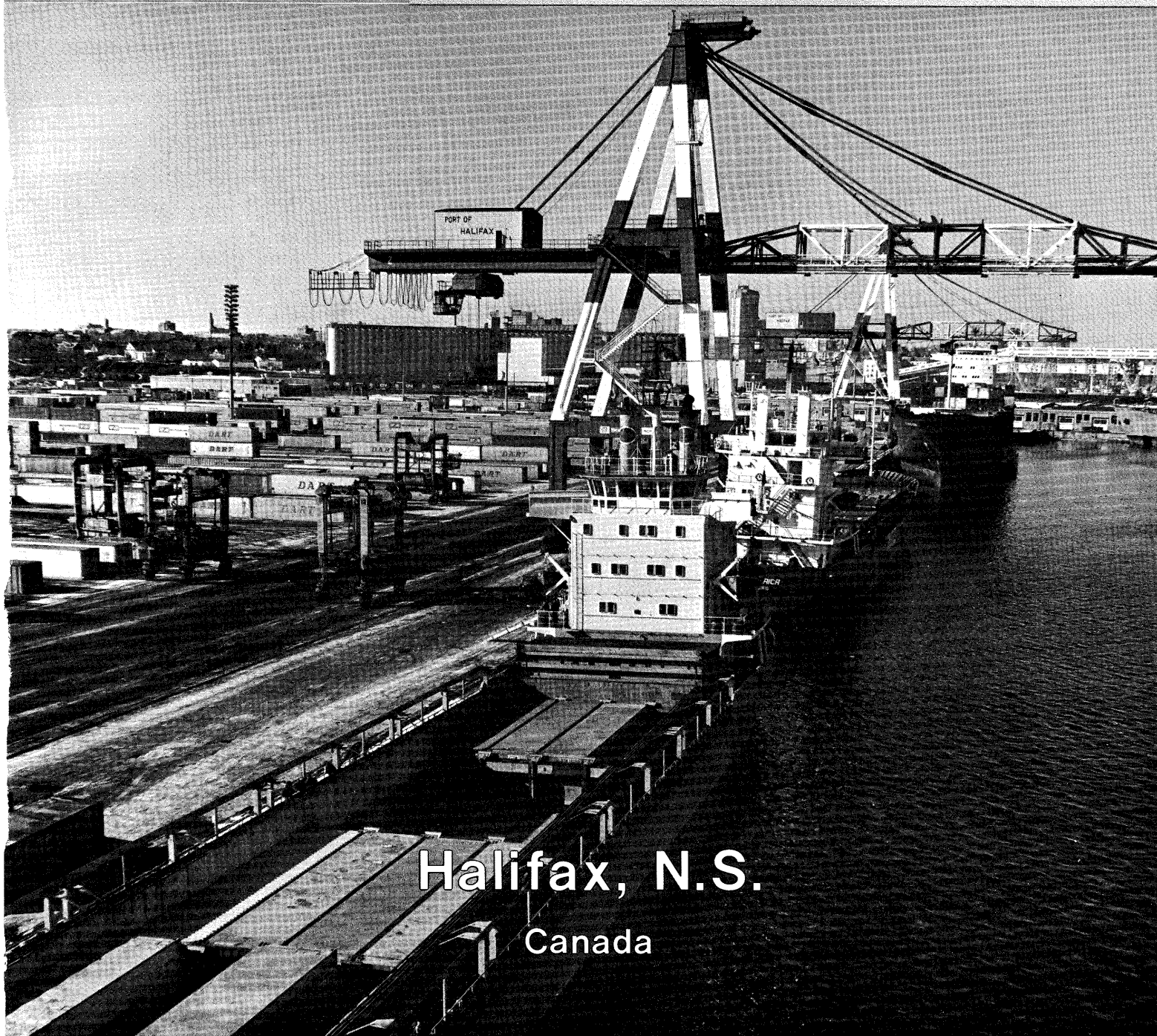


PORTS *and* HARBORS

May, 1978 Vol. 23, No. 5



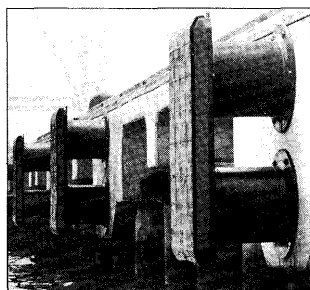
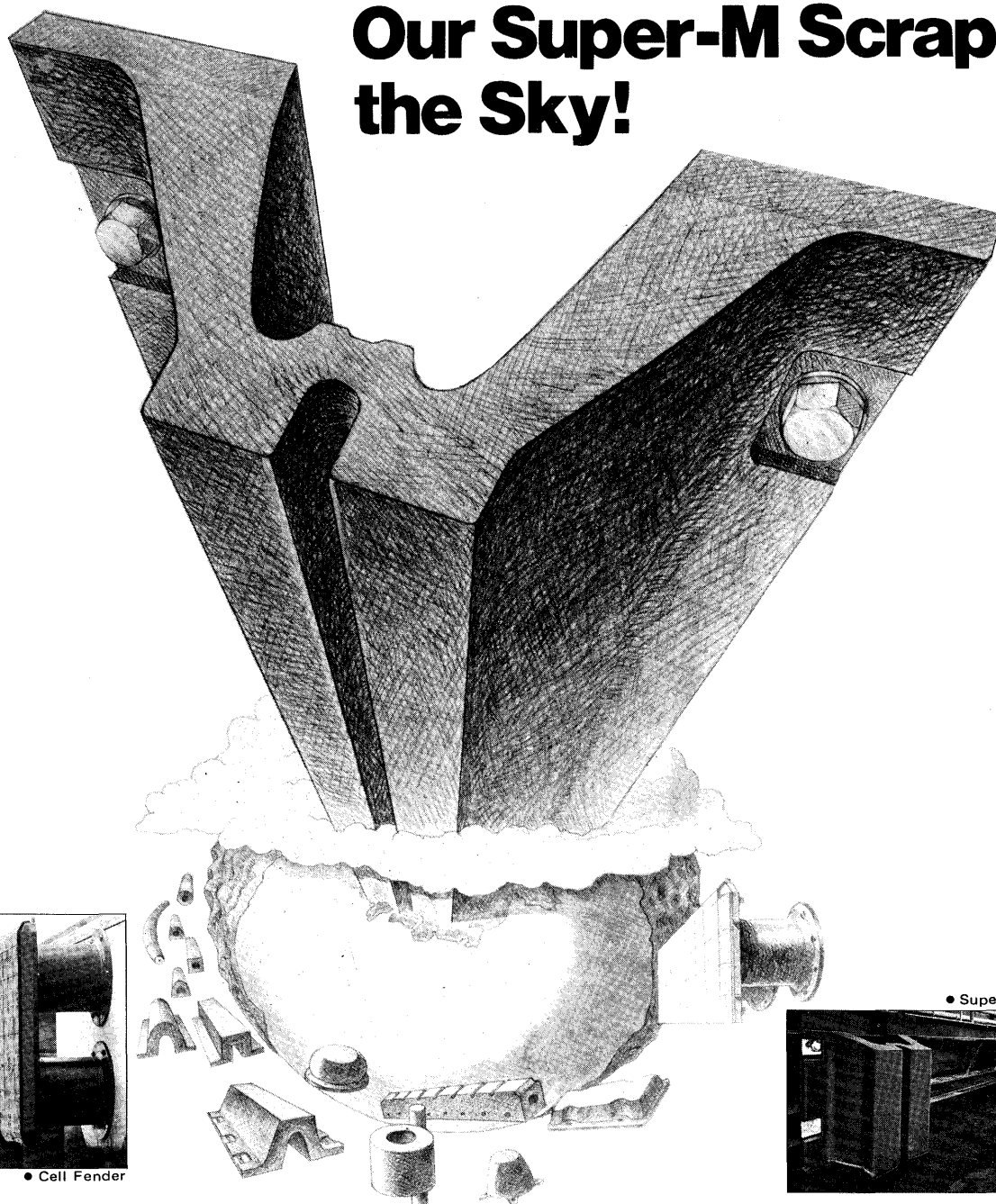
Halifax, N.S.
Canada

IAPH Conference Le Havre May 1979

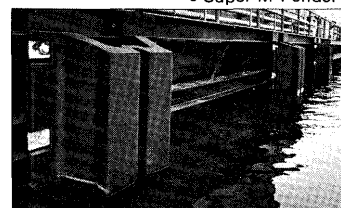
The Publisher: The International Association of Ports and Harbors

Kotohira-Kaikan Bldg. 2-8. Toranomon 1-chome. Minato-ku.
Tokyo 105, Japan

Our Super-M Scrapes the Sky!



● Cell Fender



● Super-M Fender

The new age of general cargo vessels demanding larger, and yet at the same time safer berthing, has brought forth the need for larger fenders. Our Super-M Fender is an answer to this need. It's excellent performance: high absorption of energy, low reactional force and wide application.

Since 1954, Bridgestone has developed many products responding to various conditions of use from the small Cylindrical Type to the world's biggest Cell Type, C3000H Marine Fender.

And now, Bridgestone introduces its Super-M Fender in its continuing efforts to keep the vessels and port facilities safer.

■ For further information, please write or call to our following office.

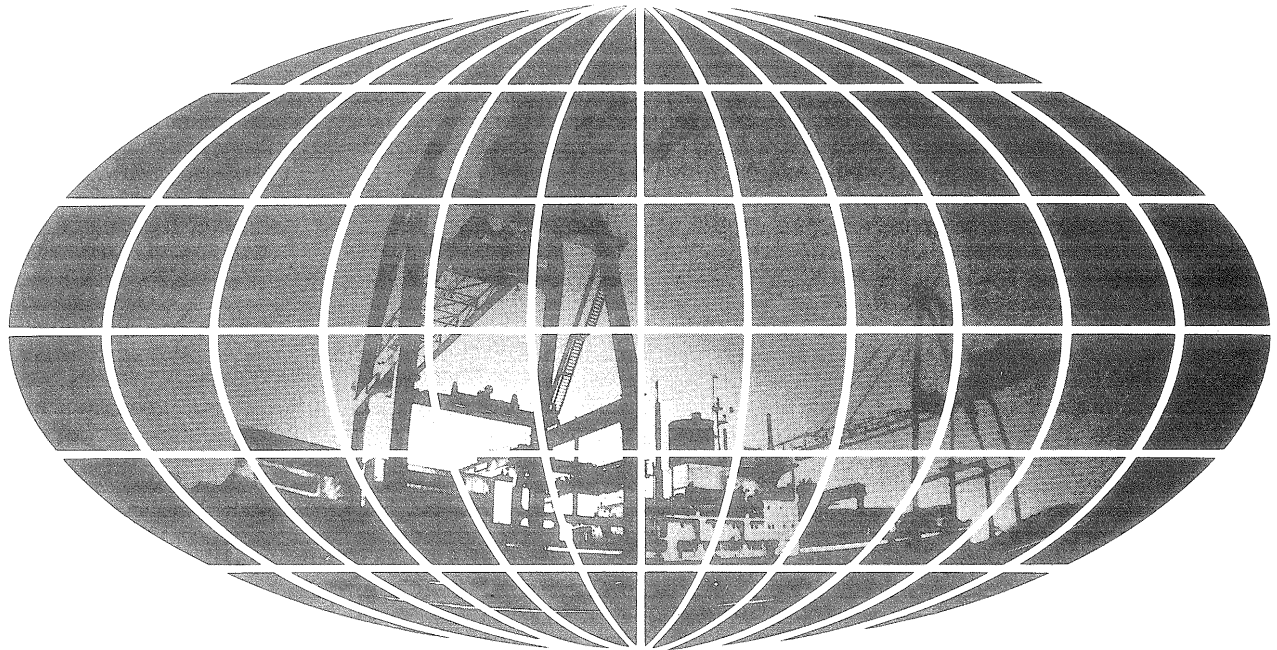
HEAD OFFICE Bridgestone Tire Co., Ltd.	No.1, 1-chome, Kyobashi, Chuo-ku, Tokyo, Japan Tel: 567-0111 Cable: "BSTIRE TOKYO" Telex: J22217, J23207, J23227 BSTIRE
Bridgestone Tire Co., Ltd. Dublin Office	29, Eaton Square, Monkstown, Co. Dublin, Ireland Tel: 800213 Telex: 4733 BSEI Cable: BSTIRE DUBLIN
Bridgestone Tire Co., Ltd. Bahrain Office	Room 203, Sena Building, Bahrain Tel: 53799 EX.23 Telex: 8215 Kanoo GJ
Bridgestone Tire Co., Ltd. Singapore Branch	No.2, Jurong Port Road, Jurong Town, Singapore, 22 Republic of Singapore (P.O. Box 2450 Singapore) Tel. 655875, 651777 Cable: BIESUTAIYA SINGAPORE Telex: 21386 BSTIRE RS 21-386
Bridgestone Tire Company of America, Inc.	2160W, 190th Street, Torrance, Calif. 90504, U.S.A. Tel: (213)320-6030, (213)775-8505 Telex: 0691372 Cable: LABSTIREL TRNC

■ BRIDGESTONE'S MARINE PRODUCTS

- Marine Fender ● Oil Fence ● Oil Skimmer
- Marine Hose ● Sleeve-Joint Hose ● Others

BS BRIDGESTONE®

PACECO IS A WORLD OF EXPERIENCE



- ☐ Over 225 Portainer® container cranes in 94 ports world-wide
- ☐ Many, many times more than any other make
- ☐ Portainers in service since 1958
- ☐ Continuing repeat orders as ports expand; acceptance by shipping lines enthusiastic
- ☐ Quality design and construction assuring years of trouble-free performance
- ☐ Economy model for feeder, inland ports
- ☐ Lowest operating cost per container handled through latest crane system technology
- ☐ MACH cranes (Modular Automated Container Handling) are designed for totally-automated container handling.
- ☐ Models available for your special requirements: A-frame, low-profile, single-and twin-lift, long span, long back reach.
- ☐ 11 licensees; world-wide sales and service

Put our world of experience to work for you.



PACECO, INC.

The Only Manufacturer Offering A Complete Line Of Container Handling Systems And Equipment With World-Wide Sales And Service.



Contact PACECO or the office nearest you. **Headquarters Office**—PACECO, Dept. 24—E Alameda, CA 94501, (415) 522-6100, Telex 335-399 • **New York Representative**—ROBERT MOORE CORP., 350 Main St., Port Washington, N.Y. 11050 • **PACECO European Sales Office**—PACECO INTERNATIONAL LIMITED, London, Tel: 01-681-3031/4 • **PACECO Licensees:** **Australia**—VICKERS HOSKINS DIVISION, Perth. **Brazil**—MECHANICA PESADA S.A., Rio de Janeiro. **Canada**—DOMINION BRIDGE COMPANY LIMITED, Montreal. **France**—ATELIERS ET CHANTIERS DE BRETAGNE, Paris. **India**—BRAITHWAITE & CO., LIMITED, Calcutta. **Italy**—REGGIANE O.M.I. S.p.A., Reggio Emilia. **Japan**—MITSUI ENGINEERING & SHIPBUILDING CO., LTD., Tokyo. **Korea**—HYUNDAI INTERNATIONAL, INC., Seoul. **South Africa**—DORMAN LONG VANDERBIJL CORPORATION LIMITED, Johannesburg. **Spain**—FRUEHAUF S.A., Madrid. **United Kingdom**—VICKERS ENGINEERING GROUP LIMITED, South Marston, Swindon, Wiltshire.

"K" LINE

Tokyo Ohi Container Terminal



Recently, the need for the integrated intermodal transportation system by container has increased remarkably, and today the fully containerized system is bringing further innovative transportation to the world's shipping industry. In other words, we now have the era of innovative transportation in shipping.

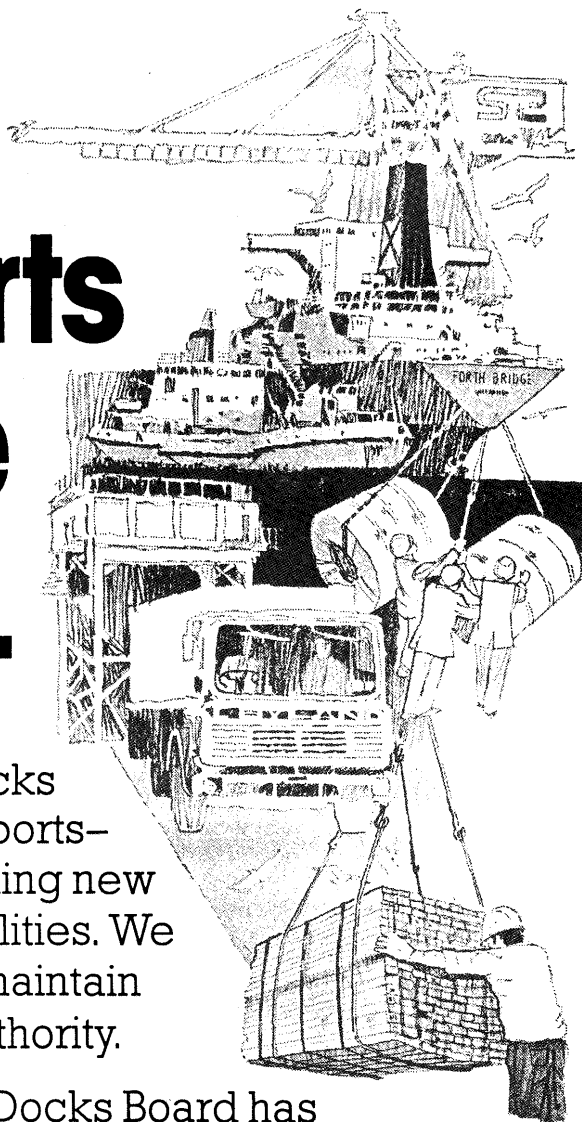
To meet this new era, Kawasaki Kisen Kaisha, Ltd. ("K" Line) owns and operates many container ships, marine containers and container terminals.

At the main ports in Japan and the West Coast of the U.S.A., "K" Line has been steadily extending its effort to operate its own container terminals, which have an essential role as the contact point of sea and land.

At these "K" Line container terminals, with the most modern computerized facilities, advanced equipment and information control/working system, and highly-trained operators, numerous containers are handled quickly, accurately and safely at every moment to better serve our customers.



Investment keeps our ports competitive and profitable.



Every year the British Transport Docks Board invests millions of pounds on its ports—building specialised new berths, installing new equipment and improving existing facilities. We believe in the future and we intend to maintain our position as Britain's premier port authority.

In a highly competitive market, the Docks Board has succeeded in increasing its share of UK trade. And it is generating the cash flow necessary to finance its investment programme from its own operations without recourse to borrowing.

Over the last few years the Board has steadily increased its profitability, achieving a return on capital of 15.5 per cent in 1976.

BT British Transport
Docks Board

Melbury House, Melbury Terrace,
London NW1 6JY
Telephone: 01-486 6621
Telex: 23913

HULL
GOOLE
GRIMSBY
IMMINGHAM
KING'S LYNN
LOWESTOFT
SOUTHAMPTON
PLYMOUTH

NEWPORT
CARDIFF
BARRY
PORT TALBOT
SWANSEA
FLEETWOOD
GARSTON
BARROW
SILLOTH
AYR
TROON

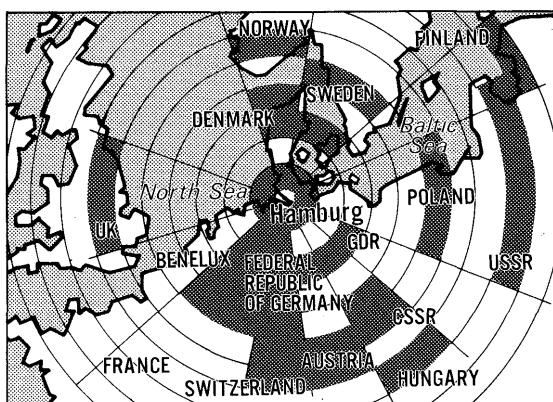


This is Wilhelm Meyer-seen privately.

(He swears by the Free and Hanseatic way of life)

An important person
for you and for us. Professional
in matters of import and export.

He'll help you with your overseas
business. Like the other
Hamburg experts in foreign trade.
Marine insurance. Consular
documentation. Information
on foreign markets. Port and
overseas forwarding. Warehousing
Foreign trade financing
Cargo handling. Shipping matters
And everything else



that goes with overseas trading.
Individual service,
perfect cargo handling
and an extremely high frequency
of sailings.

That's the Free and Hanseatic
way of helping foreign trade.

We welcome any inquiries
concerning Hamburg Port.
Please contact us at the
address below.

Hafen Hamburg

The Free and Hanseatic City of Hamburg. Representative Office in Japan, c/o Iriku Shokai K.K.
Toranomon Mitsui Bldg., 3-8-1, Kasumigaseki, Chiyoda-ku, Tokyo 〒100 Tel: 03-503-5031

COUPON
PH · 5

Send us the coupon on the right. You will receive current information on "Port of Hamburg" and other pamphlets related to the port.

PORTS *and* HARBORS

Editor: Yoshio Hayashi

Published monthly by

The International Association of Ports and Harbors

N.G.O. Consultative Status, United Nations (ECOSOC, UNCTAD, IMCO)

President:

George W. Altvater
Executive Director
Port of Houston Authority

Executive Committee

Chairman:

George W. Altvater
President, IAPH

Members:

A.S. Mayne
1st Vice-President, IAPH
Chairman
Melbourne Harbor Trust Commissioners

Paul Bastard
2nd Vice-President, IAPH
Director-General
Bureau of Ports and Harbours
Ministry of Equipment, France

Anthony J. Tozzoli
3rd Vice-President
Director of Marine Terminals
The Port Authority of NY & NJ

Howe Yoon Chong
Immediate Past President, IAPH
Chairman/General Manager
The Port of Singapore Authority

Robert Boeuf
Ingenieur General des Ponts et
Chaussées, France

R.W. Carr
Chairman
Auckland Harbour Board

J.H.W. Cavey
Director of Ports
Ministry of Transport, Canada

Col. Charles R. Clark
Director, Transportation and Terminals
Panama Canal Company

J.P. Davidson
Dy. Chairman & Managing Director
Clyde Port Authority
U.K.

Ir. J. den Toom
Managing Director
Port Management of Amsterdam

P.K. Kinyanjui
Chairman
Kenya Harbours

Fumio Kohmura
Executive Vice-President
Nagoya Port Authority, Japan

Parviz Saffari
Managing Director
Ports & Shipping Organization, Iran

Thomas T. Soules
Port Director
San Francisco Port Commission

Gengo Tsuboi
Vice-President
The Japanese Shipowners' Association

Alhaji B.M. Tukur
General Manager
Nigerian Ports Authority

J.M. Wallace
President, The Maritime Services
Board of N.S.W., Australia

W. Don Welch
Executive Director
South Carolina State Ports
Authority, U.S.A.

Secretary General: Dr. Hajime Sato

Head Office:

Kotohira-Kaikan Bldg.
2-8, Toranomom 1-chome, Minato-ku
Tokyo 105, Japan

Tel.: TOKYO (591) 4261

Cable: "IAPHCENTRAL TOKYO"

Telex: 2222516 IAPH J

May, 1978 Vol. 23, No. 5

CONTENTS

	Page
IAPH Head Office Announcements:	7~33
3rd International Survey Is Under Way on Port Training, Advisory Facilities and Requirements—Standardization of Roll-on/Roll-off Ramps Studied by PIANC/IAPH/ICHCA Joint Committee—Port Replies to Questionnaire Analysed by Joint World Organization Comm.—A.J. Smith Reports on the Symposium for the Safety of Nuclear Ships—Long-Term Work Programme of IMCO slated for the period up to 1984—Books Available—Membership Notes	
Industrial Ports and Economic Transformations—3 (by Paul Hanappe and Michel Savy)	18
Topics:	
Roll-On, Roll-Off Operations Expanding at New York-New Jersey Port	34
Dredging in Brazil: Increase in Demand Brings a New Perspective (From "Portos e Navios")	36
Coal Traffic in Le Havre (Port of Le Havre Series No. 2).....	59
Ports:	
Port of Manaus—June/76 to June/77 (Empresa de Portos do Brasil S.A.)....	38
Port of Oakland News Releases	40
Heavy Lift at the Port of N.Y.-N.J.	49
Port of New Orleans News.....	51
British Transport Docks Board News.....	55
Hull's Mediterranean Ro/Ro Link Booming (Docks Board Feature, by Gerald Farmer).....	56
Bremen News	61
Orbiter Probe (International News):	43~68
The Cover: The Port of Halifax—Canada's No. 1 Containerport. See also news item on page 44 "Port of Halifax News".	

Price US \$2.50 per copy
US \$25.00 per year

It's quite natural for Nippon Steel to be more than a producer of steel. You see, besides having steel-making know-how, we've accumulated diverse technologies through constructing ten of our own steelworks.

That's why we can offer a wide range of services for offshore, urban and industrial development.

For oil/gas-related offshore projects, for instance, we handle everything from design to installation.

BEYOND STEELMAKING.

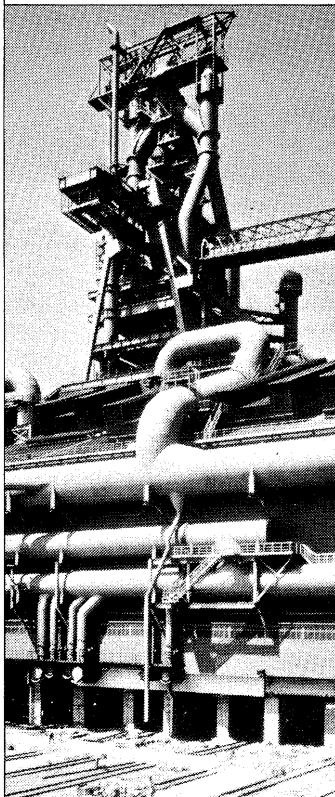
Introducing the versatility of Nippon Steel.

We even have our own fleet of work boats.

On land, we're active in many areas. Suspension bridge erection is one of them. Housing is another. A lot of people are now living comfortably in pre-fabricated housing developed by us.

Naturally enough, you'll find us involved in the manufacture of steel mill equipment and facilities. And, since we're the world's largest steelmaker, you won't be surprised to learn that we provide engineering for integrated steel mill construction. Along with operational guidance.

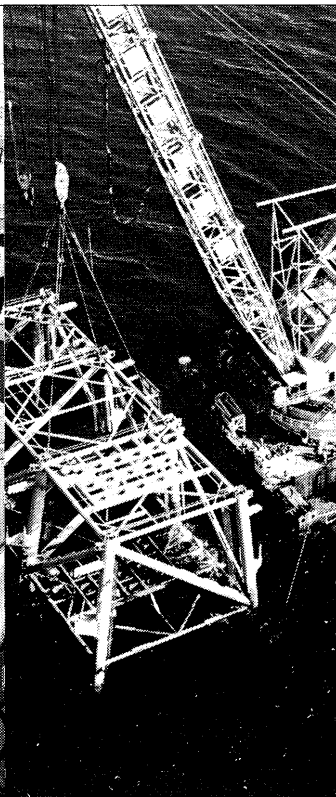
Like to know more? Send for our Engineering Divisions Group brochure. Write to: 6-3, Otemachi 2-chome, Chiyoda-ku, Tokyo 100, Japan.



Manufacture of steel mill equipment and facilities has long been a Nippon Steel specialty.



Nippon Steel can engineer entire steel mills—and provide guidance for their operation.



Nippon Steel undertakes all aspects of oil/gas-related offshore projects.



Nippon Steel's prefabricated housing systems answer the need for economical housing.

NIPPON STEEL

Tokyo, Japan

PORTS *and* HARBORS

IAPH Head Office Announcements :

Pages 7~33

3rd International Survey Is Under Way on Port Training, Advisory Facilities and Requirements

On the instructions of Mr. Sven Ullman, Chairman of Special Committee on International Port Development, Secretary General Dr. Sato has circulated a letter on March 27, 1978 to all Regular Members of the Association requesting them to send Mr. Ullman's Gothenburg office all up-to-date information regarding the training facilities in developed ports and the requirements of ports in developing countries for such facilities and technical advisers.

A 22-page survey form is set out in four Sections, namely, Sec.I—Training Facilities Available, Sec.II—Technical Advisers Available, Sec.III—Requirements in developing countries for training facilities and Sec.IV—Requirements of Port in developing countries for technical advisers; each section further divided into sub-sections dealing with specific areas of port operations and skills, such as Finance, Engineering and Security.

The Special Committee on International Port Development is now preparing for the 3rd revision of the Survey Report and appeals members' special cooperation in returning the filled-in forms to the Chairman as prescribed in the following circular letter. (TKD)

To: All Regular Members of
the International Association of Ports and Harbors
Re: International Survey of Port Training, Advisory
Facilities and Requirements

The above survey in the heading was conducted by the Special Committee on International Port Development, published in November, 1974, revised again by the same Committee in December, 1975, is now subject to another revision. The detailed information gathered in this survey having been proved still useful, the Committee is considering of up-dating its content again.

To help the Committee make short work of the surveying, we send you enclosed herewith an excerpt of the previous survey report—the portion concerning your port. Please kindly check the enclosed and inform us what alteration, correction or addition ought to be made therein. Even when you find no change is required in your report, will you please so write to us for the sake of our confirmation. Furthermore, in case you have other suggestions of any sort concerning this survey, please kindly let us have them in writing.

This survey report is also made use of by other international organizations in their training programs. It

would, therefore, be very helpful to us and to those who rely much on this report, if you know of any ports and let us have the names thereof which have training facilities and are not listed yet in our report. We will introduce such port or ports anew with your kind report as the basis.

Mr. Sven Ullman, Chairman of the Special Committee on International Port Development should appreciate your reply sent to him not later than 1st of July, 1978 to the address hereunder.

Mr. Sven Ullman, General Manager,
Port of Gothenburg
P.O. Box 2553, S-403 17 Gothenburg, Sweden

Thanking you for your kind cooperation in the above matter.

Hajime Sato
Secretary General

Standardization of Roll-on/Roll-off Ramps Studied by PIANC/ IAPH/ICHCA Joint Committee

As a link of collaboration programs between IAPH and PIANC, Eng. H. Vanderverden, Secretary-General of PIANC invited IAPH to take part in the meeting of Special Committee which was formed up among the three organizations, PIANC, IAPH and ICHCA, to discuss the subject on the standardization of Roll-on/Roll-off ships and berths, especially as to whether the 1971 PIANC report to ISO TC-8, a Sub-Committee which met last year in Geneva inviting bodies that were prominent in this field such as the above three bodies to make available the reports and statistics that they had produced.

The first joint meeting was held on 30th January 1978 in Brussels to consider and update the PIANC report before reporting to ISO attended by:

Chairman

Mr. J.H.W. Northfield, Chief Engineer, The Felixstowe Dock and Railway Company

Executive Committee

Prof. G. Willems, Honorary Secretary General of the Ministry of Public Works and the President of AIPCN.
Brussels

Members

Belgium—Mr. M. De Wilde, Chief Engineer and Director of the Technical Service of the Port of Antwerp, Antwerp.

(Continued on next page bottom)

Port Replies to Questionnaire Analysed by Joint World Organization Comm.

In regard to the latest progress of activity made by the joint IALA/IAPH/PIANC Committee on Port Signals, Mr. J. Prunieras, Secretary General of IALA, has recently sent to Dr. Sato, Secretary General, information containing the following items,

1. *An analysis of the replies received to the Port Signal Questionnaire circulated during 1977.*
2. *The notes of the 3rd meeting of the Joint Committee which met in Paris, 15th–16th February, 1978.*

Hereunder are reproduced a full text. (Annex to the report are omitted on account of limit space.) (D.S.G.)

THIRD MEETING

NOTES OF THE MEETING OF THE JOINT IALA/IAPH/PIANC COMMITTEE ON PORT SIGNALS HELD IN PARIS—15TH-16TH FEBRUARY, 1978

LIST OF PARTICIPANTS

Chairman

- Captain J.E. Bury, Trinity House

Secretary

- Mr. N.F. Matthews, IALA Secretariat

(Continued from page 7)

Denmark—Mr. K. Schmidt, Chief Engineer of the Port of Esbjerg, Esbjerg.

France—Mr. Quatre representing Mr. M. Pechere, Chief Engineer and Director of the Port Authority of Dunkirk, Dunkirk.

Norway—Mr. T.P. Steen, Norconsult A/S, Høvik

Netherlands—Mr. J. Sisselaar, Rijkwaterstaat, S-Gravenhage

Sweden—Mr. S. Ullman, General Manager of the Port of Gothenburg, Gothenburg.

U.S.A.—Mr. D. Tasic, European Manager for the Maryland Port Authority, Brussels

ICHCA—Mr. J.H. Boyce, Assistant Technical Secretary of ICHCA, London

Apologies for absence have been received from: Finland
Italy
Japan

Interpreter—Mr. J. Houard, Brussels

Mr. Sven Ullman, General Manager, Port of Gothenburg, Sweden, who once acted as the Chairman of the Sub-Committee on Standardization of Ro/Ro Ramps of the IAPH Special Committee on Containerization, Barge Carriers and Ro-Ro Vessels, a report of which was presented to the 10th Houston Conference, April, 1977, opined at this first meeting that it was a big job to make the original PIANC proposal in 1969/70 and that this updating work had already been carried out by IAPH in 1977.

Following the first meeting, Mr. Ullman was also assigned to take part in the second meeting held on March 1st, 1978 in Brussels as IAPH representative. (TKD)

Country	Name	Representing
Belgium		
	— Captain H. Van Loocke	IALA, PIANC
	Belgian Marine Department	
	— Captain J. de Decker	IAPH
	Harbour Master, Antwerp	
France		
	— Mr. J.F. Lévy	IALA
	Direction des Ports Maritimes & des Voies Navigables (Affaires Internationales)	
	— Mr. M. Laffin	IALA
	Direction des Phares et Balises	
	— Mr. R. Boeuf, I.G.P.C.	IAPH, PIANC
	Ministère de l'Équipement	
Fed. Rep. of Germany		
	— Mr. H.D. Vogt	IALA, PIANC
	Bundesverkehrsministerium (Wasser-und Schifffahrtsdirektion Nord, Kiel)	
	— Mr. P. Hoppe	IAPH
	Freie und Hansestadt Hamburg	
Netherlands		
	— Captain C. Van Aken	IALA, IAPH, PIANC
	Directoraat Generaal van het Loodswezen	
Norway		
	— Cdr. S. Ording	IALA, IAPH, PIANC
	Norwegian Coast Directorate	
United Kingdom		
	— Captain I.R.C. Saunders	IALA
	Trinity House, London	
	— Mr. M.J. Faulkner	IALA
	Trinity House, London	
	— Captain E.J. Kirton	IAPH, PIANC
	Harbour Master, Southampton	
	British Transport Docks Board	
Interpreter		
	N. Gerst	

Captain Van Loocke of Belgium asked for the floor and made the following statement:

“On behalf of the Belgian delegation and for the benefit of the distinguished delegates of the various countries and organisations attending this meeting, he wished to recall the achievements in the field of harmonization of maritime buoyage systems.

It was with Captain Bury in the chair and thanks to his tenacity that a new simple and good system was launched and, most importantly, implemented. It was for Captain Van Loocke personally a great experience and a pleasure to take part in the work of the IALA Technical Buoyage Committee.

His delegation expressed sincere hopes that in the field of harbour signalling a similar result will be obtained and he was confident that under Captain Bury's leadership it would be so”.

The Chairman thanked Captain Van Loocke for his kind words but stressed that it was the team spirit and cooperation between members of the Buoyage Committee

that had made this success possible.

Agenda Item 1—Minutes of the last meeting

The minutes of the second meeting held in Paris on 26th-27th November, 1974 were agreed.

Agenda Item 2—Matters arising

There were no matters arising from the minutes.

Agenda Item 3—Consideration of the analysis of replies

The analysis of the replies to the Port Signals Questionnaire was circulated and the Secretary took the meeting through this document point by point.

He said that the analysis permitted a number of general conclusions to be drawn.

- a) There is a large variety of gale warning and tidal signals currently in use. Only about one third of those who replied kept to the Lisbon Agreement for gale warning and only about a quarter kept to the Lisbon Agreement for tidal signals.
- b) With regard to movement signals a sizeable majority of those replying do not conform to the Lisbon Agreement.
- c) The alternative signals in use detailed in the Annexes were of such wide variety that no common thread could be detected.

The Chairman said it seemed that the Lisbon Agreement had now fallen into general disuse and a new attempt at harmonization should be made.

There was a discussion about the use of meteorological signals and it appeared that it is not clear whose responsibility these are (see Annexe J of the analysis).

It was recalled that the role of the WMO was also not entirely clear.

It was then decided that there should be discussions between IALA and WMO in an attempt to clarify the situation, and to invite WMO to send representatives to the next meeting of the Joint Committee. Further discussion of this matter was postponed until WMO representatives were present or their opinion known.

Agenda Items 4—Steps to be taken to achieve harmonization

There was a wide general discussion about the needs of the mariners and the ports and many alternatives were discussed. The conclusions reached are shown below.

SUMMARY—From the discussions and the Questionnaire the following conclusions were reached:

- 1—There were great differences in Port and Harbour Signals used throughout the world.
- 2—Chapter 3 of the Lisbon Agreement is not followed to any great extent and requires amendment, the variations in use indicated by the Questionnaire have little in common with one another.
- 3—Storm warnings should be the subject of discussions with WMO.
- 4—Other environmental subjects will be discussed at a later stage.
- 5—New basic harmonized traffic signals are required which include the following:
 - a) All movement prohibited
 - b) No entry
 - c) No departure
 - d) No entry or departure
 - e) Supplementary or additional signals to suit local conditions.
- 6—That the next meeting should consider the form of these or other signals. A discussion document is to be prepared

before the next meeting by the following Working Group: Mr. Matthews, Captain Ordning, Captain Van Loocke, Mr. Lévy. The Working Group will also try and extract more valuable information from the Analysis Annexes.

