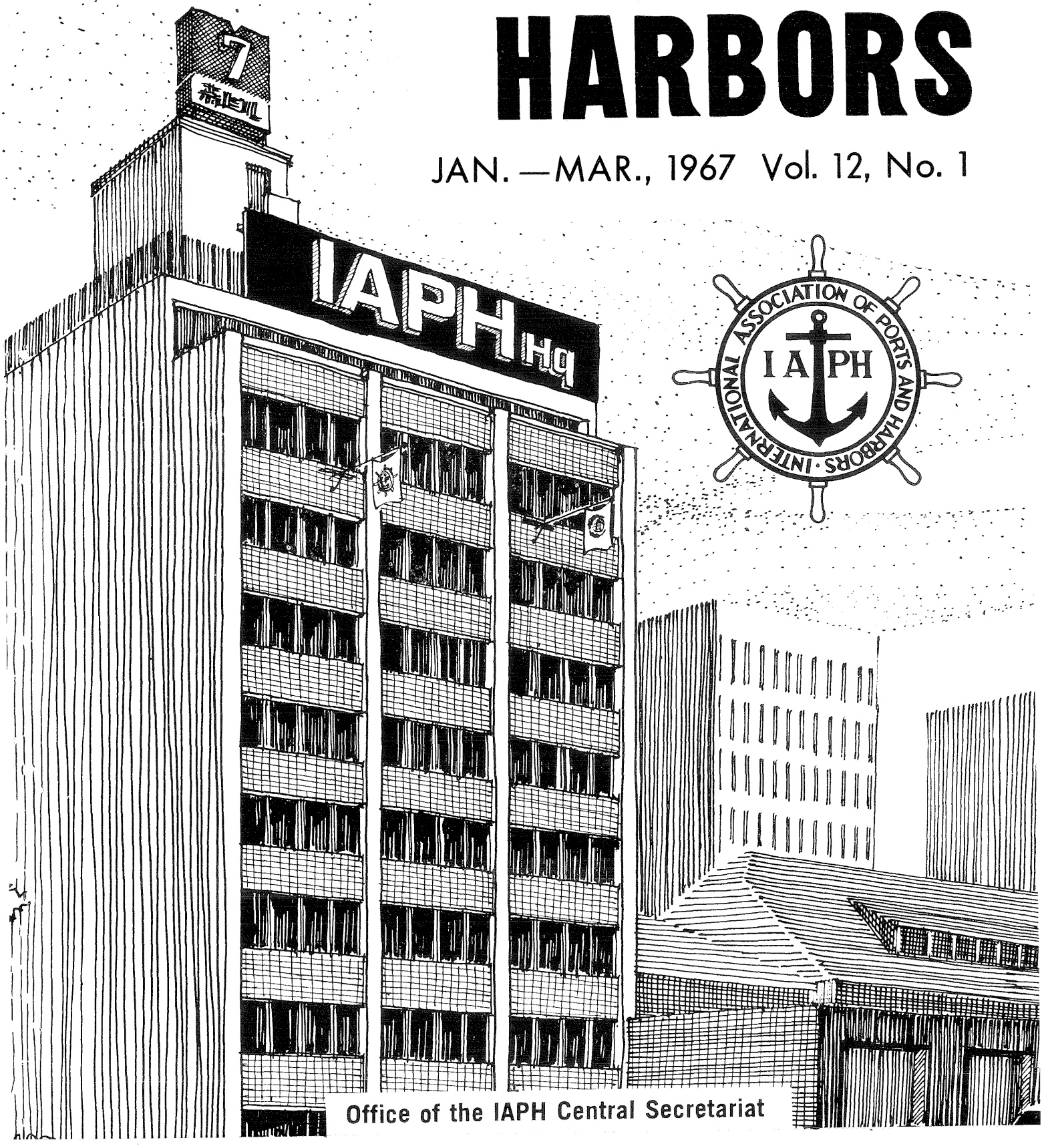
PORTS *and* HARBORS

JAN.—MAR., 1967 Vol. 12, No. 1



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THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

