement allowance in the sum of US\$10,000 be and the same is hereby approved and directed to be paid to Mr. Gaku Matsumoto, pursuant to and in accordance with the heretofore adopted Budget of this Association for the fiscal year 1967-1968".

#### **Lord Simon**

As Dr. Haraguchi was elected President and the First and Second Vice Presidents were elected, Lord Simon delivered a retirement address. In a relaxed manner he reminisced his two years' presidency, and finally expressed appreciation to the devoted Secretariat, but above all he impressed the audience with his comments on the IAPH activities, somewhat in the following tone:

"It is very easy to go to conferences and applaud everything that is done and think that everything is right, and if I have, not a criticism but, a comment to make on the Association, it would be this, that somehow I don't think we have quite yet achieved sufficient involvement by the membership.

"This is a very, very difficult thing in an international association spread all over the world. It is made, strange enough I think, a little more difficult by the fact that we the ports of the world have always had close association with each

## **Twelve Days in Japan**

By S. A. Finnis, O.B.E., E.R.D.

Chairman, British Transport Docks Board

*Writing less than a month after the Tokyo Conference, there are so many happy incidents to recall that it is difficult to sort them out. To say that memories of Kyoto and Kobe come first to mind would be to do less than justice to the excellent arrangements in Tokyo and to the success of the Conference. Nevertheless, the Post-Conference Tour was a highlight, for we were thus enabled to see something of Japan outside the capital city which, by its very size and nature, is in so many respects similar to other capital cities. As an Englishman, I must comment also that in Tokyo it rained—to the surprise of the British who are inclined to think that they have exclusive rights to that sort of weather. Nevertheless, despite grey conditions overhead, the hotels were bright and welcoming and well up to international standards. Street names and numbers seemed to be a difficulty in the city and we sometimes had to guide our taxi drivers. However, they were always cheerful in doing their best to help and one could not help admiring their ability to get through the densest traffic.*

*On the Conference arrangements themselves, one quickly found on registration day that the many and varied requirements of delegates were amply covered and happily the Monday was relatively free, for there were many old friends to greet. The Conference itself went well, the various sessions finished to time and the translation arrangements were excellent. The only remarks I would make on the proceedings are that there were perhaps too many questions and comments from the English-speaking nations and insufficient from delegates speaking other languages. The next time there are 10-minute speeches, there will have to be a loud sounding bell and a much larger red light if anything like a timetable is to be observed and, in general, the content of these in-*

*cluded a considerable element of propaganda. The coffee and lunch arrangements worked admirably and one can only speak in praise and pleasure of the happy atmosphere at the receptions given by the Minister and the Governor and at the President's dinner, with a special word for the ladies of all nations who not only graced the various occasions but also made the evenings more colourful in their delightful gowns and kimonos.*

*On the Post-Conference Tour we travelled by monorail, by air, by coach and on the Tokaido Line as well as having a boat trip round Kobe Harbour. The old capital of Kyoto made a considerable impression on many of us and Dr. Chujiro Haraguchi's delightful and lavish hospitality put Kobe right in the picture. The final parties at Arima were gay and it was a delight to see one's friends in kimonos and even more so to find many of them throwing years off their shoulders and dancing lightly. Of the things Japanese that we tried, one cannot help but mention food. Not only at Arima but also in Tokyo we visited Japanese restaurants and quickly learned to handle chopsticks. The raw fish was a surprise and went down well as did sukiyaki and tempura. Our taste for sake was developed!*

*From all this, what stands out most? Perhaps the warmth of the welcome given to us and the excellence of the arrangements should be mentioned first, for these were vital to the success of the Conference. Secondly, the experience of visiting a country remote from Britain and being introduced to customs and food and clothes which, up to then had existed in books and pictures, was a delight. And finally, the pleasure of being one of the I.A.P.H. family and having the opportunity of meeting so many old friends and making new ones in such a happy atmosphere. This above all other things gives one confidence in the future of the world.*



other. We know each other very well, and when we visit each other we don't necessarily think of it in the context of the international association. The same applies obviously in America where the American Association regularly meets but not again in the context of this Association.

"I am still, I confess, after two years, groping for the answer to this problem. I think we are agreed that the excellent publications of the Association are getting even better, and those are a splendid link especially for the ports which steer themselves rather far away perhaps from the general stream, but I hope that during the next two years your new President and the Executive Committee will ponder over this problem of how the membership can get more deeply involved. Not just once every two years when we meet in a conference, and, after all, we know that even then many of the members are not able to come, but throughout the year".

### **Melbourne in 1969**

Finally, Mr. Swanson of Melbourne, Australia announced invitation to the next Conference in Melbourne, in the following tenor:

"It is with very real pleasure that I officially extend to all members of the IAPH the invitation to hold and to attend the Sixth Conference in the City and Port of Melbourne, Australia.

"To many in the northern hemisphere, Australia is a land of sunshine, the land of kangaroos, boomerangs, swimmers, tennis players and golfers with a population of 17 million sheep and 12 million people. Often it is referred to as the land "Down Under" but I would suggest that is merely a point of view, to us back home it often appears that it is things in the northern hemisphere that are upside down. My fellow Commissioners and I on the Board of Melbourne Port Authority believe that it is highly appropriate that the Association's first conference in the southern hemisphere should be in Melbourne. We assure you that the delegates will find the visit both rewarding and enlightening. Comparatively speaking, Australia is regarded as

one of the younger nations of the world but I think we can be justly proud of the progress which we have achieved in our short history.

"Strange as it may seem, the port authority which I lead is in terms of modern port administration one of the older ports of the world. The port authority having been established in 1877 to build, control, maintain and develop the port as a financially independent and almost autonomous organization while similar port administrations were not established in the major ports in Europe and other parts of the world until a much later date.

"Australia today is a major trading nation and ship transport has been and will continue to be the vital link between the island continent and the rest of the world.

"Melbourne is one of the two principal ports of Australia in terms of general cargo because the hinterland it serves is a major industrial and rural center.

"The City itself has the population now more than 2 million and was the first national capital and today still retains considerable economic influence as the form of financial heart of the Commonwealth. As a port we can justly claim that the facilities and developments in Melbourne are on a par with anywhere in the world. The Administrative reports have taken advantage of the port's geographical location, the industrial role and social developments of the hinterland and the administrative freedom and stability which has been accorded them since the establishment of the Authority in 1877.

"The provisional dates which have been set for the Conference are from the 3rd to the 8th of March, 1969 which is Melbourne's early autumn and most pleasant and suitable time of the year.

"We believe Melbourne to be a delightful and interesting city and we look forward to being your host of the Association's 6th Conference in March, 1969 when we can assure you of our warm welcome and most interesting and informative visit thereunder.

"The Government of Victoria is extending its full support in staging this Conference, and my Australian

colleagues, Mr. Brotherson in Sydney and Mr. McConnell of Perth have indicated that it would be their desire to arrange for the preconference and post-conference tours of their respective cities and I am sure you would, by visiting Sydney and Perth in the course of coming to the conference in Melbourne, have a very representative impression of Australia. Thank you, Mr. President".

### **New Secretary General**

The newly-appointed Secretary General of the IAPH at the Head Office in Tokyo, Mr. Toru Akiyama, is a busy man indeed because he currently holds five other organizational and another five business positions, as detailed further on.

Graduated from the Kyoto Imperial University with LL.B. Degree in 1928, he reached the height of his governmental career as Vice-Minister of the Ministry of Transport during 1949/1952. He was a member of the Radio Regulatory Committee under the Ministry of Posts and Telecommunications during 1957/1966.

Mr. Gaku Matsumoto was born in Okayama Prefecture, Japan, and so was Mr. Akiyama in 1905, 19 years later. As a life-time supporter of Mr. Matsumoto, Mr. Akiyama threw his weight behind Mr. Matsumoto all the way, including the IAPH promotion.

Currently Mr. Akiyama is President of Japan Cargo Handling Mechanization Association (since 1956), Chairman of National Committee (Japan) of ICHCA (since 1956), Member of Civil Aeronautics Council, Ministry of Transport (since 1961), Member of Economic Council, Prime Minister's Office (since 1963), and Vice-Chairman of International Board, Airport Operators Council International (since 1966).

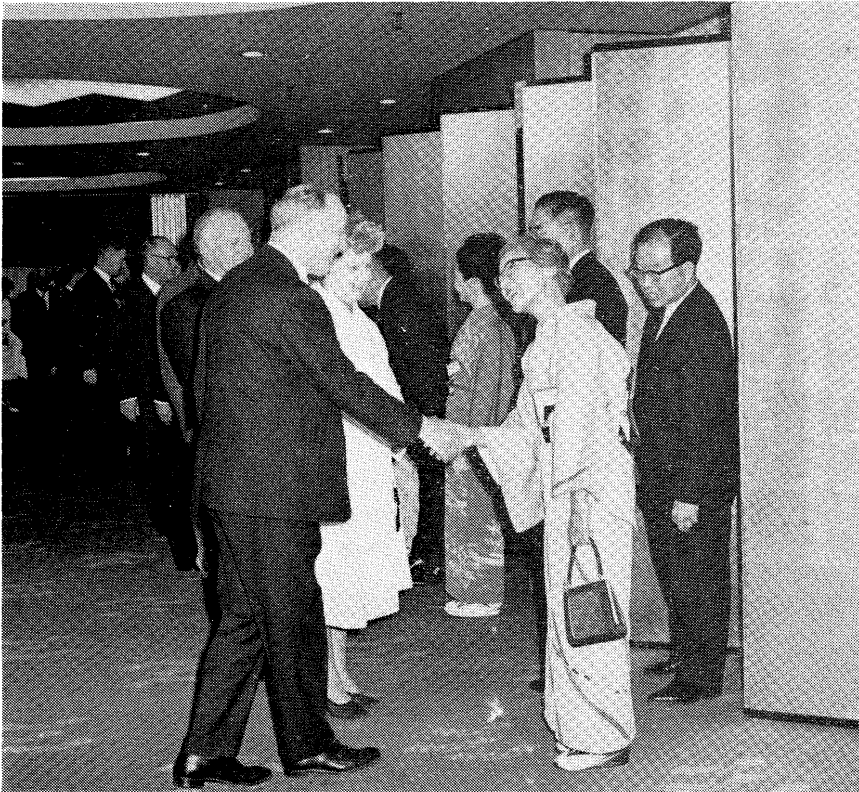
In Business, he is now President of Japan Airport Terminal Co., Ltd. (since 1953), Chairman of Japan Air Terminal Hotel Co., Ltd. (since 1955), President of Pacific Steamship Co., Ltd. (since 1956), Director of Hotel Okura (since 1958), President of Tokyo Monorail Co., Ltd. (since 1965).







→  
Seated for lunch at the Magnolia Hall, Tokyo Prince Hotel are, from left to right; Mr. Xavier Le Bourgeois, the United Nations, Mr. Hassau Chami, Morocco, Mr. Paul Bastard, France, and Mr. Andre P. X. Pages, France.

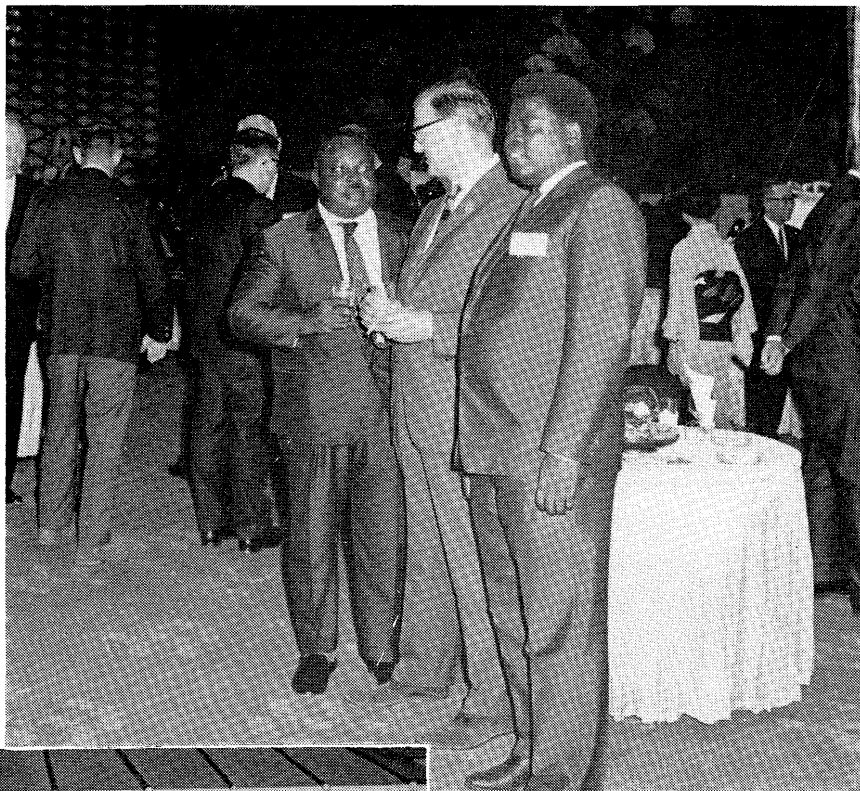


←  
Lord and Lady Simon at the receiving line at the Transport Minister's Reception held at Hotel New Otani on May 8. Mrs. Ohashi is shaking hands with Lord Simon, and Transport Minister Ohashi's face is partially hidden behind her.

→  
At the Transport Minister's Reception held at Hotel New Otani on May 8, left to right, Mr. Dudley Perkins, United Kingdom, Mrs. Perkins, Mrs. Vleugels, Mr. Johannes Den Toom, Netherlands, and Mr. Robert L.M. Vleugels, Belgium.



→  
At the reception by Japan's  
Transport Minister at Hotel New  
Otani, May 8. From left to  
right; Mr. Hamilton K. Biney,  
Ghana, Mr. John Newland,  
Ghana, and Mr. R. O. Ajayi,  
Nigeria.



←  
At the reception by Japan's  
Transport Minister at Hotel New  
Otani, May 8. From left to right;  
Mr. Oscar Villegas, Mr. Juan  
J. I. Ibarra, Mr. Carrero J.  
Sanchez, Mr. Cesar C. B. Busta-  
mente, and Lady Bustamente, all  
from Venezuela.

→  
At the reception by Japan's  
Transport Minister at Hotel New  
Otani, May 8. From left to  
right; Capt. Jacobsen, Norway,  
Mr. John-Iwar Dahlin, Sweden,  
and Mr. Toru Akiyama, Japan.







	<u>Directors</u>	<u>Alternate Directors</u>
<b>Australia</b>	Mr. W. H. Brotherson President The Marine Services Board of N. S. W.	Mr. J. McConnell Chairman Fremantle Port Authority
<b>Belgium</b>	Mr. Robert L. M. Vleugels General Manager General Management of the Port City of Antwerp	Mr. F. L. H. Suykens Chief Adviser of the General Management of the Port of Antwerp
<b>Burma</b>	M. Wunna Kyaw Htin Thiri Pyanchi U Soe Ya Chairman Board of Management for the Port of Rangoon	Mr. Thiri Pyanchi U Win Pe  Commissioner Board of Management for the Port of Rangoon
<b>Canada</b>	Mr. W. J. Manning Director Marine Works Branch Department of Transport	Mr. John Ballinger Chief, Aids to Navigation Dept. Transport
<b>Ceylon</b>	Mr. A. W. A. Abeyagoonasekera Chairman Port (Cargo) Corporation	Mr. Hubert A. de Silva General Manager Port (Cargo) Corporation
<b>Rep. of China</b>	Mr. Walter H. Fei Vice-Minister Ministry of Communications of the Republic of China	Mr. Lien Chih Lee Executive Director Kaohsiung Harbour Bureau
<b>Denmark</b>	Mr. Aa. Hendrup General Manager Port of Copenhagen Authority	Mr. M. Overvad General Manager Port of Aarhus Authority
<b>East Africa</b>	Capt. A. R. Collier Chief of Ports Manager East African Railways & Harbours	Mr. W. W. Gow Port Manager East African Railways & Harbours
<b>France</b>	Mr. Charles Barrillon Director General Port Autonome de Marseille	Mr. Andre Pages Director Port Autonome de Bordeaux
<b>Germany</b>	Mr. Harm Westendorf Managing Director Port of Hamburg	Mr. Gerhard Beier Managing Director Bremer Lagerhaus-Gesellschaft
<b>Hong Kong</b>	Mr. K. Milburn Director of Marine Marine Department Hong Kong	Mr. A. Fletcher Deputy Director Marine Department Hong Kong
<b>Ireland</b>	Mr. F. D. Martin <del>President</del> <i>Chairman</i> Dublin Port and Docks Board	Mr. Sean Moore <del>Vice-President</del> <i>Chairman</i> Dublin Port and Docks Board
<b>Israel</b>	Mr. Amos Landman Port Manager, Haifa Port Israel Ports Authority	Mr. J. Peltz Operation and Coordination Officer Israel Ports Authority
<b>Japan</b>	Dr. Shizuo Kuroda Vice-President Japan Cargo Handling Mechanization Association  Mr. Gengo Tsuboi Managing Director Japan Shipowners' Association  Mr. Yonekichi Yanagisawa Managing Director Japan Port and Harbour Association	Mr. T. Nojiri Director Port and Harbor Bureau Tokyo Metropolis  Dr. Tadashi Hida Director Japan Port and Harbor Association  Mr. N. Tsuchihashi Director Port and Harbor Bureau City of Yokohama
<b>Jamaica</b>	Mr. T. S. B. Challis General Manager Kingston Wharves Limited	Mr. E. J. Milsted Labour and Personnel Manager Kingston Wharves Limited
<b>Liberia</b>	Mr. Edward L. Wesley Assistant to Port Director Monrovia Port Management Co., Ltd.	Mr. Raymond J. Weir Consul Consulate of Liberia
<b>Malaysia</b>	Mr. Tan Sri Abdul Hamid bin Mustapha Chairman Port Swettenham Authority	Dato Laksmana Haji Mohamed Razalli Chairman Penang Port Commission



	<u>Directors</u>	<u>Alternate Directors</u>
<b>Netherlands</b>	Ir. J. den Toom Executive Director Port Management of Amsterdam	Ir. F. Posthuma Managing Director City of Rotterdam Rotterdam Municipal Port Management
<b>New Zealand</b>	Mr. Reginald C. F. Savory Chairman Auckland Harbour Board	Mr. Ernest R. Toop Chairman Wellington Harbour Board
<b>Nigeria</b>	Mr. J. W. McEwen General Manager Nigerian Ports Authority	Mr. R. O. Ajayi Chief Traffic and Commercial Manager Nigerian Ports Authority
<b>Norway</b>	Capt. T. Jacobson General Manager Port of Oslo	Mr. Inge Hasund Deputy General Manager Port of Oslo
<b>Pakistan</b>	Commodore Mahmud-ul Hasan Chairman Karachi Port Trust	Mr. R. D. Kabraji Deputy Director Karachi Port Trust
<b>Peru</b>	Mr. Valle Mateo Kalafatovich Director Bureau of Port Administration Ministry of Finance and Commerce	Mr. Rene Guevara Mechanical Engineer Bureau of Port Administration Ministry of Finance and Commerce
<b>Portugal</b>	Dr. Henrique Daries Louro Executive Member Administracao-Geral do Porto de Lisboa	Dr. Fernando Marques da Silva Director of Financial Dept. Port of Lisbon Authority
<b>Singapore</b>	Mr. Goh Koh Pui Chairman/General Manager Port of Singapore Authority	Mr. Loh Heng Kee Director-Operations Port of Singapore Authority
<b>Sweden</b>	Mr. Helge Linder General Manager Stockholms Hamnstyrelse	Mr. Sven Ullman Assistant General Manager The Helsingborg Harbor Board
<b>Thailand</b>	Maj. Gen. Prachuab Suntrangkoon Director Port Authority of Thailand	Capt. Lapo Israngkura, R.T.N. Deputy Director (Operations) Port Authority of Thailand
<b>Turkey</b>	Capt. Fethi Isin President of Ports State Railways of the Republic of Turkey	Mr. Sadettin Onur Asst. President of Ports State Railways of the Republic of Turkey
<b>United Kingdom</b>	Mr. Dudley Perkins Director The Port of London Authority	Mr. S. A. Finnis Chairman British Transport Docks Board
<b>U.S.A.</b>	Mr. A. Lyle King Director of Marine Terminals Port of New York Authority	Mr. Thomas P. Guerin General Manager and Secretary The Commission of Public Docks Portland
	Mr. W. J. Amoss Director of the Port the Port of New Orleans	Mr. Louis C. Purdey Toledo-Lucas County Port Authority
	Mr. George D. Watson Member Board of Harbor Commissioners <i>City</i> Port of Los Angeles California	Mr. J. D. Holt Executive Director Georgia Ports Authority
<b>Venezuela</b>	Sr. Cesar Bustamante Lopez-Mendez Administrador General Administración General de Los Servicios	Sr. Juan Fco. Ibarra Illas Chief Technical Div. Administración General de Los Servicios
<b>Viet-Nam</b>	Mr. Nguyen Van Chieu Director Commercial Port of Saigon	Mr. Nguyen Ngoc Du Director Port of Da Nang

# *Kobe Fetes Centennial*

## *With IAPH Members*

*(By Sparks in Shipping and Trade News)*

Kobe has started the second century since it was opened to foreign shipping and trade with prospects of even greater progress than in the first century. During that eventful period it developed from a small fishing village into one of Japan's greatest ports.

Kobe is already off to a flying start for the years ahead. Under long-range plans, new piers and industrial areas have been created in vast reclamation schemes. And when others under construction and projected are completed the port's capacity will be about double that of before. It also will have Japan's first fully-equipped berths for containerized ships. In addition, the city's progressive Mayor, Dr. Chujiro Haraguchi, plans to make Kobe the "Rotterdam of Japan" and the Inland Sea the "Rhine of Japan" by developing Inland Sea barge lines to serve Kobe as those on the Rhine serve Rotterdam.

By way of a forerunner to that, Kobe and Rotterdam have become "sister ports." In a special ceremony in the Kobe Central Gymnasium on May 15 Mayor Haraguchi and Rotterdam Port Director, F. Posthuma, signed and exchanged documents in the presence of Prince Takamatsu and Princess Takamatsu.

On the same occasion Kobe and Seattle also became "sister ports." Merle D. Adlum, president, Port of Seattle Commission, represented Seattle.

The main wording of the respective documents could also serve as an indication of the general policies that will guide Kobe on to new heights in its second century of progress.

The one signed with Rotterdam

said: "On this fifteenth day of May 1967, the Port of Rotterdam and the Port of Kobe declare their mutual relationship as sister-ports. They declare their intention to strengthen the ties of their friendship and co-operation and their resolution to contribute to their mutual participation in international trade and to their mutual prosperity by promoting the exchange of the results of their studies and research in the field of the construction, administration and operation of their own ports."

That signed with Seattle said: "The Port of Seattle and the Port of Kobe hereby, as Sister-Ports affiliated with each other in friendship on the people-to-people basis, declare their resolution to contribute hereafter to the development of in-

ternational trade and to the furtherance of their mutual prosperity by promoting the interchange of the results of studies and research on the construction, administration and operation of their own ports."

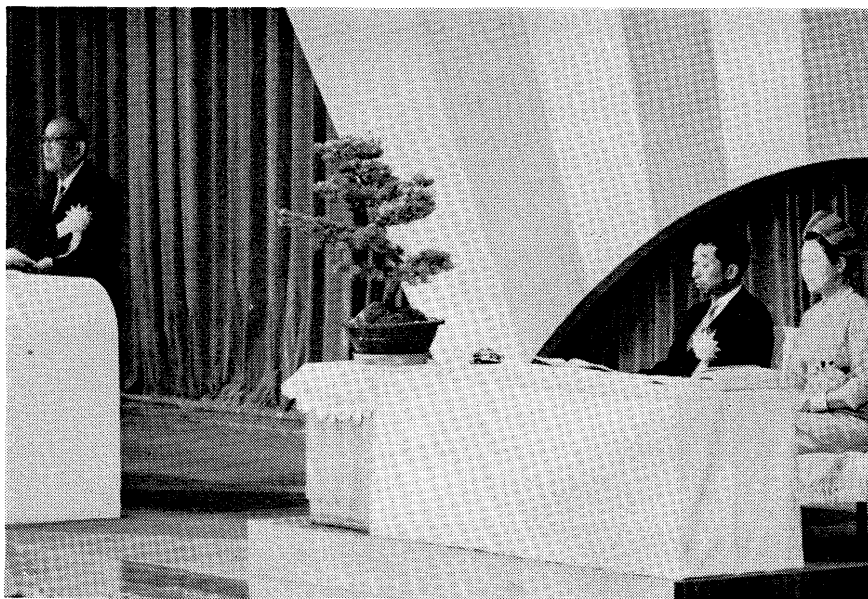
In a speech, Rotterdam Port Director, Posthuma, noted that both Kobe and Rotterdam have been developed through international trade, and said he believed international trade is one of the greatest blessings of today, helping to create understanding and peace.

"The oceans divide us but also unite us," he added.

All this, of course, called for a celebration. And celebrate Kobe did. In what was said to be its biggest festival ever, the city was turned into a decorated stage for parades and other events on May 14 and May 15.

Brass bands led by squads of short-skirted, high-stepping girls played stirring tunes. There were geisha in full splendor on flowered floats, groups marching in fancy dress, hundreds of folk dancers in blue and white yukata, lion dancers, firecrackers, floats manned by the foreign community, and dozens more.

It was a great ending to the first hundred years and a happy beginning for the second.



