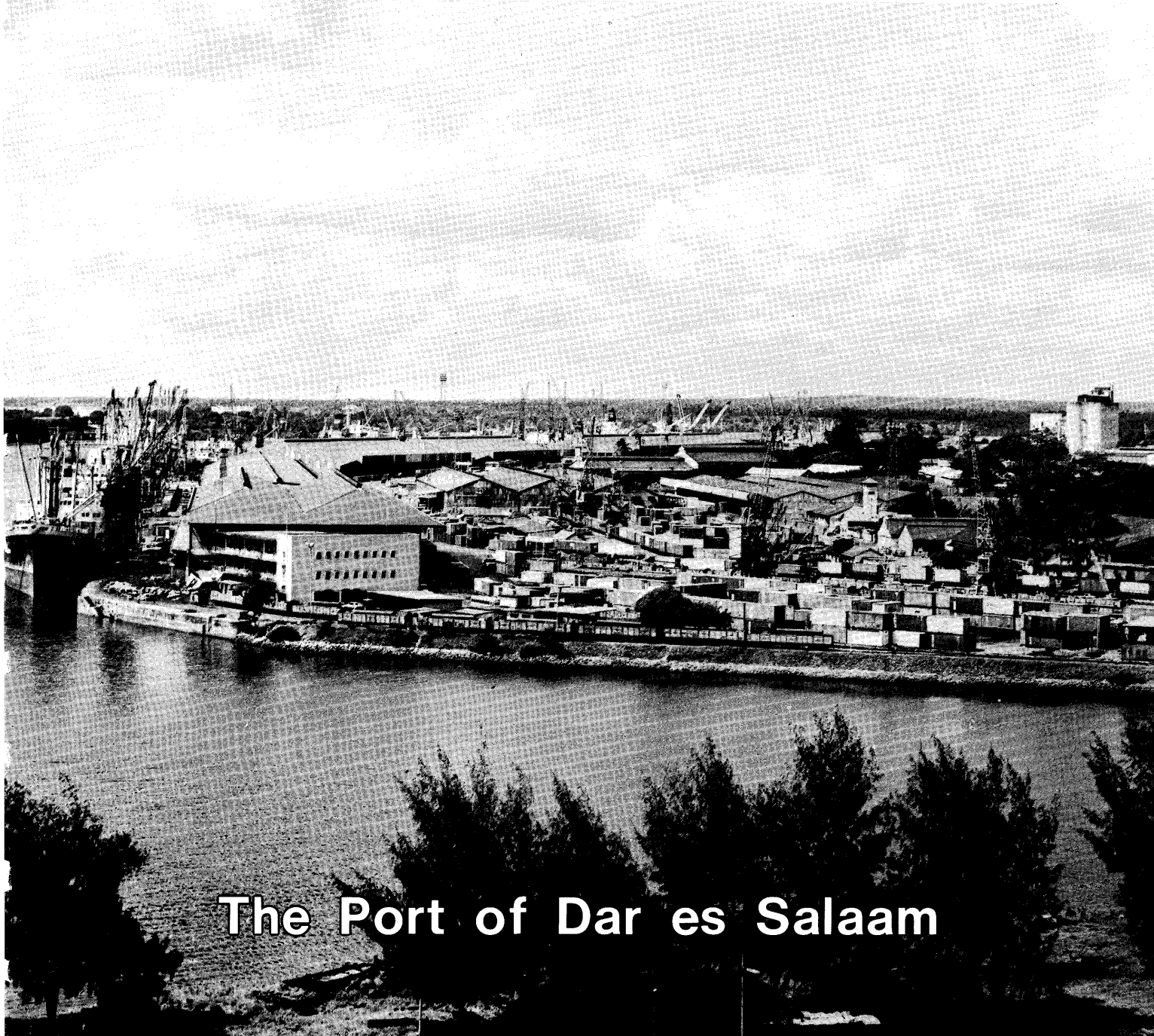


PORTS *and* HARBORS

December, 1985 Vol. 30, No. 12

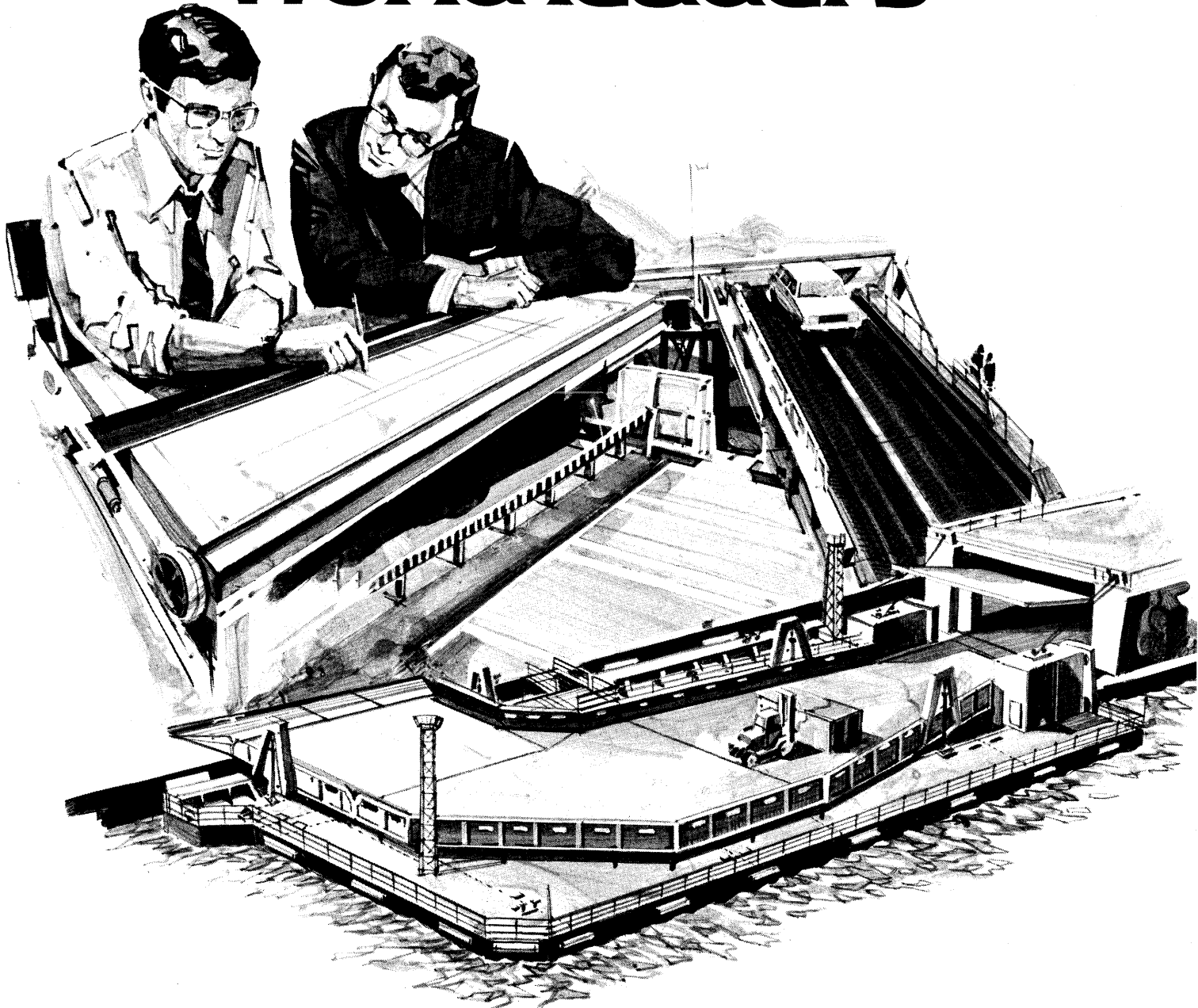


The Port of Dar es Salaam

The Publisher: The International Association of Ports and Harbors

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

When it comes to linkspans, we're the world leaders



MacGregor-Navire has over thirty linkspans installed around the world.

They're chosen because they can be installed quickly, with off-site construction resulting in minimum port disturbance.

They're easy to relocate as the port expands.

And they're tailor-made to suit local port requirements, sea bottom conditions, tidal conditions and ship threshold heights.

And as Ro-Ro equipment design is one of our principal activities, every linkspan benefits from our expertise in foreseeing future Ro-Ro port development.

So, when it comes to linkspans, best come to MacGregor-Navire.

MacGregor-Navire Port Equipment AB,
Box 8991, S-402 74 Gothenburg, Sweden.
Telephone: (31) 23 50 20. Telex: 20826.

MacGREGOR
NAVIRE



PUTTING ON A NEW FACE FOR TOMORROW... MISS LIBERTY, AND US!

There she stands, has stood, year after year...An enduring symbol of what we hold dear, the very embodiment of our national pride. But lovely as she is, Miss Liberty bears the marks and scars of relentless time. She has earned what she is getting ...a refurbishing for better tomorrows.

Better tomorrows...that's our goal, too, at The Port of New York-New Jersey...a goal we proudly share with the lady of the harbor. Tomorrow's opportunities result from the deregulation of ocean, rail and truck industries. The future advantages for the port are: load center activities, market pricing, jumbo ships, new and improved ship schedules, new and innovative rail services, increased motor carrier services, the finest marine terminals and new market opportunities.

In addition, The Port continues to offer

national and international companies the full service packages they expect—import and export facilities, warehousing and distribution. And we will continue to maintain our supremacy as America's Intermodal Capital with new ideas, new transportation services and new approaches to better serve your needs.

Putting a new face on for tomorrow. Miss Liberty. And The Port of New York-New Jersey.

THE PORT AUTHORITY OF NY & NJ

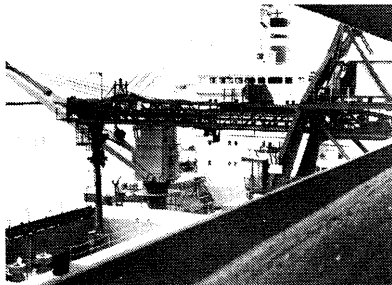
Port Department
One World Trade Center, 64W
New York, NY 10048
1-212-466-8333



Whether it's Exporting or Importing —

Minerals for Europe — Marble for Italy — Sugar for Canada —
Beef and Containers for the U.S.A. and South Korea or Cars
from Japan — Oil from the Middle East.

THE PORT OF TOWNSVILLE is the KEY



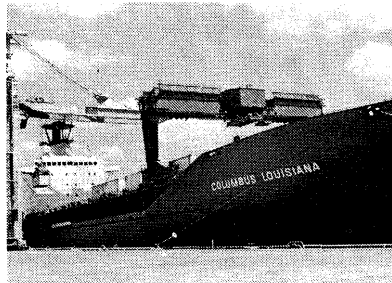
Zinc Concentrates for Europe.



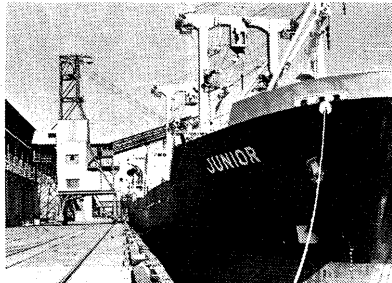
Lead Slab for England.



Marble for Italy.



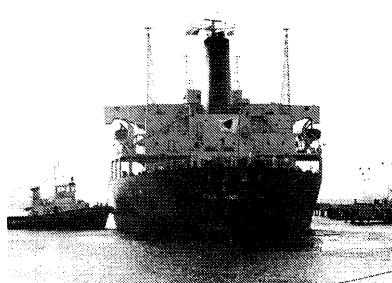
Beef for the USA.



Sugar for Canada.



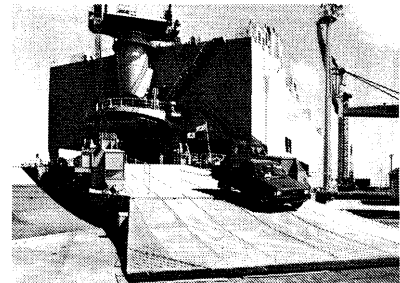
Containers for South Korea.



Oil from the Middle East.



Motor Vehicles from Japan.



**MORE SHIPPERS ARE USING AUSTRALIA'S NORTHERN
PORT OF ACTION for QUICKER TURN-AROUND OF SHIPS.**

**TOWNSVILLE
HARBOUR
BOARD**



For further enquiries, contact the
Townsville Harbour Board,
Townsville,
North Queensland, Australia.
Cables: 'Nausport'.
Telex: NAPORT — 473344.



ABOVE: One of six Transtainer® cranes put in service since 1982 by Metropolitan Stevedoring Company, Terminal Island, California. Metropolitan was able to trim

months off normal delivery time by selecting stock units under various stages of construction at Paceco's Gulfport, Mississippi plant.

How to keep truckers happy and keep ships at sea.

Keeping containers moving in your yard is our number-one priority when we build a Transtainer®.

Each one is designed to operate like your terminal — 24 hours a day, day-in and day-out.

Less downtime.

Instead of supplier-specific parts, we use easy-to-get generic parts whenever possible. Replacements are quick and easy. Stocking huge part inventories becomes unnecessary.

You'll cut your downtime to almost nothing. And ships won't have to sit dockside waiting for cargo, while you're waiting for parts.

Engineered for productivity.

Our cabs are designed with your operator in mind. We surround him with large windows for best overall visibility. Build the controls right into the chair, so that everything's at his fingertips. Even insulate the all-steel walls for temperature and sound control.

All to help your operator perform efficiently. React quickly. Safely. And keep his mind on moving containers.

Why gamble?

Like the Paceco Portainer® crane that helped revolutionize the shipping industry, our Transtainer has

become an industry standard.

Nearly 500 Transtainers are in operation worldwide — including the seven units built between 1960 and 1962.

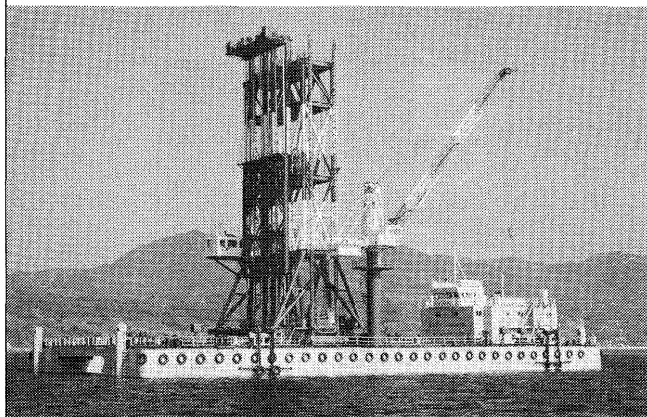
So why buy an ordinary crane when you can have a tried and proven Transtainer working in your yard?

Let us show you how a Transtainer can improve your yard's productivity. Write or call us today, at Paceco, Inc. P.O. Box 3400, Gulfport, MS 39505-1400. (601) 896-1010, Telex 589-924.

PACECO, INC.
A Subsidiary of Fruehauf Corporation

PACECO LICENSEES MITSUI ENGINEERING & SHIPBUILDING COMPANY LTD., Japan; DOMINION BRIDGE-SULZER INC., Canada; HYUNDAI HEAVY INDUSTRIES CO. LTD., Korea; VICKERS HOSKINS DIVISION, Australia; Paceco International Limited — U.K. Licensees of Paceco International Limited ATELIERS ET CHANTIERS DE BRETAGNE, France; DORBYL MARINE (PTY) LTD., South Africa; FRUEHAUF S.A., Spain; NEI CRANES LTD., U.K.; REGGIANE OMI S.p.A., Italy

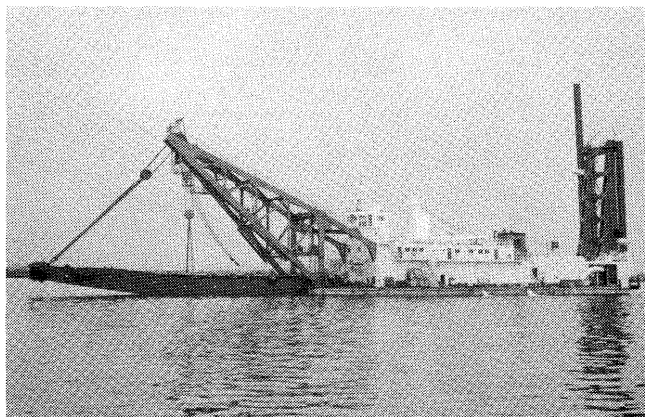
CREATING A NEW TOMORROW ON LAND AND AT SEA



The world's first application of the **Geodrain®**
method in marine work
(in the Port of Osaka – February 1985)

**with
you**

Together – WITH YOU – we can attain prosperity
and good will, in a spirit of harmonious
mutual understanding and cooperation.



GENERAL CONTRACTOR

Engineering Consultants



DAITO KOGYO CO., LTD.

President: Yoshihiro Ogawa

Main Office: 1-38-6, Kameido, Koto-Ku, Tokyo, JAPAN
Phone: 03-685-2111 Cable: DAKO MAIN Telex: J23730 DAITO



"ALANODE"
Steel Sheet Pilings

Cathodic Protection

ALANODE

ALUMINUM - GALVANIC - ANODE

Applications:

- Steel Sheet Pilings
- Steel Pile Piers
- Sea Berth, Platform, Rig

Advantages:

- Most economical compared with other anti-corrosion devices
- Simple application
- No maintenance and power cost required after installation
- No danger of short circuiting or power leakage



THE NIPPON CORROSION ENGINEERING CO., LTD. (NIHON BOSHOKU KOGYO K.K.)

Head Office: J.T.B. Bldg., 1-6-4 Marunouchi, Chiyoda-ku,
Tokyo, Japan

Phone: Tokyo 211-5641 Telex: Tokyo 222-3085
Sole Agent: MITSUBISHI CORPORATION

PORTS *and* HARBORS

Published by

The International Association of Ports and Harbors

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

President:

J. DEN TOOM

Managing Director, Port Management
of Amsterdam, The Netherlands

1st Vice-President

WONG. HUNG-KHIM

General Manager, Port of Singapore
Authority, Singapore

2nd Vice-President

HENRI ALLARD

Quebec, Canada

3rd Vice-President

J.K. STUART

Chairman, Associated British Ports, U.K.

Conference Vice-President

CHEUNG, YEUN SEI

Administrator, Korea Maritime and Port
Administration, Korea

Executive Committee Members

AFTAB ALAM

General Manager (Planning & Development)
Karachi Port Trust, Pakistan

J. DUBOIS

General Manager, Port of Le Havre, France

F. GINGELL

Chairman, Fraser River Harbour
Commission, Canada

T. HIROTA

Director-General, Port & Harbour Research
Institute, Ministry of Transport, Japan

F. KOHMURA

President, Nagoya Container Berth Co., Ltd.
Japan

R.P. LEACH

Executive Director, Port of Houston, U.S.A.

J.H. McJUNKIN

Executive Director, Port of Long Beach, U.S.A.

P. OKUNDI

Managing Director, Kenya Ports Authority
Kenya

J. ROMMERSKIRCHEN

Head, Office for Port, Shipping and Transport
Dept. of Economic Affairs, Transport &
Agriculture, City of Hamburg, West Germany

E. SCHÄFER

General Manager, Port of Copenhagen
Denmark

F.L.H. SUYKENS

General Manager, City of Antwerp
— General Management of the Port, Belgium

A.J. TOZZOLI

Immediate Past President of IAPH
New York, U.S.A.

W.D. 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

December, 1985 Vol. 30, No. 12

CONTENTS

	Page
IAPH announcements and news:	7 ~ 20
Board selects Miami for 16th Conference — IMO acknowledges IAPH Board resolution on reception facilities — Special Port Development Technical Assistance Fund: Contribution Report — A poster of IAPH Essay Contest distributed — IAPH delegation attends the LDC's Consulta- tive meeting — Mr. Heeren of Antwerp represents IAPH at FIATA Vienna Conference — IAPH Membership Directory 1986 completed — The symbol mark for the Seoul Conference — "Outline of IAPH" revised — Visitors — Membership Notes	
Report on the IAPH Attendance at the 9th Consultative Meeting of Contracting Parties to the LDC, 23—27 September 1985 By Herbert R. Haar, Jr.	10
"Special Guidelines for the Ocean Disposal of Dredged Material" submitted by IAPH	11
Open Forum:	
Transport and Finance — The Chartered Institute of Transport Presidential Address by J.K. Stuart	21
Port Spectrum — Performance Reports:	
Port of Launceston	25
International maritime information:	
World port news:	
IMO Letter No. 1063 acknowledging IAPH Board resolution	28
Review of 1984 activities on maritime and multimodal transport: UNCTAD	29
Dredging Coastal Ports — Executive Summary by Marine Board, National Research Council, USA	30
Port of Los Angeles achieves its record levels of tonnage and revenue	35
Super straddle carrier at Atlantic Terminal: Port of Le Havre	38
Plan to restructure Rotterdam's general cargo sector accepted by business community	41
Port of Dar es Salaam at take-off stage	43
MSB FORUM '85	45
Indonesian ports profile	47
KMPA's 1986 budget draft finalized	48

The Cover: The Port of Dar es Salaam

Price US \$3.50 per copy
US \$35.00 per year



A VERY SURE MOVE

The Port of Hamburg: Speed And Accuracy

International economics fluctuates and changes from day to day. The selection of the right port is no easy task when this change is to be fully grasped so as to be positively reflected in one's business.

The Port of Hamburg has regular direct services to all corners of the world. And that for Japan is established at an average of one service a day. If you are having difficulties with losses incurred in relation to time and expenses, then Hamburg is the port to solve your problems.

Conveniently located and having substantial facilities, the port of Hamburg guarantees speed and accuracy in

such functions as storage, control, assorting and container handling. Stable labor power is always available since the labor force at the port is virtually strike free. The Free Zone covering all important port areas allows transit cargo to pass through duty-free making the port all the more attractive.

The Port of Hamburg has overseas offices in New York, Tokyo, and in major cities of the world and is ready to service you most efficiently to the final destination of your cargo. The gate-way to Europe cultivated by history . . . Port of Hamburg. Consider us first when entering Europe.



**Port of Hamburg
Marketing and Public Relations (Regd. Assn.)**

The Gateway to Europe's Markets

**The Free and Hanseatic City of Hamburg.
Representative Office in Japan.**

Irisu Bldg. 3-12-18, Kamioosaki Shinagawa-ku, Tokyo 141
Tel. 03/443-4111

The Representative: Mattentwiete 2, 2000 Hamburg 11, Tel. 040/36128-0

Local Representatives in Germany: North Germany Tel. 040/234252
Frankfurt Tel. 0611/749007 Munich Tel. 089/186097

Duesseldorf Tel. 0211/482064/65 Stuttgart Tel. 0711/561448/49

Local Representatives outside Germany: Vienna Tel. 0222/725484

New York Tel. (212)-5148 220/21 GDR, CSSR Tel. 040/365620

Budapest Tel. 319769 Tokyo Tel. 03/443-4111

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

COUPON

PH-12

IAPH announcements and news

Board selects Miami for 16th Conference

The Board of Directors, through its meetings by correspondence held on August 20 and again on October 15, 1985, selected the Port of Miami from among the five candidates as the Host (site) for the 16th Conference of IAPH to be held in 1989.

As previously reported, the voting procedure agreed upon by the parties concerned was that the winner of the second ballot would be the port which obtained a plurality of the votes. The result of the second ballot was as follows:

The total number of effective ballots.	91
The number of completed ballot forms returned by the closing date	43
Port of Miami, Florida, USA	33
Port of Seattle, Washington, USA	7
Ports of Los Angeles and Long Beach, USA	2
Port of Quebec, Quebec, Canada	1
Port of Portland, Oregon, USA.	0

The Secretary General reported the above result to the Board members and the respective candidates in his letter dated October 21, 1985. Secretary General Sato in the letter expressed his congratulations to Miami and thanked the other ports for their efforts in promoting their ports as candidates. "It was most encouraging for all of us to have so many enthusiastic members wishing to host our conference" he said in concluding his report to the Board.

IMO acknowledges IAPH Board resolution on reception facilities

Secretary General Sato has received a letter from Mr. C.P. Srivastava, IMO Secretary-General concerning the IAPH Board resolution on reception facilities in ports for noxious substances, which had been earlier submitted to the IMO.

The IMO Secretary-General in his letter dated 17 October 1985 acknowledged the receipt of the IAPH resolution and gave his assurance that it will be brought to the attention of the twenty-second session of the IMO Marine Environment Protection Committee (MEPC), which is scheduled to meet from 2-6 December 1985.

Mr. Srivastava further says that his organization attaches vital importance to the facilities in ports for the reception of wastes from ships in implementation of MARPOL 73/78, and this matter has been brought to the attention of States concerned by issuing Circular letter No. 1063 of 17 July 1985, a copy of which was enclosed with his letter and is reproduced on page 28.

In concluding his letter, the IMO Secretary General says "I should be most grateful if you could continue to urge Members of your Association to provide the necessary facilities. It is needless to say that, providing such facilities

calls for concerted efforts by Governments, ports and all other interested parties."

Special Port Development Technical Assistance Fund: Contribution Report

Starting with the July-August 1985 issue, a report on the state of contributions from members to the Special Port Development Technical Assistance Fund ("the Special Fund") has been included in each issue. The contributions as of November 15, 1985, are listed in the box below.

As seen from the list, the amount received in contributions during the six months from the start of the campaign, totalled US\$17,500, against the targeted amount of US\$70,000.

The Secretary General and the Chairman of the International Port Development Committee, Mr. Kruk (Port of Rotterdam), express their appreciation to all the contributors for their generous support, and at the same time urge other members to give this project their favourable consideration.

Contributions to the Special Fund (As of November 15, 1985)

Contributors	Amount (US\$)
<i>Paid:</i>	
Port of London:	750
Port of Copenhagen:	350
Port Services Corp., Oman:	500
Associated British Ports:	3,000
Port of Houston:	1,000
Kelang Port,	200
Port of Halifax:	750
Port Alberni:	200
Cyprus Ports Authority:	500
Belfast Harbour Commissioners:	300
Fraser River Harbour Commission:	300
Port of Tacoma:	1,000
Port of Amsterdam:	1,000
Port of Rotterdam:	3,000
Pacific Consultants International, Japan	630
Ports Corporation, Jordan:	1,000
Clyde Port:	1,000
The Harbours Association of New Zealand and 9 Harbours	2,000
Mr. Susumu Maeda, Japan:	20
<i>Pledged:</i>	
Directorate-General of Shipping and Maritime Affairs, Netherlands:	720
Ghana Ports Authority:	500
Mr. Toru Akiyama, Japan:	500
Port of Hamburg:	3,800

A Poster of IAPH Essay Contest distributed

Following the announcement of the conditions for entry to the IAPH Award Scheme 1986 – an essay contest described in the previous issue of this journal – the Head Office produced a poster advertising the Scheme and its Conditions for Entry in English, French and Spanish and is enclosing a copy with this issue for distribution among the members concerned. All members, especially the chief executives of developing ports, are urged to ensure that this is displayed in a prominent position, where it can be seen by those personnel who may wish to submit entries.

IAPH delegation attends the LDC's Consultative meeting

Mr. Herbert R. Haar, Jr., Chairman of the IAPH Dredging Task Force and Assistance Executive Port Director, Port of New Orleans, has recently sent the Secretary General a memorandum on his attendance at the 9th Consultative Meeting of Contracting Parties to the London Dumping Convention (LDC), held at the IMO's headquarters in September 1985. According to Mr. Haar, an IAPH working paper was distributed at the meeting. In this issue, Mr. Haar's memorandum and the IAPH working paper are included on pages 10 and 11 respectively.