- 7—The date of the next meeting was agreed on 8th-9th November, 1978 at a venue to be arranged.

JOINT IALA/IAPH/PIANC COMMITTEE ON PORT SIGNALS

Replies Port Signal Questionnaire

The Questionnaire drawn up by the joint committee was circulated to all members of the 3 Associations.

28 countries submitted replies to the Questionnaire, in some cases covering all their ports and in others only some of them. A complete list of countries and ports covered is contained in Annex A.

Many countries and ports have submitted extensive notes dealing with their own particular practices and these are contained in Annexes B—I. As there have been many differing approaches to the problem it has not been possible to analyse these special notes.

It should be particularly noted that the French Light-house Service arranged a thorough analysis of the replies received from 27 French Ports, and these figures are included in the general results and their special note is included as Annex K. The U.S.A. also prepared a special note included as Annex L.

One point that must be stressed is that many port signals have been superseded by the use of R/T and in many cases the visual signals are of only secondary importance. With regard to visual signals, opinion seems to be about evenly divided as to whether there is a need for special day shapes, as opposed to using only light signals by day and by night.

Annex J. Comprises correspondence between the French Hydrographic and Oceanographic Service, and the French Marine Meteorological Section and IALA on the ambiguity concerning visual signals for gale warnings and tide heights—a factor amply borne out by the replies to the Questionnaire. This matter will need to be considered by the Joint Committee.

Finally I would like to give my thanks to the following persons who assisted me in the long task of analysing the replies received.

Belgium — Captain Van Loocke
France — Mr. M. Laffin
Norway — Cdr. S. Ordning

N.F. Matthews
Secretary of the Joint Committee

SUMMARY OF REPLIES TO PORT SIGNAL QUESTIONNAIRE

For list of countries submitting replies and ports covered see Annex A.

PART ONE—ENVIRONMENTAL SIGNALS

1.1. Meteorological information

1.1.1. Visual signal

(a) Necessary	17
(b) Useful	54
(c) Not useful	40

1.1.2. Visual signal used Yes 34 No 55

1.1.3. Day signal should comprise:

- (a) Only marks 27
 (b) Only fixed lights 4
 (c) Only rhythmic lights 9
 (d) One or another 40
- 1.1.4. Signals conform fully with Lisbon Agreement. Yes 21 No 35
 For alternatives used see Annex B.
- 1.2. Tide and depth signals
- 1.2.1. Visual signal
- (a) Necessary 24
 (b) Useful 27
 (c) Not useful 54
- 1.2.2. Visual signal used Yes 22 No 85
- 1.2.3. Day signal should comprise:
- (a) Only marks 13
 (b) Only fixed lights 7
 (c) Only rhythmic lights 1
 (d) One or another 32
- 1.2.4. Signal conform fully with Lisbon Agreement Yes 8 No 33
 For alternatives in use, see Annex C
- 1.3. Other Signals
- Other signals used or needed Yes 5 No 91
 For alternatives in use see Annex D

PART TWO—MOVEMENT SIGNALS

- 2.1. Preliminary
- 2.1.1. Day signals Only lights needed Yes 58 No 37
 Day shapes needed Yes 53 No 34
- 2.1.2. Application of the Lisbon Agreement
- Movement signals:
- Derived from Lisbon Agreement Yes 28 No 39
 — Supplementary to Lisbon Agreement Yes 12 No 22
- Signals not derived from Lisbon Agreement:
- According to rules Yes 23 No 2
 — According to national rules Yes 16 No 16
 — According to another international agreement Yes 1 No 18
- For alternatives in use see Annex E
- 2.1.3. Inland Waterways:
 For cases where inland waterways have different signals to ports see Annex E
- 2.2. Signals in Lisbon Agreement chapter 3
- 2.2.1. "Entrance absolutely prohibited in case of serious emergency"
- This signal used Yes 23 No 88
 Such a signal needed Yes 19 No 61
 This signal supplemented Yes 2 No 37
- 2.2.2. "Entrance prohibited (under normal circumstances)"
- This signal used Yes 35 No 72
 Such a signal needed Yes 17 No 51
 This signal supplemented Yes 10 No 34
- 2.2.3. "Departure prohibited (under normal circumstances)"
- This signal used Yes 31 No 70
 Such a signal needed Yes 10 No 58
 This signal supplemented Yes 5 No 36
- 2.2.4. "Entrance and departure prohibited (under normal circumstances)"

- This signal used Yes 24 No 79
 Such a signal needed Yes 19 No 53
 This signal supplemented Yes 7 No 58
- 2.2.5. Distinction between "Serious emergency" and "normal circumstances" needed Yes 38 No 55
 For alternatives in use see Annex F
- 2.3. Signals not in Lisbon Agreement
- 2.3.1. "Channel or entrance open for normal use"
- Such a signal:
- (a) Necessary 14
 (b) Useful 19
 (c) Not useful 61
- This signal used Yes 11 No 96
- 2.3.2. Entrance prohibited for a short time
- Such a signal:
- (a) Necessary 3
 (b) Useful 25
 (c) Not useful 81
- This signal used Yes 7 No 101
- 2.3.3. Entrance prohibited for a long time
- Such a signal:
- (a) Necessary 9
 (b) Useful 16
 (c) Not useful 73
- This signal used Yes 5 No 102
 For description see Annex G
- 2.3.4. Locks and opening of bridges in ports and Inland Waterways
- Signals for locks used Yes 31 No 57
 Signals for opening of bridges used Yes 26 No 57
 For description see Annex H
- 2.3.5. Movement signals miscellaneous
- Do you have, or need other signals for the regulation of ships' movements Yes 21 No 74
 For description see Annex I



San Francisco, Calif., 3/21/78 (Marine Exchange of the San Francisco Bay Region):—A SUNNY SPRING DAY TO MEET THE LATEST JEWEL was the occasion to welcome the Motor Vessel NEPTUNE ZIRCON at the Port of Oakland recently, upon the maiden arrival of the second of a series of ships in Neptune Orient Line's new service to the Golden Gate. On hand to fete the ship and her master were Jorgen With-Seidelin (left), president of Furness InterOcean, agents; Kathy Pisani of the Marine Exchange of the San Francisco Bay Region, and port deputy executive director Tom Bertken. Capt. S.M. Berry was also greeted by M.K. Lim (right), regional representative for Neptune Orient Line.

A.J. Smith Reports on the Symposium for the Safety of Nuclear Ships

A paper entitled "Reception of Nuclear Ships at Ports" which had been prepared under the co-sponsorship of the Eighth Meeting of North European Harbourmasters and IAPH was presented to a Symposium on the Safety of Nuclear Ships organized by the OECD Nuclear Energy Agency in collaboration with the International Atomic Energy Agency held in Hamburg from 5th to 9th December, 1977.

IAPH representatives at the Symposium were Captain E.J. Kirton (UK), Captain E. Nolke (West Germany), Mr. A.J. Smith (UK), and Captain E. Stender (West Germany).

Mr. A.J. Smith, IAPH Liaison with IMCO, reported on the general aspects of the discussions, as follows; and sent in the full text of the paper which we also reproduced hereunder. (TKD)

During the course of the Symposium 65 papers were presented for consideration and discussion of these took place under the following broad divisions:—

- A Review of the Maritime Situation
- Philosophy and Safety Requirements for Land-Based Nuclear Installations
- The NEA Contribution to Nuclear Ship Safety
- The Shipping Community's View of Safety
- Overall Safety Considerations
- The Nuclear Propulsion System
- Licensing Considerations
- Port Entry Considerations
- Legal and Administrative Aspects
- Research and Development
- Operating Experience Including Environmental Aspects
- Manning

With regard to the development of discussion of matters relating to the reception of Nuclear powered ships at ports, the overwhelming impression is that a clear division exist between the viewpoints of experts who have no direct links with the world of trade and commerce and those who do. The desire of the former is, broadly, to reduce nuclear ship reception to a zero risk situation with attendant stringent controls; the latter on the other hand are concerned to establish the viability of nuclear powered merchant ships which presupposes that control procedures will be minimal given that the safety requirements of the 1960 SOLAS Convention are met.

With all due modesty, the presentation of the IAPH paper had a profound and significant effect in that it focussed the attention of the Symposium on the essential issues which require to be resolved if nuclear propelled merchant ships are to have a future. The Symposium however was not structured to permit a debate of this nature in depth. It was therefore necessary for IAPH representatives to examine the problem with and obtain the views of national delegations in more informal circumstances.

It is safe to say that at this stage that there is little likelihood in the near future of a move towards the use of nuclear power as a "conventional" means of propulsion.

Shipowners and insurance brokers are very aware of the operational constraints which are and by all accounts will continue to be placed on nuclear powered commercial vessels.

Much will depend on the progress within IMCO of the development of a Code of Practice relating to nuclear powered commercial vessels. The speed of this development will largely be governed by the extent to which the scientific experts are prepared to come to terms with the needs of trade and commerce, and they in turn may well be obliged to do so for reasons of expediency beyond their control.

There is little doubt that the combination of an acceptable Code of Practice, energy requirements and the pull of market forces will ensure a future for nuclear powered merchant ships. The assessment by Mr. Robert Young, President of the American Bureau of Shipping, that nuclear ships will be in commercial use by 1990 is however perhaps a little optimistic.

Paper presented to the symposium (Hamburg, Dec., 1977) follows.

Reception of Nuclear-Powered Ships at Ports

A paper prepared by the Eighth Meeting of North European Harbourmasters.

Introduction

The present international fuel supply situation could well lead to a re-appraisal of the economics affecting the construction and operation of nuclear-powered merchant ships.

Five nuclear-powered merchant ships have been built to date, two of these being purpose built ice breakers for the U.S.S.R. Details of the five vessels are as follows:—

Name	Nationality	Date of Building	Type	Present Position
Lenin	U.S.S.R.	1959	Ice Breaker	In service
Savannah	U.S.A.	1960	General Cargo	Laid up
Otto Hahn	West German	1968	General Cargo	In service
Mutsu	Japanese	1972	General Cargo	Laid up
Arktica	U.S.S.R.	1974	Ice Breaker	

While the foregoing list may appear numerically small, it is of interest to note that over the last twenty years a large and increasing number of military vessels, predominantly submarines, have gone into service at sea with a nuclear-powered propulsion system. The introduction of these vessels has, of course, imposed their own particular demands and disciplines on navigation in Ports and Port Approaches.

In international maritime affairs the prime responsibility for safety considerations for nuclear ships lies with the Inter-Governmental Maritime Organisation, (I.M.C.O.), which co-ordinates inter-Agency work in this field. The Nuclear Energy Agency for example, intends to draw up a Code of safe practice for reactor installation in ships. Port authorities the world over, however, must acknowledge that at this moment in time, the reception of nuclear ships in port areas presents a problem largely of a psychological nature but also with political overtones.

The consequences of a collision, grounding, fire or explosion involving a nuclear-powered ship within port limits can give rise to uninformed comment on the not necessarily related danger of damage to the vessel's nuclear installation with consequential radio-active exposures to personnel, animals and foodstuffs in addition to the possible disruption of traffic through the port.

General Observations

The point of concern on a nuclear ship is the nuclear reactor. The design, manufacture and operation of reactor plants, however, are so carefully supervised and controlled that the risk of an accident is unlikely. The basic safety issue of concern to a port authority must, therefore, be related to the construction of the ship itself.

Authorities responsible for the licensing of nuclear ships lay down collision protection requirements which are the result of prodigious testing and safety checks. Adherence by constructors to these requirements should, therefore, result in a situation whereby no more reception regulations should apply to a nuclear-powered vessel than are applied to conventionally powered vessels.

The psychological situation referred to earlier, however, seems to insist that a Nuclear Safety Liaison Committee should be formed at each port with the responsibility of formulating and, if required, executing emergency plan procedures. An example of the pre-planning which might be carried out by a Nuclear Safety Liaison Committee is attached at Appendix A to this paper. It is to be hoped, however, that as experience is gained in the operation of nuclear merchant ships such Committees will become less necessary and in time, eliminated entirely in ports visited regularly.

Code of Practice for the Reception of Nuclear Ships

The SOLAS Convention—which amongst other things comprises rules for nuclear vessels—is recognised by all Shipping States.

Flag States are required to certify that their ships comply with the rules of the SOLAS Convention and, in this regard, the measure of the freedom of shipping movement can be directly related to the extent of international acceptance of such certification.

States will have satisfied themselves as to the validity of all aspects of the certification including, presumably, the safety assessment of the ship.

In the light of these comments, therefore, a Code of Practice is proposed for the Reception of Nuclear Ships which should include references to the following provisions:—

a) Entry into Port and Territorial Waters

- (i) The Government of any country may require, as a condition precedent to agreeing to admit a nuclear-powered ship to any of its ports, to be furnished with the ship's Port Entry Plan (an example of which is attached at Appendix B of this paper).
- (ii) Timely information of the intended arrival of a nuclear-powered ship in any port and of the route proposed to be followed after entry into territorial waters should be given by the owner or Master of the ship to the appropriate Port Authority.
- (iii) The Government of a country may require a nuclear-powered ship visiting one of its ports for the first time to proceed, after entering territorial waters for inspection by a competent authority.

(This requirement must be set in the context of the current position of a small number of nuclear-powered commercial ships in service. The inspection requirement will need to be reviewed as and when the number of these vessels increase).

- (iv) No radioactive substances, whether in gaseous, liquid or solid form should be emitted or otherwise disposed of from the ship while within territorial waters except in accordance with legal conditions and/or as laid down in the ship's Safety Assessment and agreed by the Government concerned.

b. Operations in Coastal Waters and Ports

- (i) No restriction should be placed on the right of innocent passage of a nuclear ship through territorial waters.
- (ii) The pilotage requirements for nuclear ships in coastal waters should be as for conventional ships.
- (iii) Port entry requirements for nuclear ships should be similar to those of conventional vessels. The Safety Assessment pertaining to the nuclear ship provides the necessary evidence of the ship's safety standards.
- (iv) Berthing arrangements should be flexible. A nuclear-powered ship should have full commercial access to berths.
- (v) No restriction should be imposed on the operation of a nuclear ship's reactor during arrival at, in or departure from ports.
- (vi) A senior officer and sufficient crew should be on board a nuclear ship at all times in port to man the reactor control room for emergency movement of the ship and for fire precautions.
- (vii) The containment space should normally remain intact while a nuclear ship is in port.
- (viii) Access to a nuclear ship in port should be controlled.
- (ix) Fire precautions should be in accordance with the provisions of the Port Entry Plan.
- (x) Explosives should not be handled at or near a berth occupied by a nuclear ship.
- (xi) The most careful attention should be paid to fuelling operations.
- (xii) Repair work should be subject to the requirements of Port Authorities.
- (xiii) Suitable locations should be selected along the coastline to which nuclear ships in distress could be directed.

c. Salvage

- (i) Possible problems of salvage should be considered in relation to the use by nuclear ships of individual ports.
- (ii) A salvage team should be organised as the need arises to deal with nuclear ship casualties consisting of Atomic Energy Authority, salvage and other appropriate experts, and the appropriate Government Department should it be a naval vessel.

d. Arrangements in Port

During the stay of a nuclear-powered ship in the port the following arrangements should apply.

- (i) The master of the ship should be responsible for ensuring that all safety precautions are maintained in accordance with the requirements of the Governmental and Port Authorities concerned.

- (ii) The competent Governmental or Port Authorities may require the continuous manning of the ship and its machinery, controls and safety with a view to (i) dealing with any incident which may affect safety, and (ii) the ship leaving port at short notice, if required.
- (iii) The competent Governmental or Port Authorities may undertake such inspections or maintain arrangements as they think fit with a view to ensuring at all times the safety of the ship and of persons in the port and should have the right of access to the ship for this purpose.
- (iv) No fuelling or de-fuelling operations should be undertaken except under conditions laid down by the Nuclear Authority and sanctioned by the competent Governmental or Port Authorities concerned.
- (v) The competent Governmental or Port Authorities should have the right at any time to require the ship to be moved to a designated place outside a port area and to take such other measures as they consider essential for safety.

Conclusion

We believe that provisions for the reception of nuclear-powered commercial vessels in port areas are matters for urgent consideration at local, national and international port levels. Standardisation of basic procedures should be the aim so that a secure base exists on to which local requirements can be added as and when appropriate.

Appendix A

Reception of Nuclear-Powered Ships at Ports

Pre-Planning by Nuclear Safety Liaison Committee

Pre-Planning by local Nuclear Safety Liaison Committees should include reference to the following:—

General Information

- Objectives
- Responsibility for Safety of Reactor Installation
- Expert Advice
- The Accident Hazard
- Arrangements necessary before the ship arrives

Routine Procedure

- Local Notice to Mariners
- Shipping Traffic Control including:—
 - (a) Regulation of Movement of Vessels
 - (b) Anchorages
 - (c) Radio-Telephony Procedure
- Pilotage
- Towage
- Berthing
- Manning in Port
- Security and Access
- Fire Precautions
- General Safety Precautions
- Cargo and Hold Monitoring
- Routine Monitoring by Ship's Personnel
- Repairs and Dry-Docking
- Release of Radioactive Matter
- Headquarters Control Organisation

Appendix B

Reception of Nuclear-Powered Ships at Ports

Port Entry Plan

The following is the contents of the Port Entry Plan

devised for and used by the Nuclear Research Ship "Otto Hahn":—

1. Introduction
2. Preparations for entering a port
3. Safety in port
 - 3.1 Particulars of the nuclear-powered ship
 - 3.2 Contact with port authorities
 - 3.3 Manning of the ship
 - 3.4 Release of radioactive gases and effluents
 - 3.5 Repairs
 - 3.6 Visitors
 - 3.7 Radiation drill
4. Possibility of a nuclear accident
 - 4.1 Maximum credible accident (M.C.A.), causes and course
 - 4.2 Radiological consequences of the M.C.A.
- Fig. I (Pressure profile in safety containment)
- Fig. II (Water level in pressure vessel)
- Fig. III (Radiological effects)
5. Special port entry plan

Schedule A

1. General remarks
2. Documents used
3. Description of the town
4. Estuary conditions
5. Harbour conditions
6. Shipping directives
7. Competent authorities and departments
8. Communications
9. Nuclear accident
10. Notifications

Schedule B

1. Introduction
2. General remarks
3. Containment leakage rate test
4. Filter test
5. Activity in primary circuit
6. Values recorded by radiation monitors
7. Activity releases in the last 7 days
8. Surface contaminations during the last 7 days
9. Details of any special maintenance work or repairs planned
10. Supplement to Schedule B



NEPTUNE ORIENT LINES LAUNCHES NEW TRANS-PACIFIC SERVICE—Pictured at announcement ceremonies are, from left, Charles D. Doan, regional manager for Furness InterOcean, U.S. agents for the Singapore owned and operated line; Long Beach Harbor Commission president Richard G. Wilson; M.K. Lim, NOL regional representative in San Francisco; Capt. Hasan Madon, NOL operations superintendent; and Jorgen With-Seidelin, president of Furness InterOcean Corp., NOL agents in the U.S. (022178)

Long-Term Work Programme of IMCO Slated for the period up to 1984

The 10th IMCO Assembly, by Resolution A.405 (X), approved a long-term program of work to be undertaken by the IMCO for the period up to 1984. In approving this program, the Assembly requested the Council, the Maritime Safety Committee, the Legal Committee, the Marine Environment Protection Committee and the Facilitation Committee:

- (a) to keep this program under continued review in the light of developments in the work of the IMCO, bearing in mind the implication on the order of priorities of the relevant subjects and with a view to the harmonization of requirements, together with the unification of definitions used in various instruments developed under the auspices of the IMCO and to report or recommend, as necessary, to the eleventh regular session of the Assembly, and
- (b) further in implementing the long-term work program and in making recommendation for the work program in the future, to bear in mind the desirability of scheduling not more than two conferences in each year, save in exceptional circumstances.

Mr. A.J. Smith, IAPH Liaison Officer with IMCO, suggested in his letter of February 10, 1978 addressed to Dr. Sato, Secretary General, that the appropriate Committees of IAPH be advised of the items in the long-term work program to develop an international port viewpoint. The long-term program of work of the IMCO set out in the Annex to the above-mentioned Resolution is as follows. (D.S.G.)

A X/Res. 405
9 December 1977

SUBJECTS FOR CONSIDERATION IN THE LONG-TERM WORK PROGRAMME

The following is an indicative list of subjects for consideration by the Maritime Safety Committee, the Legal Committee, the Marine Environment Protection Committee and the Facilitation Committee for the period up to 1984. The list is not exhaustive and the subjects are not listed in an order of priority.

MARITIME SAFETY COMMITTEE

- (i) Review of technical problems associated with the implementation of an instrument and Resolutions to be adopted by the International Conference on Tanker Safety and Pollution Prevention, 1978.
- (ii) Parameters used in the International Convention for the Safety of Life at Sea.
- (iii) Casualty investigations and reports on deficiencies in ships.
- (iv) Safety measures for ships carrying dangerous goods, special purpose ships, bulk chemical carriers, ships carrying liquefied gases in bulk, roll-on roll-off vessels, container ships, shipborne barges and barge carriers, nuclear merchant ships and for diving systems operating in the off-shore industry.
- (v) Subdivision and damage stability of dry cargo ships.

- (vi) Up-dating the Code for Dynamically Supported Craft.
- (vii) Implementation of Resolutions of the International Conference on Safety of Fishing Vessels and consequential studies, including design, construction and equipment of fishing vessels below 24 metres in length and training and certification of fishermen.
- (viii) Harmonization of the Bulk Chemical Code and the Gas Carrier Code; up-dating of these Codes.
- (ix) Handling in ports of liquid chemical and liquefied gases in bulk.
- (x) Up-dating of recommendations on the Safe Practice in Handling of Dangerous Goods in Ports and Harbours.
- (xi) Emergency procedures for ships carrying dangerous goods.
- (xii) Amendments to the International Maritime Dangerous Goods Code and its Annexes.
- (xiii) Implementation procedures for the International Convention for Safe Containers.
- (xiv) Up-dating of the Code of Safe Practice for Bulk Cargoes.
- (xv) Carriage of solid dangerous substances in bulk.
- (xvi) Routing of ships and traffic separation schemes.
- (xvii) Matters related to the 1972 Convention on the International Regulations for Preventing Collisions at Sea.
- (xviii) The Maritime Distress System.
- (xix) Survival craft radio equipment.
- (xx) Operational standards for shipborne radio equipment.
- (xxi) Revision of Chapter III of the International Convention for the Safety of Life at Sea.
- (xxii) Requirements of training and qualifications for seafarers (other than those which will be included in the draft Convention).
- (xxiii) Manning from the point of view of safety.

LEGAL COMMITTEE

- (i) Possible convention on wreck removal and related issues.
- (ii) Possible convention on the regime of vessels in foreign ports.
- (iii) Arrest of sea-going ships.
- (iv) Legal status of Ocean Data Acquisition Systems (ODAS).
- (v) Possible review of the 1926 Brussels Convention for the Unification of Certain Rules Relating to Maritime Liens and Mortgages, and the 1967 revision thereof.
- (vi) Civil liability in connexion with drilling rigs.
- (vii) Possible review of the CMI "Brussels" Conventions with a view to their being replaced by up-dated Conventions under the auspices of IMCO.

MARINE ENVIRONMENT PROTECTION COMMITTEE

A. Principal Objectives

- (a) Solution of technical problems involved in the

implementation of the 1973 International Convention for the Prevention of Pollution from Ships, including examination of the problem of the implementation of that Convention in relation to the protection of the marine environment in the special areas.

- (b) Development of suitable procedures for the enforcement of the Conventions relating to marine pollution.
- (c) Promotion of technical co-operation in the field of marine pollution, including the development of regional arrangements on co-operation to combat pollution in cases of emergency.

B. Specific Subjects

- (i) Review of technical problems associated with the implementation of the 1969 Amendments to the 1954 Convention for the Prevention of Pollution of the Sea by Oil, the 1973 Convention for the Prevention of Pollution from Ships and an instrument and Resolutions to be adopted by the International Conference on Tanker Safety and Pollution Prevention, 1978.
- (ii) Reception facilities for residues.
- (iii) Oil discharge monitoring system, particularly for light refined oils.
- (iv) Procedures for the control of ships.
- (v) Penalties for infringement of the Convention.
- (vi) Promotion of regional arrangements for combating marine pollution.
- (vii) Development of anti-pollution manual.
- (viii) Identification of the source of discharged oil.
- (ix) Development of manual on intervention under the 1969 Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and the 1973 Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil.
- (x) Categorization of liquid substances.
- (xi) Procedures and arrangements for the discharge of noxious liquid substances.
- (xii) Prevention of pollution by noxious solid substances carried in bulk.
- (xiii) Inclusion of pollutants in the International Maritime Dangerous Goods Code.

FACILITATION COMMITTEE

- (i) To monitor the status of the 1965 Convention on Facilitation of International Maritime Traffic and its Annex.
- (ii) To conduct the facilitation activities within the Organization including promotional activities, in co-operation with Member Governments/ Contracting Governments, and with other Organizations.
- (iii) To consider proposed amendments to the Convention and/or its Annex.
- (iv) To consider formalities connected with the arrival, stay and departure of ships:
 - (a) to monitor the implementation of the Standardized IMCO Model Forms (FAL 1-6);
 - (b) to consider difficulties in implementing the Model Forms, reported by Governments;
 - (c) to monitor and disseminate information on shipping documentation available in different countries.

- (v) To consider formalities connected with the arrival, stay and departure of persons:
 - to consider the possibility of abolishing the requirement for submission of Passenger Lists.
- (vi) To consider formalities connected with the arrival, stay and departure of cargo:
 - (a) facilitation aspects of the intermodal transport of dangerous goods;
 - (b) facilitation measures pertaining to transport operations with shipborne barges.
- (vii) To consider facilitation aspects of forms and certificates emanating from other activities of the Organization.
- (viii) To consider governments' information on implementation of individual provisions of the Annex to the Convention.

Books Available

*I. From: IMCO Secretariat, Publications Section
101-104, Piccadilly, London W1V OAE*

1. Code of Safe Practice for Bulk Cargoes

— (137 pages) — Sales No. 77.07
— Price £2.75

This Code is intended to set a standard for the safe stowage and carriage of bulk cargoes including ores and similar bulk cargoes, concentrates and similar materials.

The subject of the safe carriage of bulk cargoes was studied by delegates to the 1960 International Conference on Safety of Life at Sea. While the Conference was not in a position to frame detailed rules for bulk cargoes other than grain, it did recommend that an international code of safe practice be drawn up under the sponsorship of the Inter-Governmental Maritime Consultative Organization.

This Code is the result of studies which have been made since that time and the practices in it are formulated as recommendations to governments, ship operators and shipmasters. The aim is to bring to the attention of those concerned an internationally accepted method of dealing with the hazards to safety which may be encountered when carrying cargo in bulk.

In general, the hazards may be considered to fall into three categories:

- A. Improper weight distribution resulting in structural damage:
 - (a) Excessive concentration of weight on decks or on inner bottom,
 - (b) Improper distribution of weight between holds.
- B. Improper stability or reduction of stability during the voyage:
 - (a) Excessive stability resulting in violent rolling with attendant possible structural damage and/or cargo shift,
 - (b) Reduction of stability as a result of:
 - (1) a transverse shift of the cargo surface, as in the case of "dry" cargoes and of cargoes which do not become fluid when wet, or
 - (2) a transverse shift of the cargo, as in the case of "wet" cargoes which become fluid.

C. Spontaneous heating:

In common with some other cargoes a few of the commodities covered by this Code are subject to spontaneous heating.

Information on "dry" bulk cargoes is given under the

heading of "ores and similar bulk cargoes" and information on "wet" bulk cargoes is given under the heading of "ore concentrates".

Provisions of this Code of safe practice relating to the carriage of bulk cargoes apply when such cargoes are a considerable part of the total cargo for the voyage. When bulk cargoes, except ore concentrates, make up less than one-third of the cargo deadweight of the vessel, the shipmaster, at his discretion, may depart from the portions of the Code that are not considered to apply.

The provisions relating to the carriage of ore concentrates in this Code of safe practice apply when concentrates are any significant part of the total cargo for any voyage. In the case of small part cargoes of concentrates carried in general cargo vessels it may not be necessary to comply fully with these provisions.

A list of typical products currently shipped in bulk appears in Appendices "A" and "B". It should be carefully noted, however, that these lists of products are not exhaustive and that the physical properties which have been attributed to them are for guidance only. Consequently, whenever the shipment of a bulk cargo is contemplated, it is essential to obtain the currently valid information about its physical properties prior to loading.

Since valuable information leading to improvements in this Code may be gleaned from further experience with concentrates, it is recommended that shipmasters be encouraged to inform their Administration of the behaviour of concentrate cargoes and, in particular, report the circumstances of incidents involving such cargoes.

2. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and the 1973 Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than oil (1977 Edition)

— (25 pages) — Sales No. 77.15.E. (English)
No. 77.15.F. (French)
— Price £1.25

This publication contains the text of the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, done at Brussels on 29 November 1969 and the text of the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil, 1973, done at London on 2 November 1973, including the Annex containing a list of substances established by the Marine Environment Protection Committee of IMCO in accordance with paragraph 2(a) of Article I of the Protocol. It should be noted that, while the Convention entered into force on 6 May 1975, the Protocol is not in force as of the date of this publication.

3. International Convention on Civil Liability for Oil Pollution Damage (1969) and Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969 (1976)

— (20 pages) — Sales No. 77.16.E. (English)
No. 77.16.F. (French)
— Price £1.25

This publication contains the text of the International Convention on Civil, Liability for Oil Pollution Damage, done at Brussels on 29 November 1969 and the text of the Protocol to the International Convention of Civil Liability for Oil Pollution Damage, 1969, done at London on 19 November 1976. It should be noted that, while the

Convention entered into force on 19 June 1975, the Protocol is not in force as of the date of this publication.

4. International Convention for the Prevention of Pollution of the Sea by Oil, 1954

— (25 pages) — Sales No. 78.01.E (English)
No. 78.01.F. (French)
— Price £1.25

This volume contains the text of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, and incorporates the Amendments adopted by the International Conference on Prevention of Pollution of the Sea by Oil, 1962 and those adopted by the sixth Assembly of the Inter-Governmental Maritime Consultative Organization on 21 October 1969 (Resolution A. 175(VI)). The 1962 Amendments have been in force since 28 June 1967 and the 1969 Amendments became effective on 20 January 1978. The Resolutions adopted by the International Conference on Prevention of Pollution of the Sea by Oil, 1962 contained in a previous publication (No. 72.13.B) are not included in this edition.

The Amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (as amended in 1962) adopted by the seventh Assembly of the Inter-Governmental Maritime Consultative Organization on 12 October 1971 (Resolution A.232(VII)) and on 15 October 1971 (Resolution A.246(VII)) have been included in this edition as Supplement 1.

*II. From: The Netherlands Maritime Institute
Delft, The Netherlands*

**Sub-Standard Tankers by F.M. van Poelgeest
(67 pages)—R70, February, 1978**

General outline of the problem

The problem of "sub-standard" tankers has as yet not been thoroughly investigated. Up to now much attention has been paid to the development of the so-called flags of convenience, and the results of this development. In the investigations into these flags of convenience little or no distinction was made between the owners operating under the various flags. The phrase "flag of convenience operator" is too much of a generalization.

It should be clear that not all owners/managers with vessels registered under such flags can be considered sub-standard operators. From a financial and/or operational point of view, registration under a flag of convenience can be beneficial. Much will of course depend on the position of the particular owner/manager, for example, with regard to his tax position. No owner/manager should consequently be blamed for selecting the most advantageous financial and/or operational proposition available to him. He is working in an international environment and is subject to international competition.

An owner can, however, be blamed for misusing the lack of supervision under certain flags by not complying with internationally-accepted operational standards. Examples of such standards are the norms laid down in the various IMCO conventions. Control on the implementation of these standards is in the hands of the various national shipping authorities.

Flags of convenience are usually identified with lack of supervision and are consequently associated with sub-standard operations. However, one of the conclusions of this report is that a great many incidents which occur to

flags of convenience vessels involve human failure of some description. As there are no international manning standards with respect to quality and quantity of crew, there clearly exists a gap in international legislation.

There are signs that there is a growing international awareness of the need to eliminate the sub-standard tanker problem.

The recent "Argo Merchant" case has once more emphasized that apart from an increased pollution risk, sub-standard tankers produce other detrimental effects. Such effects appear in the form of a surfeit of international maritime legislation, increased collision risk, a distortion of competitive positions, etc.

The purpose of this study is:

- i. to ascertain in which sections of the tanker fleet sub-standard tankers can be found;
- ii. to determine trends in size, age, flag, ownership, type of accident, etc.;
- iii. to estimate the size of the problem in relation to the world tanker fleet;
- iv. to determine whether the problem is a temporary one or not;
- v. to consider the consequences of the existence of sub-standard tankers;
- vi. to examine the position of existing organizations and their contribution towards the elimination of the problem;
- vii. suggestions for improvement.

III. From: Benn Publications Ltd. 25 New Street Square, London, EC4A 3JA, England

International Manual of Maritime Safety 1978 Edition

- in English and in Portuguese
- Price £40 (US\$75) inclusive of packing and postage/world airmail

This Manual is the latest breakthrough in the presentation of human life, ships and cargo at sea, and unites all shipowners and crews under a common flag—SAFETY.

The Manual is fully illustrated and packed with the most relevant information on:

EMERGENCY ORGANISATION

Covers the Emergency Organisation required at sea and in port.

CREW TRAINING

Covers the general aspects of crew training procedure.

FIRE PRECAUTIONS

Details all aspects of fire prevention and how to combat all types of fire including LNG and LPG.

PERSONNEL SAFETY

Deals exclusively with all aspects of accident prevention to personnel including working with machinery.

EMERGENCY PROCEDURES

Covers in detail the majority of emergency situations that can happen at sea (or in port) and how to deal with them. The section also includes fully illustrated and detailed first-aid procedures.

CARGO HANDLING

Covers the precautions necessary when handling dangerous cargoes in particular crude oil, bulk cargoes, LPG and LNG.

FIRE FIGHTING EQUIPMENT

Covers the numerous types of fixed foam and CO₂

systems on modern ships and also the various types of portable extinguishers including their limitations and maintenance.

SAFE NAVIGATION

Covers the basic principles of safe navigation and includes details of the limitations and use of various navigational aids.

Membership Notes:

Changes in the Board of Directors

Director and Alternate Director from Australia were changed as follows.

Director:

from: Mr. A.J. Peel, Former Director,
Department of Harbours & Marine
Brisbane, Queensland
to: Mr. J.M. Wallace, President
Maritime Services Board of New South
Wales, Sydney

Alternate Director:

from: Mr. J.M. Wallace
to: Mr. A.G. Field, Chairman
Townsville Harbour Board,
Townsville, Queensland

Obituary

Mr. Thomas P. Guerin, former General Manager and Secretary of the Commission of Public Docks, Portland, Oregon, USA and IAPH Life Supporting Member, passed away on January 17, 1978.



Long Beach, Calif., 022378 (Port of Long Beach News):—
PORTS OF LOS ANGELES AND LONG BEACH IN JOINT PRESENTATION TO NEW STOLT TANKER:
Something unique in traditional maiden voyage presentations occurred recently when the new Stolt parcel tanker M/t Stolt Integrity called on both the Port of Los Angeles and the Port of Long Beach during her maiden voyage and the two harbor authorities joined in a double plaque ceremony aboard ship. Pictured from left are Jorgen With-Seidelin, president of Furness InterOcean Corp., San Francisco, U.S. agents for Stolt; Lee Sellers, asst. general manager for the Port of Long Beach; Captain Thore R. Hval of the Stolt Integrity; Ron Kennedy, Director of Port Operations for the Port of Los Angeles; and Gerd Brewer, tanker traffic manager with Furness. The Stolt Integrity is the fourth of seven such parcel tankers being built for Stolt-Nielsen Inc. in France.

Industrial Ports and Economic Transformations

Series No.3

By Paul Hanappe and
Michel Savy

CHAPTER II—Continued

THE GROWTH MECHANISMS OF THE PORT INDUSTRIAL ZONES AFTER THE SECOND WORLD WAR

CONTENTS

2.1 THE UNDERLYING TRENDS IN PORT INDUSTRIALISATION—Continued

2.1.4 The port zones, areas of dominant capital
concentration

2.1.5 A point of convergence of the forces involved;
land conquered from the sea in Japan

2.2 RECENT LIMITS TO THE OPERATION

OF THESE TRENDS

2.2.1 Petroleum developments

2.2.2 Modifications in State interventions

2.2.2.1 Sector programmes for overall regula-
tion

2.2.2.2 Shifts in port policy

2.2.2.3 State intervention and port industrial
development

2.2.3 The flattening-out of scale economies

2.2.4 The growth of the cost of congestion and of
protection against pollution

2.2.5 An illustration of the reversal of trends: the
British case

2.1.4. The port zones, areas of dominant capital concentration

The ascendant phase of the fourth Kondratieff cycle of
the industrial era was, like the third, marked by a
considerable drive towards the internationalisation of the
economy. From 1896 to 1913 it was possible to see the

Table 2.3—PRINCIPAL PORT INDUSTRIES

2.3.1—HAMBURG¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
BP	petroleum	Holland & UK	M		Degussa Group
Hamburger Stahlwerke	iron & steel	W. Germany	N		
Reynolds-Aluminium	non-ferrous	USA	M		
Texaco	petroleum	USA	M		
Shell	petroleum	Holland & UK	M		
Norddeutsche Affinerie	chemicals	W. Germany	M		
Esso	petroleum	USA	M		

¹ Source: Hafen Hamburg General Plan. Position, 1973

² Code: M = multinational
N = national
B = binational

Table 2.3—PRINCIPAL PORT INDUSTRIES

2.3.2—BREMEN¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
A.G. Weser	shipbuilding	W. Germany	N		Thyssen group
Bremer Vulkan	shipbuilding	W. Germany	N		
Gebr. Lürssen	shipbuilding	W. Germany	N		
VFW—Erno	aircraft construction	W. Germany & Holland	B		
Klöckner-Werke	iron & steel	W. Germany	N		Has merged with Fokker
Mobil-Oil	petroleum	USA	M		

¹ Source: Bremen, World Port with industrial appeal

² Code: M = multinational
N = national
B = binational

considerable development of the internationalisation of capital; the same phenomenon was shown after the Second World War, this time accompanied by internationalisation of the production process; it came to general attention which was infatuated with the study of the development of multinational firms, certainly an important but not the only manifestation of the phenomenon.

