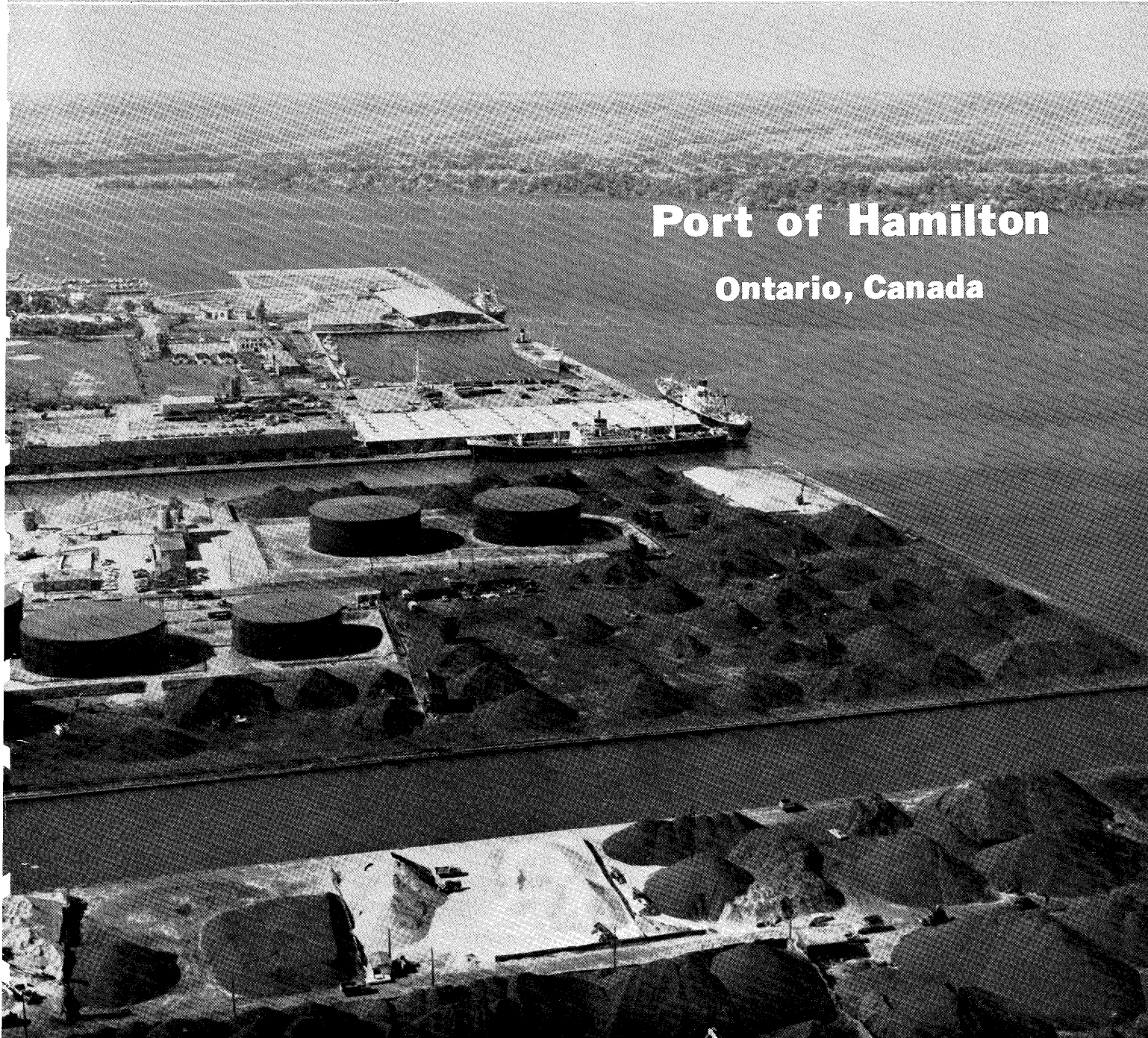


# PORTS *and* HARBORS

April, 1970 Vol.15, No.4

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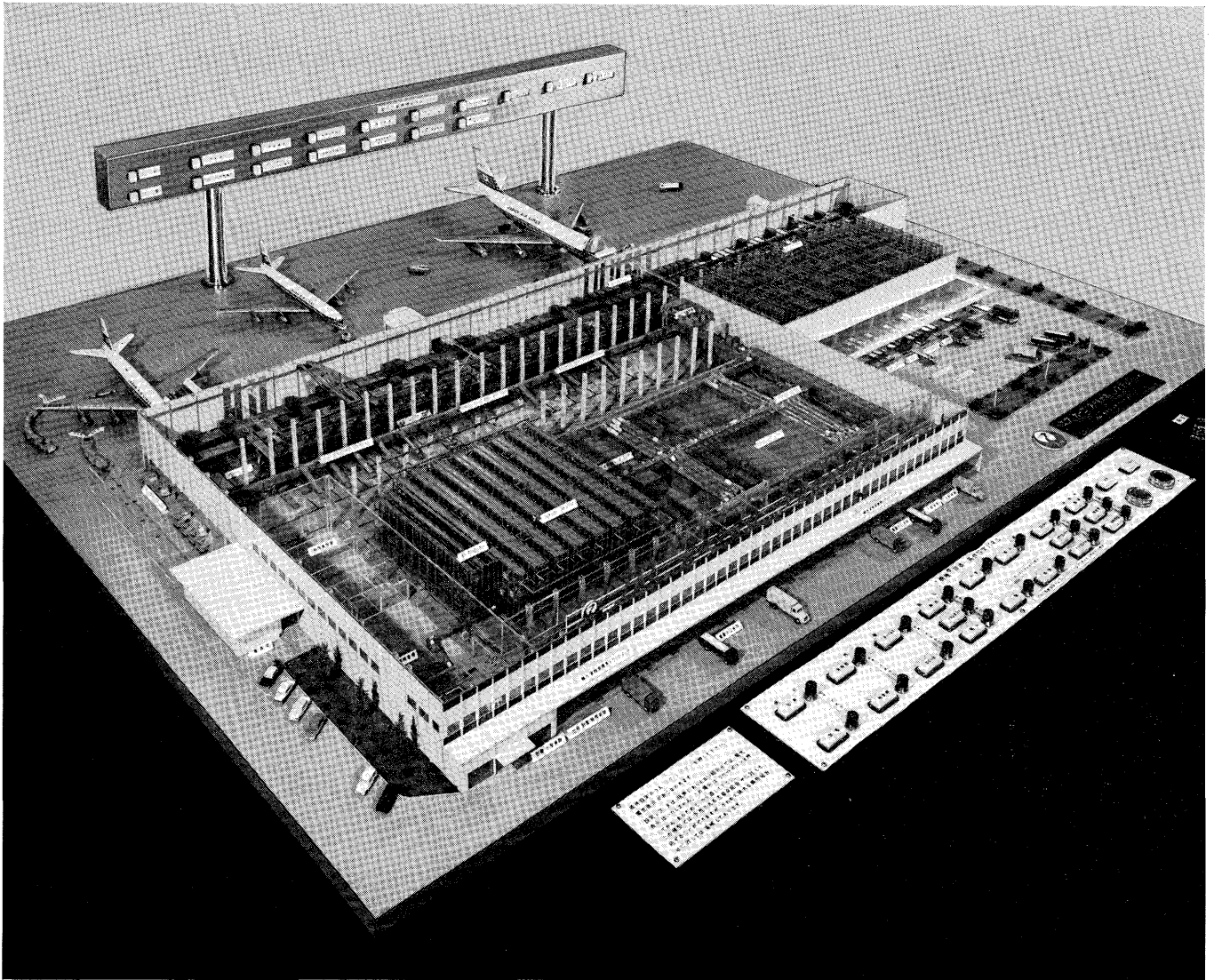


**MONTREAL CONFERENCE IAPH JUNE 1971**

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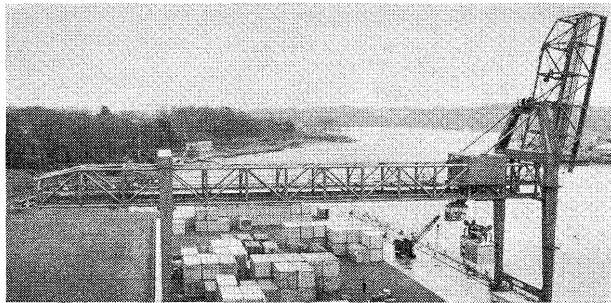
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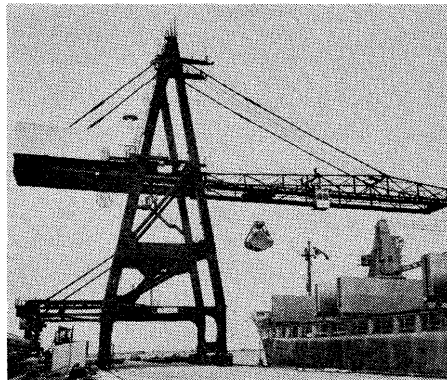
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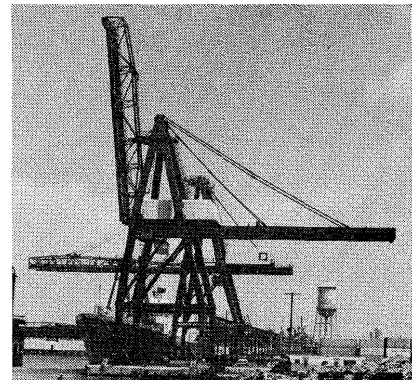
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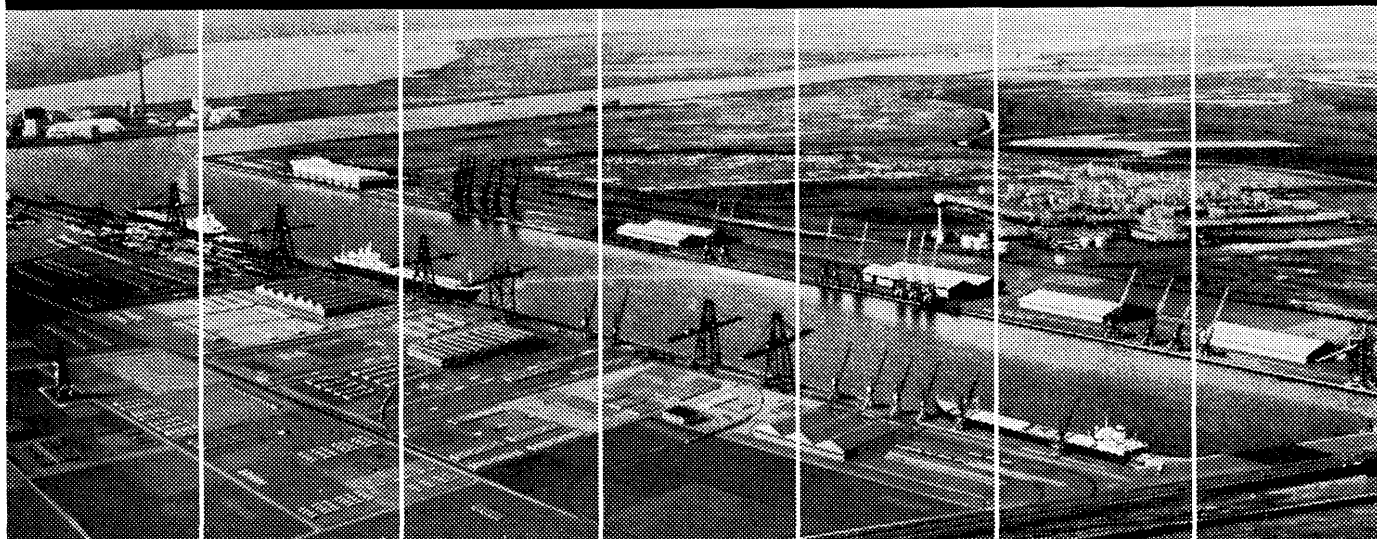
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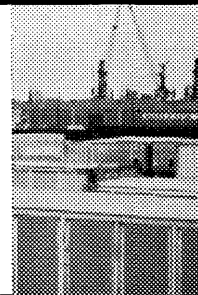


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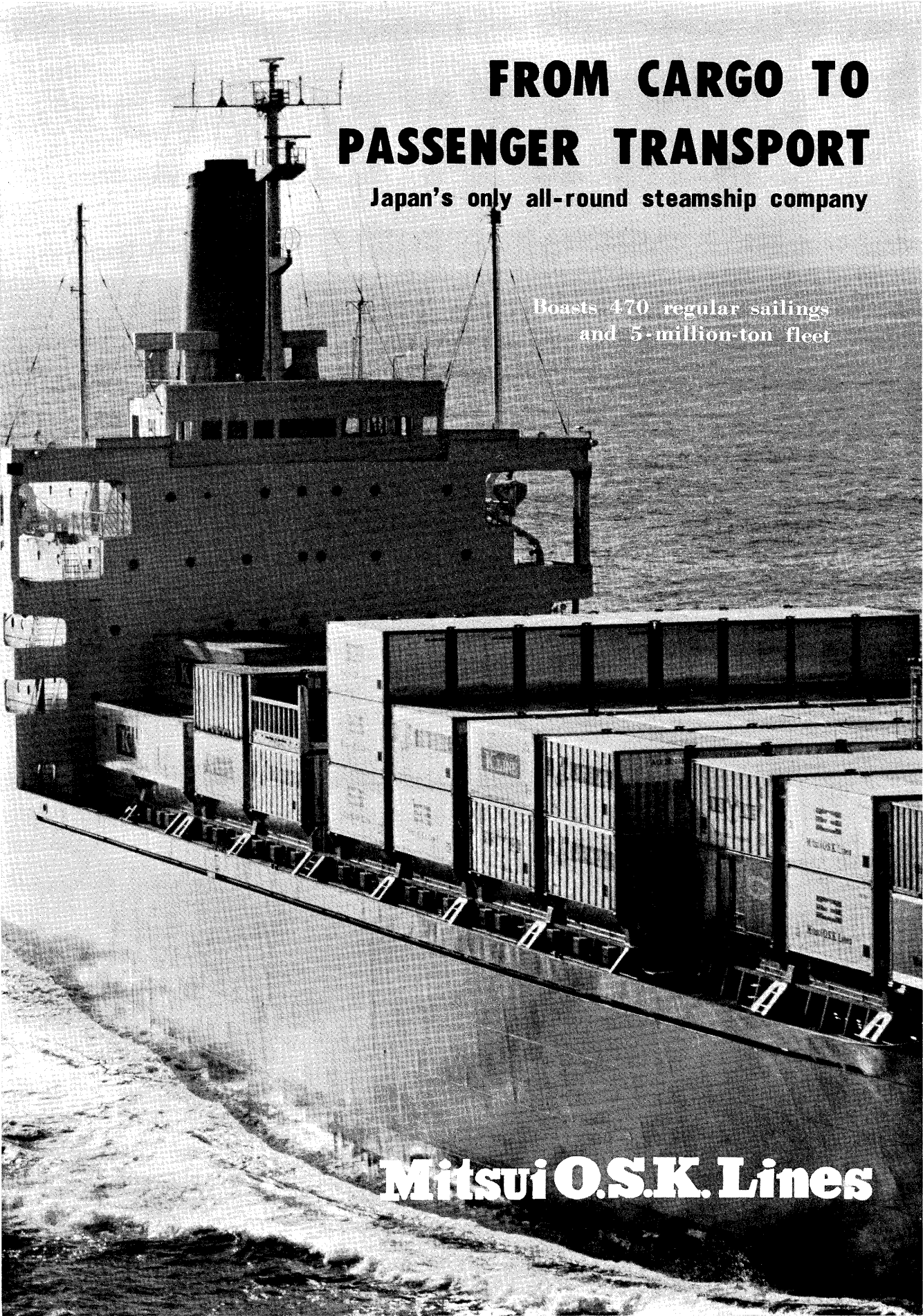
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**April, 1970 Vol. 15, No. 4**

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**The Cover: Port of Hamilton, Ontario, Canada**

Port of Hamilton's "Seaway Mile", showing bulk materials handling wharfs in foreground and two of the ports overseas general cargo terminal beyond. All structures shown are owned by the Hamilton Harbour Commissioners, who administer operation of the port, one of the principal ports on the St. Lawrence Seaway.

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## DOCKS BOARD PORTS—

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**Lift-on/lift-off**, too. Last year Southampton handled thousands of containers by lift-on/lift-off—mostly to the U.S.A. and several internationally well known container ship operators have chosen the port as their southern U.K. container terminal. Hull serves

the Continent in this way. Container services from Garston and Newport speed cargo to Ireland.

**The future:** Container handling is a growing thing—and the Docks Board is planning more facilities to meet the demand. At Newport, work was recently completed on a new quay for container traffic, and packaged timber vessels already use part of a £2.5 million development. The first part of the multi-million pound ocean container terminal at Southampton is operational and further extensions are planned as part of the Docks Board's £62½ million 5 year development programme.

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# PORTS *and* HARBORS

## Forum on Port Problems:

### *U.K. and Continental Port Costs Compared*

#### *“Substantial Subsidies for Continental Ports”*

##### *National Ports Council Reports*

Consultants working for the National Ports Council have produced a report\*, published today, which places in perspective criticisms frequently levelled at British ports based on unfavourable comparisons between the charges levied by British and Continental port authorities.

The report examines outside financial assistances given from national or municipal sources to four major Continental ports of Rotterdam, Antwerp, Dunkirk and Hamburg, and estimates ports of similar financial assistance were available to British ports and they would be able to introduce substantial cuts in the custom charges—indeed, in some cases they might be in a position to eliminate certain of their main charges entirely.

In an introduction the Council say they regard the report as most valuable.

‘While recognising that charges levied by the port authorities represent only a small proportion of total transport costs the Council nevertheless think it important that port users and the general public should be aware that Brit-

ish ports, who receive only the 20 per cent port modernisation grants on qualifying capital expenditure, are not assisted by central or local government on the same scale as Continental ports.’

As long ago as 1930 the Royal Commission on Transport commented that charges levels at Continental ports appeared to be considerably lower than those at British ports. They surmised that the assistance which these ports received from national or municipal sources might have a major bearing on this as well as the favourable physical conditions prevailing at the main Continental ports. The Rochdale Committee in 1962 referred to the Royal Commission’s comments, noted from the evidence presented to the Committee that the main British ports still were generally dearer to use than the major near Continental ports and commented:

“The reasons given in 1930 for the advantageous position of the Continental ports almost certainly still hold good.”

At the end of 1968, the Council appointed the consultancy firm of Touche Ross & Co. with a brief to determine whether major port authorities in four near Continental countries had special cost advantages which might enable the level of comparable port charges to be lower in the Continental ports

than in United Kingdom ports. The consultants’ report demonstrates conclusively to the Council that such advantages do exist in the form of substantial financial assistance from central or local government.

The consultants concentrated their attention on those port costs which are subject to influence by the port authority and have thus not devoted great attention to the physical conditions such as tidal ranges which affect port costs. They have also confined their detailed analysis to the costs arising from the provision of basic facilities and common services, which are those usually quoted in criticisms of British port authorities. Cargo handling operations, for example, have not been compared because these are mostly carried on by separate bodies—usually private enterprise companies.

The major cost advantages which the Continental port authorities receive directly are set out clearly in the report. Broadly these may be summarised as: financial assistance by central or local government on capital account (e.g. grants towards or outright gifts of fixed assets), and financial assistance by central or local government on revenue account towards maintenance dredging and various other port operations and services. In addition, in the case of two of the Continental port authorities, deficits and surpluses of the authority are absorbed in the respective municipality accounts. As deficits have been incurred in recent years, this represents a cross-subsidy from the local government’s general income.

Together, these amount, in the case of each port studied to a considerable subsidy when compared with U.K. port circumstances. The nature and amount of sub-

\* “A Comparison of the Costs of Continental and United Kingdom Ports”, by Touche Ross and Co., published by the National Ports Council, 17 North Audley Street, London, W1Y 1W1, price £5 5s. 0d.

sidey are, however, different in the case of each Continental port.

The discovery of the magnitude of the assistance given to these four Continental port authorities prompted an extension of the enquiry to discover what the likely consequence might be if similar degrees of assistance (other than the bearing of deficits) were receivable by U.K. port authorities. This question is answered in detail in separate chapters on each of the three U.K. ports studied — London, Liverpool and Southampton. It may be expressed simply as putting the port authorities in a position to make certain percentage reductions in their main port charges on ships and goods (other than cargo handling charges). The range of variation found is illustrated by the fact that the reductions range from approximately 15 per cent to total elimination.

Brief details of the assistance received by each of the four Continental ports are given below.

#### **Hamburg**

At Hamburg, all expenditure, whether revenue or capital, is written off in the year in which it is incurred. Port operations are included in the accounts of the City as a whole and no separate records are kept for the port as an entity. The consultants estimate that total expenditure on the port currently exceeds total income by over £6 million a year.

If the financial conditions under which Hamburg operates were applied to the ports of London, Liverpool and Southampton, the U.K. ports would be in a position to reduce port charges on ships and goods (except handling charges) by at least half, and possibly eliminate them altogether.