Mr. Heeren of Antwerp represents IAPH at FIATA Vienna Conference

Mr. L. 's Heeren, Deputy General Manager, Port of Antwerp, at the request of the IAPH Secretary General, attended the 14th Congress of the International Federation of Freight Forwarders' Organizations (FIATA), which was held in Vienna from October 6 to 10, 1985, on behalf of IAPH. Mr. Heeren contributed a report on the FIATA Conference, which is included on page 9 of this issue for the benefit of all members and readers.

IAPH Membership Directory 1986 completed

The 1986 edition of the IAPH Membership Directory was completed in late October and was sent to all members from the Tokyo Head Office in the third week of November. Regular Members and Associate Members of Classes A (Grade One), B and C are entitled to receive 3 copies per unit (one copy out of which has been airmailed, with the remaining copies seamailed), and other members one copy per unit.

In line with past practice, the Directory lists the names and positions of member port's officials as well as the volume of cargo handled by that port. The distribution of this annual directory is limited to IAPH members only. If IAPH members wish to receive more copies, they are available on request from the Tokyo Head Office.

The new edition of the Directory carries the symbol mark for the Seoul Conference on its cover page, thus drawing the members' attention to the forthcoming 15th Conference in Seoul in 1987.

In the proofreading stage, Ms. Izumi Hayashi, the staff member whose efforts have been largely responsible for the compilation of the Directory, tried to include as many of

the changes received after the closing date as possible. However, any further information which reaches this Office will be carried in the "Membership Notes" column of the appropriate issue of "Ports and Harbors".

The symbol mark for the Seoul Conference



It consists of the Tai-Geuk mark, the screw of a ship, the waves and the globe. The Tai-Geuk mark symbolizes Seoul, the host city of the Conference, while the ship's screw and the waves stand for world ports; the globe suggests the promotion of international cooperation and mutual development and the 15th bars around the circle signify the 15th Conference of IAPH.

"Outline of IAPH" revised

The revised version of "Outline of IAPH" was published in August 1985. The Head Office sent two copies each to all members of the Association urging them to support the membership campaign efforts of the Association and to provide a better introduction of IAPH to a wide range of people. Extra copies of the brochure are available on request from the Tokyo Head Office.

Visitors

§ On September 26, 1985, Mr. Christopher Hower, Dy. Editor, Fairplay International Shipping Weekly visited the Head Office and was received by Mr. R. Kondoh and exchanged views and comments with him on the current port situations in Japan. Mr. Hower was attending an IUMI's annual meeting held in Tokyo.

Membership Notes

New Member

Associate Member

Cahners Exposition Group (Class A)

1504 Bank of America Tower

12 Harcourt Road, Hong Kong

(Mr. Stephen A. Sind, Group Vice President)

Telex: 62270 HX

Office Phone: 5-213578

CORRECTION

In the table of contributors to the IAPH "Special Fund" which appeared in the September, October and November 1985 issues of this journal, the Belfast Harbour Commissioners were erroneously listed under Canada, instead of U.K. The Head Office most sincerely apologizes to the Belfast Harbour Commissioners and all our readers for this error.

Harbours Association of NZ meets in New Plymouth — 12-14 March 1986

The Secretary General has recently received a letter from Mr. J. Murray, Chief Executive of the Harbours Association of New Zealand, extending to IAPH members a cordial invitation to be present and take part in the Association's 51st Conference, which will be held in New Plymouth, New Zealand, from 12 to 14 March 1986.

The invitation letter indicates that the venue of the Conference is the Plymouth Hotel, New Plymouth, and the host is the Taranaki Harbours Board. The registration fee is \$120 for each registrant. The letter says the wives of delegates and invited guests are most welcome, and a ladies programme is being arranged. Information on the agenda for the conference, together with details of social events, will be forwarded to those interested in attending at a later date.

So as to assist in the smooth organization of the conference, any members who are interested in participating are requested to contact Mr. Murray at the following address:

Mr. J. Murray, Chief Executive
The Harbours Association of New Zealand
P.O. Box 1765, Wellington 1, New Zealand
Telex: HARAN2 30258 Telephone: 728-050/1

Report on the XIXth World Congress of FIATA

By L. 's Heeren
Deputy General Manager of the Port of Antwerp
Board Member of WTCA of Belgium Antwerp

From October 6th — 10th, 1985, the XIXth Congress of FIATA (International Federation of Freight Forwarders Organizations) took place in Vienna.

On this occasion, about 1,400 forwarders (including nearly 400 escorts) have travelled to the Austrian capital, in order to participate in the congress meetings, as well as in the social program, which commemorated the jubilee of 60 years of FIATA.

The motto of this congress was "Economic Viability Through Forwarding". It reminds the forwarder of the demands of a future, already present today : to satisfy the economical requirements of the client by a planned professional approach to transport and forwarding.

From the congress meetings, we learned that the FIATA's job is "to promote the international forwarder's interests, to analyse them to the common denominator and to represent forwarders' interests at international organizations in a well-informed way and with vigour". Discussions clearly have shown that it is still the task of the port — based forwarder to choose the most suitable transport chain for the customer or to coordinate several different seaborne and combined transport systems combining them into one system.

Due to the ever-increasing number of transport combinations available, both shippers and shipping companies face problems of enlargement of scale in the transport sector.

The forwarder, architect of transport, can always help to solve problems of transport logistics, because he is involved in logistics.

Often technically impressive solutions are presented under the terms "logistics", but they are not always economically feasible. In those sectors, where the forwarder's know-how, expertise and experience is most in demand, — the consolidation and distribution of goods, — long established traditions show that high growth rates are achieved, despite of rising costs. The word "Economic" in the slogan of the congress, means that it should not be forgotten that the forwarder can increase the efficiency of economic productivity, but that it should be essential that the transport factor should be smooth running and in due time.

FIATA and its committees have to apply influence for legal and technical pre-conditions of transport, which will make it easier for the individual forwarder to offer tailor-made service to the client. Constantly rising transport costs are sometimes due to the fact that there is a lack of coordinated logistics, which can be removed by an efficient logistics tender from the forwarder. Indeed, the forwarder's strength lies in his market view, his organization talent and his independence from shipowners and/or other carriers.

The various alternatives which can be taken into consideration in the transport sector, still call for an intermediary in the continuously growing traffic of goods.

Moreover, freight forwarders are also very much interested in the international facilitation of trade procedures, in which they are concerned in three ways : documentation, procedures and electronic data processing. All three of them will bring charges to their working methods and in many cases, very drastically. Discussions at the congress have clearly shown the interest of the FIATA-members. Their survival indeed will depend on the fact how the forwarders will overcome this revolution in the field of communication networks.

There is a clear tendency towards complete transport systems, together with the information systems related to. In order to protect this field of activities from the striving integration of the carriers, the freight forwarders have to show their abilities as architects of transport at their utmost, being the logistician above all in this field. Logistics call for a different mode of thinking from those handling the actual carriage of goods. Only when all services are locked together like a cogwheel, logistics systems can work successfully. The forwarder nowadays, has to maintain even closer contacts with his partners, carriers, cargo-handling organizations, stevedores, customs agencies, correspondents and in many cases, he must develop new contacts, in order to be able to offer to his customers a complete transport system.

As a conclusion we may say that the XIXth FIATA-congress in Vienna was a very successful one and of common interest to its members. In order to make their members more sensitive towards the professional problems, FIATA recommends them to support every endeavour which could result in better, smoother and more speedy treatment of goods and documents, this not only to the benefit of the freight forwarders only, but also to the benefit of international trade and understanding.

The next World Congress of FIATA, the XXth, will be held in Antwerp (Belgium) from September 13th — 17th, 1987. Please feel yourself welcome, be happy and do business in Antwerp, the forwarding port above all.

Report on the IAPH Attendance at the 9th Consultative Meeting of Contracting Parties to the London Dumping Convention, 23-27 September 1985

By Herbert R. Haar, Jr.
Chairman of the IAPH Dredging
Task Force
Assistant Executive Port Director
Port of New Orleans
Louisiana, U.S.A.

An IAPH delegation composed of Herbert R. Haar, Jr., as head of the delegation, and Joseph E. LeBlanc, Jr., as legal counsel, attended the Ninth Consultative Meeting of Contracting Parties to the London Dumping Convention (LDC) which was held at the headquarters of the International Maritime Organization ("IMO") in London, England from 23-27 September 1985. An IAPH working paper was distributed at the meeting in connection with the consideration of matters relating to dredged material under Agenda Item 3 (Report of the Scientific Group on Dumping). A statement was also available for use in connection with Agenda Item 4 (dumping of low level radioactive waste at sea) in case action was proposed under that agenda item which could have an effect upon dredged material disposal.

This Memorandum will summarize the decisions reached at the Ninth Meeting upon the issues of concern to IAPH.

- (1) *Agenda Item 3* — Two subjects under this agenda item were of particular concern to IAPH. The first dealt with the recommendation of the Scientific Group for adoption of new criteria for the classification of substances to the Annexes. This is an area upon which IAPH has submitted technical papers in the past, and it is of crucial importance in connection with IAPH's efforts to have dredged material containing Annex I substances removed from the stringent prohibitions of Annex I and treated under the less restrictive provisions of Annex II. IAPH expressed support for the recommendation of the Scientific Group and for the new recognition of "bioavailability" as a pertinent criterion in the application of the Annexes. This is of major significance in the case of dredged material because of the unique physical properties of marine sediments that sequester and partition toxicants from the marine biota.

After considerable discussion of the issue, the Meeting adopted the new classification criteria proposed by the Scientific Group.

- (2) *Agenda Item 3 — The Intersessional Working Group on Dredged Material* — The IAPH working paper also expressed support for the recommendation of the Scientific Group for the convening of an intersessional working group of experts on dredged material to consider the treatment of dredged material under the Annexes and the need for special guidelines to take into account the unique features that distinguish marine sediments from municipal and industrial wastes. The IAPH observer made a formal presentation to the meeting on the IAPH views, and also expressed the willingness of IAPH to submit another technical paper for consid-

eration by the intersessional working group. The meeting approved the convening of the working group on dredged material to be held at IMO headquarters in London, England in November 1985. The detailed consideration of dredged material at this Meeting is the direct result of IAPH's efforts over the past five years to obtain a more realistic treatment of dredged material under the LDC. The intersessional meeting will present the most favorable opportunity to date to achieve the IAPH goals.

In connection with the intersessional meeting, Dr. Willis Pequegnat of the United States, who serves as consultant to IAPH, has prepared a technical paper entitled "Special Guidelines for Dredged Material", which has been submitted to the IMO Secretariat for distribution to the countries planning to participate in the intersessional working group. Dr. Pequegnat will also attend the meeting on behalf of IAPH to present the port position in greater detail.

- (3) *Agenda Item 3 — Future Work Program*

The future work program approved at the Ninth Meeting includes a number of issues that should receive continued close monitoring by IAPH. These include (i) development of criteria for determining "harmlessness" within the meaning of the paragraph 8 exception to Annex I for substances that are "rapidly rendered harmless" after disposal; (ii) establishment of criteria for the definition of "trace contaminants" for purposes of the paragraph 9 exception to Annex I; (iii) continued review of substances listed in Annexes I and II, which should afford an opportunity to seek removal of dredged material containing Annex I substances from the prohibitions of Annex I; and (iv) interpretation of the term "significant amounts" for purposes of determining when "special care" measures must be used in disposing of materials listed in Annex II. Action upon these subjects could affect the ocean disposal of dredged material by IAPH ports under the LDC.

- (4) *Agenda Item 4 — Disposal of Low Level Radioactive Waste* — Although IAPH does not have a direct interest in the controversy surrounding the disposal of low level radioactive waste at sea, IAPH did have a concern about the consideration of this issue at the Ninth Meeting. The issue was brought before the Meeting by the re-tabling of the resolution presented at the Seventh Consultative Meeting by the countries of Kiribati and Nauru to amend paragraph 6 of Annex I to ban the disposal of "all radioactive wastes or radioactive matter, regardless of level, form, content, or method of containment." The IAPH concern — which had been expressed at the Seventh Meeting — was that this prohibition was so broad that it could be construed to include background levels of radioactivity that are found in all marine sediments.

IAPH was prepared to distribute a working paper addressing the issue if developments at the Meeting required this action. In addition, IAPH representatives contacted the sponsors of the Kiribati-Nauru resolution — as well as

delegates from other countries that supported the proposal — to secure assurances that if a vote were taken appropriate clarification would be given that the prohibition was *not* intended to apply to background levels of radioactivity in dredged material.

Although this agenda item was scheduled to be decided on Tuesday, September 24, 1985, because of its controversy it was not finally resolved until the close of the substantive portion of the Meeting on Thursday, September 26, 1985. As an alternative to the amendment of the Annexes proposed by Kiribati and Nauru, the Spanish delegation presented a resolution to extend the moratorium adopted at the Seventh Meeting until additional scientific studies were completed. The question of a moratorium or a ban was strongly resisted by a small minority of countries. However, in the final analysis, and despite efforts at amendment, the Spanish resolution was adopted by a majority voice vote.

The moratorium proposed in the Spanish resolution did not present the same concern to IAPH as the amendment of the Annexes proposed by Kiribati and Nauru. The Spanish resolution left paragraph 6 of Annex I unchanged. Under that paragraph, the International Atomic Energy Association ("IAEA") is charged with defining what material will be considered "radioactive" for purposes of the prohibitions of the Annexes. IAPH learned from the IAEA observ-

er at the Ninth Meeting that three days prior to commencement of the Meeting, the IAEA had adopted a revised definition of "radioactivity" which contained a specific exclusion for background levels of radioactivity in dredged material (including those occurring from fallout from nuclear testing). This exclusion affords appropriate protection to dredged material so long as the provisions of paragraph 6 delegating administrative authority to the IAEA remain unchanged. The danger in the Kiribati-Nauru resolution was that it proposed to amend paragraph 6 of Annex I in a way that would have deleted all reference to the IAEA and imposed a ban that was arguably independent of the IAEA definition. The prospect of a vote upon the Kiribati-Nauru resolution remained very real until the final vote was taken upon the Spanish resolution.

* * * * *

The outcome of the Ninth Meeting was quite favorable for the treatment of dredged material. This was the result of the interest that has been shown by IAPH in the past in the application of the LDC to dredged material, and it has resulted in the continuing invitation extended to IAPH by Contracting Parties to participate in deliberations under the LDC. The IMO Secretariat is looking forward with particular interest to IAPH's participation in the special interessional meeting dealing with dredged material.

"Special Guidelines for the Ocean Disposal of Dredged Material" submitted by IAPH

**For consideration of the IMO
Intersessional Working Group on the
Application of the Annexes to
Dredged Material
Submitted by
Herbert R. Haar, Jr.
Observer on behalf of IAPH
Prepared by
Willis E. Pequegnat, Ph.D.
Consultant to IAPH**

Contents

Acknowledgements
Preface
Forward
Introduction

The Rationale for establishing Special Guidelines An
Overview of Factors and Processes affecting Mobility of
Contaminants in Dredged Materials under Different
Methods of Disposal

Components of Dredged Materials that can sequester
Toxic Materials

Large Molecular Weight Humic Materials
Small Molecular Weight (Fulvic) Humic Materials
Clay Minerals
Hydrous Oxides

Sulfide
Other Important Factors in sequestering Toxic Materials
Hydrogen Ion Concentration (pH)
Salinity
Oxidation-Reduction Status of Dredged Material at
Disposal Site
Invitation to act
Evaluation of the Need for Special Guidelines regularizing
Ocean Disposal of Dredged Material
Part A — Characteristics and Composition of the Matter
Evaluation of Dredged Material subject to Testing
under the Annex I Interim Guidelines
Evaluation of Dredged Material excluded from Test-
ing under the Annex I Interim Guidelines
Part B — Characteristics of Dumping Site and Method of
Deposit
Part C — General Considerations and Conditions
Follow Through
* Literature Cited
* Flow Chart
* Appendices
Appendix A — The Environmental Importance of
Colloids in Dredged Material
Appendix B — The Sieve Technique for siting a Dump-
site
Appendix C — Some Factors affecting Mobility of Parti-
cular Contaminants

Note: Due to the limited space, the material marked * had to be omitted.

Acknowledgements

The International Association of Ports and Harbors (IAPH) wishes to thank its member ports, the IAPH Port Safety, Environment and Construction Committee, and the American Association of Port Authorities for their continuing financial and technical support and to acknowledge the valuable assistance provided by the AAPA Committee on Harbors and Navigation. We further wish to recognize the excellent job done by Dr. Willis E. Pequegnat in preparing this document.

5 September 1985
New Orleans, Louisiana

Herbert R. Haar, Jr.
Assistant Executive Port Director
Port of New Orleans
IAPH Observer

Preface

Experience verifies that dredged materials differ in regard to percentages of various mineralogic and natural organic components, and in regard to the presence or absence of significant amounts of Annex I and Annex II substances. But experience also shows that dredged materials worldwide are more nearly alike than different. It is, therefore, appropriate to discuss a generic dredged material that has worldwide application. Accordingly, it would be unusual indeed to find dredged sediments that in addition to water lack some proportion of quartz and feldspar minerals, aluminum silicate clays, iron and manganese hydrous oxides, humic acids, and sulfur in sulfide form. It is these mixes of native materials, differing more in degree than kind, plus whatever anthropogenic materials are extant, that we look upon as generic entities when they have been lifted from the floor of lakes, estuaries, or oceans or from a river bed.

By the same token, although sludges differ in absolute and proportional compositions, they, as in the case of dredged materials, share more likenesses than differences. But beyond this, about the only environmental factor that these materials share is that they are classed as wastes. From the standpoint of regulation, they differ in regard to testing requirements, to the part of the ecosystem where they exert significant impacts, and to the potential for effective management of their disposal. For instance, when liquid and suspended particulate phase bioassays are carried out on the two wastes, we obtain useful information as to the potential impacts of sludge but not of dredged material. For the latter, a solid phase bioassay is required. One anticipates, therefore, that sludges have greater potential for water column impaction and dredged materials for benthic effects. Noting this, it is not surprising that environmental managers agree that it is impossible to effectively manage sewage sludge disposal because in open waters much of it moves with the water mass. On the other hand, much of dredged material falls to and rests upon the bottom, even in the open ocean. We cite, for example, a statement made recently by the New York District, Army Corps of Engineers, that bathymetric surveys have revealed that over 95% of the millions of cubic yards of material disposed at the Mud Dump in the New York Bight is still in place many years after dumping.

Finally, the discussion will be incomplete unless mention is made of the fact that most dredged material is either physicochemically innocuous or if contaminated has an extraordinary capacity of reducing the bioavailability of all Annex toxicants—a capacity that surely exceeds that of

sewage sludge. Nothing this, it is fair to say that the testing exclusions for dredged material listed in the Annex I Interim Guidelines fail to go far enough toward recognition or this capability—a fact that is substantiated by a voluminous technical data base of which a part is presented in following sections of this paper. IAPH believes that the unique properties of dredged material warrant the development of special guidelines that will recognize that a high percentage of sediments dredged from waterways can be disposed safely in the ocean ecosystem.

Forward

The Scientific Group on Dumping during its Eighth Meeting at IMO Headquarters, London, agreed to propose to Contracting Parties (September 1985 meeting) that an intersessional working group of experts should be convened with the purpose of carrying out a detailed discussion of guidelines for application of the Annexes to the ocean disposal of dredged material. If this proposal is accepted, the working group will be scheduled to meet in London during the last week of October 1985. The Group also agreed that participation at the meeting will be restricted to those Contracting Parties and International Organizations that submit papers in advance which address the Terms of Reference specified in an Annex to LDC/SG.8/WP.1 of 14 March 1985. The document in hand is intended to fulfill that requirement on behalf of the International Association of Ports and Harbors (IAPH). In this regard, attention is called to the fact that the document extends the scope of an earlier paper entitled "Special Annex III Guidelines for the Ocean Disposal of Dredged Material", which was submitted by IAPH in December 1985 for consideration of the Scientific Group at its Eighth Meeting in London during March 1985. Efforts have been made to include in the paper's appendices rather detailed discussion of the mitigative features of dredged material with particular emphasis on hydrous oxides, clays, and humus.

It will be noted that the Special Guidelines for the Ocean Disposal of Dredged Material presented hereinafter follow the format of LDC's Annex III. Annex III has three parts: Part A - Characteristics and Composition of the Matter; Part B - Characteristics of the Dumping Site and Method of Deposit; and Part C - General Considerations and Conditions, which calls attention to certain amenities and marine environments that may be subject to some degree of degradation, and also recommends a multimedia evaluation of the proposed disposal. These Special Guidelines are intended to satisfy the requirements of Annex III and also provide needed guidance in the application of the Annex I Interim Guidelines to dredged material and the application of special care measures under Annex II.

In the Special Guidelines developed in this document, some discussion and adaptation of each part of the parent Annex III has been undertaken. However, attention is called to the fact that detailed documentation and guidance related to Parts A and B are also presented in appropriate appendices. Moreover, because the Terms of Reference drafted by the Scientific Group mention a flow diagram for testing procedures and exclusions, such a chart has been included.

Most persons who must deal with the disposal of wastes into the ocean are particularly concerned with the selection of a suitable disposal site. Such a site for dredged material is no exception. In fact, a proper disposal site can play an

important role in maintaining the physicochemical environment so important to toxicant sequestration. Unfortunately, neither the Annex III Guidelines nor the No. 16 GESAMP study (1982) provide guidance as to the sequencing of the application of the manifold stipulations mentioned in the text. For this reason, in Appendix B of the present document the reader will find a description of a technique applied by the present author to several real-life selections of ocean disposal sites. Several districts and units of the U.S. Army Corps of Engineers either have used the technique or recommended its application.

Obviously, many agencies will have already designated and used ocean disposal sites for a few or many years. This is true of the U.S. Environmental Protection Agency and the Corps of Engineers where something in excess of 135 ocean sites have been laid out. In such a case it may not be necessary for the user of the Special Guidelines to follow Part B. But if a potential dumper of dredged material does not have a site or is uncertain as to the appropriateness of an existing site, consulting with and following Part B and Appendix B of the Special Guidelines should be undertaken while testing of the dredged material is going on. If the intended site fails to meet specifications in important regards and an alternate ocean site is not available, a more viable alternative must be sought in another environment.

Introduction

The Rationale for establishing Special Guidelines

As has been noted previously by several delegations, the Eighth Consultative Meeting of LDC (LDC VIII/10/Annex II) resolved that Contracting Parties shall take full account of the Guidelines for the application of Annex III in considering the factors set forth in that Annex prior to issuance of a permit for the dumping of any wastes into the ocean.

But of equal importance is the fact that when LDC 8 adopted the Guidelines mention was made that in some cases, as with certain dredged material, not all the factors and their interpretations would need to be applied. Moreover, it is noted in passing that at the Eighth Meeting of the Scientific Group in March 1985 several delegates stated that the growing body of scientific evidence as to the mitigative features of dredged material demonstrates the advisability of a separate evaluation of all dredged material. Priorly, LDC8 had appropriately requested that the Scientific Group on Dumping should determine the need for special Annex III guidelines for dredged material disposal. This request was honored by the Group at SG-8, but when it could not reach general agreement on the need for specific guidelines for ocean disposal of dredged material, the suggestion was made that an intersessional group should be convened for a detailed discussion of various aspects of the application of all the Annexes to dredged material disposal.

There are several important reasons for establishing special guidelines for ocean disposal of dredged material. Certainly one of the most important reasons for such a formulation would be to emphasize the impact-mitigating properties of several components of dredged material and to advise Contracting Parties of the desirability of keeping such mitigations in mind when evaluating all dredged material for disposal in the ocean. And, as has been mentioned before, the Special Guidelines should serve to set a typical dredged material apart from other types of waste and thus serve to provide a better basis for managing and monitoring

ocean disposal. Also, from time to time, several Contracting Parties have expressed the need for clarification of the intended relationship between the Annex III Guidelines and the Interim Guidelines for the Implementation of Paragraphs 8 and 9 of Annex I to the Convention. The intersessional working group should explore the scientific justification for the expressed opinion that dredged material which is exempted from testing in the Interim Guidelines should have to undergo only the minimal testing protocol presented in Part A of the Special Guidelines.

Furthermore, it is anticipated that when permitting authorities must apply the testing requirements of the Interim Guidelines to dredged material carrying Annex I or Annex II substances, they will have been made aware of and will give consideration to the mitigative properties of typical dredged material, as discussed below and referred to in Part A, and the important environmental mitigations of special care disposal methodologies described hereinafter in Part B of the Special Guidelines.

Finally, attention is called to the fact that in the 1983 IAPH paper entitled "A Special Report on Application of Classification Criteria to Dredged Material with Emphasis upon Petroleum Hydrocarbons and with Additional Consideration of Lead in Dredged Material" a detailed discussion was undertaken of the mitigative features of dredged materials that reduced many contaminants to essentially trace levels and thus rendered them harmless to the biota. In addition, it was shown in the same document how certain special care measures for disposing of dredged material enhances these mitigative features so that for all practical purposes any contaminants were reduced to trace levels and thus rapidly rendered harmless. In accordance with the Terms of Reference (Annex 5, LDC/SG8/12) the IAPH representative will be prepared to again discuss these issues during the meeting of the Intersessional Working Group on Dredging.

An Overview of Factors and Processes affecting Mobility of Contaminants in Dredged Materials under Different Methods of Disposal

Components of Dredged Materials that can sequester Toxic Materials

Large Molecular Weight Humic Materials

An important property of the naturally occurring organics is their ability to form stable combinations with metal ions. Though the small molecular weight "fulvic" acids may mobilize some metals under certain conditions, the immobilizing effect of the insoluble large molecular weight "humic" acids in sediments will usually predominate. Generally, the stability of humic complexes with metals increases with increasing pH due to the ionization of more functional groups of the humic-polyelectrolyte molecule. This presents a case for keeping contaminated sediments in a marine environment where pH remains higher than often is the case with upland disposal where sediments often become more acid upon long-term drainage and oxidation. However, the increasing ionic strength of sea water over fresh water tends to decrease the stability of humic material-metal complexes, thus there may tend to be more release in moving a contaminated sediment from a fresh water environment to a marine disposal site.

Though this potential salinity effect has been demonstrated in the lab and in models, in actual disposal studies

with fine textured sediments, I don't recall anyone reporting substantial release from freshwater sediments in marine disposal sites where stable mounding is achieved.

Small Molecular Weight (Fulvic) Humic Materials

Saar and Weber (1982) reviewed fulvic acid as a modifier of metal-ion chemistry. It is important to understand that fulvic acids tend to make metals more soluble than the metals would be if fulvic acids were not present. Divalent cations generally form much more stable complexes with fulvic (and humic) acids than monovalent cations. At low pH, H^+ ions compete effectively for the reactive sites on fulvic acids reducing metal complexing, but at high pH OH^- competes for the metals. The authors point out that "... Metal ions such as Cu^{2+} and Cd^{2+} are known to be less toxic to aquatic organisms when they are part of complexes with fulvic acid or other ligands than when they are not complexed." Of course, this raises the prospect of fulvic acids increasing metal mobility. They mention that Cd forms weaker complexes with fulvic acid than Cu or Pb. This weaker association of Cd with all (except sulfide) immobilizing processes contributes to the greater mobility of Cd in sediment-water systems compared to other metals such as Cu, Hg, and Pb.