As directed by the logic of capitalist industrial development it was the dominant capital which was found to be most engaged in the internationalisation of the production process, shown in a principal way in the dominant branches.

Internationalisation of the production process had, as its necessary condition, the development of appropriate forms of international transport. This explains in particular the revolutions of maritime transport in this period, the large bulk carrying vessels and containerships, and the growth of air freight.

Under these conditions it is not surprising that dominant capital in its process of internationalisation was found to be preferentially invested in the port zones¹.

¹ And also the airport zones—see in particular on this subject P. Hanappe, *Multinational firms at Roissy?* Paris, duplicated OTAM study, 1972 (in French)

This is what is found to be confirmed by the examination of tables 2.3. which list the principal industrial establishments in the port zones of the major North Sea ports and in the three major French ports (for Japan see 2.1.5.). Nearly three-quarters of the major industrial establishments belong to multinational companies. Undoubtedly if this list of establishments was extended to include small and medium-sized companies, which are numerous in the North Sea ports, the proportion would be smaller; however the large establishments form the motive power behind port industrial developments of the epoch, not only by their size but principally by their function.

As far as the Japanese ports are concerned the categories of multinational, national and binational firms apply, but their content must be made more specific. It is well known that, until very recently, Japanese companies were closed to foreign capital; one does not therefore find the presence of American multinational firms which, during the same time, became established in a massive manner in Europe. The only major exception is formed by the oil companies, in general half being provided by one of the major world oil companies, the other half by Japanese capital. Practically all the other companies have Japanese capital; most of them, amongst the largest and in the normally multinational sectors, have an internationalised market and production apparatus to the point where they really fall into the category of multinational company; however the intensive integration, both horizontal and vertical, in the major Japanese groups often makes it difficult, in the absence of a detailed study, to attribute national or multinational character to a company. For this reason no attempt has been made to fill in the column corresponding to this characteristic in the table covering the Japanese ports. It should be added that the category of "binational company", in the sense understood by B. Merenne-Schoumaker¹, is scarcely applicable to Japan because of the insular character of this country.

More detailed examination of the tables, distinguishing the major branches of activity, confirms this motor role and permits comparisons with what has been said in previous

paragraphs, in particular in paragraph 2.1.1, concerning the dominance of the petroleum branch.

¹ B. Merenne-Schoumaker, Factors entering into account in the selection of location, in "Location of companies and regional development", Charleroi, Centre Inter-universitaire de formation permanente, 1974 pp. 33 to 55 (in French).

One finds petroleum refineries in all the major ports, either belonging to the major world companies which dominate this branch or to those rarer national companies of significant importance, which are also constrained to multinationality. The chemical industry is largely present in certain ports (Antwerp, Rotterdam, Le Havre, Fos-Berre), practically absent in others; this is the phenomenon of cumulative development chemical platforms, as indicated in paragraph 2.1.1.c. above. The variety of firms is greater than in the petroleum field; the developments are singularly multinational: one finds one of the major British firms at Fos; at Le Havre, French, British and American firms are side by side; at Antwerp one finds the largest range with the major German, American, British, Italian and Belgian chemical companies. But in all cases it is a question of multinational companies, the original capital for which can come from the country in which the port is located or from elsewhere.

The iron and steel industry, also present in certain ports (Bremen, Dunkirk, Fos, Genoa, the Japanese ports, etc.) rarely consists of multinational firms, particularly because of the low profit levels and the methods of injecting public capital into the branch¹. For this reason it is this branch, with shipbuilding which has similar characteristics, which provides the main body of the contingent of national companies present in the ports.

One notes also the much more generalised presence of the automobile industry (Antwerp, Le Havre, Nagoya, Hiroshima); this situation is largely explained by the internationalisation of this branch and by its relationships with transport, as was shown in the first phase of this research work².

¹ cf. Paul Hanappe, Spatial Aspects of industrial development in Western Europe; Economic and political areas, *Environment and Planning A*, volume 7, pp. 439-448, 1975.

² op. cit.

These technico-economic considerations, specific to the industrial branches concerned, are strengthened by a factor of more general character. We saw in effect, in paragraph 2.1.2., how the technical and institutional characteristics of the maritime ports made them particularly appropriate places for the injection of public capital into the economy. If it is in fact true that the injection of public capital constitutes, with the new forms of internationalisation of capital, one of the essential motive forces for the particularly sustained economic development during the two decades after the Second World War, it is obviously logical and natural to find the massive presence of internationalised capital dominant in those places where all the most favourable conditions for the emergence of profit are joined together.

Obviously the maritime ports are not the only places which meet these conditions, and dominant internationalised capital is also concentrated in other places which are not all central points of the transport system. From this point of view one of the main discriminating factors which orientate certain industrial activities towards the maritime ports is to be found in the third fundamental and explanatory trend in port industrial development,

Table 2.3—PRINCIPAL PORT INDUSTRIES
2.3.3—ROTTERDAM¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
Shell	petroleum	Holland—UK	M		
Gulf	petroleum	USA	M		
B.P.	petroleum	Holland—UK	M		
Esso	petroleum	USA	M		
Chevron Texaco	petroleum	USA	M		
Shell Nederland Chemie	chemicals	Holland—UK	M		
Albatros	chemicals				
Esso Chemie	chemicals	USA	M		
Zout-Organon Cynamid	chemicals	Holland	N		
Nederlandse Cynamid	chemicals				
Ketjen Carbon	chemicals				
Nederlandse Benzol	chemicals				
Dow Chemical	chemicals	USA	M		
Zoutchemie Botlek					
Continental Columbia					
Carbon Nederland	chemicals	USA	M		
Milchem Nederland	chemicals				
Konam	chemicals				
Aluchemie					
others	—cement works —electric power stations —metallurgy —etc.				

1 Source: Carlo Beltrame, Coastal industrialisation in the countries of Western Europe, Rome, Centre for studies on port problems, 1973 138 pp. (in Italian)

2 Code: M = multinational
N = national
B = binational

namely the possibility of effecting major scale economies. As we saw in paragraph 2.1.3. in the state of technology during this period such possibilities arise, amongst other activities, in the production of intermediate goods able to benefit fully from scale economies in maritime transport. Also the major part of the investment of dominant capital in the port industrial zones corresponds to the most profitable of the productions of intermediate goods; here one also finds national capital supported directly by public capital, engaged in the less profitable production of intermediate goods of which steel is the prototype.

2.1.5. A point of convergence of the forces involved; land conquered from the sea in Japan

We emphasised in the introduction the deep similarity of the situations of Japan and Western Europe in the face of the major economic movements which followed the Second World War. We are now in a position to return more specifically to those which led to the formation of the port industrial zones, and to point out that they operated even more powerfully in Japan than in Western Europe.

Let us recall first of all that the rates of growth were much more rapid there; the transformations which corresponded to this were therefore more rapid, more far-reaching and more spectacular. The domination of the petroleum branch operated there in a much more brutal

and sudden manner, inasfar as the country was cut off, by the consequences of the war, from its traditional sources of supply, whilst its own resources of coal were not very large. This more massive and more rapid recourse to the importation of raw materials and energy sources posed balance of payment problems. In order to meet these the Japanese State gave more vigorous and more overt aid than in Europe to industries which were capable of exporting; amongst these there were many which could be installed in the ports; various techniques for injecting public capital into the economy were widely used, in particular port investments; as we will see below the massive recourse to the recovery of land from the sea by public financing made it possible for the State to provide industrial sites for industry which were well placed, under particularly advantageous conditions in a country where land was so rare and so expensive. The speed of growth allowed the movement to gigantism in the pursuit of scale economies to move at a rate which often placed Japan ahead of the industrialised countries from this point of view. By basing its position on the massive importation of raw materials and sources of energy, on the correlative increase in exports, and on the intensive utilisation of American technology, the Japanese economy became internationalised more rapidly than that of the two other units of the capitalist industrial world, but in a specific manner.

Table 2.3—PRINCIPAL PORT INDUSTRIES

2.3.4—ANTWERP¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
Albatros	petroleum			1935–1968	
Anglo-belge des pétroles	petroleum			1921	(40,000 t. annual capacity)
Raffinerie belge de pétrole	petroleum			1934	
Esso Belgium	petroleum	USA	M	1953	
Soc. ind. belge des pétroles	petroleum	Holland and UK	M	1951	B.P.
Air Liquide	chemicals	France	M	1961–1971	
Badiphil	chemicals	Holland and UK	M	1968	BASF–Philipps
BASF	chemicals	W. Germany	M	1967–1971	
Bayer	chemicals	W. Germany	M	1967–1971	
Degussa	chemicals	W. Germany	M	1970	
Essochem	chemicals	USA	M	1960–1971	
Monsanto	chemicals	USA	M	1966–1971	
Pétrochim	chemicals	Belgium	M	1951–1968	Petrofina
Polyolefins	chemicals			1968	
Polysar	chemicals			1963–1969	
Quaker Fuxans	chemicals			1967	
Solvay	chemicals	Belgium	M	1970	
Union Carbide	chemicals	USA	M	1962–1970	
Ford tractor Ltd	automobile	USA	M	1965–1971	
General Motors Cont. SA	automobile	USA	M	1951–1967	
Béliard-Murdoch	ship repair			1961	
Mercantile Marine Engineering and Graving Docks	ship repair			1925	(Only 50 employees)
Union de sauvetage et de remorquage	ship repair			1969	

1 Source: French documentation: Le port d'Anvers (December 1971)

2 Code: M = multinational

N = national

B = binational

Table 2.3—PRINCIPAL PORT INDUSTRIES

2.3.5—DUNKIRK¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
Usinor	iron & steel	France	N	1963	Denain–Nord-Est-Longwy (Usinor)
Air Liquide	chemicals	France	M	1962	
Vallourec	metal	France	N	1963	Denain–Nord-Est-Longwy (Usinor)
B.P.	converting	Holland & UK	M		
C.F.R.	petroleum	France	M	1973	C.F.P.
Huiles Lesieur	petroleum	France	M		
Atelier-chantier	A.A.I.				
Dunkerque-Bordeaux	shipbuilding	France	N		

1 Source: Study by PROSPECTIVE ET AMENAGEMENT on Fos and Calais-Dunkirk

2 Code: M = multinational

N = national

B = binational

The factors which have been identified as being at the origin of the development of the port industrial zones therefore operated in a more powerful manner in Japan than in Western Europe. It is not therefore surprising that

the phenomena were shown there with a vigour and an amplitude greater than can be seen anywhere else; it is not necessary even to invoke the specific geographical factors, such as the structure of the mountainous islands of this

country and the urban concentration on the coasts, to explain why maritime transport played a more important role than in any other places¹; certainly these geographical factors play a permissive and amplifying role in regard to this phenomenon. If the latter experienced such a degree of development it is, in our opinion, mainly for the economic reasons which we have set out.

It took in fact a special form, quite specific in its widespread nature and its importance, and this was the "Umetate-chi", or the creation of new areas for industrial location in the port zones².

a) History and definition of the Umetate-chi

These are land obtained from the sea by embanking, unlike polders which are obtained by drainage³.

¹ In many respects one could say the same of Italy, where the development of the port industrial zones has not shown such an extraordinary growth. This was because the economic growth of this country was based principally on its continental relationships with Western Europe.

² definition given by W. Flüchter, *op. cit.* Dr. Flüchter's work forms one of the best syntheses of the geographico-economic aspects of the phenomenon.

³ this latter technique had been largely used in Japan to obtain land for cultivation. During the sixties the overproduction of rice led to the abandonment of the practice.

Before the first Meiji era (before 1868) this technique had been used occasionally, but not particularly in the port zones. After 1868, with the opening up of the country to external trading, the construction of the ports passed under the authority of the State; the essential commercial functions of the ports, conforming with the type of internationalisation of the economy of the epoch, did not however necessitate particularly large areas. During the twenties a start was made on embanking land for industrial use in the ports; however the phenomenon only really became at all important towards the middle of the fifties with the start-up of the major economic growth of the fourth Kondratieff cycle of the industrial era. In this way, and between 1954 and 1971, three hundred and thirty-three square kilometres of new land were created, of which two hundred and seventy-two were in the port industrial zones¹.

Practically nine-tenths of this area was created in the bays of Tokyo, Nagoya and Osaka and in the inland sea situated between the islands of Honshu and Shikoku.

This technique made it possible to obtain rapidly the large areas required by industry, whilst reserving the possibility of subsequent extension; their location in the major ports ensured all the facilities of maritime transport together with easy connection to the motorway system. The cost price of the land obtained in this way was lower, often of the order of a half, that of adjacent urban or peri-urban land; furthermore the ownership of the latter was generally very much divided up, so that its use would have presented complex problems of expropriation and would have seriously held back the industrial programme. There was also the argument of the reduced industrial pollution from factories situated almost at sea; it is known, however, that this did not prevent the enormous concentrations of factories which were produced in this way from creating atmospheric pollution problems of an unprecedented gravity.

b) Economic and institutional aspects

An industrial zone produced by raising the soil level in

this way is normally used for a "combination" in the Japanese sense of the word. This involved² the spatial grouping of large production units, linked at a functional (and sometimes financial) level; its principal activities involved the first (or initial) converting of raw materials.

¹ An additional four hundred and twenty-seven km² were provided for in the 1971-1974 Plan. These projects have been considerably revised downwards.

² definition of Doctor Flüchter, *op. cit.*

We see here the vertical and often horizontal integration of one or more branches (petrochemicals, iron and steel, aluminium, food industries, etc.); the whole unit generally comprises one or more refineries and thermal power stations. It uses a deep-water port; rationalisation in transport is extensive. These activities are highly capital-intensive.

This is not the simple juxtaposition of heavy industries which have arrived, in due course, at establishing themselves in a port zone as a function of the strategy of the individual company, but of an interdependent assembly planned as such.

These combinations are the fruit of detailed collaboration between the State and the major companies. It is in general the State which chooses the location, after having been assured of the real interest in the project by the firms which are "invited" to participate in it. The State then finances all the infrastructures.

The companies interested normally belong to the major holdings which associate a large bank with very varied industrial, commercial and transport activities. These groups generally include public works enterprises which can carry out the embanking work, often using as the back-filling material the waste of other industrial activities in the group.

Overall responsibility for the engineering works is generally in the hands of the public authorities: either the State itself or the province or commune, more rarely a private group¹. However in all cases the engineering work is placed under the direct control for the Minister for Transport (whose agreement is essential for obtaining the public finance) acting in a close relationship with the MITI (Ministry of Industry and External Trading).

The province or the commune, in charge of the engineering work, benefits from advantageous loans from the Ministry of Transport² and borrows the remainder from the financial market. In the most attractive regions for industry the public authorities sometimes require an advance of part of the constructional costs from the future industrial users. In all cases the leasing or transfer of the site to the industrialist is done at the cost price of the operation, without reference to the estate value of adjacent land. This is no small advantage in a country where the value of urban land has increased, on average, five times between 1960 and 1970.

¹ The iron and steel industry, in general

² 6.5% over seven years in 1972.

c) The industrial content

The industrial content of these zones does not differ from that of the European zones in the nature of most of the activities found there. If there is a point to be made it is rather the generally larger size of the Japanese units, and the point already made of the planned complementarity of the activities. Having said this it is interesting to carry out a

Table 2.3—PRINCIPAL PORT INDUSTRIES
2.3.6—LE HAVRE¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
1	2	3	4	5	6
C.F.R. Hydrocarbures de Saint-Denis	petroleum petroleum	France France	M N		C.F.P. Société chimique des charbonnages
Société Normande de l'azote	chemicals	France	M		C.F.P.
Rhône Progil	chemicals	France	M		Rhône Poulenc
Thann et Mulhouse	chemicals	France	M		Rhône Poulenc
Pétrosynthèse Orogil	chemicals	France	M		C.F.P.—Rhône-Poulenc
Goodyear	chemicals	UK	M		
Erhylox	chemicals	France	M		PUK
Lubrizol	chemicals	USA	M		
Cie du Polyisoprène Synth.	chemicals	UK and France	M		Association Good-year-Michelin
Cofaz	chemicals	France	N		Pierrefitte-Auby and C.F.P.
Renault	automobiles	France	M		
Ciments Lafarge	building materials	France	N		(some subsids. in Africa, Canada)
Luterma	wood	UK	M		Venesta
Société des Bois Charles et Fils	wood				
Le Nickel	non-ferrous	France	M		Penarroya
Tréfinmetaux	non-ferrous	France	M		PUK
Compagnie Electromécanique	mech. & elec. engineering	France	N		
Ateliers et Chantiers du Havre	shipbuilding	France	N		
CNMP—Berthiez	mech. eng.	France	M		Marine-Firminy-Pont-à-Mousson
Sidel	plastics converting	France	M		Saint-Gobain—Pont-à-Mousson

1 Source: Port Autonome du Havre brochure (June 1974)

2 Code: M = multinational
N = national
B = binational

rapid examination of the branches which are most widely represented.

i—The refining of petroleum constitutes, as would be imagined, one of the essential factors in the industrial framework of an Umetate-chi. Between 1961 and 1971 the consumption of the country increased from 65 to 165 million tonnes per year. The refineries are practically all located on the coast, mainly in the bays of Tokyo, Nagoya and Osaka together with the borders of the inland sea; this is a geographical structure which will be found repeated for most of the heavy industries.

In recent years with tankers of 300,000 tdw and above, there has appeared the solution of the very large capacity terminal, from which the crude is redistributed by smaller units. This is the case with the Nippon Oil (Caltex) terminal in the bay of Kagoshima (at the extreme southern end of the island of Kyushu), the largest in the world at this time. This solution has been used for supplies from the Persian Gulf. Over shorter distances, such as from Indonesia, vessels as large as this are not suitable, and direct importing remains the most economic solution.

Finally we should point out that, in the redistribution of the refined products, 61% is carried out by sea, 24% by road and only 6% by rail and 9% by pipeline (1971 figures).

As far as the by-products intended for petrochemicals are concerned these are largely used on site within the framework of a "combination".

ii—Petrochemical has grown mainly since 1955, with the encouragement of the State, and has been developed by the major national groups. As a result the petrochemical companies with mixed American-Japanese capital have launched into petrochemical activities with more vigour and "rationalisation" than the older chemical groups. Finally a new "petrochemicals group" was formed from very varied capital in 1969.

Heavy chemical industry is practically always located in the port "combinations", in the immediate proximity of the petroleum refineries; light chemicals are located in the urban zones, nearer to the markets, and to a lesser extent in the interior of the country.

The size of the production units has increased throughout the whole of the period until in 1967 the MITI fixed experimental standards, laying down in particular 300,000 tonnes annual capacity for a steam-cracking unit.

It was towards 1971 that the tendency towards growth ceased and when the "recession cartels" began to appear.

iii—The iron and steel industry. This is the branch in which geography is most clearly shown in the older locations,

Table 2.3—PRINCIPAL PORT INDUSTRIES

2.3.7—FOS-sur-MER¹

Company	Branch of activity	Country of origin	Type of company ²	Date of establishment	Notes
Esso	petroleum	USA	M	1965	Usinor-Wendel-Sidelor PUK
Solmer	iron & steel	France	N	1974	
Ugine Aciers	iron & steel	France	M	1973	
I.C.I.	chemicals	UK	M	1972	
CFEM	metal	France	N	1972	
Air Liquide	constructions chemicals	France	M	1972	

1 Source: Study by PROSPECTIVE ET AMENAGEMENT on Fos-Calais-Dunkirk (1974)

2 Code: M = multinational

N = national

B = binational

influenced by the presence of raw materials (coal mines in the west of Hokkaido, to the north of Tokyo and of Kyushu) or the market (armaments industry at Tokyo); not all the factories are located in ports, however; the influence of the inland sea has increased during the period which concerns us.

Up to the end of the second World War production was in the hands of the Japan Iron and Steel Company, a quasi-monopolistic situation. The anti-trust measures taken by the Americans after the war resulted in the formation of three major iron and steel companies. Competition operated between them and the new companies in the expansion phase in the form of a drive towards investments and gigantism of the installations. This resulted in a high average technological level; about four-fifths of the steel is produced with oxygen in L.D. converters. This lasted until 1970, the year when the slowing down in growth and the more acute character of competition on international markets resulted in concentration movements; today the six largest groups account for 97.5% of the production of cast iron and 81% of the steel; Nippon Steel, the result of the merger of the two largest producers, Japan Iron and Steel and Fuji Steel, alone produce 43% of the cast iron and 34% of the steel.

Furthermore the iron and steel companies have moved a considerable distance from the segmentation of activities as a function of their profitability. They only employ about half the personnel necessary for the production of the iron and steel products directly; this half consists mainly of skilled labour. For the rest they have recourse to sub-contracting companies covering transport, maintenance, building, etc. Since the workers of these latter do not benefit from the security of employment which is granted by the larger groups to their employees, it is possible to modify the level of employment as a function of the economic situation without having to compromise major principles.

85% of all deliveries (domestic market and exports) are made by sea.

iv—Aluminium. This industry, a massive consumer of electricity, has, as in many other countries, followed the electrical production which, in the age of petroleum, has been installed on the coasts. At the present time half the production is carried out on the Umetate-chi, the rest in the coastal zone. The "energy crisis" and rising oil prices resulted in a sudden halt to this type of development; the

cost of energy is such that it is impossible to produce aluminium in the developed industrial countries; it is now the field of activities of those countries which have both bauxite and hydro-electric potentialities.

Only the oldest companies (which are also the largest, since the three main companies handle three-quarters of the production of aluminium) treat bauxite in Japan itself. The others, in the guise of an intermediate stage, treat the bauxite in the country of origin and import the alumina; before the rise in the cost of energy this allowed them to realise economies in the cost of transport (since four tonnes of bauxite produce one tonne of alumina) and to avoid the problems of pollution ("red sludges") to which the Japanese were beginning to be sensitive at more or less the same time as the Kondratieff reversal.

The companies have shown, in their activities, a degree of clairvoyance since official planning had always advised at that time "the development of the coastal industry by a more deliberate integration towards the raw material".

v—The shipyards have developed, historically, in relation with the iron and steel industry. The fabulous growth of this branch in Japan is well known; in 1973 four-fifths of the production were for export, and the country had an impregnable position in the construction of giant tankers.

The move towards gigantism in vessels affected the location of this activity. Obviously it was always necessary to operate in a port and have good links (if necessary by sea) with the iron and steel industry; however the central locations (in particular in the three bays) which were formerly sought for reasons of commercial contacts and recourse to the industrial fabric, are now neglected in favour of the peripheral regions where space is more easily found, both on land and at sea, with appropriate depths of water.

Finally we should mention another development which is interesting in the perspective of the "cautious approach" of the dominant fractions of capital when the Kondratieff wind swung round. The large shipyards began to protect themselves against economic variations by developing heavy engineering activities which used similar technologies and similar workers. This orientation seemed to be chosen the more astutely since the products of this activity are of a size such that transport by water is technically necessary. At a time when certain saw in nuclear production a sector capable of becoming dominant this was well calculated.

vi—The food industries underwent a development related to

the decline in traditional agriculture. The growth of imports of food products contributed towards orientating this new industry towards the port zones; a return, one might say, to a former situation since the converting of tropical agricultural products for a long while constituted one of the oldest industrial "clients" of the ports.

vii—The production of energy (electricity and gas) is an indispensable complement to the industrial developments listed above. Furthermore the location in the central urban zones of most of the Umetate-chi, except the most recent, made them the optimal sites for the production of energy, the more so since the sea supplied them with the necessary cooling water. Thermal power stations have largely taken over from the former hydraulic power stations, and now account for nearly four-fifths of the production of electricity; within this thermal production of power 80% is from fuel oil as against 20% from coal. Proximity to the refineries, which as we have seen are practically all in the port zones, is therefore an essential localisation factor when it coincides with the proximity of the market and the availability of cooling water.

The growth in the size of the apparatus has been spectacular, in Japan as in other countries, where electrical power stations are concerned. The most powerful station in Japan, situated at Chiba in the bay of Tokyo, has one 600 MW set and two 1,000 MW sets; the construction of a fourth set has been approved by the Government, and space is available for a fifth set. This plant is representative of recent trends such as the substitution of liquefied gas (LPG) for fuel oil, partly for ecological reasons; it is in fact a "green factory", where gardeners are as numerous as electricians, and which contrasts strongly with the older plants in the same port industrial zones.

The production of electricity has benefited from governmental favours, in particular long term public loans at a low rate of interest. This has contributed towards allowing a price for electrical energy which is distinctly lower than in the other capitalist industrialised countries, and which has contributed to the competitiveness in the growth of the Japanese industry. This is another example of the importance of the insertion of public capital into the economy during the ascendant phase of the fourth Kondratieff cycle of the industrial era.

viii—The converting industries are much more rarely present in the Umetate-chi. We have mentioned the occasional presence of automobile construction, but only when this is directed towards exports. One also finds miscellaneous companies such as a factory for the production of domestic electrical appliances, attracted by the low price of the land.

Outside these special cases the other activities found here are glass factories, cement works, inorganic chemicals, chemicals from coal or coke plants associated with the iron and steel industry, etc.; all these activities being covered by the category of intermediate products.

2.2 RECENT LIMITS TO THE OPERATION OF THESE TRENDS

It would be naive and mechanistic to wish to reduce all evolution to a reversal of the long-term Kondratieff movement; it would also be simplistic to wish to explain this reversal in detail by the fading out of those trends which have been identified both as characteristic of the latest ascendant phase and also as the driving forces behind port industrialisation.

In order to avoid this double trap, and without at the

same time falling into basic empiricism, it would seem to be advisable to distinguish clearly the stages in the following approach, working in the light of hypotheses forming the general economic framework without becoming their prisoner. To this end we will firstly examine the recent development of the major trends which have been studied; in this way we will see, in the second half of this chapter, how they have for several years now come up against limits which do not all proceed from the same logic. Chapter III will then be devoted to studying the new trends which have recently emerged in relation to and in port activities. It is only when all this work has been carried out that an attempt can be made to interpret the present port situation within the framework of a general explanation of economic movements.

The plan of this second part therefore corresponds in its major lines to that of the first part of the chapter. It is not however a question of complete subservience to this, since the second term of a dialectic movement cannot be the simple inverse reflection of the first term.

2.2.1. Petroleum developments

Because of the particularly important role of the dominance of the petroleum branch, both in the general characteristic of the ascendant phase and also in port industrial developments, it is advisable to look with particular care at those developments which are specific to this activity. Ever since 1965 it has been possible to detect breaks in trends and major transformations; they are of an apparently diverse nature and, at least initially, care must be taken not to attempt to reduce them to a unifying factor, even if there are undoubtedly interdependencies. Phenomenologically, and chronologically, it is necessary to distinguish between:

- a change in attitudes towards choices of **location of refineries**, the consequences of which suddenly became observable in France from 1965 onwards,
- a **reorientation** of the centres of interest of the **dominant fraction of capital** involved in petroleum activities, more subtle to identify and perceived particularly in the recent orientations of its interests,
- the "**energy crisis**" which has so affected opinion since 1973, and which undoubtedly is largely the crystallisation of previous developments, the manifestations and advance of which it precipitated.

a. The location of refineries underwent, towards the middle of the sixties, a marked reorientation as described in the first chapter. The location of refineries was attracted upstream by the desire to effect scale economies, but downstream by the comparison of the transport costs of crude and refined products; we saw in paragraph 2.1.1.b. how the equilibrium between these tendencies led to the optimum localisation being in ports during the years which followed the Second World War. The growth of petroleum consumption was so vigorous during this period that the parameters of the equation finally became modified: the major industrial and urban regions situated inland on the European continent¹ reached such levels of petroleum consumption that the optimum sites for refineries, having regard to their size and transport costs, were to be found in the large inland regions; this explains why practically all the refineries built in France since 1965 were first located in the Parisian region, then in that of Lyons, in the North and in Alsace².

According to the mechanisms which have been described in 2.1.1.c. petrochemicals movements have more or

less followed those of petrochemical refining. However in the case of the latter this has not indicated a shutdown, far less a falling back of petrochemicals growth in the port zones. It was in both cases a falling off in their relative contributions, mainly seen in the increases in production. Furthermore, without it being possible to evaluate the question quantitatively, it was the driving role of the petroleum branch in port development which was affected, and the attitudes of those responsible for long-term planning were progressively affected.

¹ The phenomenon described here has scarcely any counterpart in Japan, since in that country the major urban and industrial regions are practically all concentrated in the coastal zones near the major ports.

² It is known, however, that this has not prevented an increase in the production capacities of the coastal refineries. See figure 1.2.

b. The search for "post-oil" activities. The major world oil companies are not accustomed to discussing their long-term strategies in public. Observation of their behaviour does, however, make it possible to discern certain major lines.

They obviously have not renounced the many facets of petroleum activities which still remain highly lucrative. However those countries in the Third World which own petroleum resources have, in different degrees, a tendency towards controlling the working of their deposits more directly, and the licencing schemes applied to companies are being generally tightened up.

Furthermore, and whether it is from the point of view of a more or less immediate shortage of reserves, or because they are looking at fields which offer more interesting profit prospects in the future, the oil companies are preparing for "redeployment" towards other activities. These can be in the energy field, such as the American coal deposits, or in the production of nuclear energy and plant. The new directions of the companies are obviously not being limited to other forms of energy; for example the establishment of a network of service stations on motorways selling a very wide range of consumer products in addition to fuel places the oil companies in a commercial monopoly position in areas where consumers are captive. This may be found to be very profitable, even on the hypothesis that technical changes will lead to different fuels, whereby the primary role of the service stations will become irrelevant.

Certain writers go so far as to believe that the rise in oil prices in 1973 was as much desired by the oil companies as by the OPEC countries, if not more so. This price rise allowed them to disengage, during the last period of high profitability of petroleum, the capital which was necessary for reconversion to other forms of activity. This is the thesis put forward by J.M. CHEVALIER¹ in a very fully documented manner.

c. The petroleum crisis of 1973. Whatever may have been the contribution of the oil companies to the organisation of the price rises of 1973 the latter, by resulting in a direct increase in the price of energy, had direct and immediate consequences on the economy of the capitalist industrial countries and in particular on port activities.

It was first of all the general slowing-down in activity which affected the growth, until then continuous, of port traffic²; the growth of tanker traffic was particularly affected, placing in jeopardy the financing plans for the ports, drawn up in the light of receipts based on the growing increase in tanker traffic. It was, with the

increasing share of expenditure on protection of the environment³, one of the most serious constraints on the continuing expansion of port investments.

¹ J.M. CHEVALIER, *op. cit.*

² see figure 1.5.

³ mentioned above in para. 2.1.2. on the subject of the Japanese ports, and to which we will return in para. 2.2.4.

The rising price of petroleum and other traditional energy products also resulted in an acceleration of effort from the point of view of utilising other forms of energy, in particular nuclear energy. The growth of this latter was not without interest from the point of view of the ports; this development would in any case contribute to a questioning of petroleum predominance in the port industry.

Finally, and without wishing to anticipate paragraph 3.1. which is devoted to recent trends in respect of industrial location, it should be recalled that the high rise in the cost of energy in the form of electricity had the effect of deferring, almost certainly definitively in the European and Japanese ports, the proposals for plants for the production of alumina and aluminium.

2.2.2. Modifications in State interventions

The long phase of growth in the economy after the Second World War was marked by considerable State intervention in order to ensure the general conditions for production and production itself. In this activity transport has an important place, particularly port investments (*cf.* para. 2.1.2. above).

From the sixties onwards, and at the time when profound economic trends were beginning to change, the main characteristics of State activity also showed a marked change. It was this development that we have sketched out here in its broadest outlines, specifying in more detail its consequences in the field of port economies and basing this on the French situation.

2.2.2.1. Sector programmes for overall regulation

State activity, during the sixties, was shown particularly by an industrial policy structured in terms of some major programmes: iron and steel, shipbuilding, computers and aerospace. Simultaneously the public sector continued to receive capital grants and the subsidies necessary for the development of the economic infrastructure corresponding to the needs of the overall economic growth.

With the Sixth Plan however (1970-1975) the concentration of companies and the intensification of internationalisation in all its forms (accelerated by the devaluation of 1969) moved to a higher stage. The frontiers of the industrial-financial groups were increasingly inadequate in the sectorial structuring of industrial policy, whilst the crisis and sectorial and spatial redeployment operated in favour of financial attitudes of disengagement and re-engagement of capital at the expense of technico-industrial attitudes¹.

¹ *cf.* M. SAVY, J.P. DELILEZ, C. DURAND, P. HANAPPE, C. HENRY, *op. cit.*

"The forms of public intervention are not fixed, as is shown by the following facts amongst others: the devolved financial function at the 1969 devaluation, the increased importance of the banking sector by the partitioning off of financial circuits, the relative disengagement of the Treasury in favour of specialised organisations and changes in the price control system. It seems, in fact, that one was passing from an organisation in which the centre was less clearly

characterised (public sector, budgetary financing) to an organisation which was less obviously public, but which was more generally under State control"¹.

In place of random interventions of an "identifiable" type recourse was now preferred to legislative and institutional tools: monetary, financial, fiscal and social policies with important and indirect industrial implications, operating selectively despite their apparent generality.

At the spatial level a similar development is seen. To the time of major land management operations, of the construction of structuring plants, there succeeded a more detailed socio-economic regulation: contracts for medium-sized and small towns and for the country; the extension of Fos and the new frontiers of industrialisation were no longer on the agenda. Smaller projects were dealt with, whilst waiting for a more dynamic industrial situation to consider new and major projects such as the Channel Tunnel, an industrial platform on the Atlantic coast, etc.

2.2.2.2. Shifts in port policy

The periods of the Fifth and Sixth Plans were marked by the concentration of State investment in the management of three major maritime, industrial and port platforms, Dunkirk, Le Havre and Marseilles-Fos².

¹ cf. A. LE PORS—State-industry transfers—Thesis on the economy—Summary—Université Paris I, Paris, 1975, 16 p, duplicated. (in French)

² Preparation of the Sixth Plan. Report of the Maritime Transport Committee. Paris, Documentation Française, 187 p, (in French) cf. p. 37 Programme proposal:
3200 billion Francs are allocated to the autonomous ports as against 445 billion to all the non-autonomous ports. Dunkirk, Le Havre and Marseilles alone receive 2445 billion Francs.

The Seventh Plan confirms this direction, proposing to complete the equipment of the existing platforms but without opening up new sites. Furthermore this additional equipment relates largely to traffic in miscellaneous goods, of which it is said that it is "that which presents the greatest interest, both in respect of the importance of the added value which it gives to transport and also by the development potential which it offers to the industrial zones and to the port industries"¹. Amongst the general objectives (p. 190) we certainly find: "to improve the competitive position of the three French sites of international size . . . , to develop the two estuarine ports on the Atlantic coast and to develop the port industrial zones, and to allow the growth of specialised traffic in the medium-sized ports", but the summary of the proposed programmes of the administration (cf. table p. 219), refers primarily to the three major existing ports, excluding the quay for miscellaneous goods at Rouen and the oil facilities at Verdon and at Nantes, which are not otherwise distinguished from those at Fos. It will be seen that the lower hypothesis of 2,900 ha of port industrial zones is not matched with any financing, and that the largest item relates to the improvement of maritime and terrestrial access.

¹ Report of the Transport and Telecommunications Committee. Preparation of the Seventh Plan, Paris, Documentation Française, 1976, 246 p., cf. p. 190 (In French).

Programmes proposed for the Seventh Plan: summary of the principal items (source and complete Table No. 2.4.)

Miscellaneous goods	: 1,391 mFF
Bulk	: 815
Ship repair	: 1,048

Industrial zones	: 0
Maritime and terrestrial access	: 3,248
Medium-sized ports and improvement of the shore-line	: 2,174

As far as navigable waterways are concerned, concerning which we will see (para. 3.2.3) the renewed role which they could play for certain European ports, there is proposed "the connection of the ports of Marseilles-Fos and Dunkerque-Ouest to a wide-gauge system (p. 218), but "this programme excludes any major undertaking in respect of the Rhine-Rhône, Seine-Nord or Compiègne-Rheims operations; it should allow . . . the establishment of a satisfactory river service to the hinterland from the port complexes of the North, from the lower Seine and from Marseilles-Fos": hinterland should here be regarded in a fairly limitative manner. In a note at the bottom of the page (p. 292) "the Director of Maritime Ports and Navigable Waterways has pointed out that the proposals of the Committee, even on the upper hypothesis, were not compatible with the terms of the statement of the President of the Republic at Dijon (24 November 1975), according to which the general level of equipment in this field should be "significantly increased".

2.2.2.3. State intervention and port industrial development

As compared with the period of the Sixties, marked by the extensive development of new port industrial sites, the present period and the prospects for the coming years are marked by the completion of smaller projects, the development of existing port sites to develop miscellaneous goods traffic: these conditions lead more to possible developments of the port industries in the sense of diversification and to the extension of the downstream converting lines than to any increase in the production units of basic industries already established, and even less to the creation of major new units. The port aspect is in this way coherent with the overall industrial aspect previously set out, both reflecting the new economic conditions of the crisis.