#### **Antwerp**

Although the annual aid currently received is small, Antwerp continues to benefit from a gift from the central government, in the period of 1956 to 1967, of some £48 million worth of fixed assets, without any obligation to pay interest on the capital in-

volved or charge depreciation on the assets. The consultants estimate that this benefit is currently worth about £4 million a year to the port.

#### **Dunkirk**

In similar circumstances to those of Antwerp, the three U.K. ports would have been able to cut their charges by between a quarter and a half.

In the French autonomous ports, which include Dunkirk, the Central Government pays for 80 per cent of the basic infrastructure and 60 per cent of the rest of the infrastructure. It also bears the cost of maintaining access to the port through maritime channels and locks.

Under the Dunkirk conditions, the U.K. ports could reduce their charges by up to half.

#### **Rotterdam**

As at other Continental ports, at Rotterdam the State dredges the river. The consultants point out that if the cost of dredging in the harbour is an indication of the cost of river dredging, this assistance from the State is probably of much greater value at Rotterdam than elsewhere.

The only other aid (apart from the relief of certain port operating costs e.g. in respect of rates and railways) which the consultants were able to establish at Rotterdam was that any deficit was transferred each year to the City and thus effectively written off. Although any surplus would also be transferred to the City, the port is, at the present time, incurring large deficits, and the consultants believe this will continue for several years (although the Rotterdam port authorities are more optimistic).

If the open-ended nature of the assistance to Rotterdam is ignored, the application of Rotterdam conditions to the U.K. ports would enable them to reduce their charges by about one sixth to one third.

#### **Grants to British Ports**

Financial assistance is available to British ports in the form of port

modernisation grants and investment grants, but the consultants point out that as port modernisation grants have only been available since 1966, they have had a negligible effect on the results of the U.K. port authorities in the years studied (1963-67). The only amounts shown in the Profit and Loss Accounts in these years were £35,000 at London and £15,000 at Southampton, both in 1967. With regard to investment grants, the only port authority expenditure normally qualifying is in respect of the purchase of ships and computers, and the impact of these grants is not significant.  
27th January, 1970.

For further information please refer to H. Cartwright, Public Relations Officer, on 01-493-7911 (day) or Downland 54004 (night).

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# ***Global Containerport System Emerging with Port of New York as Nucleus***

*(Reprint of "Via Port of New York" Special Issue  
minus copious illustrations)*

## **1. A "Total Port for Total Distribution" is Ready**

Containerization has gathered momentum at the Port of New York during the past year as the big bi-state port moved to coalesce its leadership as "America's Container Capital." Phenomenal changes abound throughout the traditional premier general cargo port of the United States, as the new replaces the old. Development of containership facilities, services and personnel to man them has taken place with relative ease, abetted as it was with the ten-year head start provided by The Port of New York Authority construction program at Port Newark and Elizabeth.

If the port's new facilities have faltered at times during the early days of the container revolution, let us remember that they are part of an epoch change still in its infancy. This is a change that has been compared in importance to that of steam replacing sail. Transitions of such colossal scale take time to perfect. *Savannah* first moved across the Atlantic in 1819, but it was many years before steam ruled the sea.

And so it is with today's tools of the container age; they, too, will be improved and augmented as each day passes. The long line of cranes beside Elizabeth Channel will be joined by a comparable number of the big hoists on the east and south sides of this mammoth terminal, scheduled for completion in 1973, two years ahead of the original schedule. New

highways and rail facilities are either under construction or will be soon for the dynamic Elizabeth-Newark complex, helping to streamline today's intermodal interface for the benefit of shippers and carriers alike.

From the shores of Newark Bay, containership terminal construction at the Port of New York has spread near and far. At the bi-state port itself, terminals are rising on Staten Island and at Weehawken. And, if present plans materialize, there will be still more at Brooklyn and Bayonne.

Overseas, the development of facilities for tomorrow's freighters is proceeding at an equally fast pace. Hamburg, Bremen, Rotterdam, London and Antwerp have multiple containership berths. And most of these European ports have plans of breathtaking dimensions for still larger marine terminals. Beyond the English Channel and North Sea, containership terminals are rising along the Mediterranean, on the coasts of Australia, the major ports of Japan, at Hong Kong, Singapore, the Caribbean ports and Scandinavia. The net effect of all this port construction is a global system of containerports.

Linking these new facilities will be equally modern fleets of fast containerships with a cargo-lift capacity beyond comprehension a short five years ago. Jet-turbined ships making in excess of 30 knots will head the parade of container vessels, goliaths with lengths approaching that of the longest ship ever built. Because their speed at sea is matched by the abilities of shoreside cranes to stow and dis-

charge a vessel in a day or less, it is easy to see that one containership will replace four or five break-bulk ships.

Expensive as the new ships are, they are exceeded in cost by containers and related equipment. These capital-intensive aspects of containerization make it prudent if not imperative that the new ships be used to the maximum. As the chief executive of a British consortium recently said, "We envision a highly disciplined operation that calls for very close scheduling and absolute coordination of sea and land operations. In other words, a system of total distribution."

Such a "discipline" might call for two or three cranes per vessel. The Port of New York has more cranes than all other U.S. North Atlantic and Gulf ports combined, and, as stated previously, it will soon have more. It also has the trained manpower to work these giants and other mechanized container-handling equipment. Thus, as the "can-do" port of the container era, the Port of New York is the foremost North American transshipping center for containers to and from all members of the global containerport system now taking shape and the "total port for total distribution."

## **2. Container Capital...**

**Facilities at Elizabeth and Other Port Sectors Combine to Give New York Leadership in Container Era.**

In the aftermath of the "container revolution" of 1966-67, the Port of New York continues to set the pace both in the development of containership terminals and in handling containerized freight. Although the upheavals that rocked the traditional shipping world three years ago continue at the New York—New Jersey Port, they now tend to be evolutionary — perfecting new methods at equally new marine terminals. New ships, terminals and office equipment, personnel changes and corporate realignments make news as the ocean carriers become geared to the impending container era of

the 1970's.

The marine terminals of the vast Port of New York reflect this transition; indeed, they are at the very heart of it. Nowhere is this more apparent than at the Elizabeth-Port Authority Marine Terminal, the ten giant cranes of which spire above its berths to help make it the focal point of the port's fully containerized operations. Expected to be completed in 1973, two years ahead of schedule, Elizabeth accommodates all but three of the port's major containership operations. So it is to Elizabeth that one must look to observe the foremost example of what a large-scale modern and efficient container terminal entails.

But it appears that other sectors of the bi-state port are to augment the prodigious facilities found at Elizabeth. Just across Elizabeth Channel at Port Newark, the Port Authority is developing newly filled-in marshland for use by containerships in 1972. Grace Line continues to berth its multi-purpose containerships at Port Newark, while those of Fabre Line and American Export Isbrandtsen Lines serving Mediterranean ports also load and discharge at Port Newark.

In spite of their obvious dominance, the two Newark Bay terminals of The Port of New York Authority do not tell the entire container story at the bi-state port. At Weehawken, New Jersey, for example, Seatrain Lines, Inc., is building a modern 80-acre facility, which became operational on a skeletal basis in early December when Seatrain launched transatlantic containership service. The existing Seatrain facility at Edgewater, New Jersey, also is expected to be in operation for years to come.

Just above The Narrows at Stapleton, Staten Island, American Export Isbrandtsen Lines berths its North Atlantic containerships at a 28-acre terminal shared by Transamerican Trailer Transport, a roll-on, roll-off operator to Puerto Rico, and Amerind Line's minicontainerships that call at Bermuda and the Dominican Re-

public. Transocean Gateway Corporation, developer of the mushrooming Stapleton terminal and a subsidiary of American Export Industries, Inc., has plans to add 35 acres of fill and demolish five obsolete piers over the next few years to create a quay of 2,350 feet and an over-all terminal of about 60 acres. Operations are expected to continue during the construction.

At the northwestern corner of Staten Island fronting on the Arthur Kill, Transocean Gateway is leveling a second site for possible containership use along with the development of industrial and distribution facilities.

Brooklyn, an important general cargo handling sector of the bi-state port, is aspiring to convert one or more pre-container era terminals to meet the demands of pure containerships. Northeast Marine Terminals, working with the City of New York, plans redevelopment of its terminals at 39th Street, Brooklyn, along with others north to 33rd Street, to create a 75-acre terminal with almost 50 acres of upland.

Just north of the approach to the Brooklyn Battery Tunnel, demolition of substandard housing also is contemplated to provide upland for the nearby piers under the proposed South Brooklyn Redevelopment project.

Scores of other berths throughout the port at which conventional freighters dock also are handling the big reusable cargo boxes. Often, break-bulk vessels will clear the port with fifty or more large containers. Thus, together with existing containership terminals, the conventional piers of the port are handling over 4,000,000 tons of containerized freight a year. At this rate it is conceivable that the goal of containerizing half the port's ocean-borne general cargo exports and imports may be reached before 1975, the year originally considered to be the target date for this milestone.

#### **Elizabeth . . . from Marshland to Marine Terminal**

Hundreds of containers daily

are part of a heavy flow of trucks into and out of North Fleet Street, the main approach to the terminals lining Elizabeth Channel. This is a far cry from the unused marshlands of 13 years ago when The Port of New York Authority decided the site would help the port meet its future terminal needs. And it is in marked contrast to the quiet streets of four years ago when Sea-Land Service was still the sole carrier at Elizabeth, having transferred there in 1962 from Port Newark.

When the container revolution hit in 1966, largely as a result of Sea-Land's entry in the transatlantic trade and several other successful containership runs, Elizabeth was already in the throes of a tremendous construction program. This development, authorized by the Port Authority in 1956 in spite of something less than enthusiasm for containerships by transatlantic carriers and others at the time, made it possible for many of the same carriers to have new terminals at Elizabeth during 1967 and 1968.

Atlantic Container Line (ACL), the six-line consortium formed in 1965, berthed the first of its ten new vessels at Elizabeth in September 1967. Similarly U.S. Lines, Hapag-Lloyd and Belgian Line (now part of Dart Containerline) could turn to the new public berths of International Terminal Operating Co. Inc. when they opened in 1968. Moore-McCormack Lines, an original member of the Container Terminals New York organization, lessee of the ACL terminal, began operation of an adjacent terminal early this year under an arrangement with Container Terminals New York.

The roster of lines at Elizabeth, therefore, includes six out of the eight containership organizations (including Seatrain) in the North Atlantic trade, the most intensively containerized route in the world.

Including the busy Puerto Rican business and other non-European traffic of Sea-Land, the 3,042,-145 long tons of containerized

freight moved through Elizabeth last year was stowed in 226,747 containers. The volume for 1969 will be nearly 27 per cent greater in spite of the lengthy North Atlantic-Gulf port shutdown early in the year. During the first nine months of this year, 2,854,112 long tons in 206,449 containers were hoisted or lowered by the ten huge cranes between Fleet Street and Elizabeth Channel.

### Sea-Land Proves Experience Counts

From its inception in the mid-fifties by Malcom McLean as an extension of the United States highway system, Sea-Land Service has evolved into a smooth, highly efficient intermodal operation stretching from Europe westward to the Far East and from the Caribbean northward to Alaska. Elizabeth, headquarters for this far-flung shipping network, has been home base for the container carrier since 1962, and during the last seven provided a 111-acre site on which Sea-Land has developed a 14-building terminal complex as yet unmatched anywhere.

Perhaps the finest tribute that could be paid to Sea-Land's operation at Elizabeth was from a veteran shipping executive who noted that in the scramble after the lengthy shutdown of 1969, the big Sea-Land terminal seldom gave the impression of being jammed or disordered in spite of moving a tremendous volume of freight. He attributed this to the chassis system of holding outbound and inbound containers in its marshalling yards, aided immeasurably by experienced personnel, tested handling methods and office procedures. It is significant that the chassis system of marshalling containers is being emulated by other terminal operators who earlier had practiced extensive ground storage or tiering of containers to make maximum use of their land. The partial and/or entire switch to keeping containers on chassis between the time they arrive and are loaded aboard ships has increased the already extensive need for spacious

paved areas at Elizabeth.

Compounding Sea-Land's need for more space is its dramatic announcement to time charter 16 U.S. Lines containerships for 20 years. Coming hard on the heels of its own remarkable building plans for a fleet of 33-knot SL-7's capable of carrying nearly 1,000 containers each, this development is considered potentially a momentous one but faces a hurdle in the form of Federal Maritime Commission approval. Expansion of Sea-Land services, such as the recent commencement of sailings to Liverpool and Le Havre, can be expected to match increased fleet capabilities. By 1972, when the SL-7's are to be delivered, Sea-Land will be operating close to 70 ships, if it does not retire some of the lessproductive units in its fleet. Meanwhile, the time-tested methods of Sea-Land at Elizabeth are helping thousands of shippers to reach their markets faster.

### ITO Introduces a New Concept

Slightly more than a year old, the \$25 million container terminal of International Terminal Operating Co., Inc., (ITO), is a new concept in stevedoring. The terminal, adjacent to that of Sea-Land, offers on a joint-use basis by unrelated carriers all the shore-side facilities and equipment for pure containership operation. In this case the "equipment" includes 4 Starporter cranes on rails, 29 mobile van carriers, a terminal control tower, an administration building and maintenance center, an 8-lane gateway, a huge stowage and devanning building and 85 acres of upland area. As this is written Dart Containerline, U.S. Lines and Hapag-Lloyd use the facility; the last two also occupy two buildings adjacent to the ITO facility for stowing and/or devanning container freight.

Utilized prior to completion of its key structures, the ITO Terminal was battling the backlog last spring from the port shutdown. Since then it has continuously improved. It has turned out 3,200 long tons per hour with its cranes and van carriers, and it is said to

average 2,000 long tons per hour from the time a ship arrives until she departs. At present the weekly container volume is about 2,500 containers, about half of the number ITO believes the terminal will handle ultimately.

Looking up and down the tremendous expanse of wharf and upland, 1,920 feet long and about 835 feet deep, lined off as it is with parking slots, is like looking at two dozen football fields in action simultaneously. When several ships are docked, the amount of vehicular traffic is amazing in several respects. First, because there is so much scurrying about, and, secondly, because everyone apparently knows where he is going. Systems and safety precautions are followed with care by the longshoremen-turned-drivers. Electronics guide everything. Radios of several types link all elements of movement and those persons supplying information for said movement.

The three carriers using the terminal have space allocated to them in accordance with their needs. Several hundred feet immediately behind the wharf are devoted entirely to outbound containers and are separated from an inbound area of equal depth by a wide aisle for the van carriers and pickup and delivery trucks. All of the over-the-road vehicles gaining entry to this area are directed from the control tower, which signals a guard when each truck may approach the gate. The trucks would be on one of five lines across the street from the wharf area; each line having been segregated as to function, such as pickup and/or delivery of a full containerload in contrast to an empty unit.

Location men assigned to each of the three carriers physically check the rows of stowed containers to make sure each is in its control tower-assigned slot. The rows are segregated by light, medium and heavy loads for each of the destination ports. No rows are stacked more than two high (except empties), for experience has proven it takes too much time to shift two containers by van



carrier when seeking to handle the third on the ground. Thus, when the control tower radios a van carrier operator to Row 50, position 3, bottom, it knows that a container of the proper weight and destination will be found and delivered quickly by a van carrier to one of the big cranes for stowing aboard ship. The van carrier operator is helped in locating a container by special identification roof and side of each of the big units. Needless to say that when numbers and/or letters on the a ship is being loaded at rates of about 3,200 tons an hour, there is little time for error in the form of a misplaced, hard-to-find van.

Continuously improved skills and methods at this innovative terminal make it one of the most important contributors to the Port of New York's role as America's Container Capital.

#### The Consortium that Made Good

When some of the most prestigious companies operating ships across the Atlantic joined forces in 1965 to establish Atlantic Container Line (ACL), there were skeptics who wondered how the traditional competitors could ever function under a single banner. Four years later, the last two of which have seen continuous operation of ACL ships between Elizabeth and Europe, any traces of doubt have long since vanished. The consortium has achieved success and soon will be seeking new levels of achievement when six new ships are placed in operation.

Occupying 1,500 feet of wharf immediately to the east of ITO, the ACL operation at Elizabeth is somewhat different in that roll-on, roll-off cargo, including hundreds of automobiles, is accommodated with each arrival. Containerized cargoes are handled in substantially the same way as at the adjacent ITO terminal with van carriers and two big PACECO cranes moving the containers between ship and upland. As at Sea-Land and ITO, all containers reach the ACL upland by motor carrier, including railroad piggy-

backed units. All three terminals have rail tracks over which box cars and flat cars deliver freight direct to each of the terminal's respective cargo consolidation buildings or, in the case of open-top freight, for spotting on a spur from which the freight is transferred to an ocean-going flat or container.

Supplementing the van carriers, terminal tractors or "yard hustlers" haul flats and trailers into and out of ACL ships. From upland positions, across the wharf's link span, the tractors hustle roll-on cargo up the loading ramp found at the stern of every ACL vessel and into her special deck for such freight. The yard hustlers also are used to position "pre-mounted" trailers on chassis for pick-up by over-the-road carriers. To the extent that ACL is pre-mounting (in advance of the pick-up truck's arrival) its inward containers to speed delivery, it has abandoned the pure ground storage method.

In the relatively long, window-lined control tower of ACL, one can see the impact of containerization on the waterfront. Equipped with binoculars to scan the full length of the upland and walkie-talkie radios, men in the tower keep in constant communication with the gate, ship, PACECO crane operators, drivers of the van carriers and hustlers and various supervisory personnel. Working within the prescribed demarcations of the long upland, towermen radio the drivers when and where to position each and every container, trailer or flat in the terminal. Each move is noted carefully on forms and, in addition, is marked on a huge display board mounted to the rear of the control desk. The magnetic board, which simulates the layout of the entire upland area, provides an instantaneous visual check of terminal conditions. The board does this by its codes: color of metal clips, code letters, port of destination headings and color of writing.

Aided by these visual codes and many other refinements in con-

tainer era management, the ACL terminal team is ready when its ship comes in. Whether feeding containers to or receiving them from the giant shoreside cranes, they know what to do to accomplish fast ship turnaround. Their weekly, reliable performance at America's Container Capital is a regular demonstration of how a consortium continues to make good at the Port of New York.

#### Stapleton Hums with Three in One

As the containership terminals closest to the open sea at New York Harbor, Stapleton holds an understandable attraction for ship operators. American Export Isbrandtsen Lines (AEIL), Transamerican Trailer Transport (TTT) and Amerind Line have been individually successful there.

Their compact three-in-one terminal centers on a single finger pier (Pier 13) and thrives with activity. Two container cranes, said to be the largest in the port, are situated on barges secured by pilings on the north side of the pier. These work AEIL's *Sea Witch*-Class container-ships, hoisting containers that reach shipside on chassis. AEIL originally had straddle carriers hauling the containers to and from shipside but this method has given way to the tractor-hauled chassis. Containers continue to be stored two and three high on the ground, with overhead cranes doing some of the tiering and big fork-lift trucks, fitted with spreaders, placing containers on chassis for shipside deliveries.

Simultaneous with the AEIL activity, TTT tractors, hauling trailers and containers on the south side of Pier 13, move up and down three bridge-type ramps enabling them to reach all decks of the line's unique *Ponce de Leon*. Vehicles of every description going to Puerto Rico also can be seen boarding the highly successful vessel. By keeping all loaded containers on chassis, TTT obtains one-and-half day turnarounds for the fast ship that completes her weekly ferry service to

San Juan in 58 hours or less. This speed has proved so popular with shippers that TTT is building a \$19 million sistership to the *Ponce de Leon* for service in the late summer of 1970.

The diminutive vessels of Amerind Line are also meeting with good fortune in providing container service to Bermuda since early 1969 and to the Dominican Republic more recently.

#### **Seatrain Enters Atlantic Trade via Weehawken**

Resuscitation of the former Erie Railroad yard on the Weehawken waterfront of the Hudson River opposite midtown Manhattan by Seatrains Lines is about to get under way with the rapidly expanding carrier's debut into the North Atlantic trade route. Although the new terminal on the old rail freight yard site will not be completed until next spring, it holds much promise in the way of innovations gleaned from experiences of first-generation container terminals at the New York-New Jersey Port.

Like the present AEIL operation at Stapleton, Seatrains will berth its containerships on either side of a finger pier. Equipped with three 45-ton-capacity cranes that can work either berth, the pier has the potential of handling as many as six containers a minute because of the cranes' 60-second cycle (one in and one out). If this speed is somewhat amazing, so is Seatrains' proposed capability to have containers at shipside no later than seven minutes after arrival at the seven-lane gate under the terminal nerve center or general office building.

The many innovations that will contribute to this rapid handling are too numerous to describe in this limited space. But one factor will be systematic processing of documents between gate checkers and a mezzanine-level documentation office. While the documents are being surveyed, inspectors located on a scaffold-like catwalk will be checking roofs of containers for leaks and any other

damage. Documents approved, the driver receives an automated data processing "locator card," indicating, numerically and by map, the parking slot for his containers. As with Sea-Land, Seatrains will keep all of its containers mounted on chassis while in the terminal.