Clay Minerals

Clay minerals are fairly effective in immobilizing metals by cation exchange reactions. Synthetic organics may also be held by various physical and chemical sorption processes. Clay minerals with a greater surface area and cation exchange capacity are more effective in immobilizing contaminants. Both surface area and cation exchange capacity decrease in the order of Monmorillonite, Illite, and Kaolinite. Thus the amount and type of clay in a contaminated dredged material is important in influencing the mobility of contaminants. There is no question that "pure" clay minerals will sorb to some degree most contaminants. However, in my opinion, and I think the literature will support this, the relationship between clay content and: (1) large molecular weight (insoluble) humic materials, and (2) hydrous iron oxide content of sediments may be the important thing about clay type and amount. Where appreciable levels of humic materials and hydrous oxides are present, they are present to a large degree as coatings on the clay mineral particles. In sediments, organic matter content and potentially reactive iron levels increase with clay content. Thus it is the humic materials and hydrous iron oxides (where stable) coating the clay minerals in soils and sediments that play an even more important role in immobilizing metals and synthetic organics than simple sorption to clay minerals, which we have emphasized previously and in Appendix A of this paper.

Hydrous Oxides

It has long been believed in soil and sediment chemistry studies that iron and manganese oxides are important in regulating the mobility of many trace and toxic metals (Krauskopf 1956, Goldberg 1954, Taylor and McKenzie 1966). Both cations and anions show a strong tendency to interact with hydrous oxides over a considerable pH range. Lee (1975) summarized several reports regarding the effect of the age of hydrous metal oxides on their heavy metal scavenging properties. It was concluded that the sorption capacity was dependent on age of the hydrous oxides in many instances and that the greatest interaction with heavy metals might occur if heavy metals were present at the time

the hydrous metal oxide was formed (during the mixing process of dredging and dredged material disposal). Structural changes that occur with time which improve the crystallinity of the hydrous oxide precipitates were thought to be responsible for the aging effect. Aging may reduce the sorption of additional metal atoms with time, but once sorbed, so long as environmental conditions favor stability of the hydrous oxides, metal release does not occur to an appreciable extent.

The solid complexes formed with potentially toxic metals will tend to settle out of suspension. Once the metals are returned to the sediment, they may be held tightly by the hydrous oxides as long as they are stable. In an aerobic sediment or water system, the metal bonding may be considered almost irreversible once it has occurred. However, if the hydrous metal oxide becomes buried by other sediment material, it will dissolve as the buried horizon becomes reduced. Thus, the adsorbed metals will be released and may become mobile unless subjected to some other regulatory mechanism, such as complexation with insoluble organic matter or sulfide precipitation. Khalid et al. (1977) cited the work of Sanchez and Lee working with copper in Lake Monona, Wisconsin, who found that as hydrous metal oxides became reduced, sulfide precipitation immobilized the copper. This process, or complexation with humic materials, might occur in most sediment material subject to cycles of oxidation and reduction.

There is some danger in making generalizations about sulfide precipitation of heavy metals becoming an effective sink as hydrous oxides are reduced. Patrick and DeLaune (1972) have shown that oxidized forms of iron and manganese become unstable at considerably greater redox potentials than is required for sulfide formation. Thus in some sediments in which only mildly reducing environments are attained, or in oxidized sediment material that becomes reduced very slowly, redox potential levels could be intermediate between the critical potentials for hydrous oxide reduction and sulfide formation. In such an environment, organic matter complexation would likely be the primary mechanism regulating heavy metal concentration.

Lion, Altmann, and Leckie (1982) reported on trace metal adsorption to hydrous oxide coatings and organic surface coatings on surficial sediments of a South San Francisco Bay estuary. This recent work concluded "Changes in the Cd and Pb adsorption behavior after specific extractions were consistent with the hypothesis that Fe/Mn hydrous oxides and organic coatings substantially control the sorptive behavior of estuarine particulate matter." In support of their own work, they cite other papers indicating Zn and Pb are primarily associated with hydrous Fe oxides while Cu and Ag are more partitioned between hydrous iron oxides and humic compounds. Another paragraph in their paper I agree strongly with follows: "... substantial fractions of total extractable Cd and Cu were found to be associated with operationally defined organic phases while most of the extractable lead was removed during the extraction of Fe/Mn oxides. The data also indicate that the Fe/Mn oxide coatings may play a relatively greater role in the binding of Pb while adsorption of Cd and Cu may be controlled to a greater extent by organic coatings." I agree with this, except I want to emphasize that while organics and hydrous oxides are involved in immobilizing both Pb and Cd, Cd is much less tightly held by organics and hydrous oxides.

Swallow, Hume, and Morel (1980) studied the sorption of Cu and Pb on amorphous hydrous ferric oxide and found aging (over only a few day's period) not to have any effect, ionic strength changes not to have any effect (0.005 to 0.5, except for Pb at 0.5 M NaCl or higher concentration) nor changes in the electrolyte from sodium perchlorate to a complex artificial seawater.

Sulfide

Where appreciable levels of sulfide are present in sediments (primarily marine sediments), it is generally acknowledged this situation is optimum for immobilizing trace metals as long as the anaerobic, sulfide containing system is stable. Though working with dissolution of ferrous sulfide due to various disturbances or the close proximity of a sulfide-bearing anaerobic zone and an overlying oxidized zone, Pankow and Morgan (1980) affirmed the "... extreme insolubility of most metal sulfides ..."

It is apparent that the well-known metal immobilization capacity of sulfide doesn't require much discussion, thus this short paragraph doesn't indicate sulfide precipitation of metals is not important.

Other Important Factors in sequestering Toxic Materials

Hydrogen Ion Concentration (pH)

The pH of typical anaerobic sediments is usually near neutrality (6-8.5). Since the mobility of metals tends to increase with decreasing pH, the pH of the disposal environment is very important. In particular, one wants to maintain the original, near neutral or even slightly alkaline conditions of the original sediment. Some dredged materials containing no carbonates and appreciable levels of sulfide and reactive iron will undergo appreciable increases in acidity (decrease in pH) over a long period of time when disposed of under upland conditions where drainage and oxidation will occur.

Nriagu et al. (1982) looking at smelter contaminated lakes at Sudbury, Ontario, pointed out where the pH values of the surface waters was 4.5 or less, there was no enrichment of metal contaminant metals in surface sediments indicating the pollutant metals previously stored in the sediments have since been transported away by leaching. The point being metals are mobile under acid conditions. Also, humic materials may be less effective in complexing (immobilizing) the metals where the pH is low and H⁺ is competing for the active sites.

There is considerable additional discussion in various publications on the potential for pH changes in upland disposal facilities to enhance the leaching of metals (e.g., see Gambrell et al. 1978).

Salinity

Increasing ionic strength of water associated with contaminated sediments may decrease the stability of metal-humic material complexes to some degree, thus it may be best to dispose of freshwater sediments in freshwater environments (Khalid et al. 1977). However, this factor does not mean that metals are always going to be too mobile under marine disposal conditions.

Reimers and Krenkel (1974) studied sorption of different forms of Hg to different clay minerals under different chloride concentrations and concluded the capacity of inorganic Hg was reduced by an increase in the chloride concentration, possibly due to a competitive ion effect between Hg and Na from the NaCl. Lockwood and Chen

(1973) pointed out that Hg differs from many other divalent metals used in adsorption studies since the dominant species above pH 3 is the uncharged metal oxide hydrate (Hg (OH) 2). When the chloride in solution is considerably less than that in seawater, mercuric chloride may also adsorb to a considerable degree. The presence of chloride at concentrations approaching that of seawater retards mercury adsorption up to pH 10.

Lindberg and Harris (1974) reported that increasing salinity tends to have a negative effect on mercury-organic matter complexation, which suggests that some mercury may be released from organic complexes if a sediment is transported to a more saline environment for disposal.

In a recent paper, Davis-Colley et al. (1984) reported data indicating where the salinity changed from 5 ppt to 35 ppt in a laboratory study, the capacity of the total sediment to bind Cd decreased by about a factor of 10. A pH change from 8 to 7 at 5 ppt salinity also substantially decreased the relative importance of the iron phase in binding Cd.

Oxidation-Reduction Status of Dredged Material at Disposal Site

Oxidation-reduction conditions of a contaminated sediment or dredged material are important especially for three things pertaining to the immobilization of metals: (1) its influence on the amount and complexing capacity of large molecular weight humic materials, (2) its role on the formation and stability of hydrous iron oxides, and (3) its influence on the stability of sulfides, metal sulfides in sediments in particular being one of the most important immobilizing processes available. Generally, research has indicated that large molecular weight organics form stronger or more stable complexes with metals under anaerobic conditions. Disposal of an initially anaerobic sediment under upland conditions will decrease to some degree the ability of humic materials to immobilize some metals as under planned conditions the organics oxidize to a degree such that there is less humic material and what is remaining is thought to be less structurally complex probably reducing metal bonding capacity or bonding strength. This is particularly true for cadmium as first shown by Gambrell et al. (1977). Of course, strongly reducing conditions are required to maintain the stability of sulfides. Hydrous oxides and especially freshly precipitated iron oxides are stable (or formed) under oxidized conditions. Except where pH changes drastically under certain combinations of sediment materials and disposal environments, there is not usually a massive release of metals or organics if the redox potential environment is changed from oxidized to reducing or the other way around. However, a number of papers cited in the (Gambrell et al. 1978) report indicate if you oxidize sediments that were initially reduced there is often some release of metals.

In a study of San Francisco Bay sediments incubated under oxidizing and reducing conditions, it was concluded that the redox potential was the most important of several environmental parameters tested in controlling the solubility of lead as well as several other metals (Pacific Northwest Laboratories 1974). Significantly higher lead levels were generally found under oxidizing conditions. It was thought that this was due to the release of lead from sulfides in aerated sediments and the inability of components of oxidized sediments to complex with lead as effectively as sulfide.

Redox potential of sediment-water systems is a major factor known to influence metal availability. The purpose of this paragraph is to point out the interacting effects of certain redox related processes that sometimes causes confusion in whether or not oxidized or reduced conditions are best for immobilizing metals. One view is that the presence of sulfide under reduced conditions will precipitate toxic metals, resulting in a very low solubility, and that the conversion of sulfide to sulfate will release these metals under oxidizing conditions. The opposite thought is that toxic metals will be more soluble under reduced conditions due to the reduction of iron and manganese hydrous oxides which tend to sorb or coprecipitate toxic metals under oxidized conditions. As examples, evidence supporting the fixation of trace metals under reduced conditions is presented by Holmes et al. (1974) who found the oxygenated water of Corpus Christi Bay, Texas, to be more enriched in Zn and Cd than the reduced bottom waters. In summer, when the harbor was stagnant, cadmium and zinc precipitated in the anoxic sulfide-bearing waters. However, in winter, the presence of dissolved oxygen resulted in the desorption of sulfide-bound metals which release Cd and Zn. Similar results were reported by others under laboratory conditions. Sediment samples from the Los Angeles harbor were mixed with seawater and equilibrated in columns under a range of conditions from oxidized to very reduced. The trace metals cadmium, copper, nickel, zinc, lead, iron, and manganese were found to be released under oxidized conditions compared to the concentrations in the original seawater. Under reducing conditions, large amounts of iron and manganese were released into the water column. The authors concluded that metal release under oxidizing conditions was the result of soluble complex formation. Under reducing conditions, iron and manganese were released as a result of dissolution of previously insoluble hydrous oxides, but other trace metals were immobilized by the formation of sparingly soluble sulfides. The desorption of trace metal associated with sewage effluents upon mixing and dilution with the seawater under aerobic conditions was shown by Hendricks and Young (1974). They attributed these releases to the oxidation of organic particulates containing the metals, the oxidation of metal sulfides, surface desorption of the metals upon dilution, and soluble complex formation of both inorganic and organic compounds.

Invitation to act

The Intersessional Working Group on the Application of the Annexes to Dredged Material is invited to study the following Special Guidelines and technical discussion for the ocean disposal of dredged material. Should the concepts stated hereinafter meet with its approval the Intersessional Working Group is invited to consider preparing a final version for submission to the Ninth Meeting of the Scientific Group on Dumping of LDC.

Evaluation of the Need for Special Guidelines regularizing Ocean Disposal of Dredged Material

Part A — Characteristics and Composition of the Matter

The composition and characteristics of dredged material are not uniform. Its composition can range from clays to gravels, from uncontaminated virgin sediments produced during capital dredging and ready for immediate disposal to fine materials removed from inner harbor areas and contaminated with Annex I substances requiring testing and/or

Annex II substances and thus requiring special care in disposal operations at sea. Characteristically, however, dredged material is composed of sands, silts, and clays, with the latter being the most important and usually the highest percentage component of a generic dredged material.

Scientific evidence demonstrates that many of these bottom sediments possess remarkable abilities to sequester or partition from the biota toxicants found in paragraphs 1, 2, 3, and 5 of Annex I and in paragraphs A and B of Annex II (see IAPH submission to SG/8 meeting). In fact, the degree of immobilization of toxicants is such as to meet the requirements of paragraphs 8 and 9 of Annex I of the Convention (see Appendix C of this report).

There are readily identifiable properties of dredged material that account for this immobilizing and partitioning of the above pollutants. Among these are the amount and type of clay and humic acids, which determine the level of cation exchange capacity of the material; the amount of reactive iron, manganese, and sulfide, which also can bind metal cations; and its oxidation-reduction (Eh), pH, and salinity states.

It is these characteristics, which are generally lacking in municipal and industrial wastes, that warrant formulating special guidelines for the evaluation and disposal of all dredged materials, including those containing Annex I substances. Another important difference among these wastes is that toxicants in dredged material are bound to the solid phase, whereas in municipal and industrial wastes the pollutants are usually found in the liquid phase—a condition that promotes the spread of these latter wastes during disposal operations and also increases the difficulty of achieving effective monitoring.

Note should be taken of the fact that dredged materials composed of silts, sands, or gravels may not have this ability to immobilize toxicants. These components are composed of quartz and feldspars, which do not have the cation exchange capacity of the aluminum silicate clays. Ordinarily these materials are classified as “clean”, because (1) sands and gravels are generally dredged from bars and channels at harbor entrances well removed from sources of pollution, and (2) they cannot retain any pollutants for long in the absence of cation exchange or other binding propensities; hence they wash clean. Recognizing the environmental importance of these latter characteristics, the Annex I Interim Guidelines exclude sands and gravels from rigorous testing requirements prior to issuance of a disposal permit, as noted below.

Evaluation of Dredged Material subject to Testing under the Annex I Interim Guidelines

These Special Guidelines for the Ocean Disposal of Dredged Material are intended to be applied hand-in-hand with the Annex I Interim Guidelines and in connection with the determination of “significant amounts” under Annex II. The relationship of these evaluation procedures is hereafter explained.

Dredged material is excluded from the testing regimen of the Annex I Interim Guidelines when it meets one of the following criteria:

- (a) dredged material is composed predominantly of sands, gravel, and rock and the material is found in areas of high current or wave energy, such as streams with large bed loads or coastal areas with shifting bars and channels;

- (b) dredged material is for beach nourishment or restoration and is composed predominantly of sand, gravel or shell with particle sizes compatible with material on the receiving beaches;
- (c) the dredged material proposed for dumping is substantially the same in physical and chemical properties as the sedimentary materials at the proposed disposal site;
- (d) the site from which the dredged material proposed for dumping is to be taken is situated away from known existing and historical sources of pollution so as to provide reasonable assurance that such material has not been contaminated by such pollution; and
- (e) the operation is similar to a previously tested operation and constitutes at most a 50 percent increase in the amount of dredged material over an operation tested not more than 5 years previously.

When and if dredged material does not meet one of the above exclusions from the Annex I Interim Guidelines, it may meet the exemption from testing found in C8 of those guidelines:

“For dredged spoils and sewage sludge the test procedures may not be needed if chemical characterization of the material and knowledge of the receiving area allow an assessment of the environmental impact.”

This exemption should apply to those dredged materials containing high levels of smectite or hydrous mica clays and/or humic acids, especially when the disposal site has been selected in conformance with the guidelines developed in Part B and Appendix B of this document.

When dredged material fails to meet the above exclusions or exemptions from the Annex I Interim Guidelines and/or contains significant amounts of Annex II substances so as to require special care upon disposal, the regulating authorities should refer to appropriate provisions of the Interim Guidelines for evaluation in conjunction with Part A and Part B of these Special Guidelines. Testing procedures involving Annex I substances must determine whether or not the material exhibits the potential for acute or chronic toxic effect, is environmentally persistent, has the potential to inhibit life processes, and is subject to bioaccumulation under the proposed disposal conditions. When testing for the effects of Annex I substances must be undertaken, the application and interpretation of test procedures and results should take into account those contaminant immobilizing and detoxifying capabilities of dredged material set forth in this Part A, as well as the possible enhancement of such properties through selected special care measures as provided in Part B of these guidelines, because in reality these factors can render the pollutants biotically harmless or reduce them to essentially trace amounts within the meaning of paragraphs 8 and 9 of Annex I.

When significant amounts of Annex II but not Annex I substances are present, the permitting authority should consider acting through appropriate paragraphs of Part B of this document. Special care disposals will require issuance of a special permit.

Dredged material that does not contain significant amounts of either Annex I or Annex II substances and meets other Annex II provisions does not require special care disposal techniques and thus is eligible for disposal under a general permit. This condition applies to about 90% of the dredged material generated each year in the U.S.

Evaluation of Dredged Material excluded from Testing under the Annex I Interim Guidelines

When dredged material is excluded from testing under the Annex I Interim Guidelines, the permitting authority should consider the following application, but with the proviso that special emphasis should be placed on Parts B and C of these Special Guidelines for excluded dredged material.

Article IV(2): Any permit shall be issued only after careful consideration of all the factors set forth in Annex III, including prior studies of the characteristics of the dumping site, as set forth in Section B and C of that Annex.

Annex III: Provisions to be considered in establishing criteria governing the issue of permits for the dumping of matter at sea, taking into account Article IV(2), include:

Permitting authorities designated in accordance with Article VI for the issue of general permits for the disposal of wastes and other matter at sea shall, when studying a permit application, give consideration to these Special Guidelines in the evaluation of dredged material and competent management of all disposal and monitoring operations. These shall include formulations and promulgation of procedures and criteria for

1. Selecting a sea disposal site, including the choice and collection of relevant scientific data to assess the potential to harm living resources and marine life, damage amenities or interfere with other legitimate uses of the sea (see part B);
2. choosing appropriate disposal methods and conditions (Part B); and
3. developing an appropriate monitoring program (see Part C).

The above mentioned criteria should enable permit applications to be effectively assessed and likely environmental hazards to be evaluated.

1. Total amount and average composition of matter dumped (e.g., per year).
2. Form (e.g., solid, sludge, liquid, gaseous).
3. Properties: physical (e.g., solubility and density), chemical and biochemical (e.g., oxygen demand, nutrients) and biological (e.g., presence of viruses, bacteria, yeasts, parasites).

Application:

Since dredged material considered under this application is excluded from detailed chemical, biochemical and biological analyses, only minimal additional testing is necessary. This minimal testing also applies to dredged material previously assessed for Annex I and Annex II substances when these were determined to be present in trace amounts, were not in significant amounts, and are rapidly rendered harmless by processes in the material or in the sea.

As appropriate, some additional physical properties of the dredged material should be obtained, as to

- Total amount dumped per year by site (cubic meters)
- Percent solids
- Density (grams per liter)
- Grain size fractions (sand, silt, and clay in percent of each)
- Type of clays present (smectites, hydrous micas — very important).

-
4. Toxicity.
 5. Persistence: physical, chemical and biological.
 6. Accumulation and biotransformation in biological materials or sediments.
-

Application:

Dredged material excluded from testing under Annex I Interim Guidelines is excluded from these tests. Materials containing trace amounts of Annex I substances and not containing significant amounts of Annex II substances are also excluded from these evaluations.

7. Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials.
-

Application:

Dredged material excluded from further testing generally consists of only naturally occurring mineralogical sedimentary components or materials with sufficient clay and humic acids to mitigate these interactions. Because these natural estuarine and marine sediments will not undergo any other than natural geological modification and will not interact detrimentally with the marine environment, no further assessment is necessary.

8. Probability of production of taints or other changes reducing marketability of resources such as finfish and shellfish.
-

Application:

Dredged material considered under this application is unlikely to cause tainting of seafoods. It may have a physical impact on the proposed disposal site and thus is properly disposed in an area of like characteristics. Impacts upon commercial or recreational fisheries can be minimized by careful site selection, described in Part B. Proper site selection rather than a testing application would be a technically preferred approach to this issue.

Part B – Characteristics of Dumping Site and Method of Deposit

Matters relating to dumpsite selection criteria are addressed in greater detail in a study prepared by GESAMP Reports and Studies No. 16 (1982), which should be consulted in conjunction with these guidelines. Also, see Appendix B of this paper.

1. Location (e.g., co-ordinates of the dumping area, depth and distance from the coast), location in relation to other important areas, such as amenities, spawning grounds, nursery and fishery areas, and other exploitable resources.
-

Application:

Impacts of ocean disposal of dredged material related to this application are physical in nature, involving smothering of some benthic organisms within the site, and “dusting” of sensitive pelagic organisms in the water column. Some minimizing of these impacts can be achieved by careful placement of new sites.

The following factors will weigh heavily in making the final decisions in regard to positioning a dredged material dumpsite:

- distance to nearest coastline (important regarding haul distance)
- recreational areas (swimming beaches are sensitive amenities)
- spawning and nursery areas (to be avoided without

question)

- known migration routes of fish and marine mammals
 - sport and commercial fishing areas (to be avoided without question)
 - areas of natural beauty or of significant cultural or historical importance
 - shipping lanes
 - military exclusion zones
 - engineering uses of seabed (seabed mining, undersea cables, pipelines, desalination or energy conversion sites)
-

2. Rate of disposal per specific period (e.g., quantity per day, per week or per month).
-

Application:

Rate of disposal was considered for periods of a year under paragraph A1 above, but dredging/disposal operations generally involve much shorter periods of time. For example, hopper dredges may return to a disposal site every 4 to 8 hours or less, depending upon haul distances. This should be taken into consideration in setting the size of the site, as should the anticipated volumes of material that will be dumped in the site within a period of not less than 5-10 years.

3. Methods of packaging and containment, if any.
 4. Initial dilution achieved by proposed method of release.
-

Application:

In a literal sense, perhaps, packaging does not apply to the generation and transport of dredged material, but broadly interpreted it does. For instance, it is advisable to use a closed clamshell dredge for removing polluted clay from an inner harbor or upper estuary. This method compresses the polluted material into blocks and reduces leakage of contaminants to the oxidizing water column. The blocks are loaded onto a barge (packaged) and transported to the dumpsite. They are well suited for containment operations, such as capping, that are classified as special care techniques of disposal. Such techniques when properly carried out at a carefully situated dumpsite can further mitigate unacceptable properties associated with sediments contaminated with Annex I and/or Annex II substances so as to bring the dredged material within the trace contaminant and rapidly rendered harmless exceptions to Annex I. Note should be taken of the fact that most dredged material will not require capping or any other “special care” disposal technique when dumped into the ocean, but permitting authorities should understand that when needed these techniques serve to enhance the natural mitigative properties of marine sediments. Carefully monitored capping operations have demonstrated that toxicants are rendered harmless to marine life and to man by virtue of the strong binding in an anoxic environment and the additional layer of sediments. For detailed information on capping, permitting authorities may wish to consult IAPH documents submitted to and discussed by the 5th, 6th, and 7th meetings of the Scientific Group (See IAPH 1981, 1982 and 1983 in Literature Cited).

Dilution is also an important factor in ameliorating the physical impacts associated with ocean disposal; it also operates to bring some contaminants to ambient levels in a few moments and thus renders them more or less harmless. The amount and rate of dilution of dredged material is obviously dependent upon the method of disposal, upon the speed of the releasing vessel, and upon the advective qualities of the receiving water mass, as noted below.

5. Dispersal characteristics (e.g., effects of currents, tides, and wind on horizontal transport and vertical mixing).
6. Water characteristics (e.g., temperature, pH, salinity, stratification), oxygen indices of pollution (dissolved oxygen, chemical oxygen demand, and biochemical oxygen demand—DO, COD, and BOD, respectively, nitrogen present in organic and mineral form, including ammonia, suspended matter, other nutrients, such as phosphate, and productivity).

Application:

For the evaluation of dispersal and/or containment characteristics of specific dumpsites, it may be necessary to collect data on some of the following:

- water depths (maximum and minimum)
- water stratification in important seasons and weather conditions (note how pycnocline varies in depth from summer to winter)
- tidal period and range, orientation of tidal ellipse, velocities of minor and major axes
- mean surface drift: direction and speed
- storm wave effects on velocities of bottom currents
- average number of storm days per year
- wind and wave characteristics and relationships
- concentration and composition of suspended solids.

For dredged material considered under this application, chemical and biochemical characteristics of the disposal site water would not be necessary.

7. Bottom characteristics, including topography, geochemical and geological characteristics, and estimates of benthic productivity.

Application:

Maps and bathymetric charts should be consulted and specific topographic features which may affect the dispersal or containment of the dredged material (e.g., marine canyons or scoured areas) should be identified. These data needs should have been satisfied when the location of the site was decided, but for existing sites a check of previous findings should be undertaken.

In areas where dredged material may reach the bottom and remain, sediment structure (i.e., the distribution of gravel, sand, silt, and clay) as well as benthic and epibenthic community characteristics may be considered for the site area, primarily if important species are extant.

Mobility of sediments due to waves, tides or other currents should be considered if such findings were not included in a siting process. In some cases the possibility of seismic activities in the area ought to be evaluated. The distribution of sediment types in an area provide basic information as to whether dumped material with certain characteristics will accumulated at a site or be dispersed.

8. Existence and effects of other dumpings which have been made in the dumping area (e.g., heavy metal background reading and organic carbon content).

Application

The basic assessment to be carried out either for a new site or an existing one should include the consideration of possible physical effects that might arise by the increased mounding of suspended solids either by other dumpings or by river input and discharges from coastal areas, by exploitation areas, and maritime transport as well as through the atmosphere. The existing stress on biological communities as a result of such activities should be evaluated before any

new or additional disposal operations are established. The possible future uses of the sea area should be among the factors considered as well.

Information from baseline and monitoring studies at already established dumping sites will be important in this evaluation of any new dumping activity at the same site or in similar locations.

9. In issuing a permit for dumping, Contracting Parties should consider whether an adequate scientific basis exists for assessing the consequences of such dumping, as outlined in this Annex, taking into account seasonal variations.

Application:

When a given location is first under consideration as a candidate disposal site, the existing data base should be evaluated with a view to establishing whether the main characteristics are known in sufficient detail or accurately enough for reliable prediction of effects.

If at any time monitoring studies demonstrate that existing disposal sites do not satisfy these criteria, alternative disposal sites or methods of disposal should be considered.

Part C – General Considerations and Conditions

1. Possible effects on amenities (e.g., presence of floating or stranded material, turbidity, objectionable odors, discoloration and foaming).
2. Possible effects on marine life, fish and shellfish culture, fish stocks and fisheries, seaweed harvesting and culture.

Application:

Dredged material disposal should not impact unacceptably on recreational or other such human uses of the ocean because of objectionable levels of suspended materials, turbidity, discoloration or odors. These considerations are best accounted for through the site selection process which is discussed in PART B above.

If not accomplished during the site selection process, information should be gathered on the following:

- the nature and extent of commercial and recreational fishery resources and activities in the area
- grounds important to fish stocks as spawning, nursery, or feeding areas
- predictions as to the effects of sea disposal on these grounds
- predictions as to the effects of sea disposal on the habitats of rare, vulnerable, or endangered species of sea life
- potential impacts on marine life, such as oxygen depletion, ammonia buildup, turbidity, modification of the sediment composition and blanketing of the sea floor, remembering that these impacts tend to be of short duration.