THE PORT OF KOBE

—Modern, Efficient Port With Elegance—

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

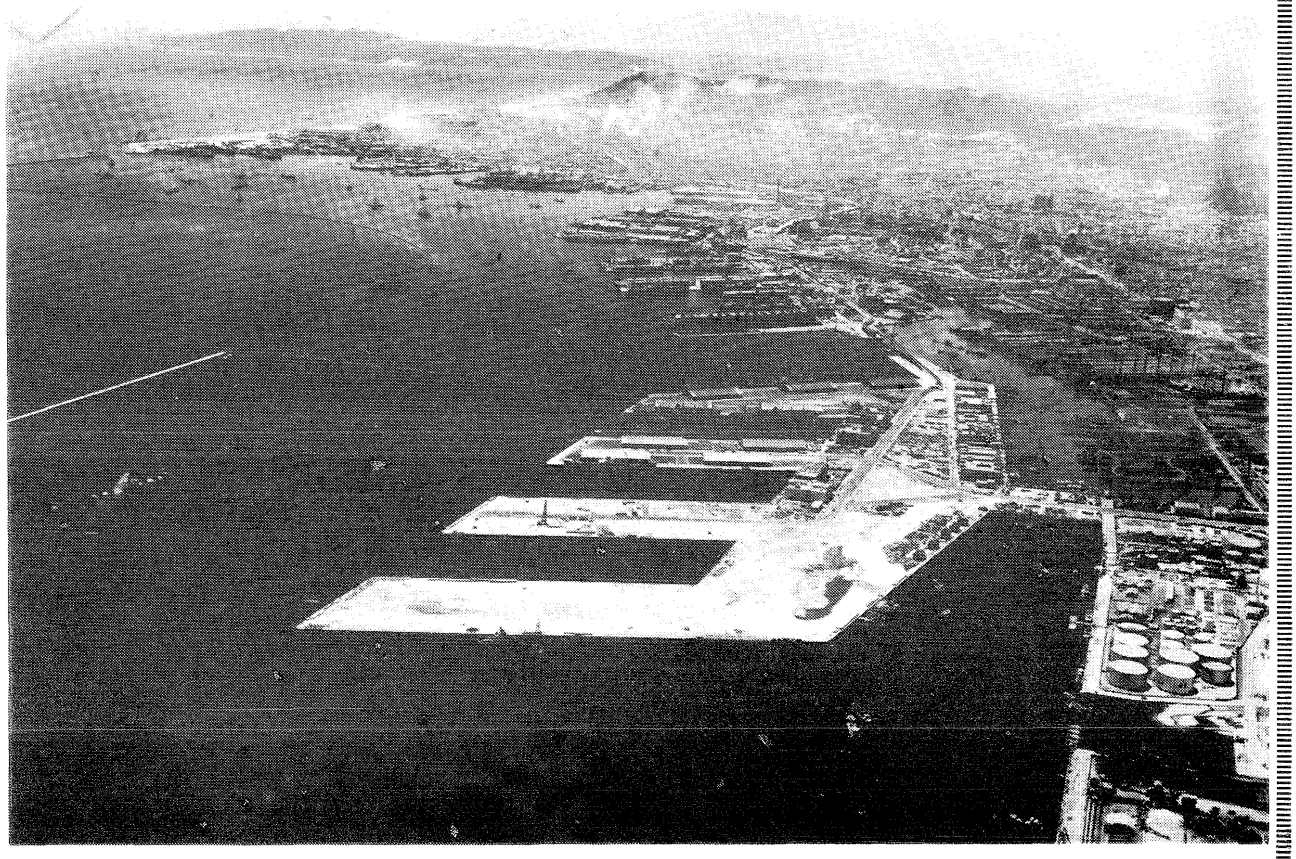
It is nearly 100 years since Kobe was opened as one of the first trade ports of Japan. Today it is one of the major export ports of Japan and handles cargoes representing 30 per cent of the value of Japan's total export trade.