Seatrains, which inaugurated service between the West Coast and Hawaii last September, is studying use of transcontinental trains direct to its excellent rail sidings for potential transshipment possibilities to and from European ports. Transshipments and other new developments of this enterprising carrier, however, will await completion next spring of Port Seatrains—the newest terminal at America's Container Capital.

### **3. Global Containerport System Taking Shape**

Development at ports around the world in the 1970's will consist primarily of building container terminals and facilities for huge new tankers and bulk carrier. On the following pages there are described a score of projects currently restructuring the general cargo handling facilities of ports in Australia, Asia and Europe as indications of the scope of today's conversion to container transport.

The activities of the various ports, while in almost every instance part of an over-all or long-term plan, can best be described as mercurial and reacting as if to fever. No doubt part of the frantic pace is in preparation for the more than 200 containerships slated for delivery between 1970 and early 1973. However, there is the desire on the part of some ports, a few of which are virtually undeveloped, to be focal points of container services for one or more countries or even a continent.

One of the most startling aspects is the momentum containerization is gaining in Asia and Oceania, where relatively low stevedoring costs would seemingly make this the least susceptible to the capital-

intensive requirements of containership terminals. Port executives in that part of the world, however, are very much aware of containerization's meaning to their ports. They say that they could get along without expensive investments, but, on the other hand, they want to be assured their respective countries and ports are in the mainstream of international commerce. They have concluded that only through containerization will this be possible. By having at least one container crane and room for expansion, ports of Asia and elsewhere, not all aspiring to be monoliths, will nevertheless be essential links in the containerport system now enveloping the world.

#### **Antwerp—Second Largest Container Port**

Second only to the huge Elizabeth terminal at the Port of New York in terms of size and equipment, Antwerp Container Center features six terminals working side by side within a 312-acre center at the Churchill Dock. Located along 3½ miles of wharf, the six terminals are operated by an equal number of private stevedoring firms.

Antwerp, noted for the excellence of its port salesmanship as well as the high caliber of its cargo handling, offers attractive inducements to containership owners. All of the terminal operating firms have agreed in their leases with the City of Antwerp to permit vessels unable to dock at their usual berth to tie up at any available container berth. Similarly, loading and unloading at any hour, on any day is not only advertised but guaranteed. Because of its facilities and cooperative spirit, Antwerp recorded 605,000 tons of container traffic on its ledgers last year. This year, however, according to the most recent data available, over twice that amount will be handled, as average monthly totals up to August are 105,000 tons per month in 8,600 containers.

As at Rotterdam, there is ex-

cellent rail service by Intercontainer to Milan, Basle and West German cities. Twelve-hour delivery to Basle, for example, is assured. An additional rail service is afforded by Interferry, owned by Belgian Railways and a trans-Channel ship operator, which expedites interchange of containers moving between Belgium and the U.K.

Belgian and British Railways are most active at the Port of Zeebrugge. The two national railway systems have been operating between this Belgian port and Harwich, England for over 40 years. Their experience has been put to good use in the container era, particularly since British Railways has commenced operations with its two container-ships. Each ship can make a daily crossing, spending seven hours at sea and five in port.

#### **Rotterdam a Leader in Containers, Too**

May 3, 1966 will go down in Dutch maritime history as the day the first container terminal went into operation at Rotterdam. As such, it was the first on the Continent. Since that time, container traffic at Rotterdam has continued to zoom. Last year it amounted to 114,000 containers, a level surpassed during the first six months of '69 alone. Largely responsible was Rotterdam's second terminal for the intermodal units. Located at Prinses Margariethaven, the second facility was opened in September 1967 by Europe Container Terminus (ECT) N.V., an association of five terminal operators and the Netherlands Railways, which also was responsible for the first a smaller one opened in 1966.

The facility at Prinses Margariethaven has shoreside cranes of 37, 45 and 52 tons and about 55 acres. However, it can be expanded tenfold to 500 acres and over 10,000 feet of wharf. Should that prove insufficient for the long-range outlook, plans are afoot for an entirely new general cargo port near the Hook of Holland—Rijnport Harbor envisages some 1,150 acres and over 13,000 feet of berth-

ing space.

Another of Holland's container terminals is found in Amsterdam, which serves North Sea and Channel operators, as well as being a feeder port for the transatlantic trade.

Eighty per cent of the containers arriving in Holland are hauled by motor carriers. COMBICON, an association of trucking companies, apportions container traffic amongst its members. Netherland Railways, offsetting a slow start, has won the remaining 20 per cent over the past year. The success of Intercontainer, which the Netherlands Railways is responsible for in organizing two years ago for the carriage of containers through two or more European countries, contributed to this gain. Through Intercontainer, crack trains leave daily for Germany, Switzerland, Italy and Denmark.

#### **German Ports Vie for Container Trade**

Bremen and Bremerhaven, under the management of Bremer Lagerhaus-Gesellschaft, have geared to the container age by providing two modern terminals and having more construction under way. In Bremen proper, three cranes at Neustädter-hafen service container-ships while heavy-lift cranes service semi-container-ships along the wharf of a five-berth facility. The Weserbahnhof continues to be an efficient consolidation station and is playing a major role in containerizing freight moving via Bremen.

It is at Container Terminal Bremerhaven where the major thrust of development for containers is to be felt in the area. Only 30 miles from the sea, Bremerhaven might eventually be the setting for ten big cranes on as much as 800 acres. Today, its tidal-free Nordhafen has two cranes with two more to begin operation next year. A fourfold expansion of Nordhafen's terminal area (to about 140 acres) is scheduled for completion during mid-1970.

German Federal Railway's "Delphin" container trains provide an overnight link to the Republic's major cities, while the autobahn and German trucking industry give shippers comparable service to and from the two ports. Aided somewhat by federal policy favoring rail for long hauls but mainly by providing new services and facilities, the railway has captured between 55 and 60 per cent of the container business to and from the German ports.

Hamburg, where the shipping lines of the west meet those of the east, is equally well served by the superb inland transport system of Germany—a system that guarantees that a shipment leaving any point in the country at the end of a working day will reach its destination anywhere else in West Germany by the next morning. Hamburger Hafen und Lagerhaus AB has developed a model container terminals at Burchardkai beside Waltershof Harbor Basin. Intermodal transport coordination is evident with an autobahn and container rail terminal almost within a stone's throw of the quay itself. Equipped with four cranes at present, Burchardkai will have six next year. Eventually, 13 or 14 berths will be developed at Burchardkai and in the Parkhafen and Maakenwerder Basins. Six or seven more are planned for the Predöhlkai.

Several miles from Burchardkai, Hamburg's famed "Übersee-Zentrum," the largest central facility in Europe for the dispatch of consolidated export cargo, is proving valuable for the stowage of less-containerloads.

As Germany's largest industrial center and the crossroads of traffic moving between the various economic blocs of the Continent and Scandinavia, Hamburg is confident that it has the balanced two-way freight flow that will continue its role as a major container port.

#### **In Scandinavia, Gothenburg's Pioneering Pays**

Before ACL's *Atlantic Span* made her maiden voyage to the Port of New York in September



1967, she made a start from her home port of Gothenburg. The Swedish port was ready for her with the first tailor-made container berth in Europe. For several years before, so-called ferry ships, roll-on, roll-off vessels and others, were plying the North Sea and Skagerrak between Gothenburg and English, Dutch and German ports. Wallenius and other pioneer operators of these vessels did much to encourage transatlantic containerships.

Swedish mariners and port executives have seen their early efforts bear fruit. Skandia Harbor is now the recognized container port for transocean trades for virtually all of Scandinavia. Its numerous feeder services to ports throughout the region is perhaps the finest example anywhere of how one major port can successfully serve others in the container age.

The Port of Copenhagen, second only to Gothenburg in terms of tonnage among Scandinavian ports, had taken a wait-and-see attitude toward containerization until this year. Convinced that the new shipping concept is here to stay, Copenhagen went to work on a container center and will open its first section next spring. It will feature about 1,600 feet of berthage, one 50-ton crane and another of 32 tons.

#### **U.K. Ports Convert to Containers**

It is said that the Port of London decided to approach containerization radically and comprehensively. This it did beginning in 1966 with detailed studies and the subsequent development of six container berths along 4,700 feet of new quay at Tilbury Docks. Labor problems have stymied full utilization of these berths, but several services are being maintained with some diverted to other English ports and one having moved across the Channel.

Up the coast from London, the once quiet docks of Harwich are astir with the frequent sailings of English and French containerships to Belgium, Holland and France, the vintage railroad quay

at Harwich having been modernized with a container crane. Nearby, from the terminals of Harwich proper, there are other roll-on, roll-off container services to Belgium, Denmark, Sweden and Germany.

Immediately across the estuary from Harwich, Felixstowe has surged into contention as one of the U.K.'s top three containerports. Equipped with a two-crane (30-ton capacity) terminal, Felixstowe has attracted three major American lines. Good highway and rail service, complemented by an excellent performance by labor, are some of the reasons for its rise.

The Mersey Docks and Harbor Board is busy transforming its facilities in keeping with the requirements of containerships and other large vessels. The Seaforth project will provide 3,500 feet of new quay with four huge shipside cranes for containerships. The project also provides specialized and general cargo berths which could be converted to an additional container berthage if needed. With the Seaforth Terminal two years from completion, Liverpool offers its newly modernized Gladstone Dock for expeditious handling of containerized freight by three cranes, including one of 50-ton capacity. Gladstone also features some of the newest container handling equipment in the Lancer Boss Series sideloaders of 25-ton capacity. Hornby Dock, a third container depot in Liverpool, is to be placed in operation during the near future.

Southampton, well known in the U.S. and Europe as a passenger port, has 1,000 feet of container berthage, which may be the forerunner of more if the need arises.

#### **France—Atlantic and Mediterranean Coasts Have Burgeoning Trade in Containers**

Marseille, Le Havre and Dunkirk are the big names among French container ports with each constructing new facilities for a rapidly rising volume of freight moving in the big boxes. An interesting development is the

growth of Fos, a big oil and bulk port in a suburb 31 miles west of Marseilles, into a fledgling container center this year. From a relatively short berth at a bulk ore terminal, the Fos container facility will be expanded to 1,600 feet. Two additional berths are planned there to handle the healthy container trade on the Mediterranean coast of France.

Le Havre, which is expected to handle nearly 30,000 containers this year, accounts for one-fourth of all containerized traffic moving into and out of France. In 1968, the records show Le Havre as the processor of nearly 220,000 tons of freight in 17,600 containers. Stimulated by considerable east-bound cargo from the Port of New York, Le Havre is expanding its present single berth at its Atlantic Quay from less than 1,000 feet and two 40-ton-capacity cranes to one with 3,400 feet of wharf and four shipside cranes, giving it seven berths by 1972.

Bordeaux, to the south, is also developing an export-import trade in containers which are shipped to and from Le Havre aboard feeder vessels.

Dunkirk, across from the Thames, receives *Transcontainer 1*, the French Railways' new containership, six times every week; in addition, considerable roll-on, roll-off traffic and other containerized freight from Britain is handled. Overall, Dunkirk is the number four port of France on a tonnage basis, and with its new container cranes should be an important key in the container network under development in France.

Compagnie Nouvelle des Cadres (CNC) is a division of French National Railways (SNCF), has scheduled unit trains called "trans-blocs" that move containers from the ports of Dunkirk, Le Havre, Bordeaux and Marseille to several stations in Paris as well as to Lyons, Toulouse, Strasbourg Metz and Dijon. Over a dozen container cranes have been erected by CNC in these and other cities, giving it a system comparable to those of Britain and West Germany. CNC, consequently, hauls

about 85 per cent of the container traffic between Le Havre and interior cities, and it expects to be a major factor in transporting containers to and from other French ports. With its own ship and fleet of nearly 1,500 ISO-standard containers, SNCF is demonstrating it will be an influential member of the container age.

#### Major Italian Ports Adjusting to Containers

Genoa, Italy's biggest port, opened a \$2½ million Ponte Libia container terminal last summer. Equipped with a 40-ton crane, the 11-acre facility preceded Ponte Ronco, which will be doubled in size, by a year. Inland some 40 miles, an interior port or distribution center—Rivalta Scrivia—was opened as a staging area for Genoa, which is short of land for container marshalling. Genoa, nevertheless, is handling about one-third of Italy's container traffic.

Leghorn will have a terminal ready next summer; it is being built by an affiliate of American Export Isbrandsten Lines but will be opened to other carriers. Some thought is being given to the development of Cagliari, the capital city of Sardinia, as the major container port of Italy. This would parallel in many respects the possible selection of Marsden Point, New Zealand as a national center for containerized cargoes.

In northern Italy, the Milan Rogoredo, another distribution and container center, has been opened to provide a smooth interchange with rail service to North Atlantic ports. Highway restrictions on the passage of 40 footers, while legally circumvented on occasion, tends to encourage the long-haul movement of the big units by rail in Italy. Competition for the northern Italian container traffic is keen, therefore, between the modes as well as between the ports concerned.

#### Australia—New Zealand Girds for Containerships

Five years ago it was common to

hear sages of the maritime world proclaim containerships might fare well in the short-haul trades, 1,500 miles more or less, but they would never prove viable for most of the long international routes. Such a theory has been disproved frequently since 1966. It was shattered completely by a British consortium last spring with the introduction and subsequent success of an 11,000-mile-long containership service between Europe and Australia. Such service has slashed nearly three weeks from former delivery times in the trade and resulted in containerizing half of the general cargo moving between Australia and Britain.

It is paradoxical that Australia should be the first to confound the sages, for here she is 5,000 to 11,000 miles distant from her major trading partners—Japan, England and the United States—and possessed of an agriculturally oriented export market and a population of 12,000,000. Again contrary to earlier opinion, the agricultural products of the continent down under are taking to containers like kangaroos to natural piggy-backing.

Several growth industries—automobiles, pharmaceuticals, chemicals and oil refining—to mention a few, are sparking Australian manufacturing to increasingly higher levels and broadening the economic base. are also preparing for the containership era. Auckland steadily. At the \$1.3 billion level for 1968, the export-import trade between the two countries has jumped 146 per cent since 1961. Future containership operators whose ships will link the two nations soon are banking heavily on this expansionist trend.

From the Port of New York, three well-known names in shipping will be sending eleven ships to Melbourne and Sydney by early 1971. Associated Container Transportation (USA), Columbus Line and Farrell Lines will phase out their break-bulk and partially containerized vessels now in this service. In the case of ACT (USA), a division of the English consortium of the same name con-

sisting of Cunard Port Lines, Blue Star Line and Ellerman Lines, approximately 20 break-bulk vessels will be replaced by four.

Columbus Line, which will put the first of its three new containerships into Australia by the end of next year, will jump the gun on ACT. An American carrier, Farrell Lines, is also expected to put the first of its four C-6's on the run before the first of a quartet under the ACT-U.S. flag hits ports down under in early 1971.

As at most of the Australian ports, concentrated stacking of containers, up to five tiers high, is practiced extensively at Sydney to make maximum use of waterfront property. The open areas for stacking seem to merge into cargo terminal buildings, which have an open side enabling overhead cranes to move containers between the building's interior and the upland. The sides of the building are nearly 50 feet high to allow for 40 feet of containers and clearance of the crane's structure. This rather snug arrangement is aided by an extensive container identification system.

Melbourne, the nation's number one general cargo port, has its new Swanson Dock Terminal for containerships, and it, too, is being expanded.

Across the Tasman Sea, Auckland and Wellington are also preparing for the containership era. Auckland has a 50-acre terminal underway and will have a 900-foot berth ready by early 1971. Wellington, not to be outdone, has two berths and 1,900 feet of wharf in front of a 34-acre terminal; the first berth is to be ready by April '71 and the second about one year later.

At Marsden Point, Whangarei, the Northland Harbor Board is urging development of an "international" container port for all of New Zealand, which would be capable of handling supercontainerships 10 and 20 years from now. Marsden Point has, its proponents contend, the channel depth, acreage and closeness to overseas markets that its metropolitan rivals do not enjoy.

## Japan Leads Far East into Container Era

Some of the most modern container terminals in the world can be found at the major ports of Japan. At Kobe, the Maya Terminal reminds one of Elizabeth with its gantry cranes, van carriers and lined marshalling yards. The Shinagawa and Kinjo terminals in Tokyo and Nagoya, respectively, are also equipped for containerships. Yokohama will have two berths in operation soon and a third by next spring. Originally Tokyo was to have eight berths for containers and Yokohama three. But demand has been so great that these figures will be revised upwards. The same is true of the Osaka-Kobe complex. A revised national plan is expected soon. Tokyo may well edge out Yokohama as the nation's number one port as the container era advances.

To the south, Singapore has hopes of becoming the hub of containerized shipping for its part of the world. An East Lagoon Container Complex, estimated to cost \$70 million, is underway and is expected to provide the Port of Singapore Authority with 2,250 feet of wharf for containerships. A reclaimed area of 100 acres is envisioned, but for the present, a single berth is expected to be operational by the end of next year.

Meanwhile, at Hong Kong plans are crystallizing on a four-berth containership terminal of about 90 acres and 3,200 feet of wharf. The new berths are expected to be ready in mid-1973. At present, conventional berths are accommodating containerships.

At Ceylon's Port of Colombo, where plans for a containership berth were discussed by the Port Commission nearly five years ago, an extension of Queen Elizabeth Quay will serve the big ships of the future as a transshipment base. As the "entrepot" for containers en route to or from ports on the Bay of Bengal, Arabian Sea and East Africa, Colombo is located ideally. It is the hope of Colombo port officials, therefore, as with

those of New Zealand's Whangarei, that its berth would serve to attract containerships plying major trade routes. While these ships are running relatively well filled at present, it is conceivable they will eventually be diverted for a fast call at Colombo.

## Container Cranes Rare Species in Latin America South of San Juan

The Port of New York is dispatching a steadily increasing volume of containers to Central and South America aboard break-bulk freighters and some partially containerized. This is happening despite a general lack of special facilities for handling this type of traffic in virtually all Latin American nations. It is rather ironic that this condition should exist. The first containership in international trade is remembered as having operated between New York and South America. And not to be overlooked is the fact that Puerto Rico continues as a key base for three highly successful containership operators.

Today's absence of containership facilities in Latin America could prove fortuitous in the future when LASH and other shipborne barges make containerization possible without permanent shore-side cranes and other costly investments. The increasing use of roll-on, roll-off throughout the Caribbean and parts of Central America also is bringing containerization benefits to the region without all the accoutrements needed for largescale lift-on, lift-off operation.

Knowledgeable shipping men in South America believe, nevertheless, that several major container transshipment centers are needed to keep their continent apace with the mainstream of world-wide transportation. They believe, as do others, that the container crane should not be a rare species south of San Juan.

## 4. Marine Insurance and its impact on Containerization

For the past two years, after it became evident that marine underwriters did not intend to lower

their rates on containerized cargoes in the face of earlier and widely anticipated reductions, there have been more discussions on proper stowage and its relationship to marine insurance than during the past half century. Thus, while the quest for lower rates has been unfulfilled as yet, it has sparked an intensified effort by interested parties to promote improved container stowage, better containership design with respect to on-deck container protection and established certification procedures for exporter-stowed containers and manufacturers of containers. Positive results of the insurance debate have, therefore, been highly beneficial to individual shippers and the entire containerization movement.

As for the current status of marine insurance rates on containers, the level of such charges has not been reduced indeed, at least one firm has boosted rates 50 per cent for on-deck stowed containers. Spokesmen for the American Institute of Marine Underwriters (AIMU) continue to plead a lack of data and/or experience on which to formulate rates based on purely containerized movements. As recently as September 1969 an industry spokesman said, "Unfortunately, comprehensive statistics on underwriters' container losses do not appear to be available..." Advocates of lower rates have countered that containerships have been in service for at least twelve years. More recently their position was bolstered by a report by the American Institute of Merchant Shipping (AIMS).

This group, comprised of subsidized U.S.-flag carriers, made a study of containers transported by a dozen of its 37 members (all of the subsidized containership operators in the U.S.) during the twelve months ending June 30, 1969. The results were dramatic. For the entire year, only 29 units out of 330,693 containers were lost—a rate of one out of every 11,430.

Associated Container Transport Ltd. (ACT), which has been operating containerships between

Europe and Australia since the spring of 1969 confirms the experiences of the American operators. Claims against containerized cargoes are considerably less than break-bulk freight carried in the same trade. Michael B. Northern, executive vice president, ACT (US), cites a reduction in claims per freight ton of 87 per cent for trade moving U.K. to Australia and an even larger one of 92 per cent in the opposite direction. Mr. Northern adds that the Insurance Institute of London admits that loss experience has improved with the advent of containerships.

Shippers were increasingly perplexed by the marine underwriters position on its inability to develop an experience base when AIMU issued a report on its survey of losses on domestic and overseas air cargoes for the first seven months of 1969. This AIMU report was made public during September 1969, within a few days of the time users of ocean-going containers were told "comprehensive statistics do not appear to be available." Air cargo losses were detailed as to commodity, location and value. Thus, some shippers of containers believe if AIMU can develop a system to keep an up-to-date account of its members' claims made by air cargo shippers, the same can be done for them.