**Prince and Princess Takamatsu on the dais, with Mayor Haraguchi at the rostrum.**

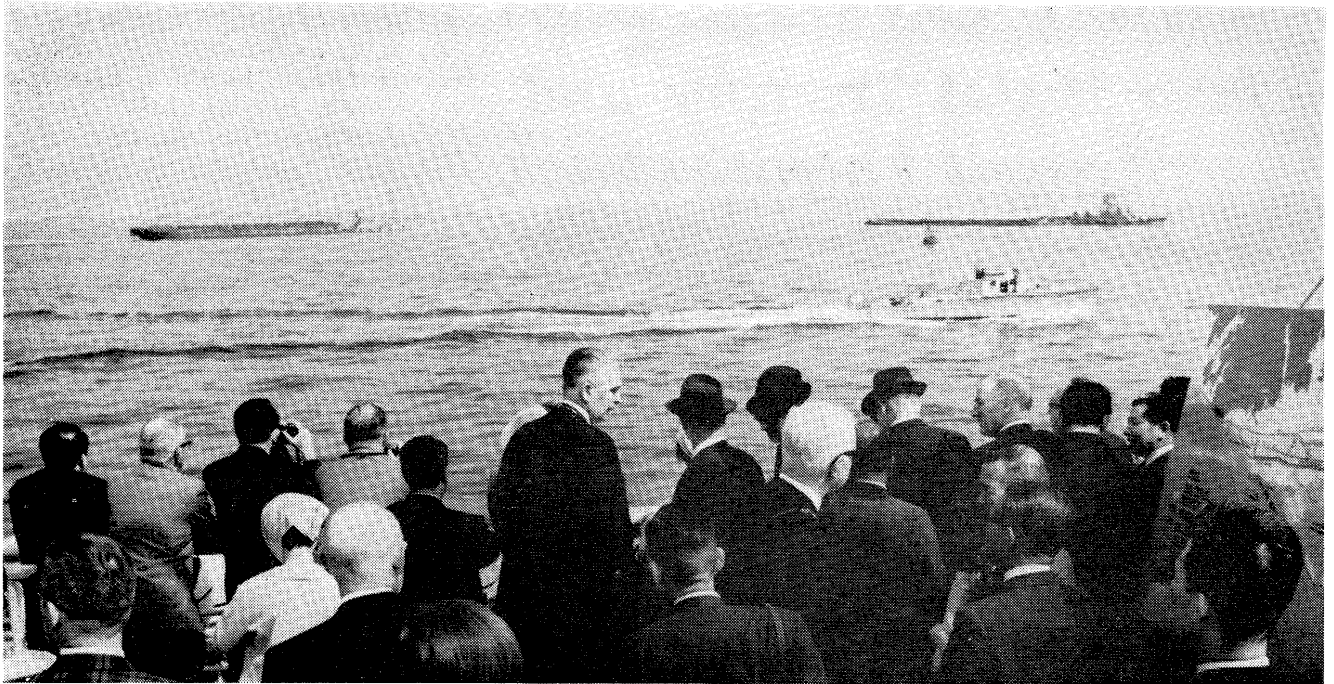
→  
IAPH members enjoying standing buffet lunch around Japanese food stalls at Soraku-en.



←  
Dignitaries applauding street processions from special stand. From left to right, Mrs. Swanson, Mrs. Haraguchi, Mayor Haraguchi, Lord Simon, and Lady Simon.

→  
The celebration processions including pre-Meiji era samurai attires.





**IAPH members at Port of Kobe aboard a cruise ship, watching pusher barges (under load like the one on the right) disgorge earth and sand in a jiffy by opening hopper bottoms and float up like the one on the left.**



**IAPH members feasting at a Japanese hotel in Arima Spa, and watching geisha dancing on the stage.**  
 (Photos, courtesy City of Kobe)

# *Inter-Modal Transfer and Transit Facilities*

## *The Impact of Unitisation on Ports and Terminal Facilities*

By N.N.B. Ordman, B.Sc., M.I.C.E.

*Head of Research and Planning  
Port of London Authority*

*(Delivered at the U.N. Seminar, May 1-12, 1967 in London.)*

### **1. Cargo Transfer—Basic Principles**

1.1 In this paper, I am assuming that papers presented earlier in this Seminar have examined the basic principles which justify the development of unit load systems. I wish, however, to emphasise one point of principle. The major purpose of cargo unitisation is to minimise the cost of transferring cargo from one form of transport to another. This cost reduction is achieved not only by reducing the work content of the transfer operation but also by reducing the time during which the vehicles concerned, e.g. lorries, rail wagons, aircraft and ships, are held static during loading and unloading operations. Indeed, it is in the saving of vehicle time that the greatest element of overall cost reduction is to be found.

1.2 The validity of this contention is clearly demonstrated if we contrast the level of ship utilisation achieved in conventional break-bulk services with that achieved in a fully containerised service. Ships operating under the conventional system spend up to 50 per cent or even more of their time in port. On this basis, a typical long-distance service between two ports might comprise three weeks at sea with a 10-day turn-round at each port, i.e. a round trip of 62 days. Container operations can reduce port time to two days or less on such a service, giving a round trip of 46 days. Such

a service on a weekly schedule would require nine vessels for the conventional systems as against seven vessels for container operations. On the same basis, on the North Atlantic route, the number of ships required to maintain a given service could be reduced by a third.

1.3 It follows that port terminal facilities must be designed with the primary objective of minimising ship turn-round time.

1.4 As will have been pointed out in earlier papers, a characteristic of unit cargo development is that the individual load handled is not only dimensionally less variable but is also larger than with conventional freight. This is both to permit of mechanical handling and a result of it. Because of the greater use of machines which unit cargo systems require, they are much more capital intensive than the conventional system. Moreover, the vehicles, particularly the ships, are more expensive in terms of cost per unit of freight space. Hence, in order to make economic sense, all the facilities involved must be intensively used.

1.5 In consequence, a second characteristic of the port terminal facilities is that they must be capable of high throughput.

### **2. Port Terminals**

#### **2.1 Lift-on, lift-off container system**

2.1.1 Let us now examine how these principles apply in practice by considering a typical port

terminal for a container ship service. We will take as our example a weekly service with vessels carrying 1,000 20-foot containers. As we have seen, rapid turn-round is essential; hence all the outgoing containers should be stacked in the terminal, sorted and customs cleared ready to load when the ship arrives. The equipment for moving the containers into and out of the vessel must be capable of high throughput. The most advanced plant used for this purpose at present is the specially designed heavy duty gantry quay crane which is capable of handling the largest I.S.O. containers with an in-out cycle of about three minutes. The operation comprises, typically, the removal of containers stacked on deck, the emptying of one or more cells in the ship, followed by repeated cycles of one container loaded and one unloaded. With this pattern of operations, the weekly work cycle at the terminal would comprise typically:—

Two days — assembling outgoing containers

24/48 hours—loading/unloading ship

Two days—delivering incoming containers

(A degree of overlap would occur between the individual elements)

2.1.2 It will be seen that the terminal should be at least capable of accommodating the total cargo of the largest vessel regularly using it, plus a reasonable margin (say, 25 per cent). In the example we have taken, this amounts to 1,250 containers. The area needed to do this will depend on the system used. At present, there are basically three systems for the fully containerised operation. These are:—

(a) The trailer system, in which the containers are loaded out of the ship directly on to trailers which are removed to the storage area. The containers remain on the trailers which are used to remove them. (The export part of the cycle is similar). In this arrangement, the





**Figure 1.—Tilbury Docks.** An artist's impression of a container berth. The first of several such berths will be commissioned early in 1968. The special gantry quay cranes and straddle carriers are illustrated. In the background is the new bulk grain terminal on which work has now commenced.

containers are, in effect, stacked one-high.

- (b) The straddle carriers system, in which the containers are discharged on to the quay deck. Straddle carriers remove them to the storage area and stack them two-high. Subsequently, they are loaded to vehicles for delivery.
- (c) Multi-story stacking system, similar to multi-story car parks, with automatic stacking and retrieval arrangements. At the time of

writing, this system has not yet been in use.

There are wide variations within these three systems. With the two that have been tried in practice, a berth-side area of between 10 and 20 acres is required, depending on the system used.

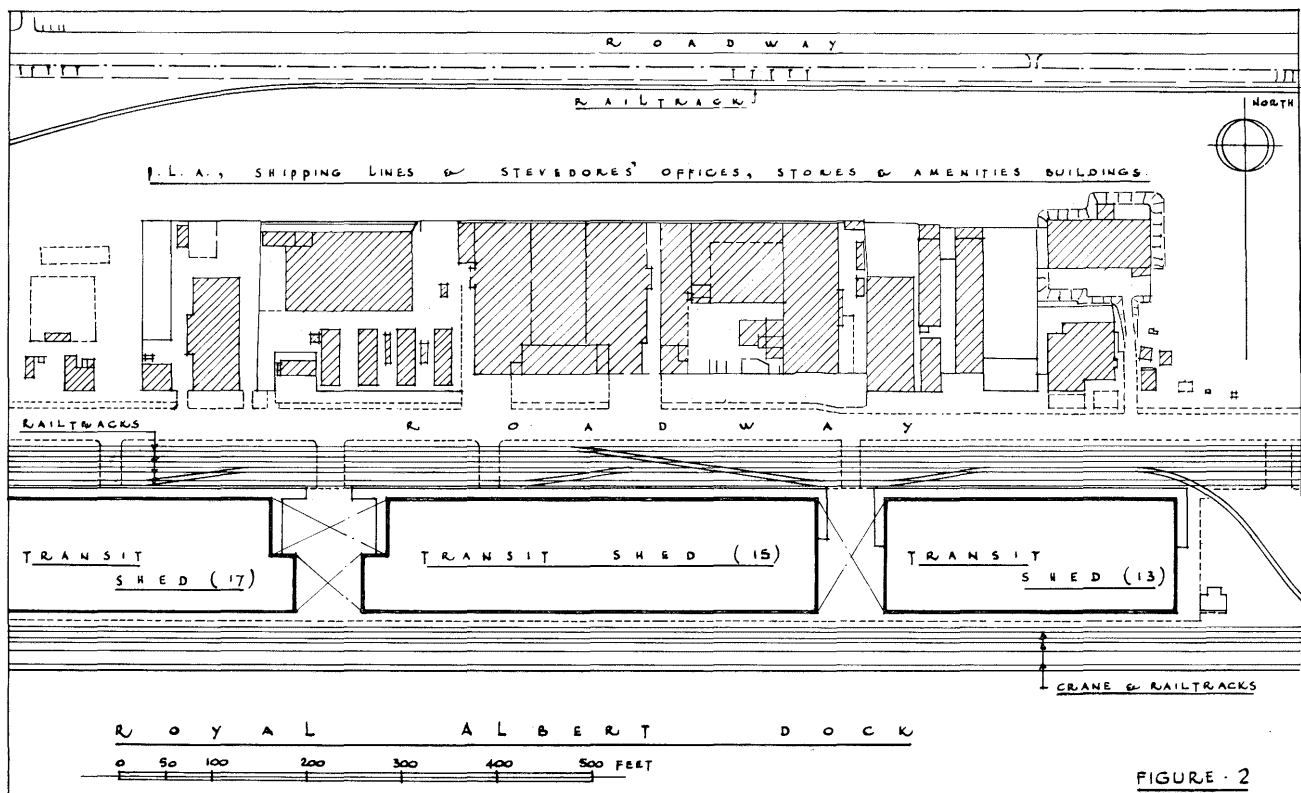
- 2.1.3 The berth-side area will accommodate certain ancillary facilities, including administrative and amenity buildings, a small customs examination shed, first aid repair facilities, a weighbridge, and so on. But it is important to note that this area does not contain facilities for packing and unpacking the containers. The movement of containers to and from the ship must be rapid, streamlined and uninterrupted. Hence, there is no place for packing and unpacking operations nor extensive customs examination in this area. Where they should be located

will be discussed later.

- 2.1.4 The picture of a container berth thus emerges as a large paved area directly adjacent to the quay apron, free from all conventional dock buildings and equipped with purpose-made apparatus for intensive, streamlined operations. A typical example may be seen in Fig. 1 which illustrates the Port of London Authority's development at Tilbury Docks.

## **2.2 Roll-on, Roll-off system**

The method I have been describing applies to what is called "lift-on, lift-off" container traffic, to differentiate it from "roll-on, roll-off" operations. In the latter, vehicles or trailers, or containers on trailers, travel in the ships. On some services, the containers are moved into and out of the vessels on special wheeled chassis and are removed on to mountings within the vessels. The vessels are bow



**Figure 2.—A part of the Royal Group of Docks, showing a conventional berth layout with transit sheds, rail tracks and roads.**

and/or stern loaded and require berths with adjustable ramp approaches. Much of what I have written about lift-on, lift-off container berths applies to roll-on, roll-off berths. One difference is that the roll-on, roll-off operation is, at present, generally confined to short-sea services and the ships are smaller than the ones described in the section on the lift-on, lift-off system. It is also generally the case that roll-on, roll-off ships are completely unloaded before loading operations commence. Hence, the berth area must be able to accommodate both the incoming and outgoing cargoes, plus a margin. This type of service frequently carries passenger accompanied vehicles, private cars and caravans. The vessels often have fairly extensive passenger accommodation. Essential points of similarity are rapid turn-round of the ships and absence of break-bulk operations.

### 2.3 Palletised and mixed systems

#### 2.3.1 Containerisation is not the

only form of cargo unitisation which will achieve the objectives of reducing cargo transfer costs and speeding ship turn-round. Palletisation, with the use of fork-lift trucks, is a system of great potential whose full exploitation has been strangely neglected. The system is fully effective in maritime transport only if the goods remain on their pallets during the sea voyage. Although the speed of ship turn-round obtained in palletised operations cannot match that achieved by container operations, the capital cost of pallets, handling equipment and ships is much less and there is a powerful school of thought which claims that the through-pallet system is economically superior to containerisation.

2.3.2 Pre-assembly on the berth of all the outgoing cargo before loading commences, and of all incoming cargo before distribution, is an essential, or at least desirable, feature of through-pallet services as it is of container operations, and for the same reasons. The main differences are as follows:—

(a) Pallet operations require a berth-side transit shed.

(b) Individual pallet loads will average about 2 tons to 2½ tons as compared with containers which may average about 10 tons for 20-foot containers and 20 tons for 40-foot containers.

(c) It is to be expected that fully developed through-pallet services will use side-port vessels. Thus, quay cranes or ship's lifting gear will be unnecessary except for deck cargo.

2.3.3 With regard to combined systems, services incorporating through-pallets, containers, cribs and pre-slung cargo units are in operation and have proved very successful even when conventional ships have been used. This combined system must be regarded as very suitable for certain trade routes and moreover provides a transition between conventional operation and fully containerised operation.

### 3. Berth Throughputs

3.1 I have mentioned the economic necessity to achieve high throughputs through modern port terminals. It will be of interest to see what throughputs may be obtained and to compare them

with throughputs through conventional berths. I will take as my datum a typical, conventional ocean service berth in the Port of London which has an annual throughput of about 100,000 tons. The quay is about 650 feet long with a 50 feet apron and five quay cranes of 3 tons or 5 tons capacity. The transit shed is about 60,000 square feet in area. The berth is road and rail connected and occupies a total area of about 3½ acres.

3.2 Studies by the Port of London Authority indicate that an intensively used berth operating a through-palletised service could achieve 250,000 to 300,000 tons (weight) per annum. The berth would be 700 feet long with a transit shed of 100,000 square feet plan area. One quay crane of 25 tons capacity would be needed for deck cargo (probably containers). Ample open areas would be needed for vehicle parking and manoeuvring, and the total site would occupy about seven acres.

3.3 As stated earlier, the area required for a container berth will depend on the system used and may be as much as 20 acres on an 850-foot berth length. In examining the question of potential throughput, it is necessary to define one's terms with care. Potential throughput in terms of the physical capability of the equipment is extremely great. A berth equipped with two high duty container quay cranes, with matching support equipment, could easily achieve over one million tons per annum on a weekly service. However, it is not the capacity of the equipment which will determine berth throughput. This will depend on the availability of suitable cargo and on the organisation and control of its flow to and from the terminal. Indeed, it is probably the case that the problems attaching to the design and operation of the port terminal are far less difficult than those met with in regulating the cargo flow to and from the hinterland.

#### 4. "Inland" Groupage Facilities

4.1 Unit cargo systems achieve

#### TILBURY DOCKS DEVELOPMENT.

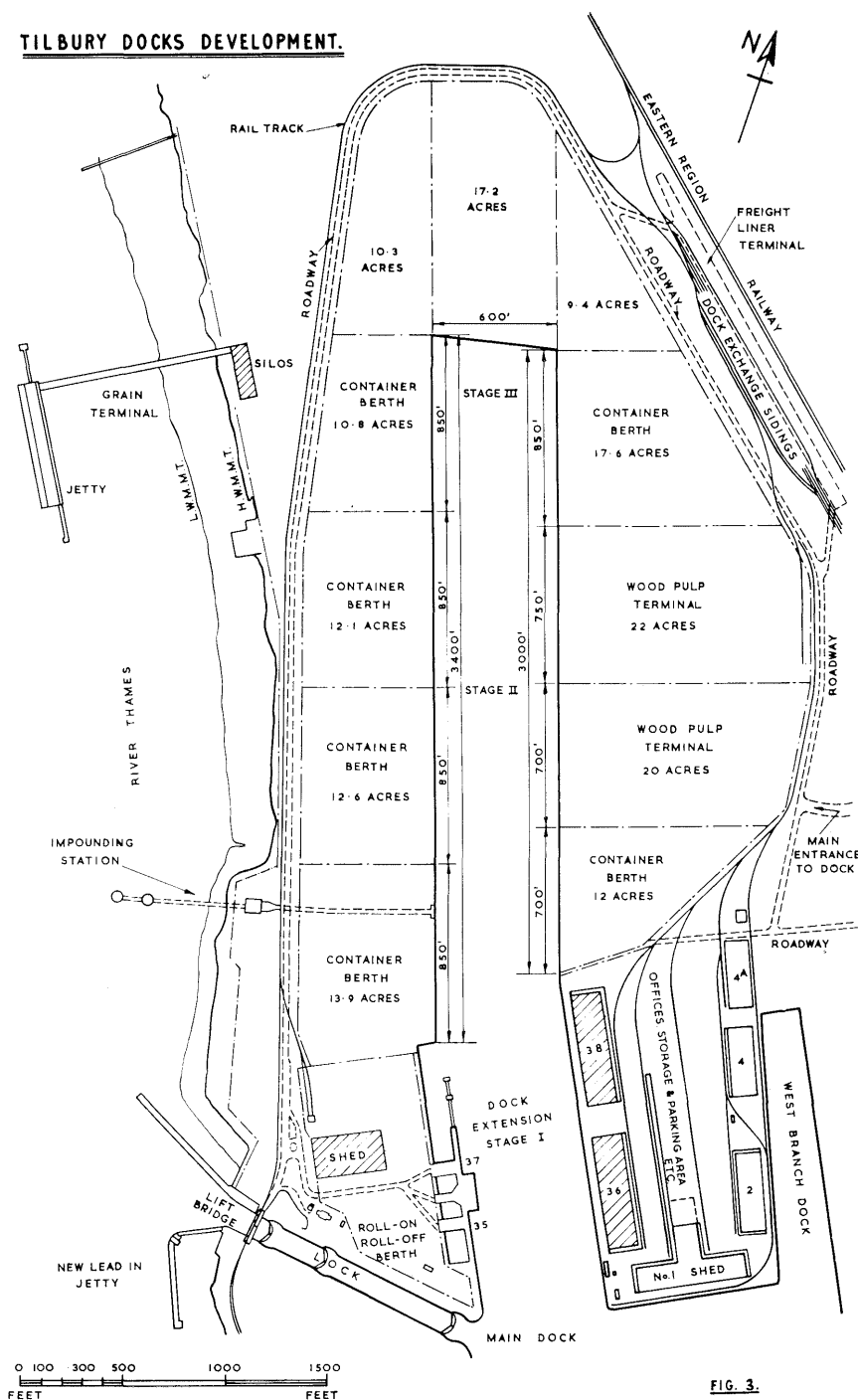


FIG. 3.

**Figure 3.—A plan of the Tilbury development showing how the hinterland of each berth has considerable depth and is kept free from intersecting roads and railway lines.**

proportion of consignments which will be less than a container load. This is already the case where container operations are well established. Hence, facilities are required where these "sub-loads,"

their greatest economies when the unit travels undisturbed from the consignor's premises to those of the consignee and this applies to all forms of unitisation. The extent to which this will happen on any particular trade route is a matter of speculation. Assessments based on the present pattern of trade will undoubtedly become outdated as unit cargo systems develop. Nevertheless, it is certainly the case that there will always be a considerable

as they may be called, are grouped together to form full loads, and where full containers and other units are broken down to consignments for delivery. These "groupage depots" will also be convenient places for customs examination and clearance. Groupage and customs examination both entail packing and unpacking of the containers.

4.2 The palletised operation is more flexible than the container operation in terms of the size of a unit. Nevertheless, the desirability of "through loads" is equally applicable and there is need for groupage or pre-assembly facilities.

4.3 With conventional break-bulk cargo operations, customs examination and sorting to destination or consignee are carried out at the quay-side sheds where they tend to cause congestion and delay. This situation would become exacerbated with the greatly increased throughputs and intensity of operations envisaged with fully developed unit cargo systems. Hence, these activities, indeed all operations involving packing and unpacking, must be undertaken elsewhere. They can still be undertaken within the port, or indeed adjacent to the berth, but not within the area devoted to the marshalling, loading and unloading of the units.

4.4 A significant characteristic of unit cargo systems is that they enable these detailed operations to be divorced from those concerned directly with ship turn-round. This makes it possible to arrange for the groupage and customs examination operations to be conducted in places best suited to them, having regard to the pattern of trade. Some of the depots will undoubtedly be sited within or close to major port terminals. Others will be conveniently located in areas of industrial and commercial concentration, the object being to concentrate the smaller consignments into large, standard units at the earliest point and to maintain them in this form for as large a proportion of the total haul as is convenient.

4.5 These depots will require large sheds with covered loading points and extensive parking facilities for lorries, trailers, tractors and containers. They will undoubtedly incorporate the functions of control centres and hence will require administrative accommodation and adequate communication facilities. Customs examination and clearance facilities are essential. The depots will need excellent road and rail access and may conveniently be associated with warehousing facilities. Refrigerated accommodation and repair and maintenance facilities may also be provided.

4.6 It would not be unreasonable to suggest that much of the success of container operations will depend on the efficiency with which these depots are operated and with which the flow between them and the port terminals is controlled.

## **5. "Exclusive" or "Common-user" Basis?**

5.1 The question arises as to whether it is preferable for groupage depots and the port terminals to be operated on a common-user basis or exclusively by one operator. Having regard to the number of interests involved and also to the fact that unit cargo systems will develop in different ways in different parts of the world, it would be surprising if a "Yes" or "No" answer could be given to this question. There is a powerful argument in favour of exclusive operation. It stems from the undoubted fact that efficient operation will depend on unified control of as much of the total transport system as possible. Indeed, it must be accepted that much of the inefficiency of conventional transport operations arises from the lack of control or even compatible objectives of the several segments of the transport chain. It is at least probable that exclusive user of a port terminal and groupage depot or depots would most likely lead to the degree of unified control needed.

5.2 As far as port terminals are concerned, this is acceptable pro-

vided that the single operator, or consortium, can guarantee a sufficient volume of traffic to justify the exclusive occupation of extensive and costly facilities, and also provided that he is not placed in a position to exercise a monopolistic influence on the port's business. Port authorities are concerned in both these aspects as it is their duty to avoid the under-utilization of port facilities and to ensure that no one individual company, or consortium, has preferential treatment over others. In the Port of London there are two exclusive container terminals and more will shortly be established. It is recognised that there is a developing need for common-user facilities for those operators whose volume of traffic does not justify exclusive facilities. Such common-user facilities will be established and will be operated by the Port of London Authority.

5.3 Similar arguments apply to groupage depots. Their location, form and operation are, of course, not under the control of port authorities. It is relevant, however, that in Great Britain, the customs authorities have indicated that they will provide facilities at such depots only where the depots are operated by consortia or groups of firms and are available for use by all. It is also relevant that the Port of London Authority, together with other organisations concerned, are planning the establishment of a groupage depot, available to all, in the neighbourhood of their Tilbury container berths.

## **6. Dock Layout**

6.1 The impact of unit cargo system on port layouts is vividly illustrated by the contrast between the layouts in Figures 2 and 3. Both figures show parts of the Port of London. Figure 2 shows part of a conventional layout in the Royal Albert Dock and Figure 3 shows the new Tilbury Dock development where the first ocean container berths in the Port of London have been provided. (Fig. 1 gives another view of this area). It will be seen that each container berth is backed by

(Continued on Page 36)

# *Present and Future of The Port of Le Havre*

**By M. Eloy**

*Information Officer*

*Autonomous Port of Le Havre*

The Port of Le Havre which this year celebrates its four hundred and fiftieth anniversary, has had many ups and downs during the course of its short history and was almost totally destroyed at the end of the last war which forced it to make a fresh start in every respect.

Whether its traffic is evaluated from the angle of maritime movement or from that of cargo traffic, Le Havre is ranked second in importance among the large French ports. In eleven years, the number of vessels entering and leaving has risen from 8,200 to 12,900; their net tonnage from 35,600,000 t. to 56,400,000 t.; the cargo traffic from 13,400,000 t. to 30,800,000 t.

## **The Present Port of Le Havre**

A certain number of particular characteristics explain the incessant development of traffic.

— Its geographic location makes Le Havre a place of action designated for ever-increasing activity. Among the large European ports settled along the seaboard of the English Channel and the North Sea, it is the first touched upon by returning vessels; in the opposite direction, it is the last port where a cargo-boat may be loaded. There is an appreciable saving in time which means an appreciable saving on immobilization costs for the importer or exporter.

On the land side, Le Havre has access to Paris area where a quarter of the French population live, with all the economic power that this demographic concentration includes, whether it be producer or consumer. In the industrial and agricultural spheres, the Basin of the Seine is characterized by an extremely diversified production of a specific high value

requiring in return considerable tonnage of raw materials and energy products.

— In order to accommodate such traffic Le Havre boasts of its own special reception facilities. Vessels usually have access here without any wait on the road. It is the only port, at least in Europe, to accept for wharfside commercial transactions the liner longer than 300 m., the 17,000 ton oil tanker, and the 90,000 ton ore-carrier.

— Its equipment is geared to satisfy the needs of all specialized traffic, and its facilities are favourably compared to those used in foreign ports along the North Sea.

— for grain: three quay elevators, one floating suction device, five 15,000 ton stock-piling ships, and in conclusion, a silo for 20,000 tons.

— for coal and ore: a ships' berth with an average handling capacity of 2,000 tons per hour, equipped with a stock-piling area for 100,000 tons.

— for fresh fruit: one shed used for the transit of bananas, two air-conditioned sheds consisting of 21,000 sq. m.

— for bulk sugar: modern handling facilities, the first created in France, and storage capacity of 27,000 tons.

— for nitrates: a shed for 15,000 tons.

— for lumber: stock-piling areas equipped with 10 and 20 ton hoists.

Installations for petroleum are built in accordance with the traffic curb. Therefore, Le Havre guarantees storage for 1,120,000 cu. m. of hydrocarbons, feeding five refineries crude oils by pipe line, and by the same means conveying white oils to Paris region; the new oil tanker berth will be

able to receive vessels of 200,000 d.w.t.

Other liquid products most frequently seen in Le Havre are wine, (a wine store for 14,000 hectoliters was completed in 1949) lubricants that dispose of 30,000 cu. m. of reservoirs, vegetable and animal oils, molasses of chemical products, latex, and liquefied gases whose traffic has been popularized during the course of recent years.