2.2.3. The flattening-out of scale economies

A flattening-out of scale economies has already been mentioned several times in the previous pages. According to the economic categories concerned these appeared, earlier or later, in the decade from 1965 to 1975. Two types of causes were involved: firstly in certain fields the economic functions were such that, after a long period of increasing yields, sizes were reached at which the factors of increasing cost began to run away; secondly the slowing down in the growth and expansion of the markets did not leave any more room in the new activities for a continued expansion in the size of the production units.

In certain cases (coke ovens, steam-crackers, etc.) an intermediate stage appeared where the increased capacity was obtained by the juxtaposition, in modular structures, of installations whose basic dimensions remained effectively constant, corresponding to a stable economic or technical "optimum".

One finds examples of the first family of causes in marine transport. It is known, and P.M. Fourt¹ had already pointed this out in 1957, that whilst one does not encounter any cost factors which increase with the size of the vessel in maritime transport in the strict sense, the same does not apply to port investments which, when all considerations concerning the physical characteristics of each site are taken into account, increase more than

Table 2.4.—PROGRAMMES PROPOSED BY THE ADMINISTRATION FOR THE MARINE PORTS—Seventh Plan
Unit: Millions of 1975 Francs

Item of expenditure	PC* VIth Plan	Balance, PC on PA* VIth Plan	PA VIIth Plan	PC VIIth Plan, initial	PC VIIth Plan, total	Other financing
1	2	3	4	5	6	7
MARITIME PORTS						
<u>Miscellaneous goods</u>		126.0				352.5
• increase by 7.5 Mt the overall capacity of the three major ports for miscellaneous goods			459.1	350		
• 1450 m of quays at Rouen			103			
<u>Bulk</u>		67				
• increase by 20 Mt the importing capacity for liquid natural gas in French ports						
• facilities for oil tankers at Fos, Verdon and Nantes			386.4	230		132.1
• a major additional ore terminal at Dunkirk, Le Havre, or Marseilles						
<u>Ship repair work</u>						
• 1 dry dock at Dunkirk, 2 dry docks at Le Havre, repair quay at Marseilles		23.3	368.7	300		355.8
<u>Port industrial zones</u>			0	0		
• build 2,900 ha on low hypothesis						
<u>Maritime and terrestrial access</u>		123.3	1,466	1,466		193
<u>Medium-sized ports and development of shore line</u>		74.3	600	500		1,000
TOTAL	2,882	414	3,383.2	2,846	3,260	2,033.1

*PC = Payment credit *PA = Programme authorisation

Source: Report of the Transport and Communications Committee—Preparation of Seventh Plan—Documentation
Française, Paris 1976, 264 p. cf. p. 219 (in French)

proportionately to the depth of water available; insurance costs constitute another element liable to increase more than proportionately to the size of the vessel, even though this had not always been universally recognised. Another interesting case, since it is situated on the frontier between maritime transport and industrial exploitation, is that of iron ore: the efficient operation of a modern blast furnace requires the mixing, in rigorously controlled proportions, of at least four or five imported minerals, and it is essential that the latter should be available from stock in sufficient quantities to secure the supplies to the plant; storage techniques then make it possible to ensure at the same time the appropriate mixing of the minerals²; if the size of the ore carriers used is greater than 200,000 tdw the sudden variations in the supply position are such that it is necessary, in order to be able to have at any time a balanced mixture, to provide storage volumes such that the surface areas required and the financial costs exceed any economies realised in respect of transport costs³.

¹ op. cit.

² deposits of various minerals in superimposed layers; recovery by a digger wheel which attacks the layers perpendicularly to their axis.

³ cited by M.R. MURARD, President of the Iron and Steel Technical Association, Paris.

One may also include in this family of causes of a slowing down of the size of the apparatus the effects of greater sensitivity to pollution. Taken overall, and all things being equal, this sensitivity is a function of the absolute

masses of the substances, temperature changes, vibrations, noises, etc. emitted; the size of the apparatus and that of the production units therefore constitutes an important factor from this point of view. It is obviously in the larger industrial concentrations that the problems of pollution appeared in the most dramatic manner, and where the reactions were most vocal. According to generally accepted estimates the cost of the anti-pollution measures adopted in Japan during the last ten years will have increased the cost price of the major intermediate products by some ten per cent, and this percentage will have a tendency to rise with the size of the unit since the phenomena of natural dilution in the atmosphere or in the sea obviously do not follow the size of the production apparatus nor the volume of the emissions.

Obviously one must not consider the limits recently stated in regard to the increase in the size of the production apparatus as being either absolute or definitive. Over a very long period, if one considers matters since the beginning of the industrial revolution, the growth in the size of production apparatus is a wide-spread phenomenon; we have been able to find figures¹ showing that, over more than a century, the size of blast furnaces and steelworks increases in a manner which is at least exponential; it is probable that similar phenomena could be found in many other industrial activities. However this growth is not continuous; when the high rate of expansion of economic activity and markets permits the size of the production

apparatus increases more rapidly than secular trends would suggest; this can be seen in the case of iron and steel works between 1950 and 1970; in such periods, when encouragement is considerable both in terms of increasing production capacities and also the resultant reductions in cost prices, that solutions are found to the technical and other difficulties raised by this growth; it is to be expected that the amplitude of these difficulties would be increased with the pursuit of advance, precisely when the beginning of slowing down of the expansion reduces the encouragement to overcome them.

¹ P. HANAPPE and M. SAVY—1st phase, op. cit. (In French)

One therefore arrives at phases where growth is nil or so low that the encouragement to carry out new investments in capacity is very considerably reduced (except in the always possible case of a special strategic situation).

The first preoccupations of industrialists become the maintenance of the profitability of existing plants and the reduction, by concerted action, cartels or otherwise, of new investments so as to avoid excess production capacity at company, branch, country or group of countries level. The general survey of industrial branches in paragraph 2.1.5 above shows the general nature of these preoccupations clearly, at least in those industrial branches susceptible of establishing themselves in the port zones. In a more general manner the reduction in profitability prospects has the effect of generally slowing down the volume of investment and, a fortiori, the consideration of programmes of a size larger than those of the existing industrial units, the profitability of which it has become so difficult to ensure.

2.2.4. The growth of the cost of congestion and of protection against pollution

This paragraph is based principally on an analysis of the phenomena observed in Japan, since it is in this country that port industrial growth has been more noticeable than in Europe and where it has been shown with more vigour. Undoubtedly certain natural conditions have aggravated the manifestation of certain difficulties. Their basis is, however, the same in Europe and Japan, so much so that what has happened in this latter country undoubtedly provides a reliable picture of what will happen in Europe by the development of past trends.

This is an additional and particularly striking illustration of the fact that the success of a formula which is appropriate to one epoch, in this case the port industrial zones, results at the end of a certain time in specific constraints and difficulties which then culminate in the appearance of a counter-trend. This is obviously the case with the present Japanese policy which is designed to remove all new projects for the creation of heavy industry from the central port zones.

The impressive development of the heavy industry in these central zones has created difficulties, shortages and obstacles of various kinds:

- despite the recovery of land from the sea¹ the shortage of urban sites is being acutely felt. Whilst the total area of industrial land in the central zones has been increased from 78,000 ha in 1962 to 130,000 ha in 1970, an increase of more than 65%, such a performance cannot be repeated at the present time. The intensity of land use has, however, been more than trebled during the same period, since the turnover realised on these areas has increased from twenty

thousand billion Yen to nearly seventy thousand billion Yen over the same period.

- the problems of pollution have grown to alarming and well-known proportions. If the trends observed before 1968 had continued the sulphur dioxide levels in the atmosphere in Tokyo would have been doubled, even though serious anti-pollution measures had already been taken before 1968, and would therefore have affected these trends.

- in this same Tokyo region the consumption of water for industrial purposes was more than thirteen million tonnes per day in 1969. Even if a cost of 90 ¥/t (or about 1.50 FF per m³ at the present rate) is accepted it would be physically impossible to exceed a daily consumption of eighteen million tonnes. By contrast, and outside the central regions of Tokyo, Nagoya and Osaka, it was possible to provide sixty-five million tonnes per day at a cost of less than 5 ¥/t.

- traffic congestion had reached disturbing proportions. In the areas near the ports in the large towns the speed of vehicles dropped by half between 1960 and 1966, falling from 9.5 to 4.5 km/h.

- the average waiting time of vessels in the port doubled between 1955 and 1964. In the case of the six principal ports it increased from twenty-three hours in 1964 to forty hours in 1969. In 1969 three hundred and twenty million tonnes were handled at the port of Tokyo; extrapolation of these trends led to a forecast of nine hundred million tonnes in 1985. No investment programme would make it possible to meet this, even accepting further reductions in the working conditions.

- even in this period of crisis the companies came up against a labour shortage in the large towns, despite differences in wages of the order of ten per cent as compared with the national average (considerably influenced by the wages in the large towns which include a third of the population of a country) and of the order of thirty per cent as compared with the less developed regions.

Under these conditions it would not be surprising if companies themselves sought their fortunes other than in these hyper-concentrated zones. According to a survey carried out by the Ministry for Industry and External Trading in 1971 twenty to thirty per cent of the companies questioned were considering this solution. This does not however indicate the magnitude of the problem. Vigorous policies of land management and industrial relocation have been progressively established during the last decade¹.

¹ In particular the law of 2 December 1972, relating to land development, should be noted.

Without going into a detailed description of this legislative apparatus certain major directions can be indicated:

- fiscal measures and subsidies intended to encourage industrial activities to move from the central zones.

- fiscal measures and subsidies for the creation or transfer of industrial activities into specified zones which are, in the case of the heavy industries, new port zones situated to the north or south of the country in less developed regions and, in the case of light industry, new towns to be created, mainly inland.

- strict anti-pollution measures, particularly in the older industrialised central zones but also in the new port industrial zones. It is estimated that the application of these measures has increased the cost price of the major intermediate products by about ten per cent.

- town planning measures, applying in particular to the

¹ The Umetate-chi; see paragraph 2.1.5.

Table 2.5.— INCREASES IN PORT EXPENDITURE FROM THE FOURTH TO THE FIFTH JAPANESE PLANS

Source: 5 Japanese Plans

Major category of expenditure	Fourth Plan (1971-1975)	Fifth Plan (1976-1980)
a. transport function (improvement of actual port installation)	62.8	38.2
b. improvement of the environment (including premiums for decentralisation, development of small ports in poorly served islands, etc.).	18.1	25.2
c. nautical protection (against typhoons, monsoons, etc., so as to increase the safety of sailors)	6.5	11.4
d. anti-pollution measures (including the creation of parks and beaches, effluent treatment, etc.)	1.1	13.8
e. others	11.5	11.4
TOTAL	100	100

port industrial zones, including those previously established. This is particularly noticeable in the development of the port budget for the Fourth (1971-1975) to the Fifth (1976-1980) Plans, as is shown by the Table 2.5. which is expressed in percentages.

Visiting the ports in the large towns it can be seen that very large areas of the zones recovered from the sea are devoted to the creation of parks and gardens, beaches, residential areas and new urban transport routes (motorways and public transport). In the plans for the coming years the areas set aside for this kind of use are even larger. The cost of this work is, in principle, included in the selling price of the new industrial land.

It is difficult to appreciate the efficiency of this policy since its effects are combined with those of the crisis: the two factors operate in the direction of a reduction of new investments and it would be the object of a study in itself to see which is more responsible for the slowing down observed in the port zones and central urban areas. Furthermore industrial developments in the newly designated zones, and in particular in the new ports such as the extension zone in Tomakomai in the island of Hokkaido in the north of the country, are meeting hostility from the population for ecological reasons. Even in the relatively poor zones, as compared with the rest of the country, the population is more sensitive to the general consequences of the socio-economic transformation and, in particular, to pollution and nuisance, than to the economic value of the creation of jobs and possible improvements in income. This attitude undoubtedly results from the complex interplay of many factors, amongst which are a general increase in the standard of living, even in these regions, and in particular the fact that pollution is an immediate reality whereas the employment which is induced, the generative effects and the indirect economic benefits are felt (and are stated as such in Japan) to be located in the near future. This point of view appears even more basic as the new port installations are located in the non-industrialised and comparatively undeveloped zones; experience in Japan, as in Europe, shows that it is under these conditions that the indirect effects are slowest and least obvious. However in these zones also the economic crisis operates in the same direction as ecological hesitation: the proposal for an iron and steel works at Tomakomai aroused protest movements; it has now been indefinitely postponed, much more because

of world excess production of iron and steel and the low levels of profit in this branch than because of the opposition by the population; it is for the same reason that Sumitomo has still not built its third blast furnace at Kashima.

It is still true that the holding back of large investments in the major central zones has clearly perceptible effects on the industrial structure of the corresponding large towns where industry is experiencing a drive downstream and increasing diversification; for example in Tokyo, Nagoya and Osaka the number of factories is increasing, whilst the numbers of workers employed in industry is decreasing; the engineering industries and the factories producing high-technology electronic components occupy an increasing place there.

European port towns are not yet in the situation of holding back due to the cost of congestion and of protection against pollution. It will, however, be rapid and it would be false to set aside these preoccupations by stating that "Japan is not Europe", whether it is a question of specific problems due to the geography of the country, to its high population density or to its too-rapid rate of growth. In fact in the stronger European zones, in particular in the port zones, growth has also been very rapid and has related to the same type of industries. Japan represents some hundred million inhabitants concentrated on a strip of land about two thousand kilometres long and a hundred and fifty kilometres at its widest part; this is not very far from the size of the most active part of Europe (Northern Italy, Switzerland, Western Germany, the north and east of France, Benelux, the south of Great Britain and the south of Scandinavia). A large part of the Japanese land cannot be used because of the altitude, but the Alps occupy a proportionately smaller but not negligible part of the comparable area of Europe. Rather than considerations of physical geography it is the internationalisation of the economy which has resulted in the coastal character of Japanese development; it was clearly seen throughout chapter II that this internationalisation of the economy has conditioned the development of Western Europe since the Second World War in a manner very similar to that of Japan, even if somewhat attenuated in certain aspects because of the specific geographical nature of the latter country.

For example the difficulties encountered in several

European port zones at an ecological level are themselves of the same nature as those experienced by similar Japanese zones; and the "advance" of the latter at this level does not indicate a difference of nature; it should be considered rather as an indication of what would happen in Europe as a result of the continuation of past trends if the general economic situation or other factors did not disturb these.

2.2.5. An illustration of the reversal of trends: the British case

The recent history of British port policy is fairly characteristic, both in respect of the trends observable up to the end of the sixties and resulting in the creation and extension of the port industrial zones intended for heavy industry, and also in the more recent trends to modify the content, if not to reduce the economic opportuneness.

In effect at the end of the sixties the question was publicly raised concerning the need to build, on virgin maritime sites, new port and industrial installations such as Fos in France, to give one example, and following the industrial ports on the continental coast of Northern Europe (Hamburg, Rotterdam, Antwerp, Dunkirk)¹.

After having listed, in conjunction with the Ministry of Transport, eleven sites which were technically satisfactory for a proposed port industrial zone in Great Britain, the National Ports Council in 1969 requested two university economists, Messrs Preston and Rees, to carry out an economic feasibility study, on a cost-benefit basis, of the Maritime Industrial Development Areas (MIDAS)².

¹ Annual report of the National Ports Council, 1966

² PRESTON, REES—Feasibility study of a Cost-Benefit Assessment of Maritime Industrial Development Areas. National Ports Council—London, 1970, 53 p.

In the following section we will look at this report, the results which followed, and the trends which can be seen at the present time in the port and industrial development of Great Britain.

a. The MIDAS report

The MIDAS report comprised an analysis of port industrial zones, typical of the liberal approach to economic problems which prevailed in Great Britain (even, as in this case, when the report was drawn up at the request of a Labour government), and including an analysis of the specific characteristics of public financing.

The report comprised three parts:

- industrial localisation and request for a MIDA,
- some cost-benefit analysis principles for a port investment
- feasibility and opportunity for subsequent investigations on the costs and benefits of a MIDA.

We will summarise here the first part, which constitutes a basic reflection on the phenomenon of port industrial zones, whilst the other two parts consider the technical aspects of evaluating the cost-benefit balance sheet.

This analysis of the phenomenon of port industrial zones (or, in this case, of MIDAS) demonstrates certain fundamental factors retained, within the framework of a different approach, in the present research work. But it also has the originality and interest of setting out a quasi-official if not governmental point of view, and of being based mainly on financial appreciations for evaluating the opportuneness of State intervention which remains voluntarist (creation of employment, land development, etc.). The updating rate used in the study is however the test discount rate (or, at the time of the study, 10% per year), a reference

level fixed by the British Treasury to evaluate the feasibility of investments in the public sector.

Industrial location, and request for a MIDA

The analysis shows that the advantages of MIDA in isolated locations near existing ports arise mainly from certain agglomeration and scale economies.

Amongst the industries attracted by a MIDA it is necessary to distinguish between a "primary group" formed by the bulk importing industries and attracted by the port, and a "secondary group" of industries which only become established provided that the "primary group" industries are located in the MIDA.

For this reason the principal determinants for the request for a MIDA become: growth forecasts for the "primary" industries, and the consequent demand for new locations; the growth of the "secondary" industries, and the development of their links with the "primary" industries.

The location of the MIDA depends on factors which fix the optimum location of the primary and secondary companies: price of the sites, infrastructures, port facilities, these factors themselves being influenced, through the tariff system adopted, by the costs and hence by the size, composition and location of the MIDA itself.

These summarised conclusions are based, in the report, on more detailed analyses of which the essential points will be summarised here.

— The characteristics and requirements of the companies

A MIDA is characterised by the addition, to a deep water port equipped for the rapid handling and storage of large quantities of bulk products, of large industrial zones and the transport infrastructures linking them with the rest of the country.

The advantages of a modern and powerful port, rapid and cheap to use, (equipped also for container traffic) are not specific to a MIDA. The proximity of the trans-shipment point to the transport itself and the user industries for the products imported in this way are the original determinant characteristics.

It will be noted however that certain beneficiary industries of a MIDA are not the users of a port with a particularly deep draught, whilst on the converse an industry such as petroleum refining may find it advantageous to locate its installations near the consumer markets, supplying them with crude products by pipeline from the port. Furthermore the specificity of a MIDA arises from the complex interlinking of several industries. The evaluation of the opportuneness of such a zone should therefore isolate the advantages proper to a MIDA, which cannot be obtained by industrial locations isolated one from another, and divided up between the already existing port sites. The negative effects of a lower rate of growth of existing ports must also be taken into account.

If agreement on the existence of scale economies linked to the size of the ports and of the transport infrastructures, and the size of collective equipment and the attractive housing programmes, is frequently reached, their quantitative evaluation is often difficult. The same applies to the benefits drawn from agglomeration, by contiguity or interdependence, of diversified activities. Furthermore, and apart from the availability of the port, land and infrastructures, the factors for the location of companies also include the presence of labour and its level of skills, capable of attracting other industries than those directly linked to the MIDA. The evaluation of the opportuneness of these

industries "associated" with the MIDA is particularly problematical.

The industries of the "primary group", the direct users of the deep water port, are mainly iron and steel, petroleum refining, aluminium production, flour-mills, petrochemicals, fertilizer plants, the timber industry, sugar refining, soap-making factories and the paper industry.

The industries of the "secondary group" can certainly be determined by an analysis of inter-industrial trading, whether as suppliers or major clients of the industries in the primary group. Amongst these industries, however, it is necessary to distinguish those where the structure of their transport costs forces them to be located near their sources of supplies, and those which are located near their principal markets. The technical efficacy of the production factors may also vary with the location (for example the proximity of blast furnaces to rolling mills reduces heat wastage). Certain industries may choose common locations, not to facilitate their reciprocal trading but because they have requirements for skilled labour which are similar or which may be complementary (employment of men and women, for example).

— The determinants of the request for a MIDA

The characteristics of the firms, as envisaged up to now, makes it possible to understand the potential request for port industrial zones. The effective demand arises from their growth prospects, their investment plans, and the part which will be allocated to already existing sites, and the relocation of activities linked to the replacement of certain obsolete installations.

The development of industries in the secondary group and their links with the primary group must also be envisaged, together with the size of the installations expected, the concept of an integrated industrial complex depending on that of the minimum size necessary for the synergy of adjacent industrial production lines.

In all cases a general study would not provide any definitive answer: these are the costs and benefits attached to each particular case, defined by its precise location and the size and composition of its industrial complex, which it is necessary to compare with the reference situation.

Amongst those industries susceptible of being attracted by a MIDA it is possible to distinguish a hierarchy, certain activities being regarded as indispensable for the existence of a MIDA and, because of this fact, needing to be the subject of the most detailed investigations in order to be assured of their interest in selecting a new port industrial site.

Finally the tariff system adopted for the land and the port services, and linked with industrial zone, will be decisive in fixing the profitability of the user industries and the viability of the zone. The tariff structure—at long-term marginal cost, for example—must, where necessary, take into account the collective advantages linked with the creation of employment and the distribution of income which the zone will allow. This point is particularly important if the site envisaged is located within a Development Area¹.

¹ Development Areas: zones where industrial establishments are encouraged by the British public authorities from the point of view of regional development.

b. Abandonment of the MIDAS project

The authors of the MIDAS report took care to emphasise that the opportuneness of the creation of port

industrial zones "on the continental pattern" assumed the prolongation of the trends towards expansion of industrial production and international commercial trading over a period of 25 years. But they also stated: "We should note incidentally that the accent, in all these fields, is placed on development and not on short-term variations. With the long-duration real assets involved it is not the monthly or even annual fluctuations of the demand which are important, but the general trends between today and, at the least, the first quarter of the next century".

In fact, after the entry of the British economy into recurrent difficulties which cannot be reduced to "monthly or even annual" variations, the project was not followed up. This deep-seated economic deterioration is not, however, sufficient to explain fully this abandonment. Certainly the rules of economic calculation for evaluating the opportuneness of a project according to cost-benefit comparisons, which could arise from official economic policy during 25 years of growth, could not justify such a public investment, but the creation of a coastal industrial site could have formed part of the plans for economic recovery established by the Conservative and Labour governments which followed in the years after the MIDAS report.

Apart from the general conditions of economic prosperity the spatial or geographical aspects of British industry are also being modified. Within the British national characteristics one may regard these modifications as characteristic of the development of most of the countries on the north-western coastline of Europe.

A slowing down in the growth of iron and steel production, as could be observed at the same time in other European countries, would rapidly undermine the creation of new iron and steel plants, particularly as a number of traditional iron and steel sites were already being supplied largely with imported iron ore from Sweden, Canada and from West Africa in particular. The creation of a coastal iron and steel industry, in a context of economic stagnation, would therefore involve a regression in the older iron and steel areas, and this was unacceptable in the British social context. The installations for handling iron ore were increased at Port Talbot to supply, by rail, the iron and steel units created in Wales after 1948, and a major ore terminal was built at Hunterston in the Clyde estuary. These powerful installations (with a depth of water of 100 feet, or about 30 metres) replaced the old ore terminal of Glasgow which could now only accept vessels of medium size, but the iron and steel installations, modernised and grouping together activities formerly dispersed into various Scottish plants, are not adjacent to the marine transport discharging point.

The second main activity, which could have justified the creation of port industrial zones, petroleum refining and petrochemicals, was also undergoing geographical and economic modifications opposed to the equipping of new sites. Firstly transport by pipeline found extended application in Great Britain because of the proximity of the coastline to all points in the country. Certain refineries on the east coast are actually supplied from terminals on the west coast where the depth of water is greater and the tanker routes are shorter. However one can now envisage the development of refining and petrochemicals on the west coast: the discovery of oil in the North Sea and the geographical redeployment of British external trading will go in the opposite direction to this trend.

The discovery—and soon the intense exploitation—of oil

and gas in the North Sea is not sufficient to justify the creation of a port industrial zone. From the point of view of economies in maritime transport the short distance travelled by tankers between the deposit and the discharging point locates the optimum economic point (between the advantages linked with the large size of the vessel to reduce the cost of transport and the advantages linked to its small size to diminish the time of immobilisation) fairly far from the characteristics of the giant tankers: a deep water port is not therefore essential. Certainly the chemical characteristics of the British oil are such that, even if the production is sufficient for national requirements overall, trading will be necessary to diversify the characteristics of the crude products supplied for refining and for petrochemicals. However the existing port installations are probably sufficient, particularly since transport to continental Europe will be carried out by medium-size tankers, for the same reasons which establish the optimum size of the vessel as a function of the length of the voyage.

The progressive integration of the British economy into the European economy is marked, in fact, by a major re-orientation of its commercial trading patterns: long-haul trading with the Commonwealth and North America is giving place to international coastal trading with north-western Europe. Most of the deep-water sites capable of receiving a port and a major industrial zone are located on the west coast, and hence are at a distance from those trade flows which are likely to develop most rapidly in the coming years. Furthermore these commercial ports also require a good port organisation, a high level of services, rather than great depths of water.

The other industrial activities capable of coastal establishment are also undergoing developments which are basically unfavourable to the creation of port industrial zones. The aluminium industry has seen its future decided by a Government decision, so as to consolidate its trading balance, to encourage national plants by means of a very favourable tariff structure for electricity. The importing of cereals is being increasingly carried out from Europe, less from North America.

c. The British industrial ports: present trends

After the abandonment of the MIDAS project, which as has been seen was not the result solely of the arrival in power in 1970 of a Conservative government devoted to non-interventionism, but to much more profound economic trends, British industry did not undergo the "movement to the sea" comparable to that which the industrialisation of Le Havre, Dunkerque and Fos-sur-Mer triggered off in France.

One notes, however, and in addition to a modernisation of the commercial activities of the port, the development of coastal industrial sites linked with the extraction and chemistry of the petroleum industry.

The most important petrochemicals site is that on the Tees estuary around Billingham and Wilton where petrochemicals were very soon joined (before 1960) to non-petroleum chemistry in order to form an integrated complex group of more than three production lines, mainly directed towards the production of fibres¹ and developing its downstream production.

The most important new port arrangements are related to the exploitation of North Sea oil: Shetland and Cruden Bay (near Peterhead) in Scotland. The NIGG project in the Cromarty Firth to the north of Inverness is characteristic. Apart from the proximity of a major unit for the production of aluminium supplied with inexpensive electricity this site is propitious for the construction of metal drilling platforms. However the opportuneness of the establishment of a petroleum refinery, once envisaged, has been considered to be insufficient: British refining capacity is already excessive for the estimated consumption of 1980. A goods transit port (for vessels up to 150,000 tonnes) is envisaged. This single example characterises very well the shift in recent years from industrial ports joining together various technical production lines in a more or less close interdependence towards ports mainly directed towards commercial activities and traffic. After having launched several successive studies on the industrial diversification and regeneration on the banks of the Clyde (where shipbuilding has been in a difficult situation for several years) it is now the relaunching of purely commercial activities which are being envisaged by the public authorities.

If the time for the creation of major port industrial zones is not now the fact that such zones were not constructed in Great Britain whereas they were developed in Belgium, Holland, Germany and Italy and, with some lag, in France, still continues to present problems to the British authorities. European integration in effect reinforces the competition between the ports, including in certain cases between Continental and British ports. If port policies—in particular subsidy schemes—have not for the present been harmonised, the Continental ports can today envisage such harmonisation as moving towards "true prices". The largest investments (and their financing, whether subsidised or otherwise aided by the public authorities) are now a fact. The British port system seems, therefore, afflicted today with a certain structural backwardness when compared with its European homologues; its insular situation undoubtedly protects it from the point of view of inter-port competition, but has an indirect effect on the productivity and competitiveness on the export market of the whole of the British industry¹.

¹ Paul Ellman. Ports that have missed the boat. (On the subject of the report for the National Ports Council on the ports in Great Britain and the Continent). Financial Times, 24 October 1974.

¹ cf. ZOURABICHVILI, M., Strategies of chemical companies in Europe, 1960–1970—in The strategy of chemical firms, Etude de politique industrielle no. 3, La Documentation Française, Paris, 1975, 173 p. (in French).

Roll-On, Roll-Off Operations Expanding at New York-New Jersey Port

"Via Port of New York-New Jersey" January 1978

An increasing number of roll-on, roll-off freighters are calling at the New York-New Jersey Port. This is a logical development, for the bi-state port not only provided the first terminal in the United States for roll-on, roll-off ships but leads the nation's ports in the handling of those commodities that can be accommodated by these versatile vessels.

Although the concept of ro-ro vessels dates back to at least the thirteenth century, only now, with the tremendous impetus given by over-the-road carriers and their ability to haul virtually all types of freight, has the concept produced modern marine terminals such as those of the New York-New Jersey Port. The ancient method of transporting cargo by wheeling, towing or pushing onto a ferry has now become a sophisticated technique of moving trailers, flats and other wheels over a variety of ship or shore-side ramps.

The advantages of ro-ro vessels had always been apparent for short voyages such as crossings of the English Channel, the North Sea or for ferrying rivers or lakes. But until recent years, when ships became faster, larger, and designed for the automotive age, did ro-ro establish itself as a viable means of transoceanic transportation.

In the late 1950's, when containerization was just beginning to revolutionize the shipping industry, and the New York-New Jersey Port was making plans to become the nation's greatest container port, another revolution was unfolding with the creation of the USNS Comet. This ship was developed by the U.S. Military Sea Transportation Service as the first large ro-ro ocean-going vessel. Comet had a stern ramp for vehicles, and while she plied the Atlantic she also became the prototype of the fast, short-run ro-ro ships plying between mainland United States and Puerto Rico.

Meanwhile, a considerable armada of ro-ro vessels was being developed for routes between the U.K., Scandinavia, Germany, Ireland, Holland, Belgium and France. Wallenius Line, the world's largest ocean carrier of motor cars at the time, realized that although containerization would dominate transatlantic carriage in years ahead, shippers would still need vessels for goods that could not be containerized or that could be handled better and less costly by other means. So it was that the heads of Wallenius Line and Holland America Line met to form the nucleus of Atlantic Container Line, the first transatlantic ro-ro carrier. Thus, ACL developed a combined ro-ro containership that was fast, efficient and economically attractive for the transport

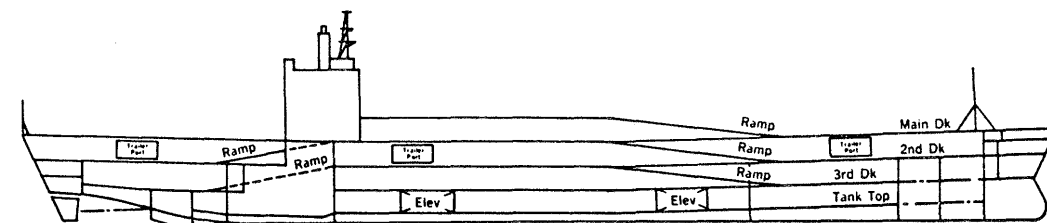
of motor cars, large pieces of general cargo on flat-bed trailers or large vehicles that could be driven on and off the ACL ships under their own power or towed.

At the western end of ACL's North Atlantic run, at the Elizabeth-Port Authority Marine Terminal, the company built its largest facility. And in order to accommodate the new ro-ro ships, The Port Authority of New York and New Jersey built the first link-spans or "pads" at the ACL terminal. The combination of the great ACL fleet, the Port Authority's spacious upland areas for holding ro-ro cargo, and the unexcelled transportation hub in the New York-New Jersey Metropolitan Area immediately made the bi-state port the center of ro-ro activity for the entire United States East Coast. ACL, which has just celebrated its tenth anniversary of ro-ro operations in the North Atlantic, remains the first and the largest company of its kind with ten vessels. Essentially, ACL provides the only regular ro-ro service on its particular route.

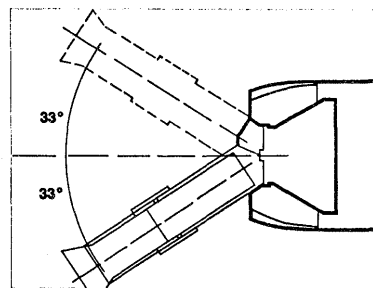
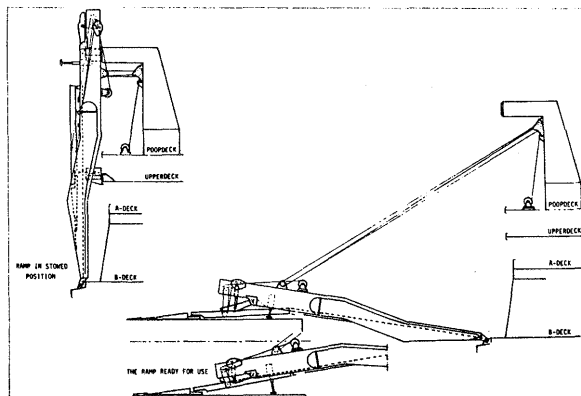
ACL ships operate between the New York-New Jersey Port and eight European ports. The consortium of six European lines offers three sailings a week. By providing ro-ro service, ACL relieves shippers of the need to disassemble cargo, since equipment can be shipped "as is." An ACL spokesman put it this way: "Some of our customers are agricultural and road-building machinery manufacturers. Much of their equipment for export is transported by rail or over-the-road to Elizabeth and is just rolled aboard. Of course, it's not unusual that helicopters, trains, boats, and live animals are included in an ACL vessel's outbound manifest. For westbound or inward voyages, automobiles are ACL's major cargo, since ACL is the principal carrier of Volvo vehicles shipped to the American market out of Gothenburg via the Port of New York and New Jersey.

All of ACL's vessels feature a stern ramp, which the company finds ideal for its trade. It is well suited for the unusually long pieces of cargo which are frequently transported. The ramp has a capacity of 30 tons per axle load. ACL ships appear tailored for shipments such as a ten-car train which was one of the most intricate shipments the line was ever called upon to transport. Tracks were laid onto the ship's ro-ro deck and the entire train went aboard at LeHavre. When the ship arrived at the Elizabeth terminal, the entire train was rolled out on the same tracks, transferred to rails, and went on its way to Chicago on its own wheels for use by Amtrak between Chicago and St. Louis.

Ro-ro service initiated at the New York-New Jersey Port nearly 20 years ago by Comet has one of its successors in a service currently operating from the Elizabeth-Port Author-



Internal rampways of Pacific Far East Line's "Seabridge" ships allow vessels that serve Mid-East to carry any cargo on wheels.



Above: Slewing stern ramp permits 33° angle to either left or right.

Left: Schematic of angled stern ramp shows ramp both in stowed position and ready for use.

ity Marine Terminal. The Puerto Rico Marine Shipping Authority (PRMSA), an agency created by law of the Commonwealth, has the responsibility for operating the merchant marine of the island. PRMSA was formed since Puerto Rico depends on ocean transportation for 98 per cent of its imports, and it was thought that a government-owned carrier would reduce transport costs. Accordingly, some 80 per cent of the Commonwealth's containerized cargo goes on Navieras' vessels. For the past six months, the return of the vessels and terminals to private enterprise has been considered by the government of Puerto Rico.

Three stationary ramps at the Navieras' terminal at Elizabeth are put to good use when its ro-ro ship arrives, usually, on Wednesday evening or on Thursday morning. Trailerloads of foodstuffs, perishables, pharmaceuticals, liquor, beer, live cattle, industrial equipment, iron, steel, heavy lifts, and yachts pass over the ramps. Automobiles, trucks, campers, busses and other wheeled cargo transit the ramps under their own power. In effect, whatever is needed for the industrial and commercial economy of Puerto Rico rolls. By Thursday evenings or early Friday mornings, the ship is ready to sail to Puerto Rico. Arriving in Puerto Rico on a Monday, the vessel is on her way again on a Tuesday carrying the products of Puerto Rico—rum in tanks, canned tuna, and other agricultural and manufacturing goods.

Ro-ro transportation also is widely used in the trade between the New York-New Jersey Port and the countries of the Middle East. For the last year-and-a-half, Pacific Far East Line, Inc., (PFEL), has been using its Atlantic Bear and Gulf Bear "Seabridge" ships to a 100 per cent ro-ro service between both Saudi Arabia and Iran and the bi-state port. Every 21 days a PFEL vessel departs from a berth at the Northeast Marine Terminal, Brooklyn. The ship goes directly to Saudi Arabia in only 18 days.

According to D. Bernard Carr, vice president of the Seabridge Operation of PFEL, these powerful, 26-knot vessels are ideal for the construction and project materials that must be shipped to the booming industrial Middle East. "Major shippers, importers and freight forwarders," says Mr. Carr, "prefer ro-ro ships because everything that is moved on these ships is ready immediately to go to the job sites. Anything that comes off these ships in a foreign port can go right through the gate to its destination without any special handling or assembling. And the ships are discharged and ready to go again within 24 hours." PFEL feels that from its terminal at the New York-New Jersey Port ro-ro ships can transport any mobile cargo in perfect condition to any place in the world that has an open pier.

Hansa Line, one of the pioneers in the Middle East trade, introduced the first of a new generation of sophisticated ro-ro containerships last summer. For the many Middle East

ports that Hansa Line has long served, the new Rabenfels and Rauenfels will alternately depart once a month from Global Terminal on the New Jersey side of Upper New York Bay. Hansa Line's vessels are extremely flexible in their operation on account of the slewing arrangement of their stern ramps that permits a 33° angle to either left or right. These ships can be loaded and unloaded either alongside the pier or with their stern to the pier. The ship's powerful ramps handle cargo 23 feet wide and 23 feet high and a maximum weight of 160 tons.