3. Possible effects on other uses of the sea (e.g., impairment of water quality for industrial uses, underwater corrosion of structures, interference with ship operations from floating materials, interference with fishing or navigation through deposition of waste or solid objects on the sea floor and protection of areas of special importance for scientific or conservation purposes).

Application:

Consideration of possible effects on the uses of the sea as outlined in PART C3 should include interferences with fishing, such as the damaging or fouling of fishing gear,

and are best addressed during the site selection characterization activities. Any possibility of excluding the future uses of the sea dumping area for other resources, such as water use for industrial purposes, navigation, erection of structures, mining, etc., should be taken fully into account.

Areas of special importance include those of interest for scientific research or conservation areas and distinctive habitats of limited distribution, such as seabird rookeries, kelp beds or coral reefs. Information should also be provided on all distinctive habitats in the vicinity of the proposed site which might be affected by the material to be dumped. Attention should also be given to geological and physiographic formations of outstanding universal value from the point of view of science, conservation, or natural beauty.

4. The practical availability of alternative land-based methods of treatment, disposal, or elimination, or of treatment to render the matter less harmful for dumping at sea.

Application:

Before considering the dumping of dredged material at sea a determination may be made of the practical availability, technical feasibility and environmental soundness of alternative land-based methods of disposal and especially the productive uses of the dredged materials, such as marsh creation, beach nourishment, and land formation. It generally would not be necessary to require treatment or to place other constraints on the operation to render it less harmful because of the nature of the dredged material and the disposal site selection process. In the few cases where "special care" is needed, the application of PART B of these guidelines is sufficient.

Ocean disposal of dredged material covered under these guidelines should be regarded as an acceptable alternative and be evaluated on a basis equal with all other disposal alternatives. Moreover, permitting authorities should study documents describing some of the hazards of upland disposal, including contamination of ground water and pollution of the air from aerosols distilled from the dumpsite materials. Ocean disposal should be given consideration throughout the planning, decision making, and disposal site selection processes. Disposal site selection and alternative evaluations should consider for sea disposal and all alternatives a comparative assessment of

- human health risks, including ground water and air contamination
- environmental costs
- hazards, including accidents associated with treatment, packaging, transport, and disposal of the dredged material
- economics, including energy costs
- exclusion of future uses of the disposal area

Because they have equal application value, if the foregoing analysis shows the land alternative to be more practical, a license for sea disposal should not be given.

Follow Through

There are technical, environmental, and managerial justifications for dealing with dredged materials apart from sewage sludges and other wastes destined for disposal in the ocean. It is therefore both appropriate and useful to construct special guidelines for those who must assess whether or not any dredged material is safe for ocean disposal and, if so, where it should be placed in the ocean. A stepwise guide for selection of a site when one is not

available is developed in Appendix B.

In developing these guidelines an earnest attempt has been made to discuss any problems associated with ocean disposal of dredged materials with regulatory officials in the U.S. and elsewhere who deal with the problem on a daily basis. In addition, to better explain the fundamental characteristics of many dredged materials that account for their mitigative features, a review of relevant literature has been provided in vernacular terms. Both sources of information support the contention that most dredged materials will not cause unacceptable adverse impacts when disposed in the marine ecosystem. A small proportion of dredged material generated each year may require that some type of special care technique be employed, primarily to hold it in place. The very small percentage that should require some type of containment can still be used in a constructive manner. Whereas even as late as two years ago in the U.S. such material was marked for upland disposal, today the trend is toward construction of containment islands, which can later be developed as animal habitat or housing sites, or toward development of subaqueous pits with application of a cover of clean ambient material.

* * * * *

The Seoul Conference Preparation Committee makes a smooth take-off

The Korea Maritime and Port Administration (KMPA), host of the 15th Conference of IAPH in 1987, recently sent the following pictures to the Tokyo Head Office showing the newly established secretariat office of the Preparation Committee for IAPH Seoul Conference (SEPRECO). The staff members have already shown great enthusiasm towards the work they have been assigned for the preparations, the KMPA Administrator Mr. Cheung comments in the covering letter.



Open forum:

Transport and Finance

The Chartered Institute of Transport Presidential Address by J.K. Stuart, MA CBIM FCIT Chairman, Associated British Ports Holdings PLC

To be asked to lead this Institute creates in one's mind so many different and conflicting responses that it is difficult, if not impossible, to express in a few words one's overall reaction. The Institute has over 20,000 members spread over almost every country in seven continents. This international perspective is especially appealing to me because my own industry, the sea ports, owes its very existence to international trade. Apart from the great personal honour which the Chartered Institute of Transport has bestowed on me, I am also delighted that my election as President means that the Port Industry, so often misunderstood, has at last come in from the cold, to the warmth of the high public esteem which the Presidency of this Institute conveys. It is after all almost 20 years since Sidney Finnis, then Chairman of the British Transport Docks Board, was President of this Institute.

But I am also very conscious that our immediate past President Sir Norman Payne has set me a task which is both easy and at the same time very testing. Easy, because he has left the Institute in such good shape internally and enjoying an increasingly respected role in the formation of public opinion. But testing also because he has set such a cracking pace and high standards of personal commitment during his Presidential year as to make any successor wary about the danger of anti-climax.

It is, however, my intention to build on the excellent progress made by the Institute under Sir Norman, and of course, his predecessors, with the objective of pushing the CIT on to new high ground in professional excellence and public esteem. In this task I am conscious of the splendid support which every President receives from John Cameron and his team of permanent staff at Portland Place.

Norman Payne's theme was "TRANSPORT AND TECHNOLOGY", and through a series of fascinating and important papers presented to the Institute during the past year we have learned much about the rapid pace of change and the exciting trends in transport technologies. In his Presidential address last year, he reminded us of the classic statement of the Institute's responsibilities as set out in the Royal Charter of 1927, a year of considerable excitement in the world of transport, when Charles Lindberg completed the first solo trans-Atlantic flight. No wonder

that this Institute thought it right to restate its objectives for the future — of which, of course, we are now part. These in essence are:—

The encouragement and co-ordination of the study of the science of transport.

The initiation of research into the best means of transport and of the problems involved.

The dissemination of knowledge and the exchange of ideas; and

The assistance and furtherance of the development and improvement of transport "in the best interests of the community".

Before moving on to the central theme which I will try to develop in this address, I do have an important announcement to make which bears on two of the major responsibilities which we have in the Institute — namely the initiation of research and the dissemination of knowledge and exchange of ideas. Although, as will become clearer a little later in my address, I believe that the transport industries should increasingly distance themselves from Government, I nevertheless believe also that as an Institute we must move to higher ground in the whole field of formulating and influencing public policy for transport. We can, and should, have a significant influence on Governmental and Parliamentary, as well as on Public opinion. We can only do this if we demonstrate to the policy makers and those who carry the highest responsibility for transport in Government and the community that we are serious in our intentions and that we do have something tangible to contribute as an Institute. This is why I am delighted to be able to announce that agreement has been reached with the Department of Transport on the joint financing of an important Research Project which will get under way in the very near future, with the aim of producing a comprehensive report by late 1986. The Project will be centred on the two questions of, first, how have the freight transport industries in the UK responded to the challenges presented by our membership of the EEC; and second, how can the freight transport industries respond more effectively in the future to take greater advantage of the opportunities which are open to our transport industries within the European dimension. The Project will cost up to £40,000, of which the Department of Transport will finance over half, with the balance being supported by the Institute and by company sponsors. This project is important in itself, but is also significant as an example of the active co-operation which I believe should mark our relations with Government, in aspects of transport which do not impinge on party political sensitivities, or on the independence of the

transport industries as business enterprises. I hope we will see some positive results before the end of 1986.

There can surely be no doubting the crucial importance of transport in the economy of any nation. Within the United Kingdom, transport of goods and people represents about 4.5% of Gross National Product; the total turnover of the transport industry is over £50 billion a year; upwards of a million people are employed in the industry if we define transport as including roads, railways, airlines, airports, shipping, sea-ports and the other smaller activities. The position in the many other countries where this Institute has substantial membership including Australia, New Zealand and Malaysia is very similar. In Malaysia, for example, "Transport Storage and Communications" accounted for 8.3% of GDP in 1984.

Furthermore, in all industrial and semi-industrial countries it is becoming more and more clear that an efficient transport infrastructure and pattern of service are the bedrock on which economic growth and international competitiveness are based. As the writer of Ecclesiastes put it, there is no new thing under the sun, and I can certainly not better the First Report from the Committee of the Highways of the (United) Kingdom, 11th May 1808, which said of the crucial importance of transport:—

"The importance of land carriage to the prosperity of a country need not be dwelt upon. Next to the general influence of the seasons, upon which the regular supply of our wants and a great proportion of our comforts so much depend, there is, perhaps, no circumstance more interesting to men in a civilised state than the perfection of a means of interior communication".

The fundamental question I wish to put to the Institute during my year as President is this: given the essential nature of transport and its significant role within the economies of the world, how should we finance transport? There is plenty of choice in the sort of answers we can give to that question. Transport can be financed:—

- (i) Directly by governments (including local governments) out of taxation or
- (ii) Indirectly by governments out of taxation, borrowing or other fiscal measures by way of
 - (a) Tax reliefs
 - (b) Subsidies or grants (general or selective)
 - (c) Provision of loans or guarantees or
- (iii) by Private capital, through
 - (a) Bank finance/loan capital or
 - (b) Equity capital

I think it is fair to say that, in general, the conventional wisdom still is that transport is not like other industries, and that it requires special and different treatment in financial management and policy. It is still argued by some politicians, transport journalists and indeed by many transport users that transport should be seen essentially as a social service. In part, this attitude reflects genuine concern for disadvantaged groups, and the natural human wish to help such groups as old age pensioners, and remote hill farmers. There is also still a strong impression that the providers of transport enjoy 'natural' monopoly powers

because people have to travel and goods have to be transported. We are all suspicious of the concept of a monopoly being given either the objective or the power to pursue profit as a main objective, rather than service. Thirdly, in many countries, both developed and developing, there is a deep-seated economic argument that transport can and should be used to fuel and facilitate overall economic growth, even if this means massive subsidies and the over-provision of infrastructure. A prize example of this philosophy is the policy of many north-European Governments towards their sea-ports, which are used, as at Rotterdam or Le Havre, to generate the growth of industry and to capture freight traffic for the whole of the Continent, at a cost of billions of Guilders and Francs in annual subsidies.

Of course, the almost inevitable consequence of applying the philosophy of social service as the first priority for transport is that public ownership becomes the norm in the transport industries. Private enterprise, by definition, can survive only on the basis of profit. Hence, whole sections of the transport industries in the UK, Europe, Asia and Africa, have been taken into public ownership since the Second World War, including railways, road haulage, operations and sea-ports. In the UK, apart from the philosophic political rationale behind the policies of wholesale nationalisation — "Commanding heights of the Economy etc", — there also appeared to be perfectly respectable social arguments for putting these industries into the public sector — the need for massive investment following war-time neglect, the essential strategic nature of transport as demonstrated by war-time experiences, the monopoly powers of the transport providers, the needs of the community. The Minister of Transport in 1946, Mr. Barnes, put it like this:

"Faced as is the nation today with the necessity to use its capital resources wisely we cannot afford to allow unequal and varied separate ownerships to compete for the use and utilisation of the capital resources needed. They need to be spread out equitably and directed where most required".

What a contrast with the Royal Commission on Railways of 1867, which said

"It is inexpedient at present to subvert the policy which has hitherto been adopted of leaving the construction and management of railways to the free enterprise of the people, under such conditions as Parliament may think fit to impose for the general welfare of the public".

Broadly similar attitudes to those of the 1945 Labour Government have inspired transport policies in many of the Commonwealth countries where the Institute has membership, as well as in the developing world as a whole.

The danger is that, because all this emphasis on public ownership and service before profit has been the dominant theme of transport policy for the past 30 years, we persuade ourselves that there is no alternative. I believe that both history, and major new developments now becoming clear, demonstrate that we can and should move away from the conventional wisdom of the past three decades. In short, I believe that transport should be considered, for financial purposes, as essentially no different from many

other essential industries (such as food and clothing) where private enterprise and competition have been shown to be the most effective in serving the public good. Why should transport not now be treated in the same way as the food and drink industry, or housing, or pharmaceuticals, or clothing or telecommunications – all of which are powered primarily by the engines of private enterprise, competition, and customer choice?

The clear truth is that transport is no longer an industry of monopoly power. To a degree which fully matches the experience of other 'essential' industries, such as food or clothing, transport is subject now to the most intense competitive pressures. Who could possibly argue that the railways enjoy monopoly powers in any country other than, perhaps, a few of the developing countries? Airports and sea-ports also are competing with each other vigorously across national, international and intercontinental boundaries. The Road Transport Industry in this and many other industrial countries is one of the most cut-throat and competitive parts of the economy.

Furthermore, the very technological changes, to which Norman Payne referred, are if anything increasing the trends towards competition and customer choice. Most dramatically, of course, the widespread availability of cheap personal transport has taken away any vestiges of monopoly powers from the so-called 'public' transport undertakings. But the point is equally valid on a continental or non-transcontinental scale. Containerisation of seaborne cargo has, for example, brought about a situation in which ports are competing with each other from both sides of the USA, and from Europe to Africa. It may be difficult for an outside observer to believe, but it is the case that the port of Seattle is competing with New York, and the port of Mombasa is competing with ports in Europe and the Indian Subcontinent.

So, the old monopoly arguments for justifying a public ownership/social service approach to the financing of transport are rapidly disappearing. The customer is or can be now very much on top, at least in the industrial world, and in general he no longer needs the special protection of public ownership and regulation. Just one domestic UK example. The deregulation of the coach industry has led to sharply reduced fares, and has generated new volumes of travel by people who would otherwise have stayed at home.

This new situation represents an exciting opportunity for us to move forward to the next stage. This is to finance the provision of transport by asking the customers to pay a truly economic price for the services they use. Of course, I am not saying we should move to an extreme position of ignoring the special plight of disadvantaged minorities and regions. But it should not be the central thrust of transport policy to subordinate normal market forces and financial principles to these minority interests. If we do so, we create enormous distortions in the use of scarce resources and skills, at the expense of more urgent and wider social needs. Is it really sensible to spend tens of millions of pounds, or dollars, or marks or francs propping up almost totally redundant railway lines, or ports, for example, at the expense of schools, hospitals, and medical research? This issue is being increasingly quoted by those responsible for

allocation of international aid to developing countries. The policy of the Asian Development Bank, for example, towards transport investment is now to insist that

"the economic costs and benefits of projects be quantified and used to calculate an Economic Internal Rate of Return. Generally, we would expect the EIRR to be 12 per cent or greater for port projects which are proposed for ADB funding".

My view is that, with very few exceptions, the whole business of providing transport services, and much though not all of the infrastructure, should be dealt with by the private sector. The interesting fact is that until the post war push to public ownership this is exactly what used to happen. The major railways of Great Britain were all started as private enterprise developments. There was nothing of public ownership or subsidy with Isambard Kingdom Brunel. This is equally true of the pioneering railways of the USA and, perhaps surprisingly to some, the Railway Pioneers of India.

Of course, privatisation is impossible unless the private sector is willing and able to do the job. No Government can sell off state owned industries unless someone or preferably large numbers of investors are prepared to buy them. Fortunately, the evidence is growing that the private investor and private companies are more and more interested in increasing their stake in the transport sector. In Malaysia, for example, the Government has invited bids from the private sector to take over the running of Port Kelang Container Port. There has been no lack of interested bidders.

The programme of lectures which I have arranged for the next few months to be held in London is, I hope, well tuned in with my theme of privatisation and competition. At our Anniversary Luncheon on 5th November, John Moore, Financial Secretary to the Treasury, will be our principal guest – he has been in the forefront of the Government's privatisation programme. And later, in the same month, on 11th November, Alan Kelsey, of the Stockbrokers Kitcat and Aitken, will be talking about the Investors' view of Transport. In January of next year, John Steele of the EEC will be talking to us – against a background in which Common Market Transport Policy has recently been summed up neatly as follows:

"The only genuine harmonisation possible is that brought about by the free operation of the market".

But I am also concerned that, within the Institute, we should recognise and seek to understand the problems which face the transport business enterprise when it is required to operate in a truly commercial environment. This is why I have asked David Yeomans, Managing Director of a very successful road haulage operation, to deliver the Spurrier Lecture in Leeds in December with the title "The Lorry – Financing the Future". Equally, we must seek to relate the general principles to the international transport scene, and I believe that we shall have much to learn from Pierre Franche, who will deliver the Philip Henman overseas lecture in March, drawing on his experience both as Chairman of the Canadian Ports Corpora-

tion and as President of Via Rail, the Canadian Passenger Rail Transport Company in both of which companies there is our interesting amalgam of public ownership and private competitive enterprise.

One further aspect which I believe has been neglected in the past, because Institute membership has been traditionally dominated by people working in large enterprises, is the role of the small operator, the entrepreneur. This is why I am planning that our weekend conference at Ashridge in September should concentrate on, inter alia, the role of the entrepreneur in transport.

At this point, I must, I think, make a small mid-course correction, as they say in the world of space transportation. In case anyone has gained the wrong impression, let me make it clear that

I am not against Public ownership because of any political platform — there may always be industries, services, parts of industry, where public ownership is, if only temporarily, the right answer. In the USA, for example, as we learnt at our Weekend Conference in Cambridge last month, urban passenger transport is considered by some as “public good” which deserves public investment from Federal sources. An example perhaps of a corrective in policy towards a mixed economy approach, which is just what I am advocating for transport generally.

I am not against the proper regulation of transport, where this is concerned with public safety, or environmental safeguards. Money saved by privatisation competition can in part be spent on enforcement of standards, particularly statutes of safety.

I am not against help being given to transport consumers who cannot afford to pay for essential services — but that is the job for Government and the Community, not the transport operator, and any subsidies should be directed to the underprivileged customers, not propping up inefficient operators.

It is also time that I commented on the employee aspects of my theme. Trade Unions in many countries have seen public ownership as the best means of protecting workers against exploitation, and arbitrary management. But time after time we have seen examples of where the workers' real interests have been served badly by State control of industry. I believe that the main reason for this has been the uncomfortable — in some cases unresolvable conflict of interest between Governments and the industries they own, on the most important issues, such as investment, pricing, and wages policy. The result has been a relative worsening in the commercial strength of some public sector transport industries, and as a result in the position of their employees.

By contrast, one of the most exciting and important developments within the privatisation programme in Britain and elsewhere has been the concept of worker participation, through employee share schemes. This has been fully evident in the cases of privatisation affecting the transport industries. Some 60 per cent of employees in the National

Freight Corporation are now shareholders. My own company's experience is equally encouraging. Our 7,000 or so employees in Associated British Ports between them own 4% of the equity, much of it purchased at full market prices, and, most encouraging of all, very few employees have sold out when the opportunity arose to do so at a substantial profit.

Another myth which needs to be rejected is that private enterprise cannot be relied on to find the necessary capital for transport investments. If this ever were the case, it surely cannot be sustained as an argument now. The private sector, of course, will not invest if it is to be denied the opportunity to make profits from its investment. If prices are artificially held down by Governments, the private sector will run away from heavy investment. But while some form of price control may have been justified in the days of monopoly transport it is certainly not justified now. Furthermore, compared with investments in pharmaceuticals, for example, many forms of transport, with the exception of the airlines, really require quite modest levels of investment to keep pace with technology and sustain growth. In short, given the opportunity to make profits in a competitive environment, I believe that the private sector in most countries can and will find the necessary funds for investment. On the other hand, the private sector can reasonably be relied upon to avoid wasteful investments in surplus and redundant services and facilities.

I suppose that it could be argued that Government and Public Investment must continue to be the basis of investment in the road network itself, at least in countries which reject the use of tolls. But the road user can ultimately be made to pay and the provision of road transport services as opposed to infrastructure can and should be subject to normal private sector disciplines.

To sum up. I believe that the Chartered Institute of Transport and its members should take stock at this time of its attitudes towards the financing of transport, as a logical extension of all the careful consideration we have devoted in recent years to the technical and social aspects of transport. I do not for one moment suggest any black and white answers, nor do I wish the Institute to become involved in purely political issues. But bearing in mind our obligations as set out in the Royal Charter of 1927 I do not believe that we should passively accept any given pattern of ownership or financing of transport just because we have lived with such a pattern for the past 30 years. It is right that we should challenge the conventional wisdom and for the mid and late 1980's and beyond I believe that there are many good reasons for a change in direction and emphasis in the financing of transport. I believe that a move towards the greater use of private enterprise, competition, and employee participation in our great transport industries, and the phasing out as far as possible of subsidies, state control and restrictions on competition, will best serve our customers, our employees and the whole transport industry. I hope I have said enough this evening at least to launch a year of debate. Whether what the discussion during the next twelve months helps to prove my thesis, only the members of this great Institute can judge.

Port Spectrum—Performance Reports

Port of Launceston

(Extracts from "Annual Report 1984-85, Port of Launceston Authority")

General manager's report (extract)

Continued growth in most areas of trade marked another very successful year for the Authority and further confirmed Launceston-Bell Bay as Tasmania's major port.

Record trade through the ANL terminal was even more spectacular than the total volume indicates since both transshipment and empty container totals were greatly reduced.

The 5.3 million gross tonnes of shipping sets another record for the port, again exemplifying the advantages seen by shipowners in the deep, sheltered waters of the Tamar River.

1984/85 also was a year of change and challenge, which the PLA was well equipped to handle.

The main changes came about because of new and rearranged services plying Bass Strait. The improvements already completed to the ANL terminal and the Authority's desire to continue to provide the best facilities possible should ensure that ANL is well placed to continue and improve its long history of transport service to Tasmania, based on Bell Bay.

Changes also have occurred within the PLA with the retirement of Keith Meredith and Hedley Joyce and to both I extend my gratitude for the guidance and unselfish support they so willingly imparted to the Authority.

Port Authority development is a continuing challenge and no more so than at the present when shipping services to Tasmania are in a state of change. The development of extended common user facilities has been timely, with dramatically increased numbers of direct overseas calls, by both the Australia to Europe Shipping Conference vessels and Polish Ocean Lines. The latter has begun regular monthly calls from Bell Bay which have proved very popular with Tasmanian shippers. The Conference liftings of cargo also have been pleasing.

With its ongoing programme of development works including new cargo handling equipment, Launceston-Bell Bay is confidently predicted to remain the preferred Tasmanian port for overseas shipment of general cargo.

Woodchip cargo remained at 1.9 m tonnes and thus maintained the port's position as Australia's major export port for this product.

Launceston-Bell Bay's geographic advantages were further demonstrated by developments involving two large companies within the Bell Bay industrial area of the port. Tradex (a wholly owned subsidiary of F.G. Strang) constructed a container handling depot. When the offices and transit shed are complete this facility will form a valuable addition to the port's transport links. Refrigerated Freight Lines (RFL), which handles all forms of refrigerated cargo, has established itself at the Authority's cold stores and is centralising its Tasmanian operations through Bell Bay.

A striking feature of 1984/85 was the co-operation and co-ordination between all port activities to ensure efficient, effective results for port users.

Financial Results

Total revenue exceeded \$10 m for the first time and with expenditure kept under control a very satisfactory result was achieved. However, a number of external factors favoured the Authority and complacency about the year's achievements would be a mistake.

Fluctuations in trade are inevitable and the Authority will continue to maintain strict control in all areas of operation to ensure benefits to all port users.

Extension to the common user wharf (No. 5 Berth) has continued apace throughout the year and this fine facility is a credit to all involved. Immediate use of the new wharf is reflected in the increased number of overseas calls. This facility, which provides the best sited deep water berth in Tasmania, will be further developed in the future. With flexibility of operation, duplication of major container-handling equipment and sheltered waters, we are confident that the berth will be attractive to companies serving Tasmania.

TEMCO — a major ferro-manganese and ferro silicon producer — announced a major development programme which will substantially upgrade its capacity. The company's plans include new wharf equipment. While final decisions about the equipment have yet to be made, the Authority has been in constant communication with the company and is confident that the result will be of substantial benefit to the port.

Forecast

The growth of the port during 1984/85 continued to strengthen Launceston-Bell Bay's position as the State's major port.

With revenue of almost \$11 m, much of which is spread throughout Tasmania, the PLA is a major contributor to the State economy.

We look forward to the future although no-one should underestimate the challenges which lie ahead. The shipping industry is in a state of change and although our development programme has prepared us well to cope with this, we must continue providing the best service with the most efficient facilities, at a reasonable cost to port users.

1985/86 will be a year of challenge, and we are ready for it.

Griff Page
General Manager

Balance sheet

as at 30 June, 1985

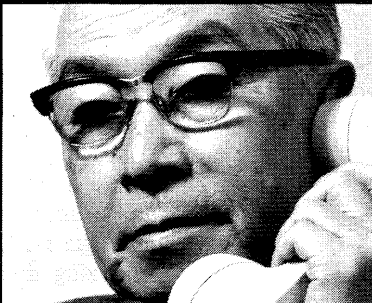
	1985 \$000	1984 \$000
ASSETS		
Fixed Assets at Cost & Valuation		
Wharves, Jetties & Wharf Buildings	16,672	13,041

Land & Buildings	2,813	2,679	Charges on Goods		
Harbour Improvements	6,039	6,023	Import Wharfage	2,665	2,248
Beauty Point Marina	431	431	Export Wharfage	1,492	1,353
R.A. Ferrall Shiplift	3,713	3,709	Harbour Rates	90	80
Navigational Aids & Facilities	582	555		<u>4,248</u>	<u>3,682</u>
Wm. Hart Graving Dock	479	479	Charges for Services:		
Workshops	449	449	Plant	796	648
Coolstores & Tallow Plant	1,979	1,979	Charges for Services:		
Mobile Plant & Equipment	1,333	1,152	Other		
Floating Plant & Equipment	602	584	Telephone Fees	21	13
General Plant & Equipment	2,959	2,434	Coldstore Fees	389	377
Office Furniture & Equipment	163	151	Tallow Plant	36	44
	<u>38,217</u>	<u>33,671</u>	Survey Fees	10	11
Current Assets				<u>457</u>	<u>447</u>
Fixed Deposits	3,040	3,880	Rentals		
Stocks & Stores at Cost	427	352	Bell Bay Ferry Terminal	86	86
Trade & Sundry Debtors	1,291	1,566	Transit Sheds & Offices	63	69
Cash on Hand	3	2	Miscellaneous Land & Buildings	145	160
	<u>4,762</u>	<u>5,802</u>	Containers	176	176
Investments				<u>472</u>	<u>492</u>
Loan Redemption Sinking Fund	506	452	Services Rendered	3,607	3,239
Staff Housing Loans	105	67	Miscellaneous	99	113
Floating Plant Repurchase Fund	—	1,500	Interest	507	252
	<u>612</u>	<u>2,020</u>		<u>10,953</u>	<u>9,648</u>
Total Assets	<u>43,592</u>	<u>41,493</u>			
LIABILITIES			EXPENDITURE		
Capital Funds			Interest & Loan Repayments	1,993	1,683
Current Loans Outstanding	12,128	12,789	Depreciation	502	481
Redemption of Current Loans	4,363	3,898	Administration	1,237	1,230
Loans Fully Repaid	3,768	3,572	Navigation & Survey Authority	36	79
Grant — Commonwealth Government	165	165	General Services	632	589
Grant — State Government	12	12	Recoverable Expenditure	2,736	2,353
Revenue Contributions to Capital Outlay	15,150	11,662	Sec. 78 (e) Marine Act 1976	3	—
Less Loan Raising Unexpended	—	(1,058)	T.R.I.C.	19	—
	<u>35,589</u>	<u>31,042</u>	Doubtful Debts	50	—
Reserves & Provisions			Port Operations		
Fixed Asset Revaluation Reserve	2,628	2,628	Pilot Servicing	219	169
General Works Reserve	603	2,106	Servicing Navigational Aids	96	123
Plant Additions & Replacement Reserve	2,233	1,026	Port Services and Facilities	366	305
Unexpended Borrowings	—	1,058	River Dredging	103	133
Provisions for Debenture Repayment	283	283	General Port Operation	25	27
Floating Plant Replacement Reserve	—	1,500		<u>812</u>	<u>760</u>
Provision for Long Service Leave	277	231	Operation and Maintenance of Facilities		
Provision for Holiday Pay	170	155	Ship Repair Facilities	158	147
Provision for Doubtful Debts	50	—	Workshops	93	76
	<u>6,246</u>	<u>8,990</u>	Coolstores & Coldstores	147	154
Current Liabilities			Tallow Plant	38	35
Trade & Sundry Creditors	494	391		<u>438</u>	<u>413</u>
Bank Account Overdrawn	751	611	Operation & Maintenance of Plant	732	633
	<u>1,245</u>	<u>1,003</u>	Repairs and Maintenance of Wharves & Properties		
Trust Funds			Launceston & Upper Reaches	83	63
Loan Redemption Sinking Fund Reserve	506	452	Lower Reaches — Western Shore	70	87
Superannuation Provident Fund	4	5	Lower Reaches — Eastern Shore	355	397
	<u>510</u>	<u>457</u>		<u>509</u>	<u>547</u>
Total Liabilities	<u>43,592</u>	<u>41,493</u>	Total Expenditure	9,704	8,774
			Surplus	1,248	874
				<u>10,953</u>	<u>9,648</u>
Income and expenditure					
for the year ended 30 June, 1985					
	1985	1984			
	\$000	\$000			
INCOME					
Charges on Ships					
Pilotage	277	303			
Tonnage Rates	435	422			
Port Service Fees	51	46			
	<u>764</u>	<u>772</u>			

Marketing in Germany.