The methane terminal, inaugurated in March, 1965, constructed and used by Gaz de France, is for receiving methane. This hydrocarbon is transported in its liquid state (liquefied natural gas L.N.G.). It is stored in three reservoirs whose total capacity is 36,000 cu. m. The regasification takes place in Le Havre before distribution via gas ducts toward consumer centers of Paris region.

Whether they are conventional or adapted to new traffic, the equipment of the Port of Le Havre is valorized by intensive utilization.

The normal work schedule allows in reality the loading and unloading of ships six days a week from 7 o'clock to 23 o'clock, night shifts being possible, and calls in Le Havre are responded in particularly rapid manner.

Such advantages have had a strong appeal for the shipping industry. 167 regular lines are established in Le Havre, a number which is found in no other port, at least in France.

The rate of cargo shipments guaranteed for the different parts of the world was established for example in September, 1966 at:

- 34 bound for the East Coast of the USA
- 24 bound for Canada and the Great Lakes
- 13 bound for the Gulf of Mexico
- 7 bound for the West Coast of the USA
- 7 bound for Central America
- 15 bound for the French West Indies and Guiana
- 11 bound for mainland coast
- 6 bound for the Atlantic coast of South America
- 5 bound for the Pacific coast of South America





- 11 bound for the Western coast of Africa
- 4 bound for South Africa and East Africa
- 4 bound for Madagascar, Reunion and Maurice
- 4 bound for Indonesia
- 11 bound for the Far East
- 9 bound for Malaysia
- 7 bound for New Caledonia, Tahiti and New Guinea
- 5 bound for Australia and New Zealand

and this list is limited to ocean voyages.

#### **An Obligatory Extension**

Port Le Havre was not yet entirely rebuilt from the ruins to which it was reduced 20 years ago (moreover, certain subsidiary reconstruction work still remain to be undertaken) when, in 1964, drafts for the first contours of the Port Le Havre of tomorrow, spreading itself in the direction of the Seine to the South, and to the East towards the interior, were drawn up. These undertakings which spring forth from the fourth and fifth plans are important not only on the scale of French

port development but also on the European scale.

For several years, in fact, the expansion of Le Havre has become an inevitable necessity. A constant increase in the number of vessels, their size, and tonnage transported has been observed since the war. It can only become more marked in the course of the next decades.

The Idemitsu-Marui, first ship of a gross tonnage of more than 100,000 t., has just been constructed, oil tanker of 200,000 d.w.t. whose dimensions exceed by far those of the large steamers that not long ago still dictated the infrastructure and the arrangements



**The 104,000 tdw tanker "Gwenola" of C.A.N. at Berth 8 of C.I.M.**

of ports. Just as, less than 15 years ago, certain people considered the tanker of 30,000 t. as utopian, it is henceforth certain that this prototype chosen to be reproduced in great number, will itself be replaced by even larger ships: the "300,000 t." has been the object of intensive examination and people in petroleum transportation base themselves on sound reasoning in forecasting the utilization of a "400,000 t." well before the turn of the century. This ship of tomorrow will be approximately

400 m. long, 60 m. wide, with a draught of 22 m.

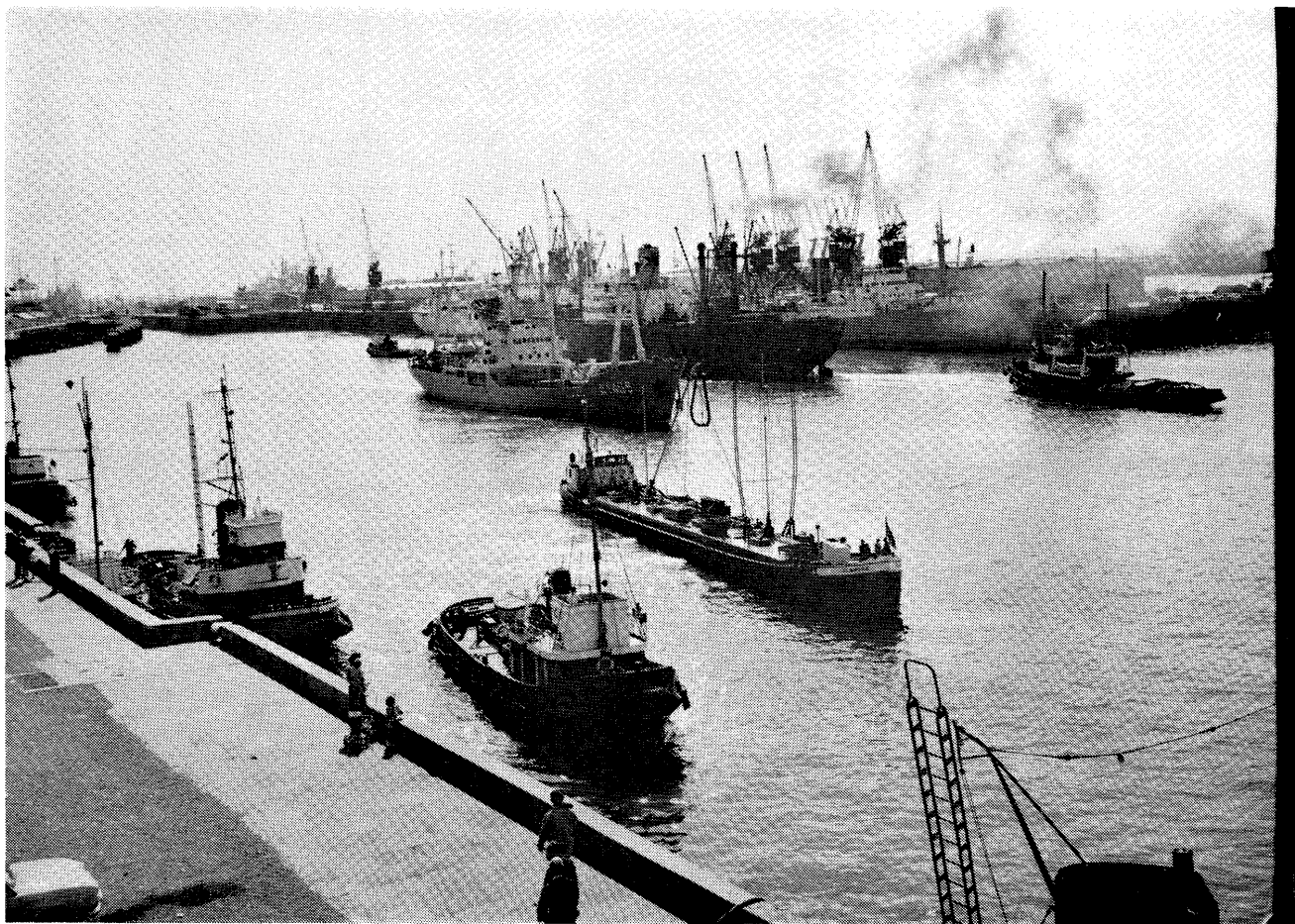
Whether it is a question of energy products or raw materials, it is certain that the exhaustion of European reserves, the exploitation of rich resources discovered overseas, and needs of old industrial countries will cause a global increase of goods transported by sea the same time as an increase in unitised cargo. The use of large cargo vessels has resulted in such a decrease in freight rates that the cost rice of ore transported from Mauritania to Dunkirk is fixed at a level which is incomparably lower than that of ore sent from Lorraine by train to the same destination. The same observation can be made in regard to American oils unloaded at Le Havre in comparison to coal from north or south of Calais delivered

to any point on French territory. One realizes consequently why industry, anxious to profit as much as possible from this development of affairs has a tendency to progressively establish itself in the coastal zones.

Different, but just as radical changes are now affecting maritime transportation of processed goods, at least between countries of intensive industrial production.

The era of unitised cargo transported by car-ferries or container ships and requiring horizontal handling has already begun. That of the kangaroo ship is ushered in and the time for port calls will be reduced then to the time necessary for the replacement of barges filled with imported cargo by those loaded in the port during the absence of the mother vessel. In 10 years, a port will only survive





if it has been able to adapt itself to these changes.

The outline of the expansion taking place, has been established in terms of the needs thus defined, and also in terms of the resources offered by the site.

In Le Havre the port disposes of 10,000 hectares of alluvial land on the north bank of the Seine which extends the present area without any preconceived design towards the East up until the meeting point of the Seine and the Tancarville Canal, 25 km. from the sea. No expropriation, no difficult acquisition are likely to retard the exploitation of this area whose extent and accessibility are found nowhere else on the European seaboard.

The general outline adopted for the expansion consists of, from East to West, some work on 10 km. of dikes which is now being completed; a new tidal basin of

120 hectares which will prolong the Theophile Ducroco Basin. Port Le Havre proposed that from the inception of the 5th plan, the equipment of this new basin be undertaken. It provides for the construction of an 800 m. pier for container ships and traditional cargo ships for a brief call at port, an oil jetty for tankers of 250,000 d.w.t. Likely to be succeeded by other wharves for loading ships of greater tonnage. Le Havre can meet without particular difficulty all the demands of naval gigantism and would find itself rapidly at the disposal of 400,000 to 500,000 d.w.t. tankers.

The eventual construction of a second berth for ore-carriers to supply the thermal power plant will be undertaken when the latter functions at its maximum power. At the extreme end of the new basin, a lock will give access to a basin at a constant level (South

East basin) of 52 hectares of surface area, 800 m. long and 600 m. wide which will be joined to the Tancarville Canal by a junction canal and will open the vast alluvial plains to large ships thanks to a central maritime canal.

On both sides of this maritime canal will be built gradually as the necessity appears, harbour, industrial and commercial installations, which will be new innovations compared to the scale of things which even the most profound estimates forecast today in the economic field.

The main feature of the new port will be the lock. Without it, heavy weight shipments of 150,000 t. cannot gain access to the alluvial plains; without it also would be impossible the massive industrialization of the land thus irrigated. The maritime lock will be under construction as predicted



in July 1967.

As soon as this announcement was made, several powerful industries whose intentions has been hampered with incertitude, definitely opted for Le Havre, and several others forthwith made promising contacts.

The indispensable conditions for the development of the port are, in resume:

— Nautical characteristics allowing to accommodate without subjection to tide conditions, without risk of time loss, the largest vessel in usage or in planning.

— Very vast industrial property available on the border of deep-water basins in order to avoid costly interruptions in loading.

— clientele of numerous regular lines, frequently serviced, and uniting the port with all corners of the world.

— a heavily industrialized hinter-

land, with a dense population and a high standard of living.

These conditions can, it has been verified, be considered as fulfilled.

There remains to be discussed the connections with the hinterland. They are in the process of being improved. The speedway between Paris and Normandy makes regular progress towards the sea, and the Tancarville bridge, an auxiliary of the port which is not to be considered as trifling, has a traffic rate which is clearly improving. The airport of Havre-Octeville, used by the autonomous port and recently improved, also adds to the prosperity of the place. The electrification of the railway between Paris and Le Havre will permit next year the usage of more rapid and heavier trains.

Since last September 20 Diesel engines have replaced steam loco-

motives on the sections of the line which have not yet been electrified. As for the fluvial arteries servicing Le Havre, that is to say, Tancarville Canal and the Seine, they are the only ones in France which have international characteristics. What remains to be hoped for is that the Seine be lengthened towards the East by a network of waterways fulfilling the requirements of modern fluvial navigation.

Granted improved means of penetrating inland, Port Le Havre will be able to counter-balance foreign influence in the direction of Switzerland, Southern Germany, and Northern Italy. But from now on rational utilization of the trump cards which it possesses will permit it to fully carry out its role in international competition which can only be accentuated further still by the progressive organization of ports by the Common Market.

# *Impact of Technological Progress on Port Activities*

**By Prof. Sergio Vaccà**

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*(Reprinted from "Il Porto Di Savona"*

*October, 1966)*

On October 7th and 8th a "National Meeting on Port Management Problems" has been held in Cagliari. In that occasion, Prof. Sergio Vaccà, Director of the Ligurian Institute of Social & Economic Research, delivered a lecture on the theme: "Impact of Technological Progress on Port Activities." The following is a synthesis of Prof. Vaccà's lecture.

The impact of progress deriving from technological planning in port processes was the theme of a lecture delivered by Prof. Vaccà, Director of the Institute for Economic Research of the University of Genoa, at the recent Meeting on Harbor Problems, held in Cagliari.

Prof. Vaccà started by pointing out the fact that—in a market economy term—the customer (the real user of maritime transportation system) should be put in such a position to clearly indicate its own requirements and exigences, concerning transfer of merchandise by means of maritime transportation. This does not exclude the possibility that a certain amount of progress in planning can be achieved in isolated sectors of the maritime transportation system owing to autonomous factors, rather than to a connection between user and merchandise.

It is evident, for instance, that the adoption of new propulsion devices—which has led to a remarkable increase in the qualitative level of the service in terms of higher speed and loading capacity—derives almost entirely from autonomous evolution of mechanic and engineering technologies.

The speaker has thereafter ex-

amined several aspects of progress deriving from technical planning in the various phases of maritime transportation system, such as the great improvement registered in the size and loading capacity of vessels.

At the turn of the century, the average tonnage of the Italian merchant fleet increased from 70 to 1,400 tons. In a world-wide perspective, the incidence of small vessels on the whole merchant fleet has a tendency to diminish, while there is a marked increase in the incidence of vessels from 25,000 tons up.

Under the qualitative aspect, the latter evolution concerns mainly bulk carriers, being less remarkable for other types of vessels.

In the dry bulk carrier field, the actual average of tonnage per vessel is above 23,000 tons; vessels, under construction being oriented toward an average of 34,000 tons.

Speaking of liquid bulk carriers (oil tanker) the average tonnage per vessel, at the end of 1962, was 23,000 tons. After only one year, however, this average increased to 56,000 tons, and actually there are vessels of 130,000 tons already sailing, while works have been started for construction of vessels up to 300,000 tons.

In this respect, we should observe how the cost of maritime transportation for bulk cargo delivered by large-size ships sailing on ballast-return, variates according to the size of the ship itself.

The increase in size of vessels has been promoted not only by the normal betterment of productivity deriving from technological progress in the shipbuilding industry but also by the increase registered in the

unitary cost of manpower in comparison with the unitary cost of capital invested. This increase favours the switch from the employment of high manpower processes to processes employing high capital investment. This switch is attainable by building large-size ships, in order to reduce — beside many others—expenses for ship crew and port personnel.

This tendency, together with the need for exploitation of the huge capital invested in modern big ships, adds up for explaining about two other factors of evolution in maritime transportation:

- a) the tendency to a higher specialization of ships—
- b) the tendency to a higher specialization and uniformity in merchandise conditioning—

The first factor, namely the higher specialization of ships, concerns not only bulk cargo (merchandise rather homogeneous under the aspect of conditioning, thus better fitting for specialized transportation) but also general cargo, which is gradually going to be handled only by such specialized ships as fresh fruit carriers, cement carriers, cellulose and paper carriers, automobile carriers, container carriers, etc.

The second factor, namely the tendency to a higher specialization and uniformity in merchandise conditioning, is nowadays well represented by the spreading use of containers and pallets, and it is somehow linked to the "first factor" in a way that it produces itself particular types of specialized ships (container carriers, "roll-on" and "roll-off" ships, etc.).

Specialization and standardization of packing bring along, on the side of the shipowner, further need for capital investment not required before (take for instance investment in containers) but they bring along also a considerable cut in manpower cost, as well as a higher operative speed in loading and unloading, which means a shorter stay at the dock for the ship, resulting, in turn, in a more intensive exploitation of the capital invested by the shipowner.

In conclusion, therefore, the increased size of vessels, their specialization and the specialization in



the sector of merchandise conditioning, show the profitableness of new solutions attained by the application of technological progress; these solutions allowing a more rationalized and rapid, as well as convenient, utilization of productive factors, along with a qualitative betterment of the service.

In the sector of land transportation—not considering special and exclusive high-power transportation means, such as pipelines, conveyors, etc. and speaking therefore only of traditional systems, as railroad and highway—we find that technological progress in Italy has strived mainly in connection with speed, safety and diversification of transportation means, while the unitary loading capacity shows far less relevant progress, though this is a much important factor in harbors' operative technology.

In the last 50 years, the average unitary loading capacity has increased nearly from 8-10 to 22-25 tons for rail-cars and from 5-6 to 15-20 tons for trucks. In other words, the average loading capacity of a rail-car has roughly doubled while it has more than tripled for trucks. Incidentally, the average loading capacity of ships, in the same period, has increased eight-fold. A more significant example is given by the variation of proportion between loading capacity of ships and land transportation facilities: in the same period it increased from 28-34 to 70-93 (from 17-20 to 57-63 for rail-car).

Looking at the harbor phase of maritime transportation, technological progress is seen mainly in the mechanization of merchandise handling, attained by using various transfer machinery, as multipurpose cranes, fork-lifts, conveyor-belts, chain-lifts, etc. This progress, however, derives mostly from the initiative of single productive sectors. Nevertheless, the port activity in its whole has been improved also by the application of rationalization processes such as modern planning techniques.

It is to be observed that the uneven trend of technological progress applied in the phases of maritime and land transportation causes a fracture in the two flows, mostly hitting the port processes and creat-

ing a quantity of problems deriving from the following two main causes: difference between the rhythm of maritime transportation (discontinuous) and land transportation (comparatively more continuous); disproportion in size between ship and cart.

Port process represents therefore the central part of the whole cycle of maritime transportation. It is the junction of two phases differing not only in their technology but made even more different by what is called different rhythms of progress derived by technological planning. There is no doubt—as we will see further ahead—that this central position of port process requires a high flexibility in its organization and a superior initiative capacity in its management, thus to facilitate and maintain a synchronization between the mountain phase and the valley phase avoiding the solution of continuity which would strongly affect the efficiency of the whole cycle of maritime transportation.

In other words, and according to experience, it can be said that the efficiency of port process represents a decisive factor in determining the whole unitary cost of maritime transportation, since the unitary cost of maritime transportation itself is slightly affected by differences of place, in an international economic system (different countries having the same economic system) because the cost—supposing equality of conditions—depends on the international charter market, therefore, being the cost of maritime transportation formed in such a competitive entourage, the customer (user) has almost no preference in choosing the carrier. The cost of land transportation, on the other hand,—supposing equality of vehicle (rail-car, truck, etc.) and road facilities—has a tendency to be leveled in developed economies, since it is proportional to mileage. As a matter of fact, the most sensible differences of cost in the maritime transportation system come in the phase of port handling of the merchandise. This applies particularly in case of "obligatory transit" caused by strategical—and often essential—position of ports serving

a given hinterland.

It is understandable that the efficiency level of port process projects its influence on the cost of the two processes, since cost of maritime and land transportation are formed considering the efficiency of ports, in terms of speed of loading and unloading operations, which directly influence the rate of rotation and exploitation of vessels and carts.

After examining the application of technical planning progress in harbors, Prof. Vaccà underlined technical planning process applied to Italian ports.

In order to rapidly examine the technical planning progress in the Italian port system it is necessary to establish a preliminary separation between public service port (the ones mentioned up to now) and industrial ports or docking.

Public service port is considered a port offering its service to general customers and complying to the exigences of general public service, as mentioned before.

In public service ports, therefore, transit service represents an autonomous economic activity to be managed by a body neatly separate—though economically corporate—from port's customers (users).

Industrial port is a port which—by economy and planning—is a corporate section of a single industrial body, or a group of such bodies. In these ports, therefore, as well as in other ports of independent efficiency (oil dock, coke transfer cableway, etc.), the technical economic organization of the transit is planned within the company or companies group's structural management.

Unlike industrial ports, public service harbors show a rather slow and sometimes almost irrelevant rate of technological planning progress application.

In the port of Genoa, for instance, the rate of coal unloading was 1,250 tons per day-ship in 1937. In 1965 it was of 1,470 tons, with a very low increase of only 12%. In the same period, the average tonnage of coal carriers calling at Genoa port has roughly doubled.

To better estimate the position

of a large port as Genoa, it is enough to consider that the relevant rate of coal unloading is actually 7 fold higher in Rotterdam and Antwerp.

In the same sector, however, a similar situation is registered in Venice port.

A survey on the specific sector has showed the different levels of productivity and efficiency existing between Italian and foreign ports.

Taking 100 as the cost for unloading 1 ton of coal in Genoa port (including forwarding charges), the same cost is 20 in Rotterdam, 25 in Antwerp, 42 in Marseilles, 90 in Venice, 75 in Savona.

Similar differences are registered for general merchandise of most common handling, in the same ports.

In Italian industrial ports (generally under autonomous management, as we said) the situation is fairly better, owing either to the smaller amount of problem connected with port processes (more homogenous demand and timing) and the higher power planning and organization management, which make possible the application of modern technologies, as confirmed by statistics: average daily rate for steel raw materials unloading is 20-24,000 tons per day in an industrial port, compared with 2-3,000 tons in a public service port.

State investment in port sector, for the period 1952-1962, reached 94.1 billion Lira: 27 billion for maintenance works, 12 billion for repairing war damages, and only 55 billion for development of port facilities Prof. Vaccà stated. This amount is not only inadequate but also inferior to the amount invested in the same sector and period by private bodies.

In a country like Italy, where as much as 141 ports are registered, it is essentially important to establish a priority for allocation of national funds, in order to avoid excessive fractioning of allocation, thus rendering impossible the rapid and adequate development of those ports faced with (depending on size and geographical importance) competition of foreign ports, which are growing more and more efficient, tending to expand their influence to

a point of interference with areas influenced by national ports.

Also in connection with the 75 billion Lira investment planned by the "Piano Azzurro" we shall observe the fact that the total investment planned for all Italian ports is smaller than the average amounts invested by foreign countries in a single port at a time. There is a need not only for a higher total investment but also for a higher concentration of the same, in order to reach the economic level needed for introduction of technological progress.

High economic power is nowadays an essential point in harbor management. Shipowners, operating large, specialized and fast-going ships, find it more profitable to call on few efficient ports rather than on a number of smaller and scarcely efficient ones.

International importance of ports is determined—better than by their geographical position—by the volume of merchandise destined to foreign countries handled. Liner traffic is a most essential point in determining which one of the national ports has an international importance.

In conclusion, according to actuality, the completeness of service offered is the main factor to be considered for identifying important international ports and establish, therefore, the amount of public investment to be applied in each case.

Prof. Vaccà, at the end of his speech, stressed also the need for a rapid and serious planning of national ports development, considering that the many problems involved with the development of port processes are hard enough to create considerable difficulty even to the most dynamic management.

## Inter-Modal—

(Continued from Page 28)

a considerable area which is not intersected by roads or railways communicating with adjacent berths. The greater part of the area is paved and entirely free from buildings.

6.2 This group of berths will also

be served by a special railway terminal where containers, carried on British Railways' special freight liner services, will be transferred to and from road trailers. In my opinion, the special quay cranes on container berths should not be directly served by rail. Not only would these operations be too slow, but they could not be conveniently effected with the special block container carrying trains which will form the basis of British Railways' new freight system.

6.3 The annual tonnage per acre is not greatly different as between conventional general cargo berths, through-palletised berths and container berths. The major difference is the relationship between the quay and its immediate hinterland. The need for deep, uninterrupted hinterlands for container berths will dictate whether existing docks can be modified to suit container operations and, to a lesser extent, fully palletised operations.

6.4 The present generation of container ships does not present difficulties arising from their dimensions to ports designed to accommodate ocean going vessels. It is not likely that future ships will be very deep drafted. It seems probable, however, that they will tend to have wider beams than conventional cargo ships and this may present serious problems to ports where access to berths is gained through entrance locks.

6.5 Perhaps the most important aspect of present developments in cargo unitisation is the extent to which high throughputs at unit cargo berths will accelerate the obsolescence of conventional berths and greatly reduce the total number of berths needed. The economic implications of this development cannot be over-emphasised and it is one which will be carefully watched by prudent port authorities.

## 7. The Shipper

7.1 Finally, a word about the shipper. He is concerned to receive a reliable service with no damage to his goods, with fre-

(Continued on Next Page Bottom)



**Mr. Bernard J. Caughlin**

The Port of Los Angeles, leader in maritime commerce on the United States Pacific Coast, continues to expand to meet the growth of world trade.

More than 50 years of planning and construction have developed the Harbor from a desolate area of mudflats and marshlands to its present-day status.

Growth of the Harbor has been most impressive in recent years

quent, regular sailings and the minimum documentation. The optimum arrangement is door-to-door transport, with the shipper's responsibility ending when he loads his goods into the transport operator's container. Simplification of documentation and charges is an essential development. The former is being examined by many countries and internationally. It is obvious, also, that a single through-charge is highly desirable. The achievement of this desideratum depends on the policies of the several parties concerned. As far as the Port of London Authority is concerned, simplification of port charges is a major policy objective. It has already been established that for future container services, all port charges will be brought together to form a single charge per container.

# ***Cargo Capital of The West***

## ***Port of Los Angeles Moves Ahead to Maintain Key Role in World Trade***

**By Bernard J. Caughlin**

*General Manager  
Port of Los Angeles*

*(Special to International Association of Ports and Harbors)*

under the over-all guidance of the present city administration headed by Los Angeles Mayor Sam Yorty.

Commerce and construction are the keys to the Port's tonnage leadership. With 28 miles of waterfront, it is a base of operations for 75 steamship lines and their agents. Located here are 116 acres of terminals capable of handling 85 ocean-going vessels simultaneously at modern deep-water berths. Three transcontinental railroads and 200 trucking companies serve an extended area as far east as the State of Indiana, north to Minnesota and south to Texas.

Encompassing 7,025 acres of

land and water, the Port of Los Angeles is owned and operated by the City of Los Angeles. No tax money is received for its support—it is entirely self-sustaining, supported by revenues received from dockage, rentals, wharfage, pilotage and other fees.

Located 25 miles south of Los Angeles Civic Center, the Harbor is the maritime gateway for trade routes reaching out to 200 world ports. Each month an average of 400 deep sea vessels sail through its Main Channel.

To bring this about, \$190,000,000 of City, Federal and Harbor Department funds have been invested, thanks to several generations of far-sighted citizens.

There are two major considerations that make the Port of Los Angeles attractive to international shippers: excellent facilities for the rapid handling of large cargoes, and its strategical location close to an extensive freeway system that links the Harbor with the Southern California area.

Gross revenue from Port operations climbed to an all-time high of \$10,247,483 during the 1965-66 fiscal year, as total cargo handled set a new record of 26,182,113 tons.

Last year, ships of 30 nations, along with United States flag vessels, made 3,818 vessel calls, or 227 more than the previous year.