Ports in the developing countries of West Africa also are particularly suited to ro-ro vessels. North American West African Lines (NAWAL) has three such ships—Blue Kobe, Blue Kochi and Blue Akeishi—offering a regular monthly service from the New York-New Jersey Port to Lagos/Apapa, Nigeria; Monrovia, Liberia; Abidjan, Ivory Coast and Port Harcourt, Nigeria. The trio, which sail from New York's Pier 36, East River, also have container and heavy-lift capabilities in addition to their two quarter ramps for ro-ro traffic. NAWAL is a coordinated service of Belgian Line, Chargeurs Reunis, Compagnie Maritime Du Zaire, and Elder Dempster Lines, and is represented in North America by its general agents, Atlantic Overseas Corporation, with offices in Five World Trade Center.

In addition to the above-discussed ro-ro services between the Port of New York and New Jersey and a large number of ports in Europe, the Middle East, Africa and the Caribbean, there are other services such as the ro-ro vessels of Baltatlantic Line, whose agents in the United States are Norton, Lilly & Company, Inc. From the International Terminal Operating Co., Inc., facility at Elizabeth, Baltatlantic vessels sail to the Continent and Leningrad carrying a wide variety of cargo including industrial materials for projects in the USSR. Baltatlantic Line's ro-ro vessels are equipped with angled-stern ramps. Their internal ramps enable them to load and discharge without the use of cranes.

Newer, larger and more efficient ro-ro vessels are being built in unprecedented numbers. In 1977 the world's cargo-carrying ro-ro fleet was 30 per cent larger than in 1975, and more vessels are on the way. Ro-ro vessels carrying diverse cargo across the world's oceans can fulfill their needs at the New York-New Jersey Port. The port's modern marine facilities—long and broad wharves adjacent to vast, paved upland areas—provide excellent accommodations for the specialized ships. In summary, the bi-state port is well equipped to accommodate whatever trend the ro-ro movement takes in the form of excellent facilities and a healthy volume of outbound cargo, as well as America's largest market for inbound products.

Dredging in Brazil: Increase in Demand Brings a New Perspective

From "Portos e Navios"

August 1977

by Adelina Capper

The CBD—Companhia Brasileira de Dragagem, with headquarters in Rio, celebrated in April a very successful 10 years since the firm was installed as a private company, to take over the greater part of the dredging that is increasingly needed in Brazil.

With water, water everywhere, not to mention the silt and other impediments to navigation, requiring removal if this water is to be put to its maximum use, whether in ports, rivers or lakes, dredging is growing in importance in this country, with a number of private companies also engaged in this activity.

Dredgers are now being built in Brazil, initially for national users but later for export, and dredging technology is taking that great leap forward.

This sector will shortly be in the position of offering not only the dredgers for sale but, in addition, the dredging and other services to foreign countries and will, no doubt, be in a position to undertake underwater research and offshore mining of ores when this vision of the future materializes.

Coping With a Recurrent Problem

Brazil, with its huge rivers carrying large quantities of sediments of eroded soil and water-worn rocks to the estuaries where, in many cases the ports are situated, has always been faced with a recurrent problem of the silting up of the harbours and estuaries.

A storm inland can worsen the situation at certain times of the year. The clearing of land by deforestation can add to the weight of material deposited at the estuary, very often in the access channel to the principal berthing quays or piers.

One of the reasons for resorting to the river estuaries, in the sailing ship days, when seeking a safe haven, was also the need to replenish fresh water supplies, and for these wooden hulls, shallow harbours were no problem.

With the increase in the size of the ships in use, and consequently of their draft, a fully organized dredging system became of prime importance and, after various attempts at carrying out individual jobs, it was found that an overall plan was the only way of effectually dealing with the question.

As a result, the Companhia Brasileira de Dragagem—CBD came into being on 1st April 1967, succeeding the Dredging Division of the National Department of Navigable Waterways, known as the DNPVN. Portobrás, installed at the beginning of last year to replace the DNPVN, is the principal shareholder.

The DNPVN Dredging Division was, furthermore, strapped in its operations by being a Government department with all the attendant red tape. This is no longer a factor in the CBD dealings, which has been set up as a private company, as is Portobrás, responsible for Brazil's ports.

As a private company, the CBD—Brazilian Dredging Company has complete autonomy over the contracts carried out and thus has been able to show a profit in its operations during the ten years of its existence without resorting to Government subsidies.

CBD is responsible principally for the larger jobs in the main ports, charging for them in the normal way. In some cases, this company will contract for the services of other dredging companies, most of them civil engineering companies, to undertake certain specific jobs.

Since Portobrás controls the ports, it is also the principal CBD client.

In addition to the dredging CBD undertakes soundings, topographical surveys, soil analysis and hydraulic land fill.

THE DREDGING SERVICE

Dredging services offered include deepening and maintenance of the access channels to the ports and the manoeuvring basins, in addition to similar work in the rivers and lakes. Rock placement, hydraulic land fill and demolitions also come under the dredging division of the CBD.

The majority of the equipment now in use by the Companhia Brasileira de Dragagem was handed over by the now extinct DNPVN Dredging Division and includes: 12 suction and discharge dredgers, 11 hopper craft, 7 floating cranes, 3 boosters, 3 bucket dredgers, 9 tugs, 5 self-propelling dredgers, 7 self-propelling hopper craft, one O & K RH 60 back hoe mounted on a pontoon for taking care of rock removal, 5 oil and water barges and 2 houseboats.

Of the items listed the most recently acquired are: a hopper vessel known as the *Ibicui-II*, 25 metres in length and 50 tonnes capacity; two self-propelling 8,900 HP dredgers christened *Macapá* and *Boa Vista I*, 106 metres in length and able to dredge to 28 metres, service speed 12.5 knots; and the 840 HP, O & K RH 60 back hoe, producing 170 cubic metres/hour average, at up to 13 metres depth.

All four items mentioned were delivered last year. With the exception of the bucket dredger *Olinda*, built in 1970 and overhauled in 1972 known affectionately as *Grandma Olinda*, most of the other equipment was acquired in 1960, 1974 and 1975.

Working in the CBD headquarters, a team of engineers prepares all preliminary research on the work to be undertaken, decides on the equipment to be detailed for each job and calculates costs. During the carrying out of the dredging, these engineers are on hand and, together with the client, ensure that the work is done according to the contract and under the agreed plan, providing technical advice when required.

There is also a follow up of each contract should it be required, with periodical analysis of the results achieved.

Among the CBD dredging jobs completed, 3.089 million cubic metres were dredged from the Paranaguá harbour approach; 701,057 m³ from the harbour of Santos; 530,454 m³ from the port quays of Rio de Janeiro; 884,815 m³ in Natal; 1,552,259 and 37,353 m³ (arenite) in Salvador; as well as a record 36.548 million cubic metres in the approaches to the ports of Rio Grande and Santos from

1972 to 1974.

A total of 40 contracts have been completed in the principal harbours of the country. Emphasis has also been placed on the dredging of the approaches to the ports that are integrated with and vital to the export corridors schemes, permitting the berthing of bulk carriers.

SOUNDINGS DIVISION

The Companhia Brasileira de Dragagem Soundings Division is responsible for soil analysis, bathymetric, geophysical or geological soundings, and surveys.

Seven teams take care of the sounding and 2 the topographical surveys. These 9 teams are available for work in any part of Brazil. Wild, Kern and other equipment is used for the surveys. For the bathymetric soundings, CBD use a Raytheon DE 719 bathymetric, for the geophysical soundings an EGG Uniboon and for the geological soundings percussion instruments are used, mounted on rafts.

Among the most difficult and extensive surveys completed by CBD, three are of particular importance: topographic survey of the São Francisco river, divided into two stages. The first, a 12-kilometres stretch from the mouth of the river, with surveys of the transverse sections of the beaches, 10 km to the northeast and 20 to the southeast. The second stage surveys were made of the transverse sections of the beaches 6.5 km to the northeast and 6 km to the southwest, a bathymetric sounding having also been taken in an area of 182 square kilometres in front of the estuary; the second was in the bay of Santos in which some 50 square kilometres were surveyed; the third was along the coast of Ceará between the Hawkshaw Mole and the estuary of the river Ceará at Fortaleza. This survey covered approximately 9 kilometres of beaches with transverse sections and the bathymetric soundings in front of this section in an area of approximately 14 square kilometres.

The first contract assigned to this division referred to the bathymetric soundings in 23 ports along the coast. Under this contract the soundings in Belém, Recife, Rio, Santos and Paranaguá were carried out twice during the period involved.

ROCKS AND ELECTRONICS

Rock removal and rock placement has been another feature of the CBD activities with work done in the ports of Santos, Vitória, Maceió, Salvador and São Francisco River.

In June, 1975, an IBM/3 computer was installed to be followed later by a plotter. With this electronic equipment, the Companhia Brasileira de Dragagem is fully equipped for both the administrative services and technical work.

Maintaining the dredgers and other equipment in working order has been the principal problem faced by the Companhia Brasileira de Dragagem management, due to the difficulties in obtaining spares, on the market. In some cases the part has been made locally from drawings and the analysis of the metal to determine the alloy to be used. Apart from the time consumed in this preparatory exercise, including the finding of a factory prepared and able to do the work, the final result has not always been satisfactory and, in some cases, the part has had to be returned for further adjustment.

This problem has caused considerable losses to the CBD, since a dredger lying idle costs 8 million cruzeiros per month in upkeep, not to mention the overall lack of profits, running to some 6 million cruzeiros.

Local Building of Dredgers

Interest in dredging, for many years nascent in this country, has recently been such that a joint venture was arranged last year between the IHC, the Netherlands dredging consortium of dredger building and dredging experts, and EMAQ, the Rio-based shipyard, for the series building of dismountable cutter suction dredgers, from 12 inch to 18 inch cutter sizes.

When this contract was designed by EMAQ with the Dutch firm, EMAQ was particularly interested in the possibilities offered for series production. In October, 1976, work was begun on a group of seven dredgers, the first of which are to be delivered during the second fortnight of September.

Dr. Julio Lobo, president of EMAQ had such confidence in the market that he was prepared to invest in the building of these dredgers which are by now all sold. Various engineering firms have backed the project by buying the total initial EMAQ output, among them Camargo Corrêa, H. Guedes Engenharia, Enterpa Engenharia and Constran Engenharia.

To give further support to this budding new departure for the Brazilian shipbuilding industry, IHC arranged a symposium in Rio at the Hotel Othon Palace, from 12th to 16th July, with speakers from Holland, who lectured on dredging and alluvial mining technology.

The purpose of this encounter was not only to provide information on the dredgers themselves, but also on the technology of dredging which is a comparatively recent development in this country on any large scale. The 130 engineers, technicians, port, dredging, mining and planning experts and also engineering contractors present, not only listened to the speakers deliver their lectures but were able to ask technical questions and get answers by computer, the latter having been brought from Holland especially for the occasion. Discussions followed each lecture and the Dutch specialists were most helpful in their explanations on the various points raised.

The Seminar closed with a visit to the EMAQ yards where those taking part were able to see the dredgers actually being built and to acquaint themselves with modern techniques developed by the shipyard in conjunction with IHC-Beaver technology and know how.

ALAD — An Exchange of Knowledge and Methods

The ALAD—Associação Latino-Americana de Dragagem, translating as the Latin American Dredging Association has been meeting regularly, since its formation 8 years ago, in various of the participating countries.

Initially these encounters were known as meetings, but as from 1975, when no less than 250 delegates showed up, in Argentina, to listen to their colleagues present 27 technical papers, the name was changed to Congress.

The second such Congress was held in April of this year in Lima, Peru, with delegates from Spain and Holland, the latter joining in the discussions, and observers from Britain and Belgium, in addition to those from the member Latin American countries.

Papers read covered such subjects as: Offshore systems; Dredging in river systems in tropical zones; Large distance in the transport of dredged material, Methods and incidence in dredging operations; Hydraulic models and the means of

(Continued on next page bottom)

Port of Manaus—June/76 to June/77

Empresa de Portos do Brasil S.A.

All that we are presenting in this profile does not constitute an annual report of the activities or an account of what happened in 1977. We mean to show a panoramic view of the Port of Manaus 77 years after the first concession was given to an English company, to develop the port of the capital city of the State of Amazonas.

Today, PORTOBRÁS (BRAS. PORTS GOV. ENT.) under the direction of the MINISTRY OF TRANSPORT is carrying out a programme to improve port facilities and acquire new equipment, aiming to reach an operational capacity completely in tune with the development that can be seen in the Amazon. The challenges are stimulating.

In view of the progressively major economic development in the Amazon Region, immediate action is necessary and it is part of the results of these projects which we present there.

We are aware of the new challenges and we know that they will be overcome.

Eng. José Fernandes Senna
Port Administrator

INTRODUCTION

At the turn of the century, during the rubber boom, a British company RYMKIEWCZ & Co., was granted the right to administer the port of Manaus. Under the terms of the agreement of 10th Aug. 1900, that company was under the obligation to carry on improvements to the existing port facilities. On 8th Sept. 1902 a new English concession was granted to MANAUS HARBOUR BOARD LTD., which, up to the year 1924 carried out the following projects: the Port Administration building, 12,000 m² of warehouses, 400 m of fixed quay, areas for external storage, quay walls, 3 small piers for berthing, an isolated floating quay where cargo was transferred to shore by overhead cables and a floating quay connected to the fixed

one by a roadway. At that time the port had locomotives, waggons and both steam and electrically operated cranes; power was supplied by the port's own power plant.

By 1964 being practically abandoned by the British operating company with the concession drawing to a close, MANAUS HARBOUR BOARD LTD. being afflicted with countless problems and labour agitation, applied for Federal Intervention, which resulted in the rescinding of the concession contract. On 13th March 1967 the Port of Manaus came under direct control of the National Department of Ports and Waterways (MINISTRY OF TRANSPORTS). It was the start of a new era for the port, when various plans & projects were made, aiming at the improvement of its facilities; a roadway was built to connect to the quay known as the Towers Pontoon. The floating quay and the roadway were repaved and the old system of transporting cargo by locomotives was changed to tractors, trailers, trucks, fork-lift trucks and other more sophisticated equipment. At this time the first mobile cranes were ordered and the construction of further warehouse space was commenced whilst existing warehouse space was improved, 10,000 m of external space was paved and raised above the level of the highest river overflow of this century which occurred in 1953.

Today under the control of PORTOBRÁS (EMP. DE PORTOS DO BRASIL S/A.), the Port of Manaus is about to become a subsidiary company named CIA. DOCAS DO AMAZONAS (AMAZON DOCKS CO.), headed by the Port of Manaus. It will comprise the river ports of TABATINGA, COARI, ITACOATIARA, PARINTINS and HUMAITÁ, in the State of Amazonas, and will also include Pôrto Velho (Federal Territory of Rondonia) and Caracarái (Federal Territory of Roraima). A complex of works aimed at improving the operations of those ports is well under way, the conclusion of which will be in January of 1978.

I. LOCATION

The Port of Manaus (lat. 3°08'S., long. 59°59'W) is

(Continued from page 37)

getting the best results from dredging; Explosives and their use in dredging; Mining dredging; New techniques in dredging and their prospects.

Several of these lectures were by Brazilian engineers while the president of the CBD—Companhia Brasileira de Dragagem, Juarez Galvão Ferreira was elected, once again, to the presidency of ALAD.

Of the 31 corporate members of ALAD, 20 are Brazilian, 3 are Argentinian, 2 are Uruguayan, one is Paraguayan and one Peruvian. There are 2 members from Holland, one from Belgium and one from the United States. The remainder are individual members.

Leading the Brazilian companies or organizations is Portobrás, followed by the Companhia Brasileira de Dragagem, the first responsible for the ports and the second for dredging them, as also the rivers and lakes. The departamento Nacional de Obras e Saneamento is responsible for draining schemes, another Brazilian member.

DEPRC-RS, more easily recognized as the Rio Grande

do Sul State Department of Ports, Rivers and Canals, comes under Portobrás, but has 2 large ports, among other, under its care, is a fourth semi-official corporate member. Nor could the 2 giant Companhia Docas de Santos and Companhia Docas do Rio de Janeiro be absent from the ALAD list, nor the Port Administration Authorities for the port of Vitória and for the ports of Paranaguá and Antonina.

The 12 private Brazilian companies on the corporate membership list attest to the tremendous interest now being generated in Brazil for this service industry and the business there is to be done.

They are: Bos Kalis Westminster do Brasil; Cetenco Engenharia S/A; Cinadra S/A; Cobrazil—Companhia de Mineração e Metalurgia "Brazil"; Construtora Continental de Rodovias Ltda.; Ebec—Empresa Brasileira de Engenharia e Comércio; Ecisa—Engenharia Comércio e Indústria; Eletro Aço Altona S/A; Mineração Tijucana S/A; Servix Engenharia S/A; and Ster—Sociedade Técnica de Engenharia e Representações. Emaq is the only shipyard which is a member of ALAD.

situated on the left bank of the River Negro, providing for a safe anchorage both to small craft and ocean going vessels. Its privileged location provides for a natural drain for the riches of the Western Amazon comprising the States of Amazonas, Acre and Roraima and Rondonia Federal Territories.

II. ASPECTS

The port has the following characteristics:

Channel width: 500 m.

Channel depth: 45 m. during high river season

Channel depth: 35 m. during low river season

Port Basin—external width 500 m. with a depth of 25 m
internal width 100 m. with a depth of 25 m

Anchorage: river frontage 3,000 m long by 1,000 m wide.

BERTHING

1—Floating Piers

a) Towers Pontoon 500 m (external-internal)

b) Roadway Pontoon 500 m (external-internal)

2—Wharves

a) External—Paredão (Big Wall) 350 m (during high river season, from March to August)

b) Internal—300 m (for berthing small river craft)

3—Warehouses and Yards

a) **Warehouses**—Six warehouses are presently available with a total covered area of 15,558 m²

b) **Yards**—11,000 m² of open storage space is available and a new open storage area of 3,000 m² is under construction.

4—Power

a) Only internal supply, a sub-station for 300 KVA, 110/220 V, a transformer for 50 KVA. 110/220 V.

Water

b) Internal supply through COSAMA (Cia. de Saneamento de Amazonas). One hydrant is available on the PAREDÃO to supply fresh water and a 100 ton. water-barge is also available to supply fresh water to vessels alongside or at anchor.

5—In addition to the Port of Manaus' equipment listed below, PORTOBRÁS is putting into practice its redistribution plan to endow Brazilian ports with an efficient operational infrastructure.

a) Cranes

a.1) 4 fixed cranes on the internal quay, for 2,500 kls. capacity.

a.2) 1 mobile crane for a 15 ton. capacity.
2 crawler cranes for a 20 ton. capacity
1 mobile crane for a 50 ton. capacity

b) Fork-lift trucks

27 for a 3 ton. capacity
13 for a 2 ton. capacity
4 for a 4 ton. capacity
3 for a 4 ton. capacity.

c) Tractors

38 of 50 H.P. equipped with trailers for a 2 ton. capacity

d) Trucks

6 for a 5 ton. capacity.

e) Floating cranes

1 for a 15 ton. capacity
1 for a 100 ton. capacity, under construction by a PORTOBRÁS CONTRACTOR.

f) Tugs

1 of 210 H.P. to attend to river craft

1 of 1680 H.P. to attend to ocean going vessels.

THE IMPORTANCE OF A PORT TO A REGION WHERE THE RIVER GOVERNS LIFE

More than 70 waterways converge to the port of Manaus, carrying regional products to this center of development. In a region where waterways are the most rational means of transportation, especially today when the use of fuels is of paramount importance, the port takes on and fulfills its important role in the growth of the business of this area. In particular after the creation of the Manaus Free Zone (Governmental Agency) a motivator of high indexes of economic growth, and its Industrial District, whose products are distributed to all Brazilian markets.

The Ministry of Transports through PORTOBRÁS works hard, devotedly, coping with the numerous problems that afflict the Amazon region, carrying out improvements within a global policy of transport integration to make possible a better standard of living for our people.

The Port of Manaus integrates itself in trying to reach all goals quickly, overcoming difficulties and national obstacles which only hard work and tenacity of will can succeed.

HARBOUR PERSONNEL ARE WELL TRAINED ABOVE ALL

In the Port of Manaus the first and foremost concern goes to the improvement of technical ability of personnel. Regularly new specialized courses are offered to all with excellent results.

Establishing a parallel, the port has an internal commission to care for casualty prevention, safety, hygiene and medicine at work, maintaining doctor and dentist office ready to assist personnel.

The Administration has carried out campaigns against meningitis and other diseases. In the field of social assistance a better integration has been made possible between employer and employee, including home courses of domestic science for the wives of port workers.

The Harbour Police Force in charge of internal security and maintenance of order is able to operate quickly. Fire fighting equipment is installed in every strategic location throughout the port.

GROWTH OF HANDLING A STIMULATING CHALLENGE

The port of Manaus is responsible for a large share in handling of cargo in and out of the Amazon region, as shown by official statistics. In 1976 for example, a global tonnage of 1,396,776 tons was handled, it being 955,022 tons of import cargo and 441,754 tons. of export cargo.

The port handled a total number of 2,880 ships, including ocean, coastwise vessels and river traders. In 1977 too and including June 1977 the total tonnage handled was 809,474 tons of export cargo. The total number of ships handled during this period was 1,171.

PRESENT EXPANSION

Important development works are under way. The goal is to obtain, as quickly as possible, treble the present area of open storage space from 10,000 sq. meters to 40,000 sq. meters, an increase of 300 linear meters of fixed quay and the same amount of floating piers.

(Continued on next page bottom)

Port of Oakland News Releases

1. Large lease agreement approved

Oakland, Calif., February 8, 1978:—The Oakland Board of Port Commissioners today approved a lease agreement with the U.S. Army that will allow two shipping berths of the Oakland Army Base to be used by the Port of Oakland, and moved to set up a major automobile shipping terminal there, to be operated by Pasha Industries.

The U.S. Army has determined that its future military cargoes in Oakland can be accommodated adequately by only one of the three berths existing at the Oakland Army Base, reported Port of Oakland Executive Director Walter A. Abernathy. Oakland has been negotiating with the Army for remaining space for the past two years.

Now, the Army has agreed to lease the two surplus berths—designated Berths 6 and 6½—to the Port of Oakland, along with 38 acres of backup terminal, a transit shed and a warehouse, Abernathy revealed.

The lease approved by the Port Commission today would become effective on the date the Port accepts possession of the property, tentatively set for April 1, 1978, and would end September 30, 1989, with an additional five-year renewal option.

The Army meanwhile intends to rehabilitate its Berth 7 at the base, Abernathy said, and will continue to use Berth 6½ as a contingent facility—with the Port or one of its tenants permitted to share this berth on a non-priority basis.

Until the Port takes full possession of Berth 6½, in 1980, it will pay a fixed interim rental rate of \$200,000 yearly to the Army. Thereafter the annual rental rate would be set at \$282,150, a figure to be renegotiated in 1981 and every five years following.

The Army retains the right to cancel the lease on 30 days' notice in case of declared national emergency, and to preempt the leased areas from the Port with compensation should there be a "surge" in Army cargo, Abernathy noted.

The Port of Oakland, under the agreement, will maintain its own two berths and the Army's Berth 7 as well, costs for the latter to be reimbursed to the Port in the form of rental credits from the Army.

The Port Commission also moved to reacquire 13 adjoining acres condemned by the State of California from the Port in the 1930s, a parcel recently declared surplus by the California Department of Transportation (Caltrans). It will be incorporated in the proposed new automobile importing and processing facility.

Simultaneous with approval of the proposed lease with the Army, the Port Commission agreed in principle to allow Pasha Industries, Inc., to operate the 51-acre Oakland Army

Base site.

Pasha is currently engaged in the importation and processing of automobiles at terminals in Richmond and Long Beach. Models handled include Honda, Fiesta, Subaru, Capri, Volvo and Courier. The firm also prepares domestic autos for overseas shipment, and seeks to expand operations into Oakland, Abernathy said.

Under the agreement outlined today, Pasha will lease the Berth 6 wharf and some 16 acres of backup for an interim period through December, 1979, at a rental of \$141,000 yearly.

After January 1, 1980, Pasha will lease the entire 38 acres of former Army property from the Port of Oakland, for a rental of \$297,950 annually. If dockage and wharfage revenues earned by Pasha in its automobile shipping operations top this minimum, the excess will be shared 50-50 with the Port, Abernathy explained.

Pasha will also lease the 13-acre parcel returned to the Port by Caltrans after 1980 for an annual rental of \$101,950. Both the Port and Pasha will undertake razing of existing Army buildings and improvements in the area.

Use of the terminal and piers as an auto shipping terminal is the most feasible option considering topography and dimensions, Abernathy declared. He said other possibilities had been explored extensively, and the agreement with Pasha allows the Port the right to decide to create a container terminal there after 1989, when the initial lease period expires and a five-year option may be exercised.

To maximize the efficient use of the Army and Caltrans areas, Abernathy noted, it will be necessary for the Port to relocate the present Burma Road to the perimeter of the two parcels and to demolish Building No. 141 on the Army Base by December, 1979.

The Port's financial obligations under this proposal are expected to be \$380,000, consisting of \$350,000 in rental payment to the Army for the 20-months of the "interim period" and \$30,000 for the demolition of Building 141.

For the "interim period", Building 141 would be assigned to Crescent Wharf and Warehouse Company and Berth 6 with 15.7 acres of backup space would be leased to Pasha Industries, Abernathy said. Rent revenue to the Port through Crescent and Pasha should total \$430,350 for the "interim period", he calculated.

For the lease period beyond 1980, the Port's annual expenses are expected to total \$322,650, he added. But estimated yearly revenue from Pasha is \$464,924.

2. Major waterfront improvements

Oakland, Calif., February 9, 1978:—Major waterfront improvements totaling almost \$13.5 million—including the development of a new container terminal in the Oakland Outer Harbor—were set in motion today by the Oakland Board of Port Commissioners.

Significant among decisions taken by the Port Commission at today's regular meeting was the approval in principle of a \$12 million conversion of Berth 5 in the Oakland Outer Harbor to create a 21-acre facility to serve busy container services clamoring for added space at the West Coast's leading containerport.

"The upswell of the Pacific trade has created new

(Continued from page 39)

FUTURE EXPANSION—PROJECTS UNDER WAY

- a. Electric supply to ships.
- b. Fresh water hydrants' installation on floating piers.
- c. Gantry cranes on the new wharf.
- d. Installation of road scales for 75,000 Kgs.
- e. A small container terminal in the new yard (1,500 units)
- f. New equipment in container storage area.
- g. Building of a garage for new equipment.

requirements over those that we had anticipated due to normal growth," Port of Oakland Executive Director Walter A. Abernathy told Commissioners.

Only last year, the Port of Oakland opened two big new container yards in the Outer Harbor, and a third is now in the last stages of construction. Conversion of Berth 5—currently devoted to conventional breakbulk shipping—would provide an unbroken string of container facilities on Oakland's western waterfront, from Seventh Street to the Sea-Land Terminal, Abernathy pointed out.

The conceptual plan approved for Berth 5 redevelopment includes removal of four existing buildings, strengthening or reconstruction of its 900-foot wharf, extension of crane rails and improvement of backup yard area of 21 acres.

Estimated cost of the conversion was set at \$12 million. Although no time-frame for completion of the project was established, the action clearly accelerates schedules anticipated when the Berth 5 redevelopment was first sketched in a 1973 environmental impact report covering future developments in Oakland's Outer Harbor.

The Port Commission similarly agreed to a \$1 million expansion of neighboring Berth 4, opened to container shipping traffic less than a year ago. The plan calls for an increase in its wharf length from 750 feet to 900 feet. Berth 4 is currently operated by Marine Terminals Corporation, with Maersk Line the principal caller.

Meanwhile, Port Commissioners today also earmarked some \$410,000 for improvements to the Port's Ninth Avenue Terminal in the Oakland Estuary.

Ninth Avenue is Oakland's main breakbulk shipping facility, and the import steel center of Northern California. Eleven shipping lines call there on a regular though non-scheduled basis, generating revenues for the Port of Oakland estimated at more than \$800,000 for the year 1977.

Still another large steel carrier is interested in operating to Ninth Avenue, Abernathy disclosed, but paving of its 9-acre main yard and attendant utility installation and improvements will be necessary to conclude negotiations.

Abernathy said the upgrading approved by the Commission for Ninth Avenue could result in attracting an additional 30,000 tons of steel cargoes to Oakland in 1978, increasing Port revenues by some \$75,000 for the year.

3. Oakland International Trade Center

Oakland, Calif., February 22, 1978:—Plans for a huge international marketing center in America's largest Pacific containerport, the Port of Oakland, California, will be detailed this week in the Far East by the principal figure behind the project, former Hong Kong resident Tsui Shun Hing.

Tsui is now a successful Oakland businessman and a top executive of Oakland Container Terminal Company, whose facility serves four major Japanese steamship companies calling at the Port of Oakland.

To be known as Oakland International Trade Center, the 13-acre site will offer a prime location for importers and exporters to sell, display and process their merchandise.

"This new facility in our city furthers our ability to provide the finest services to international shippers," Oakland Mayor Lionel J. Wilson explained when the project was announced recently. "Oakland has long been considered the transportation and distribution center of North-

ern California, and this Trade Center will add another dimension to our services and facilities for shippers, which include the expansive containerport, as well as superior facilities for rail, highway and air transportation."

The Oakland International Trade Center will be located within easy access of all forms of transportation. The site is within two blocks of the area's major freeway, seven minutes driving time from Oakland International Airport, and less than 15 minutes from the marine terminal facilities of the Port of Oakland. It is just a few blocks from the commercial and industrial developments in the Port of Oakland Business Park and Distribution Center, and within walking distance of a Bay Area Rapid Transit system station.

Extensive redevelopment of a huge, existing structure, including improvements for individual display areas and storage spaces, and installation of a sprinkler system throughout the building, will be completed before the Center is opened in Spring, 1979.

The facilities will include 98,400 square feet of display area, and 108,700 square feet of container storage and freight station area. Some 72,000 square feet of open display and covered deck area, and a lobby designed for meeting and entertaining customers, will be added to the main building before it opens. Ample automobile parking and truck accesses enter and exit on Hegenberger Road.

Future expansion will create an additional 116,000 square feet of display area.

Application to establish a Foreign Trade Zone at the Oakland International Trade Center is being considered by the City and Port of Oakland, according to Y. Charles Soda, President of the Oakland Board of Port Commissioners.

"Approximately three-quarters of all the general cargo passing through the Bay Area moves over the Oakland wharves," Soda said, "and, that amounted to more than nine million tons of cargo last year."

"It is appropriate at this time for the Port of Oakland to establish a Foreign Trade Zone in close proximity to the marine terminal and other transportation facilities to handle the cargo of the shippers who want to take advantage of duty-free facilities," Soda said.

Tsui, who is accompanying a group of Port of Oakland officials during their visit to Hong Kong this week, will attend a port-sponsored reception Friday, February 24, at the Mandarin Hotel. He will be available to discuss the Oakland International Trade Center with business and government leaders there.

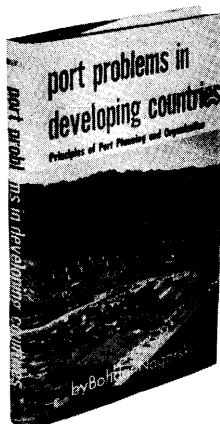
It is expected that the Center will serve many Hong Kong businesses, including smaller manufacturers.

Tsui is well known in the Crown Colony, having served for five years as Marine Officer in the Marine Department, during which time he helped establish the first Marine Nautical Training School. Prior to his service in Hong Kong, Tsui resided in England, where he was in the employ of Alfred Holt & Company for 14 years.

The Tsui family emigrated to the United States in 1968, when Oakland was just beginning to establish facilities for the handling of containerized cargoes. Not long after arriving in the United States, Tsui applied his intimate knowledge of shipping and administrative experience to design a unique system for container handling, which system is now in use in container terminals around the world.

(Continued on page 43 bottom)

IAPH Publication—



160 × 233 mm hard-cover
book, 293 pages covering
every aspect of principles
of port planning and oper-
ation.

port problems in developing countries

by Bohdan Nagorski

US\$12.00 (including surface mailing charge)

Order to:

The International Association of Ports and Harbors

Kotohira Kaikan Bldg., 2-8, Toranomon 1-chome, Minato-ku, Tokyo 105, Japan

"I am sure, the book will be readily accepted a "bible" by the port industry throughout the world".

—Editor, the Dock and Harbour Authority

"I would like to take this opportunity to say that I found the study by the author of this book to be of tremendous interest and I would like to congratulate Mr. Nagorski on a first class work".

—Assistant Secretary General, ICHCA

ANNOUNCING!!

Bohdan Nagorski's "Port Problems in Developing Countries" is also available from the following distribution centers.

- | | |
|------------|--|
| New York : | Marine Terminals
The Port Authority of New York and New Jersey
One World Trade Center
New York, N.Y. 10048, U.S.A.
Phone: (212) 466-7000 |
| Houston : | Office of the Executive Director
Port of Houston
P.O. Box 2562, Houston
Texas 77001, U.S.A.
Phone: (713) 225-0671 |
| Oakland : | Office of the Executive Director
Port of Oakland
66 Jack London Square, Oakland
California 94607, U.S.A.
Phone: (415) 444-3188 |
| London : | Office of the General Manager
The Port of London Authority
World Trade Centre
London, E. 1, England
Phone: 01-476 6900 |
| Le Havre : | Port Autonome du Havre
B.P. 1413
76067 Le Havre Cedex
France
Phone: (35) 22.81.40 Poste 341 |

Orbiter Probe

Jane's Freight Containers 1978

Price £29.50 by Jane's Yearbooks, London, Published 23 March, 1978

London, 23 March, 1978 (Jane's Yearbooks, Paulton House, 8 Shepherdess Walk, London N1 7LW):—**NATIONAL LEGISLATION THREATENS CONTAINER DEVELOPMENT.** In his Foreword to *Jane's Freight Containers 1978* the Editor, Patrick Finlay, examines recent progress on safety and standards. The purpose of container standards has been to ensure that containers which travel over common transport routes are compatible with the handling equipment and vehicles provided throughout the system. However, Mr. Finlay believes that these standards have not met with earlier ideals—surely it should be commercial and safety considerations which determine standards rather than the mere existence of regulations which ensure the compatibility of internationally established facilities?

However, Mr. Finlay points out that there is a strong possibility that in the future container standards could be subject to national legislation as well as commercial and ISO regulations. Certain countries have invested very large sums of money in producing user facilities and training staff. A change in standards could very quickly render their facilities obsolete and so waste a large part of their national transport development budget. It is therefore understandable that they wish to protect their investment by national legislation—and by so doing effectively halt the development of the international container industry as we know it today. If such legislation were introduced it could well mean that by the early 1990s the physical characteristics of cargo could have altered sufficiently to make the containers of the 1970s obsolete; and an entirely new concept for the transport and handling of general cargo could well have to be introduced to circumvent the restrictions of government legislation.

Mr. Finlay also comments on the expansion and development of the world container industry and the increase in the earnings of leasing companies due to the high utilisation of equipment, expanding world trade and new container shipping routes. He continues by questioning the future of horizontal cargo handling vessels which have recently been brought into service now that congestion in many ports is easing. These expensive new vessels could be at a disadvantage in the 1980s when the custom built lift-on

(Continued from page 41)

Today, Tsui lives with his wife and four children in a suburb of Oakland. He devotes much energy to his lifelong career—shipping, but is equally at home discussing Oriental art and antiques, of which he is an avid collector and appraiser.

Tsui is visiting Hong Kong in the company of his wife, Julia.

terminals in the ports of many developing countries come into operation as they could then be competing with the older, less expensive cellular vessels. Moreover, patterns of trade must change and the present economic boom of the countries concerned cannot last for ever. Also these countries are developing their own industries which could eventually mean a reduction in the import of manufactured goods and the possibility of exporting a surplus. The new all-freight ferry tonnage on the short sea routes introduced by such companies as Bore Line, European Ferries, P & O and Stena Lines sets a pattern for the future in these operations.

Mr. Finlay draws attention to one of the most interesting areas of container development—China—where there is strong evidence of container services being established using cellular vessels. The China Shipping Company is thought to be negotiating the lease of 20 ft units and the route to be containerised is between China and Japan—thereby opening up routes for China to the rest of the world, and in particular, Australia.

In addition to the Foreword, *Jane's Freight Containers 1978* has two contributed papers: a commentary on air freight by Philip Robins and a review by *Jane's World Railways* editor, Paul Goldsack, of the increase in freight traffic being handled on North American railroads.

Jane's Freight Containers 1978 contains detailed information on air unit loads; transport aircraft in service; 67 airports (including cargo traffic handled); 280 ports; 70 railway organisations; over 388 operators; 66 lessors; and 180 manufacturers of Series 1 ISO type containers, handling equipment etc. Also included are details of inland container depots with customs facilities (where information was available). The book is illustrated with over 1300 photographs and line drawings.

Air Cushion Technology

Ottawa, Ontario, Canada, March 1978:—**The 12th Annual Air Cushion Technology Symposium**, organized by the Air Cushion Technology Section of the Canadian Aeronautics & Space Institute, will be held at the Park Plaza Hotel, Toronto, Ontario, 25, 26, 27th September, 1978 and will include Technical Sessions, Exhibits, Visits and Demonstrations.

Further details may be obtained by contacting:

Mr. M.A. Ball, Chairman
Air Cushion Technology Section
Canadian Aeronautics & Space Institute
60-75 Sparks Street
Ottawa, Ontario, Canada
Telephone: (613) 234-0191

"RoRo Worldwide Guide"

RoRo Worldwide is a new 1978 edition compiled specifically for those involved in the movement of freight by RoRo methods, and lists all known regular RoRo

services.

EASY TO USE

Five sections: Europe; Americas; Middle East; Far East/Pacific; Africa.

QUICK

New, easy "shipping to—from" format makes extraction of all alternative sailings possible within seconds.

COMPREHENSIVE

All the *Owners/operators—

*Services—

short haul, inter island, cross channel or across the world—they're listed.