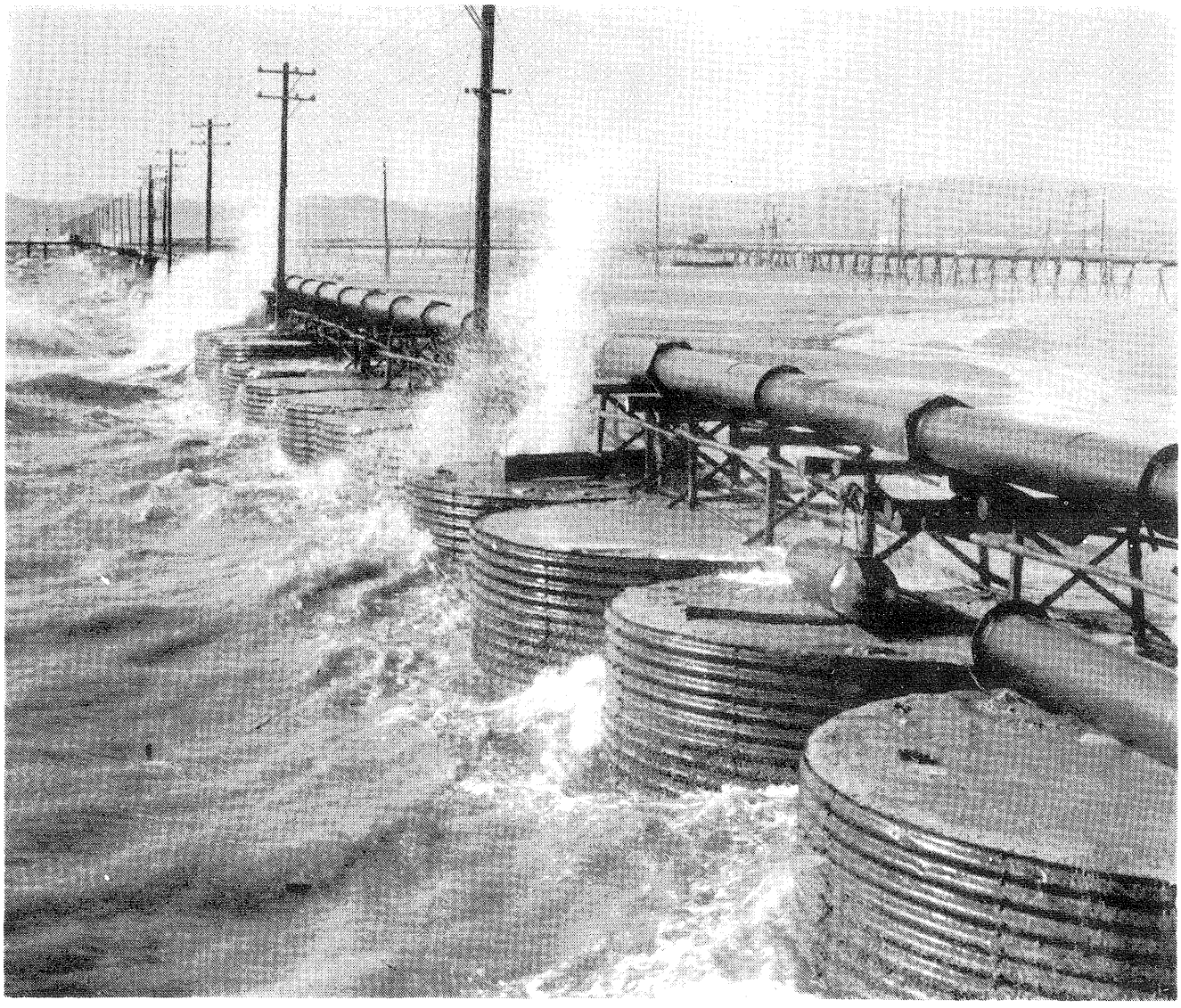
In parallel with the recent growth of Japan's economy, ships and cargoes arriving at Kobe from abroad have been increasing in number and tonnage. This growth has made the expansion of water-front facilities here essential. In the light of this demand, the construction of the Maya pier terminal was undertaken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