There is no doubt that marine underwriters have suffered heavy losses from containerships, unsound containers and improperly stowed containers. Two examples which the industry cites frequently are: a loss of 40 containers overboard and 17 subsequently crushed by high seas off Cape Hatteras during April 1967 for a \$900,000 claim, and a second claim for \$250,000 for 22 vans dispatched into the Pacific off San Francisco during December 1968. Other substantial losses include one for \$560,000 to cover theft of silver bullion from a container parked at a maritime terminal for nearly a week prior to a vessel sailing. Leaking container roofs and door gaskets and other water damage cause the bulk of major claims, while crushed, chafed and/

or scored contents of improperly secured contents of containers are a close second.

Large monetary losses at sea have their counterparts on land. Hijackings of entire containerloads, in particular, are on the rise wherever containers are handled regularly. Such was not always the case; only two years ago B. E. Czachowski, vice president—truck operations, Sea-Land Service, advised a gathering of shippers that only four hijackings were experienced during his organization's first twelve years of operation. Since then, however, there have been sufficient incidents of this type for trucking associations and security groups across the nation to issue warnings and precautions.

The problem was serious enough to warrant the appearance before a Senate committee of William P. Sirignano, executive director, Waterfront Commission of New York Harbor. At the time of his testimony (August 1969), Mr. Sirignano said that the containers are targets for large-scale thefts at many ports.

"Large-scale larcenies of container loads are obviously not the result of impulse," Mr. Sirignano said. "Such thefts," he continued, "require organization and cooperation of persons on the piers who know the arrival schedules, the whereabouts and the contents of containers." To prevent and hopefully eliminate this collusion, the Waterfront Commission leader urged that locally operated security forces be established at ports which meet accepted police standards, including qualifications and standards. Such port security officers should have full police powers, including the authority to search persons and vehicles entering and leaving the pier areas. He also enumerated several more security measures designed to fend off hijackers and other criminals at containership terminals around the country.

Confronted with claims the values of which are often far in excess of those incurred with break-bulk shipping, the marine underwriters have a problem. It

would seem equitable to exporters using oceanborne containers, however, if the marine underwriters closed their information gap with a report on container losses comparable to the one issued by AIMU on air cargo.

Regardless of which direction marine insurance rates move, the debate has proved productive in centering attention on important prerequisites a shipper should bear in mind if he wishes to get his cargo to destination in factory-fresh condition. Cargo stowage in the era of containerships has passed from the stevedore who prepared stowage plans to those who fill the big boxes at inland factories and consolidation centers or at a port's consolidation shed. Because of this transition it behooves all those inland as well as at seaboard with this stowing feature to acquaint themselves with the proper methods. Several comprehensive references are listed at the end of this article for this purpose.

To stow a container properly requires advance planning, for example, matching your product to the dimensions of the container. Moreover, it demands an appreciation for the mood of the sea, which can change from the mirror-like stillness of a lake at dawn to a raging high sea in the afternoon. The container has to be stowed and built to take the worst hammering the sea can offer. Violent ship rolling of 25 to 30 degrees can swing a container in an arc of about 50 feet, one side to the other for hours on end. Obviously shifting cargo under these conditions is going to damage itself and the container. Stowing manuals illustrate how shifting can be prevented for various types of stows—module (case goods/cartons), unitized freight on pallets, drums, single machines and two or more machines. A list of such manuals and related information on container stowage is on pp. 19-20.

Effects of rolling can never be completely eliminated and must always be considered a factor in stowing; however, some of the new containerships on the trans-



atlantic run are equipped with stabilizers to coddle container freight in a manner formerly reserved only for passengers aboard luxury liners. Ship design in itself can be of extreme importance to containers. Captain Hewlett R. Bishop, executive vice president, National Cargo Bureau, Inc., who has fostered an energetic program of improved container stowage, says, "Good seamanship will reduce damages, but more thought must be directed to providing the seaman with the proper tools to do the job, namely a ship designed to carry and safely deliver the cargo. The design of recent ships indicates that there is some realization of the problem involved."

Captain Bishop has always been a strong advocate of placing the bridge forward to get increased deck cargo capacity. Since the advent of containerships he has affirmed this position, because the forward bridge permits much safer navigation of the long (700-950 feet) vessels as well as affording some protection against boarding seas. It is interesting to note that Sea-Land's SL-7's will have a navigation bridge just aft of the fore-castle in addition to a second super-structure about 200 feet forward of the stern. Those of ACL and DART also have a bridge near the bow.

The National Cargo Bureau's interest in ships and container stowage has another facet which directly concerns American exporters. NCB's well-known surveyors are located in many parts of the country and will travel to any place to assist shippers in establishing sound procedures for stowing goods in containers as well as to inspect stowage. In addition to offering specific suggestions, the non-profit bureau's surveyors will:

1. Inspect internal and external areas of a container for watertight integrity and strength.
2. Check to see if right type of container is used for the cargo stowed.
3. Check for proper stowage, including distribution of weight.

4. Check for proper packaging materials.
5. Determine if container is overloaded.
6. Assure compatibility of cargoes.
7. Ascertain in case of dangerous cargoes whether they are stowed in accordance with U.S. regulations.
8. Determine if general cargoes are stowed in accordance with National Cargo Bureau recommendations.

If the above requirements are met, a container inspection certificate is issued.

A complementary function is performed aboard ship after a shipper's container(s) is stowed. Condition of the container's special fittings, the chocking, lashing, and other securing devices are checked. Deficiencies are brought to the attention of appropriate persons, and when all is in order, a certificate for deck stowage is issued.

International Adjusters, Ltd., in its excellent Container Report No. 2, listed as a reference at the end of this article, makes an important point in recommending to shippers that personnel responsible for stowing containers be educated to inspect the condition and fitness of a container prior to loading and that they refuse to accept containers that are not in sound condition. A container that is delivered with a hole in the roof or sides, partly wracked, rear doors out of alignment or not water-tight, contaminated by injurious residue of previous shipments, should be rejected. Occasionally, a shipper, because of delivery deadlines, etc., cannot take the time to reject a container. Under such circumstances, a clear statement of faults should be recorded on the bill of lading in order to hold the container owner (or interim carriers) responsible for damage or loss that may later be attributed to the faulty container.

E. Raymond Keyes, president, International Adjusters, Ltd., who prepared his firm's Container Report No. 2, also notes how difficult it is to assign responsibility

for damages suffered by container freight in transit. Mr. Keyes writes that the recovery potential [of the underwriter] is severely impaired against carriers involved in such cases. "While the claims experience of the intermediate carriers may show vast improvement," he writes, "the marine underwriter because of the handicap to prove which carrier was negligent can expect his claim payments to rise without the offsetting of recoveries normally expected under the breakbulk system."

Helping to assure shippers as well as container owners that they are getting a solid unit, the American Bureau of Shipping (ABS) has established a certification system of containers based upon satisfactory testing of a prototype. An ABS surveyor witnesses the rugged tests to which the prototype is put, while a manufacturer, if endorsed by the attending surveyor, attests to the construction, material quality and workmanship to obtain certification of production units. The surveyor also audits the quality control methods and production facilities of the manufacturer during periodic visits to the plant.

Shippers who are heavy users of containers can often work with ocean carriers to have certain stowage aids incorporated into containers at the time of manufacture. Logistical tracking, for example, vertical and horizontal, can be installed for easier partitioning, decking (tiering) and shoring of container cargoes. Tracking, slotted aluminum strips, are designed to accept beams that traverse the interior of a container to form cargo braces and girders for decks. Such an installation adds about \$250 to the cost of \$3,000 to \$4,000 for a 40-foot container, but only a small percentage of containers are equipped with it at present.

The guides and manuals of the following list contain comprehensive material on the stowage of virtually all types of cargoes susceptible to containerization. The National Cargo Bureau booklet has a bibliography which

should also prove helpful.

1. Shippers Guide for Proper Stowage of Intermodal Containers with Emphasis on Ocean Transport—(Illustrated. \$.50 each plus handling charges, in minimum lots of 10)  
National Cargo Bureau  
99 John Street  
New York, N. Y. 10038
2. Stowing of Goods in Containers and on Flats  
(Illustrated. \$4.80)  
Swedish Transport Research Commission  
Grev Turegatan 12 D  
114 46 Stockholm, Sweden
3. Suggested Methods for Loading, Blocking and Bracing of Freight, in Closed Trailers for TOFC Service (Illustrated. \$.25)  
Association of American Railroads  
Freight Loading & Container Section  
59 East Van Buren Street  
Chicago, Illinois 60605
4. References on Stowage and Handling of Containers (\$5.00)  
Container Report No. 2  
International Adjusters, Ltd.  
116 John Street  
New York, N. Y. 10038
5. New Containerships . . .  
Mean New Techniques

Today's fleet of containerships serving the Port of New York is the largest and most modern of its kind. However, it is but a minor task force in comparison to the armada of such vessels now being welded together to slide down the ways between 1970 and 1973, not to mention another generation of unannounced ships. In sheer numerical strength alone—over 260 vessels—the upcoming fleet is imposing. In terms of speed—from 21 knots to 35 knots—the impact is staggering to those accustomed to the 15-18 knotters of the 1950's. And in terms of cargo-lift capacity, averaging about 1,000 twenty-footers for the larger pure containerships, compounded as it is with 24-hour turnarounds and high service speeds, the capabilities of tomorrow's fleet are awesome.

The new ships will continue to effect radical changes in the maritime industry, extending the turbulent course its members have traversed since the container revolution of 1966. House flags of established ocean carriers will be lost in the wake of the swift new cruisers of commerce just as others have already been relegated to history by financially powerful conglomerates and newly named consortia of two to six formerly independent lines. Contraction if not outright elimination of breakbulk vessel fleets can be expected on the routes with a high proportion of containerized freight.

Even the 95-year-old conference system is being adapted to the container age. Nine steamship conferences with lines serving ports of the Caribbean and South America have filed agreements (which, if approved, will be provisions of each tariff) with the Federal Maritime Commission in seeking permission for their respective lines to publish jointly with railroads and motor carriers through rates from inland U.S. points to the overseas destinations. Such single-factor rates have remained stymied due to a dispute over jurisdiction between the FMC and Interstate Commerce Commission. Pending legislation seeks to solve this dilemma.

A second conference matter on file with the FMC involves containership operators in the transatlantic trade who seek approval of their establishment of an all-encompassing conference of containership carriers to virtually all of Europe. In doing so they would drop the system of bygone years in which there were conferences covering freight to a particular coastal range, country or other relatively small area. The new conference would also be bi-directional, eliminating the need for eastbound and westbound tariffs. Behind the conference's expressed objective to "impartially recognize and respect the inherent characteristics of specialized vessel types and equipment used by member lines" is the desire by all of the carriers to protect their huge

investments in ships, containers, chassis, and terminals. Some of them also see the conference as an effective way to forestall impingements of revenues resulting from independent action on freight-all-kinds rates and special concessions to non-vessel-owning common carriers. Rate wars, best nipped in the bud, will be discouraged by conference rules calling for fines as high as \$100,000 for a first offense.

Creation of the new containership conference was inspired in part by Arne G. Koch, managing director of Atlantic Container Line, who said earlier this year that containership companies are today in the same situation as the airlines were when IATA was founded. Mr. Koch said, "They urgently need to create a container conference equivalent to IATA." The need has not diminished during the interim; indeed, even without considering American plans for 30 ships a year, the current output of containerships will make conferences geared to existing conditions vital not only on the transatlantic routes but on most others as well.

The recently signed pact between the owners of Sea-Land Service and United States Lines, under which Sea-Land will time charter 16 containerships of U.S. Lines for 20 years at an annual cost of \$61 million, affirms the pioneer carrier's role as the largest in the world. The agreement, which requires FMC approval, took the shipping fraternity by surprise, for in the preceding two months Sea-Land had chartered Norwegian bottoms and ordered \$160 million worth of tonnage from German and Dutch shipyards. The order was for eight containerships, called SL-7's by Sea-Land, which could make 33 knots with their steam turbines of 120,000 horsepower driving twin screws. Fifty feet longer than the luxury liner *United States* and only nine knots slower than her 42, the SL-7 measures 980 feet. They will offer enough cargo space to accommodate individually 1,052 containers of 35 feet and 40 feet.

About 15 per cent of their total capacity will accommodate 40-footers by means of adjustable fittings in the cellular holds.

Whereas the Sea-Land giants will use steam turbines to obtain their 33 knots, four containerships capable of moving in excess of 25 knots which are to be built by another German yard for Seatrain Lines, Inc., will feature gas turbine propulsion. Manufacturers of the gas turbines, Pratt & Whitney Aircraft, say that their units save more than 60 per cent in engine room space as replacements for steam turbine or diesel engines. This space can, of course, be used for additional cargo. They also maintain that gas turbines are highly reliable over a long period and are capable of burning either jet fuel, diesel fuel or some other heavy distillate. Seatrain's first two gas-turbined vessels will each displace about 32,000 tons and have a length of about 800 feet; the second duo will be bigger and faster. Transatlantic service was initiated during December by Seatrain with converted C-4's, which will be put to other uses when the new vessels begin to arrive during late 1970.

The German yards, which are dominating containership construction, seem to be building for everyone, including their own countrymen. Hamburg-American Line (HAPAG) and North German Lloyd, which are said to be planning a merger, have been successful in jointly operating four containerships of 14,500 tons between New York Harbor and European ports. In operation for most of this year, the Hapag-Lloyd Container Lines' ships, which handle about 60 per cent of all Hapag-Lloyd transatlantic traffic, carried a volume of cargo on nine voyages which would require a fleet of 21 break-bulk freighters. There are no plans at present to augment these efficient vessels on the Atlantic run, but Hapag-Lloyd has at least two containerships of 32,000 tons being built for the Far East trade and another of 30,000 tons for their run to Australia.

Another German-flag carrier

operating out of New York — Columbus Line, Inc. — is building three containerships for the Australia-New York service. The first of the 618-foot long trio will begin the transformation of this service from one of wholly break-bulk operations to containers with a sailing during mid-1970. Half of the new Columbus Line ships' capacity of 900 twenty-footers each will be refrigerated units to handle Australian and New Zealand meat products. R. T. Soper, newly appointed president of Columbus Line, said that he expects to use nearly 6,000 containers for the 22-knot vessels.

Farrell Lines will introduce the first of four new C-6's to the trade down under around the end of 1970, gradually replacing four vessels, two of which are the semi-containership "Australis." Capable of carrying nearly 1,000 twenty-footers, Farrell will use the cellular holds of the C-6 in a somewhat unorthodox manner, one designed specially for the Australian meat trade. If present plans materialize, Farrell Lines expects to use gondola-type containers, sometimes called "flats" or "half-highs," for frozen meat. These will be stowed in cellular holds which are temperature controlled.

ACT (U.S.A.) will bring four new containerships to the Port of New York during the spring and summer of 1971 for its service to Australia.

American Export Isbrandtsen Lines, another pioneer container carrier at New York, is developing new techniques along with new ships. Its *Sea Witch* class has proven itself and will be augmented when six 818-foot ships capable of stowing 1,600 twenty-footers come off the ways during the next two years.

Five Japanese lines also are expected to join in a consortium to operate fast containerships direct from Japan to New York Harbor.

All of these new ships and the displacement of older containerships and semi-containerships to routes presently served by break-bulk freighters will afford export-import shippers using the Port of

New York the finest array of container services available anywhere.

## 6. On Consolidators of Container Freight, Present and Future

### Federal Legislation and Policy Hold Key to Improved Inland Systems

Over the past decade as ocean-borne containerization evolved into today's goliath, an ancillary type organization known as the non-vessel-owning common carrier (NVOCC) gradually gained prominence in the U.S. and proliferated. One hundred of the NVO's, as they are most often called, are now engaged in through movements of containerized traffic into and out of the U.S., predominantly via the Port of New York. The fact that NVO's arrange through transportation for small lots of cargo between inland U.S. and interior points of most of America's major customers abroad has earned them a special niche in the U.S. container scene, under present circumstances at least.

A glimpse into the operations of the largest and one of the oldest NVO firms, United Cargo Corporation (U.C.C.), reveals how this type of organization functions. U.C.C., through its parents concern, Intercontinental Trailsea Corporation, has established consolidation and distribution facilities at inland cities across the U.S. These are situated within terminal buildings of interstate motor carriers. Both inbound and outbound cargoes are handled for Trailsea at these installations; generally, freight consolidated or distributed under this arrangement is hauled in ocean-going containers owned or leased by U.C.C., which also supplies chassis. Once the cargo is transferred from a trucker's pick-up vehicle into a container at the inland Trailsea depot, it inherits all the benefits a full containerload enjoys in the way of lighter export packaging and elimination of handling en route to as well as after arrival at the Port of New

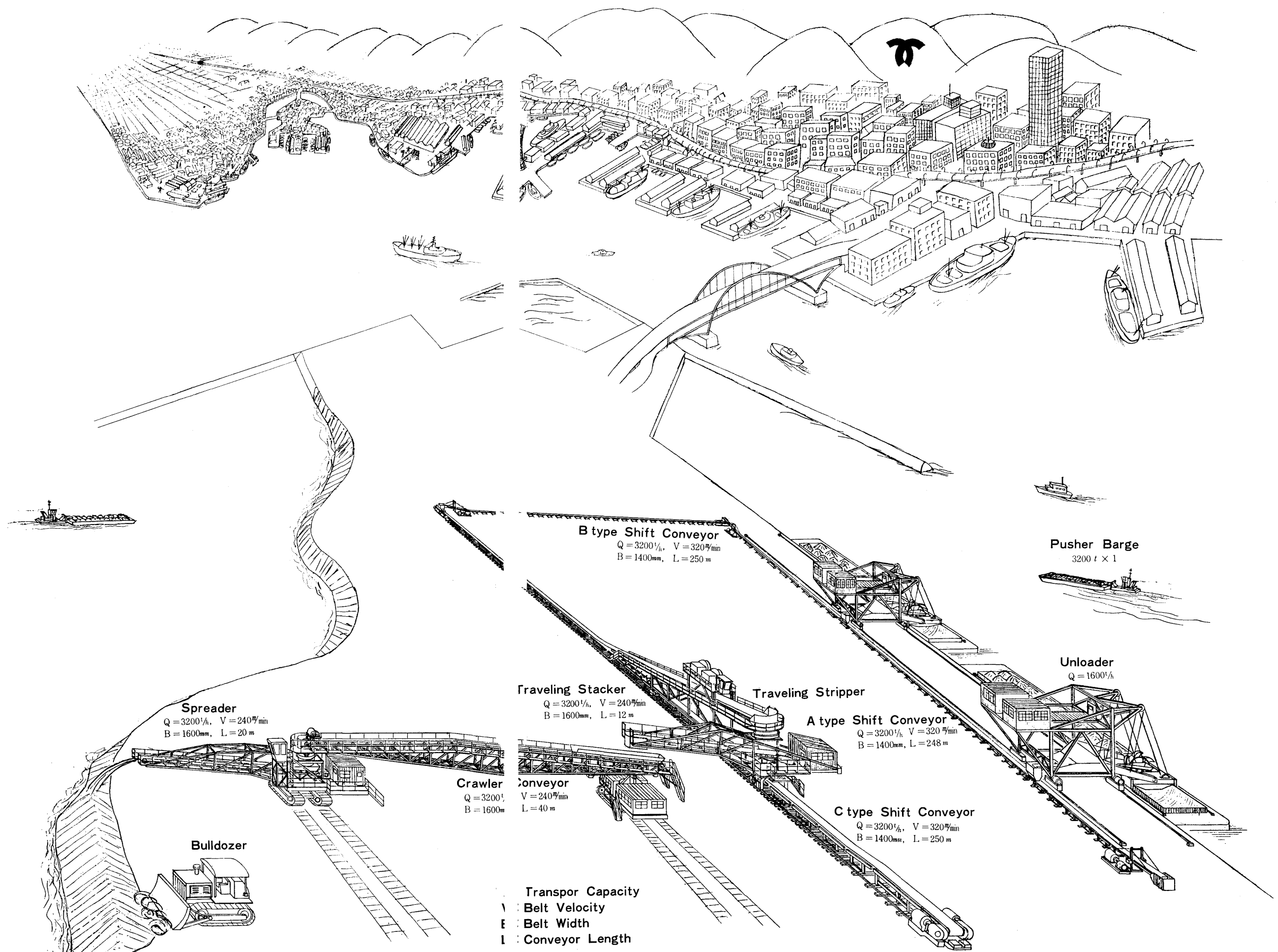
(Continued on Page 25)

# Port Island of Kobe

Kobe:—The Port Island of Kobe, so much talked about for the technical novelties being boldly utilized, is now finally taking shape, this time again by means of a combination of efficient labor saving know-hows.

The Island is to have an area of 4,220,000 m<sup>2</sup>, requiring 69 million m<sup>3</sup> of fill. The equipment illustrated on these pages are supposed to unload approximately 20 million m<sup>3</sup> and complete the Island surface by the fiscal 1974 as planned.