*Routes—

Feeder, inducement and circle trips listed.

*Sailing frequencies—

monthly, weekly, daily, hourly etc.

*Schedules—

shows summer, winter and year round schedules.

*Ports—

Full details on ramps, berths, axle loads, cargo & vessel limitations—and much more!

*Agents—

complete section with full details of operators' port agents.

PLUS a new section on major operator vessel details—lane lengths, ramp and axle limitations, container, car, trailer, driver and passenger capacities etc. for each vessel.

* OVER 230 Packed pages

* OVER 31,000 Separate sailings

* OVER 1,200 Port agents listed in OVER 500 ports.

SINGLE COPY PRICE ONLY £15 or equivalent (Plus £2 postage and packing outside Europe)

For more details, write to: Subscriptions Manager, Wiltstons RoRo Worldwide, Intec Press Ltd, 3 Station Parade, Whyteleafe, Surrey, U.K. Tel: 01-668 1306

"Portos e Navios" Nov. '77

Rio de Janeiro, Brazil:—

Ports & Waterways

- The industrial complex of Sepetiba is being developed on land and at sea. Three dredgers—Mato Grosso, Paraná and Boa Vista I—are operating simultaneously. The last one to arrive, the Boa Vista I, completes normally five dredging cycles per day.
- The Port of Rio de Janeiro inaugurated recently a ramp for Ro-Ro ships.
- The inauguration of a terminal for cereals in bulk, in construction in Recife, is scheduled for January 1978; the importation of cereals has been growing steadily year by year, wherefore the need of the new terminal.

Port of Halifax News

1) February 28, 1978 (See front cover also.)

- The Port of Halifax . . . Canada's #1 Containerport. In 1977 handled 2 million tons of containerised cargo—191,000 TEUS which represented 38% of the eastern Canadian ports' total compared with Montreal, 29%, Saint John 19% and Quebec City, 14%.

In 1977 had 366 containership calls.

Has services operated by Dart . . . Hapag-Lloyd . . . Zim . . . ACL . . . Seaspeed . . . Columbus.

In 1977 changes in the sailing schedules of some lines gave the Port of Halifax the first westbound call in North America and the last eastbound call before Europe.

- In 1977 started developing a new container berth. It is due for completion in 1980. It will have a 1,000-foot two-crane berth and a RORO ramp. Its maximum capacity will be 70,000 TEUS a year.
- In 1977 had a total port throughput of almost 15.5 million tons.

In 1977 gained a larger share of the ever-decreasing market in non-containerised cargo handling 568,000 tons of break bulk general cargo and showing a 44% increase over the previous year.

In 1977 shipped a record 23 million bushels of grain.

Three container vessels were on berth on this busy day at the Halifax International Containerport.

- Halterm Limited operates Canada's largest common user container terminal and in 1978 expects some 400 ship calls.

2) News Release

The twin cities of Halifax and Dartmouth, which embrace Halifax Harbour, will mark the arrival of Dart Containerline's new ship in a special way this month. In honour of the maiden visit of the ship the 'Dart Canada', to the Port of Halifax, Monday, March 13, has been proclaimed "Dart Canada Day" by the Mayors of the two cities and by the Warden of the County of Halifax.

In a joint proclamation, the Mayors and Warden "encourage all of our fellow citizens to join in welcoming 'Dart Canada'."

The new ship, built at the Vulkan Shipyard in Bremen, Germany, and British-registered, sailed from Hamburg on her maiden voyage at the end of February. She has a capacity of 1500 TEUS and can carry both 20-foot and 40-foot boxes. She also has facilities for refrigerated containers.

The introduction of the new ship into the Dart fleet has enabled the line to inaugurate a direct call at Hamburg.

Port Warden: A Century Old Institution

Montréal, Québec, Fall 1977 ("Port of Montréal"):
Created by an Act of the British parliament in 1864, three years before the Dominion of Canada came into being, the office of Port Warden at Montreal Harbour was the first such position at any port in the world.

The Port Warden is basically a marine policeman whose principal responsibility is to ensure that stowage and securing of export cargo and the draught of vessels when loaded are in accordance with safety standards.

The position was created due to great dissatisfaction by insurance underwriters, shippers and consignees with high cargo losses resulting from improper stowage and overloading of ships. There were urgent demands for controls and the Montreal Board of Trade appropriate representations to the British government. Their efforts were instrumental in having legislation passed which created the office of Port



Los Angeles, Calif., 020778 (Port of Los Angeles):—Frederic A. Heim, left, a member of the Los Angeles Board of Harbor Commissioners, presented a plaque commemorating the first arrival at the Port of Los Angeles of the Argentine Lines ship M/S Jujuy II to Captain Juan C. Trivelin, center, master of the vessel. John N. Hart, district manager of Transpacific Transportation Company is at the right. Transpacific Transportation Company is the general agent for Argentine Lines' Pacific service.

The Jujuy II was on her maiden voyage and is now engaged in service between the River Plate on the east coast of South America and the north Pacific Coast. Jujuy II is named for a province in northern Argentina. To the delight of the guests, Commissioner Heim made his presentation remarks in Spanish.



Los Angeles, Calif., 021078 (Port of Los Angeles):—The Port of Los Angeles traditionally presents a plaque to the master of each ship on the occasion of its First Arrival at the Port. Recently, an interesting departure to this tradition took place when Fred Crawford, right, General Manager of the Port of Los Angeles presented a plaque to Captain Yoshimitsu Minomi, master of the M/S Japan Ace upon the ship's 100th arrival at Los Angeles Harbor. Taking part in the ceremony were: Leo E. Kowalski, second from right, Executive Vice President of Japan Lines, owners of the ship and K. Matsuura, General Sales Manager of the line. During the 100 voyages the Japan Ace carried 1,387,911 long tons of cargo in 131,000 20-foot equivalent containers. During these voyages, the ship traveled more than 1,086,000 miles. Visible on the wall behind the group is the First Arrival plaque presented to the Japan Ace more than nine years ago.

Warden, Montreal Harbour, and provided him with the necessary authority to perform his duties.

At that time there were no Plimsoll markings on the hulls of ships to indicate a vessel's draught and no regulations governing the stowage of cargo. The captain of each ship was the sole authority on all such matters.

The first Port Warden issued his own rules for general cargo stowage and regulations for grain loading, including the use of shifting boards. He also devised markings for the hulls of ships similar to the Plimsoll lines which came into general use later.

At first there was strong opposition from ship owners and captains to the Port Warden's regulations but their value soon became apparent. When cargo losses on shipments from Montreal dropped considerably below losses on cargo originating at other ports the demand for similar regulations grew.

The duties of the Port Warden at the Port of Montreal also include the examination of each incoming ship when the hatches are opened to ascertain whether the cargo is damaged or in good order. If requested, he will prepare a damage report which is used for insurance claims or in court actions. In the more than a century that has passed since creation of the office, the impartiality of the successive incumbents and the effectiveness of their actions have been unquestioned.

Chairman Is New Judge

Nanaimo, British Columbia, Canada, March 1978 (Nanaimo Harbour News):—Doug Greer, Nanaimo lawyer and chairman of the Nanaimo Harbour Commission, has been appointed a provincial court judge. He will serve in the Fraser Valley, with offices in New Westminster.

"It was quite a decision to leave both the Harbour Commission and Nanaimo" commented Mr. Greer. After all, I have spent 26 years of my working life in this area and have built up a lot of friends and a lot of ties.

Mr. Greer was appointed to the Nanaimo Harbour Commission in 1970 and took over as chairman when Doug Robinson, who had been chairman for eight years, resigned for personal reasons in 1974.

"The Commissioners and staff are going to miss Doug Greer" said Port Manager Lloyd Bingham. "He has been an outstanding and energetic chairman and during his years of office has guided the development of the port which is so vital to the economic life of Nanaimo."

Mr. Greer was brought up in Saskatoon but after war service, came to British Columbia. He has been a city alderman and twice ran as a candidate in federal elections.

Saint John Port Day in New York

Saint John, New Brunswick, Canada, January-February



San Francisco, Calif., 2/24/78 (San Francisco Customs Brokers & Freight Forwarders Association):—"Forwarders' Forum" might have been the theme of a recent presentation by Leonard Nordgren (center), district director of the Federal Maritime Commission to members of the San Francisco Customs Brokers and Freight Forwarders Association. Joining in the event were association president Bonnie Beijen, vice president of W.J. Byrnes & Co., and Silvio Scocca, export manager of Hoyt, Shepston, Inc. Nordgren's remarks ranged over a variety of current issues of concern to the ocean forwarding industry, including proposed licensing of non vessel operating common carriers, increases in bonds, and determination of forwarders' "independent" status.

1978 ("Saint John Port News" published jointly by The Saint John Port Development Commission and the National Harbours Board Saint John Office):—The "link" between the cities of Saint John, New Brunswick, Canada, and New York was recognized in special greetings sent by Mayor Abraham D. Beame, to Saint John Mayor Sam Davis.

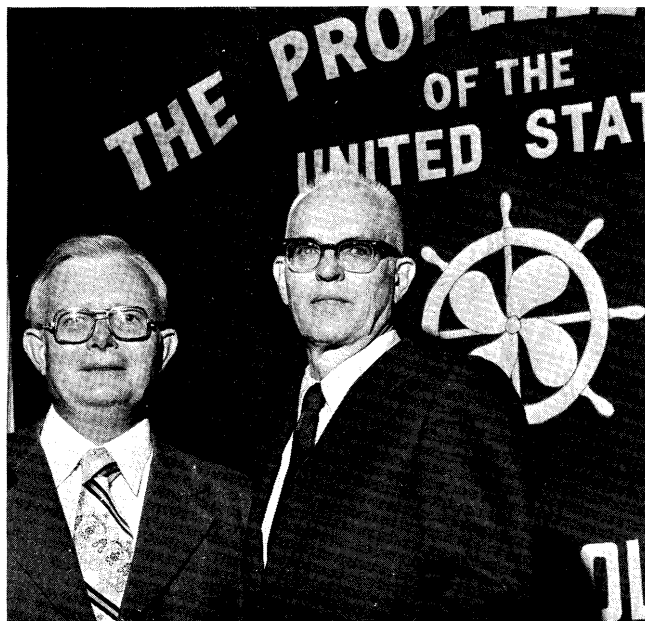
The occasion was the annual Saint John Port Day held in New York by officials of the Atlantic Canada maritime center in honor of the shipping industry based in New York. More than 200 persons attended.

"We are very much aware of the similarities of activities and interest that link our two cities, especially those relating to the shipping industry and port development," said Mayor Beame.

The mayor's greetings were delivered by Louis Mastriani, New York City Commissioner of Ports and Terminals. The letter also included "a heartfelt and enthusiastic welcome and special greetings to Joseph Streeter, Chairman of the Saint John Port Development Commission, and Gordon Moulard, Port General Manager for the Canadian National Harbours Board."

Mayor Davis noted that the two cities share a maritime history going back more than 400 years and noted that through these ocean-front facilities both countries were formed. He added that New York and Saint John "enhance" each other's position as shipping centers on the East Coast.

The Port Day celebration is an annual event held in New York at the Whitehall Club. Saint John port delegates rely



San Francisco, Calif., 3/2/78 (Propeller Club of the United States, Port of the Golden Gate):—REFLECTIONS ON BAY WATERS—San Francisco—Walt Willard (left), president of the Propeller Club of the U.S., Port of the Golden Gate, recently introduced former S.F. port director Tom Soules to speak at a Palace Hotel luncheon meeting of the merchant marine promotional body. Soules reflected on his brief tenure and stormy conclusion as port director in San Francisco, ascribing many of his difficulties to "political appointees and politicians" interfering with needed "independent" port direction and management. Real estate profits offered by highly desirable port properties mitigate against its proper development and renaissance as a maritime facility, the immediate past president of the American Association of Port Authorities asserted.

on support from North American shipping interests whose vessels call there and exporters and importers who route their Canada cargo via Saint John. Much of the heart of this industry is situated in New York and environs.

The Port of Saint John is situated just 70 miles from the U.S. border but its proximity to Canada's interior makes it a logical choice for virtually every Canadian trade route. Some 32 shipping lines call there on a regular basis including containerships, breakbulk vessels, tankers, bulk carriers, and lumber ships.

Port of Corpus Christi News

Corpus Christi, Texas, January 1978 (Published by Nueces County Navigation District, Operators of the Port of Christi):

• Cargo Tops 60-Million Tons in 1977

Cargo moving through the Port of Corpus Christi surged past the 60-million-ton mark in 1977, for the first time in the Port's 51 years of operation.

The total of all types of cargo handled in all divisions of the Port last year was 60,669,825 tons. This was a 26 per cent increase over the 1976 total of 48,293,793 tons and more than double the 30,031,968 tons of cargo that the

Port moved in 1973.

The 1973 total represented a 15 per cent increase over the year earlier and in 1974 cargo movements were up 36 per cent. Other yearly increases were 9 per cent in 1975 and 8 per cent in 1976.

Petroleum continued to be the major commodity for the Port in 1977. Oil—both crude and refined products—totaled 48,512,060 tons. This was approximately 80 per cent of all cargo handled. It was also 33.68 per cent greater than the petroleum handled in 1976.

Grains again came in as the second biggest commodity in the Port's 1977 cargo mixture, with 3,452,437 tons compared to 3,684,707 in 1976. This was a 6 per cent drop from that moved the year before. Two primary reasons for the decrease were a lessened demand in world markets and the fact that one of the Port's two grain terminals was closed down 50 days for repairs.

Chemicals, many of which are derived from petroleum but are not counted in the petroleum column, reflected an 18 per cent increase last year. The total for the year was 2,351,411 tons.

Other commodities for which increases were recorded during 1977 were caliche, 340,092 tons (up 97 per cent); bulk ores, 278,322 tons (up 49 per cent); coke, 117,331 tons (up 95 per cent), and molasses, 41,177 tons (up 903 per cent).

Cotton shipments totaled 23,257 tons, a decrease of 58 per cent from cotton movements in 1976.

Harbor Island, where 6,964,308 tons of petroleum were moved last year, recorded a 43 per cent increase over the year before, the largest percentage gain for any of the Port's four deep-draft divisions.

At Ingleside, the site of only one oil dock used exclusively by Sun Oil Company, petroleum movements totaled 1,459,250 tons, up 40 per cent from 1976.

The Main Harbor handled a total of 46,716,918 tons of all kinds of cargo during 1977, an increase of 27 per cent. La Quinta, on the north shore of Corpus Christi Bay, had a total of 5,529,349 tons, a decrease of 4 per cent.

During December and continuing into January, a variety of dry cargo began moving over the docks.

A shipment of 708 tons of guar splits arrived from Karachi, Pakistan. One shipment of Department of Agriculture commodities going to Tunisia included 126,500 bags of wheat.

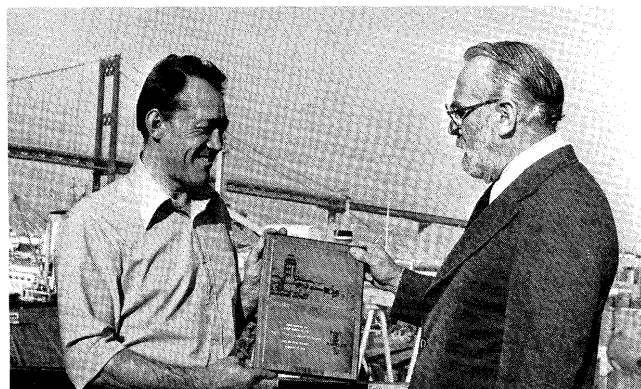
The bulk materials dock unloaded 26,000 long tons of cement clinker that came from Spain. Stacked in the Cargo 8 transit shed was 1,500 tons of bagged limestone going to Suriname. At Cargo Dock 15, 2,200 long tons of bulgur was loaded on LASH barges for shipment to India.

At Cargo Dock 14, pipe and crated machinery, equipment and parts (2,752 packages) were unloaded from the ship Moonstone, brought here from England for use in the Corpus Christi Petrochemical Co. plant now under construction.

Other recent shipments included cotton, bagged fertilizer and bagged sorghum.

Impressive agricultural exports

Houston, Texas (Port of Houston News Release):—The Port of Houston Authority recently has compiled statistics



Los Angeles, Calif., 02278 (Port of Los Angeles):—Traditional Port of Los Angeles First Arrival plaque is presented by Los Angeles Harbor Department Asst. General Bill Clocksin, right, to Capt. Frank Stemple, master of the M/S New England Trapper on that container ship's recent initial call at the Port.

The Trapper, and its 21-knot sister ship the New England Hunter are chartered by Seaway Express Lines for its independent liner service between Los Angeles, Taiwan and Korea.

that may be of use to the news media in determining the importance of agricultural commerce through the Port of Houston.

During the first 11 months of 1977, the last period for which detailed figures are available, 45 million tons of foreign trade export and import cargo were moved through Houston.

Nine million tons of agricultural products were exported in foreign trade from the Port. This figure represents 64.8 per cent of the 13.9 million tons of total foreign exports for the period.

Through November of 1977, only 1.2 million tons of foreign agricultural products were imported at Houston. These commodities made up only 3.9 per cent of the total of 31.3 million tons of foreign imports.

The tonnage figure on domestically produced meat and related animal products shipped in export overseas from Houston was 30 times greater than the tonnage figure on such foreign products imported at the Port.

Nearly 330,000 tons of meat and products were shipped from Houston during the 11 months, while only 11,500 tons of those commodities were brought in from foreign countries.

Major agricultural exports included 4.2 million tons of Texas and Midwestern wheat; 1.7 million tons of cereals, and 1.4 million tons of corn.

Major agricultural imports included 405,000 tons of molasses, and 47,000 tons of coffee.

New service with Venezuela

Jacksonville, Florida, February 28, 1978 (Jacksonville Port Authority):—A new regular shipping service between Venezuela and the Port of Jacksonville will be inaugurated here March 22 with the arrival of the motor vessel Lisette.

Announcement of the twice-monthly service was made by Venezolanda De Buques, owner of Venebuques Line Corp., of Venebuques, C.A.



Los Angeles, Calif., 030878 (Port of Los Angeles):—Ron Kennedy, director of port operations at the Port of Los Angeles, presented a plaque to Captain William T. Pitcher, master of the M/V Southland Star, when the Blue Star Line ship made its first arrival at Los Angeles Harbor recently. From the left are: Walter L. Rabenston, vice president of Overseas Shipping Co., Captain Gunnar Totorp, retired marine superintendent for Overseas Shipping Co., Captain Pitcher, Ron Kennedy and Gordon J. Gibson, general manager of Blue Star Line, Ltd. Blue Star Line began its new direct express container service from the Pacific West Coast to New Zealand with this maiden call of the Southland Star at the Port of Los Angeles. Blue Star Line, Ltd. is based in London and specializes in the worldwide shipment of refrigerated cargo. The Line has established a San Francisco office to manage the New Zealand container service and Gordon J. Gibson rotates between the two offices. Overseas Shipping Co., serves as general agents for Blue Star Line on the Pacific West Coast.

A sister ship, M/V Stefi, also will serve the new route and will make her first call at a later date according to Venezolanda De Buques.

Each of the vessels is equipped with a jib-type 30-ton crane and each has a capacity of 190 TEU (twenty foot equivalent) containers.

Cesar Landaeta, operations manager for Venebuques Line, said the new non-conference service will operate between Jacksonville and La Guaira, Guanta, Margarita Island, Puerto Cabello and Maracaibo.

In addition, two ro/ro vessels will be made available to the service in the near future, Landaeta said.

Lavino Shipping Company is the local shipping agent and stevedoring company for the new service.

New Pilot Boat

Los Angeles, Calif., March 1, 1978 (Port of Los Angeles News):—Ship services provided by the Los Angeles Harbor Pilot Station will soon be greatly enhanced as a result of action today (Wednesday, 3/1) by the Los Angeles Board of Harbor Commissioners.

The Board awarded a \$244,600.00 contract to Dravo Steelship Corporation of Pine Bluff, Ark., lowest bidder, for the construction of an aluminum, diesel-powered pilot boat, approximately 43 feet overall, with a 14-foot beam which will replace one of the two boats currently used by the Port of Los Angeles Port Pilots. The construction is expected to require 225 days.

The new boat will become the Port's primary pilot boat and the "Amos A. Fries" backup boat, which is approxi-

mately 50 years old and too outdated to renovate, will be retired.

After acquisition of the new boat, the "Angel's Pilot", presently the primary pilot boat, will become the backup boat and will also be used by the Port's Construction and Maintenance Division as a towing boat when such needs arise.

The new boat will be used particularly for work outside the breakwater where higher speed is required. It will be light and fast and will enable the Port to provide faster, better service to customers. Also, fuel costs will be significantly reduced for the pilot boat operations with the new boat.

Record Marine Year 1977

Portland, Oregon, February/March 1978 ("Portside", News from the Port of Portland):—Expansion of the Port's Swan Island Ship Repair Yard continued to dominate the Port's marine activities in 1977, with a contract nearly \$10 million below the engineer's estimate awarded in September to Ishikawajima Harima Heavy Industries Co. Ltd. for \$17.5 million to construct the largest floating dry dock on the West Coast.

In addition, contracts were awarded for construction of 3,000 feet of repair berth space, six cranes and all electrical and mechanical utility systems. The project is continuing on schedule with the new facilities expected to be operational in late January 1979.

Another kind of floating dock was in the news late in the year, as the Port began building a 60-acre import auto facility adjacent to the Terminal 6 container complex. When completed in the spring, the berth will include a floating dock, on which import autos are unloaded, one of two currently in use at the Port's auto facility at Terminal 4.

A major reason for building the new auto terminal was an increase of more than 65 per cent in the number of import cars moving through the Port in 1977, reaching a total of approximately 211,000 cars. Portland now handles about 10 per cent of the entire U.S. auto import market, with a goal of capturing a 25 per cent market share by the early 1980's.

Recently released U.S. Army Corps of Engineers waterborne commerce statistics for 1976 show Portland once again leads the U.S. West Coast in export tonnage.

Portland harbor exported 33 per cent more cargo than second place Long Beach, Calif. Portland's total exports for the period totaled 7,440,766 short tons—13.4 per cent increase over the previous year.

In overall West Coast port rankings—Portland retained its third place position behind Los Angeles and Long Beach in total waterborne commerce (foreign and domestic) and total foreign waterborne commerce.

Major gains also were recorded for the year in number of containers, up 11 per cent over 1976; import steel, up about 8 per cent; grain tonnage, which rose 30 per cent; and log tonnage, up about 59 per cent. Total marine cargo volume through the Port increased about 2 per cent over the previous year, with terminals 1, 4 and 6 all showing tonnage gains.

(Continued on next page bottom)

Heavy Lift at the Port of N.Y.-N.J.

News from the Port Authority of NY & NJ

New York, March 8, 1977:—Heavy lift capabilities at the Port of New York-New Jersey will be promoted by the Port Authority, in conjunction with Witte Heavy Lift, Inc. and ConRail at seminars on the use of its 500-ton floating derrick, the "Century," with shippers in at least three cities.

The first of the seminars is being held in Pittsburgh today at the Duquesne Club with approximately 25 major shippers from the Pittsburgh and Eastern Ohio areas. James J. O'Brien General Manager of Trade Development for the Port Authority will preside and introduce Port Authority and industry speakers.

Those addressing the heavy lift seminar are Anthony J. Tozzoli, Director of Marine Terminals for the bi-state agency; John Arnold Witte, President of Witte Heavy Lift, Inc., which operates the "Century" for the Authority; and Robert L. Downing and Donald A. Washburn, both of ConRail.

New York terminal operators also have been invited to send representatives to the meeting. Additional seminars by the heavy lift promotional team are scheduled for Houston

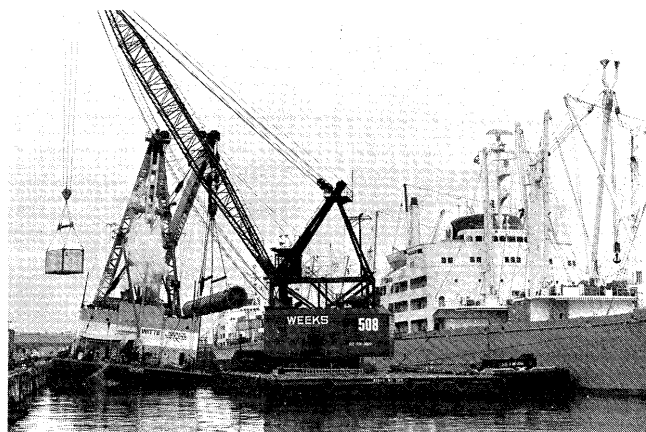
At the Swan Island Ship Repair Yard, November 1977 was the busiest month recorded in nearly 10 years. The annual berthing and ton-day totals were slightly down from 1976 but total gross revenues were up about 12 per cent. Because of yard congestion during the year, contractors were forced to turn down additional work, nevertheless, Portland again handled about one-third of all the ship repair jobs on the West Coast. Long-term work now under way or completed in 1977 included overhauls on the U.S. Navy vessels LANG and DUBUQUE, modernization of the Alaska state ferry M/V MATANUSKA, conversion of the SS CORNUCOPIA, from tanker to cryogenic carrier, and damage repairs to the Corps of Engineers dredge BIDDLE.

More than a dozen ships made maiden calls to Portland during 1977, and total vessel calls in the harbor were up slightly over the previous year, maintaining Portland's status as the tenth largest port in the nation in number of ship calls.

Upriver barging on the Columbia-Snake river system continued to be a focal point, as five towboat companies were granted operating authority, now pending, by the Interstate Commerce Commission. At year's end, plans were under way for further port development at Lewiston, Idaho, and Umatilla and Boardman in eastern Oregon.

Marketing strategy in 1977 was focused on target commodities and the generation of increased steamship service and a higher-revenue cargo mix. Target commodities that showed dramatic increases include hides, machinery, electronics and automobiles.

The same marketing program employed in 1977 that produced the greatest return on investment in the Port's marine history is being continued in 1978 along with a refinement of internal staff responsibility and a major revision of the marine terminal tariffs.

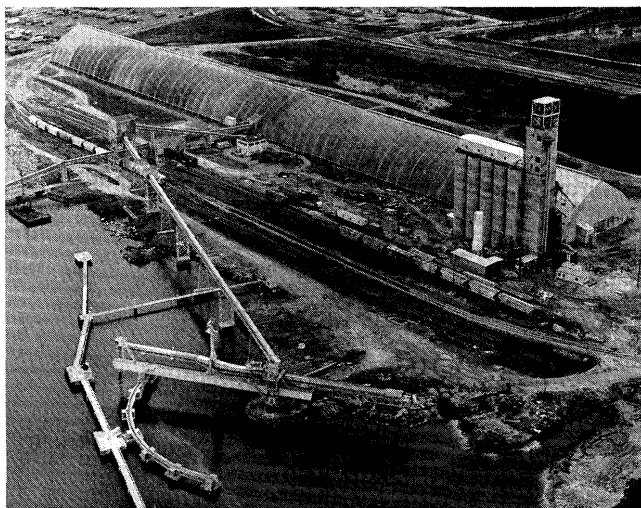


on March 31 and Chicago in the latter part of April.

At the same time, the Port Authority announced that the "Century" will make one of the heaviest lifts it has ever performed, starting Wednesday morning, March 9, at Berth 61, Port Newark. The floating derrick will lift a 462-ton stator from a special rail car, then turn and position it on the dock at the head of Port Newark Channel for later removal on or about March 21 by a specially equipped vessel, the "Giant."

The stator, manufactured by the Westinghouse Electric Corporation of Pittsburgh, is being moved by rail to Port Newark for shipment to Taiwan. It is being handled at the New Jersey seaport by the "Century" in advance of the ship's arrival for loading so as to place the huge cargo shipment within easy reach of the ship's boom and free the specially built rail car for use on other movements.

Grain Terminal Dedicated



Savannah, Georgia, 3/17/78 (Georgia Ports Authority News Release):—A \$4.5 million export grain terminal built by Georgia Ports Authority and to be operated by Continental Grain Company has been dedicated by Georgia Governor George Busbee and Roy E. Folck, Jr., Chairman of the Board of Continental.

Also dedicated in the same ceremonies were other facilities completed under a \$52 million Port Expansion Program, the largest in the history of Georgia Ports.

Folck told an audience of several hundred persons that “when the 1.8 million bushel grain facility is in full operation within the next 90 days, Georgia grain producers will be able to export seed and food grains and soybeans to markets abroad more efficiently than ever before.”

Folck also pointed out that “the opening of the grain export terminal will provide additional impetus to a developing global market thrust, affording Georgia grain producers greater sales opportunities.”

Folck emphasized that favorable transportation costs “make the Port of Savannah a logical site for about 50 percent of Georgia’s export grain movement.” Enhancing this situation Folck said, is the fact that “more than 55 percent of Georgia’s corn and soybean production is within 150 miles of the Port of Savannah.”

Governor Busbee attributed much of the optimism of the Georgia agriculture community on better grain prices and increased grain movement in the entire Southeast, to that fact that Continental Grain, among the leaders in grain export, will be operating the new G.P.A. grain facilities.

In his remarks, Governor Busbee praised the Georgia General Assembly for what he termed “the high priority they gave the funding of Phase I of the Georgia Ports improvement program.” Busbee said that members of the General Assembly “realize that not only do the port areas benefit from the port improvements, but the entire state benefits from increased commerce through our ports.”

Busbee also expressed satisfaction that one of the major actions of the recently-adjourned General Assembly was approval of his recommendations for an additional \$11 million to cover Phase II of ports improvements.

Busbee said that \$9 million of that total will be spent on new heavy lift equipment, two modern warehouses and land purchases in the Port of Savannah.



San Francisco, Calif., March 15, 1978 (Marine Exchange of the San Francisco Bay Region):—A COMPOSITE LOOK at problems of oil spills and regional navigation issues was recently initiated by a special industry-government task force headed by Bob Smith (center), chief of Clean Bay, Inc., the response agency formed by principal refineries and tanker operators in the San Francisco Bay Region.

Among participants is the U.S. Coast Guard, represented by CMDR. Gary R. Hall (left), Seth Hargrave, Exxon Co. USA—who was selected vice chairman—and the California Department of Fish and Game’s Tom Kasnick. Part of the Marine Exchange’s Harbor Safety Committee, the specialized “environment and public policy” subcommittee reviewed at its first session oil transfers within the bay system, tanker operations—particularly anchorage capacity—and the Coast Guard’s increasing compliance enforcement for equipment standards on vessels arriving at the Golden Gate.

He revealed that the Port of Brunswick will receive \$2 million for a new warehouse with an extensive conveyor system for handling bulk commodities in international trade.

Among state leaders participating in the dedication ceremonies were Speaker of the House Tom Murphy of Bremen, Georgia; Senator Al Holloway of Albany, Georgia, President Pro Tem of the State Senate and Tommy Irvin, Georgia Commissioner of Agriculture.

Port of Stockton tonnage improved

Stockton, Calif. (Port of Stockton):—While the Port of Stockton ended 1977 with a total tonnage figure of 2,486,387 tons, most of the impressive figures were logged the last six months of the year, July through December, the period when Krygsman first took over the somewhat business faltering port.

Krygsman, who previously served as Port Director at the Port of Pensacola, Florida, and was responsible for turning around that port’s business horizons, was hired by the Stockton Port District Board of Port Commissioners to prescribe remedies and programs for improving the business picture at the Port of Stockton.

To date his medicine for the port has included improved administration techniques, greatly improved production efficiency at the docks and in the warehouses, use of his

(Continued on next page bottom)

Port of New Orleans News

1. New Industrial Canal Shiplock

Mayor-elect Ernest N. (Dutch) Morial and the Board of Commissioners of the Port of New Orleans have joined forces to obtain a proposed new shiplock in the Industrial Canal to connect the Mississippi River with the Mississippi River-Gulf Outlet.

Morial and Edward S. (Ned) Reed, executive port director and general manager of the Port of New Orleans, today issued a joint statement of their intentions to seek an early start to the shiplock and improvement of the residential areas around it.

They announced the formation of the Steering Committee for a New Shiplock (SCANS), with Reed to serve as chairman.

The purpose of the committee is to provide a vehicle for ongoing communication and coordination between the Corps of Engineers, the Dock Board, and the various involved interests during the planning and the construction of the proposed lock.

The Dock Board is the state assuring agency for the project, which President Carter has directed to be sited in the Industrial Canal.

Morial and the Dock Board selected the committee to be representative of major interest groups in the area where the shiplock will be located.

SCANS members are Mrs. Mary Geneva Morris, to serve as personal representative of the mayor-elect; State Representatives Thomas Jasper and Edward Bopp; City Councilman Phillip C. Ciaccio; Col. Early J. Rush, III, New Orleans District Engineer, U.S. Army Corps of Engineers; Capt. Myron E. Welsh, chief of the Marine Safety Division, Eighth Coast Guard District; Howard Turner, president, 9th Ward Citizens Voters League; Marc Cooper, president Bywater Neighborhood Association; Harold R. Katner, director-secretary, New Orleans Planning Commission; Lindsey J. Williams, president, Seafarer's International Union.

Also, Aubrey Saucer, president, Saucer Marine Service, Inc.; Sam Giallanza, senior vice-president, New Orleans Steamship Association; and Merle L. Harbourt, Southern Regional Representative, American Waterways Operators, Inc.

Ex-officio members include U.S. Senators Russell B. Long and J. Bennett Johnston, U.S. Representatives Robert Livingston John Breaux and Lindy Boggs, State Senator Nat G. Kiefer, and State Representative Johnny Jackson.

Morial said that the committee was kept to its announced size "for effectiveness. It includes the essential community interests, and I expect it to be a vital force in obtaining the needed shiplock with minimal displacement and comprehensive improvements for the neighborhoods near it."

worldwide contacts developed from his more than 30 active years in the international shipping and trading fields, and better merchandising of the port's facilities... all which are proving successful.

Krygsman said he expects the business and tonnage figures for the port to continue to improve through 1978.

He and Reed attended a recent conference in Washington with Senators Long and Johnston and Representatives Lindy Boggs and Livingston and asked the Corps of Engineers to speed their planning so that construction of the shiplock can be started in 1981 rather than in 1983, and be completed in 1986.

Morial said, "The most recent plan would dislocate fewer people than we had earlier believed. We want to make certain such people will be relocated in proper homes and neighborhoods and that neighborhoods near the site be enhanced with parks and playgrounds and good roads and bridges and needed community services.

"Through the city's office of Policy Planning, we will conduct impact and analysis to assure that the neighborhoods be improved and retain their viability with a complete range of needed services," Morial added.

2. Industrial Canal Berths leased

March 9, 1978:—Major General Henry R. Del Mar, Commander, Military Traffic Management Command, Department of the Army, Washington, D.C., representing the U.S. Government, accepted a check today in the amount of \$1,432,980 from Michael J. Molony, Jr., president of the Board of Commissioners of the Port of New Orleans, at the Board's meeting in their International Trade Mart headquarters.

The payment is an advance on account for a 25-year lease of Berths 4 and 5 of the New Orleans Army Base (Gulf Outport) on the bank of the Mississippi River at the Industrial Canal. The facility is often referred to locally as the Port of Embarkation.

Work will begin immediately on structural rehabilitation of the wharves to bring them up to Class A standards. Roof rehabilitation and lighting improvements, painting, substructure rehabilitation and rail repairs constitute the major items of work, and the advance payment will be used by the Government to fund these improvements.

The work is being accomplished by contracts administered by Colonel John F. Wall, District Engineer of the Fort Worth District of the Corps of Engineers.

Dock Board officials pointed out that this first venture of this type will net the Port a substantial addition to port facilities sooner than a similar structure could be built and at a considerable savings in capital dollars. It is estimated that a similar new wharf would cost some \$14 million to construct and would consume 2-3 years from design stage to first usage.

Usage by Dock Board customers of the former military facilities is currently scheduled for February-March, 1979, at which time the lease period will begin.

The lease contains a 30-day cancellation stipulation in the event of national emergency.

Constructed in 1920 and rebuilt in 1928 following a fire that destroyed much of the wharf, the facility at Poland Street was used during World War II and the Korean and Vietnam wars as a shipment point for military personnel and materials.

Poland Street Berths 4 and 5 will accommodate loading



San Francisco, Calif., 3/23/78 (San Francisco Customs Brokers & Freight Forwarders Association):—A SMILING GET-TOGETHER = was the occasion of a joint Customs-industry workshop program recently at Ft. Mason. The San Francisco Association co-sponsored the information exchange with the U.S. Customs Region, and greeted new Regional Commissioner Clarence Bingham (left) who was luncheon speaker. Association import chairman John A. Sundfelt (Frank P. Dow Co., Inc.) and president Bonnie Beijen (W.J. Byrnes & Co.), were featured program participants. Also on hand were District Director of Customs George Brokaw, Regional Operations Officer Lou Wegener, who moderated the event, and Operations Officer Al Fleming, who discussed steel trigger prices. More than sixty brokers and Customs officials participated in the event which ranged over a variety of programs and problems affecting both Customs administration and brokers' operations.

and unloading of two ships simultaneously. There is rail service both in front of and behind the transit sheds, as well as a truck loading platform. Total riverfront space is 931 lineal feet, shedded area is 117,500 square feet, and open space is 103,350 square feet.

The renovated portion of Poland Street Wharf is generally equivalent to modern wharves being constructed on the river today, according to Dock Board planners.