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

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

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





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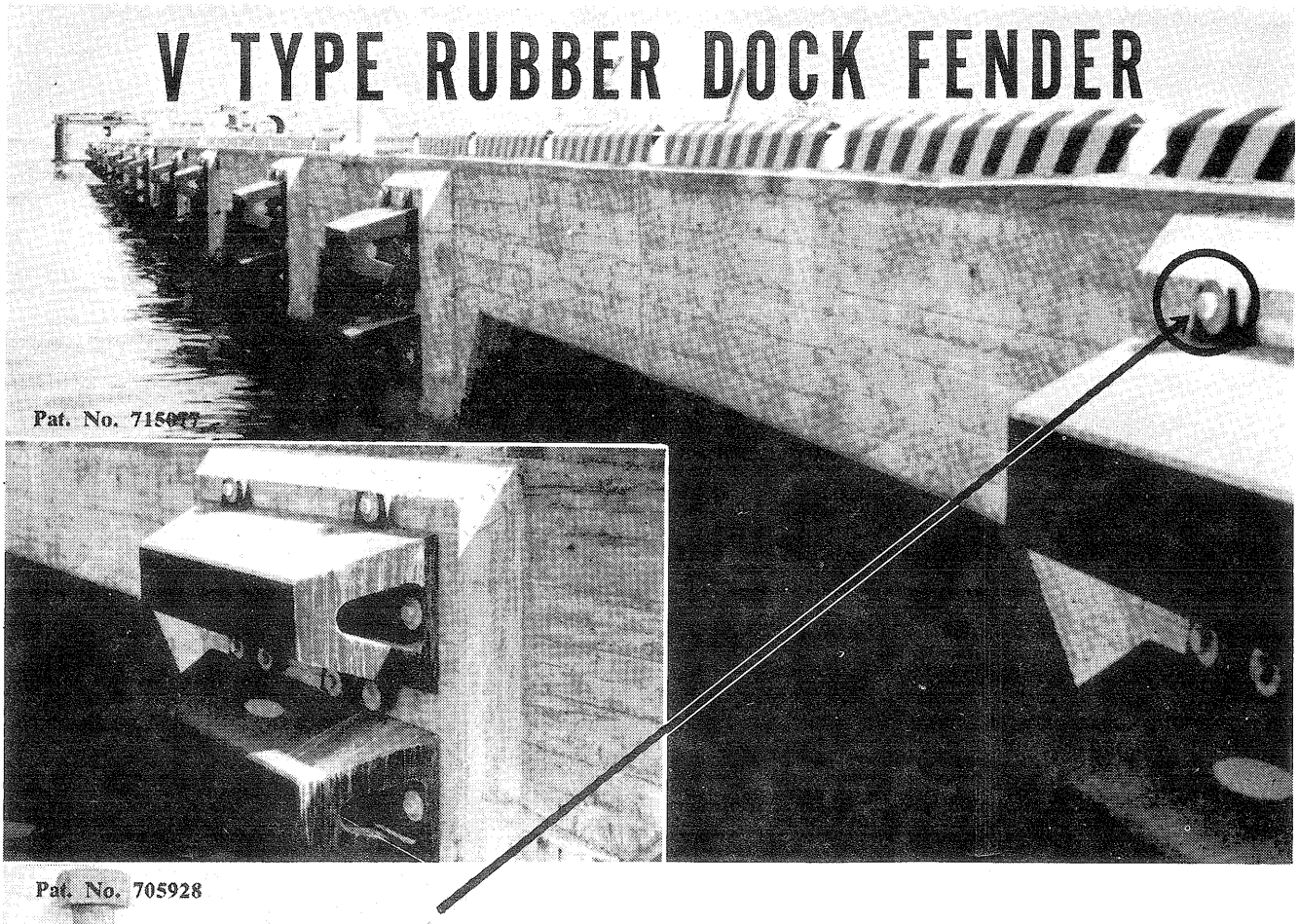

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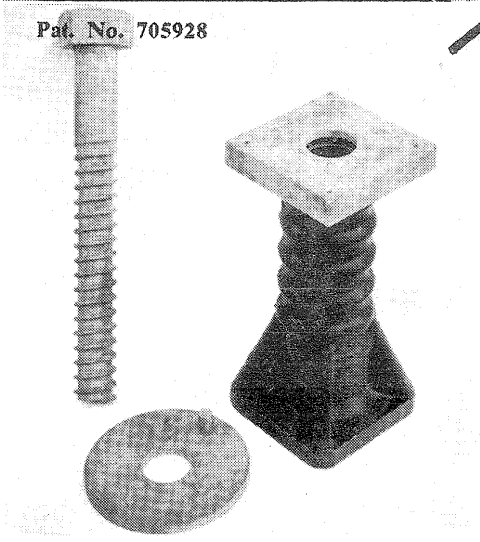