Cargo moving across the wharves averages 2,100,000 tons a month, and commodities unloaded at these wharves are as good as gold, since the great concentration of population in Southern California—11,-

### **8. Conclusions**

8.1 It is frequently said that transport is undergoing a revolution which has been initiated by the successful development of unit cargo systems in certain sectors of the transportation field in the United States. It would be unwise to attempt to predict too closely what changes will take place over the coming decades. However, it is reasonable to forecast that those responsible for ports and the associated land and sea transport systems will face formidable problems in adjusting to new concepts of efficient service. To those of us engaged in this field, discussion and the exchange of information cannot but be of the greatest assistance.

9. The views expressed in this paper are those of the author and not necessarily those of the International Association of Ports and Harbours or the Port of London Authority.



**Aerial view of Port of Los Angeles, covering 7,025 acres of land and water area, illustrates complexity of one of the world's great man-made harbors. Its trade area includes more than 11,000,000 consumers in immediate area of Southern California and an extended market area as far east as Indiana; north to Minnesota; south to Texas.**

000,000 in the Los Angeles area alone—constitutes a market so vast that demand and supply meet under favorable conditions.

The Port offers numerous commercial advantages to the exporter. Ideally located for shipping to the

growing markets of the Orient, it also offers an excellent point of departure for Western United States goods bound for Europe by way of the Panama Canal.

Wharves are the modern marginal type, berthing ships on one side with loading platforms for trucks and rail cars on the land side. With fork-lift jitneys, an automated container van crane, and other modern cargo-handling equipment and methods, a high degree of speed and efficiency in handling cargo reduces to a minimum the time a ship must spend in Port.

Iron ore and concentrates topped the export list during the 1965-66 fiscal year, with a total of 1,029,543 tons shipped to Japan and the Netherlands. Iron and steel scrap

stand second with 284,372 tons, going to nine nations. Clays and earths were third, with 128,417 tons shipped to 46 countries.

Other export commodities near the top of the list include borax and borates, 126,237 tons; industrial chemicals, 126,048 tons; citrus fruits, 66,611 tons; feeds, oil cakes and meals, 52,398 tons; cotton, 52,141 tons; paper, 42,927 tons.

On the import side of the shipping list, steel mill products, rolled or finished, led with 308,258 tons, followed in order by molasses, 160,840 tons; pipes, tubes and tubing, 119,004 tons; bananas, 113,255 tons; copra, 100,791 tons; vehicles and parts, 70,748 tons; vegetable fibers, 45,661 tons; frozen fish, 43,298 tons; steel wire, 41,561





**Los Angeles Harbor's new \$7,-000,000 Indies Terminal provides deepwater berthing facilities of handling six ocean-going vessels at the same time. This modern cargo terminal is serviced by Japan Lines, Nedlloyd Lines and Nedlloyd & Hoegh Lines vessels.**

tons; machinery and parts, 40,061 tons.

The Port of Los Angeles came of age despite considerable natural handicaps. Unlike San Francisco and San Diego, the Los Angeles area was never blessed by nature as a natural deepwater bay. The Port was planned and built for shipping.

In the same waters where small

brigs and barkantines once had to anchor out from shore and handle their cargoes in small dinghys through narrow sloughs and mud-flats, great ocean-going vessels today move to deep-water berths.

The historical prologue to this story was recorded in 1542 when two small sailing vessels flying the flag of Spain and commanded by the Portuguese navigator, Juan Rodriguez Cabrillo, rounded what is now called Point Fermin. Dropping anchor close into the strange, wild coast, the discoverers watched hundreds of brush fires set by Indians for a rabbit drive, which blackened the sky. Here, in this raw wilderness, Cabrillo set his company ashore, and near here in

the following year he died, little suspecting that his "Bahia de los Fumos" (Bay of Smokes) would some day become one of the world's great ports.

Greatness was slow in coming. The first recorded commercial transaction in the Harbor took place in 1805, when the good ship Leila Byrd, out of Boston, dropped anchor in San Pedro Bay to trade cloth, sugar and household goods for hides and tallow from the Spanish missions. The Leila Byrd, and other yankee traders that followed her, anchored in the open roadstead off what is now Outer Harbor and the lower reservation of Fort MacArthur.

Commerce on the same small



scale continued at this site until the 1850s when General Phineas H. Banning founded the Inner Harbor and named it Wilmington, after his birthplace, Wilmington, Delaware. In the early 1880s, a group of far-sighted San Pedro and Los Angeles businessmen began a concerted effort to get the Federal Government to build a breakwater in San Pedro Bay to protect the Outer Harbor. Their efforts were vigorously opposed by Collis P. Huntington, then head of the Southern Pacific Railroad. He wanted the breakwater built at Santa Monica, where his railroad had control of the waterfront. A long, bitter fight ensued but, in 1897, the issue was decided by government engineers in favor of the Los Angeles-San Pedro faction.

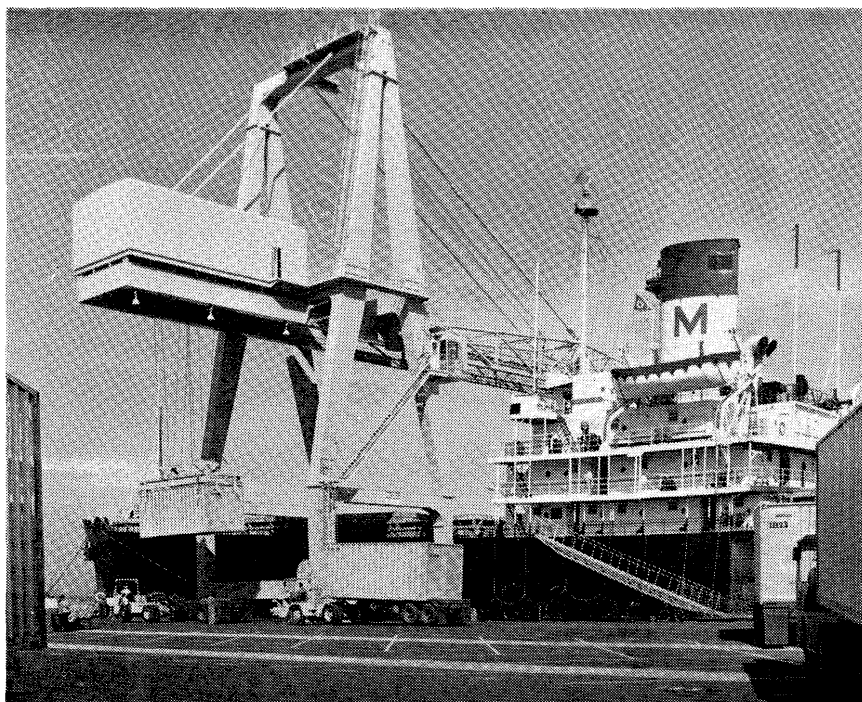
Congress then appropriated \$2,900,000 for the purpose, and the first bargeload of rock was dumped in Outer Harbor on April 27, 1899. Construction of this first section of the breakwater was completed in 1912, and subsequent extensions have brought this to a total length of nine miles.

Consolidation of the Wilmington and San Pedro Districts with the City of Los Angeles in 1909 brought the Harbor under municipal control, and a large-scale development program was launched which has continued to the present time.

In the early days of its development, the citizens of Los Angeles voted for the issuance of \$29,000,000 in Harbor bonds. The last of these issues was voted in 1923. To date, \$28,695,000 has been retired, leaving only \$305,000 to be paid from Harbor revenues. All interest and a considerable part of the principal has been paid from the same source.

The Harbor Department invests all of the Port's earnings in improvement, enlargement and maintenance of facilities. More than \$90,000,000 already has been expended on its postwar construction program.

One of the most important items in this program was the construction of one of the world's most modern and functional cargo-passenger terminals early in 1963.



**Containerization is the latest word in cargo-handling at the Port of Los Angeles. Giant crane at Matson Terminal loads factory-packed containers direct from highway trucks to decks of freighters.**

This great center for marine commerce has been assigned to Consolidated Marine, Inc., a terminal company formed by American Mail Lines, American President Lines and Pacific Far East Line, for the operation of the complex.

The five-berth terminal, which includes two 200 x 1008-foot transit sheds with passenger facilities on the second level of one, is located on a 50-acre site on the west side of the Harbor's Main Channel. It offers an enclosed cargo space capacity of more than 470,000 sq. ft. The cargo unit is of clear-span construction with no posts to interfere with cargo handling inside.

Features of the passenger unit include two large passenger areas, elevators, escalators and stairways. Passenger gangways are located on the building's roof and are lowered into place after the luxury liner docks.

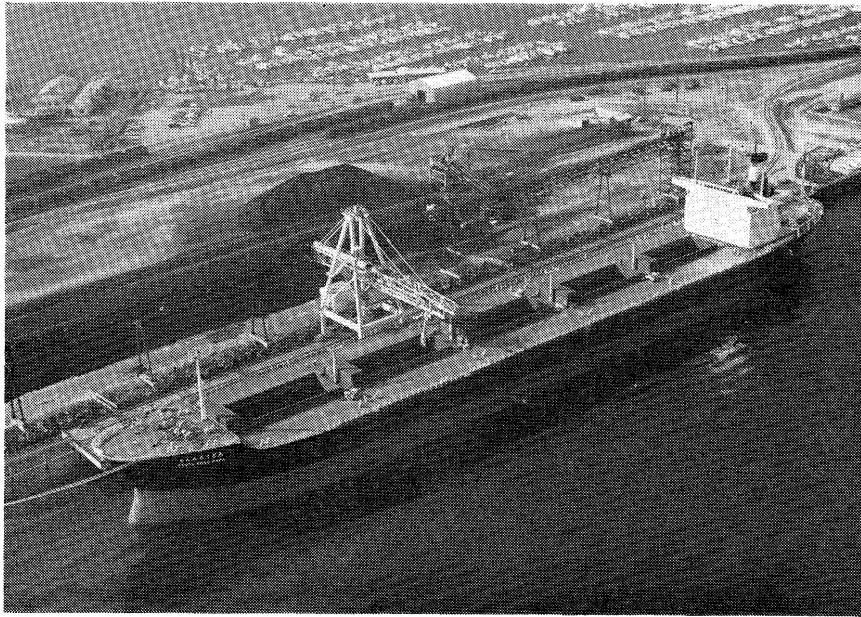
The Consolidated Marine Terminal, with the Matson Navigation Company facilities and a third complex at Berths 154-155, make

a total of three cargo-passenger terminals at the Port of Los Angeles, more than all other West Coast harbors combined. Today, the Harbor is the only port of call in Southern California for regularly-scheduled passenger liners.

Three other clear-span cargo sheds, each costing approximately \$4,500,000, were finished during a four-year period from 1960 to 1964. One is in the Port's Outer Harbor; the other two are located in the West Basin.

With the tremendous upsurge in transporting crude oil, and larger vessels, the Harbor Department opened the world's first protected supertanker terminal, capable of discharging a maximum of 50,000 barrels of oil per hour. Some of the world's largest tankers call at the terminal, whose fairway was dredged to a depth of 51 feet to accommodate these carriers.

Rising above the Harbor is a dominant new landmark, the \$21,000,000 Vincent Thomas Bridge. The four-lane link between the San Pedro and Terminal Island Districts, built by the State of California and named for the state assemblyman from the Harbor District, was opened to vehicular traffic November 15, 1963, and has since exceeded all preliminary estimates as to volume of traffic cross-



**Through the Port of Los Angeles' bulk loading facility over 1,000,000 tons of iron ore and iron ore pellets are shipped to Japan annually. The \$5,000,000 complex was built in the Outer Harbor of the Port, near the Port's huge Supertanker Terminal.**

ing its arching span.

Greatest usage of the bridge, however, is still to come with a multi-million dollar expansion of Terminal Island now in the planning stages.

The citizen-owners of the Los Angeles Harbor gave the planners and operators of the Port a resounding vote of confidence with the approval in April, 1959, of a City Charter amendment which authorizes the Harbor Department to issue revenue bonds as needed to expand and improve its facilities.

Since then, the Department has sold \$39,000,000 worth of bonds, which must be repaid from Harbor earnings without any obligation to the taxpayers.

Los Angeles Harbor also is one of the world's great fishing ports. A fleet of commercial fishing boats brings its 375,000,000-pound catches to the municipal fish market or to the seven canneries which employ more than 5,000 persons and annually pack millions of pounds of fish with a total value approximating \$35,000,000. Total investment for public and private

fishing facilities is estimated at \$275,000,000.

Sixteen major oil companies have marine terminals here, and in and out oil traffic last year totaled 20,137,212 tons. Coastwise lumber movement totaled 532,327 tons in fiscal 1965-66. Two large shipyards with drydocks having capacities up to 22,000 tons handle repairs and conversions of large ships, and there are numerous smaller yards in the area.

The Los Angeles Harbor, municipally-owned, is comprised of three districts: San Pedro, Terminal Island and Wilmington. It is governed by a board of five citizen-commissioners, appointed by the Mayor, subject to approval by the City Council. A staff of approximately 475 employees now operate the \$190,000,000 enterprise.

The Port's plans for the future call for an ever-widening horizon of accomplishments. New deep-water berths and great modern terminals and container facilities are on the planning boards, and under way.

Figuring prominently in such plans is Terminal Island, the "last frontier" of the Port, so named because it is the last extensive area available for new marine facilities. A total of 650 acres may be added to the Island by the dredge-fill method, doubling the present size of the Harbor by 1985. This projection also means that the Port's cargo-handling capacity will be

increased by nearly 150%.

Terminal Island also will be the location of a new \$8,000,000 headquarters office building for the Harbor Department. Occupying a 25-acre site at Reeves Field, the building will be a 12-story structure. The Port will lease 60,000 square feet of building space and will own the building after 35 years.

Currently under construction is a new \$5,000,000 Federal Customs House, which will serve as headquarters for all customs activities in the Port.

Two new important cargo handling facilities at the Port are the \$7,000,000 Indies Terminal at Berths 219-225 on Terminal Island and the \$5,000,000 bulk loader at Berths 49-50 in Outer Harbor.

The Indies Terminal, encompassing more than 50 acres of land, is designed to berth six ocean-going vessels all at one time, and did so in September, 1966. The bulk loader, scheduled to deliver a minimum of 1,000,000 long tons of iron ore pellets to Japan, exceeded all expectations during the first six months of operation by delivering more than 1,200,000 tons.

In still another area of Harbor activity, the new Catalina Terminal at Berths 94-95 combines air and sea travel service to Catalina Island. Dedicated in the Spring of 1966, the new \$1,300,000 facility provides essential steamer, seaplane and motor cruiser transportation for an ever-increasing number of travelers.

Just completed is a \$2,500,000 rehabilitation and modernization program at a five-berth general cargo complex in the Port's Wilmington District.

Meanwhile, an \$18,320,000 program is under consideration for specific modernization and development which will be devoted to wharf construction, backland improvements and development of new container terminals in the Port's West Basin.

Another portion of this sum will be used in the Outer Harbor to develop the site for a new Cabrillo Beach Marina for 3,100 pleasure

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# *The P.L.A. Means Business*

By Alan Cameron

Editor

*The PLA Monthly*

*Port of London Authority*

*(Reprinted from The PLA Monthly, October and  
November, 1966)*

## Part One

What is the Port of London? All things to all men, one might reply. To the visiting tourist, that fascinating bit of the Thames where the monuments of a thousand years tell their historic story. To the seaman, London River—home, symbolised by Tower Bridge. The Port of London is the nation's larder, a gateway to the ocean trade routes, a place of departures and arrivals, a central point of the world's financial web, and an international market. Above all, in fact, one of the greatest trading and commercial centres in the world.

So the P.L.A., who are the controlling authority for this great international port, are first and foremost a business organisation. This is the theme of this article—the P.L.A. means business, in all its ramifications.

Asked recently in an interview with the Journal of Commerce what makes the P.L.A. tick, the Authority's Director of Finance and Commerce, Mr. John Lunch, replied, "Well, first of all let us be clear that the P.L.A. is a trading under-

taking—among the largest in the country." Subsequently Mr. Lunch told *The P.L.A. Monthly*, "As a matter of interest you may like to know that although the P.L.A., having no equity shares, is not listed among *The Times* 300 companies, we would rank 18th if we were included. We have known assets of about £200 million. We are essentially a commercial enterprise providing a service to our customers against payment of economic prices, in intense competition with a number of other ports, not only in this country but in the Continent of Europe. Financially we must stand on our own feet and pay our own way."

Speaking to the *Journal of Commerce*, he amplifies this point: "We must therefore make profits and avoid losses. We receive no subsidy of any kind, unlike ports like Rotterdam or Amsterdam."

There is, throughout the P.L.A.'s financial and commercial policy, a constant emphasis on this point of providing economic service to the Port's customers who are ship-owners, importers, exporters and their agents. If the P.L.A. does not provide what these customers require at economic prices, the P.L.A. will fail as a commercial enterprise. That the P.L.A. is succeeding in this aim of providing economic services and satisfying its customers, is indicated by the Port's continuous growth and the expansion of its services and facilities. A more personal and specific tribute to this success is reported in a recent issue of the *Sunday Times* under the gratifying headline, "Swedish log men roll their own—with help from the P.L.A."

boats and the filling of the Watchorn Basin so the area can be used for shipping facilities.

The Port of Los Angeles, Cargo Capital of the Western United States, in recent years has been planning and adding facilities, then planning still more to meet the needs of ever-increasing trade. With an eye to the future, the pace will continue to provide at Los Angeles Harbor the finest facilities to serve international commerce.

Svenska Cellulosa AB, Sweden's biggest timber pulp and paper company set out to build its own ships, terminals and handling machinery. "London," says Oliver Marriott in his *Sunday Times* article, "was the obvious British choice" for a terminal. "But where to locate? We looked at Sheerness and private docks. We even walked along the riverside, trying to buy old timber sheds. No success. Everyone had warned us against the Port of London Authority as being terribly conservative... Finally we got in touch with them for lack of another place."

"Very quickly S.C.A. decided with the P.L.A. to build its £1.5 million terminal at Tilbury and was the first company to lease land (at Tilbury) from the P.L.A. for its own dockside facilities. 'We were astonished by the P.L.A.'s excellent dockside facilities. We had never met such forward-looking and helpful people. The management at the P.L.A. seem to us more progressive than any other port in Europe, not excluding Rotterdam.'"

This unsolicited testimonial is included not as a boast but because it may help to dispel the illusion that the P.L.A. is "terribly conservative." It is not the job of a house journal to boast. To dispel misconceptions, however, is very much part of its job. One of the most galling to P.L.A. officers, is the accusation that the P.L.A. is a backward organisation, lacking in drive and enterprise.

In fact, anyone who takes the trouble to study the history of the Port of London soon realises that, above all things, it is a port which has pioneered, not procrastinated.

This spirit of enterprise and anticipation of customers' needs is the guiding principle of the whole of the P.L.A.'s commercial and financial administration. The Director of Finance and Commerce returned to this theme repeatedly in his interview with *The P.L.A. Monthly*. The aim is to go and find out what the customer wants and then provide it, ahead of the emergence of the actual demand for the service by a shipper or merchant.

But this policy is not just a pious expression of good intentions. "We

begin," said Mr. Lunch, "with the modern marketing approach, which is essentially purposeful and begins with research." He instanced, as a classic example of the application of a technique which is scientific in its methods, the P.L.A.'s proposal to build a big, modern grain terminal at Tilbury, a project which, after careful research and planning has been put to the Minister of Transport for approval.

Dealing with the planning of this grain terminal, Mr. Lunch pointed out that port facilities are long-term assets and that new facilities should be filled with traffic at the earliest possible moment. From the time that a spade is first put in the earth to the time that the new asset is used with full commercial bearing, can be two or even three years.

"Then there is build up of trade and it is most important that the build up of trade should be as fast as possible in order to pay back money as quickly as possible.

"In the case of the proposed new grain terminal there was a great deal of statistical and other research, not only by Martech, but also by the other consultants for the terminal and P.L.A. statistical and economics officers in order to help us design it to suit customers' needs."

Having planned the terminal to meet these needs, the next stage was marketing the facility, the crucial point in making such a vast new asset viable. "We commissioned Martech to carry out a special marketing study and from this they were able to advise us how to set about marketing the terminal. In the Commercial Department, under the Commercial Manager, Mr. Timms, a special section with two experienced P.L.A. trade officers was thoroughly briefed on the grain trade and all its ramifications, on the new terminal, prices, charges, rates ruling throughout the trade and so on. No one," continued Mr. Lunch, "just wandered along to people in the grain trade and 'chatted them up.' I cannot make this point too strongly."

They went by appointment to particular people. They went thoroughly informed. They knew exactly what they were talking about

and knew a fair amount about the customer's business, knew his needs and requirements, understood his problems and had done their sums and with all the facts and figures at their disposal, knew what the cost to the customer would be of using the new terminal and what, therefore, would be the likely cost saving to him and how he could use it to his best advantage.

"The result was a series of sympathetic interviews. On the whole the P.L.A.'s representatives were well-received and the P.L.A. is grateful for the co-operation they received from the grain trade. A great deal of interest was shown in our proposed new terminal. There was a lot of support for it and people have indicated the likely volumes of trade they would put through this new terminal."

In doing this they were aided by the information provided by the P.L.A.'s representatives and also by the information made public at the special press conference held in the P.L.A. Head Office building. This publicity backed the subsequent work of the representatives and the whole exercise has been very successful.

In the field of containers, a much wider matter, the approach was different. The first point made by Mr. Lunch was that container operation represents a radical change in transport patterns. It seems likely to evolve rapidly over the next few years so container berths will be "the mass-production factories of dock and harbour installations."

"Because of the evolving nature of the container concept and because of the time-scale in building berths, the port authority had to be ahead of the shipowners in their thinking and research. It takes roughly twice as long to build a container berth as a container ship so we have to be ahead of them in construction. If we were not we would not have berths for their ships."

The market research connected with the planning of the new container berths at Tilbury was largely carried out by P.L.A. officers, their object being to estimate the likely volume of future container trade between this country and other countries, between London and

other countries and between other countries on the various trade routes of the world. In parallel with this and co-operating on all common issues, the P.L.A.'s research and development department, headed by the Head of Research and Development, Mr. N. B. Ordman, studied in detail methods of container operation, advantages and disadvantages, size modules, container construction and so on.

"As a result, we have been able to form, from a study of U.K. trade on the ocean routes of the world, our own estimate (a conservative one) of the amount of cargo which is immediately suitable for containers on these routes. Then we have estimated how much of that already passes through London and so arrived at an estimate, again a conservative one, of the amount of trade that will pass through London in ocean container ships in a few years time. We must look a few years ahead," Mr. Lunch emphasised, "because of the time it takes to construct a container berth. From this research we have begun the construction of three container berths which will be ready from January, 1968, onwards, and, in the light of our findings, we have asked the Minister of Transport for approval for the building of two more.

"In parallel with this we are in commercial negotiation with customers for the use of all of the three berths at present being constructed and for which Ministerial consent has been given."

These container berths are designed to handle up to a million tons of cargo annually though, naturally, it will take time for the throughputs to build up to this figure in a new and evolving transport method. Apart from the very high throughput of such berths, the P.L.A. is also aiming at radical administrative savings. "Charges will be reduced," said Mr. Lunch; "our commercial approach to charges is that we wish to have the simplest possible system of charges so that the container operator can himself design charges of the simplest kind. We want to make it possible for him to quote

one single charge from door to door, with one set of documents and one payment. Port charges for ocean container ship berths will be a fraction of those for the handling of loose cargo."

The essential points about the planning of all new facilities, Mr. Lunch emphasised, were careful research and informed commercial negotiation. He deliberately contrasted the proposed new grain terminal and the container berths because one is an established trade and the second is a changing and evolving trade. "Therefore we have to change our marketing with the evolving nature of the transport. The potential users are themselves now working out their plans. We are providing them with a marketing service because our research and development work is so well-advanced that we are able to give a development service to potential container ship operators using Tilbury. Furthermore, because of our extensive investigation into the nation's overseas trade, we are able to give them a marketing service too to help them with their business."

The potential importance of container traffic is vast. Container ships are coming. In what numbers depends upon the results of the kind of investigations made so thoroughly by the P.L.A. "The importance of this country establishing ocean container ship berths is critical. Our importers and exporters must have the advantage of this cheap and efficient means of transporting their goods across the ocean without the expense and difficulty of feeder services to and from the container ports in Europe. In my estimation," said Mr. Lunch, "dependence on European container ports would put U.K. importers and exporters at a disadvantage of £2 to £3 per ton compared with our continental competitors."

Hence the development of ocean container ship berths at Tilbury which is years ahead of any other port in this country both in its provisions and in the operating and marketing of the facilities.

Tilbury can, in fact, make a marked contribution to the whole British economy and the welfare of

British industry.

In present circumstances, when "the squeeze" looms large in all commercial thinking, it may be as well to reiterate a point made by the P.L.A.'s Director-General, Mr. Dudley Perkins, in a recent *Journal of Commerce* feature on the Port of London.

"There is no intention, on our part," he wrote, "to call a halt to the P.L.A.'s development programme, and we trust that the Government will agree. Naturally, we have instituted stringent economy measures of what might be termed domestic economy throughout the administration, and the less essential items in our programme of improvement and development may well be postponed, but those measures which, as I have indicated, can make a valuable contribution to the nation's economy will be pressed ahead more urgently than ever."

In fact, as the Director-General points out, many of the P.L.A.'s long-term plans for increasing London's efficiency are coming to fruition just when they are most needed. They are planned not only to increase efficiency in the handling of existing trade, but also to bring new trade to the nation.

A vital and integral part of this pattern of commercial and financial organisation is the P.L.A.'s Commercial Department, headed by the Commercial Manager, Mr. H. A. Timms. How this department plays its part in taking the port to the customers is the subject of the second part of this feature, to be published next month.

## Part Two

"Trade," they say, "follows the flag." So far as the Port of London was concerned in British Mercantile history, it seemed to be the other way round. The motives which prompted expedition after expedition from the Thames were as often as not commercial. The long search for the Northwest Passage, for instance, began as a bid to break the monopoly of Mediterranean merchants in trade with the Far East.

Those who bought, equipped and manned ships in commercial ventures such as these were London

merchants who put up the money, took enormous risks with their capital and gambled on the high profits of a successful venture. These were indeed the merchant venturers.

Today, with the whole of the world known, mapped and rapidly being developed, the kind of competition which the seekers after the Northwest Passage sought to combat is much greater. Modern communications put all merchants, all over the world, in competition with each other, with the profits going to those who are most efficient. Port services able to turn the expensive ships round quickly and handle the valuable cargoes with expedition and efficiency are obviously essential if a nation's traders are to be successful in the world.