Call Mr. Tsuyama

Do you want to start up business in Germany? Are you looking for someone reliable to import and distribute your goods? And is quick low-cost transport essential? Then contact Mr. Tsuyama, the representative of the Ports of Bremen and Bremerhaven and the Bremer Lagerhaus-



Tokyo (03) 431-8012

Gesellschaft (one of the largest port operating companies in the world). He knows all the right people. In Japan. In Germany. In Bremen. Give him a ring. He'll have time to talk to you. In his office or yours. You can find him in the Sanko-Mori Building 3-1, Atago 1-chome, Minato-ku, Tokyo.

Bremen and Bremerhaven are among the most efficient all-round ports. There are 12,000 sailings a year to 1,000 ports all over the world. Ship your cargo via Bremen and Bremerhaven: it takes only one day to reach its destination anywhere in West Germany.

Fast. Safe. Economical. For your benefit.



**Bremer Lagerhaus-Gesellschaft
Port Operating Company
Bremen/Bremerhaven**



We want to keep steel strong.

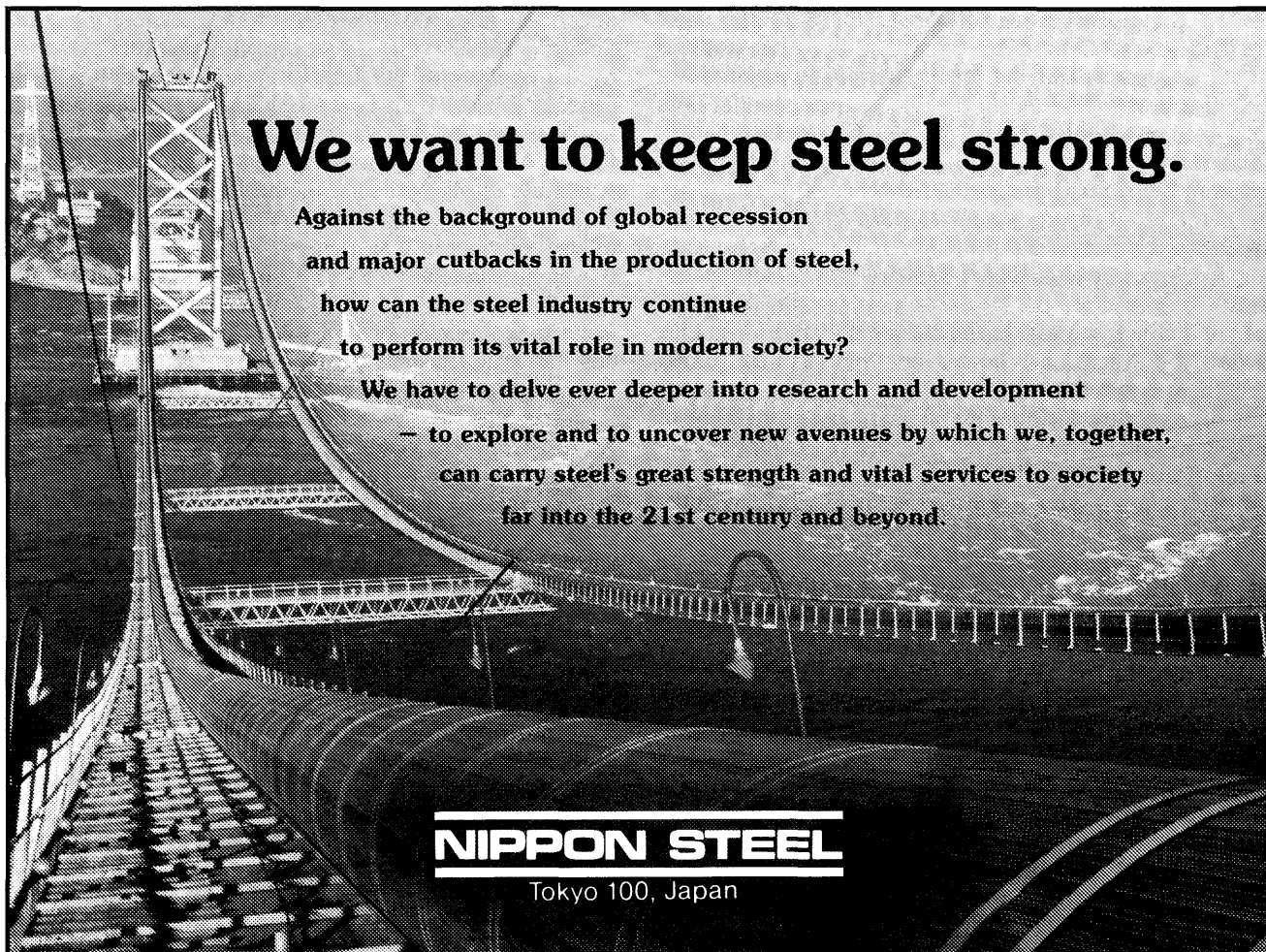
Against the background of global recession
and major cutbacks in the production of steel,
how can the steel industry continue
to perform its vital role in modern society?

We have to delve ever deeper into research and development

— to explore and to uncover new avenues by which we, together,
can carry steel's great strength and vital services to society
far into the 21st century and beyond.

NIPPON STEEL

Tokyo 100, Japan



International maritime information: World port news:

IMO Circular Letter No. 1063

(Please see the article on page 7: IMO acknowledges IAPH Board resolution on reception facilities)

To: All IMO Members
All States not Members of IMO
United Nations and specialized agencies
Intergovernmental organizations
Non-governmental organizations in consultative status

Subject: The provision of reception facilities in ports for wastes from ships

The Secretary-General has the honour to invite attention to the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto, generally referred to as MARPOL 73/78, in particular regulations 10(7) and 12 of Annex I concerning the provision of reception facilities in ports for oily residues and mixtures. For ease of reference the texts of these regulations are shown at annex.

In this connection, the Secretary-General invites attention of States Parties to MARPOL 73/78 to the dates specified in the Convention by which reception facilities should be provided in the loading terminals, repair ports and other ports of Parties. In the case of three specific areas designated as "special areas" by the Convention and in which special mandatory methods for the prevention of sea pollution by oil are required, the Government of each Party the coastline of which borders on any given special area undertakes to ensure the provision of the adequate reception facilities not later than 1 January 1977. The "special areas" concerned are the Mediterranean Sea, the Black Sea and the Baltic Sea areas. In the case of all Parties, including Parties whose coastlines border on "special areas" other than those referred to above, the latest date for the provision of reception facilities is one year after the date of entry into force of the Convention. MARPOL 73/78 entered into force on 2 October 1983; accordingly, the date for the provision of such reception facilities was 2 October 1984.

A number of communications have been received by the Organization from member Governments and from individuals, including masters of ships, concerning the inadequacy or lack of reception facilities in ports.

Furthermore, in 1983 the International Chamber of Shipping (ICS) submitted information to the nineteenth session of IMO's Marine Environment Protection Committee on the outcome of a questionnaire that it had circulated to ICS Members on the adequacy of reception facilities in ports. As a result of this exercise the ICS received some 500 reports of inadequate facilities, covering calls at 300 ports in almost 100 different States by a variety of vessel types. Initial returns of a similar questionnaire circulated by

ICS on the adequacy of reception facilities in the early part of 1985 are reported to be showing a similar trend.

Conscious of the fact that the provision of facilities in ports for the reception of wastes is vital to the effective implementation of MARPOL 73/78 the Organization has taken a number of initiatives over the years to collect and publish information on the availability of facilities, to undertake studies in the ports of "special areas" aimed at identifying those locations where facilities should be improved, and to provide an international forum for seminars, etc., at which government experts and representatives of ports, the oil and shipping industries and manufacturers of equipment could discuss the various means by which the lack of reception facilities could be overcome.

While the above activities will undoubtedly have contributed to an increasing awareness of the importance of reception facilities in ports with regard to the effective implementation of the requirements of MARPOL 73/78, it is apparent from the number of reports on inadequate facilities in ports that much remains to be done in this regard.

In this context the Secretary-General has the honour to refer to the discussion which took place on this subject under agenda item 8 of the fifty-fourth session of the IMO Council, 24–28 June 1985, in particular the statement by the observer of the International Association of Independent Tanker Owners (INTERTANKO) concerning the feasibility, as an interim measure, of utilizing tankers as floating reception facilities for oily residues and mixtures. A number of pilot schemes of this kind are presently being projected, and IMO Members are urged, where appropriate, to give this approach the benefit of their serious consideration and evaluation.

With regard to the requirements to provide reception facilities for residues of noxious liquid chemicals carried in bulk, attention is drawn to the tentative agreement of the Marine Environment Protection Committee to implement in April 1987 the provisions of Annex II of MARPOL 73/78. A set of amendments to Annex II was tentatively approved by the twenty-first session of MEPC and the amendments are expected to be formally adopted at the twenty-second session of MEPC in December 1985. These will contain new requirements for mandatory prewash in unloading ports in the case of discharge of certain highly noxious substances and high viscosity or high melting point substances. When a port handles these substances, it must provide facilities for receiving tank washings containing residues of such substances.

In view of the time required to establish such facilities and the relatively short time before the expected implementation date of Annex II of MARPOL 73/78 in April 1987, Members are urged to examine the needs of their ports for reception facilities for chemical residues so that these facilities will be in place at the time Annex II requirements become mandatory.

ANNEX

Regulation 12

Reception Facilities

Reg. 10

(7) Reception facilities within special areas:

(a) Mediterranean Sea, Black Sea and Baltic Sea areas:

- (i) The Government of each Party to the Convention, the coastline of which borders on any given special area undertakes to ensure that not later than 1 January 1977 all oil loading terminals and repair ports within the special area are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from oil tankers. In addition all ports within the special area shall be provided with adequate reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.
- (ii) The Government of each Party having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast undertakes to ensure the provision of the facilities referred to in sub-paragraph (a)(i) of this paragraph but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.
- (iii) During the period between the entry into force of the present Convention (if earlier than 1 January 1977) and 1 January 1977 ships while navigating in the special areas shall comply with the requirements of Regulation 9 of this Annex. However, the Governments of Parties the coastlines of which border any of the special areas under this sub-paragraph may establish a date earlier than 1 January 1977, but after the date of entry into force of the present Convention, from which the requirements of this Regulation in respect of the special areas in question shall take effect:
 - (1) if all the reception facilities required have been provided by the date so established; and
 - (2) provided that the Parties concerned notify the Organization of the date so established at least six months in advance, for circulation to other Parties.
- (iv) After 1 January 1977, or the date established in accordance with sub-paragraph (a)(iii) of this paragraph if earlier, each Party shall notify the Organization for transmission to the Contracting Governments concerned of all cases where the facilities are alleged to be inadequate.

(b) Red Sea area and Gulfs area:

- (i) The Government of each Party the coastline of which borders on the special areas undertakes to ensure that as soon as possible all oil loading terminals and repair ports within these special areas are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from tankers. In addition all ports within the special area shall be provided with adequate reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.
- (ii) The Government of each Party having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast shall undertake to ensure the provision of the facilities referred to in sub-paragraph (b)(i) of this paragraph but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.
- (iii) Each Party concerned shall notify the Organization of the measures taken pursuant to provisions of sub-paragraph (b)(i) and (ii) of this paragraph. Upon receipt of sufficient notifications the Organization shall establish a date from which the requirements of this Regulation in respect of the area in question shall take effect. The Organization shall notify all Parties of the date so established no less than twelve months in advance of that date.
- (iv) During the period between the entry into force of the present Convention and the date so established, ships while navigating in the special area shall comply with the requirements of Regulation 9 of this Annex.
- (v) After such date oil tankers loading in ports in these special areas where such facilities are not yet available shall also fully comply with the requirements of this Regulation. However, oil tankers entering these special areas for the purpose of loading shall make every effort to enter the area with only clean ballast on board.
- (vi) After the date on which the requirements for the special area in question take effect, each Party shall notify the Organization for transmission to the Parties concerned of all cases where the facilities are alleged to be inadequate.
- (vii) At least the reception facilities as prescribed in Regulation 12 of this Annex shall be provided by 1 January 1977 or one year after the date of entry into force of the present Convention, whichever occurs later.

(1) Subject to the provisions of Regulation 10 of this Annex, the Government of each Party undertakes to ensure the provision at oil loading terminals, repair ports, and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from oil tankers and other ships adequate to meet the needs of the ships using them without causing undue delay to ships.

(2) Reception facilities in accordance with paragraph (1) of this Regulation shall be provided in:

- (a) all ports and terminals in which crude oil is loaded into oil tankers where such tankers have immediately prior to arrival completed a ballast voyage of not more than 72 hours or not more than 1,200 nautical miles;
- (b) all ports and terminals in which oil other than crude oil in bulk is loaded at an average quantity of more than 1,000 metric tons per day;
- (c) all ports having ship repair yards or tank cleaning facilities;
- (d) all ports and terminals which handle ships provided with the sludge tank(s) required by Regulation 17 of this Annex;
- (e) all ports in respect of oily bilge waters and other residues, which cannot be discharged in accordance with Regulation 9 of this Annex; and
- (f) all loading ports for bulk cargoes in respect of oil residues from combination carriers which cannot be discharged in accordance with Regulation 9 of this Annex.

(3) The capacity for the reception facilities shall be as follows:

- (a) Crude oil loading terminals shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of Regulation 9(1)(a) of this Annex from all oil tankers on voyages as described in paragraph (2)(a) of this Regulation.
- (b) Loading ports and terminals referred to in paragraph (2)(b) of this Regulation shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of Regulation 9(1)(a) of this Annex from oil tankers which load oil other than crude oil in bulk.
- (c) All ports having ship repair yards or tank cleaning facilities shall have sufficient reception facilities to receive all residues and oily mixtures which remain on board for disposal from ships prior to entering such yards or facilities.
- (d) All facilities provided in ports and terminals under paragraph (2)(d) of this Regulation shall be sufficient to receive all residues retained according to Regulation 17 of this Annex from all ships that may reasonably be expected to call at such ports and terminals.
- (e) All facilities provided in ports and terminals under this Regulation shall be sufficient to receive oily bilge waters and other residues which cannot be discharged in accordance with Regulation 9 of this Annex.
- (f) The facilities provided in loading ports for bulk cargoes shall take into account the special problems of combination carriers as appropriate.

(4) The reception facilities prescribed in paragraphs (2) and (3) of this Regulation shall be made available no later than one year from the date of entry into force of the present Convention or by 1 January 1977, whichever occurs later.

(5) Each Party shall notify the Organization for transmission to the Parties concerned of all cases where the facilities provided under this Regulation are alleged to be inadequate.

Review of 1984 activities on maritime and multimodal transport : UNCTAD

(Extracts from UNCTAD report: TD/B/WP/41)

The TRAINMAR programme

This programme, entitled "Training Development in the field of Maritime Transport", (TRAINMAR) is designed to develop a worldwide network of training institutions in developing countries applying modern training techniques. To this end, the programme aims at the production and delivery of training materials, the training of course developers, the training of instructors in modern training technology, and the adaptation and dissemination of training material produced throughout the network.

At the end of 1984, 16 port or shipping training centres were associated with TRAINMAR; 18 courses were developed, of which 9 were in the field of ports, 4 in the field of

shipping, 2 in multimodal transport and 3 in training technology; some 200 trainers were made conversant with TRAINMAR methodologies and training materials; 32 course adaptations were performed through the system of exchange of training material. In 1984, the following new training institutions joined TRAINMAR: The Port Training Centre of Casablanca, Morocco; the ENAM in Callao, Peru; the Arab Maritime Academy in Sharjah, United Arab Emirates; the Institut Arabe Technique pour les Ports et les Transports Maritimes in Tunis, Tunisia; and the Magsaysay Lines Shipping Training Centre in Manila, Philippines.

The programme carries out its activities at the interregional, regional and national levels. A central support team is responsible for the overall co-ordination and participation in the production and delivery of training courses. Wherever feasible, the functions of the central support team are decentralized to the regional focal points, if they are considered strong enough to undertake this responsibility.

The financing of the programme is derived from a variety of sources: UNDP is financing the central support team through an interregional project, as well as four regional projects for Asia and the Pacific, Arab States, Latin America and Africa, (the latter through an IMO-executed project) and a national project (Malaysia). Two country projects (Mexico and Morocco) are entirely financed by their respective Governments' contributions through a cost-sharing arrangement with UNDP. Another country technical assistance project (Tunisia) is funded from a World Bank loan.

The future of this programme will depend, to a large extent, on the establishment, on a more permanent basis, of its central component to further develop the network, and to co-ordinate and monitor its activities. This matter was raised at the Committee on Shipping at its thirtieth session in November 1984; and the views of the Committee were reflected in its decision 56 (XI) on technical assistance and training.

Ports projects

At the interregional level, the training of port managers has continued to be a major activity in 1984. An interregional seminar on container terminal management, financed by Belgium, was organized jointly with the Antwerp Port Engineering and Consulting Agency (APEC). The Swedish International Development Agency (SIDA) financed several training activities, such as the assistance to port training institutions in developing countries; the training of instructors specialized in the training of middle managers in port operation; the provision of training specialists and lecturers to port training institutes and the production and distribution of audio-visual training packages for the dissemination in several languages of the UNCTAD/SIDA Course on Improving Ports Performance (IPP). Through a contribution by the Netherlands, it was possible to advise a number of port authorities on the use of UNCTAD port studies for training purposes.

At the country level, assistance was provided in 1984 to the following countries: Djibouti, in matters relating to the operation of a new container terminal; Oman, for the training of senior/middle port managers and for the commercial promotion of national port facilities; Philippines,

for the operation of the new container terminal in the port of Manila and for the introduction of modern management techniques and related training of staff; and Sri Lanka, for the management and operation of a new container terminal in the port of Colombo. In 1985, a new project has been started in Malta to assist in the operation of a new container terminal in Marsaxlokk.

Publications

"IMO: Medical First Aid Guide" (1985 edition)

Sales No. 251.85.12.E, price £6.00 (English)

Sales No. 252.85.12.F, price £6.00 (French) (available later)

IMO Secretariat,
Publications Section,
4, Albert Embankment,
London SE1 7SR

"DREDGING COASTAL PORTS" – An Assessment of the Issues

By Marine Board, Commission on Engineering and Technical Systems, National Research Council
ISBN 0-309-03628-3: price US\$21.50

NATIONAL ACADEMY PRESS
2101 Constitution Avenue
NW, Washington, DC 20418

Dredging Coastal Ports An Assessment of the Issues

– Executive Summary –

By Marine Board
Commission on Engineering and Technical Systems
National Research Council
The United States

The question whether ports in the United States are adequate to serve the nation's present and future needs became a major public concern in the early 1980s. Attention focused on port adequacy when, as a result of the Iranian Revolution, world demand for U.S. coal exploded. During 1980, news media in the United States were full of reports that large numbers of colliers were waiting for weeks and sometimes months to gain access to U.S. coal-loading facilities. During this same period, a number of studies concluded that the United States had the opportunity to become a major supplier of a large new world market for steam coal. To gain and secure that market, it was repeatedly argued, the United States would need to be able to handle the most efficient dry-bulk carriers, and such carriers require greater water depths than those available at U.S. coal ports.

The events of the early 1980s brought to public attention an issue that had long been developing. The issue had two components. First was the growing interdependence of the U.S. and the world economies. During the 1960s and 1970s, the U.S. economy moved from being essentially self-contained to becoming the largest component of a world economy. Increasingly, U.S. economic well-being was

seen as being dependent on the nation's capacity to compete in a world economy. Particularly for high-volume, low-cost commodities such as coal, efficient low-cost transportation was viewed as an essential ingredient to American competitiveness. For such commodities, large bulk carriers were believed to offer major economies of scale. Many of those involved in ocean transportation noted that the United States would only be able to enjoy these economies of scale if it developed substantially deeper ports, ports capable of handling large deep-draft vessels.

Second, although the seeming advantages and trends to larger vessels in the world fleet were evident, the 1970s saw little in the way of a response to these perceived needs for deeper U.S. ports. The inability of the nation to respond to the apparent need for deeper ports was the result of an unraveling of the social contract that had been in place for over 150 years between the federal government and the ports concerning how both maintenance and new construction dredging would be funded, managed, and regulated. By the 1980s, then, 24 ports had proposals for improvement dredging projects and no significant new construction dredging had occurred for a decade.

This report is an investigation of the major issues associated with port dredging. Specifically, it investigates three general questions: (1) Is additional port construction and maintenance dredging necessary now or over the next two decades? (2) What impediments and barriers militate against carrying out additional dredging if it is needed? (3) What alternatives offer promise of mitigating or effectively responding to those impediments in order that any needed dredging can be carried out?

Assessing the nation's dredging needs requires setting them in a more general context. It is necessary to seek an understanding of the role of ports in the broader U.S. and world economy and ocean transportation system. Further, it requires comparing the dredging of existing ports with a variety of alternatives that have been proposed for meeting the nation's transportation needs. Proponents and opponents of port dredging and the alternatives to dredging range across a broad spectrum. Some contend that immediate dredging of existing ports is a necessity while others argue that U.S. ports are adequate for the foreseeable future or that there are more cost-effective ways than dredging to meet the nation's need to handle large vessels.

The central conclusion of this report is that the nation needs additional capacity to handle large vessels and that such a capacity should exist on each of the nation's coasts. It is important to emphasize two reasons for this conclusion. First, the United States faces great uncertainty with regard to the size and character of the future world economy, the nature of future oceanborne transportation into and out of U.S. ports, and the future mix of commodities that the nation will export and import. Further, the character of U.S. exports and imports, particularly exports of such bulk commodities as coal and agricultural products, is likely to fluctuate greatly from year to year. Most of the analyses and arguments used by proponents and opponents of additional port capacity to handle large ships start from assumptions about the future size and character of U.S. trade and transport. All these assumptions must be viewed as highly uncertain. Decisions with regard to developing additional port capacity, then, must be made with the

recognition that future needs are difficult to determine.

There is less uncertainty about the time required to develop additional port capacity. Port construction requires long lead times that will be measured in years. In the case of major federal dredging projects, the lead time is now 22 years. The nation, then, faces a fundamental mismatch between the uncertain and fluctuating character of future need and the certain and long times required to develop additional port capacity. A decision to develop additional capacity, therefore, involves risks. Unless those risks are taken, however, the United States precludes the opportunity to take advantage of any benefits offered by large ships in the future. It must be emphasized that particularly with regard to bulk commodities, extreme swings in trade and transport have traditionally occurred over very short periods of time. To take advantage of rapidly expanding markets, the nation must have available port capacity when those swings occur. To protect against the loss of those markets when world demand declines, the nation must be able to offer its products at the lowest possible cost.

The major findings of the study immediately succeed this summary. It must be noted that the key finding — the nation needs additional port capacity — is not derived from a detailed economic analysis. Rather, the finding represents the committee's consensus judgment of what is in the nation's interest, given an uncertain future. The committee found only disagreement in its review of existing research and in its interviews with experts concerning future port needs and the economic benefits of deeper ports. Thus, there is no consensus in the expert community on the costs and benefits of deeper ports. The committee chose to frame the central question of its study, then, as "What should the nation do if future port needs are uncertain?" and concluded that in the face of uncertainty it is prudent to have increased options — that capability should exist to enjoy maximum benefits given a wide range of future developments.

A common reading of several developments led to this consensus judgment — the growing importance of world trade to the economic well-being of the United States; a trend to larger ships because they offer economies of scale; the importance of ocean transportation costs in the delivered price of high-volume, low-cost commodities, such as coal; the growing number of deep-water ports in other countries; rapid year-to-year fluctuation in trade in particular commodities; and the long lead times required to develop deep port capacity, and thus, the inability to develop additional port capacity in response to short-term fluctuation and need.

The report is organized into seven chapters. Chapter 1 provides an overview of the background and issues associated with port dredging. The following six chapters investigate the six basic issues which the committee found must be resolved if the port adequacy question is to be meaningfully addressed. Those six questions are as follows: (1) Does the United States need additional port capacity to handle large ships? (2) Is dredging the most attractive way for the United States to handle large ships? (3) How should dredging be funded and what are the implications for dredging of various funding approaches? (It should be emphasized that the committee, in defining this task, excluded overly specific funding recommendations. Resolu-

tion of the funding issue is inherently a political choice, which in the system of the United States must be made by Congress.) (4) What are the causes of the slowdown in decision making for local port projects and the stalemate for federal projects, and what are the ways to bring increased speed, predictability, and stability to the decision making process? (5) What are the problems associated with the design and implementation of new construction dredging and how can they be dealt with? (6) What are the environmental problems associated with dredging, and can they be effectively managed?

'The Harbour City' : Nanaimo

It's official — Nanaimo is "The Harbour City". City Council has officially endorsed a decision to adopt a new slogan for all the city's marketing and promotion.

The name was proposed by Mayor Graeme Roberts, who said the harbour will in the long term be the city's greatest asset in commercial, industrial and tourism development.

(Nanaimo Daily Free Press)

Study to begin on terminal expansion: Prince Rupert, Ports Canada

A contract will soon be awarded by the Prince Rupert Port Corporation for an engineering study to determine the options and associated costs for expanding general cargo handling capacity.

Fairview Terminal, a 10-year-old deep-sea marine terminal owned by the Port, is quickly nearing capacity with record cargo shipments. That, combined with excellent prospects for continued traffic growth, prompted the Port to seek detailed study proposals from three major engineering firms.