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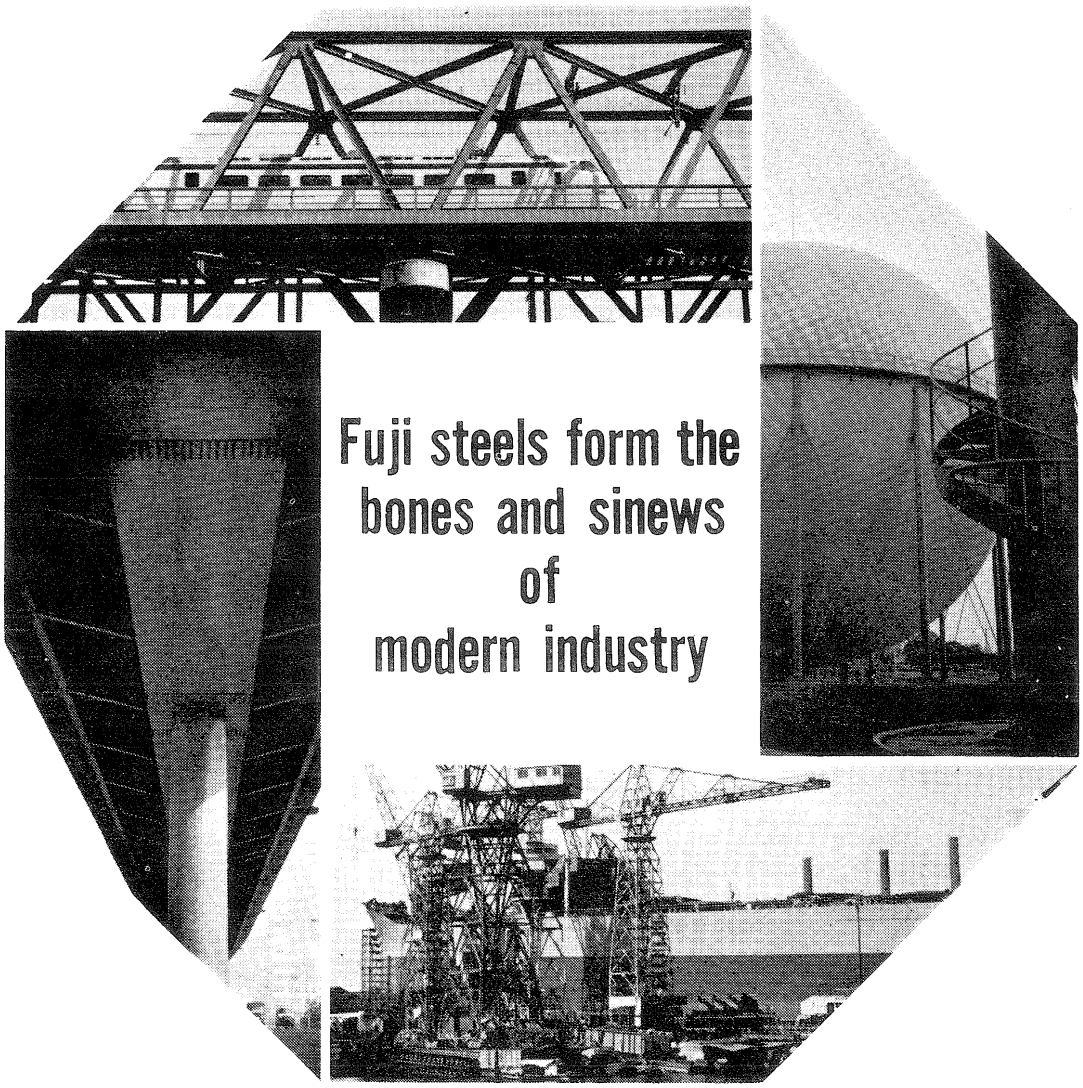

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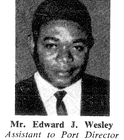

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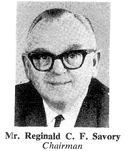

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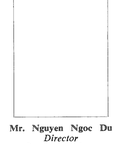

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PORTS and HARBORS

5TH CONFERENCE–TOKYO–MAY 8–13, 1967

Royal Welcome It Shall Be In Japan

600 Delegates

The Organizing Committee estimates that there will be approximately 600 delegates and ladies at the Conference including 281 foreign participants (including about 100 ladies) and 300 Japanese. The number is the largest ever for IAPH Conferences, and is indicative of the growth of the Association under Lord Simon's presidency.

Topping the list of large delegations is the Port of Seattle, Washington, U.S.A., whence 11 delegates will attend. Two neighboring Californian ports, Long Beach and Los Angeles, will each send out a 9-man delegation. There will be 6 delegates each from Houston, Texas and Oakland, California.

The Conference

The Executive Committee which met in Los Angeles last February had felt that the IAPH Conference should lend itself to active participation by the delegates.

A panel discussion on "Containerization Problems" has been organized with Mr. A. Lyle King of New York as moderator and 4 other high port executives taking part. The 10-minute Speeches, a newly devised approach for wider participation, drew few responses at first. In early February, Mr. Akiyama began to write personally to each member who sent in the application for the Conference, urging him to take part in the session. Today, the Organizing Committee is baffled with the problem of cramming 20-odd speakers into the 180 minutes set aside.