The IHI bucket-wheel type unloader is capable of unloading 2,500 t/h, and the panoramic illustration on the right depicts the Island-making operation. See also the photos on the following page.







Unloader buckets rotating to unload soil from barge. (Kobe City)



Spreaders at work. (Kobe City)

(Continued from Page 21)

York. For once the U.C.C.-Trail-sea container arrives at a marine terminal at New York, it merely is checked at the gate, parked and shortly thereafter hoisted aboard ship; its contents are untouched.

U.C.C., it should be mentioned, also handles door-to-door (or variations thereof) of containerload exports and imports. In fact it has a separate division to handle imports of books by the containerload.

As with most other NVO's, U.C.C. services include quotation of predetermined rates on file with the Federal Maritime Commission. These rates are combination rates not to be confused with true single-factor rates, for the latter would be a joint rate between a U.S. inland carrier and an ocean carrier. Since no single regulatory agency has jurisdiction over such a joint rate, considerable effort is being made to enact legislation assigning such responsibility. In spite of this governmental void, the NVO combination rate actually is the equivalent of a single-factor rate enabling U.S. exporters to calculate in advance their transport costs to overseas delivery points.

NVO's want their relationships with the containership operators clarified by the FMC. Isaac Charchat, president, U.C.C., has urged the FMC to affirm the NVO's ability to enter into agreements with ocean carriers under Section 15 of the Shipping Act of 1916. The pioneering NVO executive, in making his plea, indicated that such agreements might be concerned with freight-all-kinds (FAK) rates, consolidation allowances and "weight break" and "blocked space" agreements. Thus, it would appear that if the transatlantic containership operators desire an IATA-type conference, then the NVO's, borrowing an idea from the aviation industry, too, would like blocked-space rates.

Similar recommendations are proposed by Henry V. Kantzer, president of another large NVO outfit—Puerto Rican Forwarding

Co., Inc. He believes that arrangements between ocean carriers and NVO's should be condified. Mr. Kantzer is also an advocate of strict NVO licensing and bonding. Puerto Rican Forwarding has an application pending to extend its operations to two-thirds of the U.S.

The FMC's non-adjudicatory investigation of NVO's has not developed any finding as of this writing. In a related case [FMC Docket No. 69-33, Atlantic & Gulf/West Coast of South American Conference Agreement] involving requested FMC approval of joint rates on cargo moving from inland U.S. points and abroad, the regulatory agency also has failed to reach a decision. When resolved, the NVO survey and joint-rate proceeding will stimulate new action on container rates.

The Interstate Commerce Commission (ICC) also is reviewing intermodal transport services with an eye on improving same. The ICC is particularly anxious about small shipments. In a recent speech before the American Trucking Association ICC Commissioner Donald L. Jackson was moved to say his agency was concerned with complaints that motor carriers are not participating in through route and joint rate agreements on some small shipments as called for in their basic common carrier certificate of public convenience and necessity.

Conditions such as this have brought bills before Congress [S. 2245 and H.R. 10853], which would permit the ICC to establish temporary through rates on intramodal and intermodal basis where there is an immediate and urgent need which cannot or will not be met by existing carrier arrangements.

Thus, in spite of the services rendered by the many NVO's and the ocean carriers themselves at inland points, hampered as they are by federal regulations now under review for changes and additions, the inland system of consolidating and transporting less-container loads appears in need of refinement.

A hope in that direction is

offered by Daniel H. Overmyer, president of the firm bearing his name, which is well known in the warehousing industry. Mr. Overmyer's plan has not crystallized as yet, but it would tie in the consolidation of export-import traffic in containers with a national system of terminals across the U.S. designed for domestic containerized movements. Mr. Overmyer says, "There's a pressing need for such service. It grows in part from the fact that steamship lines are not very adept at the land-lubber's job of positioning a container at a factory door in Peoria, and the railroads and truckers have been looking at containerization with understandable caution."

With seven intermodal terminals at New York, Cleveland, Detroit, Chicago, Dallas/Fort Worth, Los Angeles and San Francisco, Mr. Overmyer would link these consolidation stations with five transcontinental unit trains weekly, eastbound and westbound. These trains, not unlike those developed in the U.K. and Europe, would consist of permanently coupled flat cars, possibly 100 to a train, which would be operated almost constantly at an average speed of 40 miles per hour. The train would require one week to traverse the country, making stops at each of the other six cities listed after clearing New York on San Francisco.

In addition to consolidating containers as well as cargoes, each Overmyer terminal would serve as the site of a container pool. Warehousing space and container maintenance facilities would be provided at each. Implementation of the Intermodal Terminal System has not commenced as yet and many questions concerning it remain unanswered, but Mr. Overmyer, filled with optimism, says: "It will most assuredly play a major role in the transport revolution of the 1970's."

Not to be overlooked as a distinct possibility for the future consolidating container traffic is the formation of what is loosely termed "monolithic transport systems." Creators of these systems

would be the large corporations owning major containership operators. By purchasing motor carriers, domestic and foreign freight forwarding firms and in-transport haulers, the so-called conglomerates would transcend NVO operation and traditional carrier relationships. Ostensibly, the efficiency of such an organization would be beneficial.

## 7. Perfecting the Interface...

By origin and design, the ocean-going container is an instrument of coordinated transport. Thousands of the intermodal units are interchanged daily at the Port of New York between ocean carriers and railroad and trucking companies under various interchange agreements. Many such exchanges are performed with clocklike precision; others are anything but examples of coordinated transport.

The "intermodal interface," as the sea-land point of transfer is called frequently, is dominating symposiums on containerization, with charges and countercharges issued by representatives of the various modes. Behind the verbal barrages are the costs, insufficient revenues and delays associated with the movement of steamship-owned or leased containers from the time they are picked up at a marine terminal until they are picked up at a marine terminal until they are returned.

Concern over the various problems was sufficient for containership operators to organize the Steamship Operators Intermodal Committee. Objectives of SOIC reflect the fact that containerization has made ocean carriers deeply concerned about in land transport if not an integral part of it. SOIC members, which now number nearly 20, have a common interest in:

1. The inland movement of loaded and empty containers in the U.S. and abroad, and the charges and practices of the inland carriers respecting such movements.
2. Consolidation and deconsolidation of cargo in the

interior.

3. Requirements for the interchange of containers.
4. Inland and through documentation.
5. Governmental regulation of inland movements.
6. Insurance and liability for containers and related equipment.
7. Expedition of through movements.
8. The form of joint-through intermodal rates.

SOIC will do much to perfect the intermodal interface at the Port of New York in that it represents the establishment of a direct and collective voice of virtually all containership operators, the first direct line of communication between them and the inland carriers. The new group will thrash out existing differences and hopefully come up with some positive recommendations. It will be dealing with the undue time required of motor carriers to pick up or deliver containers at some marine terminals, or such things as the allegation by one railroad that containers handled under interchange agreement remained at their inland terminals for an average of 23 days between hauls, the cumulative effect of which was an unproductive use of valuable terminal areas. Rates and other charges by the inland carriers on containers also will be the topic of many discussions.

Some over-the-road carriers contend they are making little or no revenue from containers. An export-import director of one of America's largest trucking companies claims it costs his firm \$8.50 daily for a 40-foot container against \$3.00 for a 45-foot domestic trailer. Twenty-footers per se are not feasible at all for truckers; when coupled they are useable but linking the two units is often a troublesome, time-consuming operation when performed under less-than-ideal conditions.

Of equal annoyance to the motor carriers, who, by and large, are becoming increasingly attuned to operating costs, is that many

40-foot containers with their low 8-foot height offer 15 per cent less cube than the tallest permissible domestic trailer (8 feet, 6 inches). The recent rejection of an 8-foot-6-inch width for U.S. trailers took some of the heat off containers, but, now the trucking industry is advocating an increase to 75 feet as the maximum length permitted on the major highways of the United States. Such a length would, if authorized, permit a double-bottom rig of two 27-footers from coast to coast. Double bottoms already are permitted to operate in half of the states.

The 27-footer may well be the economic remedy needed to assuage containership-trucker relationships and their associated deterrents to smoother interfaces. Twenty-seven-foot containers in tandem offer 3,600 cubic feet of payload or 900 cubic feet more than the 40-footers' 2,700 cubic feet.

In spite of the poor economic case for containers versus domestic trailers, motor carriers will continue as container haulers for competitive reasons within their own industry and to forestall a wholesale takeover by the rail carriers. Few motor carriers would want to be known as "container dropouts," especially since at least half of the port's total general cargo business will be containerized in a few years.

The railroads have played a relatively subdued role in the container scene at the Port of New York to date. Major trailer-on-flat-car terminals at the port were in existence prior to the 1966-67 container revolution. Export-import containers transported to and from the port move as trailers through these yards, which are dominated by domestic traffic. The fact that all containers reaching containership terminals at the port are delivered by truck has led the president of the port's largest stevedoring firm to say that if rail tracks installed at his terminal were utilized, it would expedite both truck and rail deliveries to a considerable degree.

Rail services, as with facilities,

have not kept pace with containerization. Unit trains moving directly to and from marine terminals of the Port of New York and major inland cities would do much to increase the efficiency of the port interface. Several years ago, the then Pennsylvania Railroad announced its plan for 75-car unit trains for Sea-Land Service between New York and Chicago and St. Louis. The trains would have permitted a lower level of rates that would have facilitated container traffic and made containerization profitable for the railroad. Only through the development of such trains will the railroads find the profit incentive needed to offset their current cries for higher rates on empty containers, coupling charges and the like.

The chances for land-bridge trains are slim because container-ships are becoming faster and bigger while rates for containers go higher, the railroads contending that T.O.F.C. is a premium service requiring premium rates. Meanwhile existing advances in railroad technology go unused. In this magazine the potential of S.C.O.F.C., stacked containers on flat car, was outlined. The well-known consulting firm of A. T. Kearney has plans available for a car enabling S.C.O.F.C. to become a reality. Based on a depressed-well car, the Kearney plan would permit hauling combinations of nearly all sizes of containers now in use.

Railroads in the U.K. and Continent are forging highly efficient systems of coordinated transport which include close links to container-ships and even outright ownership of such ships. Ironically, many of the European railroaders studied American T.O.F.C. and container operations in the U.S. and went home where they put the best of the American methods promptly to work. In the fall of 1965 Britain's Freightliner system was started, and it is now the best example of coordinated rail-truck-ship service in the world. The Germans have a comparable system and the French are

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## IAPH News :

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# Orbiter Probe

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## Montreal Looms Closer

After Singapore, Montreal suddenly looms closer and within arm's reach. For although the IAPH Executive Committee spent busy hours thrashing out pending and new problems, the Meeting culminated in the announcement of the program of the Montreal Conference by Mr. Howard A. Mann, Chairman, National Harbour Board of Canada.

The outline of the Conference as described further on is the first

inkling of what is going to take place in Canada in June, 1971. The idea of offering reversible Pre- and Post-Conference Tours for delegates arriving from east and west is unique and thoughtful. It is believed that all the delegates would take advantage of this arrangement with appreciation.

### Suggested Conference Program (June 6 Sunday)

—Registration

making advances in that direction. Thus, while American railroads remain mired in indecision, aloofness and regulatory stultification with respect to containers, their counterparts across the ocean use American know-how. Little wonder then that Deputy Under Secretary of Transportation Charles D. Baker said: "We've all inherited a regulatory and administrative environment that is archaic and out of step with technological change. It seems to me that the first thing the transportation industry has got to do is decide if it is going to offer a through service with some single entity putting the movement together..."

Fortunately, if pending legislation is approved, the environment will be improved considerably. Specifically, the Trade Simplification Act of 1969, permitting singlefactor rates, and the Equipment Interchange Act of 1969, allowing agreements on equipment interchange.

## 8. Containerization is the sincerest form of flattery

When you take an idea and run with it other people are bound to get the idea. When they start to run with it too that's flattery.

Fourteen years ago, the Port of New York began to run with the idea called containerization. Now that most major ports are running with it too, we feel a little flattered.

But those other ports still have a long way to go to match our 17 deep-sea containership berths. Or to equal the 184 steamship lines that call here—nearly every one offering you container service of some kind, to more destinations more often than from any other port.

The Port of New York: first with containerization, still far out front.





Conference room of the Executive Committee Meeting, Tuesday February 10, 1970, in Goodwood Park Hotel, Singapore. From left to right, Mr. G. Edney, Interpreter (for Dr. Haraguchi), Dr. C. Haraguchi, Mr. T. Akiyama, President Swanson, Mr. Howard A. Mann, Lord Simon, Mr. T. Guérin, Mr. L. Purdey, Mr. G. Tsuboi (Mr. L. King arrived soon and took seat to the left of Mr. Edney). Standing are left to right: Mr. N. Fidge and Mr. K. Seah.

—Special committee meetings

#### June 7 Monday

—Registration

P.M.

Formal opening ceremonies

Mayor's reception

#### June 8 Tuesday

9.30–10.30

First Plenary Session

10.30–11.00

Coffee break

11.00–12.15

1 major paper

2.00–3.15

1 major paper

3.15–3.35

Coffee break

3.35–5.00

2 minor papers

#### June 9 Wednesday

—Ottawa

—Noon arrival

—Rideau Hall Buffet

Luncheon

—Tour

—Gatineau Hills

—Canadian dinner (ceinture flechee and stetsons) Cabinet, ambassadors, etc.

#### June 10 Thursday

9.00–10.15

1 major paper

10.15–10.45

Coffee break

10.45–12.00

Second Plenary Session

—Port and Seaway tour

—Luncheon on Seaway

—Buffet dinner at Passenger Terminal

#### June 11 Friday

9.00–12.00

Panel

2.00–3.15

1 major paper

3.15–3.35

Coffee break

3.35–5.00

2 minor papers

#### June 12 Saturday

9.00–10.15

1 major paper

10.15–10.45

Coffee break

10.45–12.00

Third Plenary Session

P.M.

Closing session

#### Official Languages

French and English, the languages of Canada, will be the official languages of the Conference.

#### Official Airlines

Canada has two international airlines servicing different official airlines for the Conference.

#### Weather in June

The weather in June, while variable, is normally in the high 60s and 70s Fahrenheit (15 to 21 degrees Centigrade). Sunrise is between five and six in the morning and sunset between eight and nine at night. Montreal, at that time of year, is on Eastern Daylight Time, the same time as such cities as New York.

#### Conference Site

The Queen Elizabeth Hotel, Montreal's largest and one of its most modern, will be the Convention site. We have reserved 500

rooms there. Should there be a requirement for more rooms, we will book space in Le Chateau Champlain or the Hotel Bonaventure, both connected to the Queen Elizabeth by a maze of underground shopping arcades.

#### Ladies' Program

The ladies' program will consist principally of events which will cover no more than half-days. These will include shows of Canadian winter and summer fashions.

The underground shopping facilities in the complex of which the Queen Elizabeth Hotel forms a part will be included among the various visits planned for the ladies.

#### Pre- And Post-Conference Tours

We are planning to offer two pre- and post-conference tours based on the direction from which delegates will be arriving.

For those entering Canada at the West Coast, an eastbound tour will include Vancouver and Toronto with arrival in Montreal June 5. The visit to the Port of Vancouver will include a tour of the outerport at Roberts Bank, the first major outerport to be developed in the Americas. The Port of Toronto is the largest general cargo port in the Canadian section of the St. Lawrence Seaway route.

For those entering Canada in the East, the pre-conference tour will start at Halifax and include Quebec with arrival in Montreal June 5. Both Halifax and Quebec will have container terminals in full opera-

tion at that time.

It is planned to start both pre-conference tours in mid-week prior to the Conference, or about June 2.

The post-conference tours will be the reverse of the two pre-conference visits and will start from Montreal June 13 or 14.

#### Montreal Port Tour

The visit to the Port of Montreal will include a tour of the initial locks of the St. Lawrence Seaway at St. Lambert across the St. Lawrence River from Montreal. It is planned that part of the Seaway visit will be aboard Canadian Coast Guard ships.

The tour of the Port of Montreal will follow the Seaway visit and will be designed to accommodate as many of the individual wishes of delegates as possible.

Container facilities with special Canadian modifications and peculiarities will be included in the tour, as well as modern shed facilities and grain elevators.

Meanwhile, the IAPH Executive Meeting 1970 was held in Singapore Tuesday February 10 till Thursday February 12 at Goodwood Park Hotel, hosted by the Port of Singapore Authority, of which Mr. Howe Yoon Chong, Chairman/General Manager, Mr. Loh Heng Kee, Director-Operations, Mr. Kenneth Seah, Public Relations Officer, Mr. Cheng Tong Seng, Acting Deputy Secretary, Miss Iris Cecilia Then Chin Choo, Assistant Public Relations Officer, and Mr. Lum Kum Seng, Stenographer, came out in force to welcome the visitors and make their stay comfortable and business efficient. Miss Tan Kiat Joo, Assistant Public Relations Officer, looked after the ladies throughout their stay.

All daytime Tuesday was spent in business discussions at the Hotel. In the evening, the Party was guests of Mr. Yong Nyuk Lin, Minister for Communications of Singapore at Istana, the prime minister's official residence.

Wednesday the party including the ladies got aboard the Launch "Berkas" at Clifford Pier for a tour of water front. Arriving at the Jurong Wharves, the party made the tour of Jurong Shipyard. After



Mr. Howe Yoon Chong, Chairman/General Manager of Port of Singapore Authority, invited the party to luncheon at the PSA Penthouse, Blair Plain, February 10. Here, Mr. Howe (right) is seen shaking hands with Mr. S. Kusu, IAPH Under Secretary, as, from left to right, Mr. Tsuboi (background), Mr. N. Fidge, Mr. L. King (sunglasses), Mr. G. Edney, and Mr. H. Mann stand around.



Mr. Dato Laksmama Mohamed Razalli, S.P.M.P., J.M.N., P.J.K., J/ P/, Chairman of the Penang Port Commission (center) presents President Swanson (right) with a plaque of the Port, as Secretary General Akiyama looks on.



At the office of the Port Authority of Thailand, Bangkok, seated from left to right are Mr. Swang Samakoses, Deputy Director (in white uniform), Mr. V. Swanson, Mrs. Swanson, Mr. T. Akiyama (back), Lt. Gen. Prachuab Suntrangkoon, Director, and Mr. Srimangkorn Trairong, Foreign Section.

## Announcement

**The Israel Ports Authority is seeking a second-hand floating crane or floating sheerleg, lifting capacity of about 50 tons. Offers with details of technical characteristics, date of construction and price required, to be addressed to: ISRAEL PORTS AUTHORITY, Tel-Aviv, P.O.B. 20121, ISRAEL**

*Advertisement*

having luncheon there, the party was inspected the Jurong Town. In the evening, cocktails was given by President Swanson at Goodwood Park Hotel.

Thursday noon the party was guests at a luncheon hosted by the Singapore Shipowners' Association. Mr. Howe, the Chairman/General Manager of the Port of Singapore Authority, was appointed member of the Executive Committee by President Swanson during the afternoon business session. In the evening, a dinner of was given by Mr. Howe at Eastern Palace Restaurant, John Little's Building.

When the minutes of the business meetings now under preparation is ready, key points of interest to members shall be reported. The Executive Committee Meeting was finished Thursday afternoon. President Swanson and Secretary General Akiyama, however, were official guests of Penang Port Commission and the Port Authority of Thailand as they visited these ports on their way home.

### IMCO Program

February 23-27  
Maritime Safety Committee-21st session  
April 6-10  
Sub-Committee on the Carriage of Dangerous Goods-17th session  
April 13-17  
Sub-Committee on Safety of Navigation-9th session  
April 20-24  
Legal Committee-8th session

April 27-May 1  
Sub-Committee on Container and Cargoes-10th session  
May 11-15  
Council-24th session  
June 1-5  
Working Group of the Legal Committee  
June 8-12  
Sub-Committee on Life-Saving Appliances-4th session  
June 15-26  
Intergovernmental Oceanographic Commission-Group of Experts on Odas  
June 29-July 3  
Sub-Committee on Safety of Fishing Vessels-10th session  
July 6-10  
Sub-Committee on Radio Communications-7th session  
August 31-September 4  
Ad hoc Working Group on Facilitation-4th session  
\* September 7-11  
Sub-Committee on Fire Protection-8th session  
September 14-18  
Sub-Committee on Fire Protection-10th session  
\* September 21-25  
Working Group of the Legal Committee  
\* September 28-October 2  
Sub-Committee on Subdivision and Stability-11th session  
\* October 5-9  
Maritime Safety Committee-22nd session  
\* October 12-16  
Legal Committee-9th session  
\* October 19-23  
Sub-Committee on Safety of Navigation-10th session

\* October 26-30  
Sub-Committee on Containers and Cargoes-11th session  
\* November 2-6  
Council-25th session  
\* November 9-13  
Sub-Committee on the Carriage of Dangerous Goods-18th session  
\* November 16-20  
Sub-Committee on Ship Design and Equipment-5th session  
\* November 30-December 4  
Legal Committee-10th session (on Working Group of the Legal Committee)  
\* December 14-18  
Ad hoc Working Group on Facilitation-5th session  
\* Tentative

### Book Review

**JANE'S FREIGHT CONTAINERS (Second Edition)**, Edited by Patrick Finlay, Compilers: P. M. Bristow, J. Hanscom, R. Allen, J. S. Kinross, P. Robins. 600 Pages, 300 Maps, Diagrams and Drawings, over 500 Photographs Price: £10 10s. 0d. Publications Date: 10th December, 1969. Published by: Sampson, Low, Marston and Company Limited  
**JANE'S FREIGHT CONTAINERS 1969/70**

The 1969/70 issue of Jane's annual on Freight Containers is published today. The first part of the book provides information on ports and inland transport operations, depots, freight forwarders and non-vessel operating carriers throughout

# The Fraser River Harbour

the world. The Second lists ship-owners giving details of containers and roll-on/roll-off vessels in operation and on order, together with the services provided. There then follows information on air freight, International Standards and a comprehensive section on manufacturers of containers, container handling and auxiliary equipment. Container Leasing firms are also listed as are various coding systems in operation throughout the world.