The study, which is expected to take seven months, will make an in-depth evaluation of constructing new terminal facilities on Ridley Island and on Kaien Island, just south of Fairview Terminal.

Ken Krauter, Port General Manager, says that this study could lead to design work being undertaken in 1986 with construction to follow in 1987 or 88.

Last year Fairview Terminal handled 579,900 tonnes, up 38 percent from the previous year. In the first half of 1985, 353,000 tonnes were shipped through the terminal.

(Currents)

Thunder Bay Port Manager calls for immediate action for extended navigation season on St. Lawrence Seaway

The Manager of the Thunder Bay Port Authority issued a statement today (17 October, 1985) calling for immediate action to put in place an extended navigation season on the St. Lawrence Seaway System. This statement comes as a result of the Welland Canal closure. Seventy percent of Thunder Bay's cargo is Canadian grain which moves through the Seaway.

General Manager, Jerry Cook, said that it is imperative that the arrangements for icebreaking operations, aids-to-navigation and all other support systems necessary to extend the season, be put in place **NOW**. Thunder Bay has been a strong proponent of a firm April 1 — January 31 navigation season on the Seaway System.

Looking beyond the remedial action, Cook also stated that, "Our Seaway is in serious jeopardy and this latest incident should once-and-for-all command the attention of our government to insure the Seaway's future. Marketing efforts are of little value if there is any doubt about the viability of the System."

The Honourable Benoît Bouchard meets with new Board of Directors at Port of Quebec



The Honourable Benoît Bouchard, Minister of State — Transport before attaining the position of Secretary of State of Canada, met with the new Board of Directors at the Port of Quebec during a recent visit to the region.

Seated, from left to right:

Ross Gaudreault, Chairman of the Board of Directors;
The Honourable Benoît Bouchard;
The Honourable Jean Marchand, Vice-Chairman of the Board of Directors;

Standing, from left to right:

Gary Q. Ouellet, Q.C., Corporate Secretary;
Raymond Stuart McBain, Director;
Roméo Savard, Director;
Denise R. Bélanger, Director;
Claude Gagné, Director;
Yvon Dolbec, Director;
Jean-Michel Tessier, General Manager and Chief Executive Officer.

Marine safety reporting system initiated by DOT

A new voluntary program to predict hazards and identify causes of marine accidents, particularly when human error is involved, has been initiated by the U.S. Depart-

ment of Transportation (DOT).

The program is called the Marine Safety Reporting Program (MSRP) and is being managed by DOE's Transportation Systems Center (TSC), Cambridge, Massachusetts. Researches at Battelle Memorial Institute's Columbus Laboratories are providing report and data analysis under contract with TSC.

In the one-year demonstration project beginning June 1, shipboard operating personnel and others who are informed about vessel performance are invited to submit reports describing potentially unsafe situations or near-accidents, how they developed, how they were detected, and the measures taken to manage the risk involved. Persons reporting such incidents are guaranteed anonymity.

Underlying the project is the assumption that by combining the maritime industry's keen interest in safety with a program of voluntary, confidential incident reporting, a great deal of information can be collected, analyzed, and distributed to all interested parties.

The project encompasses all types of safety-related incidents, problems, or conditions. Included are ship handling, aids to navigation, weather reporting, equipment performance, ship-to-ship communications, chart accuracy, and other factors affecting vessel navigation and control.

The Marine Safety Reporting Program is based on a similar program developed and proven successful for air transportation: the Aviation Safety Reporting System. That program has been operated for ten years by the National Aeronautics and Space Administration and the Federal Aviation Administration, with Battelle serving as the system contractor.

Although the programs are similar in concept, practical differences between aviation and marine systems set them apart. This one-year demonstration period will evaluate the program's practicality and acceptability in the marine industry.

(Port of Houston)

National meeting to examine productivity of U.S. general cargo terminals

A national meeting on the Productivity of Marine Terminals will be convened in Long Beach, California, January 8–10, 1986. The meeting, to involve marine terminals, port and shipping labor and management representatives as well as technical experts, was requested by the U.S. Maritime Administration, and is being organized by the National Research Council.

At the meeting, invited speakers and workshops will investigate issues pertinent to the productivity of marine terminals in the United States handling general cargo (containers and break-bulk). They will make a preliminary assessment of their relative importance, areas needing further study, and any impediments or barriers to productivity. Among the subjects to be addressed are:

- State of the art of technology and engineering design in general-cargo terminals, state of application and practice in the United States;
- Comparison with technology and design in other countries;
- Interrelations of port and terminal practices, advanced technology, institutional arrangements, capital invest-

ments, energy, and other factors, with a view to measurement and improvement of terminal productivity;

- Implications of port and terminal costs, practices, engineering design, and use of technology for import/export trade of the United States and competitiveness of U.S. terminals;

Participants from Europe, Japan and Canada, in addition to the U.S., have been invited. The National Research Council will prepare a public report on the proceedings of the meeting. Additional information on the meeting can be obtained directly from the Marine Board, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418, (202) 334-3119.

Computer-based port information system : MarAd

Decision Support System for Port Planning and Management is a report on a recently completed Maritime Administration (MarAd) research project. The system, developed for MarAd by the State University of New York, used the Port of New Orleans as a prototype. Utilizing recent advances in microcomputer hardware and software, the system can be operated on an IBM or IBM-compatible personal computer using software LOTUS 1-2-3. In this instance, specific information about the Port of New Orleans and its environment has been indexed using a linear coordinate system and is organized into individual LOTUS 1-2-3 worksheet files on seven floppy diskettes. An *Atlas* accompanying the report provides maps showing the coordinates. Where applicable, standard river miles can also be used as coordinates to retrieve information. Additional worksheets can be readily added to meet a port organization's specific requirements. A **User's Manual**, which also accompanies the report, explains how information can be retrieved using a sequence of menu selections or by going directly to the appropriate worksheet file. Each worksheet has been programmed to provide ready answers to anticipated problems. Output may be presented in a variety of visual, printed, or file formats.

MarAd believes that by combining personal computer technology with popular spreadsheet software, an analytical tool has been developed that can be of considerable help to port managers in confirming or defending major decisions relating, for example, to site selection, port facility construction, shoreline stabilization, barge fleet, vessel/cargo routing, environmental protection, contingency planning, and regulatory permits. The methodology, though developed for the Port of New Orleans, can be readily adapted to any port. All that is needed are a suitable microcomputer, the LOTUS 1-2-3 software program, and the seven floppy diskettes. Individual ports, naturally, must develop their own data, much of it available from local or national sources.

(AAPA Advisory)

African relief cargo, first bag through new Duluth plant

Grain destined for famine relief in the El Fau region of the Sudan is the first commodity to be bagged in the new Port of Duluth bagging plant.

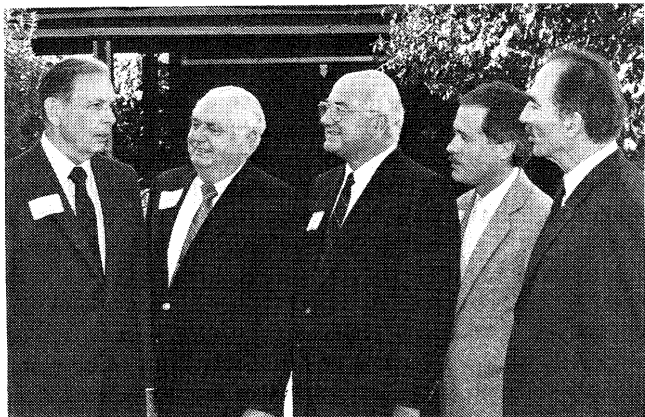
Two thousand metric tonnes of northern spring wheat is being bagged as part of a shipment of wheat and milk purchased with money raised by farmers, schoolchildren and other Minnesotans for the Minnesota Coalition for African Famine Relief.

A total of 40,007 bags of 110 pounds each is being produced and shuttled by truck to the Duluth Public Marine Terminal where it is being held for loading aboard the M/V Tulsidas for transport to Port Sudan in early November. The grain was provided by General Mills, Inc., which operates the bagging facility under lease from the Seaway Port Authority of Duluth.

The new bagging facility is designed to handle small grains, oilseeds and other agricultural commodities. Port officials say the availability of the bagging plant will enable the port to seek out bagged cargoes that previously were forced to move overland to other ports.

The plant has a capacity of 1,200 bags daily. It was financed by the Port Authority with proceeds from an increased city levy for the port.

Golden State Harbors' meeting



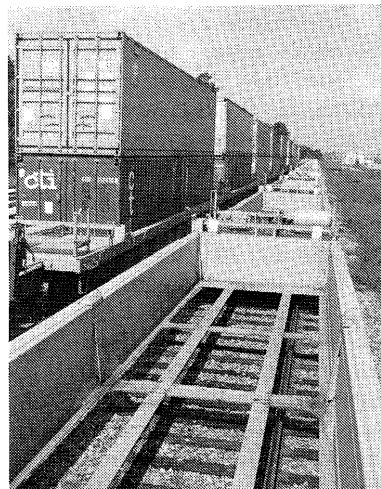
(A California Marine Affairs and Navigation Conference photograph)

* * * * *

A key Congressional leader and officials of the United States Department of the Interior were among participants in the recent fall meeting of the California Marine Affairs and Navigation Conference (C-MANC). Final luncheon speaker was Chairman Tom Bevill (D-Alabama) (left), House Appropriations Subcommittee on Energy and Natural Resources — which originates all “money” bills dealing with public works, including ports and harbors. Elected at the meeting also were conference chairman Edward Gorman, chief harbor engineer, Port of Los Angeles; vice president Paul Hughey, Contra Costa Development Association; treasurer Richard Parsons, general manager of the Ventura Port District, and president Bob Langner, Marine Exchange of the San Francisco Bay region. While noting that “the era of port user fees has arrived,” chairman Bevill also reported that long-delayed authorizations for badly-needed navigational improvements were tied to the difficult resolution of cost-sharing. The last real “omnibus” water resources authorization bill was passed in 1975, while the current appropriations bill contains approval for a

number of projects including in California. Included in C-MANC’s membership are all the deep draft harbors of California and most major shallow draft facilities as well as associated interests. The conference has provided testimony to the Congress for 27 years in representing these projects, among its other activities.

Savannah stacks up



The first doublestack train in the South Atlantic departed from Savannah, Georgia, on October 16.

Inaugurated by Seaboard System Railroad, the weekly eastbound and westbound train for U.S. Lines links Savannah and New Orleans-Houston.

Richard D. Sanborn, Seaboard’s president and chief executive officer, said the train will leave Georgia Ports Authority’s Garden City Terminal every Wednesday and move via Seaboard on a 27-hour schedule to New Orleans, where part of the train is delivered to the Missouri Pacific Railroad for continued movement to Houston. The loaded westbound train leaves New Orleans every Saturday for the return trip to the Savannah port.

The innovative doublestack container train has 20 cars, each 266 feet long, and each with five doublestack articulated platforms. With each platform accommodating two 40-foot containers, the train has a capacity of 200 containers, or more with a mix of 40-foot and 20-foot containers.

With doublestack equipment, the lower container clears the rails by just nine inches to provide adequate overhead clearance for underpasses and railroad truss bridges.

“We have the ‘just right’ equipment for handling doublestack containers,” said Joe Frost, CONTAINERPORT supervisor for GPA. “It’s toplift work, and our biggest amount of machinery is toplifts.” GPA’s fleet of toplifts numbers 15, with individual capacities ranging from 80,000 pounds to 110,000 pounds.

“Once the box is lined up in the bottom of the car, it slides on in,” Frost explained. “You just hit it square and let it roll; it’s a dream.”

Another special advantage for doublestacks at Savannah is the rail sidings which run under the container cranes dockside. If need be, containers could be unloaded from vessel directly onto a doublestack railcar. For the time being, however, the doublestacks will be loaded at the rail sidings that stretch through the container storage yard

right up to CONTAINERPORT's margin edge.

Doublestack operators and manufacturers have noted the substantial savings of doublestack trains — somewhere between 25 and 40 percent. Seaboard's Sanborn noted that special arrangements with railroad operating unions for a reduced crew size further improve the economics of the service.

"New technology and rail-labor cooperation have combined to the mutual benefit of Seaboard, U.S. Lines and the consuming public," Sanborn said.

Economic impact of Georgia's Ports

Georgia's ports provide 9,663 port industry jobs and help generate \$3.8 billion in revenues, a September 1985 survey shows.

The survey also reveals that, including port users, 48,729 jobs in Georgia rely on the ports. This accounts for over \$900 million in personal income and over \$125 million in state and local taxes.

The study was conducted to "assess the beneficial impact of the Port of Savannah and the Port of Brunswick upon the economy of the State of Georgia." A total of 1,781 questionnaires were mailed with a 51 percent response rate.

Two kinds of activities, port cargo flows and local port user industries, resulted in the impacts described. Cargo flows generate sales and employment within port industries. These include the longshoremen, tugboat operators, pilots, stevedoring companies, forwarders and brokers, steamship lines and agents, banking and insurance companies, and other marine cargo-related service firms.

Port user industries are those located near the port and using port facilities. These industries may be dependent on the port in that the port was significant in the company's choice of location. Such industries may derive major transportation cost advantages through this site. The top port user identified by the survey was the textile industry, followed by paper; stone, clay and glass; machinery; and food products.

New GPA Board officers announced

The new chairman of Georgia Ports Authority is Jack P. Turner Jr., chairman of the board and director of C.C. Financial Inc. in Dalton, Georgia. Other officers are P.E. Clifton Sr., vice chairman, and William O. Faulkner Jr., secretary-treasurer.

Turner is serving his third term on the board of Georgia Ports Authority. In 1976, then-Gov. George Busbee appointed him, and more recently, Gov. Joe Frank Harris continued to recognize his value to GPA. Turner has served two previous terms as chairman. He has also been vice chairman and secretary-treasurer. In addition to his current office on the board, he is chairman of GPA's finance committee.

Barbers Point Harbor dedicated: State of Hawaii

The Hawaii State's new deep draft harbor at Barbers Point was completed and dedicated in special ceremonies.

The harbor is a joint project of the U.S. Corps of Engineers and the Department of Transportation. Construction began in May, 1982 at a cost of \$47 million.

The new harbor has an entrance channel 450-feet wide, 4,280-feet long, 38 to 42-feet deep. The harbor basin is 92 acres in area and is 38-feet deep.

Wave absorbers totaling 4,700-feet in length have been placed along the northern periphery and part of the southern periphery. The harbor has berth areas along the harbor basin periphery.

Design work on the initial increment of shoreside facilities will begin shortly. This will include a 1,000-foot long pier along the east side of the basin and a storage yard in back of the new pier.

Completion of the pier and storage yard is scheduled for December, 1987. The Legislature has appropriated \$12 million for the shoreside facilities. *(Carrier)*

Port of Los Angeles achieves its record levels of tonnage and revenue

Record-setting cargo and revenue levels announced recently by the Port of Los Angeles were attained despite an on-going \$500 million construction and improvement program that has severely impacted shipping and cargo movement at a number of the Port's busiest terminals.

According to Steven Paul Resnick, Marketing Director, fully 20 percent of the Port's eight major container and break bulk berths were sidelined during fiscal 1984-85. "During much of last year," Resnick explains, "berths at three of our busiest terminals were unavailable for cargo handling."

"A major area of the terminal formerly occupied by American President Lines (before its move to its present 118-acre terminal in the West Basin) was being developed for Korea Shipping Line, our newest tenant."

"Our omni-terminal, Indies Terminal, experienced a year-long loss of two berths out of its five-berth break-bulk facility. This occurred as construction added a wharf in front of the existing wharf to provide room for container crane rails. Thus we converted approximately 40 percent of the older existing break bulk wharf into concrete container-handling wharves. Two container cranes were assembled on the site."

The third area at the Port to be impacted by extensive construction was at Berth 144 in the West Basin, across from the new American President Lines Terminal. This area consisted of two berths and one older transit shed that had been used for break bulk and steel cargo. The shed has been removed and the Port is in the final stages of constructing the concrete wharves needed for container handling.

These three projects are among the 53 projects which make up the Port's present one-half billion dollar Capital Development Program. It was during much of this renovation and construction that the Port achieved its record levels of tonnage and revenue. Gross and net income, overall tonnage and general cargo tonnage, auto imports, container movements and passenger arrivals and departures — all surpassed previous port totals, with some categories establishing new National records.

"Considering the amount of disruption to shipping due

to construction at some of our major facilities," concludes Resnick, "our record setting achievements are remarkable."

"However, this construction program is essential to WORLDPORT LA's continuing commitment to providing the finest and most efficient cargo-handling facilities in the Pacific."

Baltimore and Nagoya form Sister Port Affiliation : Maryland Port Administration

The port of Baltimore today (October 24, 1985) entered into a Sister Port Affiliation with the Japanese port of Nagoya to promote technical and business exchanges and long term cooperation between the two ports.

Maryland Port Administrator W. Gregory Halpin and Takeyoshi Nishio, President of the Nagoya Port Authority and Mayor of Nagoya City signed documents finalizing the Sister Port Affiliation in ceremonies held at the Nagoya Port Authority Headquarters. The occasion was marked by the planting of Baltimore and Nagoya trees and the unveiling of a monument.

The Sister Port Affiliation commits Baltimore, the second leading container port on the U.S. and Gulf Coasts, and Nagoya, the Number One automobile export port in Japan to working discussions at a timetable agreement to both sides.

The Sister Port Affiliation was first proposed between the two ports in October 1984. Nagoya, a port located 150 miles southwest of Tokyo, is a prime trading partner with the port of Baltimore. Trade between the two ports totalled 185,000 tonnes in 1984 with cargo valued at \$718 million, according to MPA statistics. Major commodities in the annual trade between the two ports include automobiles, machinery, textiles and foodstuffs.

New riverboat to cruise from Port of New Orleans

Fresh from the shipyard, the riverboat *NEW ORLEANS*, newest addition to the cruise fleet of American Cruise Lines (ACL) and the newest overnight cruise ship on the Mississippi River, was dedicated at the Port of New Orleans Bienville Street Wharf by Mrs. Sybil N. Morial, wife of the mayor of New Orleans.

Designed like a traditional riverboat except for the absence of a paddle-wheel, the 140-passenger *NEW ORLEANS* will sail from New Orleans during the fall and spring seasons. Beginning on November 2, 1985, the *NEW ORLEANS* will make series of 7-day cruises upriver to Vicksburg and return, stopping at St. Francisville, Baton Rouge, and Natchez. The riverboat will return on March 1 and resume the 7-day upriver cruises through May 17. All departures are from the Bienville Street Wharf.

"New Orleans has been a port of call for riverboats for over 150 years. It is only fitting that this beautiful riverboat will now cruise in and out of the city," Mrs. Morial said. "Besides, our thriving tourism industry will grow even stronger with the presence of the riverboat *NEW ORLEANS*."

(Port Record)

\$46 million Terminal 2 rehabilitation begins: Port of Portland

State of Oregon and Port of Portland officials joined a group of area business people at the edge of the Willamette River in late August to witness official ceremonies noting the beginning of construction on the massive \$46 million renovation of Port of Portland Terminal 2.

The rehabilitation project, the most ambitious effort undertaken by the Port this decade, will update nearly a quarter mile of waterfront and add 18 acres of new terminal area. The new section will include two new ship berths, a new crane, warehouse and assorted yard equipment.

Financing for the project was made possible through a \$40 million general obligation bond approved by Port District voters in May of 1984.

According to Captain Peter Norwood, Port of Portland marine director, the terminal rehabilitation will result in one of the most modern and versatile general cargo facilities on the West Coast of the United States.

Said Norwood, "This new facility will play an essential role in keeping our region competitive in the international marketplace."

"We estimate that 400 to 500 local firms utilize Terminal 2 — and the types of cargo handled here tend to be the cornerstones of our local economy — commodities such as forest and agricultural products. For that reason, we feel this terminal will play an important role in the future economic health of not only the Port District, but the state and the Columbia/Snake region."

(Portside)

Department of Agriculture designates Charleston one of IFO District Offices

Charleston has been designated one of ten Import Field Offices (IFO) in the U.S. Department of Agriculture's International Programs.

In this realignment of the U.S.D.A.'s meat and poultry inspection system, the Charleston IFO has responsibility for North and South Carolina, Georgia, Tennessee and northern Florida, says Walter McEvers, supervisor of the Charleston IFO. Besides Charleston, the other field offices are Miami, Boston, Baltimore, Philadelphia, New York, New Orleans, San Pedro, Seattle and Detroit.

Mr. McEvers explains that the realignment provides quicker response to the needs of the industry, more supervision and uniformity of procedures. Each IFO, tied into Washington, D.C. via computer terminal, uses the Automated Import Information System before conducting any inspection. All information from previous inspections of the importer's product helps determine what procedures are followed. The system quickly advises inspectors nationwide if an import has a "refused" entry from another district and if tightened inspections are needed.

The U.S.D.A.'s International Programs headed by Deputy Administrator Patricia Stofa, has three divisions — import inspection, foreign programs, export coordination staff — and an import analysis staff. Director Mark Manis heads the Import Inspection division, which the IFO reports to.

The Charleston U.S.D.A. office also continues to handle export meat inspection responsibility as it has in the past. The meat inspection facility at the Port of Charleston is noted as one of the most modern in the United States.

(Port News)

Intermodal Tacoma: Yards ahead of the competition

While intermodal yards might be the newest item of discussion and development for some ports, they're nothing new at the Port of Tacoma.

The Port is by no means a newcomer to intermodalism. In 1981, Tacoma was the first Port on the West Coast to build an ondock intermodal yard. With ample land available for development adjacent to its terminals, the Port realized the significant savings of both time and money that it could offer its shippers by building dockside intermodal facilities.

The Port's initial facility, the North Intermodal Yard, is located directly adjacent to two of its major container areas — Terminal 4 and Terminal 7. Because of the proximity of the rail yard to the terminals, trucking costs are eliminated. In addition, trains can be loaded and sent on their way in a more efficient and timely manner.

In May of 1985, the Port opened its second intermodal facility—the South Intermodal Yard. This \$7 million investment, located directly adjacent to Tacoma Terminals, Inc., offers shippers the same advantages of time and cost savings.

Emphasizing the uniqueness of the intermodal facilities, Port of Tacoma executive director Larry Killeen explains, "I know of no other port in the United States that can come close to doing what the Port of Tacoma is doing—putting intermodal facilities right next to major container terminals. We can do it in Tacoma, and that's where we can offer the savings to the shipper." Being ondock, these facilities ensure the fastest transfer between rail and ship by avoiding transfer over congested public roadways and by eliminating additional lifting changes.

Today, the Port of Tacoma is the only port in the United States with two ondock intermodal yards. A number of shipping lines calling at the Port are taking advantage of what the yards offer. Unlike intermodal yards at or near some ports, Tacoma's intermodal yards are not exclusive use facilities. Both yards are available for use by all shipping lines and shippers moving containers eastbound and westbound through the Port of Tacoma.

One of the major users of the Port's South Intermodal Yard is Sea-Land, while the North Yard is being used by a variety of container shippers—Blue Star, Columbus, EAC, Maersk, PAD, and Star. Port rail service is provided by both Burlington Northern and Union Pacific Railroads.

In addition to serving the Port's two intermodal yards directly, the Burlington Northern will also serve the Port with its new double-stack train service to/from Chicago, with corresponding special volume incentive rates. Port of Tacoma containers will be carried on the BN's stack train, which will operate six days a week with 65-hour service to Chicago. Rates from Tacoma are equalized and competitive with rates through other Burlington Northern gateways, and offer considerable savings over Pacific Southwest port intermodal moves. The new BN Chicago volume stack train,

with connections beyond, began operation in August, 1985.

The Port of Tacoma is offering a complete consolidation program to all shippers and steamship lines, designed to give the benefit of the volume rates offered by the BN on their double-stack train to Chicago.

The Port's traffic and customer service departments work closely with shippers who want to take advantage of Tacoma's intermodal facilities. The customer service department coordinates and organizes all unit train loading as a service to shippers and carriers. This includes coordinating container movements with truck lines, preparing rail bills of lading, tracing containers, and telexing railcar numbers to steamship companies. In addition, they arrange for railroad pickup when containers are released, and prepare truck bills of lading for LTL shipments.

The Port traffic department consults with customers on routing intermodal shipments, providing LTL carriers and rate alternatives, and prepaying rail charges for a 1% service charge.

By offering steamship lines significant savings, Tacoma's intermodal capabilities are a major Port marketing tool. According to Finn Wollebek, director of trade development at the Port of Tacoma, "As shipping gets more competitive, the Port must continue to strive for ways to help out steamship lines. One of the best ways we can save them money is through our intermodal yards. That's just one way that the Port can stay on top, and keep competitive. When you add our intermodal abilities to our productive longshore labor force, and our excellent highway connections, you have some major elements of the Tacoma Advantage."

(Pacific Gateway)

Cooperation agreement signed between Le Havre, Georgia Ports Authority and Savannah Airport Commission

A delegation from the Port of Savannah, in Georgia, on the US east coast, arrived in Le Havre to sign a declaration of co-operation with the Port of Le Havre Authority in respect of the freeport areas known here as "free warehouses". The delegation was led by Messrs John P. Rousakis, Mayor of Savannah, and Donald E. Harwood, President of the Savannah Airport Commission. Following an introductory description of Le Havre's facilities and free warehouses, the declaration was signed jointly by Mr. Harwood, Mr. Nichols of the Georgia Ports Authority, and our Planning and Development Director, M. Gérard Velter.

In 1984 traffic between Savannah and Le Havre came to 45,341 tonnes (imports and exports combined), an increase of 16% on the previous year (39,029 t). The traffic is wholly containerised, the main imports from Savannah being grapefruit (5,741 t), clays (3,210 t) and offal (1,796 t), while exports are mainly composed of wines (6,079 t), cognac (1,751 t) and tyres (1,512 t).

DECLARATION OF COOPERATION

Recognizing that the Free Trade Zone concept is an important factor in the growth of international trade and a major element in their economic development program,

SAVANNAH AIRPORT COMMISSION and GEORGIA PORTS AUTHORITY, operating Foreign Trade Zone No. 104 in Savannah, Georgia,

And

the PORT OF LE HAVRE AUTHORITY, operating the "Magasin Franc", a Free Trade Zone in the Port of Le Havre, France,

Thereby declare their wish to cooperate in pursuing the development of their respective free trade zones, and conclude this accord to:

- set up channels of communication,
- establish an effective policy for exchanging commercial information on trade between their respective free trade zones and ports,
- provide, on a reciprocal basis, professional help and support in terms of expertise, know-how for programs and actions such as public relations campaigns, missions, presentations, which each partner would undertake in the scope of this accord.

Now, therefore, SAVANNAH AIRPORT COMMISSION, GEORGIA PORTS AUTHORITY, and the PORT OF LE HAVRE AUTHORITY agree to cooperate in order to implement the above, and to explore other possibilities aimed at developing their free trade zones and port activities.