Fifty countries are represented on the IAPH membership, of which 43 countries are qualified to elect directors, but there are only 34 directors registered for these countries. Steps have been taken to register all eligible directors at the Central Secretariat.

Incidentally, Japan has so far been the only country with 3 directors (out of 30 Regular Members). As the U.S. Regular Members have surpassed 20 recently, the U.S. has become the second country qualified (under the Constitution) to elect 3 directors. According to the Constitution, no country shall elect more than 3 directors, no matter how many Regular Members there be. With 10 Regular Members, U.K. has one director now, but with one more, she would become a 2-director country.

The Conference procedure has been a subject of intense study by the Organizing Committee, especially as the counterpart is time which elapses inexorably. All reports, nominations, the budget, resolutions and other sessions had to be fitted in with the time available.

As several amendments to the Constitution and By-Laws are being proposed, steps have been taken to put them on the Conference agenda. Since amendment of the Constitution requires a two-thirds vote of all the members having the right to vote (Article X), it is considered necessary to summon proxies in writing from absent members.

At plenary sessions of the Conference, 5-language simultaneous interpretation will be carried out, according to the Organizing Committee. The languages will be English, French, German, Japanese and Spanish. At small sessions, conventional interpreting method will be used. English will be spoken most of the time, however.

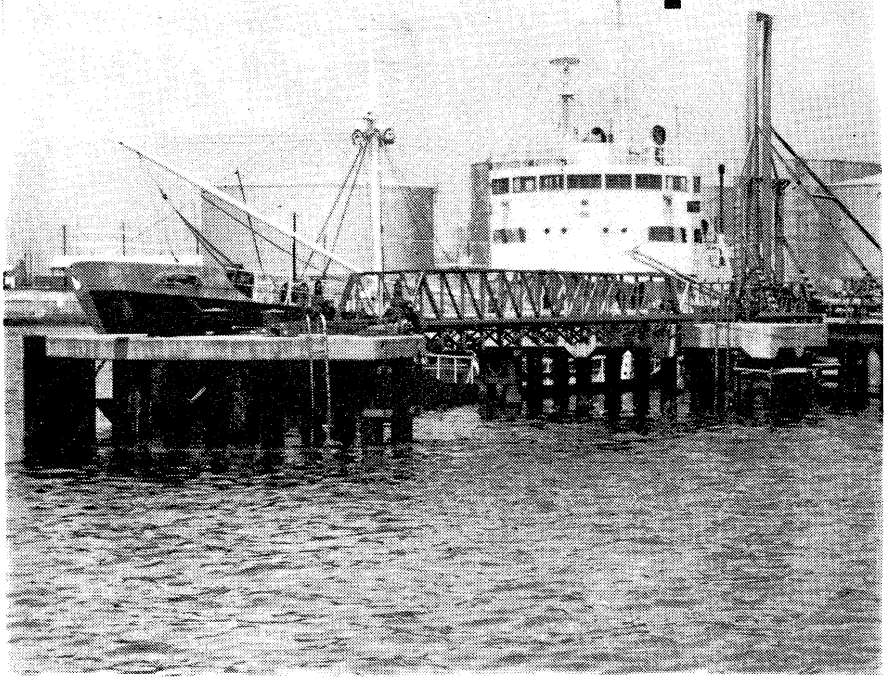
National Red Carpet

If Their Majesties the Emperor and the Empress will grant an audience to IAPH leaders, that alone would have made the occasion a national affair for Japan. There are more to it. H.I.H. Prince Nobuhito Takamatsu, Patron of the Conference, is to grace the Conference Hall at the opening session accompanied by the Princess. Japan's Minister of Transport, Mr. Takeo Ohashi, host of the Conference, will address the session, and so will the Foreign Minister, Mr. Takeo Miki. The Minister of Communications, Mr. Takeji Kobayashi, will present Lord Simon, President, with the first sheet of the postage stamps issued by the Japanese government specially in commemoration of the Conference.

In addition to the national red carpet of prestige, the Organizing Committee of the Conference headed by Mr. Toru Akiyama has devised exquisite ways of rendering the occasion privileged.