On any day of the year 100 or more ships are unloading cargo along the 36 miles of quays within the five dock groups of the Port of London while in the river a similar number of ships are working at river buoy berths or at the independently operated wharves. In the commercial administration attached to the cargo which these ships discharge or load as exports, a vast complex of commercial interests and responsibilities are involved. Gone are the days when a merchant venturer simply brought his cargo triumphantly home, discharged it into his own warehouse and then set about marketing it. Today, the ramifications of mercantile law, Customs requirements and insurance, besides the infinitely complicated and delicate nature of trade patterns to say nothing of the vast and highly technical nature of ship-handling and berthing, necessitate a large and complex administrative machine to satisfy the requirements of the merchants, the shippers, the ship-owners, the nation's laws, port regulations, insurance underwriters, shipping agents, port health and others concerned.

It is useless to fulminate against "red tape." All these complexities arise from the very natural and proper desire of people with money at risk to have adequate assurances that the goods, ships and services they have financed are going to continue in good order.



The focus point of all the complex requirements of the modern business and administrative machine when handling goods is the place where the goods change hands, cross frontiers, are stored, become liable for customs duties and so on. This place, generally speaking, is the sea-port.

Recognising that efficient guiding through this phase of international trade is crucial and that every effort must be made to keep both the total transport costs and transit times of goods as low as possible, large ports have Commercial Departments with these objects as their chief aim. But the role of the Port of London's Commercial Department is very much more than that of helping traders through the complexities of importing or exporting. Besides this important part of its work, the Department undertakes a much more dynamic function in the nation's mercantile economy. Last month in Part 1 of *The P.L.A. Means Business*, the P.L.A.'s Director of Finance and Commerce emphasised that the central point of P.L.A. commercial policy is to seek out and anticipate the needs of customers of the Port of London.

This is where the Commercial Department, headed by the Commercial Manager, Mr. H. A. Timms, takes over. Overall commercial and financial policy is the responsibility of the Director of Finance and Commerce. Translating it into action is the job of his Commercial Manager. As Mr. Timms emphasises P.L.A. representatives "are prepared to go anywhere to follow up either new business trends or questions with present or potential customers." The Commercial Department, then, does not merely seek to smooth out the complexities of the trade routes, it actively promotes trade too.

Trade is an exercise in mutual aid. The more efficient the port, the healthier the trade that passes through it. The increasing emphasis in the Commercial Department is upon the efficient servicing of customers' needs. The Trade officers of the Commercial Department, Mr. Timms points out, "must be able to talk to a merchant in his own

language and show him that we have studied his transport costs and the problems of his business and that we can talk to him about them with understanding. Whilst we have always gone to the trader to tell him what we can offer in the way of P.L.A. facilities, in future we shall go to him with a greater knowledge of his business and with a greater ability to suggest to him how best to use port facilities. We need to know almost as much about his business as he does himself."

As part of this policy of taking expert knowledge and guidance to the trader, the P.L.A. operate an office in Birmingham whose function is clearly indicated by the title of the P.L.A. officer in charge—he is the Trade Promotion Officer. At the other end of the world, performing this and other functions, is the P.L.A.'s representative in Australasia Mr. C. L. Webb, based in Sydney. How important the P.L.A. regard this matter of efficient trade promotion and help present and potential users of the Port may be judged from the fact that the P.L.A.'s Chairman himself, Lord Simon, has just begun a tour of Australia and New Zealand for the express purpose of trade promotion.

As indicated in the first part of this article, this trade promotion is not haphazard. The policy of providing a much more personal and knowledgeable service to traders does not find expression in a series of random sallies by trade officers. Last month we described the immense amount of research into the detailed workings of the grain trade which preceded the decision to build a new bulk grain terminal at Tilbury, for which Ministerial approval has now been received. Every section of the P.L.A.'s administration, such as the Traffic, Engineering, and Legal Departments played their part in formulating policy and making decisions.

Other commodities have been studied in equal detail and in all cases, when decisions have been taken and commercial policy, in its broadest sense, has been formulated, the personal liaison between port and customers is provided by the experienced officers of the Com-

mercial Department.

The effect of this policy-making on the workings of the busy Commercial Department is the creation of new specialist sections in addition to its three main working sections—Commercial, Charges and Customs Entry whose work will be described below. The new sections will cover commercial intelligence and transport research and advice, whilst under the Deputy Commercial Manager, Mr. W. Caunter, there will be a team concerned with special projects such as container ship berths and other new developments in port transport and the marketing of the new dock facilities. Another new activity will be the intensive retraining of the Trade officers of the Commercial section and other officers of the department by experts.

"We are setting up these special sections," said the Commercial Manager, "with experienced senior officers of the P.L.A. and we intend our Trade Officers to use them to provide all the information they need."

As an example he quoted the case of firms which may have separate shipping managers for exports and for transport. "I would like our Trade Officers to be able to go to such firms and present them with an integrated plan for the whole transport operation, including the shipping of their exports."

Mr. Timms mentioned as an example of the kind of commercial situation to be investigated the import trades in particular. These were concentrated in London; now members of this trade, such as the big supermarket groups of the grocery trade, are setting up their own distribution systems, often with depots inland, and traders getting together to form consortiums for buying.

"This is the sort of trend we have to recognise from the start so that our Trade Officers can go out and make new proposals to suit the new pattern. They cannot do so if they have not got the commercial information they need."

The work of actually administering the business, new or old, which comes to the Port is done by the three operational sections already

mentioned, the Commercial section with its Trade Officers, the Charges section and the Customs Entry section. Through the man he knows in the Commercial section, the trader can transmit his instructions for the storage or delivery of his goods. The Commercial Department translate these instructions into action by co-operating with the Dock departments concerned and forwarding relevant documents.

Many hundreds of documents and instructions arrive in the Commercial Department by post every week and still more are delivered to the office by hand. These documents automatically come to the attention of the Trade Officer concerned and from that time forward he is in a position to deal with any enquiry from the importer regarding his cargo.

He will arrange storage for the merchant's goods and to do this as economically and effectively as possible requires a detailed knowledge of the P.L.A.'s warehousing facilities. Any housewife knows that soap should not be stored next to tea. Imagine the vast variety of cargoes of all kinds that come into a sea-port and it is not difficult to realise that the Trade Officer's storage problems are not just a question of knowing where there is some space. He has to have a detailed knowledge of all the facilities and services which the P.L.A. provide for the vast range of goods entrusted to their care. This involves keeping up to date with a situation at docks where the pattern is ever-fluid as cargoes come and cargoes go to the tune of millions of tons annually. The Trade officers are the link between the merchant and the dock facilities.

There is specialised storage for some prime commodities such as meat, wine, wool, timber, tea, tobacco, rubber and so on but there is also a vast range of general cargo with special needs. The weight of some goods may demand ground floor stowage; others may be of a

hazardous nature and all concerned must be familiar with any safety regulations involved; storage may be required in bond or with duty paid. The importer frequently wants to know where his goods will be stowed before they have arrived so that he can make appropriate and economic plans for their subsequent handling. All these matters are within the Commercial Department's ambit.

And then, of course, there are the intricacies of Customs. The P.L.A. undertake the preparation of Customs Entries for import cargo. A special section of the Commercial Department, experienced in the intricacies of Customs tariffs, interpret these for traders and smooth the path. The Trade Officers and the Customs Entries section maintain a close liaison and so preserve the link with the trader on any matter concerning the preparation of his entry.

The P.L.A. maintain a seat at the Custom House, a facility for the trader, which, again, helps to speed the passage of his goods from ship to market.

Services, of course, have to be paid for and so the Charges section is an important administrative part of the Commercial Department. To provide for the variety of cargo handled and the varied requirements of traders there are a number of schedules with conditions and regulations appropriate to the commodity and services they cover. Present policy is to simplify the rates and charges schedules in the interests of efficiency. For instance, in the case of grain, a simple homogeneous cargo, it is the hope of the Director of Finance and Commerce that when the new grain terminal to be built at Tilbury is operational, one single cost from cornfield to silo will be the only figure the trader will have to bother about.

But there is a vast variety of general cargo not susceptible to such wholesale simplification of charges and the schedules of rates and charges necessarily vary. Though

precise, they are practical and here again, every effort is being made to reduce the complications to a minimum. Some of the variations are there for the express purpose of making things easier for the merchant.

For instance there is a tendency for a greater percentage of cargo landed through the P.L.A. to be taken by importers direct from the quay or on immediate delivery terms. To speed this traffic there is a special schedule of advantageous rates known as the Quay Delivery Schedule. The rates apply to a wide variety of goods which are landed and delivered from the quay where the vessel discharges.

One of the objects of this schedule is to encourage the rapid flow of goods through transit sheds. Delivery from the point of discharge saves time and reduces handling to a minimum and the rates provide for the quickest and most direct means to the importer of taking delivery of his cargo. Despite considerable publicity, this procedure does not seem to be known to some importers. Full details, together with a schedule, are obtainable from the Commercial Manager or Charges Officer.

In all matters relating to charges, the Charges section staff are willing to advise traders how best to use the facilities of the P.L.A.

The P.L.A.'s Commercial Department then is a business organisation operating not only in the interests of the business efficiency of the P.L.A. as a commercial organisation, but acting specifically in the interests of trade and commerce. The health of the nation's trade and the commercial health of the Port of London are closely interdependent. The Commercial Department is the point at which these interests meet, at which there is a mutual exchange of views and information and where, increasingly, the P.L.A. seeks personal contact between the merchant venturers and the port organisation designed to serve their needs.

# *Bremen, Seaport for Fully-Containerized Ships*

*Bremer Lagerhaus-Gesellschaft*

*Bremen, German*

The necessity for more rationalisation in the conveyance of goods—and in the handling of ships in the port—has become ever more apparent with the continuous increase, in recent years, in ship and handling costs. Thus, from the USA—which already has years of experience in container traffic—the van container service spread to the European ports earlier than originally anticipated. Bremen was in a particularly suitable situation for fulfilling the traffic requirements of the new fully-containerized vessel,

due to installations which were already under construction or which had just been completed. The first fully-containerized ship was dealt with in the Bremen ports as early as the 5th May 1966, so that Bremen thus became the leading German seaport in this trade.

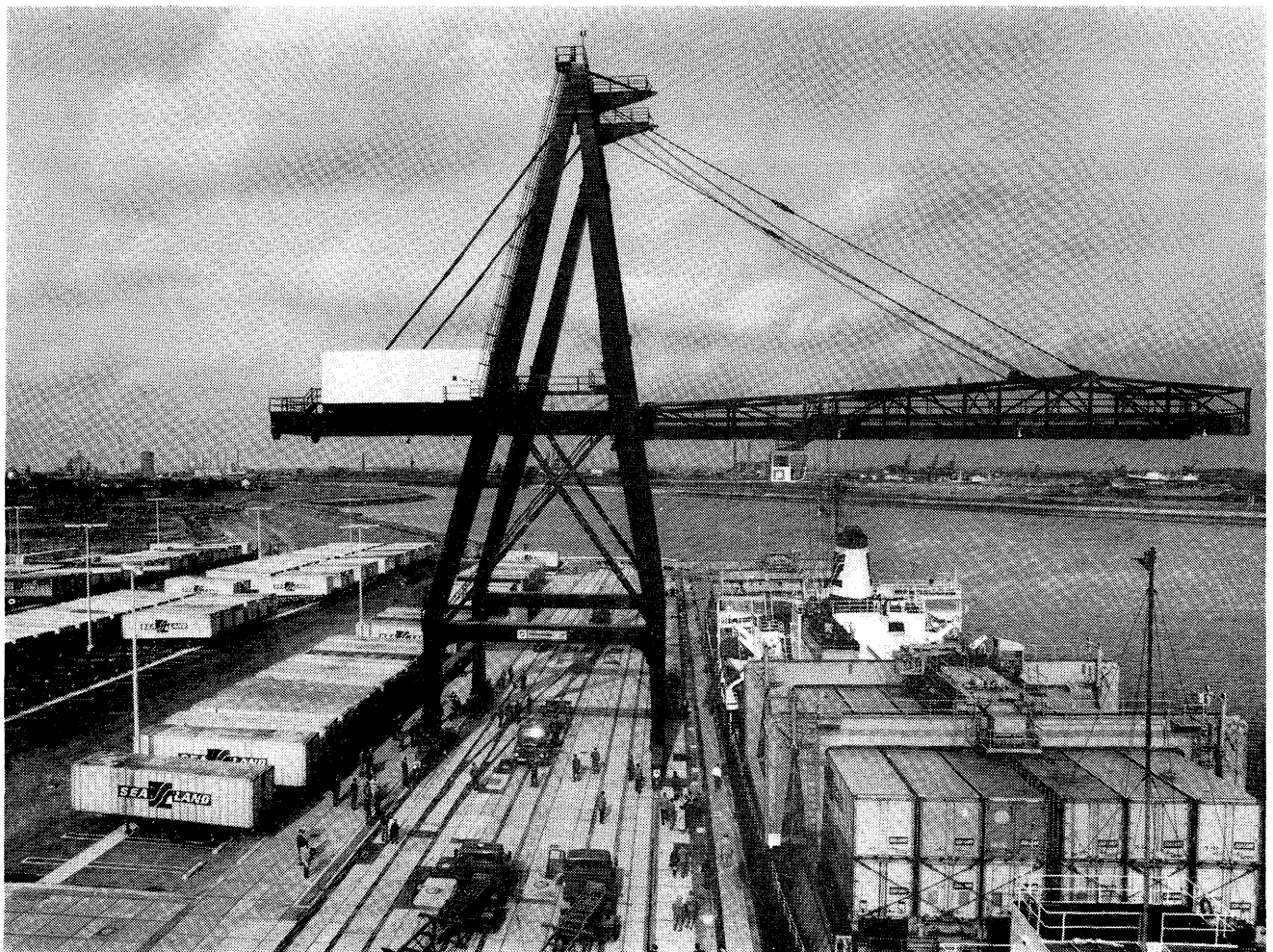
## **The installation in the Uberseehafen**

Between sheds 16 and 18 in the Uberseehafen is a 12,000 sq. metre area on the quay available for use by van containers. This berth is

at present utilised by the fully-containerized ships of the Container Marine Lines, a division of the American Export Isbrandtsen Lines, whose ships call at Bremen every 14 days at present (hereafter weekly). The ships, having a capacity for 732 20-foot containers, are equipped with shiptainers. These are loading and discharging bridges mounted on the fore and after part of the ships. Immediately upon arrival of a ship the discharging and loading activities commence. Thus the quickest possible

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**A special 25-ton capacity gantry crane enables van-containers to be loaded and discharged every 2 to 3 minutes. With the development of efficient installations Bremen keeps pace with the most rationalised forms of cargo handling.**





**The van carrier of the Bremen Ports is an all-round-equipment. With a 27 tons lifting capacity a 20' container can be loaded/unloaded from railcar or truck. Handling containers on the yard is, of course, a daily operation. With a frame containers of ISO/ASA-norm are handled. By changing the frame with a fully hydraulic working clamp the carrier is able to be used for containers with pockets.**

turnround of a ship is attained in that as soon as the first container is discharged the two-way method applies. The bridge places a container ex the ship onto the shore and—with its return movement—takes one from landside into the ship. Tractors alongside the vessel see that the empty, or respectively full, chassis are moved via the shortest route to or from the pre-allotted storage spot. From here they are released, at the intended time, to the transport firm appointed to onforward same to the consignee. Parallel to this is the transfer of containers onto or off rail-cars specially constructed for container transportation. In respect of those containers which are only intended for the port-to-port service, the delivery of the goods to the consignee is effected at the quayshed. Naturally the procedure is reversed for the export trade. The port authority uses special van-carriers for moving the containers within the storage area or,

respectively, for loading onto railcars.

### **The Paceco Container Bridge**

In order to be able to also handle such ships not equipped with shiptainers (which will, as far as is known, be put into service after completion of the respective installations in the ports of call), a paceco container bridge was erected at shed 24C in the Neustädter Hafen on a 100 x 150 metre area. This bridge, which is presently serving the fully-containerized ships of Sea-Land Service Inc., has the following technical data:—

Total height:	63.00 metres
Spanning width:	15.24 „
Reach:	39.10 „

Total weight of	
Bridge:	400 tons
Lifting capacity:	25 „

The extension arm can be raised vertically so as not to obstruct ships berthing or unberthing. The legs of the bridge straddle three sets of rail tracks enabling, with landside offloading of 12.8 metres, containers to be transferred from road vehicles to railcars and vice versa. It is mobile on a 150 m. long crane-rail. The containers are lifted by means of a travelling crab and, where required for varying sizes of containers, an expansionable lifting-frame. In handling, the pins of the frame push into the corner fittings of the container and are then hydraulically turned. With this fully automatic container grab-frame a loading/discharging cycle of some 2 minutes is attained, whereby one container is loaded and another discharged. This means that two containers, each with up to 20 tons of general cargo, are transhipped in two minutes. A ship with 150 containers can thus be turned-round within 3 to 4 hours.

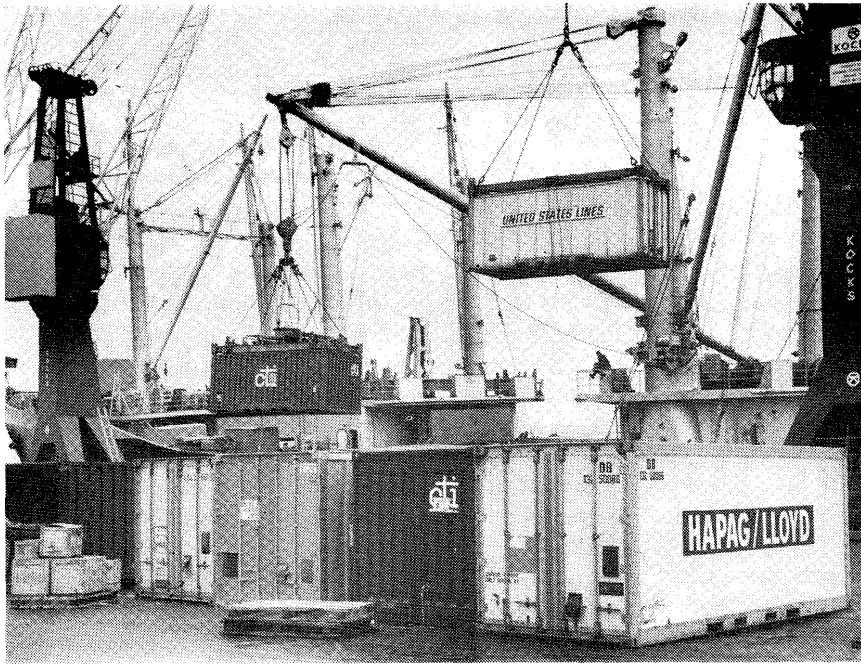
### **Further Container Installations**

The loading and discharging of semi-container ships of the United States Lines and the North German Lloyd, as well as all other ships in the USA trade, takes place on berths 20 c and 22 c



**At the 12000 sqm open space Shed 16 b in the Bremen-Ueberseehafen are at present the fully containerised vessels of the Container Marine Lines, a division of American Export Isbrandtsen Lines, New York, served. The vessels have a capacity of 732 van containers and call at Bremen to-day fortnightly which will shortly be altered into a weekly service.**





**The loading and discharging of semi-container ships of the United States Lines and the North German Lloyd/Hamburg - America Lines, as well as all other ships in the US trade, takes place on berths 20 c and 22 c (both having 10,000 sqm, each sufficient for 800 20-foot-containers) by means of ships' derricks or the lifting combination of two 7.5 tons capacity landside full-portal cranes.**

(both having 10,000 sq. metres each sufficient for 800 20-foot containers), by means of ships' derricks or the lifting combination of two 7.5 ton capacity landside full-portal cranes.

### Planning

In order to keep pace with fast moving developments there is, at present an extension of the available facilities in hand of an area of 25,000 sq. m. on shed 22 in the Neustädter Hafen, which represents reception possibility for 2,000 20-foot containers. The second container bridge, which is similar in type to the one already in operation, will shortly be installed. It is intended here to build out the landside reach to some 24 m. (in-

stead of the present 12 m.). In addition to those facilities already mentioned, completed plans are to hand for the development of 50,000 sq. m. of property on the landside reaching from in front of shed 22 c to 24 c; which will be effected as soon as this is warranted by the trade.

It is planned to produce facilities in Bremerhaven, on one of the plots situated in the Nordhafen, for the lift on/lift off or roll on/roll off container handling systems. The Nordhafen, being inside the locks and thus independent of tides, therefore offers the best conditions.

The general orientation of all-round equipment in Bremen offers possibilities for the diverse methods in container handling, i.e., the specific technique demanded by the individual vessel; for instance, independent as to whether the shipping company considers it best to adapt the chassis system, or merely uses boxes (i.e. the van system), the ontransportation of which is placed in the hands of a third party.

### Versatile Usage of the Container

The van container traffic is not restricted to particular types of

goods; there are, rather, open containers for bulk and general cargoes, as well as closed containers for general cargo and bulk liquids, plus various types of containers fitted with freeze units for reefer cargoes of down to  $-26^{\circ}\text{C}$ . For these latter there are electric points installed in the container areas. The fully-containerized ships at present transport 40, 35 and 20-foot containers. This enables containerization of everything not exceeding:-

12 metres in length  
2.35 „ in width and  
2.40 „ in height,

which applies to about 80% of all general cargo.

### Connections to the Hinterland

The container traffic is assured full efficiency potential with the well developed connections to the hinterland. Bremen especially offers these with the Neustädter Hafen, which has several connections to the North-South autobahn, as well as to the Hansa Line to the West. The further electrification extension in the rail line from Bremen to Osnabrück will complete Bremen's links to the electric rail network, complementing the North-South connection, which will permit the important tie to the Ruhr and the Saarland to be still closer. In the 'terminals,' which have been established in the interior by the individual shipping companies, containers are constantly available on respective chassis for delivery, upon request, to the door of the shipper.

### Prospects

In Bremen it has, with the assimilation of the container ships, already been verified that an attractive offering of shipping possibilities draws cargo. Not last, the upswing resulting from the rationalization effects of containerization in the transport chain from dispatcher/producer to consignee/consumer has beneficial effects for all concerned and will, with tolerable certainty, develop still further in this direction.



# *Digest of Port Statistics, 1966*

*National Ports Council  
London*

1. The first volume of the "Digest of Port Statistics" which is to be published annually by the National Ports Council was issued 19th December, 1966. When the Council were established under the Harbours Act, 1964, to plan and control harbour development in Great Britain most of the information required for national port planning did not exist. The Council have taken the initial steps towards establishing the statistics required, and are now making available to a wider public the increased information which is beginning to become available.

2. Copies of the "Digest" can be obtained from the National Ports Council at 17 North Audley Street, W.1., and the "Digest" will also be on sale at Her Majesty's Stationery Office. (Price £1.10s. postage 3/- extra; 256 pages, 172 tables, 5 diagrams and 23 maps).

3. The Digest covers nine major aspects of the Port transport industry, including organizational structure, capital expenditure, commodity analysis of foreign and coastwise traffic, the overseas trading across to and from which the traffic of individual ports is assigned, the inland areas of origin of exports, as well as passenger movements and the arrivals and departures of shipping. Three-quarters of the 172 statistical tables contain completely new information produced by the Council or at its special request. The Council acknowledge their indebtedness to port authorities, H.M. Customs and Excise and other departments as well as non-governmental organizations which have contributed to or co-operated in this work. The statistics are given for individual ports and also for Economic Planning Regions wherever possible.

## **Port Organization**

4. The complex organization of the port transport industry has been made the subject of a special inquiry

conducted by the Council. The inquiry is still continuing but certain preliminary results are given. More than sixteen hundred undertakings both statutory and non-statutory are engaged in harbour operations and of those nearly five hundred are private wharfingers, such as grain millers, oil refiners, power stations etc. In addition to the 269 port authorities and public wharfingers, who "improve, maintain or manage" wharves, there are over 900 other undertakings engaged in various harbour operations, such as loading or unloading ships, towage, lighterage and warehousing.

## **Labour**

5. The total labour force employed in the port transport industry is estimated at nearly 129,000. Of these only 6,000 are females. Rather more than half are dockworkers, over two thirds of whom are registered as dockworkers within the National Dock Labour Board scheme. The Council have conducted a special manpower census, which gives information about the occupations of all employees. Apart from the registered dockworkers, there are over 13,000 maintenance workers, 4,000 labourers and storekeepers and nearly 8,000 operators of cranes and forklift trucks and 4,000 lightermen.

6. Labour stoppages, which have affected the port transport industry in recent years, were in 1965 most serious at Liverpool, where the disputes accounted for over half the total mandays lost in the industry, followed by Bristol, with one quarter of the national total. It must be recognised that statistics in respect of a single year are not necessarily representatives of normal conditions at individual ports. In all there were four disputes lasting over six days each, which involved a total of 11,100 workers and 66,000 mandays. Most disputes however were brief: of the other 76

disputes occurring in the industry during the year, more than half were settled in less than one working day.

## **Analysis of foreign and coastwise traffic by commodities**

7. The quantities of goods traffic passing through Britain's ports have been analysed for the first time on a common commodity classification. Previous statistics of goods traffic at ports have been prepared by the individual port authorities and have been mainly based upon a variety of classifications good adopted for charging port dues, and these schedules of goods were not identical. The new classification has been worked out to arrive at national totals and to ensure comparability between the figures for individual ports, and also to permit comparison between statistics of port traffic, the international trade of the country and statistics of inland transport. At the same time, the Council introduced uniform definitions of "foreign" and "coastwise" traffic to end the anomalies which existed when the traffic to and from the Irish Republic for example, was classified at some ports as "coastwise" and at other ports was classified as "foreign."

8. The total foreign and coastwise goods traffic passing inwards and outwards through British ports in 1965 amounted to 299 million tons, of which 186 million tons were foreign traffic and 113 million tons were coastwise. The relative importance of coastwise traffic varies considerably between individual ports. On the Clyde and Tees for example, coastwise traffic in and out amounts to about 17 per cent of all traffic, at Liverpool it amounts to 21 per cent whilst at London and Tyne the figures are 39 per cent and 64 per cent respectively.

## **Foreign traffic—fuels**

9. In foreign traffic, some 98 million tons (53 per cent) were fuels, predominantly petroleum (93 million tons). In coastwise traffic, fuels accounted for 89 per cent of the total, and petroleum (62 million tons) is shown to have overtaken in volume the traditional coastwise

traffic in coal (39 million tons).

10. The fuel traffic is concentrated at a small number of ports, with London (37 m. tons), Milford Haven (24 m. tons), Southampton (22 m. tons), Medway (21 m. tons) and Liverpool (16 m. tons) together accounting for 61 per cent of all the fuel traffic and for 68 per cent of the petroleum fuel traffic.