The second edition has been carefully indexed and countries within continents and ports within countries have been placed in alphabetical order which greatly enhances the Book's value as a reference work.

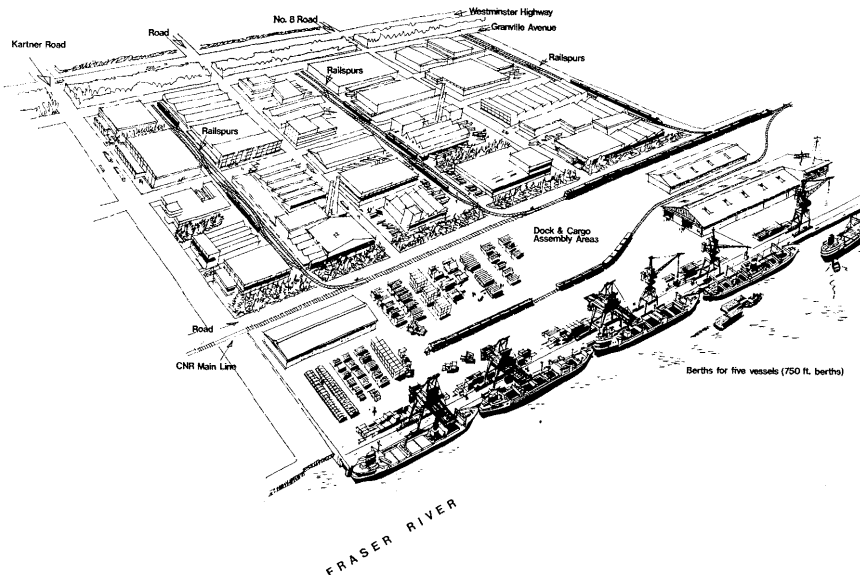
This year practically the whole of the Ports Section has been re-written. Facilities are shown by length of quay and maximum size of vessel which can use them; container gantry crane capacities, outreach and handling cycle speeds are also given where known.

One of the most important additions is information on the amount of container and roll-on/roll-off traffic moving through each port where this is known. This is the first time that such information has been published on a world-wide basis and while it is not yet comprehensive, it does go some way towards fulfilling the need for such information to be made available to those who wish to gauge the growth of this method of transportation. For example, it is not generally known that the port which handled the greatest container and roll-on/roll-off tonnage in Europe in 1968, coming second in the world only to New York, where detailed information is not available, is the Port of Preston, England, with a throughput of 1.3 million tons to Northern Ireland and Eire.

The shipowners Section now includes more detailed information on large carriers.

The whole book has been updated to August 1969 and many new photographs, maps and diagrams have been included.

1969 has been the real start of the container age and Jane's Freight Containers is dedicated to the task of presenting information on all aspects of containers in clear, con-



cise and often visual form. Essentially practical in its presentation, this second edition is designed to make available all the relevant information in sufficient detail to be meaningful to the broad range of interests which it serves throughout the world.

For a really up-to-the-minute report on the present state of container development the operator, carrier, forwarder, user, manufacturer or student could not do better than to have a copy of Jane's by his side. In fact, it has been said of the first edition that he could not afford to be without one.

## N.H.B. Advertisises

Ottawa:—The Canadian Container Route

Canada's major harbours have the advantage when it comes to North American container services:

- Every port is served by at least one transcontinental railway.
- The Trans-Canada Highway connects to all major routes on the continent and international airlines serve every port city.
- Only one port authority to deal with.
- Terminals exist or are being developed or there is space available for them.
- System-wide police and security in a professional way.
- The perfect North American container system.

Container sites of up to sixty acres in size are now being developed in Canadian Ports.

Halifax, Saint John, Quebec, Montreal, Vancouver

National Harbours Board  
Ottawa, Canada

The Port Authority that's the Authority on Ports

## The Fraser River Harbour

A Major Deep Sea Port Within a Deep Sea Port.

The most exciting news in 1968 was that the Commission had acquired 312 acres for the eventual establishment of the Fraser-Richmond Dock complex for port oriented industries.

**New Docking Facilities for the Fraser-Surrey Docks.**

A \$1.4 million project to build 1,800 feet of new berths at the Fraser-Surrey Docks was progressing well by the year end. The Commission also acquired a 30-acre parcel of land which is adjacent to these docks.

### Project Trifurcation.

Stages I and II of this \$4.2 million project, designed to make the Lower Fraser self-scouring, have been completed. The third phase was started during the year.

### 32 Feet to the Gulf in 1969.

In 1968 the channel had again been deepened by six inches to a maximum allowable draught at



mid-channel of 31'6".

### **New Harbour Craft.**

A new harbour craft, the "Port Fraser," will patrol the River.

### **Larger Vessels**

Ottawa:—The trend toward the use of larger, more efficient vessels in Seaway shipping, which was most evident among laker-class vessels in the early years following the opening of the waterway, has been observed in ocean shipping as well, over the past four navigation season. To some extent, the development appears to reflect the recognition of larger vessels with greater payloads, economies of scale available in using but trade considerations—particularly the large volume export grain shipments of 1966 and 1967 and the substantial inbound iron and steel movements which characterized the 1966, 1967 and 1968 seasons—have undoubtedly played a prominent role in encouraging the construction of optimum size ocean ships for Seaway service.

The maximum size of vessel permitted to transit the Seaway is 730 feet in length, 75 feet six inches in width; a number of lakers, which specialize in bulk cargo trade have been built to these dimensions. The largest ocean vessels to be seen in the Seaway are three sister ships: ROLWI, NANFRI and ANDWI—all of Norwegian registry. These three ships measure 709 feet in length and meet maximum beam limitations. The ROLWI and the NANFRI first entered Seaway service in 1968; the ANDWI, which is featured on the cover of this month's review, made its maiden voyage into the Lakes in July, 1969. All three vessels are engaged in the manufactured iron and steel trade, frequently also carrying cargoes of United States corn and soybeans on the backhaul to Europe.

The importance of these vessels to the Seaway is illustrated by the fact that the NANFRI holds the record for the largest general cargo shipment ever moved through the waterway—23,149 tons of steel exported from the Port of Cleveland to Spain in July of this year. The record eclipsed an earlier mark of

23,028 tons established by her sister ship the ROLWI in 1968.

Other large ocean vessels seen in the Seaway in recent years include the Belgian ships FEDERAL SCHELDE and FEDERAL ST. LAURENT, which made their first appearances in 1968; the ELAT, TIMNA and MEZADA, Israeli vessels—all 676 feet long which entered the Seaway for the first time in 1966 and 1967; the French vessels HERMINE and EGLANTINE, which trade in the Seaway since 1967 and 1968 respectively. To date, the TEXACO MISSISSIPPI, at 624 feet in length and 75 feet in beam, is the largest tanker to ply the Great Lakes-St. Lawrence system. (Monthly Traffic Review, The St. Lawrence Seaway Authority)

### **Port Business Is Good**

Beaumont, Texas, January 30:—During 1969 all facilities of the Port of Beaumont handled a total of 1,321,257 tons of cargo, compared to 2,162,827 tons in 1968.

Due to the longshore strike, the grain elevator and the Carroll Street general cargo facilities (Ship Berths 8, 9, and 10) were shut down from January 1 to April 13, 1969, and the Main Street general cargo facilities operated during that time only on military cargo, mostly at Ship Berths 2 and 3, with Ship Berths 1, 4, 5, 6, and 7 shut down.

In the 8½ months the whole port was open and operating in 1969, an average of 145,612 tons was handled per month.

This business was handled in 327 ships, 15,713 rail cars, 5,158 trucks, and 165 barges. The effects of the labor shut-down in 1969 can be seen when compared to the 443 ships, 24,121 rail cars, 7,028 trucks, and 227 barges handled in 1968, a full work year except for the last 11 days, Dec. 20 to 31, 1968, when the labor shut-down started.

Port business has been very good in 1970, with 40 ships already handled and good volume of business booked for February and March at the general cargo facilities and grain elevator, which loaded 10 of the ships so far this year. (Port of Beaumont)

### **Growing Port Traffic**

Buffalo, N.Y.:—According to the Port records, more than 47,000 tons of general cargo moved over terminal docks in Buffalo in 1969. That's roughly 20% above the 39,000-odd tons of the previous year. This increase is gratifying to Buffalo's Port Executives.

Executives of the Port of Buffalo are prophesying that for 1970, transportation gains on the Niagara Frontier will continue apace. It is anticipated that Buffalo's marine port will continue to teem with new and diversified cargoes, shipped to and from all corners of the globe; Sweden, Portugal, Hong Kong, Italy, Poland, Denmark, Pakistan, Morocco, Israel, India, Japan, Finland, Holland, Belgium, Thailand, Spain, Norway, France, Germany, Africa, South America—, the list is almost endless. As in the past, plans are being effected for the importing of asbestos, canned goods, coffee, core-stock, heavy machinery, liquor, newsprint, pineapple, quebracho, rubber, tile, wood fibre, steel casings and bars and many others.

In like manner, the Greater Buffalo International Airport, will continue expanding in an effort to solve the many challenging transportation problems. The new West Terminal, one of the many parts of the state-aided airport improvement plan, should be completed this year. The new Terminal will have seven gate positions to handle passenger flights for Alleghany and Eastern Airlines.

A recommended regional bus terminal in downtown Buffalo is another facet of the exciting transportation program, blue printed for approval in the near future.

The Niagara Frontier Transportation Authority looks forward with continuing enthusiasm toward a year of propulsive expansion. (Port of Buffalo Progress Bulletin)

### **1969 Shipping Season**

Detroit, Michigan: — Statistics compiled by the Detroit-Wayne County Port Commission, preliminary in nature, indicate that the 1969 overseas shipping season in the Port of Detroit (April 12 through December 7, 1969) saw a decrease

in total export/import tonnages of 16.1%.

Total overseas imports were down 860,630 tons but a gain of 455,621 tons in exports cut this deficit to 405,009 tons.

Final statistics now being compiled promise to add materially to the year's total tonnage.

Total export/import tonnages in excess of two million tons, a record export season, and a vastly improved balance of trade picture are assured. (Detroit-Wayne County Port Commission)

## Port Authority President

Duluth, Minn.—John F. McGrath, a Seaway Port Authority of Duluth commissioner since 1966 and a onetime merchant marine officer, has been elected 1970 Port Authority president.

McGrath, 44, vice president-administrative and secretary of Minnesota Power & Light Co., Duluth, succeeds Conrad M. Fredin, Duluth, whose one-year presidential term expired.

Fredin was elected assistant secretary-assistant treasurer at the Port Authority's annual meeting today (Jan. 27). Also elected were Maurice S. Moe, St. Paul, vice president; Leonard I. Theobald, Duluth, treasurer, and George Cruikshank, Duluth, secretary.

A native of Freeport, N.Y., McGrath is a graduate of the U.S. Merchant Marine Academy, Kings Point, N.Y., with a degree in marine transportation, and holds a graduate degree from Muhlenberg College, Allentown, Pa., and a law degree from St. John's Law School, Brooklyn, N.Y.

He served as relief officer and cargo supervisor for Moore-McCormack Lines, Inc., New York, from 1948 through 1951 and previously was a third mate, second mate and acting chief mate.

In private law practice in New York from 1953 through 1958, McGrath joined U.S. Steel Corp. and came to Duluth in 1958. He has been with Minnesota Power & Light Co. since 1964.

McGrath is a member of the Admissions Committee, Maritime Law Association of the United

States, and past chairman of the Admiralty Law Section, Minnesota State Bar Association. (Seaway Port Authority of Duluth)

## Increasing Traffic

Duluth, Minn., February 18:—Great Lakes and oceangoing ships serving Duluth-Superior moved more than 43 million tons of cargo through the port in 1969, an increase of nearly 14½ per cent over 1968 and the third highest tonnage total of the decade.

Based on a preliminary report by the U.S. Army Corps of Engineers and other data, the Seaway Port Authority of Duluth reported the total of all interlake and import-export marine commerce for the season was 43,135,160 tons, an increase of 14.4 per cent over the 37,712,712 tons shipped in 1968.

Average annual tonnage for the 1960s was 39.9 million tons, ranging from a high of 46.2 million in 1966 to a low of 30.2 million in 1962.

Domestic shipments and receipts in 1969 totaled 40,345,600 tons, an increase of 15.7 per cent over the 1968 total of 34,864,314. Import-export cargo totaled 2,789,560 tons, a decrease of 2.1 per cent from the 1968 total of 2,848,398.

Biggest increases on a percentage basis were recorded in shipments and receipts of petroleum products (up 48.9 per cent, from 199,424 tons to 296,999), coal (up 33.2 per cent, from 1,915,970 to 2,553,892) and grain by-products (up 32.2 per cent, from 179,958 to 237,922).

Other gains were recorded in the movement of scrap iron (up 28.1 per cent, from 106,966 tons to 137,048), non-petroleum bulk liquids (up 18.6 per cent, from 30,635 to 36,346), iron ore and concentrates (up 15.5 per cent, from 29,475,815 to 34,053,485), miscellaneous dry bulk materials (up 8.8 per cent, from 504,200 to 548,396) and limestone (up 3.2 per cent, from 1,915,970 to 2,553,892).

Decreases were recorded in movements of grain (down .6 per cent, from 4,062,732 to 4,039,650), overseas general cargo (down 11.8 per cent, from 178,551 to 157,452) and interlake general cargo (down 11.2 per cent, from 130,136 to 115,532). (Seaway Port Authority of Duluth)

## Land Bridge Cargo

Norfolk, Va.:—For the first time, containerloads of freight from Europe have moved through the Port of Norfolk under the "foreign-to-foreign" Land Bridge Circular rates.

These are the special rates published by a group of railroads last year on carloads of freight entering the United States from a foreign source and crossing the country en route to a foreign destination. Ocean carriers participate in the tariff, known as Land Bridge Circular 1-B.

In the Norfolk shipment, which port officials hope was the forerunner of traffic that some day will reach unit train proportions, two 20-foot containers and a 40-foot trailer were loaded on a single Norfolk & Western railway TTAX or trailer train car. The car was routed over the N&W, Chicago, Burlington & Quincy and Great Northern tracks to Vancouver, B.C.

The containers, loaded with furniture and other freight, originated with AB Scanfreight, the Scandinavian freight container system, at Gothenburg, Sweden, and were unloaded from American Export Isbrandsten and United States Lines containerships at Norfolk International Terminals.

For the N&W, the shipment was noteworthy in more than one respect. Not only was it the first utilization of the landbridge rates, but also it marked the first application of the line's new container-on-flatcar (COFC) rates, which offer parity with its trailer-on-flatcar (TOFC) rates. Moreover, the two systems were used on one and the same car. The two 20-footers moved COFC, or without wheels, while the 40-footer went along TOFC, as a piggyback trailer with wheels.

The Land Bridge Circular rates do not apply to freight moving to destinations within the United States. They are at an advantageous level, and also mean that the traffic is expedited, said Ludwell H. Huxter, the Norfolk Port & Industrial Authority's director of trade development for the southern re-



Alameda, Calif., February 17:—Henry F. Sirgo, Jr. (right) making presentation of Fellow to C. D. Ramsden (left). C. D. Ramsden, president and general manager of PACECO, a division of Fruehauf Corporation, has been elected Fellow of the American Society of Mechanical Engineers. His most prominent contributions have been specialized container handling cranes, the design and construction of which he pioneered. These container handling cranes namely Portainers, Transtainers, and Shipstainers, are known throughout the world, and have helped the rapid growth in the containerization field. Under Mr. Ramsden's leadership the firm's sales volume increased from \$3,000,000 to \$28,000,000.

gion. In fact, he said, the railroads' objective was to move the freight across the United States in from five to seven days.

Not all types of freight are eligible for the special rates. Perishables, for example, cannot be shipped under this tariff.

These are carload freight-all-kinds (FAK) rates, geared to encourage multiple-car movements, Mr. Huxter pointed out.

For example, said the Norfolk port official, the rate per car is \$1,320 for shipments of one to 10 cars, \$1,220 per car for 11 to 20 cars, \$1,120 per car for 21 to 30 cars, and \$1,200 for 31 cars or more.

As rates that are circularized and not applicable on shipments to or from U.S. points, the rates need not be filed with the Interstate Commerce Commission. Originally, the land bridge concept was thought of in terms of freight crossing the U.S. by rail as part of an ocean-land ocean movement between the Far East and Europe, an alternate to the Panama Canal. But, of course, the "foreign-to-foreign" criterion is met just as readily by freight which may enter a U.S. eastern port and travel by rail to Canada or Mexico.

AB Scanfreight is a non-vessel operating common carrier, and its agent in Norfolk is Intermodal Freight Forwarding, Inc. Both George Fishcer, manager of Intermodal, and Lewis C. Carter, traffic manager of foreign commerce for the Norfolk & Western, predicted that there will be a steady increase in the type of traffic represented by the three containers recently loaded on that TTAX car at Norfolk. (Virginia State Ports Authority Sailing Schedule, February)

### Record Year

Oakland, Calif., February 23:—The Port of Oakland swept to a record year in cargo tonnage in 1969 with more than 5 million revenue tons passing over port docks of which approximately 60 per cent were containerized, it was announced today by Ben E. Nutter, executive director of the Port.

For the calendar year, some 5,268,797 tons of cargo were shipped through Oakland and 3,001,072 were in containers, Nutter said.

This is an increase of almost 2 million tons from the previous year when a total of 3,390,845 tons pass-

ed over the wharves, Nutter reported. Of the 1968 figure, 1,530,518 tons were in containers.

Nutter attributed the marked increase in tonnage to a full year of container service by Matson Navigation Company and six Japanese flag carriers from the Port's new, mammoth Seventh Street Terminal.

He predicted tonnage for 1970 would be even greater than the past year with expected acceleration of container traffic between the Port of Oakland and ports in the Far East and Europe. Matson is expanding its service with the introduction of the new container-ships, Hawaiian Enterprise and Hawaiian Progress, as are the Japanese lines, Seatrain Lines and Sea-Land Service.

Johnson Line, which began container service between Oakland and ports in Europe this past year, is also increasing its service with a six-ship container fleet. There is a possibility that other European carriers may join in the trade.

The 5,268,797 total was broken down into 2,223,394 imports and 3,045,403 exports, while 1,335,854 of the total were bulk commodities.

Nutter pointed out that none of the tonnage reported by the Port of Oakland was tonnage passing over the Oakland Army Base and Naval Supply Center wharves. (Port of Oakland)

### Certificate of Distinction

Sydney: — The Board's Annual Report for the year ended 30th June, 1968, was awarded a Certificate of Distinction by the Australian Institute of Management which issues a list of the fifty best reports produced each year.

The Certificate was presented at a dinner held recently at the Wentworth Hotel, at which the President of the Board, Mr. W. H. Brotherson, and the Vice-President, Mr. G. P. Hill, were in attendance. At the ceremony Mr. Brotherson also accepted a Merit Certificate on behalf of the Fremantle Port Authority which was the only other port authority to receive an award in the

judging of Reports for 1968.

When the award was first instituted in 1955 it was only intended for companies listed on the stock exchanges of the various States of the Commonwealth, but in 1957 a separate section was included for non-listed organizations consisting of private companies, government and semi-government bodies, charitable institutions, registered clubs, etc.

In all, fifty awards were presented for 1968, of which thirty were for listed companies and twenty for non-listed companies and organizations. The Board's Report was one of seven to receive distinction awards in the non-listed section.

The winner of the award for the best annual report submitted by a listed company during 1968 went to John Lysaght (Australia) Ltd., whilst the top award for non-listed organizations went to Qantas Airways Ltd. (All a'Board, The Maritime Services Board of N.S.W. December)

## Record Trade Last Year

Sydney: — A record volume of trade was handled through New South Wales ports during the year ended 30th June, 1969. Total trade for the major ports of Sydney, Newcastle, Port Kembla and Botany Bay increased by almost 4,100,000 tons on the previous year's figure to reach a peak of 47,480,993 tons. Individual cargo records were established at Sydney, Newcastle and Port Kembla, while trade at Botany Bay, at 7,230,875 tons, was only 293,520 tons below the record set for this port in 1964/65.