Jean-Pierre BONON
Secretary of the Board of Directors
PORT OF LE HAVRE AUTHORITY
Chairman
CHAMBER OF COMMERCE
AND INDUSTRY LE HAVRE

Donald E. HARWOOD
Chairman
SAVANNAH AIRPORT COMMISSION

G  rard VELTER
Development Manager
PORT OF LE HAVRE AUTHORITY

Robert D. MILES
Chairman
GEORGIA PORTS AUTHORITY

(Flashes)

Super straddle carrier at Atlantic Terminal: Port of Le Havre

A Havre stevedoring firm, the Compagnie Nouvelle de Manutentions (C.N.M.), acquired a new straddle carrier for containers last June and put into service at the Atlantic Terminal. It is the 15th piece of handling equipment at the terminal and the first of its particular kind to be used in France. It was built by a Finnish company, Valmet, which has 30% of the world market for straddle carriers and is represented in Le Havre by M.P.I. (Mat  riels Portuaires et Industriels). Performance is impressive, as the new machine can lift up to 40 t and stack 9'6" containers three high. It is powered by two transverse engines with a total output of 360 hp and can raise loads at a speed of 17 m/55 ft a minute, doubling handling rates and greatly boosting productivity. All eight wheels are used for steering, which makes it astonishingly manoeuvrable in all weather and temperatures. Moreover, the driver's cabin was designed by the Finnish company's aeronautical division to provide maximum visibility, which is in itself an important safety factor too.

An investment of this size (roughly 3 million francs) is one more proof of C.N.M.'s confidence in the future.

(Flashes)

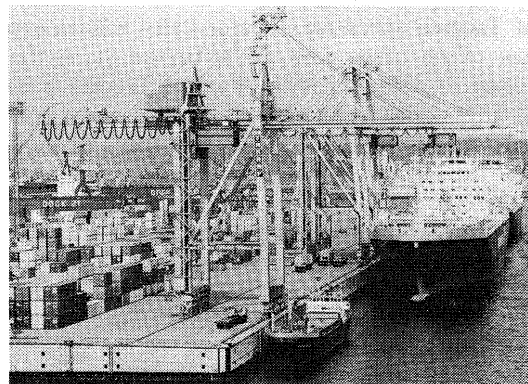
"For increased markets in seaport hinterland traffic": Bremen Senator Brinkmann

The development in cargo handling for the Bremen ports during the first eight months indicates a renewed record result for 1985, following an historic record best-mark having already been established in 1984 with 28.6 million tonnes. With an, although modest but nevertheless continuing, increase in respect of general-cargo handling of 1.9 percent and a clear increase in bulk commodities of 17.6 percent, there was a volume increase of, in all, 7.4 percent by the end of August and the 20 million-ton mark was thereby exceeded at an early date. At the present time there is no sign that this trend could be halted.

This was stated by the Bremen Senator for Ports, Shipping and Traffic, Oswald Brinkmann, at the end of September on the occasion of Bremische Hafenvertretung e.V.'s members representatives meeting in Bremen.

(Bremen International)

Cargo-handling business boosted by favorable economic trends: Port of Hamburg



Favourable economic trends have boosted the total volume of cargo handled in the Port of Hamburg. One is justified in expressing hopes of the total cargo handled in the biggest German port exceeding the 60 million-ton mark for the first time for several years. During the first half of 1985 the figure of 32.6 million tonnes was achieved. In the same period last year it was only 27.3 millions. A major contribution to this improvement came from bulk cargo, particularly suction goods. During the first six months of 1984 a total of 3.6 million tonnes were handled but this figure leapt to 7.3 millions during the same period this year.

Once again the trend in general and bagged cargo was a favourable one. In this year a total of 21.7 million tonnes is the likely figure. Last year it was 21.1 millions. And yet again, containers have led the field this year. By the end of the first half of 1984, 508,692 TEUs had been handled; at the end of the same period this year this had increased to 562,363 TEUs. The proportion of containerized cargo also increased from 45.9% to 49.2%.

Minister Magugu stresses on need for efficiency: KPA

The Minister for Transport and Communications, Mr. Arthur Magugu has commended the port of Mombasa for the efficient manner in which it was running its operations. Mr. Magugu who was addressing the management of KPA and KCHS at the KPA Headquarter at Kipevu said: "I am impressed by organisation and operations at the port".

Mr. Magugu who had an extensive tour of the port a day before delivering his address on July 9, said the leaders in the country needed to know what was actually happening in the port in order to appreciate the work undertaken here. During his tour he had witnessed discharging of general and container traffic and also inspected the equipment and other facilities in the port. He also witnessed repair works being carried out in resurfacing some open areas between berths 11 and 14.

Said the Minister: "The Government attaches great importance to smooth running of the port and that is why it had commissioned heavy investment in physical expansion and acquiring of modern handling equipment.

He explained that the efficiency of the port should be paramount so that Mombasa could compete effectively with other ports in this region. He further added that the port had a commitment to serve our country, the neighbouring countries and the international community as a whole.

To be able to attract traffic from the neighbouring region, Mr. Magugu said, the port has to offer competitive services and please the port users. He noted that the port had experienced some slight decline in tonnages in the recent past partly because of diversion of traffic to other ports. "We should therefore work hard in endeavour to attract more traffic," he said.

The Minister pointed out that cooperation was necessary all round in the port in order to achieve the desired goals. "Port users", said he, "will go where they get good services and good treatment".

If such qualities are lacking in our port, it will mean that years of effort to improve the port coupled with the high capital investment will go to drain.

Mr. Magugu observed, however, that despite the efficiency that was evident in the port there had been some detractors who had created signs of distrust and intolerance within the port. Such people, the Minister said, should be laid at bay to give room to proper working in the port.

He said the staff working in the port were given the jobs because it was believed they were able to do them. And since you are working for our Government you should be devoted in carrying out the duties apportioned to you", the Minister said.

He stressed that there should be no disagreement between KPA and KCHS as the two organisations should work together. He further emphasised that the port formed the life line for the country and therefore industrial peace must be maintained.

(Bandari)

New Industrial Relations Machinery signed: KPA

The Industrial Relations Machinery for the Kenya Ports Authority employees has been revised. The new version of the machinery was signed by the parties concerned at the KPA headquarters. The signatories to the machinery Agreement were the Managing Director, Mr. P.O. Okundi, the Railways and Harbours Union (RAHU) Secretary-General, Mr. R. Okanga and the Assistant Secretary & Legal Officer, Mrs. E.W. Gitau. The last Industrial Relations machinery was signed in 1978.

After signing the Agreement, Mr. Okundi described the document as a very important instrument for industrial relations. This document will be a guide for management and the union in negotiating for employees' working terms, said Mr. Okundi.

It is not in all cases that management and unions were able to reach such agreements and in such an amicable atmosphere, he added. He observed that the negotiations for the industrial machinery had been mutually reached and agreed.

Mr. Okundi talked of the need for Unions to always act responsibly as they, like the managements had an obligation in promoting the economy of our country. Strikes are usually a most unnecessary action to resort to as they more often than not, did not solve any problem.

He contended that there were companies and organisations where strikes have never been known to take place and yet workers were most satisfied and happy. All parties should always aim at mutual discussions of issues aimed at reaching agreement without confrontation, he said.

The Kenya Ports Authority management, Mr. Okundi said, would do their best to maintain peaceful industrial relations and, would similarly expect the Union to do the same.

(Bandari)

Official opening of the approach channel "IJ-geul": Port of Amsterdam

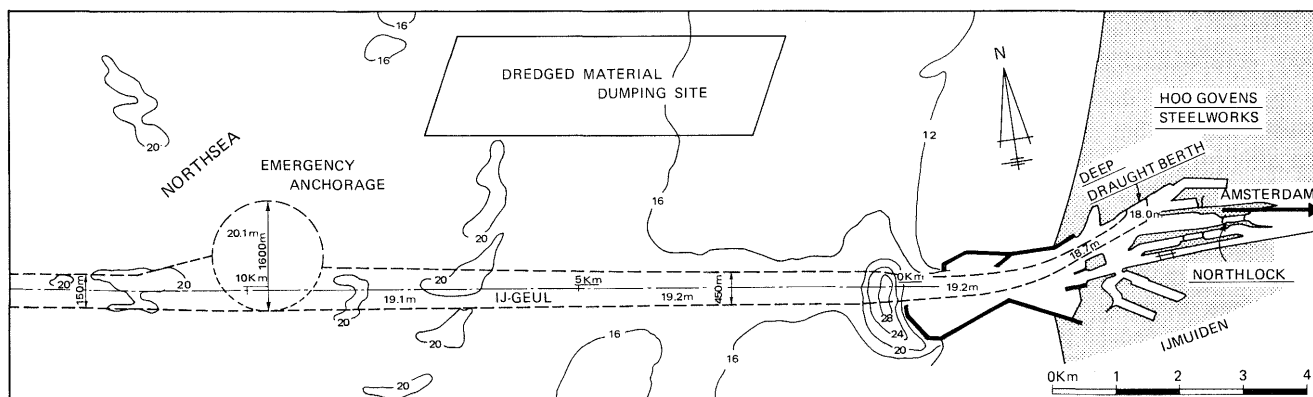
On Wednesday 25 September 1985, the approach channel "IJ-geul" was officially opened by the minister of Transport and Public Works, Mrs. N. Smit-Kroes. "IJ-geul" is the new official name for the navigation channel for ships with a draught of up to 54 ft (16.5 m) which leads to the ports of IJmuiden/Amsterdam. Until recently this channel was only navigable for ships with a draught of up to 45 ft. This additional depth is equivalent to an increase in cargo capacity from 90,000 to 150,000 tonnes. As a result of the deepening operations 65% of the coal carriers of over 100,000 dwt. can now reach IJmuiden.

Approach channel "IJ-geul"

The new deepened navigation channel, officially known as the IJ-geul, has a width of 450 meters and is 21 kilometers long, when measured up to the piers at IJmuiden. The section of the channel within the piers is 4 kilometers long, and it is considerably narrower at some places.

Navigation

A number of measures have been taken to ensure a safe



THE APPROACH CHANNEL "IJ GEUL" TO IJMUIDEN/AMSTERDAM FOR BULK-CARRIERS WITH
A DRAUGHT UP TO 54ft (150,000 dwt)

passage through the navigation channel. Ships which, due to their depth, need to use the new channel are obliged to take a pilot on board. In other words it is prohibited to enter the channel without a pilot present. The pilot boards the ship from a helicopter about 45 kilometers from the coast or is taken off at the Hook of Holland.

The drafted ships can only sail in during a certain period of the tide (roughly speaking 3 hours after flood-tide). Certain conditions (for example excessively high waves), can eventually lead to a temporary closure of the channel. A special system has been developed to recognise and to forecast these conditions. A navigation plan that takes account of the waterlevel prediction, weather and waveheight forecasts and the draught of the ship in question is prepared and relayed to the pilot. The conditions are continuously monitored and, if necessary, the plan is adjusted. Use is also made of a portable Decca receiver, which the pilot takes on board with him. Decca is a radio-graphical system for determining one's position that is used in navigation. These portable receivers make use of more than the two customary transmitting stations, which means a considerable improvement in the determining of position – and as a consequence – improved navigation. Furthermore these receivers are specially adapted to the situation at IJmuiden. Altogether this means that the pilot can ascertain the position of the ship quite accurately even at night or in fog, which leads to a considerable improvement in safety.

A circular emergency anchorage area has been planned with a diameter of 1,600 meters about 10 kilometers from the pier. This emergency anchorage area is desirable because, should a disaster occur, the harbour mouth could suddenly become obstructed, preventing the ships in the channel from entering, whilst they would be unable to retrace their course back due to the approaching ebb-tide.

Dredging operations

The total amount of dredging work was 14,000,000 cubic meters (8,800,000 cubic meters off shore and 5,200,000 cubic meters from within the piers). 2,500,000 cubic meters of good sand dredged off shore was used in a continuous sand-mining scheme in this area. This meant a saving of 4 million Dutch guilders for the project. The remainder of the dredged material was dumped at sea about 5 kilometers from the piers.

In whose interest is the deepening of the navigation channel?

The deepening of the navigation channel is (primarily) of importance for Hoogovens and OBA. For Hoogovens the supply of raw materials is involved, for OBA the transshipment of coal to third parties is important.

In recent years a number of changes have taken place in the shipping world. Coal and ore are now transported over increasing distances in ever larger bulk carriers. Transport by means of these larger ships is substantially cheaper than that in smaller. In 1975 barely 2% of the coal shipments for western Europe were transported in ships of more than 100,000 dwt. Eight years later this was over 50% and it is expected that this proportion will continue to rise. This increase in scale weakened the position of Amsterdam as a centre for the transshipment of coal and the loss of a part of this trade threatened. For Hoogovens this development meant that they could not take advantage of the fact that the transport of raw materials in large bulk carriers was cheaper. The depth of the North Sea Canal cannot be extended beyond 45 ft (13.7 meters) on account of the locks and the tunnels which run under it. The only possibility of being able to receive larger vessels was, therefore, the construction of transshipment facilities outside the locks of IJmuiden. In 1982 an investigation showed that the draughts of coal carriers of more than 100,000 dwt was distributed as follows:

– < 50 ft	11%
– < 52.5 ft	28%
– < 54 ft	64%

This makes it clear that the deepening of the channel to 54 ft has made it possible to receive a substantially higher percentage of the world bulk fleet than would have been the case had the extension in depth been limited to 52.5 ft. It is generally presumed that the increase in scale of the coal ships will not continue further.

Floating jetty in Delfzijl Harbour

In the spring of 1984 the Board of the "Havenschap Delfzijl" (Port Authority Delfzijl) decided to approve the construction of a multi-functional floating jetty in the mercantile port.

An urgent demand for more berth accommodation had manifested itself over the last years. Building activities

started on 1 July 1984, Mannesmann Nederland B.V. being the contractor. The new accommodation was inaugurated on 25 January 1985 by Drs. B. Bos, President of "Havenschap Delfzijl".

The floating jetty provides room for sea-going vessels, waiting to be offloaded or loaded at the commercial quay, for vessels awaiting the right tide to leave the port, and for vessels in need of repair. The jetty also offers excellent accommodation for the increasing number of inland craft calling at Delfzijl. Another important function of the new jetty is to accommodate the fishing fleet, mainly during weekends.

The jetty has a total length of 320 metres and a width of 6.30 metres. It comprises five 63 m intermediate sections and two 5 m end sections. Buoyancy is obtained by means of steel pipes with a diameter of 1,420 mm. Ships can berth on either side.

The west-side has sufficient capacity for one sea-going ship of 18,000 gross tons, or two sea-going ships of 9,000 gross tonnes, or else 9 inland vessels of 2,500 tonnes, or 35 fishing cutters.

The east-side can accommodate two inland vessels of 2,500 tonnes and various smaller craft. The cost of construction amounted to approx. Dfl. 5 million. (*Vastleggen*)

Plan to restructure Rotterdam's general cargo sector accepted by business community

By Hans Berggren

This year will see the start of a fundamental reorganisation of the traditional general goods sector in the Port of Rotterdam. This operation is unique in its scope: several dozen port companies have agreed to take part in a drastic redistribution of older general cargo areas, in order to put themselves and the general cargo sector in general in a better position to face the future. The technical changes which have taken place in this sector over the last few decades make a reorganisation of this kind highly desirable.

The whole process will take several years to complete, and will involve a spectacular series of removals. The result will be vastly improved site use and a much more rational layout by about 1990. There will be concentrations of similar companies which will be able, if they wish, to combine forces in all sorts of ways, and which, more importantly, will have at their disposal larger and better connected site areas.

It is expected that the plans for this immense operation, which have been prepared over the past few years by the port management (the Port of Rotterdam Authority) and the Nederlandse Herstructurerings Maatschappij (NEHEM), will be submitted to the City Council for approval in May.

The City of Rotterdam will be asked to make an investment of more than 92 million guilders, needed to provide the infrastructure which will make the reorganisation possible. This sum will be used to build new quays and roll-on/roll-off facilities, to provide additional deep-water berths, to buy sites and change access roads, to demolish buildings which are no longer needed, to fill in an old dock, etc.

When the plans were announced last March, the companies involved in the project submitted investment plans with a total value of 450 million guilders to NEHEM (a government organisation). The companies are responsible for the layout of or alterations to the sites which they will get under the re-allocation scheme. This will entail the construction of new storage facilities and offices, the purchase of heavier machinery, excavation work, site surfacing, alterations to crane gantries, etc.

The companies will be able to count on a contribution from NEHEM towards the costs of approved restructuring plans. This is in fact a grant from the Ministry of Economic Affairs.

Under pressure

It is safe to assume that this support alone would not have been enough to help all the companies involved to come up with enough money. The traditional general cargo sector has been under considerable pressure for many years. The margins are not high. In this branch, companies currently have to work on pay-back periods which may be as long as 20 to 25 years. This makes traditional general cargo companies a less attractive proposition for the banks, which usually provide financing over 10 to 12 years.

The City of Rotterdam therefore intends to provide pre-financing facilities in those cases where it is really necessary. These are not subsidies, but extended-term loans which will have to be paid back in their entirety with interest.

The primary purpose of these efforts, as far as the City of Rotterdam is concerned, is to preserve a major source of employment. The traditional general cargo sector provides by far the greatest number of jobs in the port.

Significant figures

A detailed report (the 'Framework Plan for the Restructuring of Old Dock Areas') gives a calculation of what would happen to the streams of traditional general cargoes (chests, crates, boxes, barrels, bales) if nothing were to be done to enable the sector to extricate itself from a number of outdated situations which the port has inherited from the past.

If nothing is done and everything is left as it is, the traditional general cargo stevedores in Rotterdam would handle a combined total of 12 million tonnes of goods in the year 2000. If, however, the sector were to be radically modernised in line with the present proposals, the volume could be 15.4 millions tonnes — a difference of 3.4 million tonnes.

Even more striking is the calculation for the year 2010:

the 'do-nothing option' will by then have reduced the volume of traditional general cargo to 10.5 million tonnes. The 'investment option', however, produces a total of 16.3 million tonnes — a difference of 5.8 million tonnes.

Employment figures can be linked to these projections. The do-nothing option results in 13,460 directly and indirectly related jobs in 2000. The investment option provides a total of 16,630 jobs. In other words, the investment option will result in 3,170 additional jobs!

Enough space

The non-specialist (i.e. traditional) general cargo area in Rotterdam currently covers 228 hectares. On the basis of the prognoses for the investment option, an area of 233 hectares will be needed by the year 2010. These calculations are based on the fact, learned by experience, that in this sector seven tonnes of goods are moved annually over every square metre.

The existing area will undergo a number of changes in the next few years. Some small pieces of land in the old part of the port area on the left bank will be given up; elsewhere new sites will be added. There are available reserves of 22 hectares. In the Framework Plan for the Restructuring of Old Dock Areas it is assumed that, in principle, there will be 246 hectares available for traditional general cargo in 2010. The long-term balance between supply and demand is therefore extremely good.

In the dynamic, fast-changing world of shipping and ports, it is by no means inconceivable that in the near future new companies will emerge in related, but as yet unknown, fields. There will be room for these companies too.

More versatile ships

Why has Rotterdam's traditional general cargo sector been forced to undertake this drastic reorganisation? In fact, the problem is an international one which is facing all the large, older ports. The way in which the industrial world (and, to an increasing extent, the agricultural world) is shipping its goods has undergone a fundamental change in the last few decades.

The need for larger-scale operations and greater speed brought about the rapid growth of specialised container transport. Modern roll-on/roll-off facilities were developed almost simultaneously, and unit cargoes also became increasingly common.

Specialised container ships and Ro-Ro vessels appeared on the oceans of the world. The traditional general cargo vessel lost the dominant position it had occupied for centuries. On many routes, it was forced to make way for a type of vessel which was at home in a number of markets. Besides crates, drums and bales, it also had to be able to carry unit cargoes, containers, heavy loading gear and, not infrequently, loaded vehicles.

These changes had far-reaching consequences for the dock companies which had to handle these vessels. Not only did they have to acquire heavier and faster transshipment equipment, they also had to make changes to the layout and design of their sites. Many companies located in the smaller and older dock basins began daily to discover that the depth of the site available to them was no longer adequate and that their options were severely limited by a lack of open space.

Split sites are a common feature of this sector. Larger companies often have facilities in several different dock basins, which does not make for efficient operation.

A rational reaction

As early as 1973 the Port of Rotterdam Authority published the paper 'Land for Cargo', which sounded a clear alarm. In the years which followed, the business community was certainly not idle, but it still took until 1981-82 before it was generally realised that only a drastic redistribution operation involving the whole of the traditional sector could provide a solution.

At that point, it was also clear to everyone involved that a major restructuring plan would not only have to be looked at in the light of its planning and civil engineering aspects, but that the social consequences would have to be equally carefully examined. This last was done by a number of special committees, and the overall plan was also fully discussed with the trades unions.

If it initially took some time for all the senior managements involved to accept a number of unpleasant truths, things really started to move in the nineteen-eighties. As Mr. R. den Dunnen, Alderman with responsibility for the port, observed: 'I think one can say that the city authorities and NEHEM started a process of awareness. Of course, this took time. The business community needed several years to appreciate the fact that it was faced with the problems which the Port of Rotterdam Authority had predicted, but in the end it reacted rationally. What is now happening here is, in fact, quite exceptional.'

Start as soon as possible!

The Port of Rotterdam Authority hopes to get the project off the ground in the very near future, and to invest 15 million guilders this year. In 1986 there will follow a series of infrastructural works costing 40 million. The remainder of the 92 million guilder investment will be spread over the following three years.

Mr. N.P. van der Berg, the man coordinating this enormous project at the Port of Rotterdam Authority, explains why he is in a hurry to implement the plan. 'A rapid start to the work will undoubtedly mean additional business for a number of companies. For example, we shall be doing our utmost to enable Seaport Terminals to build the second phase of its new facility in the Britanniëhaven as soon as possible. As soon as the company moves out of the Eemhaven, interesting shifts will become possible. At that point the operation will be in full swing and will start to affect companies of all kinds. In 1985 we will also be tackling a number of issues in the oldest areas.'

'There can be absolutely no doubt that speed is essential to preserve employment, which is clearly under pressure at the moment.'

In Mr. van der Berg's view, rapid restructuring can prevent the loss of large numbers of jobs. The whole sector must be put in a position to reorganise itself, so that it can keep abreast of the latest developments in overseas transport.

Cost-effective operations

The idea of concentration is based on the conclusion that similar companies located adjacent to one another can

operate more cost-effectively through various forms of collaboration. For example, why shouldn't two companies located on a modern pier share a gatehouse, set up one security service and use one canteen? It might even be possible to set up a central department for the maintenance of machinery and equipment. There are also cases where the public road serving a pier of this kind could be incorporated into the joint site — to the advantage of both companies.

Mr. van der Berg believes that companies which decide to combine forces in this way will be able markedly to increase their efficiency. 'I am convinced, therefore, that we shall see some interesting developments in this field. Our lively discussions with the business community over the past few years have taught us this much. Every opportunity to work together must be grasped. This is the only way in which a number of companies can be reasonably sure of staying on their feet in the longer term.

(Rotterdam Europoort Delta)

Port of Dar-es-Salaam at take-off stage

Several development projects for the modernisation of the ports of Dar-es-Salaam, Kilwa Masoko, Lindi and Mafia are at take-off stage and construction may start within the near future.

Tender for the largest part of the project — the construction of a container terminal at the Dar-es-Salaam port — was awarded to a consortium of Japanese firms — Kajima Corporation and Mitsui Company Limited recently.

A total of 81 international contractors from the World Bank member countries and Switzerland bid for the project.

Kajima Corporation and Mitsui Company jointly tendered lowest at 360.75 m/=. The highest tender was for 963.38 m/=.

The Container Terminal project, which is funded by the World Bank, involves conversion of the present berths, nine, ten and 11 into a modern container handling terminal, conversion of Ubungu transshipment shed into an Inland Container Depot and Construction of a warehouse at Kurasini for surge traffic for the Tazara line.

Other projects associated with the container terminal are also at take-off stage. Donor countries for these projects have already indicated availability of funds. Finland will provide container yard handling equipment such as rubber tyred gantry cranes and forklift trucks, while Denmark have made a US\$ 10 m credit for the acquisition of two quay gantry cranes and Italy, are offering a US\$ 3.8 m credit for acquisition of more container and general cargo handling equipment and telecommunications.

Under a grant from the Netherlands, a grain silo will be built at the port for transit grain. The package includes provision of bulk grain trucks for transfer between ship and silos.

In addition to the modernisation of berths nine, ten and 11 there is a project under preparation for rehabilitation of the remaining eight berths of the port. Sweden has agreed to assist in this project which will enhance the port's efficiency in general cargo handling. However, co-financiers for

the project are still being sought.

Under another project, Canada is financing rehabilitation of Canadian financed equipment and improvement to equipment workshop systems while the United Kingdom and Sweden are financing a team to co-ordinate the projects.

Apart from the Port of Dar es Salaam the Authority is seeking funds to carry out urgent rehabilitation of the Port of Tanga. Financiers have not been identified.

Norway is financing the rehabilitation of the ports of Kilwa Masoko and Lindi and NORAD are appointing Messers Wade Adams to carry out this Work. Reconstruction work is to start between September and October 1985.

Norway has also agreed to finance construction of a jetty on Mafia Island in Chole Bay. A consulting engineer has been appointed and started work.

Work starts on property scheme at Port of Cardiff

Work on a major dockland development scheme at ABP's Port of Cardiff was officially started recently at a formal ceremony attended by the Secretary of State for Wales, the Rt Hon Nicholas Edwards, MP.

The scheme is one of the largest urban redevelopment projects in the country, and includes the building of a new headquarters for South Glamorgan County Council and a further development by Tarmac on land sold by Associated British Ports. This project, which will cost over £50 million, involves the construction of houses, offices, shops and leisure facilities on land surrounding the Bute East Dock, part of which will be filled in.

Speaking at a luncheon after the ceremony, ABP's Managing Director, Mr. John Williams, said:

"This scheme demonstrates ABP's new ability — resulting from privatisation — to redevelop land surplus to port operational requirements. I believe the scheme will be of tremendous benefit to the City of Cardiff".

Contracts placed for ABP's Plymouth ro/ro terminal development

Associated British Ports announced the placing of the major contracts for the construction of the new roll-on/roll-off terminal at the Port of Plymouth.

These works are under the supervision of ABP's Port Engineer at Plymouth and are scheduled for completion in spring next year.

Contracts so far let by ABP account for approximately £2.8 million of the £4 million to be spent on the new terminal and ancillary works. When complete, the new facility will double Plymouth's capacity for ro/ro traffic serving France, Iberia and the Western Mediterranean.

New system to speed customs clearance at Grimsby & Immingham

ABP's Humber ports of Grimsby & Immingham are set to speed up Customs clearances for ships' agents following the introduction of Direct Trader Input (DTI) in 1986.

Talks are underway with HM Customs on setting up the new computer system, known as 'SHIPS' (South Humber-side Imports Processing System), which will link both ports direct to the Customs information network. Associated British Ports are now working on the details, and installation of hardware followed by full operator training is scheduled to start in 1986.

Commenting on the new development, ABP's Port Manager at Grimsby & Immingham, Mr. Dennis Dunn, said: "This is a major step towards providing advanced cargo documentation facilities, and will be of great benefit to our customers."

Southampton wins Fiat trade

Southampton's car handling trade received a boost with news that it had won the highly sought-after Fiat car import traffic.

The traffic, worth more than 65,000 cars a year, has been gained by Associated British Ports in partnership with the Toleman Group who have won the contract to handle Fiat cars imported into Britain. The first shipments will begin in January.

This is just the beginning for what is planned to be the UK's largest and most comprehensive car handling facility designed to receive the world's largest ro/ro vessels. Berths 201/2 are being redeveloped to provide the highest quality specialist facilities required by Fiat. The Toleman Group are also planning that, within the next two years, throughput at the terminal will expand to a rate of over 200,000 cars a year. World Shipping and Freight Ltd. will be the terminal operators.

Alex Hawkrige, Managing Director of the Toleman Group, said: "The positive attitude of everyone at Southampton, including the dockworkers, was a major factor influencing Fiat's decision".