#### **Foreign traffic other than fuels**

11. Apart from fuels, the main goods traffic was basic materials such as ores and scrap (21 m. tons), crude fertilisers and minerals (6.8 m. tons) and wood, lumber and cork (6.7 m. tons). Manufactured goods imported and exported amounted to 24.5 m. tons, principally chemicals (6.1 m. tons) and iron and steel (5.3 m. tons), and these exceeded the quantities of foodstuffs (21.4 m. tons) which included 7.4 m. tons of unmilled cereals.

12. Goods traffic other than fuels is shown to be concentrated on the main ports with London (17 m. tons), Liverpool (14 m. tons), Tees and Clyde (6 m. tons each) and Manchester (5 m. tons) handling over half the national total. In the foreign traffic, London handled the largest quantity of imports (13 m. tons) of any single port, whilst Liverpool handled more exports (4.6 m. tons) than any other British port.

13. Five of the six principal bulk dry cargoes imported, which account for two thirds of all imports other than fuels, were similarly concentrated on a small number of ports, near the plants at which the goods are processed or used. Ores and scrap were mainly imported through Tees (3.6 m. tons), Port Talbot (3.2 m. tons), Clyde (2.6 m. tons), Newport (2.6 m. tons) and Liverpool (2 m. tons). London, Liverpool, Bristol, Hull and Manchester were major grain importing ports, whilst London, Medway and Manchester handled the bulk of the pulp and waste paper, with Immingham the main port for the import of crude fertilisers and crude minerals.

14. In the detailed commodity analysis of the traffic at individual ports it can be seen that the ports

of London, Liverpool, Hull, Manchester and Clyde handle a wide range of commodities, whilst the traffic through other ports is more specialised, for example Milford Haven and the Medway (petroleum) Newport and Port Talbot (ores and scrap).

15. The goods traffic passing through a few of the medium and smaller ports is also shown to consist of several classes of commodities, for example at Dover. At most small ports, however, traffic consists largely, if not wholly, of specific commodities, for example, Fowey (clay), Whitehaven (crude fertilisers and crude minerals) and Workington (ores and scrap).

#### **Special traffic**

16. Considerable quantities of special traffic passed through the ports of Great Britain without entering either foreign or coastal trade. In addition to 570,000 returnable motor vehicles and trailers, and 4½ million tons of ships bunker fuel, some 7 millions tons of dredged sand with gravel were landed commercially for construction works, mainly in the South East, Wales and the North West regions.

#### **Traffic flows between British ports and overseas countries**

17. The Council are publishing for the first time statistics of the foreign traffic through a wide range of ports analysed according to the individual overseas countries and trading areas to and from which the goods are consigned. These statistics have been prepared in collaboration with H.M. Customs and Excise.

18. More than half (105 m. tons) of the total foreign traffic including fuels of Great Britain is with the deep sea trading areas of the world. Africa, India and the Persian Gulf account for more than 58 m. tons, mainly fuels. If fuels are excluded, the deep sea trading areas account for over half (35 m. tons) of the total imports and for rather less than half (8.5 m. tons) of the total exports.

#### **Deep sea and short sea traffic**

19. The figures confirm that deep sea traffic (that is traffic to

and from countries outside Europe and the Mediterranean) is concentrated on a smaller number of ports than is the case with short sea traffic. In the case of imports other than fuels 37 per cent of the imports from short sea sources flows in through the five ports of London, Liverpool, Hull, Clyde and Bristol, but the same ports account for about 64 per cent of our deep sea imports other than fuels. In the case of exports the five ports London, Liverpool, Hull, Tees and Manchester account for about 46 per cent of short sea traffic other than fuels, but for about 76 per cent of the deep sea exports.

20. In the deep sea trades as a whole, Liverpool is seen to be the main port for both imports and exports of goods other than fuels. In each of the individual deep sea trading areas Liverpool handles the largest proportion of all goods exported from Great Britain other than fuels. More than one third (2.7 m. tons) of manufactured goods exported to the deep sea trading areas pass through Liverpool, followed by London (1.9 m. tons) and Tees (0.7 m. tons).

#### **Individual port traffic patterns**

21. The statistics show the extent to which the traffic through individual ports follows particular patterns. Approximately 82 per cent of the goods other than fuels imported through Liverpool are consigned from the deep sea trading areas and about 78 per cent of the goods exported, whereas the proportions at London are about 55 per cent in each case. At Southampton (71 per cent deep sea traffic imports and exports) and Clyde (62 per cent and 79 per cent respectively) there is a similar degree of concentration on the deep sea trades. Traffic of goods other than fuels through the Humber ports is mainly with the short sea trading areas (62 per cent for imports and 92 per cent for exports) especially to and from Scandinavian and Baltic countries.

#### **Individual commodity traffic**

22. For a selection of commodities a port-by-port breakdown is given of the countries to and from which the goods are consigned.

Imports of meat from Australia (496,000 tons) and S. America (172,000 tons) largely pass through London (371,000 tons and 162,000 tons respectively); but of the 456,000 tons imported into Great Britain from Scandinavia and the Baltic, some 192,000 tons came through the Humber ports. Fruit and vegetables from Iberia and the Mediterranean are imported in quantity through London (396,000 tons) and Liverpool (286,000 tons) but more than half the imports from South Africa pass through Southampton, whilst Cardiff take the largest share of the fruit from Central America and the West Indies. Some 40 per cent of the wood and lumber imports from the deep sea trading area (2.2 m. tons) came through London (877,000 tons) but only 25 per cent of the wood and lumber imports from the short sea trading areas. Imports through London included only 183,000 tons of the 990,000 tons imported from Finland and only 160,000 tons of the 643,000 tons imported from Sweden.

23. Exports of manufactured goods pass mainly through Liverpool (26 per cent), London (24 per cent), Manchester (5 per cent), Hull (4 per cent), the Clyde (4 per cent), the Tees (8 per cent) and Newport (6 per cent). About 56 per cent go to deep sea destinations and 44 per cent to short sea countries. About 3 per cent of exports of manufactures pass through Harwich, Felixstowe and Ipswich, but these three ports together are an important route for exports to Western Germany. Among the country's deep sea exports of manufactures, North America took 1.7 m. tons, of which about 20 per cent went through Liverpool and 13 per cent through London, and Australasia received 1.1 m. tons, of which 44 per cent was shipped from London and 43 per cent from Liverpool. In the export of manufactured goods to India and the Persian Gulf (1.1 m. tons) 41 per cent was shipped through Liverpool and 22 per cent through London.

24. In the exports of manufactured goods on short sea routes London predominates in total,

accounting for just over one fifth, but individual other ports often account for substantial proportions of the goods consigned to particular countries or areas; for example Hull and Manchester to Scandinavia and the Baltic, Grangemouth and Tees to the Netherlands. The second largest port for the export of manufactured goods on the short sea routes is Liverpool.

25. Out of the three and one quarter million tons of chemicals exported from Great Britain in 1965, Liverpool exported over one million tons mostly to deep sea trading areas, although Manchester handled a larger share than any other port of the chemicals consigned to Scandinavia and the Baltic. The Tees is the leading port for exports to India, the Persian Gulf and the Far East.

26. Liverpool was also responsible for the export of 1,118,000 tons of metals and metal manufactures, mainly to the deep sea trading areas (841,000 tons), although in the case of exports to North America Newport handled a larger share, one third, of the total traffic.

27. Nearly two thirds of machinery exported from Great Britain passed through London (535,000 tons) and Liverpool (495,000 tons), the former leading in quantities consigned to the near and short sea trading areas and the latter to the deep sea trading areas.

#### **Traffic with individual countries and trading areas**

28. The total traffic between Great Britain and the United States of America amounted to 7.0 m. tons, of which imports of foodstuffs accounted for 2.6 m. tons, imports of basic materials 1.3 m. tons, imports of manufactured goods 1.1 m. tons, and imports of fuels 0.5 m. tons, Liverpool took the largest share of imported foodstuffs and Manchester of basic materials, but London took the largest quantity of manufactured goods. Exports of manufactures amounted to 1.2 m. tons of which 25 per cent was shipped at Newport, 21 per cent at Liverpool and 14 per cent at London.

29. In the traffic to and from South Africa, the four ports of Liverpool, London, Southampton

and the Clyde are of major importance in that order.

30. The total traffic between Great Britain and the European Economic Community amounted to 28.1 m. tons of which 16.7 m. tons were fuels. Of the remaining 11.3 m. tons, 3.3 m. tons represent imports of manufactured goods (which includes manufactures of wood), 2.2 m. tons of foodstuffs etc. and 1.9 m. tons of exports of manufactured goods. London is the port of major importance, the remainder of the trade being widely spread among a comparatively large number of ports.

#### **Inland origins of British exports**

31. The quantities of exports of dry cargo other than coal from each of the standard regions and the major conurbations of Great Britain are given. These figures have been derived from a study commissioned by the Port of London Authority. The largest exporting region was the North West (3.4 m. tons, just over 18 per cent of the total), followed by London and the South East (2.9 m. tons). Each major port received a large proportion of their exports from their local region: London 47 per cent; Liverpool 56 per cent; Manchester 48 per cent; Hull 43 per cent; and Glasgow 94 per cent. Of the exports from the inland Midlands region, which contributed 10 per cent of all exports in 1964, approximately one third passed through Liverpool and one quarter through London. More exports from the East and West Ridings of Yorkshire passed through Liverpool and Manchester than through the ports on the Humber.

#### **Shipping Movements**

32. Statistics of foreign shipping movements at individual United Kingdom ports have been prepared in co-operation with the Ministry of Transport. The figures distinguish between the various overseas trading areas to and from which the vessels sailed, and give separate information for tankers and other vessels. Tanker movements can be seen to contribute 42 per cent of the total net register tonnage of vessel arrivals at London and nearly 30 per cent of the

(Continued on Next Page Bottom)

# *New Passenger Ship Terminal in New York*

## *The Port of New York Authority*

New York, N.Y. Apr. 25—Plans for a Consolidated Passenger Ship Terminal on the Hudson River in mid-Manhattan, designed to provide ocean travelers with the most comfortable and efficient pier facilities anywhere, were made public today by Mayor John V. Lindsay of the City of New York and Chairman S. Sloan Colt of The Port of New York Authority.

The plans, developed by the bi-state agency during a study undertaken at the Mayor's request in January 1966, were contained in a 102-page report presented to Mayor Lindsay by Chairman Colt at a

total arrivals in the United Kingdom. In the movements of dry cargo, passenger and other non-tanker vessels, some 49 per cent of the net register tonnage of vessels arrived in the U.K. from the deep sea trading areas (60 per cent of the arrivals at London and 76 per cent of the arrivals at Liverpool were of this character).

33. The sizes of both tankers and other vessels with cargo have been analysed for the first time for the near, short sea and deep sea trading areas at each of the major ports.

34. The extent to which non-tanker vessels call to load and unload cargo at several U.K. ports in the course of a single outward or inward voyage, has also been shown. This is a feature of most of the deep sea trades. In addition to the 642 occasions on which vessels arriving from India, East Africa and the Persian Gulf called for Customs documentation at their first U.K. port of entry there were 631 additional calls to unload cargo at other United Kingdom ports.

35. Information has also been prepared about the coastwise movements of shipping for a wide range of ports in the United Kingdom and for Economic Planning Regions.

meeting this afternoon in the Port Authority's headquarters at 111 Eighth Avenue.

Austin J. Tobin, Executive Director of the bi-state agency, outlined the terminal plans at the meeting. The new terminal facilities would eliminate the discomforts, delays and chaotic traffic conditions at existing passenger ship piers by providing:

- a revolutionary system for processing baggage through Customs;
- comfortable lounges for passengers and visitors;
- direct vehicular access to the pier for efficient passenger pick-up and discharge;
- parking space for a total of 1,850 cars for visitors and ship passengers;
- park-like recreational areas on the roof where the public could enjoy the harbor scene.

The plan calls for construction of a five-level, 1,200-foot-long Consolidated Passenger Ship Terminal with six ship berths on the site between 46th and 50th Streets now occupied by Piers 86, 88 and 90. In addition, Pier 40, on the Hudson River at Houston Street, would be improved as a companion three-berth facility. These nine berths would be sufficient to accommodate the Port's passenger ship needs at least through 1985, according to forecasts in the Port Authority study.

### **New Midtown Terminal**

The new six-berth passenger ship terminal outlined in the plan would consist of three finger piers each 1,100 feet long and 162 feet wide. They would provide two 1,100-foot-long outside berths and four 925-foot-long inside berths. The piers would be linked by a 1,200-foot-long by 162-foot-wide headhouse into a single consolidated terminal.

Piers 86, 88 and 90, which now

occupy the site, were built in the 1930's.

The piers and headhouse would have five levels. On each pier, the lowest, or street level, would be devoted to the handling of cargo and ships' stores and other service functions. The next level, linked to 12th Avenue by ramps, would be used solely by vehicles picking up or discharging passengers and their baggage. The third level would be devoted to handling of baggage and Customs operations. The fourth level would contain waiting rooms for passengers and visitors and the roof would provide short-term parking.

Public parks, each 140 feet wide and 250 feet long, containing refreshment areas, benches and other amenities would be located at the river end of each pier. These areas would be reached by a 10-foot promenade running along each side of the pier. This would make it possible for people to watch the docking and departure of ships from an excellent vantage point.

Circulation within each pier would be primarily vertical. The arriving passenger would first wait on the fourth level until his baggage was assembled, move down to the third level for the Customs inspection and then move to the second level to reach a car or taxi in which to leave the pier. This relatively short vertical circulation would eliminate much of the movement back and forth on the pier itself as well as between the pier and the street, which is an essential part of the present system.

In the headhouse, the first level would contain offices, a cafeteria and access ramps, with all other levels devoted to vehicular parking. Double spiral ramps at each end of the headhouse would provide access to all levels of the headhouse and to the parking areas on the roof of each pier.

Provision has been made in the terminal layout for a facility which could be erected above the roof of the headhouse for the use of helicopter and other VTOL (Vertical Takeoff and Landing) aircraft. This landing pad would be approximately 150 feet by 300 feet in



**Plan for Consolidated Passenger Ship Terminal on Hudson River in mid-Manhattan**

size. Since it would be immediately above the roof parking level, it could be served conveniently by taxis and private cars. It is assumed that the air approach would be primarily from the south or from the north to avoid possible interference between marine and aviation activities.

If STOL (Short Takeoff and Landing) equipment develops in the future with criteria for STOL-ports compatible with the headhouse configuration, and if there is a need, it would be feasible to consider extension of the heliport to make provision for such aircraft.

Construction of the new terminal in the 46th to 50th Street area could be carried out in two stages. In the first stage, the outer two piers would be built along with the new connecting headhouse which would contain office space and parking facilities. Meanwhile, the existing center pier would be rehabilitated and connected to the new terminal. Its role would be essentially standby, for use during the relatively few periods of heavy berth demand. Its replacement with a new pier would be indicated if and when a continuing demand developed.

#### **New Customs Procedures**

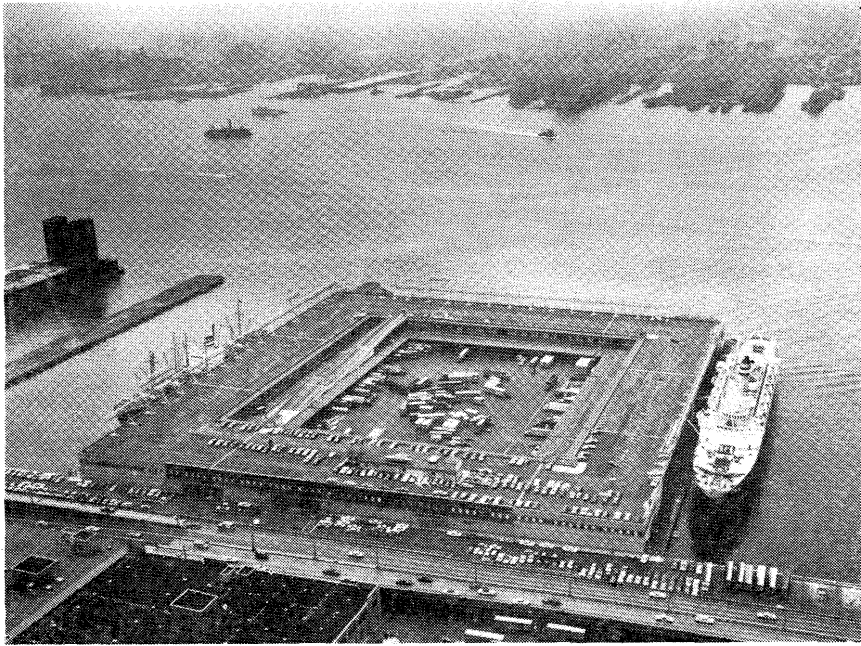
The plan for the Consolidated Passenger Terminal was developed around a new system for sorting and handling baggage and conducting Customs examinations. This involves the sorting of baggage by individual declaration at an easily identifiable location in an area on the third level set aside for this purpose alone. The baggage of each group of passengers traveling together would be brought together at a specific location on the pier instead of being mixed with all baggage belonging to persons with the same last name initial, as at present. This would be accomplished by assigning baggage labels bearing the same identification as a specific bin on the pier.

Passengers would be able to wait for their baggage in comfortable lounge areas overlooking the baggage area. Visitors who come to meet them would be in an adjacent lounge, separated by a glass partition. It would be possible for passengers and visitors to talk to each other while still observing Customs regulations which require physical separation until the passengers have been cleared.

As soon as the passenger sees that all necessary baggage has been assembled, he would notify a dispatcher who would assign a long-shoreman to take the baggage to the Customs inspection area, and the passenger would descend to that area from the lounge area above it. This area would be equipped with 30-foot-long "supermarket" type counters. This would provide sufficient space for a passenger to open his bags at one end while a Customs inspector examines another passenger's baggage in the center and still another passenger would be closing his bags and paying any charges to a cashier at the other end.

After clearing Customs, the passenger would meet visitors who come to greet him in a lobby area on the same level as the Customs area. Passengers and visitors would then descend to the second level to get their surface transportation. A center island on this level would provide 1,600 feet of curb space on each pier with three one-way traffic lanes on each side of the island. This level would be accessible either by direct ramps from





**Pier 40, Hudson River**

12th Avenue, or by interior ramps from the parking areas.

The new procedures and facilities would eliminate all the major deficiencies in the present system, under which:

- baggage is sorted by the initial letter of the passenger's last name and the passenger himself must find it in the mountain of luggage containing that of all other passengers with the same initial;
- all sorting and Customs examination takes place on the floor of a pier shed which is cold in winter and hot in summer;
- passengers waiting for baggage must stand around in the pier shed;
- visitors are herded behind barriers at the end of the pier shed and cannot see or talk to the passengers until they are through Customs and ready to leave the pier;
- vehicular access to the piers is non-existent and all loading and unloading of baggage must take place at a small section of curb on 12th

Avenue;

- there are no parking facilities available at the pier for either visitors or passengers.

#### **Pier 40**

The plan for the Passenger Ship Terminal is based on the use of Pier 40 at Houston Street in combination with the new terminal on the site of Piers 86, 88 and 90.

The total operations of the passenger ship lines serving New York would be divided between the two terminals, with the understanding that the operations of each line would be handled in one or the other of the two terminals, but not limited to any single berth within that terminal. The four steamship lines which operate superliners over 900 feet would of necessity use the midtown terminal since the Pier 40 berths are only 800 feet long.

Pier 40 was built by the City of New York's Department of Marine and Aviation and opened in 1963 as a passenger and freight terminal for the Holland-America Line. It is a three-level square structure jutting 800 feet into the Hudson River. It has three vessel berths, an interior open square now used for parking and maneuvering of trucks, a two-story structure around the open square with office space at a headhouse on the land side and freight and passenger facilities at the three quays, and a roof parking area with 840 space for visitors' short-term parking.

While Pier 40 is better able to



**Plan for Consolidated Passenger Ship Terminal would replace Piers 86, 88, and 90, Hudson River**



**Plan for Consolidated Passenger Ship Terminal on Hudson River includes park-like recreation and observation on roof**

handle passenger operations than any other pier in the harbor today because of its direct vehicular access and other passenger and visitor conveniences, several improvements would be required to bring it closer to the standards set in the new terminal facilities.

The plan announced today calls for the widening to three lanes of the two-lane roadway which now circles the interior court and gives access to the existing Customs area, the reconstruction of the second story of the headhouse to provide baggage sorting areas and passenger and visitor lounges similar to those in the new terminal, and the provision of baggage halls for each of the three berths.

#### **Background of the Study**

In January 1966 Mayor Lindsay requested the Port Authority to undertake a major study to "formulate, on a realistic basis, a program

for development of modern, efficient and attractive terminal facilities for passenger ships on Manhattan's Hudson River waterfront."

The study was made jointly by the Authority's Planning and Development Department, under the direction of Roger H. Gilman, and its Marine Terminals Department, directed by A. Lyle King. They received assistance from the Engineering Department, directed by John M. Kyle, and the Port Authority's Chief Architect, A. Gordon Lorimer.

Staff responsibility for directing and carrying out the study involved Hayden B. Johnson, Deputy Director of Planning and Development; Frederick R. Fontanella, Manager of Marine Planning and Construction, and Anthony J. Tozzoli, Supervisor of Marine Terminals Planning, both in the

Marine Terminals Department; and John S. Wilson, Engineer of Design for Marine Terminals in the Engineering Department.

During the course of its study, the Port Authority's staff consulted with the passenger ship lines which serve the Port of New York and with representatives of its waterfront workers. They worked closely with the United States Bureau of Customs and other Federal agencies including the Public Health Service, the Immigration and Naturalization Service and the Plant Quarantine Division of the Department of Agriculture.

The Port Authority also reviewed the results of its study as they evolved with the appropriate City agencies, including the Planning Commission, the Department of Marine and Aviation, Traffic, and Highways, and with the Borough President of Manhattan.

# Foreign Trade Zone

## The Port of New Orleans

The Board of Commissioners of the Port of New Orleans will mark the 20th anniversary of the founding of its foreign trade zone on May 1, mere days after the board was granted authority to establish a new sub-zone at Taft, Louisiana.

The zone at New Orleans, known as Foreign Trade Zone No. 2, officially opened for business on May 1, 1947, and was so named because it was the second such zone to be operated under the Foreign Trade Zone Act passed by Congress in 1943. The first was at New York.

The sub-zone just approved, to be known as Sub-Zone 2A, comprises a 79-acre site at the riverside community of Taft, 25 miles up the Mississippi River from New Orleans, where Union Carbide corporation has begun erection and operation of a multi-million-dollar plant utilizing foreign and domestic feedstocks in the manufacture of petrochemicals.

Foreign trade zones in the United States are similar in purpose to the free parts of Europe. They are established at parts on the various coasts, under a system of grants by the Foreign Trade Zones Board, created under the 1934 Act and placed under the U.S. Department of Commerce.

The original act had forbidden manufacturing and exhibiting within the zones. Legislation authored by Congressman Hale Boggs of Louisiana in 1950 corrected this deficiency. Undoubtedly the New Orleans zone's principal feature is its flexibility in providing imports and manufacturers with the working area to process and/or otherwise manipulate dutiable goods while in the zone, and to the advantage of the customer of the zone.

To illustrate, H. Gilbert Smith, manager of the zone at New Orleans, cites the case of a firm now leasing just 3,000 square feet of covered space in the zone.

This firm makes shrimp trawling nets, duty free, which are sold to some 300 fishing fleets based along the coasts of Central and South

America and the Far East. To manufacture the nets, the firm imports six different products from six different countries: nylon netting from Japan; sisal rope from Mexico; cork flats from Norway; shackles from Germany; chain from Holland and wire rope from England.

Smith cites as another case, that of the imaginative businessman who built a dry kiln in the zone. He uses it to dry imported lumber before shipping it to inland U.S. destinations. The drying saves 20 per cent on the inland freight charges alone.

A third dry kiln and an automatic lumber stacker have since been added, and lumber worth over \$2,000,000 in value is expected to pass through the zone this year, Smith said.

A vacuum fumigation plant installed years ago to handle the requirement of fumigating imported cotton is now being used for a large variety of commodities ranging from blackeyed peas and spinach seeds to bamboo poles and tobacco. It is still the only such plant on the U.S. Gulf coast.

A large department store chain with outlets in Latin America as well as in the United States has built a large warehouse and service center in the zone to handle the work of servicing, stockpiling, repackaging, relabeling and warehousing of its imported goods destined for foreign markets. No duties are charged except on such imported goods which actually leave the zone bound for U.S. markets.

While the New Orleans zone comprises only 18.6 acres, it is nevertheless an integral part of the port, and is served directly by rail, truck, barge and deep-draft vessel. Adjacent riverfront berths tie in smoothly, and services to and from Moisant International Airport are available, as are forklift trucks, trailers, tractors, heavylift cranes and experienced labor. Packing specialists and drayers are nearby. Half of the zone's area is sheltered, and heavily constructed concrete

and steel cubicles are available for storage. Guards maintain round-the-clock security.

Since the time the original grant was made for the zone, it has been necessary to change its boundaries nine different times, and establishment of the Taft-sub-zone is not the first. A grant was issued for establishment of a sub-zone to be operated as a refrigerated facility in another area under the jurisdiction of the Board of Commissioners, in February, 1962. This subzone never became operative, and the grant was revoked later that same year.

John H. Boyd, who had previously served as superintendent of the port's Public Commodity Warehouse, just next door, was the zone's first manager. He served until his death January 4, 1965. Smith succeeded him several months later.

Foreign Trade Zone literature lists some 25 traditional advantages of zone use. As regards the newer manufacturing concepts, the advantages and business and economic factors may be summarized as follows:

(1) Duty-free and quota-free production for export using foreign as well as domestic component materials.

(2) Employment of labor, machinery, technology and management in the United States at zone sites but outside of U.S. Customs territory.

(3) Manufacturing in the United States without the necessity of outlaying capital for payment of Customs duties unless or until the output enters U.S. Customs territory.