Latest figures available from other Commonwealth ports indicate that Sydney continues to retain its position as Australia's leading port in the volume of cargo handled, whilst Newcastle is now the second largest port for total trade, and is Australia's major exporting port.

The total trade handled at the Port of Sydney during 1968/69 reached an all-time high of 15,413,459 tons, some 590,012 tons higher than for the previous year. Increased tonnages of both imports and



Los Angeles, Calif.:—Capt. B. H. Agnew, master of the MV "Amalric," receives a first arrival plaque from Fred B. Crawford (left) assistant general manager for the Port of Los Angeles, when the Crusader Steamship Company vessel arrived at Los Angeles Harbor recently. T. W. Landers (right) Los Angeles agent for Crusader Steamship, also participated in the brief ceremonies held on the bridge of the ship. The vessel brought in a shipment of New Zealand beef. (Port of Los Angeles)

exports contributed towards achieving the new record, with total imports rising from 8,632,221 tons to 9,120,162 tons and exports from 6,191,226 tons to 6,293,297 tons.

Factors contributing towards the record tonnage handled included a rise of nearly 117,000 tons a bulk oil imports from overseas to more than 2.5 million tons during the year, with significant rises also recorded in the tonnages of timber imported from overseas, cement from interstate and bulk oil from intrastate. On the export side, the major improvement was coal for overseas destinations, increasing to 2.7 million tons in 1968/69 compared with 2.4 million tons in the previous year. On the debit side was a reduction in wheat exports by more than ¼ million tons in the previous year's figures clearly underlining the difficult conditions, prevailing in the world market for this commodity during the period under review.

A new record was set at the Port of Newcastle during 1968/69 when total trade for the port amounted to 13,952,798 tons, more than 2,160,000 tons above the previous record set in 1967/68; this was the sixth consecutive year in which trade at

this port has shown an increase.

A highlight of trade at Newcastle was a rise of nearly 1.7 million tons over the previous financial year to more than 5.3 million tons in the overseas exports of coal. Increased imports from both overseas and interstate of raw materials used in the manufacture of steel, such as limestone and ironstone, and major increase in tonnages of bulk oil imports to serve the expanding industries in the Newcastle area, were also contributing factors to the record trade figures.

Total trade for the year at Port Kembla was a record 10,883,861 tons, an increase of 785,186 tons on the previous year, continuing an unbroken sequence of rises since 1956/57. Although imports from overseas decreased by some 50,000 tons during 1968/69, increases in all other sections of the trade contributed to the record result.

A major increase occurred in total shipments, both inward and outward combined, of iron and steel products, resulting in an increase of more than 138,000 tons over the previous year's figures. Oversea coal exports increased by 307,814 tons to a record 1,917,190 tons, whilst an increase of 173,529

## New Secretary

Sydney:—Effective Tuesday 27th January, 1970, Mr. H. B. Cadell,



until then Deputy Secretary, will succeed Mr. D. A. McDowell to become the Secretary. Mr. Cadell commenced his service with the Board as a Junior

**Mr. Cadell** Clerk in March 1936 and had served in several Branches of the Board's service including a period as Branch manager at Port Kembla. Mr. Cadell is, at present, the Chairman of the Newcastle Advisory Committee and was formerly the Chairman of the Port Kembla Advisory Committee. (The Maritime Services Board of N. S. W.)

tons to 290,515 tons was achieved in the interstate trade of this item. Another large increase in the interstate trade was in the export of coke which rose almost 246,000 tons to nearly 935,000 tons.

A further improvement of cargo figures at Botany Bay was achieved during the year when the total trade rose by over 552,000 tons to 7,230,875 tons, which was some 293,520 tons below the record trade year of 1964/65.

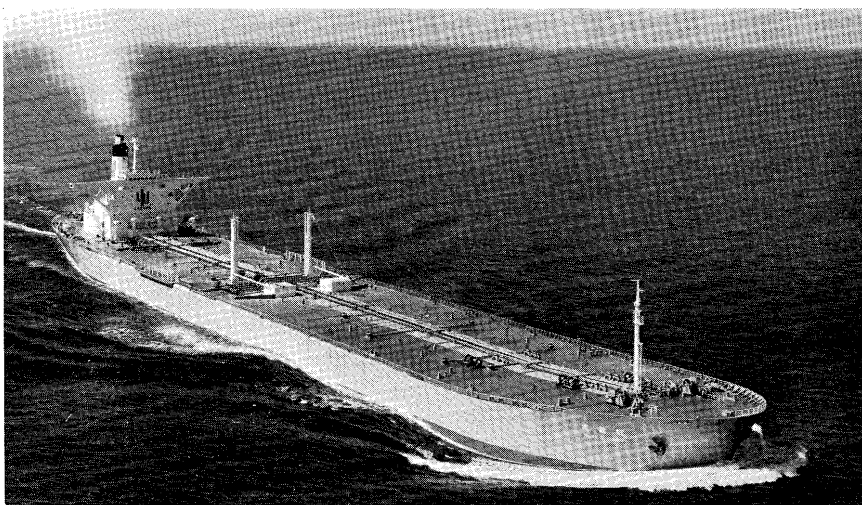
Gains of 350,000 tons and 202,400 tons were made in the import and export trades, with the total import trade figure of 5,003,299 tons being the highest recorded for the port.

Imports of naphtha at Botany Bay rose by nearly 67,000 tons almost 218,000 tons in 1968/69, and also a significant increase was shown in the tonnages of bulk chemicals handled at the port during the year.

The combined total trade of the five smaller trading ports along the N.S.W. coast, namely Richmond River, Clarence River, Coff's Harbour, Trial Bay and Two-fold Bay, showed an increase of over 7,300 tons on the previous year's total of



The 216,821 DWT tanker S/T "Aquarius", was completed at Sakai Shipyard of Hitachi Zosen and was delivered to the Liberian owner Cyrus Tanker Corp. on January 22, 1970. The tanker is 322.30 meters long. The main engine is a set of turbines 30,000 ps strong which yielded a maximum trial speed of 15.763 knots. The tanker is to be put into service between the Persian Gulf and the Gulf of Aqaba, and is so constructed that it would be able to pass through the Suez Canal under ballast condition when the canal is reopened.



The M.V. Nikkomaru, 164,600-DWT tanker, was recently launched by Hitachi Zosen's Innoshima Shipyard for the owners Yamashita Shinnihon Steamship Co., Ltd. and Nissho Kisen Kaisha. The tanker has an overall length of 315 meters, and yielded a maximum trial speed of 16.9 knots.

264,773 tons. The major factor in the recovery of the total trade can be attributed to a rise of nearly 14,600 tons to over 95,000 tons in bulk oil imports at Trial Bay, from other ports of the State. (All a'Board, The Maritime Services Board of N.S.W., December)

## New Dredger Completed

Bangkok:—The Port Authority's new dredger, built at De Liesbosch Shipyard in Holland, following the signing on November 28, 1968 of the contract with Messrs. Klock-



ner Industrie Anlagen, has been completed and undergone trials in mid-October 1969. The dredger will be shipped on board the Peter Rickner which will leave Holland in mid-December and will arrive Bangkok in mid-January.

The dredger measures  $22.5 \times 11.0 \times 1.8$  m., 3.8 cu.m. in bucket capacity, 300 cu.m./hour dredging capacity at the depth of 14 m. with 27 metric tons lifting capacity at 8 m. range. The dredger costs 1,650,000 Guilders at CIF Bangkok price. (P.A.T. News)

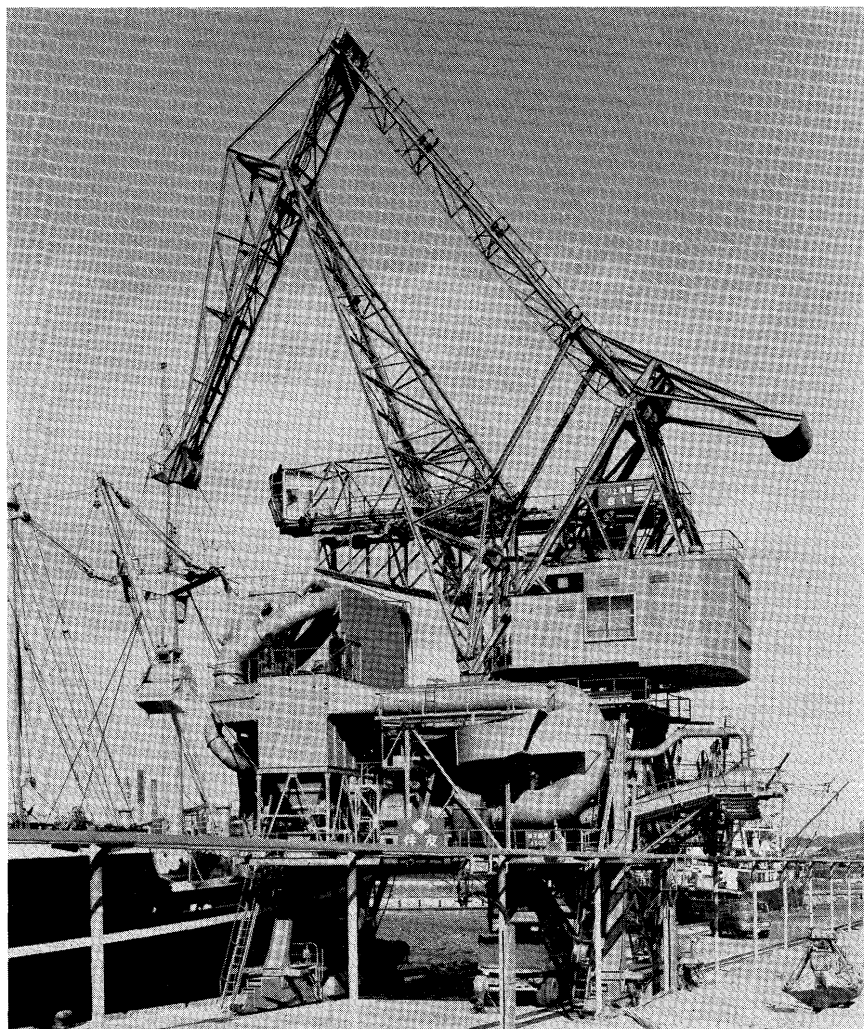
### Director Suntrangkoon

Bangkok:—On October 28, 1969 at about 2.00 p.m., Officers from the Stevedoring Promotion Association called on Maj. Gen. Prachuab Suntrangkoon, Director of the Port Authority of Thailand, upon its registration as a trade association under the name of "Stevedoring Promotion Association", comprising members from 20 companies and firms. This association will be the centre for coordination among those who are in the same business and to help promote unity among its members, and solve problems involved with their business. Also it has an objective of providing co-operation to government departments and agencies, especially to the Port Authority of Thailand. (P.A.T. News)

### OCL and ACT

Antwerp:—On November 26th last, sir Andrew Chrichton, President of Overseas Containers Limited, announced that the OCL-vessels which until now provisionally called at Rotterdam and Antwerp, will be completely concentrated on Antwerp, pending the normalization of the situation in Tilbury, where the boycott by the London dockers has been lasting for 22 months.

From an inquiry held by the Antwerp port circles it results that when taking this decision OCL and ACT undoubtedly have been guided by the numerous favourable fac-



Here is a photo of a 400 t/h dust-collecting phosphate rock unloader delivered by Sumitomo Shipbuilding & Machinery Co., Ltd. to the Port of Onahama, Fukushima Prefecture, Japan. Special request had been made by the Prefectural Government for minimizing phosphate rock dust during the unloading operation, as the rock grains are small and the fine (minimum 1 micron or less) dust may affect the residential and industrial quarters lying close to the pier. Japan Cargo Handling Mechanization Association was called in for the knowhow. Dry and wet dust collectors, telesco-chute and air curtain devices are generously utilized to make the machine dust- and waste-free. (Sumitomo Shipbuilding & Machinery Co., Ltd.)

tors offered by Antwerp as a container port, and more in particular by:

- the extent of the Antwerp container centre;
- the system of full interchangeability of the container cranes;

- the good service;
- the good labour relations;
- the fact that in the Antwerp port work goes on around the clock;
- the favourable possibilities for the re-forwarding of containers.

(Continued on Page 40)

## *Port of Antwerp in Pictures*



1. Churchill Dock, Port of Antwerp.



2. Zandvliet Lock, Port of Antwerp.

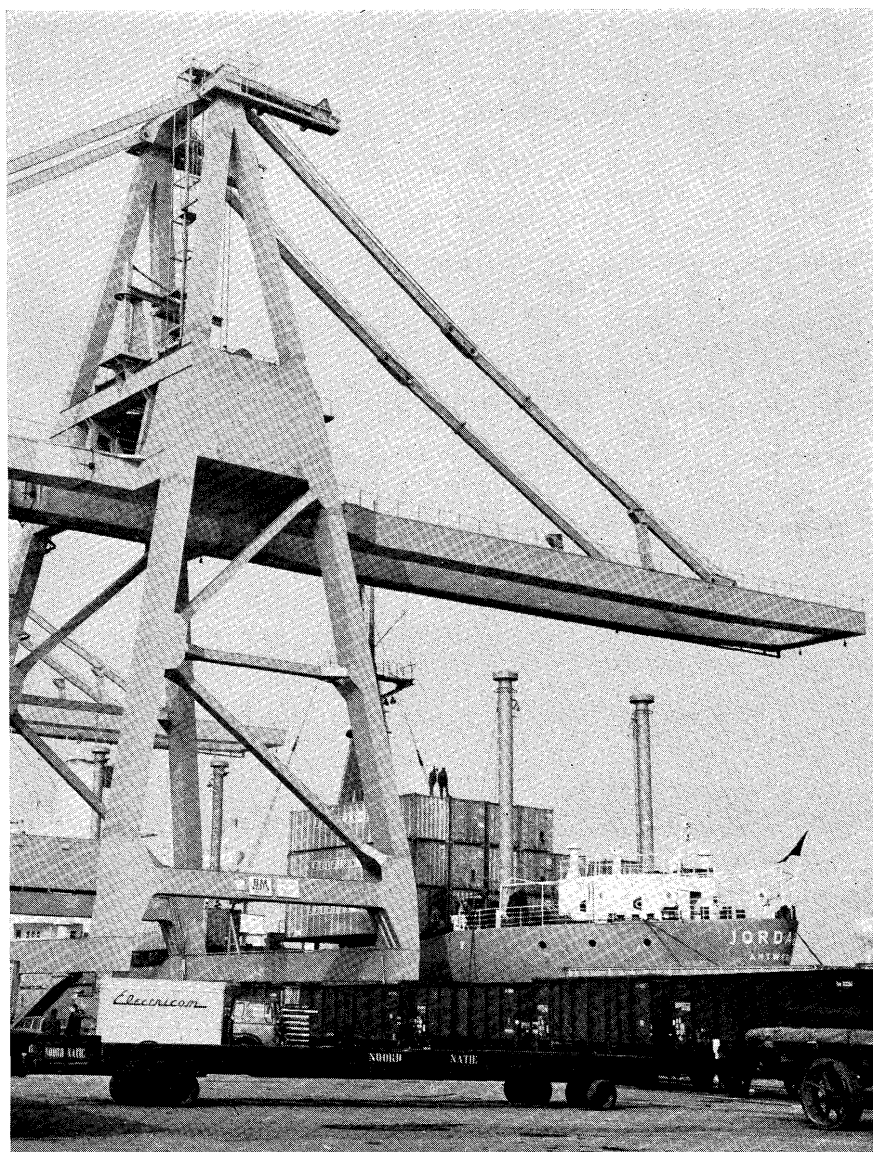




3. Roll-on/Roll-off at Port of Antwerp.



4. Transshipment of heavy lift at Port of Antwerp.



5. Transshipment of containers at Port of Antwerp.

(Continued from Page 37)

Indeed, with its total area reserved for the handling of containers of 312 acres, its six terminals equipped with 7 container cranes, plus the container terminal of the Belgian Railways and the numerous consolidation services, the Antwerp Churchill dock is the largest and best equipped container centre in Europe.

From now on every nine days an OCL-ACT-container-vessel will call at Antwerp. (Antwerp Port News)

### Business As Usual

Antwerp:—In Antwerp as well as

in the whole of Belgium the 11th November is a legal holiday. November the 12th was nothing of the kind and will be recorded in history as a black day. In a few minutes' time a whirlwind of an unknown force left a trace of desolation and destruction all over the country. Especially the port was badly struck. Loads, heavy containers included, were lifted and displaced as if it were match boxes. That there was no loss of life is to be considered as a miracle. A container crane was completely destroyed and two other heavy cranes were overturned just like skittles by a ship adrift. Although those three

cranes belong to one and the same firm, the next day already the watchword was: business as usual. And that is the way it was. Many a people will wonder how business could go on normally after a similar disaster. The answer is simple. If necessary the stricken firm, which as a matter of fact still had a second gantry crane intact, as well as a number of other lifting devices at its disposal, can always count on at least five other gantry cranes of the container centre. Although those other gantry cranes belong to other operators the centre was conceived in such a way as to guarantee in all circumstances the interchangeability of the cranes. In the past this interchangeability was already put into practice and is a principal trump before the customers.

To our knowledge this situation is unique. In New-York, the biggest container port in the world, the most important concentration is located in Port Elisabeth where 4 gantry cranes are working. So, this is less than in the Antwerp centre and in addition, we are not sure about the existence of complete interchangeability.

In London (Tilbury) two terminals are in working condition, whereas three others are under construction. Here too, as far as can be determined, the interchangeability will be limited to four cranes.

Rotterdam has five special cranes for containers, but with a maximum interchangeability of two cranes on the same quay.

In Bremen with its three, and Amsterdam with its two gantry cranes, the interchangeability is also limited to two units.

Occasionally, there is talk of overcapacity in the Antwerp port, but this is wrong, since due to their conception as well as to that of the container centre, gantry cranes when not being used for containers, can always handle other loads such as heavy iron and steel products, flats and cars. In addition, thanks to the existing equipment, all possible circumstances can be dealt with.

Business as usual, even after a disaster! (Antwerp Port News)

## Immingham Bulk Terminal

London, 4th February:—The National Coal Board, British Transport, Docks Board and the British Steel Corporation have agreed to develop a £11½ million bulk handling complex at the port of Immingham, to take ships of up to 70,000 tons.

The Coal Board's new £5½ million coal terminal at this Humber port will be extended at an additional cost of £6 million to handle an initial throughput of up to 9 million tons of coal exports and iron ore imports a year. A shared terminal offers substantial cost savings over the development of separate jetties by the Coal Board and BSC.

The BSC have been studying the relative merits of supplying Scunthorpe either through Immingham on the Humber or by rail from the Tees, and as a result of this study it has been decided to establish a new terminal on the Humber.

The scheme, which is subject to the necessary statutory approvals, involves the modification of the jetty currently under construction by the Coal Board. The jetty will be extended to provide a berth for the unloading of vessels bringing iron ore for BSC's steelworks at Scunthorpe, where some £130 million is being spent on expanding steel-making capacity from 3.4 million to 5.2 million tons a year. The British Transport Docks Board, as port authority for Immingham, will purchase the jetty at a cost of £3.5 million, which will cover construction and capital dredging costs. Handling equipment and stockyards behind the jetty will be owned and operated by the Coal Board and BSC. The Coal Board and BSC will sign a 20 year agreement with the Docks Board covering the use of the jetty.

Construction of the coal terminal is now nearing completion and commercial shipments of coal are

expected to begin about the middle of this year. Provision for subsequent modification of the jetty was made early in the planning stage following an approach by the Coal Board to the BSC. Modification work for ore discharge will be started shortly and the expanded bulk terminal is expected to become fully operational in 1972. BSC is studying the alternatives of rail and barge transport from Immingham to Scunthorpe.

For the Docks Board the coal/ore complex will be the second major new bulk terminal at Immingham. A £6 million tanker terminal for 100,000-ton vessels, and partly-laden 200,000-tonners, came into full operation last October to supply the new refineries of Total Oil/Petrofina and Conoco. Between them the new terminals may over the next few years double the port's traffic, which has already risen 133 per cent, to 13.8 million tons, since 1964.

The Immingham project is the third major port development in which BSC is currently involved, and will secure the economies of scale which stem from the use of giant carriers.

At Port Talbot a new ore terminal, developed by the Docks Board at a cost of £20 million, will be opened by H.M. the Queen in May. It is being built to take ships of up to 100,000 tons.

At Redcar, the Tees and Hartlepool Port Authority have asked the Minister of Transport to approve a £15 million terminal scheme, work on which is expected to start this year. They should be able to berth 100,000 ton carriers from 1972 and will serve BSC's developing Teesside complex. (British Transport Docks Board)

## Impacts of DM Revaluation

Hamburg:—The upward revaluation of the D-mark following the temporary measure for it to find its own level in the exchange mar-

ket, will perceptibly hit the exporting industry, though its actual impact can not yet be predicted. At a rate of 9.3% higher than expected, it will also particularly affect industries and concerns whose contracts are necessarily based on foreign currency, e.g. shipping. According to the Association of German Shipowners, the losses incurred by the shipping industry will amount to more than DM 220 million.