ABP's Port Director at Southampton, Dennis Noddings, commented: "Toleman's confidence in Southampton and the decision by Fiat to import cars through the port is a further demonstration by the trade that the port's facilities and performance are the best available in the UK. We look forward to working closely with them".

Mr. Jennings, Chairman Registered Dock Workers' Shop Stewards' Committee also views Fiat's decision as an important one. He said, "Southampton has won the business in the face of fierce competition and this is a sign of growing confidence in the port".

Port Adelaide is booming and the future looks good

Port Adelaide — along with it the Port of Adelaide — is booming, with millions of dollars worth of major projects set to change the face of the Port.

More than \$12 m. worth of development has commenced with the construction of a second container crane at Outer Harbor and a giant new Elders wool store at Gillman.

Then came the commencement of the new direct shipping link with Japan and the announcement that Adelaide & Wallaroo Fertilisers is moving its head office to Port Adelaide.

Now a \$32 m. development project has been announced that is likely to further change the face of Port Adelaide.

And in line with the "new look," a \$2 m. landscaping project will transform the two main roads into the area — Port Road and Old Port Road — into grand scenic boulevards.

The landscaping will complement another beautification project undertaken by the Department of Marine and Harbors along Ocean Steamers Road in Port Adelaide.

Marine Minister, Mr. Roy Abbott, said Port Adelaide was emerging with a refreshing new identity.

"In particular, shipping is now reaping the benefits of a Marine and Harbors department campaign initiated seven or eight years ago to attract services back to Port Adelaide," he said.

State Premier, Mr. Bannon, agreed that the promotion of the Port in terms of extra shipping was working.

"Investment money is coming in and we've got a good mixture of new commercial/industrial development coupled with the Maritime Museum and revival of the old Port Adelaide," he said.

Port Adelaide is going to be one of the show pieces of SA. But our other high priority is the upgrading of the area as a major commercial and industrial centre," he added.

(SPJ)

Another record year for the Port of Brisbane; Trade up 12%

Port of Brisbane trade soared to record levels in 1984/85, totalling *12,111,300 mass tonnes (*16,424,000 revenue tonnes).

This is 1.3 million tonnes or nearly 12 per cent more than the previous high established in 1983/84.

Three of the port's big improvers were exports of:

- coal (up to 67.4 per cent to 1,402,800 tonnes);
- grain (up 24 per cent to 2,311,500 tonnes);
- metal ores (up 61 per cent to 355,200 tonnes).

Executive Chairman, Port of Brisbane Authority (Hon. A.M. Hodges) described the trading result as "very satisfactory".

Mr. Hodges said it also was heartening to see a solid recovery in the movement of containers.

Total throughput was up 4.2 per cent to 98,974 t.e.u.'s, only a few hundred short of the record (99,395) established in 1982/83.

"With just reasonable trading conditions, we should see the 100,000 mark eclipsed in the 1985/86 financial year," he added.

Mr. Hodges said everyone connected with the export grain trade deserved congratulations.

The final figure (2.3 million tonnes) for the year was 300,000 tonnes above what was believed to be the upper constraint limits of the Pinkenba terminal.

"It was an amazing effort," he added. Mr. Hodges said Brisbane had shown itself to be among the top performers as a grain port.

"With the new Fisherman Islands grain export facilities coming on line very shortly, it will be no problem for the port to handle substantial additional cargo," he said.

Mr. Hodges said coal again had proved its value to the

port. Exports had risen 67.4 per cent to reach 1,402,800 tonnes.

He said the trade was expected to continue to make consistent progress, all of which was good news for the Ipswich district miners who not long ago were facing a very bleak future. Mr. Hodges said there were many other encouraging aspects to the port's trade, not the least of which was cotton.

Every year for the past seven years, cotton exports had shown improved trading results.

In 1983/84, exports had risen 66 per cent to almost 60,000 tonnes.

That now was far in excess of wool exports.

Mr. Hodges said the meat industry, which had been "the cause of some concern" in recent times — reflected in depressed meat exports — was at last beginning to show signs of recovery.

Industry reports indicated that herds were increasing in numbers and everyone expected to see (in 1985/86) better export results than the 203,800 tonnes recorded in 1984/85.

"All in all, we have every reason to feel confident in the immediate future for the port and its trades," he added.

*Mass tonnes: weight measurement only.

*Revenue tonnes: combination of weight/volume.

(Brisbane Portrait)

MSB: FORUM '85

About 300 members of the Maritime Services Board staff, union representatives and delegates were in attendance at the Overseas Passenger Terminal, Sydney Cove, on 22 May to take part in the first of several 'Forum 85' discussions, arranged by management to discuss the new directions the Board is planning for the next decade.

Forum '85 provided an opportunity for a frank exchange of views between management, senior officers, supervisors and other staff in relation to introduced and pending changes in current and future activities of the MSB at all levels.

Principal speakers included the Board's General Manager, Mr. Les MacDonald; Deputy General Manager, Mr. Stan Beevor; Assistant General Manager (Corporate Services), Mr. Rodney Swan; and Assistant General Manager (Commercial Services), Mr. Norman Bennell.

The Chairman of the Board, Mr. Roly Hoy, attended the Forum meeting.

Mr. MacDonald commenced his address by saying that it was probably the first time in the history of the Board that such talks had been held.

He said that the Forum was intended to be the first in a series of such meetings which would enable as many of the Board's workforce as possible to participate and clarify issues of concern to them.

The General Manager said that there had been progressive changes to the top structure of the MSB in recent months, changes which had stemmed from recommendations made by a Public Service Board efficiency audit report.

"Indeed, the amendments to the Maritime Services Act of last year were also largely a response to that report," he said.

"We realise that such extensive changes, as envisaged by that report, and by the Board's recent report to the Minister for Public Works, Ports and Roads, Mr. Laurie Brereton, MP, may have engendered some uncertainty and apprehension about the effects on job and career prospects within the Board."

"In relation to that, I would like to make an unequivocal statement of Board policy," he continued.

"Involuntary redundancy will not be part of the Board's programme to achieve change. This is clearly set out in our

report to the Minister and is in accordance with Government policy."

Mr. MacDonald added that the Board is presently developing an enlarged role in recreational boating and it is envisaged that additional positions will be created in this area and will be filled from within the Board by re-training and re-deployment.

Greater efficiency

Changes occurring at the top level of management are a necessary pre-requisite to changes further down in the organisation, the General Manager said.

"Change has been in the air for some years now, both in Government administration and in the private sector," he continued. "Most of these changes have been in the direction of greater efficiency and greater accountability."

He pointed out that, in the private sector, the process had frequently manifested itself harshly in massive job losses as industries fought to survive in increasingly competitive markets.

The coal mining, steel manufacturing and automobile industries were just a few examples.

In the public sector, he said, the major manifestation of harder economic times had been freezes on recruitment and attempts to become more cost-effective, and development of more cost-effective commercial approaches.

"The object must be to get the best possible value for the diminishing public dollar," he said.

Mr. MacDonald said that the MSB was probably the last in a long line of statutory authorities to be subjected to the process of change. Others had been the State Rail Authority, the Urban Transit Authority, the Metropolitan Water, Sewerage and Drainage Board, the Electricity Commission and many other smaller organisations.

Long life

"Changes already implemented in the MSB, and those which are proposed, are all aimed at ensuring that the Board provides the services required by our clients at a reasonable cost," he said.

"If we achieve that, then we can guarantee a long and healthy life for the Board and the career prospects of its employees."

He added that management wanted all the Board's employees to feel that they will get a reasonable response from management if and when they approach management with a problem.

"Emphasis will be given to communicating, to you, the strategic direction of the organisation and developing participation at the workplace," he said.

Consultative committees at all ports are to provide major input on matters such as work programmes and working conditions. Priority will be given to occupational health and safety issues and, where consultative mechanisms already exist, these will continue.

"Steps will be taken to ensure that all concerned fully understand that managers and supervisors are directly accountable for people-management in areas under their control."

"Training for line management in industrial relations and employee relations will be provided," Mr. MacDonald said.

After proper consultation with staff and unions, the Board intends to explore available means of widening career prospects, upgrading personal development opportunities and increasing mobility, both within the organisation and with external groups.

'Great future'

It was essential that the Board's ability to carry out its traditional and demanding roles of port management, port development and waterways management be enhanced while, at the same time, ensuring a worthwhile and satisfying employment environment for staff.

"The Board wants all its employees to be able to participate in the achievement of our objectives and to be an integral part of a great future for the Board," Mr. MacDonald said.

"We want the Maritime Services Board of New South Wales to be the best port authority in Australia. Your co-operation is essential if we are to break down barriers so that we can all work together to achieve these goals," he said.

There then followed a spirited questions-and-answers session where a number of Board and union personnel present at the *Forum* sought specific replies to problems outlined.

While the majority of answers were given by Mr. MacDonald, other speakers gave specific details where matters raised were found to be directly involved with their departments.

Following conclusion of questions, Mr. MacDonald gave a general summing up of *Forum* discussions, indicated that meetings of a like nature would be held in Newcastle and Port Kembla at an early date, and then invited those in attendance to lunch in the Terminal Building.

The general consensus among those present was to the effect that Mr. MacDonald and other speakers had been direct and forthright in their addresses and had answered questions with candour, making no attempt to avoid issues raised or to seek to answer questions in an ambiguous way.

The mood of the meeting was one of faith in the future of the Board, based on the nature of the addresses delivered.

The majority of persons present indicated that they were prepared to work toward the common goals outlined by the General Manager and other speakers. (MSB News)

\$75 million for waterways: MSB

The number of recreational boating officers employed by the Maritime Services Board is to be increased in a \$75 million New South Wales waterways improvement programme announced by the Minister for Public Works, Ports and Roads, Mr. Laurie Brereton.

The programme will involve a joint co-operative effort by the Public Works Department and the MSB.

In addition to an increase in personnel, the MSB Boating Service will be given an expanded role in providing information to, and in educating the recreational boating public. Special training will be available for the officers involved.

Mr. Brereton said that there were 11 main elements contained within the five year plan. These are as follows:

- 1) Marinas: There will be approximately 500 new berths built each year, with 10 new marinas to be constructed at various points along the New South Wales coast by 1990.
- 2) Mini-ports: A series of mini-ports, or safe havens, will be provided along the entire length of the coast so that leisure craft on long trips will always be assured of a berth in times of need.
- 3) Boat ramps: About 70 new boat launching ramps will be constructed during the next five years.
- 4) Public wharves: Approximately 20 new wharves will be built within a three year period and 20 others will be restored to improve access to the State's waterways.
- 5) Moorings: New mooring designs and standards will be developed to increase the number, and improve the quality of moorings. This will help reduce the amount of space currently being taken up by moored vessels. Pontoons will be provided to increase access to larger mooring areas and there will be increased security patrols of public moorings.
- 6) Waterways improvements: Popular bays and waterways which have silted up will be dredged to increase their level of use, and related foreshore improvements will be commenced.
- 7) Beach improvements: The current programme to stabilise storm affected beaches and to improve beach facilities will be expanded.
- 8) Navigation: Boat navigation aids, safety signals and search-and-rescue services will all be improved.
- 9) Water services: The number of Maritime Services Board boating officers will be increased and will act as "Waterways Rangers", providing information and educational services to the boating public.
- 10) Water safety: Improved waterways safety education programmes will be initiated in conjunction with the Royal Volunteer Coastal Patrol and similar groups.
- 11) Advisory Council: A Recreational Boating Advisory Council will be established to provide advice to the Minister on leisure boating policy. It will contain representatives of the Boating Industry Association and the Yachting Association, as well as personnel from key Government departments.

Increasing demand

Mr. Brereton said that the number of leisure craft in New South Wales has increased by 60 per cent since 1977. They now number 300,000 and are increasing at a rate of

5 per cent per annum.

"It is imperative to have a properly co-ordinated and planned programme to meet this fast-growing demand," Mr. Brereton said.

The Maritime Services Board will contribute \$5 million per year to fund its expanded role in the recreational boating field.

Mr. Brereton said that, to ensure the success of the overall programme, some charges and fees will have to be increased.

Current boat registration fees of \$25, which have not been increased for three years, will cost \$30 in the coming financial year. Presently, only power boats capable of being driven at a speed in excess of 10 knots are required to be registered.

Yachts, irrespective of size, have not had to be registered. However, from the beginning of the new financial year, all yachts over 10 metres in length will be required to be registered.

These are, basically, yachts which are capable of going to sea.

License fees for power boat operators will increase and mooring charges will be restructured to more accurately reflect market prices.

"All monies raised will be used for the provision of more and improved facilities for the ever-growing numbers of the recreational boating public," Mr. Brereton said.

(MSB News)

Container port "a miracle": Hong Kong

The container port in Kwai Chung is one of the miracles of HK's development, Chief Secretary Sir David Akers-Jones said.

"It is a mere 10 years since this land was reclaimed from the sea in an act of faith in the future of HK and its harbour. How well that confidence and faith was justified," Sir David said.

The container terminal, the third largest in the world, has six berths, 2,300 metres of quay and 88 hectares for cargo handling, container storage and container freight stations.

To meet increasing demand, the Kwai Chung Creek reclamation will provide an additional 15 hectares of back-up space to be completed by mid-1987.

Sir David said negotiations were also under way for the construction of an additional terminal with three berths which he hoped would be decided on within a few weeks. (The Week in Hong Kong)

More vessels call at Hong Kong port

Ocean shipping using Hong Kong port increased by an unprecedented 11 per cent in the first six months of this year, the total volume of cargo was up more than 13 per cent and China cargo up 35 per cent.

The figures were disclosed by the Deputy Secretary for Economic Services Gerry Higginson.

Mr. Higginson noted that about 1,000 ocean-going vessels called here each month last year while local traffic alone amounted to more than 14,000 vessels a month.

Referring to the Kwai Chung Container Port, Mr. Higginson said the expansion would proceed in three phases. The first phase now underway is slightly ahead of schedule. It involves the reclamation of an additional 25 hectares of land to extend the total container port area to some 119 hectares.

The second stage is for the construction of a new three-berth terminal to be known as Terminal 6. The first berth is due to be completed in late 1987. The third phase calls for the construction of a further two terminals by the early 1990s. (The Week in Hong Kong)

Bombay — first Indian port to install portable link span: MacGregor-Navire

MacGregor-Navire has secured an order to supply a link span of the floating, portable type to the Bombay Port Trust. The RoRo facility, which is due for delivery by mid-1986, will fill a long felt need, its installation having been urged on the Bombay authority by two principal organisations — though its presence is expected to stimulate utilisation by others; the organisations are the Indian Oil & Natural Gas Commission (ONGC) and the Mogul Line Shipping Company.

The unit is designed to service axial ramped ships having beams of between 16.0m and 25.0m, with ramp widths 5.0m to 12.0m and threshold heights that may vary from 1.5m to 3.5m. It is designed to cope with tidal variations that, at its designated site — the Ferry Wharf, Bombay harbour — is defined as 5.8m at MLW st and 1.6m at MHW st, a total rise and fall of 4.2m.

Essentially, the link span consists of a pontoon upon which is mounted a superstructure and shore ramp, all of which, as a floating entity is configured for mooring to a straight quay in line with the ships it will service.

The structure is designed and built in accordance with the requirements of Lloyd's Register, the Indian Register of Shipping and the applicable regulations of the Port of Bombay.

A RoRo reception facility for Bombay was originally mooted in 1980 to cater for passenger/cargo traffic on a coastal route (off India's west coast down to Jaffrabad) proposed by the state-owned Mogul Line. Events in the offshore sphere that have occurred since that time have generated an additional urgent need for a link span, namely to service ONGC's trans-harboursupply vessels — and this latter will be the first operation to benefit from the new facility.

Indonesian ports profile

Indonesia has some 300 public ports scattered over the archipelago. Of these, 43 are inter-island liner service (ILS) ports.⁽¹⁾ The rest are feeder and special ports serving interisland, local, pioneer and sailing vessels. The more important ports are Jakarta (Tanjung Priok), Surabaya (Tanjung Perak), Semarang and Cirebon on Java; Belawan, Padang (Teluk Bayur) and Panjang on Sumatra; Balikpapan, Banjarmasin and Samarinda on Kalimantan; Ujung Pandang and Bitung on Sulawesi; Ambon on Maluku and Sorong on Irian Jaya. Tanjung Priok, Tanjung Perak, Belawan and Ujung Pandang, the four largest ports, handle most of

Indonesia's export and import cargoes except for special bulk commodities such as crude oil, logs, timber, rubber, palm oil and fertilizer.

To improve the overall performance of the maritime sector a major restructuring, based on recommendations made in ISTS, is being undertaken by the Government. A four-tiered national ports and shipping services system has been adopted which will establish a hierarchy of functionally interdependent ports within Indonesia. The first tier will consist of four foreign cargo-oriented gateway ports Tanjung Priok, Belawan, Tanjung Perak and Ujung Pandang. Under the gateway principle international imports and exports will be channelled through the four designated gateway ports. The geographic region of each gateway port includes two to three regional collector ports (the second tier), about 10 trunk ports (the third tier) and a number of feeder ports (the fourth tier).

The Government intends to have the new ports and shipping system in operation by the close of Repelita IV (1984/85-1988/89). This will be undertaken in three phases. The first phase (now underway) focuses on strengthening the operating capabilities and improving productivity at the four gateway ports and selected trunk ports. Phase two will include the preparation of master plans/feasibility studies to be followed by detailed engineering design for all 43 ports identified by the ISTS study as having high development potential. Implementation of this investment program represents Phase three of the plan.

Financial and administrative reorganization of the ports subsector has also been studied to promote more efficient operations. In May 1983 the Government reorganized the ports subsector into four Government-owned port corporations. A dredging corporation was also established. Each of the five corporations has the status of an independent legal entity and will operate on a financially self-sufficient basis. Budgets, tariffs and overall policy matters will, however, remain subject to the approval of MOC through DGSC. Ninety-one ports will be managed under the four port corporations — called Perum Pelabuhan I, II, III, and IV — which are centered on the four gateway ports. The other ports will continue to function as Government operating units. It is anticipated that with the establishment of these organizations Indonesia's port administration will be rationalized. Broad organizational, staffing and procedural arrangements and financial policies have been established and detailed procedures are being developed. (*ADB News Release*)

- (1) Consisting of 4 gateway ports, 14 regional collector ports and 25 trunk ports.

KMPA's 1986 budget draft finalized

The Korea Maritime and Port Administration has prepared its 1986 budget bill with 98,643 million won in revenue and 211,973 million won in expenditure.

The figures represent increases of 11,777 million won for revenue and 68,539 million won for expenditure as compared with those of 1985.

The revenue consists of 3,398 million in land leasing charges, 87,277 million won in port earnings, 2,587 million won in common water occupation charges, 47 million won

in import replacement income, and 6,392 million won in foreign loan returns, whereas expenditures are for general account, 197,294 million won, and sound management special account, 14,679 million won.

The expenditure for major investment projects in 1986 is:

37,734 million for the development of Pusan port,
8,213 million won for the construction of Kamchon port,
5,481 million won for the development of Inchon port,
800 million won for the construction of Kwang Yang port,
14,876 million won for the development of Jeju port area,
3,051 million won for the development of Kunsan port,
3,630 million won for the development of Ulsan port,
2,291 million won for the development of Mogpo port,
4,993 million won for the development of Yeosu port,
3,212 million won for the development of Sokcho port,
1,091 million won for the development of Chungmu area,
4,825 million won for the construction of a coal port,
24,174 million won for the development of general port,
6,394 million won for general port dredging,
28,397 million won for port facilities, maintenance and repair,
394 million won for ocean observation and port survey,
20,873 million won for interest payments and principal repayments of foreign loans,
3,073 million won for the development of navigation lanes,
132 million won for erecting a marine museum,
2,806 million for the installation of navigation, and
4,871 million won for seamen training facilities.

(*Korean Maritime News*)

New Chief Executive for Auckland Ports



Mr. Robert Cooper is the new General Manager of the Auckland Harbour Board, which operates the ports of Auckland and Onehunga. He took up the appointment on 1 October after the retirement of Mr. R. T. Lorimer.

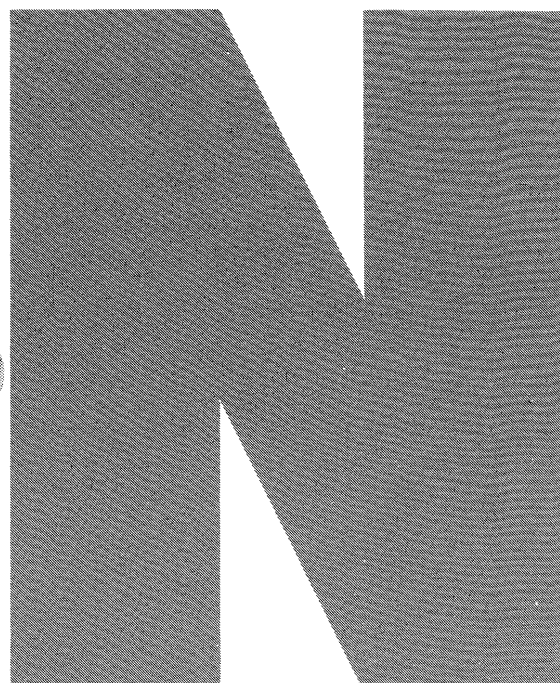
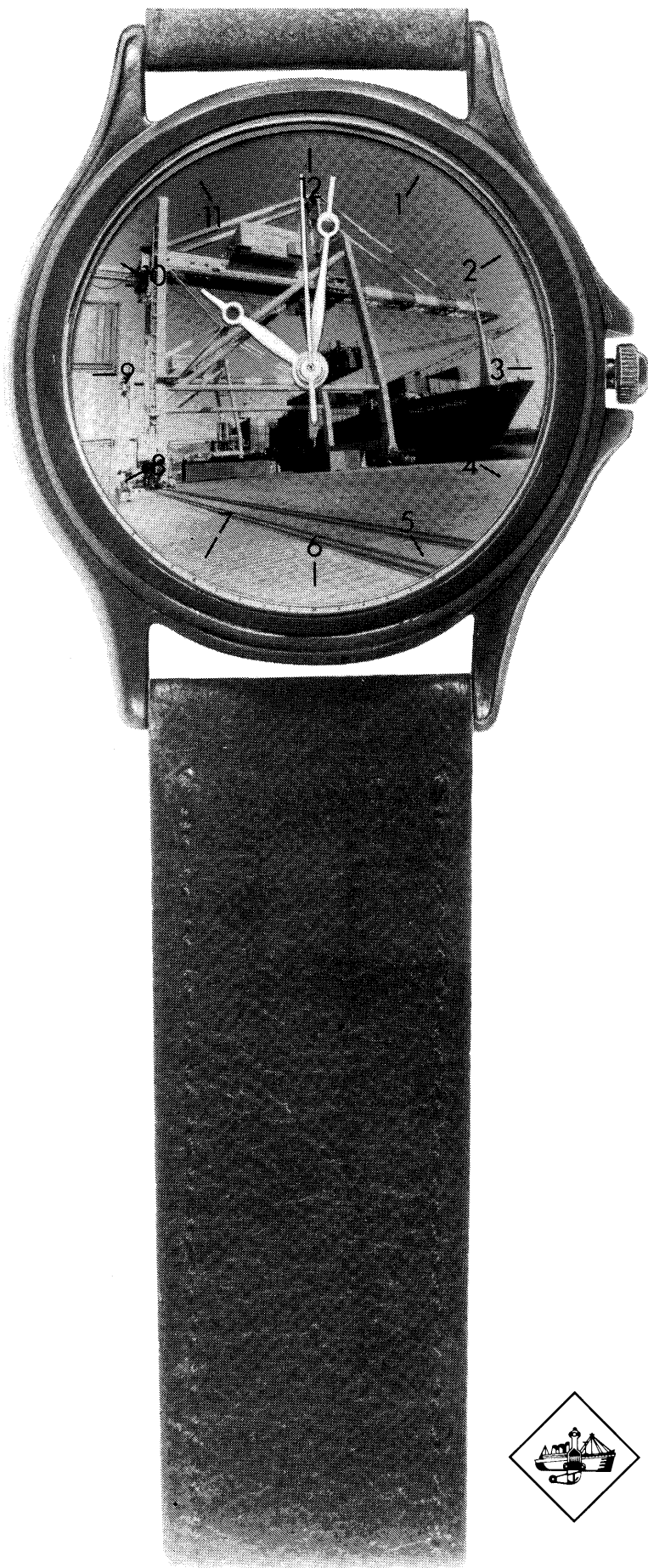
Formerly Deputy General Manager, Mr. Cooper joined the Board in 1971 as Assistant Traffic Manager after a career in shipping. He was promoted to Operations Manager in 1973, Assistant General Manager in 1982 and Deputy General Manager in January of this year.

Qatari ports operations during third quarter 1985

The total number of vessels called at Doha & Ummsaid Ports for discharging and loading during the third quarter of 1985 was 145, against 142 vessels called during the same period of 1984.

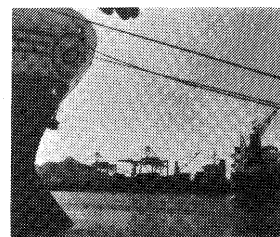
The import through the two Qatari Ports shows a slight increase from 409,014 tonnes to 426,509 tonnes ie; 4%.

(*Qatar National Navigation & Transport Co., Ltd.*)



SCHEDULE

That's how you'll stay with us. Because we know time is money. All our services and modern facilities are geared to helping you maintain your schedules, no matter how tight. With years of experience to draw upon, we offer the fastest turnaround available, with excellent transhipment facilities by road and sea to the Gulf and beyond. Port Qaboos container terminals are capable of handling any number of containers with the help of 35T gantry cranes with supporting quay equipment. We have deep water berths with round the clock berthing/unberthing facilities, 24 hour stevedore and shore handling operations and upto 150T crange capacity. We also offer 24 hour on-shore and at-the-anchorage bunkering facilities to all vessels.



**MAKE US A PART OF YOUR SCHEDULE.
WE'LL HELP YOU KEEP IT.**



**Port Services Corporation Limited
Mina Qaboos**

P.O. Box 133 Muscat, Sultanate of Oman
Tel: 714001, Tlx: 5233 MQABOOS ON



MITSUI Automated Container Terminal System

Masses of data!

But how to process it for efficient handling of containers?

The Mitsui System can speed up and rationalize container handling to give increased benefits from container transportation. Developed in 1972, this system has proved its efficiency at the busy Ohi Pier, Port of Tokyo, and it could be working for you in solving your container terminal problems, particularly those in the fields of cargo information and operations systems.

MITSUI Automated Container Terminal System Consists of 6 sub-systems.

1. Yard Plan Computer System
2. Yard Operation Computer System
3. Data Transmission and Oral Communication System
4. Transtainer® Automatic Steering System
5. Transtainer® Operation Supervising System
6. Portainer® Operation Supervising System

① Computer Room

② Gate Office

③ Operation Room

④ Portainer®

⑤ Rail-Mounted Transtainer®

⑥ Rubber-Tired Transtainer®



MITSUI ENGINEERING & SHIPBUILDING CO., LTD.

Head Office: 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, 104 Japan

Cable: "MITUIZOSSEN TOKYO", Telex: J22924, J22821

Material Handling Machinery Sales Department Tel. (03) 544-3677

Systems Headquarters Marketing Dept. Tel (03) 544-3272

Overseas Office: New York, Los Angeles, Mexico, London, Duesseldorf, Vienna, Singapore, Hong Kong, Rio de Janeiro