The tour party visiting the National Museum in Tokyo on May 10 will be ushered into the Japanese garden in the rear with Japanese houses of historical fame. In Kyoto too, similar privileges enjoyed only by state guests will greet the delegates in more than one place. Of course in Kobe, Mayor Haraguchi will unleash a once-in-a-lifetime welcome on the once-in-a-century occasion.

You'll find Nippon Kokan steel practically everywhere in the port



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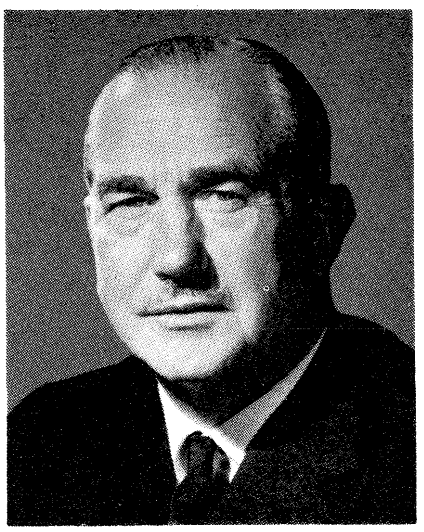
The Challenge Facing the Ports

By S. A. Finnis, O.B.E., E.R.D., M. INST. T.

Managing Director
British Transport Docks Board
London

(Paper presented to the Metropolitan Section of the Institute of Transport on 12th December, 1966)



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

During the last few years British ports have been much in the news, mainly as targets for criticism. More recently, however, there has been a growing emphasis on the efforts being made to straighten out the tangled web of industrial relations and on new developments such as the provision of deep water berths for bulk carriers and facilities for roll-on/roll-off and container ships. It is right that the emphasis should have changed because there is at the present time considerable activity not only in new construction but also in improving the organisation of the ports and finding a basis of permanent employment for the dockers. No one in the industry would wish to suggest that we are as yet anywhere near the end, but at least a start has been made and the challenge to our ports is that they should successfully accomplish these tasks of reorganisation and rebuilding. At the same time they must adapt themselves to new methods so that they can compete economically with continental ports, for the struggle of the next decade will not be between rival British ports but between British and continental ports. Whether in this country or abroad, ports provide services for shipowners and shippers and by adapting themselves to modern requirements can play a vital part in the competitive world of maritime and mercantile trade.

Over the years the ports of this country have been subject to recurrent industrial problems and there have been many many official Committees of Inquiry. Leggett, Cameron and Foster are names which come to mind but, more recently, the scene has been dominated by the names of Lords Rochdale and Devlin, each of whom has headed Committees which have produced reports of vital importance to the industry and it is on these that much of today's effort to improve matters is based. The Committee of Inquiry into the Major Ports of Great Britain, under the Chairmanship of Lord Rochdale, was set up in March, 1961 and reported in July, 1962. Its terms of reference were widely drawn and it is worthy of note that it was the first official Committee appointed to carry out a truly comprehensive survey of the major ports. Other Committees had dealt with either labour difficulties or specific matters relating to the industry but this Committee looked at the major ports as a whole and made recommendations on broad general policy. As might be expected, the recommendations were numerous and at this stage, I will mention only the proposal for the establishment of a National Ports Authority, which was to have well defined non-operational responsibilities and be charged with the preparation of a national ports plan and secondly, the proposal for a system of independent port trusts with estuarial responsibilities over port authority, conservancy and pilotage functions. In the event the Harbours Act, 1964 became law and set up a National Ports Council, which is mainly an advisory body to the Minister and has no financial responsibility for the ports. The Council has powers on such items as charges, training and research but the Act did not tackle the labour problem. The idea of port trusts for all estuaries has also been varied to the extent that control over three major areas is now proposed for the British Transport Docks Board instead of having independent trusts at each estuary.

Lord Devlin's Committee was set up in October, 1964 to inquire into the causes and circumstances of a particular dispute, and also to report in respect of decasualisation and the causes of dissension in the port transport industry. It quickly made an interim report on the dispute and then in July, 1965 dealt more fully with the other parts of its remit, with proposals for action by the various parts of the industry, including a reduction in the number of employers, regular employment on a weekly basis for dockers, and improved welfare facilities. The Docks and Harbours Act, 1966 gave statutory sanction to proposals designed to bring about these objectives.