Last year, returns from the carriage of freight and passengers amounted to 4,320 million DM. But the earnings in D-marks, too were based on the former dollar parity. Port charges abroad and the chartering of foreign-flag vessels were paid in foreign currencies, the surplus then resulting amounted to DM 2,400 million. That means, at a revaluation rate of 9.3% the shortfall in receipts will be over DM 223 million. According to the Association, this is far more than shipping can shoulder out of its own resources, and it was threatened by having to succumb to international competition. German owners can not set off part of their losses through freight rate increases, since freight rates are fixed on the international markets.

An additional burden is the inland pressure of costs, caused above all by the most recent rises in prices and other outgoings. Wages and salaries, social security and insurance premiums together with capital expenditure have to be settled in D-marks. Negotiations under way with the trade unions will result in an additional burden for the owners. Rising costs in D-marks and a simultaneous loss in earnings would be considerably beyond the financial strength of many shipping companies.

German shipyards are faced by similar problems. Continued wage payments in the case of illness, increased employers' contributions to social security and wage increases have resulted in a rise of 18% in the cost of labour. In addition, steel prices have gone up by 25%



since January 1968. Revaluation thus happens to coincide with a wave of rising costs. The shipbuilding industry expects future business transactions to become very difficult.

Recently, promising negotiations had already been broken off because of the rumours about a DM revaluation. In this connection, the Federation of German Shipyards stresses the point that owing to the long-term financing of ship exports—interest charges amount to around 22% of the cost of new tonnage—the actual revaluation burden would not be 9.3 but almost 11.3%. Existing contracts, which have mainly been concluded in D-marks, will be hardly affected by the most recent developments. In contrast, however, repair activities will, without doubt, feel the blow.

The Federation has requested the government to pass the so-called VII Shipyard Assistance Programme as quickly as possible. According to a declaration of the Parliamentary State Secretary in the Federal Economics Ministry, Arndt, the government does not intend to grant immediate assistance to the shipping and shipbuilding industries to compensate for their revaluation losses. In spite of the sacrifices and burdens both would have to shoulder, the stabilisation of costs and lower earnings would have to be set against one another over a longer period. The government would, however, carefully investigate what measures of assistance would be justified for these industries from the point of view of the economy as a whole (Ship via Hamburg, November)

### Amsterdam's Periodical

Amsterdam:—The Port of Amsterdam recently began publishing a fortnightly journal (in English and German). The Burgomaster's message from the September 2, 1969 issue is reprinted below.

"Amsterdam has developed from a modest fishing village into a city cosmopolitan in style, an important junction of sea, land and air traffic, a centre of commerce, industry,

research and culture.

"Though the port is proud of its glorious past and remains faithful to certain traditions, its significance is no longer determined by its rich, romance-laden history.

"In its search for a purposeful future, the port of Amsterdam has placed itself at the service of the entire country and the European hinterland.

"This publication wants to show our friends abroad more about the many faces of Amsterdam. It will enable people interested to learn more in detail how our port has accepted the challenge of matters like the explosive growth of shipping units, new methods of cargo handling and the need for development as an industrial sea-port.

"I expect this publication to be of interest and I am always ready to provide more information on what the port has to offer."

(Signed)

Dr. I. SAMKALDEN,  
Burgomaster of Amsterdam

### Expansion of Beira

Lourenço Marques:—The port of Beira, despite all the vicissitudes it has suffered, maintains firm in progress the improvements and expansions, continue to be carried out in a safe rhythm and without delays. Completed is the huge cold storage plant built in the terraplains of wharf number 6 and conveniently equipped are all the wharves from the number 1 to the number 8, now it is on the new wharves 9 and 10 that the attention of the Administration incides.

These wharves will now be equipped with all the necessary cargo handling equipment for loading and unloading operations. Some of the cranes purchased have already been installed there.

Well under way, and in accordance with the plans, two storage sheds are being built and the pavementation works which include the adjacent terraplains of wharves 8, are being carried out, and these include also the replacement of the pavements of wharves 6 and 7.

On the other hand, the Marine

Services, through their Dredging Department is concluding the earth works—ordered by the Mozambique Harbours, Railways and Transport Administration—of support to these wharves, establishing continuity among those that was carried out with the wharves proper and those on which are situated the storage areas of the ore-loading plant, built during the construction of wharf n.º 8.

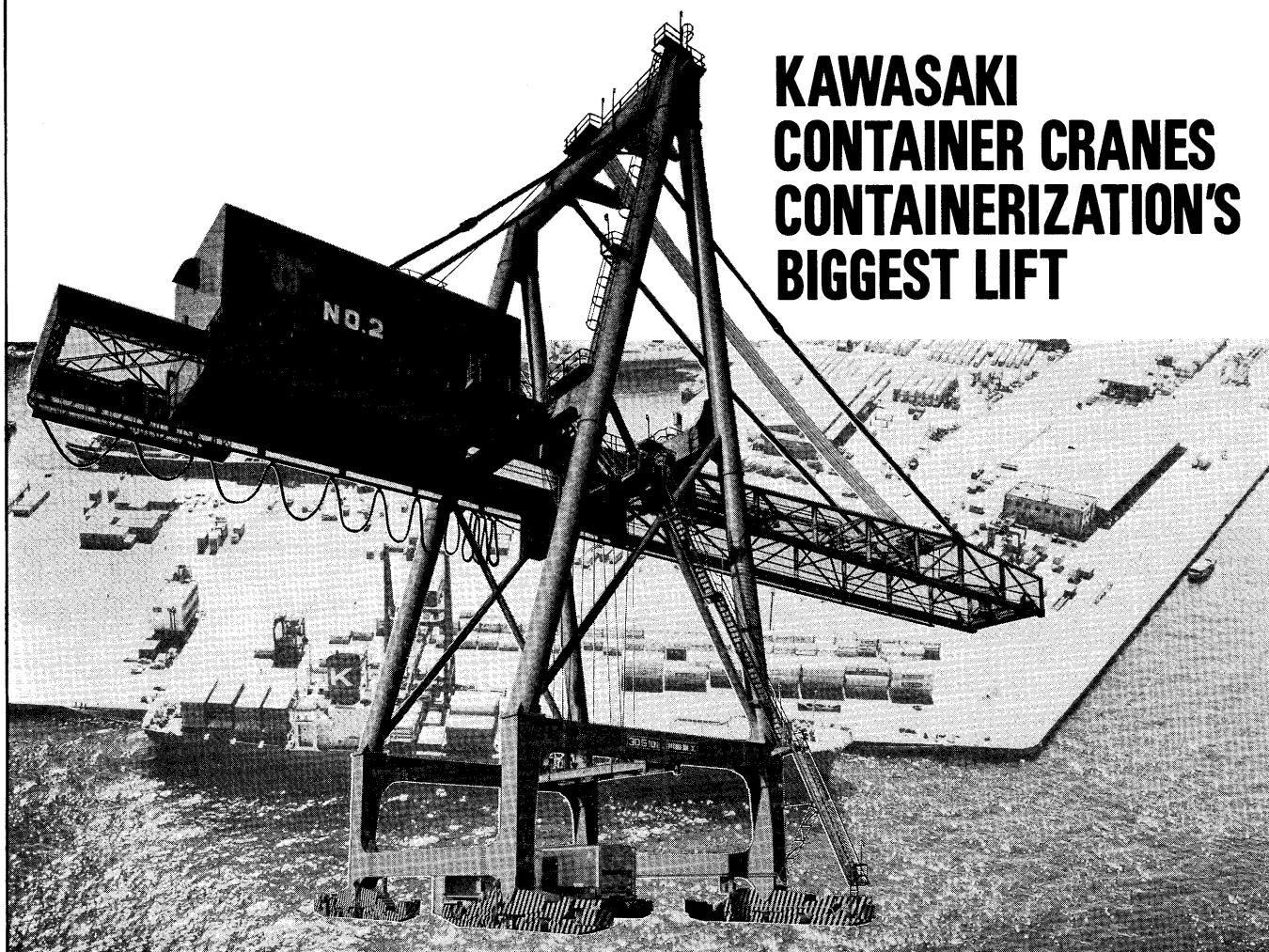
This land reclamation is being carried with dredged and repulsed sands, a system which has a dual advantage of reclaiming land and carrying out dredgings, at the same time in this case, of improved or maintaining the port accesses, thus benefitting indirectly the initiative of the Port Administration.

Parallel to this, the Marine Services are contributing to the progress of Beira by completing the facilities of the drydock built by the C.F.M. Administration as an integral part of the construction undertaking of wharves 9 and 10, destined for the Marine Services, which can accommodate vessels measuring up to 100 metres long which is the size of those that practice coastwise shipping in Moçambique.

Aiming at the future of the port and trying to establish basis for its progress in future years, preparations for the surveys of the port of Beira in a reduced model, to be carried out in Lisbon, at the L.N.E.C. installations are well under way.

In the hydrographic survey of the Pungwe and Buzi Rivers ordered by the C.F.M. with the same objective, participate actively the Hydrographic Mission of Macambique which have sent to Beira the naval vessel "Almirante Lacerda" for support of its working teams.

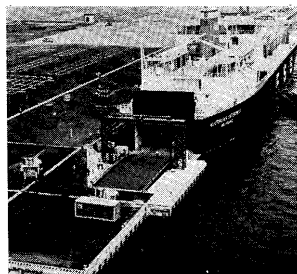
The improvements the port of Beira is undergoing, are a live example of how the Administration creates wealth not only through its own undertakings but also by the collaboration it gives and asks from specialised Government Departments are more directly connected to its specific activities. (Boletim Portos, Caminhos de Ferro e Transportes de Moçambique, Junho 1969)



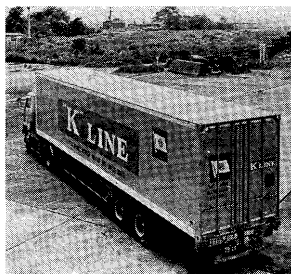
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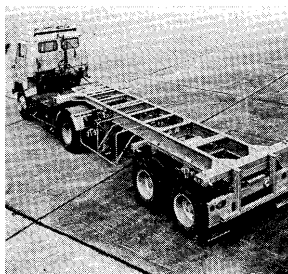
unloading. Maintenance on these heavy-duty cranes is remarkably easy to perform. Kawasaki is able to offer container cranes for any job—no matter how unusual or difficult—because its years of research, design and production experience make it the renowned leader in integrated machinery manufacturing. Also, all the latest design and manufacturing techniques of paramount excellence are combined to produce superior cranes and all other equipment needed for container transportation system.



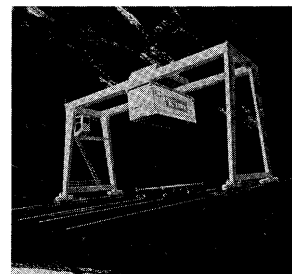
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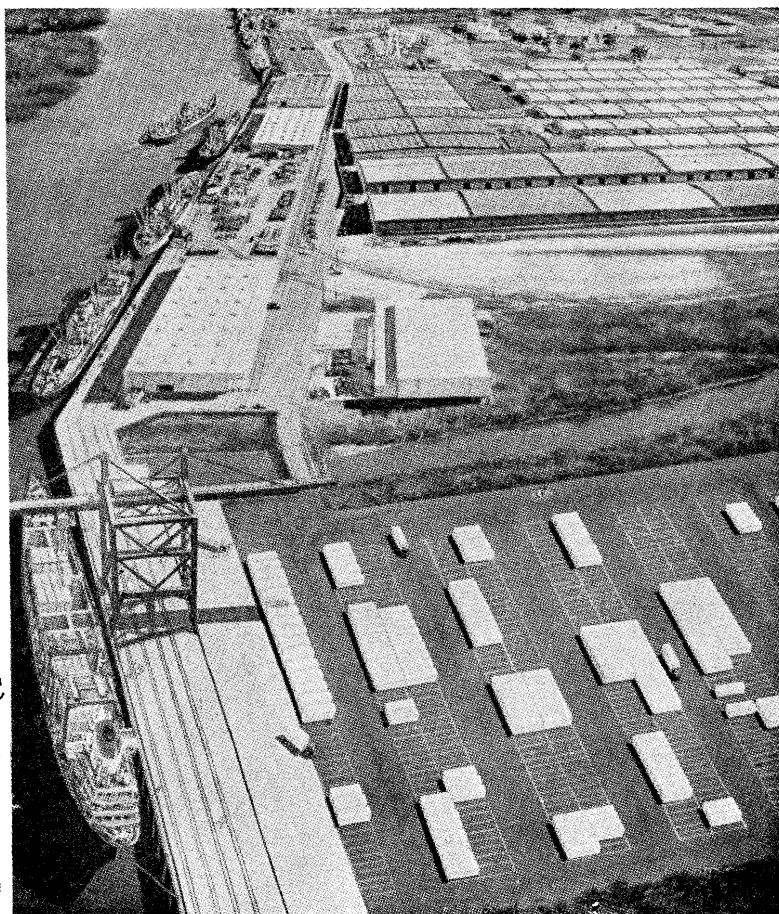
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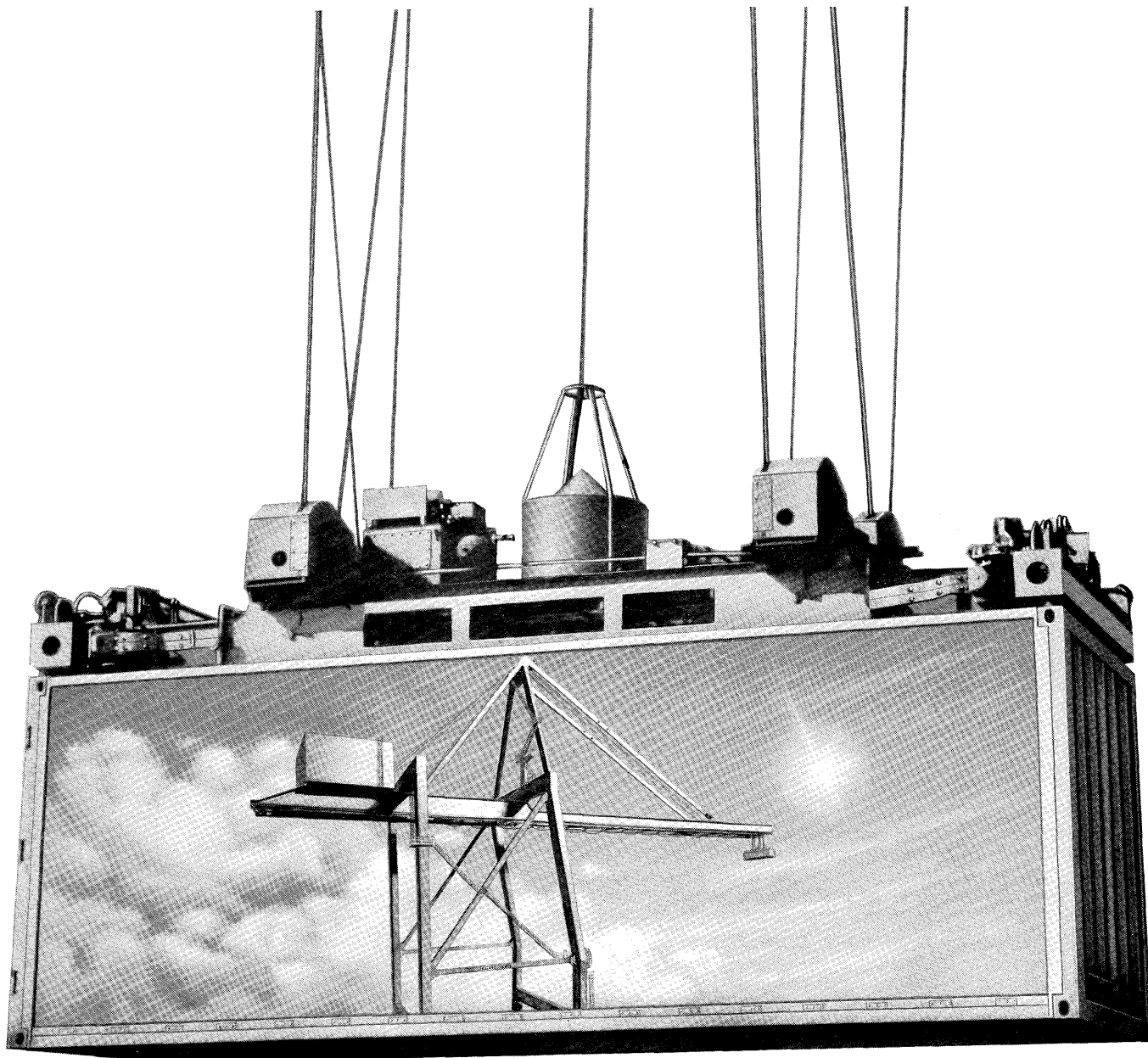
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# Consider the case for BHP Steel Piling.

## BHP H Piling

BHP steel H piles are generally modified universal column sections rolled with webs and flanges of equal thickness. They can be used to great advantage as end-bearing and friction piles for the foundations of buildings, bridges, wharves and other engineering structures. They are not readily damaged in handling and are ideal where piling is required to withstand shock loads, and where unusually long piles are necessary.

Steel H piles can also be used as trestle legs, in bents forming viaducts, bridges or jetties. Their high bending strength and elasticity make them extremely useful in resisting lateral loads from wind, direct impact, shock loads and other forces in jetties and other structures... and where bridge foundations may be undermined by scouring action.

In the design of piers, wharves, moving platforms and other structures required to resist large horizontal impact loads, the strength and resilience of steel H piles has been employed to great advantage on many occasions to provide the flexibility required to minimise impact forces from ships when berthing.

## BHP Sheet Piling

Steel sheet piling has been used to form retaining walls of many types, including dock and wharf walls, intakes to water canals and bridge abutments, also shore and property protection walls, where erosion from river flow, tidal or wave action must be prevented in existing or newly reclaimed areas.

## BHP Octagonal Steel Piling

Octagonal steel piles can be used as friction and bearing piles or as composite bearing piles when filled with concrete. Their properties are such as suit their use in providing support to jetties, wharves and piers, and other applications particularly where the piles project through water and air and where heavy axial and lateral loads are to be supported or resisted.

In the design of piers and wharves the heaviest lateral loads will be those due to impact of ships when berthing and the structure must provide sufficient strength to safely arrest the ship's motion.



Reconstruction work in progress using BHP steel H piles at No. 1 Kwinana jetty.

Ideally the structure should not be so rigid as to either be damaged by the impact or to cause damage to the ship, nor should it be so flexible as to yield too much and be damaged by undue deflection.

## Durability of Steel Piling

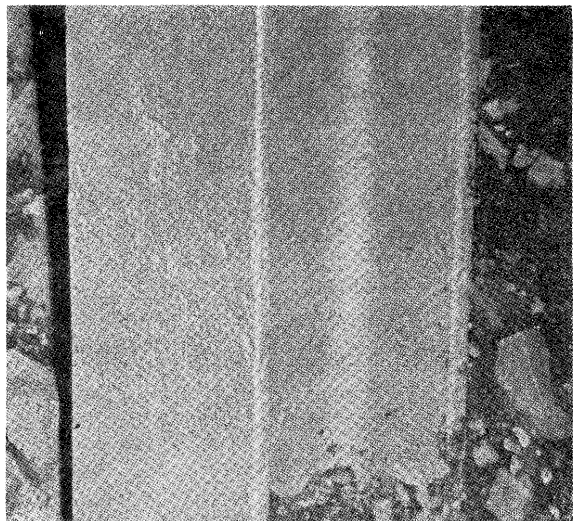
Steel pilings, used for many years under adverse conditions, have been extracted and found to show little or no corrosion. When a short zone of protection is provided local to the ground at water level, steel piles have proved satisfactory in locations subject to tidal action, in soils and sands which are alternately wet and dry and in swamps. Bitumen coating has often been sufficient protection, but permanent protection can be provided by forming a concrete jacket for the exposed zone after driving the piling.

Steel piles normally have a low working stress which provides a considerable margin for safety against corrosion.

Stronger and faster driving than concrete, steel pilings have a long life even without surface protection. Generally, steel pilings submerged in fresh water will be permanently unaffected by corrosion!

## Economy with Steel Piles

Steel piles are consistently cheaper to drive than other types, and splicing costs are far less.



Side view of steel pile after 14 years' exposure in a coastal swamp environment.

Pile surfaces have been abrasive blast cleaned to indicate minor degree of pitting.

Remarkably, worst pits ranged from 1/8" to 1/4" maximum depth, but structurally caused no significant reduction in the cross section of the pile.

## Readily available

Steel pilings are in full supply from the BHP mills. Orders are met with a minimum of delay.

## More information

To obtain comprehensive technical information and detailed literature contact:—

Mr. D. Gillette, Marketing Dept., BHP, 500 Bourke Street, Melbourne, 3000.

Phone him direct on 600 701, Ext. 494.



# BHP STEEL