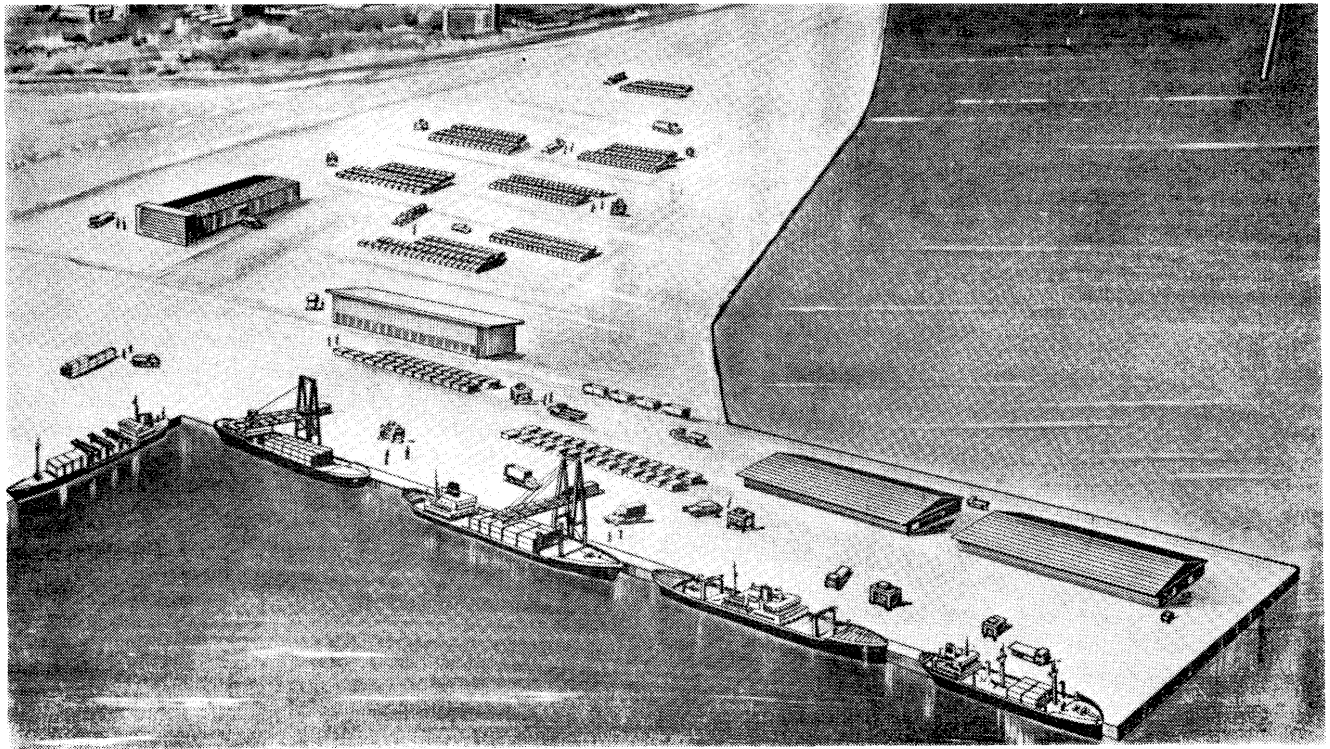
(3) Manufacturing in the United States without the necessity of outlaying capital for payment of Customs duties unless or until the output enters U.S. Customs territory. (In effect, even "imports" could be labeled "Made in U.S.A.")

(4) Determination of customs duties on zone-produced goods entering U.S. Customs territory based upon duty rates applicable to foreign components rather than duty rates applicable to the finished products. (Allowances are made for waste in manufacturing.)

(5) Access to quota-restricted

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*Artist's Impression—*

#### **East Lagoon Container Complex—Singapore**

## **A Container Complex**

### **The Port of Singapore Authority**

Singapore, 1 March 1967:—In keeping with the latest international trend in shipping and cargo handling, advanced planning has been made by the Port of Singapore Authority to provide wharf and shore facilities for the handling of container ships and containerised cargo. This is in anticipation of the new demand on port authorities of the world, caused by this revolutionary concept which has gained momentum in recent years.

Containerisation is influenced largely by three factors:—

- a) Faster turnround of ship-

production components under same competitive conditions available to producers located abroad.

(6) Capital investments in the United States as an alternative to similar investments abroad.

(7) U.S. products competitively produced and competitively priced for world markets.

(8) Economic utilization of unused domestic capacity.

ping,

- b) Greater economy in handling costs, and
- c) Reduced incidence of cargo damage and breakage whilst in transit.

Container terminals have already operated successfully in New York, San Francisco and Honolulu. This revolutionary cargo handling concept is fast spreading to the big ports in U.K., Europe, Africa, the Middle East, Australia and Japan. It is expected that by 1970 full container ships will be operating in the Pacific and South East Asia from Europe, America, Japan and Australia. Singapore, in the centre of this region, must be prepared to face the new situation.

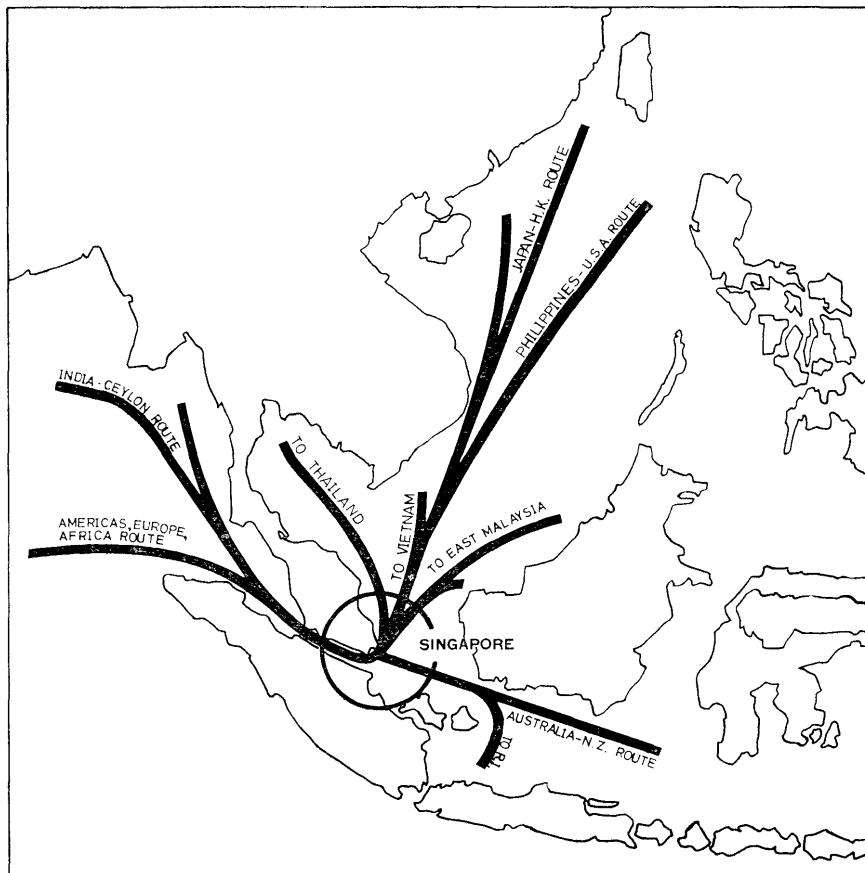
A 700-foot container ship can carry up to 1,000 containers each with a payload of 20 tons and measuring 8 feet high, 8 feet wide and 20 feet long—larger containers up to 40 feet in length are also available. Shore-based gantry cranes are capable of discharging or loading these containers at a working rate of 90 seconds per container or

800 tons of cargo per hour. A container ship can therefore be despatched within a matter of hours.

As operations will be greatly expedited and simplified, the economic advantages of such a system are obvious. Apart from savings in handling charges, simplification in packing and added cargo security and protection will also result in reductions in insurance premium and packing costs.

Container berths require large supporting land space for the provision of ancillary services such as container terminals, special depots for loading and unloading containers, container stacking areas, lorry parks, repair sheds and other facilities to expedite the movement of containers and cargo. A container berth can handle seven to eight times the throughput of a well used conventional berth. A good and efficient network of roads not only within the container complex but also outside the port area is essential to ensure minimum delay in the despatch of goods to and from the port. Although door-to-door container service will be encouraged, there will be adequate facilities in the port area for loading and unloading containers.

The P.S.A., in implementing its



Second Phase East Lagoon Project, proposes to construct 3,000 feet of straight line wharves with a depth of 41 feet of water alongside. There will be provision to dredge down to 45 feet, if required, at a later date.

The reclamation now being undertaken at the East Lagoon should be completed before the end of the year. This area, together with the adjacent land and the wharf apron of the new berths, will make available about 120 acres for the container complex. Construction of the wharves is expected to commence towards the end of this year and by late 1969 two berths should be ready for commission. The whole scheme is expected to be ready in 1971 and will provide four berths.

Special shore-based container cranes will be installed and they will be able to operate along the entire stretch of wharves. Transit shed facilities will also be provided for the handling of conventional stow cargo and Combo ships—ships handling both conventional and containerised cargoes.

It is envisaged that the inevitable utilisation of Singapore as a con-

tainer port in South East Asia will substantially increase its transshipment responsibilities. It is to be borne in mind that a container ship will call at very few ports along its route. This will necessitate the operation of feeder services from the main container ports. The East Lagoon container complex will also have adequate facilities for feeder service vessels. A 700-foot wharf at the end of the basin and adjacent to the main container berths will ensure easy and speedy despatch of containerised transshipment consignments.

The cost of the East Lagoon container complex and ancillary services is estimated at approximately \$70 million. Part of this expenditure will be financed out of a loan from the World Bank.

In the overall planning for container ship facilities the P.S.A. was fortunate enough to secure the assistance of a U.N. Port Adviser. The P.S.A. is also maintaining close liaison with the Chief Planner, P.W.D., Customs and other Government bodies to ensure the proper integration of the port's future traffic requirements, especially those

relating to the provision of suitable highways to cater for large vehicles carrying containers to and from various parts of the Republic.

Two senior officials of the Port will attend a United Nations Seminar on Containerisation in London in May this year. Arrangements are also being made to send two officials to major European and American ports this year to make a detailed study of their development in this direction and various aspects of container operations.

As the port is the life-blood of Singapore, the Authority is determined to take all steps to provide an up-to-date efficient and economical service to all port users in a manner commensurate with its role and position as one of the major ports of the world.

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# LARGE *Harbours for* LARGE *Tankers*

(*Rotterdam-Europoort*, 1966 No. 3)

Consumption of mineral oil shows a steady rise throughout the world. In 1965, the increase amounted to more than seven percent, which meant that consumption exceeded the previous year by 104 million tons and brought the total to 1544 million tons.

The increase in consumption has, naturally, at the same time, also brought about a growing need for transport and has resulted in a striking development in the use of ever-larger ships, the super tankers. In the shipping world, there is serious talk about ships of 200,000 to 275,000 tons and the latest reports are that the first orders for these ships have already been placed.

If these ships with a draught of about sixty to seventy feet are put into service, then this naturally makes particularly great demands on the ports.

In the oil world, they have come to accept the view that these super tankers will certainly come into service, like there are already tankers of 132,250 tons sailing the world's seas.

As a reminder, there are already various ships in operation of more than 100,000 tons, one being the Japanese tanker "Nissho Maru". Within two years, tankers of up to some 200,000 tons will be in service.

Mr. J. H. Loudon of the Shell, recently called urgent attention to the necessity of improving and enlarging harbour facilities for the benefit of these super tankers. He believed that it is necessary that important oil ports must speed up their decisions on these measures.

The President of the Royal Dutch/Shell considered that it is impossible to expect that the ports can go on expanding for ever. And on this basis, he concluded that tankers of about 250,000 tons would be the maximum.

It is obvious, according to the information bureau of the Petro-

leum Press Service, that there is not much point in building ships and putting them into service if there are not enough suitable harbours to accommodate them.

On the other hand, it is perfectly clear that various interests have to be considered by the oil companies. On one hand, there is the tendency to use larger ships, and on the other, the question of available harbour facilities. One can be sure that a search is being made to find the most acceptable compromise.

And this means that they will look to the harbours which offer the best possibilities for the most economical transport using very large ships. So we come back to the view put forward by Mr. Loudon: the necessity of deepening the existing harbour facilities of the large oil ports.

Let us go back for a moment to the consumption of mineral oil. It appears that in meeting the total world demand, the share of mineral oil grows with this demand and now amounts to about 36 percent of it. Natural gas 16, coal 42 and nuclear and water energy, 6 percent.

Western Europe accounts for more than 36 percent of the increase in consumption of oil and, with an increase of 11 percent, was again higher than the world average. Japan shows the largest increase, and with a year-consumption now of 86 million tons, is the third largest oil consumer in the world.

The United States (560 million tons) comes first, followed by the Soviet Union (186). West Germany with 79 and Great Britain with 75 million tons were overtaken in 1965 by Japan.

World production of oil rose in 1965 by 96 million tons or 7 percent. More than a third of this increase originates in the Middle-East, about a quarter in Africa, which meant that the result obtained in 1964 by the last-mentioned

part of the world was exceeded by 29%.

The largest producers remain the United States (383 million tons), the Soviet Union (243 million tons) and Venezuela (182 million tons). The total production of countries in the Near-East, with 413 million tons, reached a volume greater than that of the United States.

The world refining capacity rose particularly sharply in the same period: 139 million tons. The total refining capacity throughout the entire world, at an average utilization of 85%, more or less corresponded with the demand existing in 1965.

The world petroleum reserves rose by 1618 million tons and with this, amounted to 48,141 million tons. With the new oil strikes, the yearly consumption was amply covered. Of the new known reserves, 31% are in Africa and 29% in the Near-East.

Tonnage of the world tanker fleet amounted to about 92.4 million tons deadweight. An increase of 11 percent. The world tanker fleet has increased by 240% since 1950. Seeing that the tankers have not only become larger but also faster, the productivity in the same period is about four times what it was.

When it becomes a question of productivity, then it goes without saying that attention is turned towards the efficiency of the ports.

And this, really, closes the circle.

However, it should be remembered that various ports are now busy creating facilities which will enable them to receive ships of up to at least 100,000 tons. Similarly, other ports are engaged on preparations for ships of some 150,000 tons, whilst plans are also being made for receiving tankers of up to 275,000 tons. In some instances, local circumstances are such that it is impossible to achieve deeper water, at least not in the existing harbour basins. In such cases, the solution is being sought in the construction of offshore jetties with pipelines to the shore. It is interesting to note that most of the ports in the Persian Gulf already seem to be suitable for the very large tankers, whilst it is known that

further improvements are in preparation. The North African ports are in general, also adequate for the super tankers of tomorrow. The other oil-shipping places are, on the whole, in a less favourable position, with the exception of Indonesia which has two deep-water ports at its disposal. In the Caribbean area there is only one port with sufficient water-depth. The remainder have to contend with shallow water.

What is the position with the supply ports?

In Europe as well as in Japan, there are a large number of ports that can meet the demands expected in the near future. These areas are mainly dependent on the oil-winning places in the Middle-East and Africa.

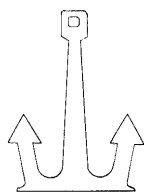
As yet, no great difficulties should be experienced in the transport lines between both these geographical areas. The problem still remains though that, loaded, the very large ships cannot pass through the Suez Canal.

Only two ports are suitable in the United States for the very large tankers, and these are both on the West coast. There is also one in Australia, one in New Zealand, in Malaysia and in Israel. There is hardly one port deeper than forty feet on the extremely important American East coast. The American government, however, is now making one or two approaches accessible to ships of 45' draught.

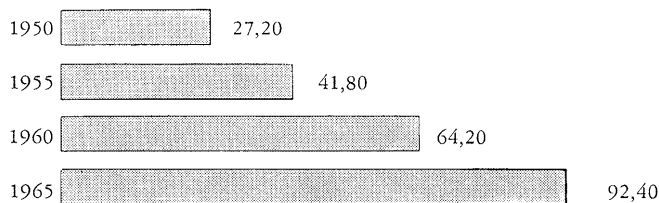
Four important ports in Western Europe already have facilities for large ships: Rotterdam, Le Havre, Lavra and Genoa. It can be assumed that Wilhelmshaven will also join this group.

The development of Triest is also interesting, where they are endeavouring to get a depth of 54 feet so that ships of up to 165,000 tons can be received in the port in 1967 for supplying oil to the Trans Alpine Pipeline which, by then, will have been completed.

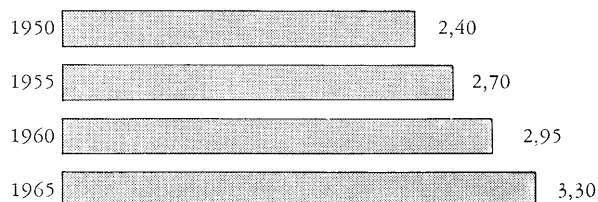
Similar facilities will also be available for ships of this size in 1967 in the ports of Rotterdam and Le Havre. The geographical circumstances of the approaches to Hamburg and Antwerp are such that deepening of these channels for



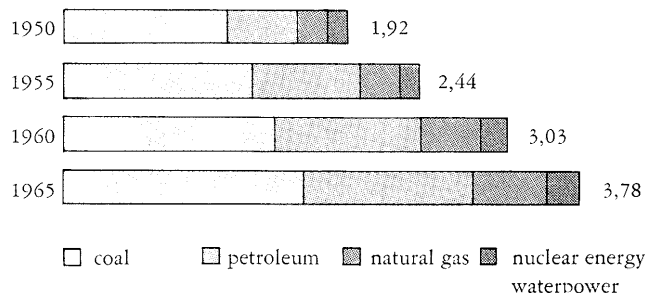
CARRYING CAPACITY of the World tanker fleet  
(in millions dwt.)



POPULATION (in milliards)

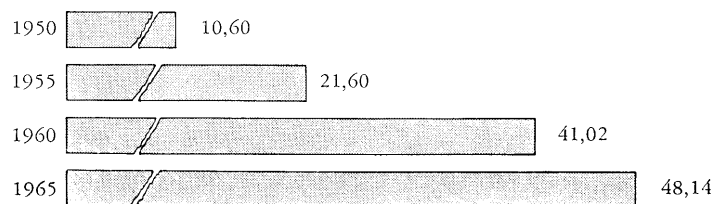


ENERGY DEMAND (in milliards tons oil-units)

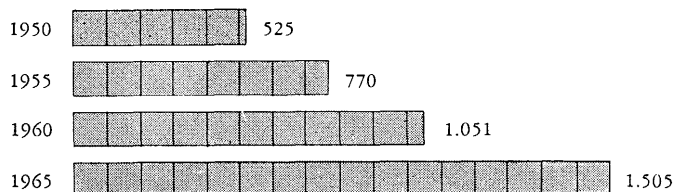
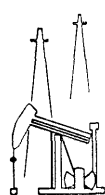


\* provisional results  
a ton oil-unit equals 10 million kcal.

PETROLEUM RESERVES (in milliards of tons)

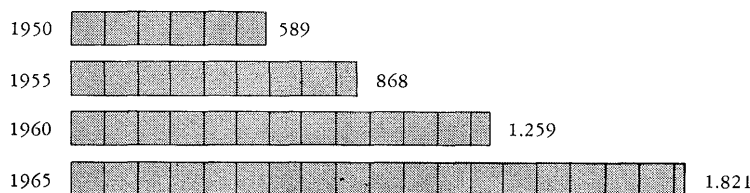
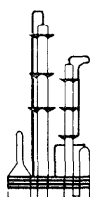


# PETROLEUM PRODUCTION (in millions of tons)



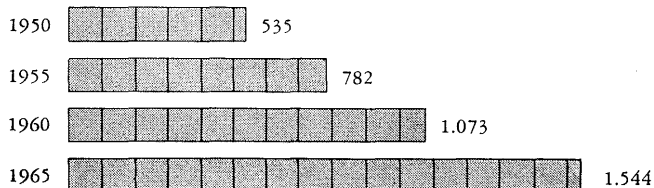
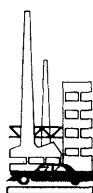
# REFINING CAPACITY (in millions of tons)

The refining capacity exceeds the use of mineral oil because the flow-capacity of the processing plant can, on the whole, only be utilized for 80 to 85 percent, because of the necessary cleaning and overhaul servicing.



# USE OF MINERAL OIL (in millions of tons)

The use of mineral oil exceeds the petroleum production as it also includes the gasoline freed by the natural gas-winning and the by-products benzene, tar, etc., won from coal.



the super tankers mentioned is almost impossible.

There are two ports in Great Britain which come into consideration: Milford Haven and Finart. The oil port of Fawley, perhaps, could be made suitable.

In Scandinavia, the oil port Slagenstangen can already receive ships of 100,000 tons and Gothenburg will shortly also be able to do so.

Italy, in addition to Triest, has possibilities in Brindisi, and Spain has Las Palmas. Portugal has put its hope in the new port in the vicinity of Oporto.

It is not surprising that Japan is so well equipped because as a ship-building nation, it recognized the possibilities of super tankers at a very early stage.

It is when we start to compare the possibilities that it is clear that the number of ports which can accommodate the largest ships becomes continually smaller. Strong arguments on the economics of the costly investments in these special facilities for super tankers have it that such expenditure can only be justified if there is sufficiently large oil transport making full use of these facilities.

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# Container Shipping Forecast

## The Port of New York Authority

New York, May 31—About half the oceanborne general cargo foreign trade moving through the Port of New York will be handled in van-sized containers by 1975, as compared to less than 12 per cent of the Port's volume in 1966, according to a comprehensive report on container shipping made public today by The Port of New York Authority. The 42-page Port Authority study entitled "Container Shipping: Full Ahead," predicts that containerships will ultimately replace most conventional breakbulk ocean carriers in the nation's foreign trade.

The report also notes that the New York-New Jersey Port will be the world's foremost container loading center because of its ten-year head start on new berths for containerships and combination container-breakbulk vessels at the Port Authority's marine terminals in Elizabeth and Port Newark. Containerships are specially constructed for the rapid, mechanical loading and unloading of containers which are stacked in cells built into the vessels' holds. On conventional, or breakbulk, merchant ships cargo is hoisted in slings and stowed manually, a time-consuming process which keeps vessels in port for lengthy periods.

In 1966, out of a total of 15,435,925 long tons of export and import general cargo handled through the bi-state harbor, about 1,700,000 long tons were handled in containers. By 1975, it is anticipated that containerized general cargo will total 8,800,000 long tons, reflecting the tremendous growth that containerization is expected to make in foreign trade routes over the next eight years.

The report noted that the New York-New Jersey Port also will retain its leadership in handling breakbulk cargo. The modern pier facilities constructed by the Port Authority in Brooklyn are expected to become the backbone of traditional breakbulk operations in the

bi-state harbor.

The Port Authority report is the result of a comprehensive and detailed study undertaken last year to determine the extent of the accelerated trend toward containerizing ocean cargoes, as evidenced by the sudden decision of several steamship companies to build and operate containerships. The study was prepared under the direction of Clayton D. Peavey, Acting Chief of the Central Planning Division in the Authority's Planning and Development Department. The Department's Central Research and Statistics Division, the bi-state agency's Marine Terminals Department and the Port Commerce staff of the World Trade Department collaborated on the study.

### Port of New York to Become Major Load Center

Plans of most containership operators to use the New York-New Jersey Port as their principal base on this side of the Atlantic will make this Port a major load center for funneling exports and imports from and to interior areas of the United States. Special container trains will be carrying hundreds of vans at a time from major inland points, such as St. Louis and Chicago, to this area where they will be quickly transferred to containerships. Other containers will move inland by rail and truck.

The Port Authority's marine terminals on Newark Bay already are being expanded to meet the new demand for containership berths. These terminals will become focal points for container operations in foreign trades because of their convenient access by highway and rail to interior regions, the study predicts.

The total of 37 container berths in operation, under construction or in the planning stage at Port Newark and Elizabeth, and the nine berths at the City of New York's terminal in Stapleton, Staten Island, are expected to be "fully adequate to handle the estimated 8,800,000 long tons and containerized foreign

trade forecast for the Port in 1975." Each containership berth has a potential annual capacity of 500,000 long tons, about five times the capacity of conventional breakbulk berths.

### Container Shipping to Spread Worldwide

Containerization is presently making the most headway in the North Atlantic sea-lanes between the Port of New York and Europe. Forecasts developed during the study that by 1975 containerships will be carrying 2,097,000 long tons, or 80 per cent of all containerizable general cargo on these lanes between this country and the United Kingdom, Northern France, Belgium and Holland.

Inherent advantages of containerization will cause the trend to spread rapidly to routes from the New York-New Jersey Port to the Far East, the Mediterranean, the Middle East, South America, Africa and Australia. Savings to shippers through lower freight rates, reduced packaging costs, less handling of individual cargo items and protection from pilferage and breakage will create pressure on ocean carriers to offer container service. On the other hand, the study found that savings to steamship carriers themselves in cargo handling costs and faster turnaround for their ships will be powerful incentives in containership operations.

The study also forecasts that by 1975 containerships will be carrying 434,000 long tons, or 65 per cent of containerizable cargo transported between this Port and Scandinavian countries; 619,000 long tons, or 60 per cent, to Italy, Spain and Southern France; 1,122,000 long tons, or 60 per cent, to the Far East; and 1,307,000 long tons, or 40 per cent, to Latin America. Another 653,000 long tons, or 20 per cent of containerizable cargo, will be transported in the Latin America trade routes in containers carried by combination container-breakbulk vessels.

Combination ships, with part of their capacity devoted to container cells and the remainder to breakbulk cargo, will operate in trade routes in 1975 where there is not

(Continued on Next Page Bottom)

# Van of Vans

## Port of San Francisco

San Francisco, Calif.:—The first cargoliner built by Kawasaki Kisen Kaisha, Ltd., with special containerization features, was introduced today (April 28) at the Port of San Francisco with a demonstration of fast and efficient delivery of intermodal container cargo.

Two 40-foot containers, first cargo unloaded from the 14,000 deadweight ton M.S. FRANCE MARU, were placed aboard rail cars for a cross country trip to the U.S. East Coast. The liner was built with two holds specially designed to hold containers, and ship's gear to lift up to 22 tons.

Officials of the port and steamship line watched as the containers were unloaded and headed-out on their cross-country journey. The shipment dramatically pointed out the expert handling and efficient facilities at the Port of San Francisco for door-to-door service of containers.