3. Panama Canal Treaties Opposed

February 23, 1978

Text of telex sent to Louisiana Congressional Delegation, President Carter, Secretary of State, Secretary of Commerce:—We respectfully urge and request that the Panama Canal Treaties not be ratified unless and until amendments are passed that positively and specifically restrict the escalation of toll rates as well as the charges for ancillary services to not more than 27% at this time, and further limit all future toll rate and ancillary adjustments to a percentage adjustment no greater than the percentage adjustment of the U.S. cost-of-living index. Such toll and rate adjustments should not be made more frequently than every two years. Further, any short-fall resulting from differences between increased total operating costs of the Panama Canal and the revenues derived from the above-noted charges should be made up from the \$10 million annual payment pledged to the Republic of Panama. If such amendments are not made to the present treaties, there will be absolutely no protection from an anticipated massive adverse impact on trade and commerce between the Port of New Orleans as well as other Atlantic and Gulf ports with all



Coronado, Calif., 3/23/78 (California Marine Affairs and Navigation Conference):—"We have reached a crisis point in decision-making, the results of which will be today's judgments determining the future of the nation's water resources" was the declaration of Colonel Vinton L. Rathburn, Assistant Director of Civil Works for Pacific Divisions, Office of the Chief of Army Engineers, before the spring meeting of the California Marine Affairs and Navigation Conference. C-MANC President Victor Adorian (left) Director of the Department of Small Craft Harbors of Los Angeles County, was joined by William L. Dick, Port of San Diego Director of Community and Government Affairs, in welcoming the Army Engineers' spokesman at the gathering of more than sixty California port, city and county Officials and industry representatives concerned with navigation and ocean commerce. Formed in 1956 in San Francisco, the conference now speaks for the Golden State's recreational boating industry, deep draft harbors and other major users of navigation, in issues dealing with dredging controls and criteria, federal funding of studies, design, engineering and construction and maintenance of waterways and ports, and for related water development issues.

points on the Pacific Ocean and in the Far East. An extremely adverse impact on the economies of these U.S. ports and the trade utilizing them will result if toll rates and charges for ancillary services (tugs/line handling/bunkering, etc.) exceed a 27% increase, which percentage increase is cited as the maximum required "one-time toll rate increase" by the state department's "analysis of the estimated cash requirements of the Panama Canal Commission, 1979-1983"—dated January, 1978 (Arthur Andersen & Co.), or if the rate of future increases exceeds the rate of inflation of the U.S. economy.

(signed)

Michael J. Molony, Jr., president; Roy J. Gross; Joseph J. Krebs, Jr.; John Meghrian; John P. Laborde; L.N. (Lee). Bubrig; Frank Strachan.

Correction

Referring to the two photographs on page 51, "Ports and Harbors" April 1978, the captions should have been reversed. Apologies-Ed.

multi-purpose and permanent

The multi-purpose and "round the clock and year" activities are some of the assets symbolized by the new P.R.-emblem, stressing the fact that the Antwerp service to port users **at all times** meets all requirements of international trade and transport.

PORT OF ANTWERP

Information: General Management of the Port, Town Hall, Antwerp, Belgium.

Antwerp News

Antwerp, 25/1/1978 (Port of Antwerp Promotion Association):—

• SUPPLY OF PHOSPHOROUS ORES

In the course of the following three years, the Swedish company LKAB will supply 18 million tons of phosphorous ores to the Belgo-Luxemburg steel industry. The cargo, coming from Narvik (Norway) and Lulea (Sweden) will be handled in Antwerp by the ore-transshipment plant "Stocatra".

It concerns the consolidation of a delivery contract which formerly covered a one year period, but which now has been signed for three consecutive years at an annual rate of 6 million tons.

• NEW RECORD IN THE PORT OF ANTWERP

The "Rigoletto", a new specialized PCTC vessel (Pure Car-Truck Carrier), of the Swedish Wallenius Lines, has called at Antwerp for the first time. The "Rigoletto" (having a gross tonnage of 17,502 t), is the first one out of a series of three vessels, especially built for the conveyance of cars. The maximum capacity of these vessels is 5,300 cars or 3,140 cars and 430 trucks.

During her call at Antwerp a new record has been established in the port by loading the highest number of cars ever to be handled in a Belgian port. Indeed, 3,940 cars were loaded on the twelve car-decks in less than 19 hours.

Loading operations, performed by the firm Hessenatie, have been carried out at a rate of 50 upto 60 cars per man and per shift.

The cargo, coming from Germany and France was bound for the American Westcoast.

Within the triangular traffic Japan-Europe-United States, Wallenius Lines have already transported 632,000 cars in 1976, of whom 229,000 i.e. 36%, have been shipped via the port of Antwerp, thus illustrating the predominant place of Antwerp in Northern Europe regarding car traffic. Agents of Wallenius in Antwerp are "Cobelfret N.V."

• L.O.L. TERMINAL PAKHOED ANTWERP

Belgian Pakhoed, specialized in the storage and distribution of merchandise, is investing in a containerterminal in the port of Antwerp, located between the port's container centre and the cross-roads linking the port to the Belgian highway system.

The terminal will be at the disposal of containerlines, container leasing companies and everybody who needs storage facilities for containers in the short as well as in the long run.

The initial surface of the storage place will amount to ca. 10,000 m², but there is a possibility of expansion to 40,000 m².

The terminal will be completely fenced, equipped with all kinds of connections for different kinds of containers and also completely lighted.

The purpose is to create an 18 hours a day availability and to render a complete service.

Some parties have already shown interest in the new facilities.

In any case, Belgian Pakhoed will act as a completely neutral intermediary, as it is the case in all their warehouse operations.

Construction works started November last and the first containers are expected to be received in the spring of 1978.

• W.H. OSTERRIETH HONOURED

W.H. Osterrieth, President of the World Trade Center Association of Belgium (W.T.C.) and of the Port of Antwerp Promotion Association, received the certificate of citizen of honour of the good city of New Orleans. During a ceremony at the club-room of the W.T.C., the certificate was handed over to him by Mr. P. Vogel, European Trade Director of the port of New Orleans.

Port of Bristol News

From "Portfolio", A Newspaper for the Port of Bristol, March 14th, 1978

• Port trade boosted by grain exports

During the month 5,100 tonnes of English barley was loaded through the Port's granary system in what was the largest consignment of grain to be loaded at Avonmouth.

The Russian vessel Valdaiyes loaded this cargo, destined for Algeria, over seven days through delivery pipes at No. 3 Granary.

Owing to the bumper English harvest experienced last year, the months of January and February each saw eight such vessels loaded at the Port.

With the expected boost of additional grain for Tewkesbury, in addition to existing traffic, new coaster loading facilities located north of 'P' Shed, Royal Edward Dock, Avonmouth, are being provided and are expected to come on stream later this year.

Flour

Output figures for flour exports have maintained a high level in the past month, 2,500 tonnes being loaded aboard the m.v. Ady and a further 7,000 tonnes being loaded aboard the m.v. Dimos Halcoussis.

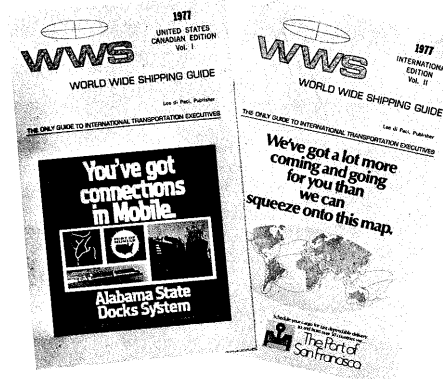
British Flour Exporters, who ship these cargoes to third world countries as part of Food Aid Programmes, believe that given time there is room to increase flour exports from this country, but that we are in competition with other EEC countries whose ports can handle flour at something like 1,250 tonnes per day using mechanised loading facilities. Given that there is a great potential for this trade, Avonmouth is in competition with other U.K. ports and must continue to produce competitive outputs to retain what could become a substantial traffic.

"Arafat"

Although vessels on their maiden voyage are by no means strangers to the Port, the most recent to visit us was the Kuwaiti registered Arafat.

This vessel of 15,400 g.r.t. was built in the Scottish yard of Gowan and loaded cargo in Glasgow and Liverpool

(Continued on next page bottom)



Looking for a forwarder in Amsterdam?

- A stevedore in Antwerp?
- A service to Damman?
- Information about shipping to the Middle East?

The WORLD WIDE SHIPPING GUIDE will help you! You will save hours of research time with this two-volume book that contains all you need to know about steamship lines and agents, freight forwarders and customs brokers, stevedores, terminal operators, port authorities and government agencies, airlines and railroads, charterers and agents—all transportation categories needed by foreign traders. More than 1,500 world ports are covered. Listings include name, address, telephone number, service, telex, cable and key executive with over 45,000 firms servicing the import, export market. A complete international banking section is also included.

With WORLD WIDE SHIPPING GUIDE at hand you don't have to leave your desk or wait for a search to be completed. It's all there—the world of international trade—at your fingertips!

MAKE SURE you have this essential working tool on your desk. Order additional copies for others in your firm. Use this coupon now (If your check accompanies the order, we'll pay the postage, taxes, and handling charges and you save \$5. off the purchase price. The 2 Volume set will cost you only \$30.00 postpaid.

WRITE TO: Lee di Paci

WORLD WIDE SHIPPING GUIDE
77 Moehring Drive
Blauvelt, NY 10913

Please rush the 2 Volume set—
WORLD WIDE SHIPPING GUIDE. En-
closed is my check for U.S. \$30.00.

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

British Transport Docks Board News

1. Barry: West Africa Service

London, 1 March 1978:—The British Transport Docks Board's port of Barry has been chosen as the only U.K. port of call for a new roll-on/roll-off service to Nigeria. The first ship, the Norwegian-built "Ramses Carrier", 1135 tons deadweight, is due to sail on her maiden voyage to Lagos on Friday, 3 March with a mixed general cargo including steelwork and provisions.

The new service, being introduced by Ramses Shipping AS of Oslo, will operate initially on a monthly basis. The "Ramses Carrier", capable of carrying up to 40 forty-foot trailers as well as 89 American-sized cars, will be joined by two more vessels in June and October. The success of the service will determine whether it can be increased to a fortnightly sailing.

Barry's docks manager, Stuart Bradley, welcomed the establishment of this new service and said that it was excellent news for the port. "For a long time now our ro/ro facilities have been under-utilised and this development is a welcome resurgence in this type of operation. Barry has the expertise in this field and I am confident that the shippers will be well satisfied with the service we can provide."

before arriving at Bristol in early March to load crane parts.

• Avonmouth still tops for tea

Recent U.K. Tea imports statistics for 1977 show Avonmouth still way out at the top for tea handling with nearly 40% of the country's total imports being handled here.

Next in line, with 15% is Newport, followed by Liverpool, London and Hull.

• Motorways access proves a winner

New Zealand farmers have opened a meat export plant in a depot situated at the Western Ice and Cold Store, Avonmouth.

This is something of a unique venture, for the company is actually a co-operative formed by New Zealand farm-owned companies.

"This particular company represents directly in the United Kingdom a totally farmer-owned New Zealand group with a large investment in meat export plant," states Mr. Tom Broderick, managing director of the Associated New Zealand Farmers.

"The producer is controlling his own meat right from the farm to the customer.

"We decided on Avonmouth because of its excellent access to the motorway system," says Mr. Broderick, "and because it is a major port for the importation of meat.

Co-operation

"Also a deciding factor was the co-operation we got from the management of Western Ice and Cold Store."

The Associated New Zealand Farmers comprises three major New Zealand companies: Alliance Freezing Company (Southland) Ltd., Auckland Farmers Freezing Co-operative Ltd. and Hawkes Bay Farmers Meat Company Ltd.

U.K. general agents are John Cory Shipping, Cardiff.

2. Swansea: Cranes being redeployed

London, 6 March 1978:—Plans for a further £240,000 improvement in quayside cranes at Swansea Docks have been given the go-ahead by the British Transport Docks Board.

The latest scheme—to transfer three cranes from BTDB's Garston Docks on Merseyside to their King's Dock at Swansea at a third of the cost of similar new cranes—will provide greater lifting capacity required for the increased tonnage of general cargo, such as aluminium and steel passing through Swansea. A similar transfer of quay cranes from Hull to Swansea was approved by the BTDB in May last year.

Work on the new project is to start later this year and will involve moving two Clyde Booth 6-tonne cranes and one Stothert and Pitt 6-tonne crane which have become surplus to requirements at Garston due to a change in traffic at the port. The three cranes will be transported by sea from the Mersey to South Wales.

One of the Clyde Booth cranes will be erected on D Shed berth, while the others will be modified from 15ft. to 13ft. rail centres and erected on C and F berths, all at King's Dock.

Commenting on the scheme, Mr. Donald Stringer, the Board's deputy managing director, said: "We believe this shows the flexibility and the strength of the BTDB's corporate undertaking. Cranes in one of our ports which are no longer needed there, yet still have many years useful life in them, are being re-deployed to improve the service we give at another port, at a cost far below what otherwise would be involved."

3. Southampton: pay deal at container port

London, 9 March 1978:—Cranedriers and cargo checkers at the Port of Southampton have reached an agreement with the British Transport Docks Board on the questions of a 1978 pay deal and the working of the port's new container berth which has been constructed to provide accommodation for the traffic of the Southern Africa/Europe Container Service.

An agreement on similar issues has already been concluded with the port's 1800 dockers. Negotiations with foremen and engineering maintenance staff are still continuing with the aim of achieving an early operational date.

4. King's Lynn: transshipment for Nfld.

London, 20 March 1978:—Cargo originating on the Continent and destined for Newfoundland is arriving in the British Transport Docks Board's port of King's Lynn on Washbay Line's roll-on/roll-off service from Hamburg, for onward shipment on the Umar (UK) Ltd. service to

(Continued on next page bottom)

Hull's Mediterranean Ro/Ro Link Booming

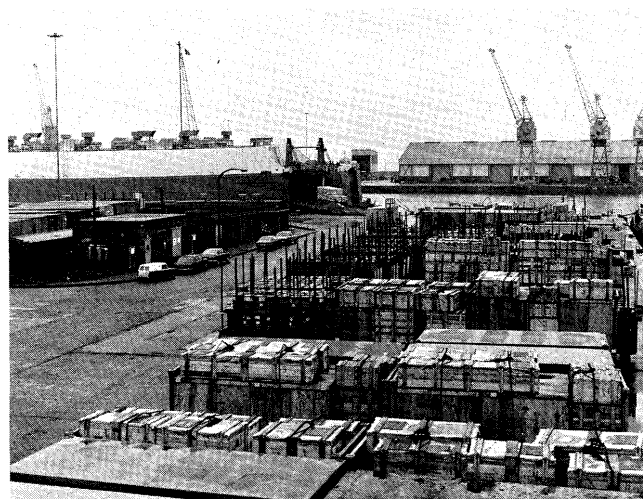
Docks Board Feature by Gerald Farmer

London, 11 January, 1978 (British Transport Docks Board):—After only four months of operation, the Adriatica Line's new three-weekly roll-on/roll-off service from Hull to eastern Mediterranean ports is meeting a high level of demand from shippers throughout the UK, particularly in Scotland and the north of England.

On its December voyage, the 6,800 tons gross 'Allemagna Express'—one of three new sister ships operating Adriatica's north Europe/Mediterranean service—attracted more than 2,000 tonnes of export traffic bound for Greece, Egypt, the Lebanon and other Middle East destinations. Export consignments, from as far afield as Aberdeen and Glasgow, Birmingham and London, included beer, whisky, textile machinery, Shetland wool, oil well equipment, canned goods, and so on. Her inward cargo to Hull, mainly agricultural produce, totalled 1,500 tonnes.

Worms Cargo Service (UK) Ltd., who are Adriatica's general agents for Scotland and the north of England, are 'delighted' at the amount of support the service is receiving at Hull. "The build up in the service at this stage is really very encouraging," according to Peter Tod, UK operations manager for Worms. "Clearly we have found a good formula—the right service in the right place at the right time."

The Hull Service is based on No. 10 Quay at the port's Queen Elizabeth Dock, where the Adriatica vessel berths using her quarter ramp. All stevedoring is carried out by the British Transport Docks Board's Hull & Humber Cargo Handling Company and all cargo movements between ship and shore are made using 20ft. and 40ft. roll trailers and tractors, except where wheeled vehicles, such as earthmoving equipment and other construction plant, are loaded or discharged under their own power. Full containers are



ADRIATICA LINE SERVICE FROM HULL—Export cargo ready for shipment at the Adriatica Line berth on Hull's Queen Elizabeth Dock. In the background, the 'Allemagna Express' is seen at the berth. Export consignments arrive at the terminal from many parts of Britain, including London, the Midlands and Scotland. Same day turnaround of the vessel is the norm provided it berths in time for an early start. (British Transport Docks Board Public Relations, 12th January 1978)

placed on roll trailers by the terminal's 25-tonne fork-lift.

Last month, 'Allemagna Express' discharged 59 trailers of import cargo of such items as tomatoes, sweet potatoes and garlic, and loaded a total of 108 export trailers (both 20ft. and 40ft.) and 28 wheeled export vehicles.

Less-than-trailer-load consignments are accepted for con-

(Continued from page 55)

Newfoundland.

The first vessel is the "Andreas Boye", which sails for St. John's today (Tuesday, 21 March), loaded with general cargo, part of which arrived from Hamburg at the end of last week on the "Lynn". Until now the Umar (UK) Line's ships have made the call to Hamburg themselves, but this new agreement, negotiated with Lynn Ferries, agents for Washbay Line, saves valuable time, and goods can be easily stored in the transit shed alongside the vessel's berth at Alexandra Dock pending the arrival of the next ship.

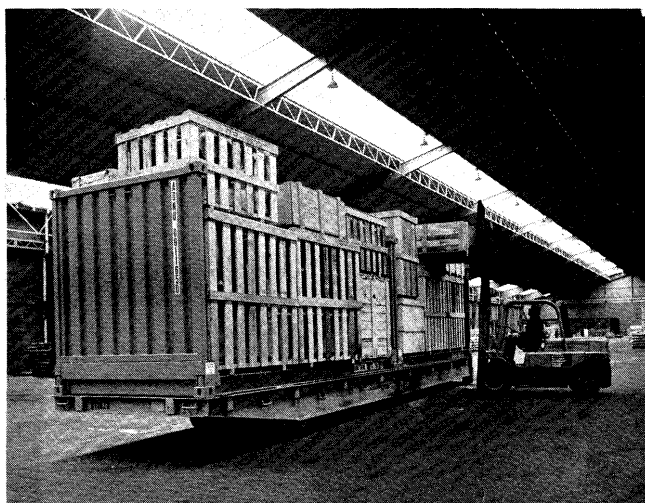
Another "first" for the "Andreas Boye" occurred last week when she arrived in King's Lynn with the first import cargo of 136 standards of Canadian timber; the service has mainly carried UK exports to Newfoundland.

5. Newport: Car bonanza

London, 22 March 1978:—The total tonnage of import and export cars handled last year at the British Transport Docks Board's Newport Docks rose to 86,000 tonnes from 39,000 tonnes in 1975, and the total for the first three months of 1978 is 17,000.

The bulk of this traffic is, however, on the export side. The first trial shipment of 7,400 tonnes of Chrysler crated CKD (completely knocked down) cars to Iran took place in November 1975, proving the port's ability to handle the service speedily and efficiently, and during 1976 there were six further monthly shipments amounting to a total of 32,000 tonnes. This figure increased to 56,000 tonnes in 1977, and so far this year there has been one vessel carrying 6,500 tonnes and another, due to sail at the end of the week with a further 7,000 tonnes. This brings the total figure for Chrysler exports since 1975 to over 100,000 tonnes.

Export traffic across the Atlantic has been equally brisk. During 1977 22,000 British Leyland vehicles were exported to the USA and the latest shipment of 1,800 vehicles is expected to leave on the m.v. "Turandot" at the end of March. Last November saw the first-ever shipment of 400 Japanese Subaru cars into the UK and more are expected during 1978. In 1977 the number of Japanese Mitsubishi Colts handled at Newport Docks was 9,000, and already this year there have been two import cargoes of both Colts and Subarus totalling 1,581 vehicles.



ADRIATICA LINE SERVICE FROM HULL—‘Mafi-ing’ export cargo in the transit shed where less-than-trailer-load consignments are consolidated.

With continuous receiving of export cargo at the terminal, the pattern of working is of a steady build-up of consolidation work ready for shipment. Consignments are received up to the day of sailing. (British Transport Docks Board Public Relations, 12th January 1978)

solidation by Hull & Humber in the BTDB's No. 12 shed adjacent to the berth. In fact, about two thirds of the ‘Allemagna Express’s’ outward cargo was ‘unitised’ by Hull dockers ready for shipment.

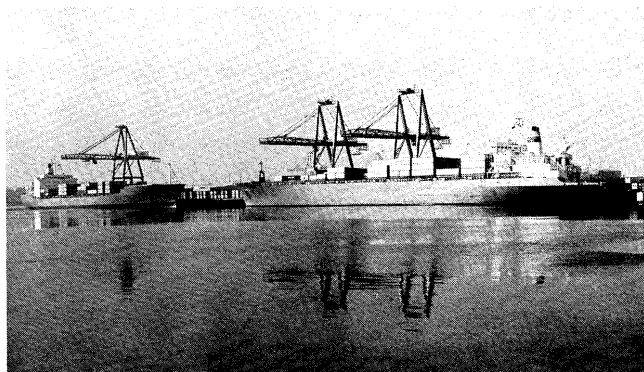
Much of the service's undoubted success has been attributed to the enthusiasm of the stevedoring team at Hull, who have been involved in planning the operation since the Hull sailings were first mooted. Directors and shop stewards from Hull & Humber Cargo Handling travelled to Rotterdam last summer on board the ‘Serenissima Express’ (which made the first Hull call) to study the vessel's method of working there.

This forethought and planning seems to have paid dividends, for there is no doubting the sense of involvement felt by the men, who have been known to join the Italian crew in a cheer when the occasional tricky stow of an abnormal load has been successfully completed. Asked why he thought the operation was working so well, foreman ‘Spot’ Mortimer, a regular and vital member of the team, commented “We just like to get a move on and get the job done.”

According to Peter Tod, the Hull dockers' performance is equal to any other port's, “combining extensive general cargo handling knowledge when stowing cargo on roll trailers with more recently acquired driving skill and techniques when rolling cargo off and on to the vessel.” The Hull men's skill in starting up engines on heavy plant in cold weather was particularly useful, with increasing amounts of this type of traffic being shipped to meet the construction boom in the Middle East, he added.

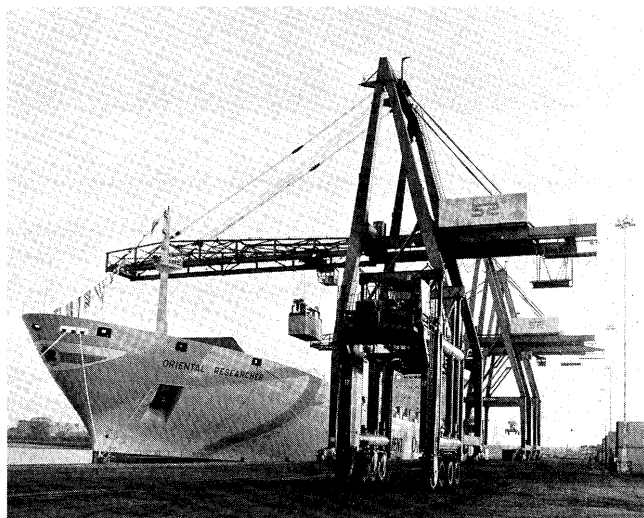
Hull offers a number of other advantages, not least of which is the excellent road access in the form of the M62 motorway, the cross-country route which links with the main north/south motorways.

The availability of such a compact terminal area,



Southampton Container Port

Two vessels of the Dart Containerline together for the first time at Southampton's multi-user container terminal. The ships are (left) the “Dart Canada” on her maiden voyage, having just joined Dart's Europe/North America service, and the “Dart America”. The “Dart Canada” is the fourth vessel in their fleet and her introduction increases the frequency and cargo capacity of the service, for which Southampton is the sole U.K. port of call. (British Transport Docks Board, 9th March, 1978)



Southampton Container Port

The brand new Orient Overseas Container Line vessel “Oriental Researcher” seen at the Southampton Container Port last week loading her first consignment of containers. The new ship is the ninth vessel in the ACE Group's Europe-Far East container service. (British Transport Docks Board)
14. 3. 1978

including facilities for groupage and a virtually guaranteed berth, is another considerable asset.

With continuous receiving of export cargo at the port, the pattern of working is of a fairly steady build-up of consolidation work (‘Mafi-ing-up’) ready for shipment, with consignments being received up to the day of sailing. (Note for shippers: it is technically possible to have a consignment discharged in Alexandria 11 days after delivery to Hull

(Continued on next page bottom)



Paris is a sea port

Turntable of the navigable waterways of France, Paris is directly linked with the channel by a modern waterway.

Sea going vessels of up to 2000 d.w.t cargo capacity are able to navigate the Seine up to Paris, and 200,000 tons per year are transported to and from the U.K., Ireland, Germany, Scandinavia and Spain, without transhipment, therefore without risk of damage or pilferage and at a lower price of transport. The Port of Paris Authority is also able to offer wharves and port complexes for the reception, transit, storage or shipment of goods.



PORT AUTONOME DE PARIS
2, quai de Grenelle
75015 PARIS

Tél. : 578.61.92 - Telex : 204487 Poronom Paris

docks).

Same day turnround is the norm, provided the vessel berths in time for an early start.

Clearly there is good reason why the service is proving so popular with shippers and the port of Hull's contribution is considerable. With loadings up to two-thirds capacity in such a relatively short space of time, expansion of the service would seem to be a strong possibility.

Personnel management appointments

London, 10 February 1978:—The British Transport Docks Board announce three new senior appointments within their central personnel management team at the Board's London headquarters. Mr. Harry Yates becomes Industrial Relations Manager; Mr. Angus Dow becomes Staff Training and Development Manager; and Mr. Malcolm Purgavie becomes Personnel Services Manager.

Mr. Yates has been working for the BTDB in industrial relations for a number of years and has held the post of Industrial Relations Officer since March 1976. He joined the Docks Board in 1964 from British Road Services.

Mr. Dow has been the Board's Training and Education Officer since 1973 and has been based as Principal of their residential Staff College at King's Lynn. He joined BTDB from Wiggins Teape Ltd., where he was head of the company's Group Training Centre. He began his career as a Flight Lieutenant in the RAF Education Branch.

Mr. Purgavie has been the Board's Industrial Relations Officer at Southampton since 1971, when he joined BTDB from the National Dock Labour Board where he was Manager and Secretary of the South Coast Dock Labour Board.

New press office appointments

London, 20 February 1978:—Geoff Adam and Amy Dalal have been appointed Press and Publicity Officers at the British Transport Docks Board's headquarters in London.

Mr. Adam, aged 27, was a Press Officer, responsible for local radio, at the Automobile Association's headquarters in Basingstoke, Hampshire for four years, previously being Assistant Regional Public Relations Officer at their Teddington, Middlesex office.

Miss Dalal, aged 35, joined the BTDB's Public Relations department in 1968, becoming Assistant Editor of the Board's house journal in 1973.

Computer experts see Clyde Systems

Glasgow, January, 1978 (Clydeport News):—Fifteen computer experts from ports throughout the country have visited Clydeport to learn about the Authority's manage-

(Continued on next page bottom)

Coal Traffic in Le Havre

Port of Le Havre Series No.2

In 1977 coal traffic in the port of Le Havre amounted to 3.860.000 tons, i.e. an important increase by 25.2% compared with 1976 (3.083.000 tons).

That increase due to the new trends taken on a national scale to diversify the sources of power, thus reducing both the cost of the bill of energy and the too great dependency of France upon a small number of producing countries, is particularly perceptible in the Port of Le Havre.

From the very beginning the port of Le Havre has been playing a prevailing part as regards the supplying of France concerning energy and at a time when hydrocarbons are undergoing a stagnation, it is essential that the Port of Le Havre adjusts itself to new course of traffic.

That is what led to the building of a new ore berth for the accommodation of ships up to 170.000 dwt. This investment was decided further to the negotiations with the Electricité de France (EdF) and the Association Technique pour l'Importation de Charbon (ATIC).

The new berth, the building of which started in December 1976, should be put into operation in the course of the 1978 2nd half-year.

At the same time the CETRAGPA group that commissions the French largest ore ships (90.000 dwt) running at the moment ordered 120.000 dwt ships that will frequent this new berth.

Thanks to this new tool, the Port of Le Havre is assured of playing a prevalent part in coal imports to be done by the EdF in the years to come for the supplying of its thermal power stations. This guarantee is confirmed by the policy followed by the EdF, policy which was recently concretized on a local scale by the decision of building in the Le Havre power station a new unit of 600 MW. Alone the new group will use up 1.5 million tons of coal per year.

This new tool will also enable Le Havre to play a new

ment accounting system, see Clydeport Data Management's computer bureau at King George V Dock and see the new computerised traffic control system at the container terminal.

They form the British Ports Association's computer committee which is presently chaired by Clydeport's Director-Finance and Marketing Mr. John Mather.

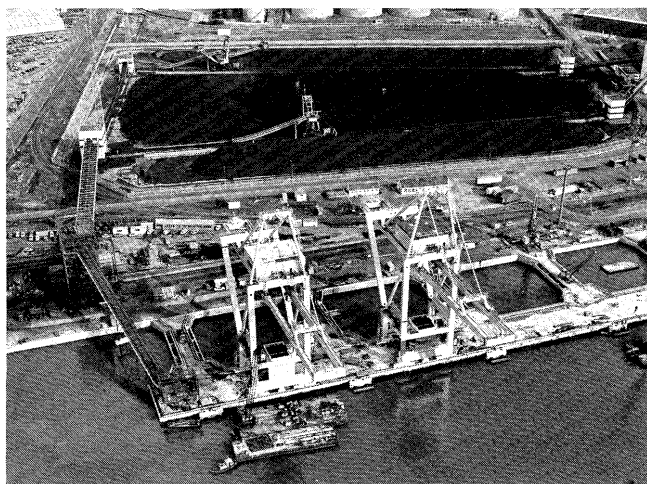
Senior Management Appointments

London, 13th January 1978 (PLA News):—At the end of June 1978, John H. Gabony, the Director of Manpower will retire from the Port of London Authority after 42 years service.

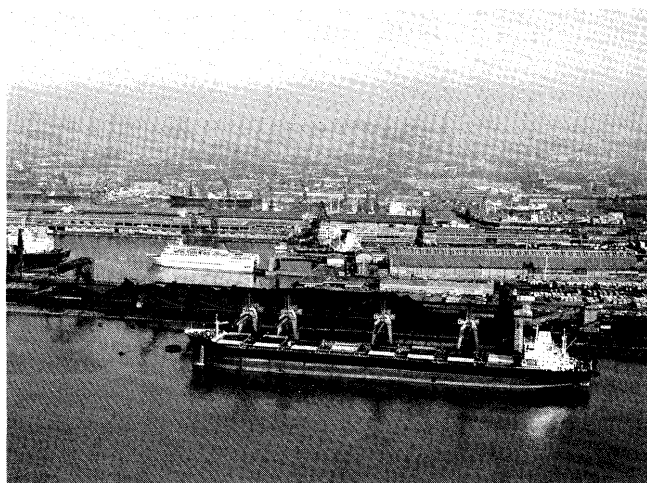
From 1st February 1978 John McNab, presently Director of Upper Docks will become joint Director of Manpower and will work closely with John Gabony until he retires in June.

Also, with immediate effect John N. Black, presently Director of Tilbury is appointed Director of Docks.

(IAPH 11th Conference at Le Havre May 12-18, 1979)



Port of Le Havre. The new ore berth being built for 170.000 tdw.



Port of Le Havre. The ore berth for 80.000 tdw.

part on a European scale. Rotterdam only can provide similar facilities for the reception of large ore ships.

The Port of Le Havre must cope with the stagnation of the oil traffic and keeps by a growth in other fields the prevailing rank it gets in supplying France with power.

On the other hand the latest researches carried out on an international basis about the needs for power show that in the 85/90's, we should see new evolutions in the use of coal thanks to technics of coal distillation and of liquefaction.

Thus the Port of Le Havre still goes on setting the pace in technology and provides liquid or solid bulks carriers with equipments thoroughly suitable that account for the most performing ones in Europe.

“ Marseilles /Fos Europort South ”

The monthly magazine of The Port of Marseilles Authority October 1977

EDITORIAL

The traditional autumn revival of business at the Port of Marseilles Authority has been marked this year by the continued expansion of general cargo traffic, by the coming into service of new general cargo facilities at Port-Saint-Louis and Fos, and by the entry of the “Batillus”, the largest ship in the world, into Drydock No. 10; an encouraging sign that Marseilles' ship repair is still attractive in the face of world-wide competition.

This autumn is also a busy one for the Port's promotional activities in the hinterland, notably at Geneva, Zurich, Basle and Lausanne; as it is not enough merely to record the increased general cargo traffic or the coming into service of new quays, but these facts must also be made known to potential users in order to sustain the Port's expansion. Thank to the friendly collaboration of the Marseilles shipping world and the Port Authority, these essential promotional activities are achieving remarkable results.

Notably, it is becoming increasingly realized that Europort South is not only the No. 1 port in the Mediterranean, but also the No. 1 port in Europe for shipments to the Near and Far East, with transit times from 25% to 50% shorter than those of our Northern competitors. A busy autumn has commenced . . .

In brief

• First LNG shipment from the Middle East

The “Descartes”, arriving from Abu Dhabi, recently made its first call at the Fos gas terminal with a cargo of 50,000 m³ of liquefied natural gas. This is the first time that LNG from the Middle East has been received in France.

• Construction projects

The P.M.A. is at present studying the following projects which may be realized in the near future: a new tanker berth at Fos for receiving tankers of up to 550,000 T, two new RO/RO berths on the seaward breakwater at Marseilles, and the container terminal at Marseilles-Mourepiane. Work on the latter is scheduled to start soon.

• Container traffic

Container traffic from January to July 1977 totalled 86,810 TEU against 66,317 TEU for the same period of 1976. The figures for Fos were 64,025 TEU and for Marseilles 22,785 TEU. A rapid and significant increase.

• First call of the cruise ship “Kungsholm”

The “Kungsholm”, a cruise ship belonging to Flagship Cruises (Agents: Ruys), made its first call at Marseilles

between the 22nd and 23rd of September. The stopover enabled the “Kungsholm's” 550 passengers to visit Arles, Nimes, Avignon and Aix. The itinerary of the cruise is as follows: New York, Azores, Lisbon, Malaga, Marseille, Cannes, Villefranche, Portofino, Naples, Palermo, Palma, Casablanca, Madiera, New York. The “Kungsholm” is 660 feet long with a gross tonnage of 18,674, she has a speed of 21 knots and carries a crew of 320.

• Traffic in August

The tendencies observed during recent months were confirmed, general cargo continued to increase steadily whereas oil traffic again dropped considerably. The results were as follows:

— General cargo:	583,172T (+17.7%)
— Dry bulk:	1,048,891T (+69.2%)
— Liquid bulk:	92,238T (–6%)
— Oil:	6,651,764T (–15.1%)
TOTAL:	8,376,056T (–7.4%)

For the first eight months of the year, all traffic has increased considerably except oil. Unfortunately, the decline of the latter is holding the total at practically the same figure as last year:

— General cargo:	5,048,163T (+23.2%)
— Dry bulk:	6,589,397T (+34.9%)
— Liquid bulk:	819,571T (+18.6%)
— Oil:	54,735,379T (–3.9%)
TOTAL:	67,192,510T (+0.8%)

• New equipment coming into service

Several important pieces of port equipment will be coming into service before the end of the year:

- End of 1977, the Richier crane on the seaward breakwater;
- November 1977, the Richier crane on the Leon Gourret mole,
- December 1977, the 600-T floating derrick,
- Autumn 1977, the new car export terminal at Port-Saint-Louis.

Port Activities

• Container rail traffic at Fos

The measures taken this summer at Fos Dock 2 container terminal (resetting into service of quayside lines, filling and levelling of ground surfaces, daily conferences between the PMA, SNCF and operators to organize the next day's programme) have had the desired result: not a single train has had to wait for containers to be unloaded. The container trains leave on schedule and transit times are short—even for distant destinations. For example, the 6.57 reaches Mazamet the same evening; the trains for Genoa and Marseilles-Ville arrive within 24 hours; the 12.53 and the 17.44 deliver their containers to Bordeaux, Toulouse, Lyon, Paris and Strasbourg the next day; the maximum transit time to Germany is 72 hours and only 48 hours for

(Continued on next page bottom)

Bremen News

Bremen International

• Already 12 Percent 'Home-Oil' in 1978?

Bremen, 6.2.78 (BremIn). After oil deliveries to the Federal Republic of Germany from 'home' sources (Northsea), coming in 1976 to fully 2% of the total oil importation, it increased in 1977 to some 5% and—according to expert prognosis—should in 1978 already be 12%. This would equal nearly 1/8th of the total oil importation.

• Atom Freighter Too Expensive

Bremen, 6.2.78 (BremIn). The only German vessel in existence to be driven by nuclear power, the freight and research vessel "Otto Hahn", will shortly probably be laid up, or converted into a museum piece, or scrapped. She bears the name of the Nobel prize-winner, Professor Otto Hahn, who first achieved nuclear fission of uranium in 1938.—The nuclear ship can only continue to run if the considerable subsidies required for the propulsion of the 16,800 GRT freighter can continue to be made available. There is still a finance deficit of DM50 millions for the

nuclear uranium rods and the running expenses for the next four years. The German 'Gesellschaft für Kernenergieverwertung im Schiffbau und Schifffahrt' (Association for the Uses of Nuclear Energy in Shipbuilding and Shipping) hope to again be able to manage the financing.

• Hapag-Lloyd Converting Freighters into Full-Containerships

Bremen, 6.2.78 (BremIn). Four express Omni-freighters, built in the early 1970's, are now being converted into full-containerships at the Vulkan shipyard, on orders of Hapag-Lloyd. Four times a new foreship and new mid-ships—for four times DM 10 millions. Intended service:—the liner run to the U.S. Gulf.