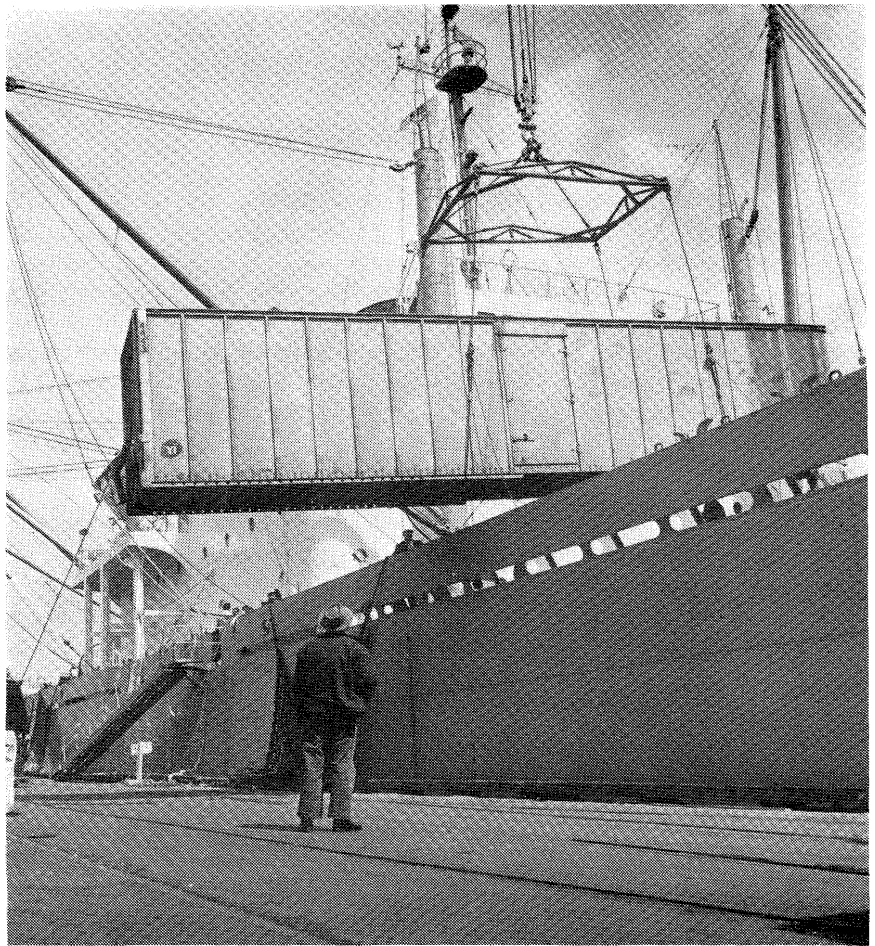
The important cargo of elec-

sufficient containerizable cargo to make full containerships profitable. The study predicted that even this type of ship eventually will give way to full containerships as new techniques make routing of all general cargo in vans more efficient than present practices.

### Shipping Patterns to Change

Containerships will bring about significant changes in the movement of export and import general cargo between the New York-New Jersey Port and interior shipping centers. Efficient operations require that containerships spend a minimum time in port. They will make calls at only one or two ports between ocean crossings, for it will be uneconomical for containerships to sail up and down the seacoast to all competing outports as is now done by breakbulk vessels.

Copies of "Container Shipping: Full Ahead" may be obtained from the Planning and Development Department of The Port of New York Authority, 111 Eighth Avenue, New York, N.Y. 10011.



**Two 40-foot containers were unloaded today (April 28) at the Port of San Francisco from the new cargoliner France Maru in a demonstration of efficient cargo handling and intermodal container service. The big vans, containing electronic parts, were immediately placed on rail cars for a cross-country delivery to New York. They will arrive at their destination almost a week before the ship calls at U.S. East Coast ports.**

tronic parts were loaded aboard the FRANCE MARU at Yokohama on April 20. Unloaded at the Port of San Francisco, the ship's first port-of-call, the shipment was ready for the rail trip east in a matter of hours.

Both of the 40-foot containers were placed aboard a single rail car, measuring 85 feet in length and specially built to handle container shipments. The two vans are scheduled to be delivered to the consignee in Syracuse, N.Y., on May 4—only 14 days after they left Japan.

This coordinated intermodal system shows how container cargo from the Orient and destined for the U.S. East Coast, may be handled through the Port of San Francisco using sea and land carriers and saving both time and cost.

While the FRANCE MARU is scheduled to go on to New York from San Francisco, its two containers will reach New York almost a week before the ship's arrival on the East Coast.

The two containers travel on a single bill of lading, covering sea and land transportation. Safety and speed is also stressed. The containers were loaded at the factory in Japan and are not opened, even for customs inspection, until they reach their final destination.

On hand at dockside in San Francisco Port Director Rae F. Watts and Mr. A. Takumi, Chief Representative for Kawasaki Steamship Co. A special presentation was made by Mr. Watts to Captain S. Taneko, Master of the cargoliner, to commemorate the ship's visit.



# Van Carriers Ordered

## Port of London Authority

London, 3rd January 1967:—  
The P.L.A. has ordered twelve Clark straddle carriers costing nearly half a million pounds to speed handling at its new berths being built at Tilbury—Britain's first ocean container port.

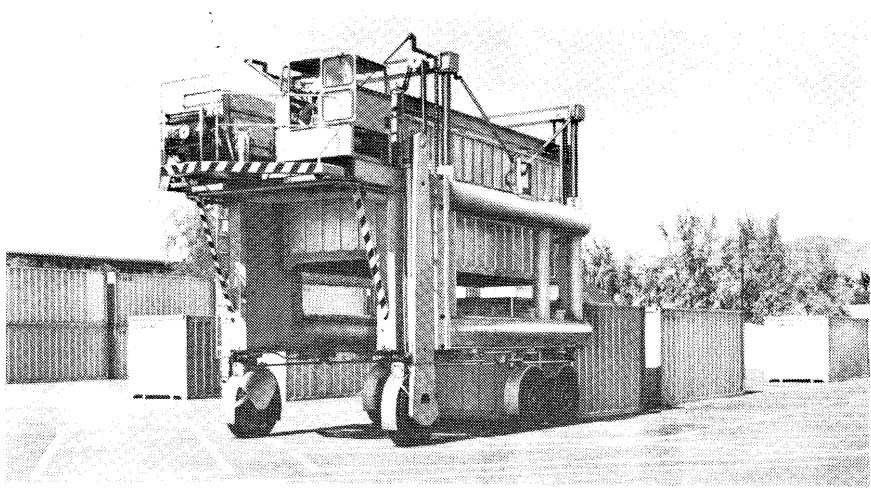
When they are delivered late in 1967, they will be the most modern container carrying equipment in the world, each capable of moving containers up to 40 feet long and weighing up to 30 tons. They can stack 20 ft. containers three high and 40 ft. containers two high. In a busy container park they can move down an aisle with only four foot clearance on either side. They straddle-carry containers from quay-side to parking area or direct onto lorry or rail wagon, being designed to give maximum flexibility of operation.

The straddle carriers are manufactured in England by Stacatruc Limited of Birmingham, under licence from the Clark Equipment Company of America.

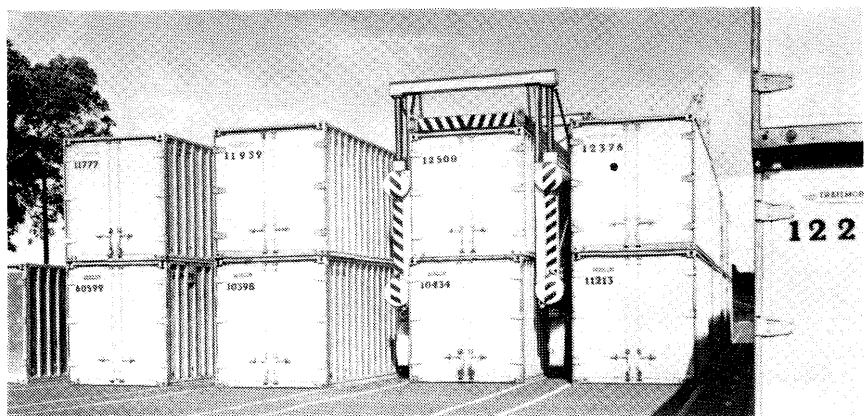
Operating times are fast. The carrier can be positioned over a container at the dock side pick it up in 18 seconds, and can release the container in a park and move clear in 42 seconds. The total time for a complete operation depends upon the distance between the quay and the park, but the carrier can travel at a speed range of 10 to 20 miles per hour.

In the choice of the Clark Van Carrier and other modern handling facilities, the P.L.A. will make available to shipping companies at Tilbury, the most advanced facilities for container handling. This installation should greatly enhance the reputation of Britain for the efficient handling of container cargoes.

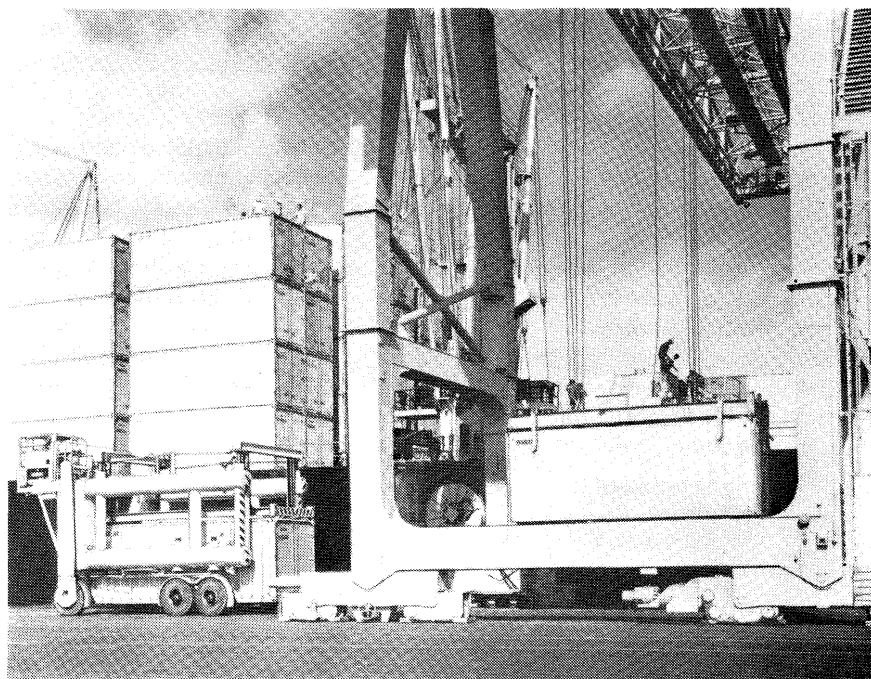
Stacatruc are confident that this decision by the P.L.A. will help them to finalise export negotiations at present under discussion, for mobile handling equipment in Overseas ports.



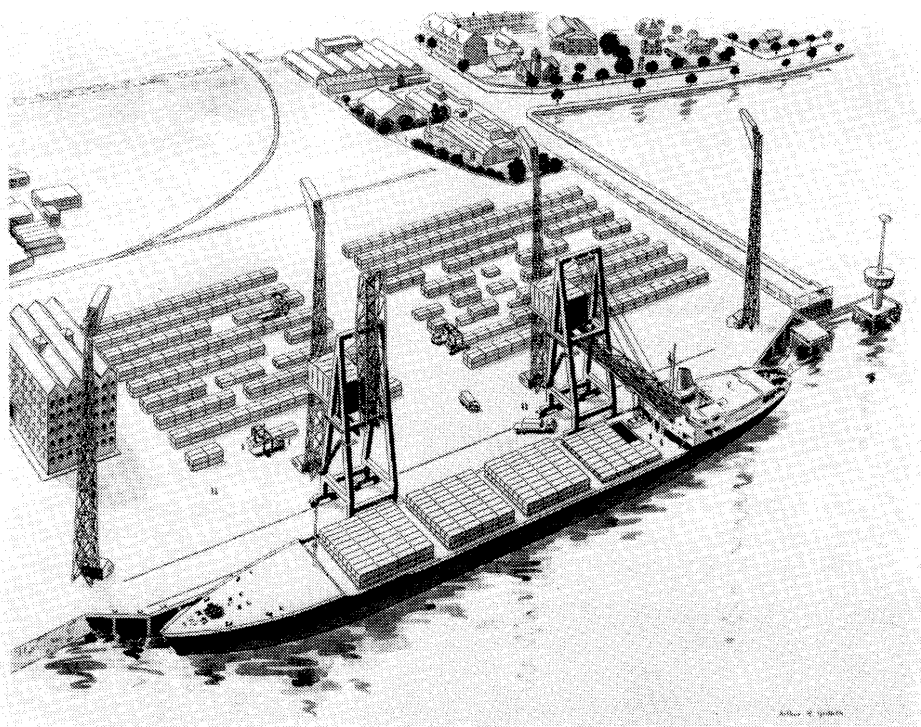
Cargo filled containers are moved from the dock unloading area and thence to waiting lorries, rail wagons or container parks by the Clark Series 510 Van Carrier.



A Clark Series 510 Van Carrier in position over containers to be moved from a container park.



Designed to carry loads of up to 30 tons, the Clark Series 510 Van Carrier picks up and stores 20 ft. long containers three high and 40 ft. containers two high.



## Container Terminal to Come

### Clyde Port Authority

Glasgow, 29th March, 1967:—The programme for the construction of the Clyde Port Authority's £2¼m. container terminal at Greenock is designed to have the berth operating towards the end of next year—in time to provide the necessary specialised services for the world's new fleets of container ships.

The terminal, sited at Princes Pier, will consist of a new deep-water berth—with a depth of 42 ft. at low water alongside, initially, but capable of being dredged to 50 ft. at low water—surmounted by two large unloaders, an unobstructed paved area of 18 acres for parking containers in transit, and a number of administration and service buildings.

Detail design of the terminal is already well advanced. Allowing contractors sufficient time to tender for a civil engineering contract of this size, it is expected that work will begin on the site in July.

Largest part of the job will be the construction of the new berth: 800 feet long, running parallel with Princes Pier, with mooring dolphins

at the west end, and extending 60 feet into the river from the outer edge of the existing pier.

The berth will consist of some 70 concrete cylinders, keyed into the bed-rock below the bottom of the river, supporting a massive beam which forms the outside edge of the berth and concrete docking reinforced to carry stacked containers. The beam itself, running continuously from end to end of the berth, will also support the outer unloader rail and contain a subway (6 ft. wide and square in section) carrying services such as water, electricity and telephone lines. These services can be tapped at convenient points along the cope and taken to vessels lying alongside.

The concrete cylinders will, in all probability, be about 6 ft. in diameter and be pre-cast on site. They will vary in length between 80 and 100 feet, depending on the configuration of the bed-rock. To position them in the river, hollow steel liners will first be driven through the silt and then excavated. The cylinders will be launched, probably in nearby Albert Harbour,

floated round and sunk upright, inside the liners. Once they have been grouted into the rock, the cylinders will be filled with concrete. The steel liners will then be jacked up against the cylinders and removed for re-use.

At the same time as the berth is being built, the disused railway station behind the pier and other buildings on the site will be demolished. The total area of 18 acres will be cleared, levelled and, once services have been installed, will be paved with lean-mix concrete and surfaced with high-grade heavy-duty asphalt. This will provide an unobstructed parking area for containers which will be either stacked on the ground or placed on road flats, depending on the operators' needs.

Rubble from the demolition of buildings and the levelling of the site will be dumped in Albert Harbour, which will be declared a tip for suitable material. Once the harbour has been filled, the reclaimed area can be used to extend the container park, if necessary, and the riverside frontage will be the site of the Clyde's second container berth when the growth of trade warrants this development.

Another major step in the building of the terminal will be the erection of the two unloaders which will both unload and load containers in a continuous sequence. In a three-minute cycle, each of the unloaders will lift a container from the quay, place it aboard the ship, lift a container from the ship and lay it either on to the quay or a road flat. The containers themselves will be of standard sizes (either 20, 30 or 40 x 8 x 8 feet) weighing up to 35 tons.

The unloaders, standing nearly 160 feet high, will be mounted on rails 55 feet apart running the full length of the berth. They will have an outreach of 105 ft. from the edge of the quay. Their power supply will be provided from a conductor rail recessed into the quay. Power pick-up arms from the unloaders will extend into this recess through lifting flaps which will automatically open and close as the unloaders pass above. This will ensure unrestricted access for the vehicles

**(Continued on Next Page Bottom)**

# BANGKOK

## *Port Development Programmes in the Next 5 Years and Requirement of Port Facilities*

*(Port Authority of Thailand Magazine)*

In order to improve situation in the port and to adequately cope with the ever increasing volume of shipping and cargo in the years to come, the Port Authority of Thailand has formulated a five year development plan, effective from 1967 to 1971. The various projects for construction and acquisition of port facilities and equipment which involve a total capital expenditure estimated at Baht 614.39 million are summarized as follows:—

### **1. Construction**

Construction projects to be executed between 1967 and 1971 include:—

- A one-story 51 x 170 m. in-transit warehouse of concrete construction complete with road and rail connections and a one-story 30 x 70 m. military cargo shed of wooden construction, both to be

which will carry containers to and from the quay.

Containers stacked on the ground will be moved between the berth and the parking area by straddle carriers. Others may be loaded directly on to road flats drawn by mechanical horses.

Two weighing machines will be installed at the main entrance to the terminal, situated at the north end of Patrick Street. Buildings to be constructed nearby will include an administration block, Customs office and shed, mechanical workshops in which equipment at the terminal will be serviced and repaired, and an amenities block. The Customs shed will be provided with shutter-covered openings for end-loading containers to be examined. Fork-lift trucks operating inside the building will empty the containers and then refill them once the contents have been inspected.

built in 1967 and completed in 1968. These will replace the existing buildings which have become obsolete and operationally inefficient.

- Construction of 520 x 100 m. cargo sheds behind the existing transit sheds, to be carried out during 1967 through 1971. The sheds will be of concrete floor and steel structure. This will provide an additional covered storage space of about 10,000 sq. m. for about 0.20 million tons of cargo a year.

- Construction of 50,000 sq. m. additional open storage space, to be executed in 1967 through 1971.

- Construction of additional pallets at the rate of 10,000 pieces a year.

- Construction of a row of 30 Midstream dolphins to provide 7 berths for loading ships, to be executed in 1967 and completed in 1968.

- Construction of an additional port checking post with four channels for inbound and outbound traffic. This is in addition to the existing checking post which has 2 channels for traffic to and from the port.

- Construction of a 1,520 m. additional wharf to the east of the existing one, with 5 transit sheds, two warehouses, open storage spaces, road and rail connections and other necessary facilities, to be executed in 1967 and completed in 1971. When completed, the new facility will be able to accommodate about seven average-size ocean-going vessels alongside the wharf at a time, and about 16 million tons of import a year in sheds and provides about 10,000 sq. m. open storage for .30 million tons of cargo. A special area will be provided with capacity for 20,000 tons of heavy-

lift cargo. The new wharf will help remedy shipping and cargo congestion in port and cope with the increased tonnage.

- Construction of a harbour service branch office at Sathupradit to consist of an office building, living quarters for port officials and a pier for accommodation of tug-boats and rope-receiving boats used in the mooring and unmooring of ships to and from the mooring buoys in Sathupradit midstream area. This is to reduce time and cost of operating towing service in the area which at present is made from the Klongtoi base. This project is scheduled for execution and completion in 1969.

- Construction of a 20 x 100 m. warehouse for dangerous cargo in addition to the existing one of 50 x 15 m., to cope with the increased tonnage.

- Construction of an asphalted road, 9 m. wide and 1.20 km. long, along the customs fence to relieve vehicular traffic from the cargo storage area behind the transit sheds. Construction is scheduled for execution and completion in 1968.

- Construction of a re-inforced concrete road 250 m. long with two traffic lanes 12 m. each in width and with footpaths, from the customs house intersection to Hua Lampong canal and a concrete bridge across the canal to link this road with the Rama IV Road. This is aimed at expediting the deliveries of cargo from port. The road and the bridge are scheduled for construction and completion in 1968.

### **2. Improvement of Existing Facilities**

- Improvement of navigational aids in the river and the bar channel. This involves replacement or addition of 14 light buoys within the next four years.

- Extension of port telephone exchange. The existing port telephone exchange is the PX 20 + 200 type. In 1966 it had been increased with 40 extensions. The extension programme will first expand the port exchange from 20 + 240 to 50 + 600 in 1967 and then in 1970 from 50 + 600 to 100 + 1,000 or more as necessary.

- Improvement of lightings in the



port. This consists of the provision of additional lightings for new facilities and replacement of existing facilities. The projects cover a four years period beginning from 1968.

- Reconstruction of the re-inforced concrete road behind the existing transit sheds. Subject to improvement will be the section from behind transit shed No. 5 to transit shed No. 9 while the section from behind transit shed No. 1 to shed No. 4 had already undergone improvement in 1966. The project is scheduled for execution in 1968 and completion in 1969.

- Replacement of wooden fenders with rubber fenders. About 195 pieces of rubber fenders will be required to replace the existing wooden ones which have become worn-out and difficult to repair after long years in service. Replacement will be carried out during 1968 through 1969 and in 1971.

- Reconstruction of the road leading from the port checking post to Klongtoi bridge. Only the lane

receiving outbound traffic from the port will be torn up and reconstructed to the H-20 S16-44 standard. This project is scheduled for execution in 1968 and completion in 1969.

### 3. Acquisition of Equipment

The various equipment scheduled for acquisition during 1967 through 1971 include 275 forklift trucks with capacity from 2 to 10 tons; 115 trucks; 22 mobile cranes with capacity from 5 to 30 tons; 36 light and heavy towing tractors with 2,000 lbs. pull and over; 3 tugboats each with 15 tons standing pull; 5 rope-receiving boats; and other miscellaneous items such as tarpaulins, ladder, radio transceivers, tools for checking and repairing cargo handling equipment and etc.

Scheduled for acquisition during 1967-1969 are 3-30-ton trailers with towing tractors; 10 end-dump trucks; 4 caterpillar scrapers, two with at least 130 hp. and the rest with 69 hp. each.

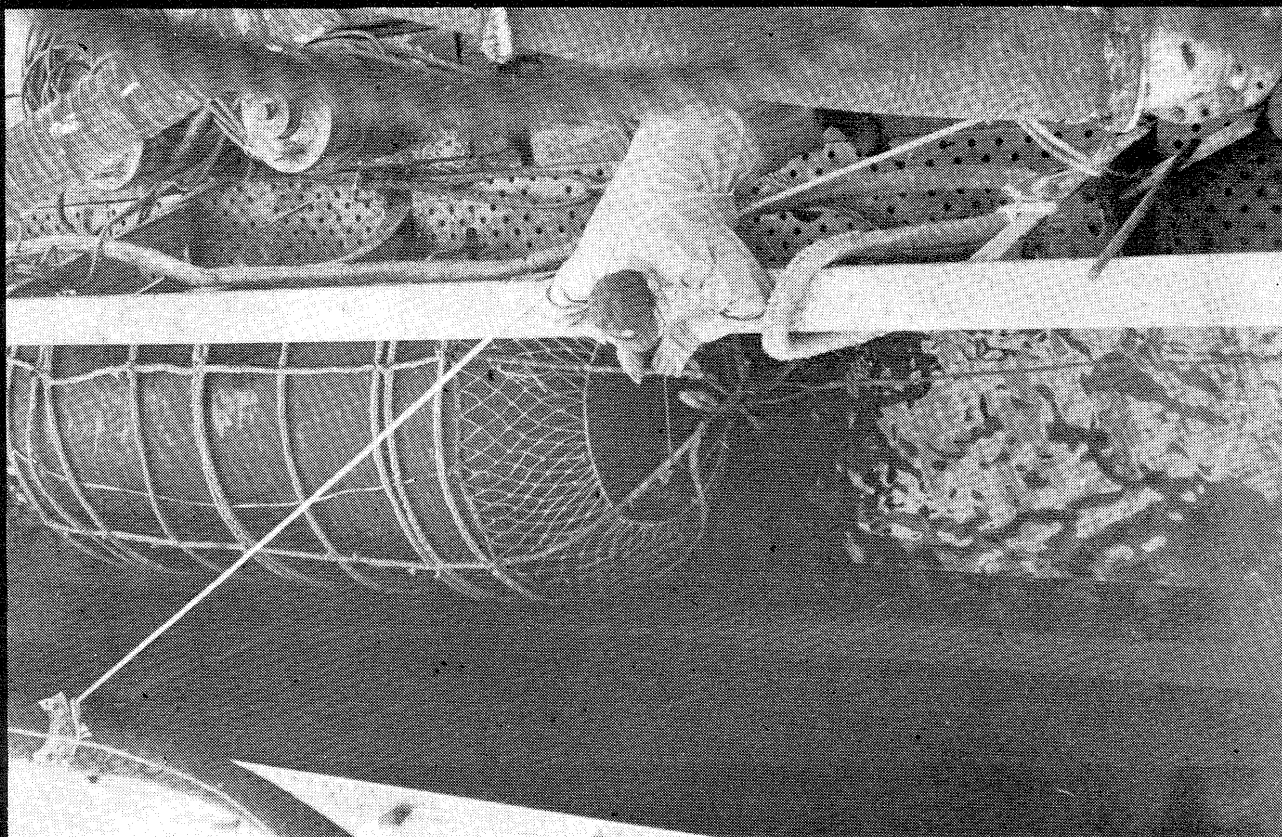
Scheduled for acquisition during 1967-1968 are 2 water trucks, 2 road rollers with 10 and 6 tons torque drive respectively and 2 water boats.

### 4. Others

The project for improvement of the inner shipping channel and harbour involves the provisionary clamshell dredge, 2 service steel barges and a towing boat. Their acquisition will be made during 1968-1969 and in 1971.

The channel and waterways survey project planned for execution during 1970 and 1971 requires the services of 2 additional survey ships of 45 gross tons and 18 metres in length and 3 survey launches of 9 metres in length, with modern hydrographic equipment. This is to increase the efficiency of surveying for among others, determining depth of water in the navigable channels and in the harbour for information of seafarers since their conditions change constantly due to dredging and silting.





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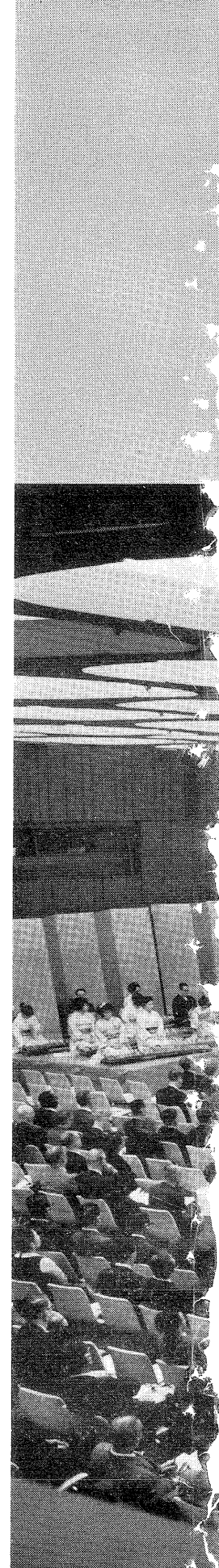
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**The Cover:**

The scene of the Opening Ceremonies held May 9 in the Providence Hall of Tokyo Prince Hotel. On the high tables are seated IAPH executives and at the dais in the foreground is seated Prince Takamatsu. On the left before the folding screens are seated koto ensemble players, and behind them and higher above is seen one of the simultaneous interpreters' windows, which extended nearly the length of the hall.



**Central Secretariat of the International  
Association of Ports and Harbors**

Mori Bldg. 7th, 2, Tomoe-cho, Shiba,  
Minato-ku, Tokyo, Japan