• Fruit-Handling Increase

Bremen, 6.2.78 (BremIn). The 1977/78 fruit season went well. 2.3 million packages were handled between November '77 and the beginning of January '78—300,000 more than in the previous year (=+12%).

• Environmental Protection Sensation, Elimination of Oil Pollution Solved

Bremen, 13.2.78 (BremIn). The problem of disposing of oil-type and oil-bearing substances (industrial waste)—even

(Continued from page 60)

Mannheim, Frankfurt, Munich, Ludwigshaven and Nuremberg; while for Switzerland, containers take 24 hours to Geneva and only a few hours more for Basle and Zurich.

• Marseilles-Fos well-placed for container forwarding costs

A recent study in the transport magazine "Transports Actualités" compared the costs of forwarding containers from inland towns to French container ports.

The study showed that the forwarding costs to Marseilles-Fos were the cheapest for Dijon, Lyon, Perpignan and Grenoble, and one of the cheapest for Toulouse and Strasbourg.

• Investment studies

Important investments are being planned, and the studies are well-advanced, to satisfy requirements created by the growth of traffic at Marseilles in recent months. The projects include:

- A fifth gantry for the container terminal at Fos,
- 550 m of quay on the East of Dock 3 by 1979, to receive multipurpose ships and container feeders,
- A new extension to the container terminal by 1980, which will already be equipped with 900 m of quays by 1978.

• Containerization of the South African Line

The South African Marine Corporation and the CMCR gave a reception on 27th September at the Sofitel Hotel in Marseilles to mark the first call of the container ship "S.A. Langeberg" at Fos.

This ship has capacity of 1,300 TEU and will form part of the new containerized service between Marseilles-Fos and South Africa set up by the leading members of the South and South-East Freight Conference who have grouped

together to form the SAECS consortium (South African Europe Container Service). The Mediterranean members of the group are:

- South African Marine Corporation (SAFMARINE)
- Compagnie Maritime des Chargeurs Réunis (CMCR)
- Compagnie Générale Maritime (CGM)
- Lloyd Triestino
- Overseas Containers Ltd. (OCL).

These shipping companies envisage putting into service three 1,300-TEU container ships on the Mediterranean—South Africa run. From the beginning of next year, container ship sailings from Fos will be increased to one every fourteen days, while the semi-container and break-bulk service will be continued to guarantee a weekly Conference service between Marseilles-Fos and South Africa. The South African national shipping company Safmarine, who have been serving Franco—South African trade for more than thirty years, will provide the largest part of the fleet mentioned above, with four 2,150-TEU container ships built in French yards plus the "Langeberg" which was built in Italy. CMCR's participation in the new venture will be twofold, on the one hand as a shipping company and member of the SAECS Consortium, and on the other as general agent and representative in France for most of the SAEC members. In effect, Safmarine, O.C.L. and Lloyd Triestino have entrusted their representation in France within the SAECS to the CMCR, which will enable the latter to make available to their clients not only the space corresponding to their own allocation, but also that of the shipping companies they represent.

The general agency at Marseilles-Fos for the companies mentioned above has been granted to Agence Maritime Fabre, whereas the Agence Maritime Générale, who are general agents in France for Lloyd Triestino, will act as booking agent for this company for the container ships on the South African run.

including that of existing dumps of acidiferous resins—has been solved. After having taken out world-wide patents on the announced process, Messrs. Meissner Grundbau GmbH, Bremen-Farge, are converting oil-polluted soil into highly exploitable material. On the average the process is less expensive than transporting and delivering to dumps. Existing dumps can also be reprocessed and converted into useful terrain (building or arable land). Dumps will become superfluous in the future as the positive-conversion process of polluted soil can occur on the spot.

The process, of pulverization of the polluted material, with special gigantic ground-mills, into dust-type particles, followed by chemically and biologically homogeneous regeneration through special distributor machinery, was developed by Messrs. Meissner Grundbau GmbH (manager: Rainer Leo), in cooperation with Professor Dr. Friedrich Bölsing (Technical College of Hannover) and tested under subsequent issuance of expert opinions from Prof. Dr. Alexander Nehrkorn (Bremen University) and engineer Prof. Dr. Heinz Jagau (Bremen Technical College)—and meantime also officially recognised—can be effected in two ways; depending upon the result required by the commissioning-principals and the chemical analysis of the polluted material. Rainer Leo: "Each case is different".

The Hydrophobe Method converts the oil-polluted soil into a highly-compressed, water-repelling and so frost-resisting substance which is excellent for building-foundation or as substructure for roads and for the laying of rail-tracks.

The Hydrophile Method enables, subsequent to the mechanical and chemical dust-pulverization of the oil-polluted area, a rapid biological regeneration—by introducing fast-breeding microbes—resulting in particular verdurousness after even only the initial eradication stage and which, after one or two vegetation periods, creates soil suitable for every agricultural purpose.

Meissner Grundbau is currently developing a process whereby there will also no longer be any necessity to dredge the polluted land out. A mere injection will result in a swift conversion of the polluted ground into firm building fundament, thus completely avoiding any traffic hindrance during road-building or track-laying activity. Further developments are aimed at complete biological regeneration of oil-polluted sea areas, without harmful biological effects.

The cost of positive soil conversion is given by manager Rainer Leo as, under normal circumstances, DM 60 per ton or DM 100 per cubicmetre of polluted earth respectively. Thus the best process is simultaneously the cheapest solution of an up to now insoluble problem. The interest being shown in the work of Messrs. Meissner Grundbau is accordingly considerable and international. Representatives of industry, traffic-economy (ports, railways and road-construction), authorities, specialistic circles, science and research from many countries have meanwhile examined, tested and acknowledged the soil conversions effected. The firm, founded a year ago, has meanwhile established own foreign representation in Vienna, Zurich, Paris and Oslo. Additional representation and cooperation is being planned with other foreign firms.

(Contact: Manager Rainer Leo, Meissner Grundbau GmbH, 2800 Bremen-Farge, Betonstr. 34. Tel: 0421/68674. Telex: 245630 megru d).

• Data now Also on Medium-Range Developments

Bremen, 13.2.78 (BremIn). "Statistik der Schifffahrt" published by the Bremen Institute of Shipping Economics is now offering to its readers in over 50 lands (besides information concerning shipping and maritime trade; essential aspects on the international merchant fleet; world shipbuilding; and traffic developments in the seaports and ocean lanes—accompanied by updated figures) also well-founded data, as from this 22nd year just started, on medium-range developments.

• New Bremen-built Police-launch for Turkey Travels at 40 Knots

Bremen, 13.2.78 (BremIn). A new type of police speedboat is being built at the specialised Bremen shipyard of Abeking and Rasmussen—for Turkey. 33.5 metres long, 8.6 m in the beam, 3 m draught, she is a standard-type craft constructed for a 24-man crew. Three 4,000 h.p. diesel-engines permit a 40-knot speed. Construction plans and material for 13 more units have also been submitted to the clients.

• Large-Scale Bremerhaven Terminal

Bremerhaven, 27.2.78 (BremIn). The Port Operating Company, B.L.G., is investing DM 180 millions in Bremerhaven in the 2nd extension of the Outer-Weser container quay—to a 1.5 km total, including additional equipment for this large-scale German container terminal in the form of 54-ton capacity container bridges, straddle-carriers, tractor-trailer units etc. This project will extend the storage and traffic area to some one million square metres.

The extra berths should be completed by April 15th and December 31st 1979. Bremen/Bremerhaven anticipate containerised cargoes to exceed 5 million tons in 1980. 3.9 million tons were handled in 1977.

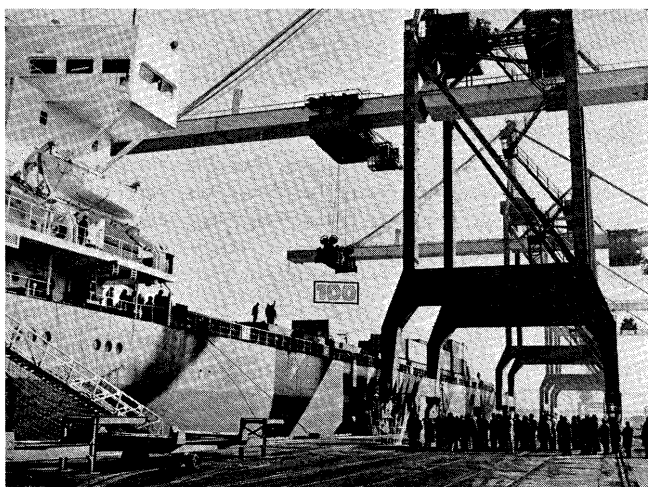
This specialised trade has had enormous development in the Bremen ports since 1966. Over 30% of the total general-cargo handled here (1977 = 14.4 million tons) is containerised. It has meantime even increased to over 60% in the traditional Bremerhaven/USA trade.

The 3rd and 4th extensions, to increase the river quays on the Outer-Weser from 1.5 to 3 kilometres, in the 1980's are in the planning stage, when there will then be 10 berths for the 300-metre long cellular container ships. Initial land surveys have started.

• New Pneumatic Discharging-Sucker from Kocks

Bremen, 27.2.78 (BremIn). An order has just been placed by Messrs. Dansk Landbrugs Grovvarerelskab, Copenhagen/Denmark, with Messrs. Friedrich Kocks GmbH, Bremen, for a newly-developed sucker for grain and feedingstuffs, with a 400 t/h capacity. The apparatus, equipped with an additional milling-head for loosening the wares, is so constructed that the adjacent residential areas are not disturbed.

Hamburg Port container service now provided by 100 companies



The large sign reading "100" hoisted from a container loading crane at the Port of Hamburg signifies the 100th company, Dart-Containerline, starting services at the port.

Tokyo, March 16, 1978 (News Release from The Representative of the Free and Hanseatic City of Hamburg):—The Port of Hamburg recently welcomed the 100th company providing container service at the port, according to the Tokyo Representative Office of Hamburg City. The 100th company is Dart-Containerline, which provides services linking the U.S. East Coast, Canada, the Continent and Great Britain. Dart-Containerline is an amalgamation of Bristol-City-Line (Liverpool), CMB (Antwerp) and C.Y. Tung (Hong Kong).

The Port of Hamburg initiated container service in 1967, reports the Tokyo Office. Since that time the number of units handled annually has increased 30 times. In the first year only 15,328 units were handled; in 1967 the number topped 471,000 (20-foot units). Today East Asia accounts for some 50 percent of the containers handled.

The port's container center has an area of more than 2 million square meters. It has its own rail goods station and direct connection with the westbound autobahn and to the New Elbe Tunnel. The marshalling area is some 1.2 million square meters. Eight storage sheds provide a total covered area of 168,000 square meters. The three kilometers of piers provide 11 berths for full and semi-container ships.

Hamburg's HHLA cargo handling topped 6 million tons in 1977

Tokyo, March 16, 1978 (News Release from The Representative of the Free and Hanseatic City of Hamburg):—HHLA, Port of Hamburg, last year set an all-time high of more than 6 million tons of cargo handled in the company's 92-year history, it was announced by the Tokyo Representative Office of Hamburg. The breakdown of cargo handled was 3.21 million tons incoming and 3.06 million tons outgoing for a total of 6.27 million tons. Ship turnaround during the year came to 4,471, up 3 percent over the previous year.



Photo shows one of the container yards at the Port of Hamburg. In 1977 the port handled more than 314,000 containers.

Container cargo accounted for 44 percent of the cargo handled, according to the Tokyo Representative Office. The number of containers handled totalled 314,000 TEU, an increase of 11.8 percent over last year.

During last year, all the cargo terminals at HHLA were equipped with EDP input units. Immediately after handling, cargo information is transmitted either by transceivers or messages to the input unit of the terminals. From here it is automatically transmitted to HHLA's EDP Center. The HHLA container terminal is equipped with 40 display units for speedy and efficient cargo information processing.

Increased Container Traffic

Rotterdam, February 27, 1978 (Port of Rotterdam Press Release):—Definite figures of the container flow through the Port of Rotterdam have confirmed the estimates of some months ago: Traffic increased during 1977 with 10.3 per cent.

Preliminary figures based on data on container traffic during the first ten months of 1977 indicated a total number of 900,000 containers handled in the Port of Rotterdam. The official figures now released show the exact number of containers to be 900,436. Converted into 20 foot equivalent units the number stands at 1,318,709. In 1977 the number of empty containers was 13.2 per cent of the total handled; this was an improvement over 1976 when the percentage was 15.7 per cent.

The quarterly break-down of the figures is as follows:

First quarter	194,983
Second quarter	240,200
Third quarter	242,846
Fourth quarter	222,407

The first quarter total was influenced by strike actions in the Port of Rotterdam and the fourth quarter figures reflect

(Continued on next page bottom)

Rubber-tired Transtainer at Bilbao



Paceco/Fruehauf SA Transtainer® crane aids container handling services at Port of Bilbao Spain—Mar 78.

Alameda, Calif., March 6, 1978 (Paceco News):—A 30 Metric Ton Rubber Tired Transtainer® crane was recently delivered to Sixto Garcia at the Port of Bilbao, Spain. The large terminal crane was designed by Paceco, Inc., A Subsidiary of Fruehauf Corporation, and built by Paceco Licensee, Fruehauf, S.A., in Spain.

Sixto Garcia, a leading container handling service company in Spain, operates terminal services in the Bilbao Port for Sea-Land Service, Inc. The Paceco/Fruehauf, SA Transtainer crane will be used to maintain feeder traffic between Bilbao and Rotterdam, Netherlands for Sea-Land.

Container stacking capabilities of this 55 ft. span crane are four wide and four high. The Transtainer crane is equipped with a 20 ft. spreader headblock and an anti-sway system for accuracy and speed in stacking. The Transtainer crane can also utilize a 35 ft. fixed spreader. A large comfortable cab and glare proof windows gives the operator full vision and control during terminal operations.

the downward influence of the container handling strike in the American East Coast ports. The total load carried in the 1977 total number of containers amounted to 10,795,431 tons which is 13.1 per cent. higher compared to the tonnage in 1976.

Infocentre for international trade

Rotterdam (Rotterdam Europoort Delta 77/5):—Within a year Rotterdam will get an information centre which will operate in the field of trade and transport. The centre will serve as an international source of information and is the first step towards a World Trade Centre which the City Administration plans to establish in a few years' time.

The City Council will soon be asked to decide on a plan for building up the northern section of the Leuvehaven area, a site bordering on the intersection of the two main thoroughfares in the centre of Rotterdam.

The plan will include a building to house a World Trade Centre. It would also provide final accommodation for the Rotterdam Municipal Port Management.

The City Council has voted a sum of money which will

make it possible to set up the information centre for international trade provisionally in Beursgebouw on Coolsingel. The local Chamber of Commerce will contribute towards the building expenses and operating costs. Provision will be made in the layout for an offices hotel.

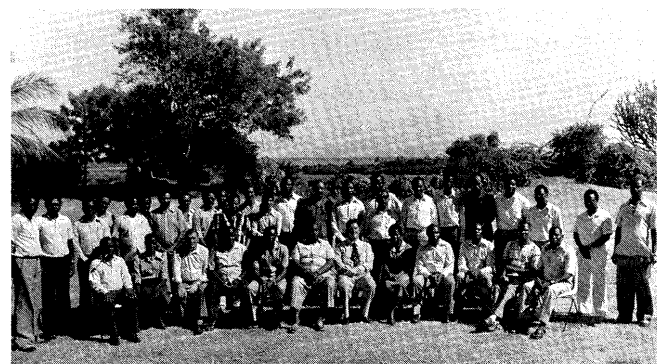
The information centre will commence its activities with a staff of five, including a director who will not only be in charge of operations but will have to build up successively all the functions of a full-fledged World Trade Centre.

A link with the World Trade Centres Association has been established already. As a result the new centre will be able right from the start to furnish information on the basis of the data available at other World Trade Centres. Naturally, the information stored with the information centre of the (future) Rotterdam World Trade Centre will also be at the disposal of the other World Trade Centres.

Seminar at Mombasa



A—Opening session of "Management Course in Port Operations & Productivity" held at the Oceanic Hotel, Mombasa, from 23/1/78 to 15/2/78.



B—Closing session of "Management Course in Port Operations & Productivity".

Gray Mackenzie Monthly Bulletin

JANUARY 1978

• Bahrain

95 vessels called at Bahrain during January, 1978 discharging 93,153 tons and to load 1,228 tons. In the same month last year, 65 vessels discharged 78,069 tons and there were no berthing delays throughout the month.

48 ocean going tankers plus 47 coasters called at Sitra during the month as compared with 80 tankers in January, 1977.

During the first 10 months of 1977 imports totalled BD. 373.8 million. The U.K. supplied goods valued at BD. 70.2 million. Japanese goods valued at BD. 58.6 Million and the U.S. goods valued at BD. 43.5 Million.

The two year 1978-79 current expenditure budget estimated at BD. 285 Million has been approved by the Amir.

Revenue for both 1978 and 1979 is estimated at BD. 280 Million making a total of BD. 560 Million. Revenue from oil in 1978 is estimated at BD. 170 Million with the Abu Safah field, shared with Saudi Arabia accounting for BD. 82 Million. Thus the income from the Abu Safah field will almost match the income from the onshore fields which started production in 1932.

• Dammam

During January, 1978, 183 vessels called at Dammam to discharge 592,375 tons including 211,884 tons cement, as compared with 102 vessels offloading 310,185 tons including 172,613 tons cement and loading 30,000 tons Urea in January 1977.

Vessels were not subjected to any berthing delay throughout the month.

• Abu Dhabi

82 vessels called at Mina Zayed during the month of January, 1978 discharging a total of 59,741 dwt of cargo consisting of 37,871 dwt of general cargo, 10,700 dwt of cement, 3,443 dwt of steel, 230 dwt of pipes and 7,497 dwt of bitumen plus 1,545 c/m of timber, 1,158 numbers vehicles, 4,058 live sheep and 44 containers.

Additionally, two tankers discharged 26,500 tons of gas oil and 6,800 tons of gasoline.

Vessels were not subjected to any berthing delay throughout the month.

Transshipment of cargo is now being accepted at Port Zayed, but manifests, stowage plan and cargo breakdowns must be submitted during port working hours at least 48 hours prior to vessel's arrival. Cement flour, explosives, livestock, weapons, alcohol, cargo banned under the boycott of Israel and unmarked cargo is not acceptable for this purpose.

Subscriber trunk dialling (STD) to U.K., Kuwait, Iran, U.S.A., Japan, W. Germany and Italy will be introduced with effect from 1st February, 1978. It is reported that this facility will be extended to France, Greece, Netherlands, Belgium, Luxembourg, Austria, Denmark, Norway, Sweden, Switzerland, Eire (Irish Republic) and Cyprus in April this year.

A development budget of DH: 5,300 Million (US\$1,359 Million) has been approved by the Executive Emirate

Cabinet. This is DH: 1,600 Million (US\$400 Million) more than last year and gives particular importance to housing and industry. Important industrial projects include expanding the Abu Dhabi Iron Factory, The Al-Ain Cement Works, and the Government's Poultry Projects. The plan provides for a sewerage scheme connecting villages such as Musafa, Wathbah, Baniyas and Al-Ain town. A sewage purification plant at Al-Mafraq is also included.

It is reported that the 1978 federal budget would be US\$7,200 Million compared with the 1977 figure of US\$3,300 Million and would include measures to stimulate the U.A.E. economy.

• Muscat (Port Qaboos)

During the month of January, 1978, 86 vessels called at this port discharging a total of 47,007 dwt of cargo of which 19,105 dwt was bagged cement and 2,200 dwt cement in bulk.

• Khorramshahr

During January, 1978, 108 vessels called at this port and discharged 130,323 tons of cargo.

Berthing delays ranged from 3 to 5 days.

General

It has been reported that where mail destined for South Iran is marked only with the name of the town and the "Iran" on the envelope, letters/packages are initially directed through Teheran.

It would appear that if the name of the town plus the wording "South Iran" is used, mail is directed to the town of destination for sorting, rather than through Teheran.

The result would appear to be that if mail is directed to "South Iran" it is received more quickly than mail marked "Iran" only. In the circumstances, it is suggested to Principals that the wording "South Iran" be used if mail is destined to this area, in addition to the name of the actual town concerned.

• Bandar Abbas

34 vessels discharged 286,080 tons of cargo consisting 9,753 tons general, 68,513 tons grain, 45,110 tons rice, 108,285 tons cement, 43,083 tons sugar, 968 tons timber, 2,109 tons bananas and 8,259 tons C.K.D.'s.

Additionally, 8 vessels discharged 120 containers and 432 units vehicles, 5 tankers discharged 122,425 tons refined oil products and 5 vessels loaded 30,300 tons chrome ore.

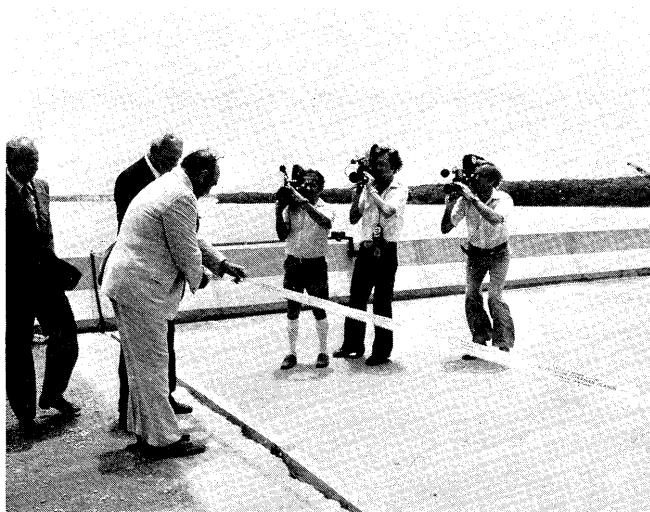
Berthing delays ranged from nil to two days for general cargo and from two to five days for bulk/charters.

Mr. Mayne appointed AAPMA president

Melbourne, 3 March 1978 (Sgd. R. Brokenshire, Secretary AAPMA):—Mr. A.S. Mayne, Chairman, Melbourne Harbor Trust Commissioners has been appointed President of the Association of Australian Port and Marine Authorities (AAPMA) in succession to Mr. A.J. Peel, formerly Director, Department of Harbours & Marine, Queensland and now Auditor-General for Queensland. Mr. J.M. Wallace, President, Maritime Services Board of New South Wales is



Brisbane:—An aerial view of the Fisherman Islands, located at the mouth of the Brisbane River, showing a vast area of land under reclamation in preparation for the building of a container terminal and wharves. The Port of Brisbane Authority expects the first facilities to be operational in the first half of new year (1979).



Brisbane:—Queensland's Minister for Marine Services, Mr. Max Hodges (in foreground) cuts the ribbon to officially open the Boat Passage causeway bridge, linking the mainland at Brisbane to the Fisherman Islands where the Port of Brisbane Authority is building a large container terminal and wharves. To the left of Mr. Hodges is the Port Authority's Chairman, (Sir Charles Barton) and on the far left the Authority's General Manager (Mr. F.M. Wilson).

the new Vice-President of the Association, which office was previously held by Mr. Mayne.

2. At an AAPMA Council meeting which concluded in Canberra today, Mr. Mayne paid tribute to Mr. Peel for his efforts on behalf of the Association, much to the benefit of Port and Marine Authorities throughout Australia. He fore-saw the Association maintaining policies adopted

under the guidance of Mr. Peel, thereby continuing to successfully carry out its functions;

- To facilitate the solution of port and marine problems
- To promote greater uniformity of port and marine practice
- To foster a closer relationship and exchange of knowledge between members.

Mr. Mayne specifically referred to the Association's important role in the new arrangements for stevedoring on the waterfront. He was the AAPMA representative on the Stevedoring Industry Consultative Council (S.I.C.C.), which held its inaugural meeting in Canberra on 2 March 1978.

3. The next biennial Conference of the Association will be in Sydney during October 1978, hosted by the Maritime Services Board of New South Wales.

Approximately 100 delegates from port and marine authorities of all Australian states and the Northern Territory, together with representatives from the Commonwealth Department of Transport and many international visitors from overseas port authorities in the Pacific area are expected to attend.

Regional Port Authorities meet in Fremantle

Fremantle, Western Australia, 22/2/1978 (Fremantle Port Authority News Release):—The 8th Annual Conference of the Western Australian Port Authorities' Association was held at the Port of Fremantle on the 20th and 21st February, 1978. The Conference was opened by the Hon. D.J. Wordsworth, M.L.C., Minister for Transport. (Refer to photo on page 65, "Ports and Harbors", April 1978.)

W.A.P.A.A., which is made up of the Regional Port Authorities of Albany, Bunbury, Esperance, Fremantle, Geraldton and Port Hedland, together with Pilbara Harbour Services and the Harbour and Light Department, met to consider a wide ranging agenda of mutual concern to their respective Ports.

Some of the matters discussed were:—

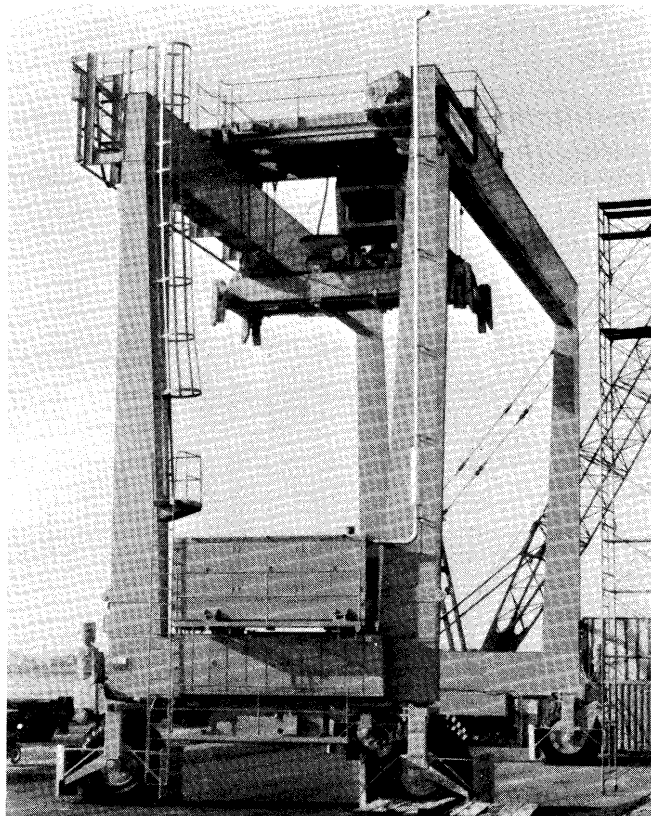
- (1) Pollution of Waters by Oil.
- (2) Damage to Port Facilities and ships.
- (3) Industrial Relations at Ports.
- (4) Port Financing.
- (5) Promotion of Ports.

Among the resolutions passed at the Conference, which was chaired by Mr. R.E. Bower of the Esperance Port Authority, was a motion supporting the free and unrestricted export of livestock from Western Australian Ports. Delegates who spoke in favour of the motion pointed to the employment provided to waterside workers and transport agencies.

At the Conference Mr. J.A. Haynes, Chairman of the Port Hedland Port Authority, was elected as incoming Chairman and Mr. I.L. Bogle, Chairman of the Geraldton Port Authority, was elected as incoming Deputy Chairman of the W.A.P.A.A.

Mr. B. Richards of the Fremantle Port Authority will continue in the position of Secretary of the W.A.P.A.A.

Transtainer delivered to Kaohsiung



First of 3 Paceco 40 LT Transtainers ready for operation at Kaohsiung Port Terminal, Taiwan.

Alameda, Calif., March 23, 1978 (Paceco News):—The first of three 40 Long Ton Rubber Tired Transtainer® cranes has been delivered recently to Kaohsiung Harbor Bureau, Taiwan by Paceco, Inc., A Subsidiary of Fruehauf Corporation, Alameda, California.

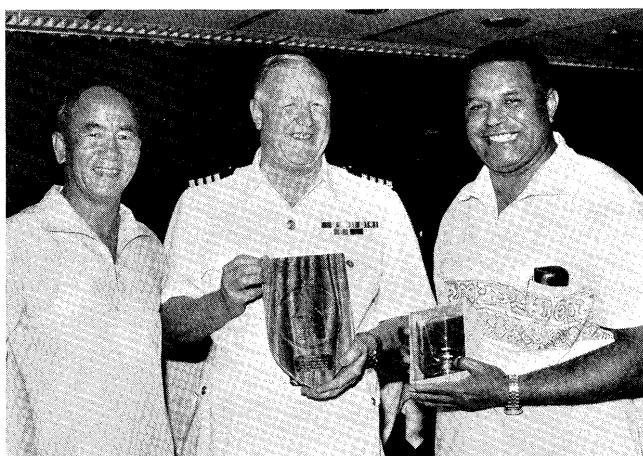
The crane, ordered by the Central Trust of China, is to be used in terminal operations by the Kaohsiung Harbour Bureau Port Project. Two similar Transtainer cranes are to be delivered in early 1978.

All three new cranes will utilize Paceco telescopic spreaders to handle 20', 35', and 40' I.S.O. containers. With a 65 ft. span the container stacking capacities are four high and five wide, plus a tractor roadway. Automatic steering and air conditioned cabs with large windows will enhance the ease of operation.

Fabrication and erection of the three container handling transfer cranes is being coordinated between Paceco's Alameda, California plant and China Shipbuilding Corporation at Kaohsiung. Allegro (Taiwan) Ltd. is Paceco's representative in the Republic of China.

Seminar on Safety in Port

Kuching, Malaysia, December 1977 (Port of Kuching Bulletin):—A seminar on 'Safety Measures in the Port' was organised by the Manpower Development Division last October for the benefit of all monthly and daily rated employees of the Kuching Port Authority. The one day Seminar which began with the first group of participants at



Fiji Times Photo:—The Director-General, of the Ports Authority of Fiji, Mr. Loh Heng-Kee, left, Captain Robert Arnott of the "QE2" and the Minister for Tourism, Transport and Civil Aviation, Mr. Tomasi R. Vakatora with gifts they exchanged at a lunch on the luxury liner on Saturday 11 February, 1978.

The week February 6 to 12 was the busiest week so far this year for Suva's Kings Wharf. A total of 23 overseas vessels including the world's biggest operating cruise liner "Queen Elizabeth 2", berthed at Kings Wharf during the week.

This was the first time the "QE2" had called at the Port of Suva and PAF took the opportunity to present a plaque to her Captain to mark the occasion.

the authority's Training Centre on 10th October was stretched over a period of twenty four days.

In his opening address, Mr. Duke Shim Assistant General Manager told the participants that the objectives of the Seminar was, firstly, to enable them to seek out the causes of accidents and acts of indiscipline and, secondly to enable the participants to use safety measures in their work place for the welfare of themselves and their families. He spoke of the need to inculcate safety consciousness among port employees so that accidents may be avoided. What was needed, he said, was awareness and understanding of the causes of accidents and "knowing the causes makes it possible to take due precaution and institute safety measures."

He emphasised that accidents and rash acts of indiscipline are caused by human failures and like most problems they are the results of carelessness, indifference, emotions and ignorance. "If this is indeed the case, then what is needed is in reality understanding of the causes of accidents. It is human nature to avoid accidents to the extent that understanding of the causes makes it possible to do so," he concluded.

Later during the course of the seminar the participants were told of certain basic safety rules and how to prevent accidents in port work. Several points were raised during the Seminar and the more pertinent ones have been taken up by the Management of the Port Authority for appropriate measures to be implemented.

Sealand Vessel on Maiden Call



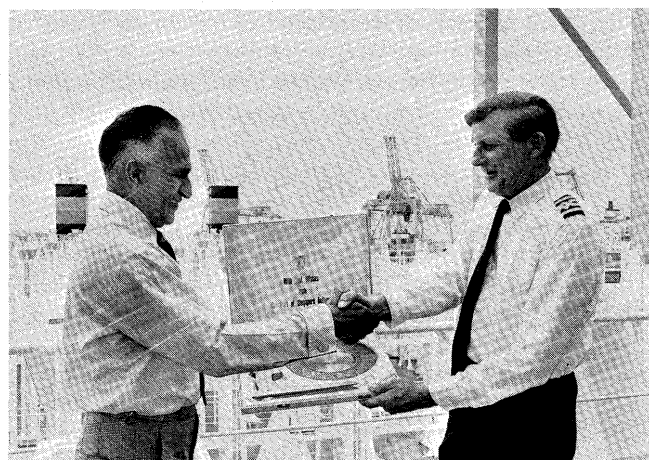
(Singapore) Picture shows, Mr. Han Hansen, Traffic Manager (Sembawang Wharves) (right) presenting a book on Singapore and a commemorative pewter tray to Capt Bang Duk Sung (left), Master of "WORLD TIGER" at the presentation ceremony.

Looking on is Mr. William Teng, (centre) Terminal Manager, Sealand Service Inc.

Singapore, 27 February, 1978 (PSA Press Release):—Sealand Service Inc.'s new building for its Far East/West Asia container service, the "World Tiger" called at the PSA's Sembawang Wharves recently on its maiden voyage from Mie Shipyard in Japan.

Owned by Sealand's joint-venture World Feederships Inc., the 10,380 GRT container carrier has a capacity for 377 containers (35-footers).

To mark the maiden voyage to her home port, special commemorative gifts were presented to the Master, when the WORLD TIGER berthed alongside.



(Singapore) Picture shows Mr. A. Vijiaratnam, Director (Civil, & Structural Engineering), PSA (left) presenting a pewter tray to Capt W.F. Rockett, Master of ANRO ASIA to commemorate the maiden voyage of the vessel to Singapore recently.

ANRO ASIA, the last of the three new hybrid roll-on, roll-off container vessels of ANRO consortium, is jointly

owned by Australia Straits Container Line and Nedlloyd Line. The other member lines of the Consortium are Australian National Line and Neptune Orient Lines of Singapore.

On the Southeast Asian/Australian route, the ANRO ASIA, together with her sister ships ANRO AUSTRALIA and ANRO TEMASEK, serves Singapore, Port Kelang, Penang, Brisbane, Sydney, Melbourne, Burnie, Adelaide and Fremantle on a 11-day frequency.

The 182-metre 16,000 DWT vessel has a total capacity of 971 TEUs including 150 reefers.



(Singapore) Picture shows Mr. K. Rodrick, Chief Officer of "Muncaster Castle" (centre) with the pewter tray presented by PSA to the vessel to commemorate her maiden voyage to Singapore. The 16,100 GRT vessel owned by Castle Line Ltd. is on the Far East/Middle East container service.

Others in the picture are (from left) Messrs Chua Siow Khiang, Section Superintendent, Francis Aurol, Zone Manager, Capt Khong Shen Ping, Dy Portmaster of PSA and Messrs B. Donaghue, Managing Director and Joseph Ngo, Shipping Executive of Mollers' (S) Pte Ltd. the local agents of the vessel. A Mitsubishi Shipyard engineer is seen 3rd from right.

Autour du monde.



Around the world. The facts which make Air France a worldwide airline are impressive. We serve 150 destinations in 75 countries, spanning over 575,000 kilometers of air routes.

But the spirit which makes us a worldwide airline is unique. It is our internationally-recognized talent for quality, service and excellence in everything we do. No matter where we fly, to Rio or Los Angeles, to Tokyo or Montreal, we send our country's best around the world.

AIR FRANCE 
official carrier



MITSUI Computer Control System for Container Terminals

Huge piles of data!

How do you process them for efficient handling of containers?

Our System can help solve your problems and enable you to reap the true benefits of container transportation.

Developed in 1972, this System has proved its efficiency at the busy Ohi Pier, Port of Tokyo, and we are now prepared to aid you in solving your terminal problems, particularly those in the fields of cargo information and operations systems.

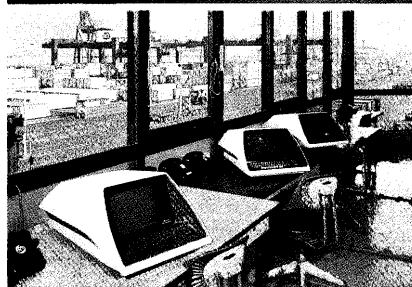
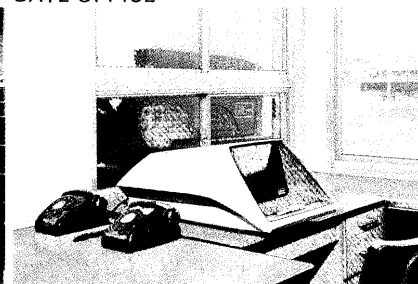
Major Application Software

1. Planning Support & Management System
2. Receiving/Delivery Operations System
3. Loading/Unloading Operations System
4. Marshalling/Shift Operations System
5. Report Generating System
6. Inquiry System
7. Back up & File Control System

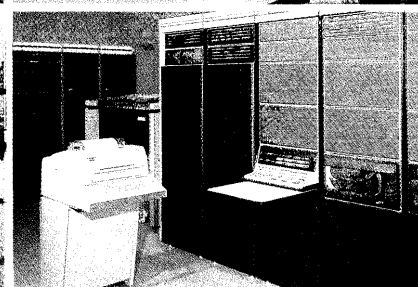
COMPUTER ROOM



GATE OFFICE



OPERATION ROOM



CENTRAL CONTROL UNIT



MITSUI ENGINEERING & SHIPBUILDING CO., LTD.

Head Office: 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, 104 Japan
Cable: "MITUIZSEN TOKYO", Telex: J22924, J22821

Material Handling Machinery Sales Department Tel. (03) 544-3677

Systems Headquarters Marketing Dept. Tel. (03) 544-3272

Overseas Offices: New York, Los Angeles, London, Duesseldorf, Vienna, Hong Kong, Singapore, Rio de Janeiro