If then these two reports are the background to much of what is going on at the present time, it is also necessary to remember that the present Government have declared their intention of nationalising the whole of the ports industry by 1970 and placing all dock workers in the employment of the dock authorities. This has given rise to questions as to whether or not what is being done at present

An aerial view of the British Transport Docks Board's Southampton Docks.

should go ahead or await 1970, but the vast majority of those in the industry want to see weekly employment for dockers introduced as early as possible. The docks are also anxious to press on with the development of new quays and other facilities but there is not the same uniformity of view on some of the organisational changes. This real question here is whether the amalgamations proposed and the new bodies to be set up will conform with the pattern of further changes when complete nationalisation is introduced, or whether these initial changes will be quickly followed by others. However simple it is to make these changes on paper one has always to remember that reorganisations and amalgamations affect men's lives and bring anxiety. The quicker this can be allayed the better.

Out of these proposals one very important fact emerges and that is that for the first time action is to be taken to deal with the problems of the docks industry as a whole. The fact that ownership and employment are to be dealt with together gives real hope for the future, for the present arrangements with their fragmentation of responsibility and the inertia of long established custom cannot continue if real efficiency is to be achieved. On the docks themselves the lack of one body with overall control is a major difficulty in the way of improvements in method and if efficiency is to be achieved there must be one responsible interest at each dock with control over port operations. This does not necessarily mean the port authority, for there will be cases where the best results can be achieved by other means. Examples might be such cases as where operators of container ships need to be in physical control of their containers not only between ship to shore but also from point of origin to destination. Likewise, the receivers of bulk cargoes in large ships may wish to have a similar degree of control to that exercised by the oil companies at their terminals.

If then I may pass on from these background questions, I propose to divide my paper into four main headings dealing respectively with labour, port organisation, facilities and new methods, with a brief summing up at the end. The first three of these relate to docks as they are and the changes which are under discussion. The last relates mainly to the future and must be in everyone's mind in considering how best to proceed. Labour on the docks can be divided into two main streams approximately equal in size and totalling in all about 130,000 men. Firstly, there are the port authorities' own employees who are concerned with administration, maintenance and other activities which sometimes include such work as checking or cranedriving or railway operations. Then there is the register of "dockers" which has the right to undertake activities which are by statutory definition "port transport work." About 25% of these men are in weekly employment while the other 75% are "allocated" to dock employers for whatever jobs there may be. The minimum period of engagement is a four hour shift but generally the man is employed by the particular employer for the duration of the job and then returned to the "pool". In some cases, as at Manchester and some smaller ports, the port authority is the sole or principal dock employer, but in London the Devlin Committee quoted the number of employers as being 76, with 114 in Liverpool and 90 in Hull. Thus in addition to the casual employee there has been the problem of the

An overall view of the British Transport Docks Board's roll-on/ roll-off terminal at King George Dock, Hull.

casual employer. The latter will be eliminated by the licensing procedure which is now being brought into force and in fact the initial applications for licences were due in by 1st December. The stage after licensing is in the transfer of all the men on the dock register to weekly employment. Perhaps I might here look back a little and say that I can remember the days of the 1930's when in addition to the men who tried to make their living on the docks regularly there were many unemployed crowding round the foremen who wanted to engage men. From that developed the system whereby the regular men were provided with a tally or book on the understanding that the employers gave work to the truly casual men only when all the book or tally-holders were employed. From there the industry made a big step forward to the National Dock Labour Corporation which later became the National Dock Labour Board. Now once more there is to be a further forward movement in the conditions of employment of the "docker" which will bring his terms of employment nearer those normally enjoyed by men in industry. The new methods of handling to which I shall refer later should give an impetus to this but they will also bring other problems in that the industry will move from being labour intensive toward being capital intensive. This will bring with it problems of re-training and re-deployment for much of the manual handling of goods will disappear and the docker of the future will need to have a higher degree of technical skill and will do most of his work under entirely different conditions to those of today.

As a final thought on the question of labour, I would mention the doubts which many people have about the future of the smaller ports and their ability to give weekly employment to the dockers. The answer to these is, I think, that ports outside the National Dock Labour Board's scheme such as Felixstowe and Shoreham operate successfully with weekly paid staff and do so in competition with other ports. They are, however, in a different position from many of the ports within the scheme whose labour arrangements have in effect been subsidized by the larger ports. In due course these smaller ports within the scheme will not only have to meet the increased costs arising from permanent employment but also the deficits. I have always argued that the small port provides a service to the local community and should continue to exist so long as it can pay its way but in the future it will be that much harder for the small port within the Dock Labour Board's scheme to compete.

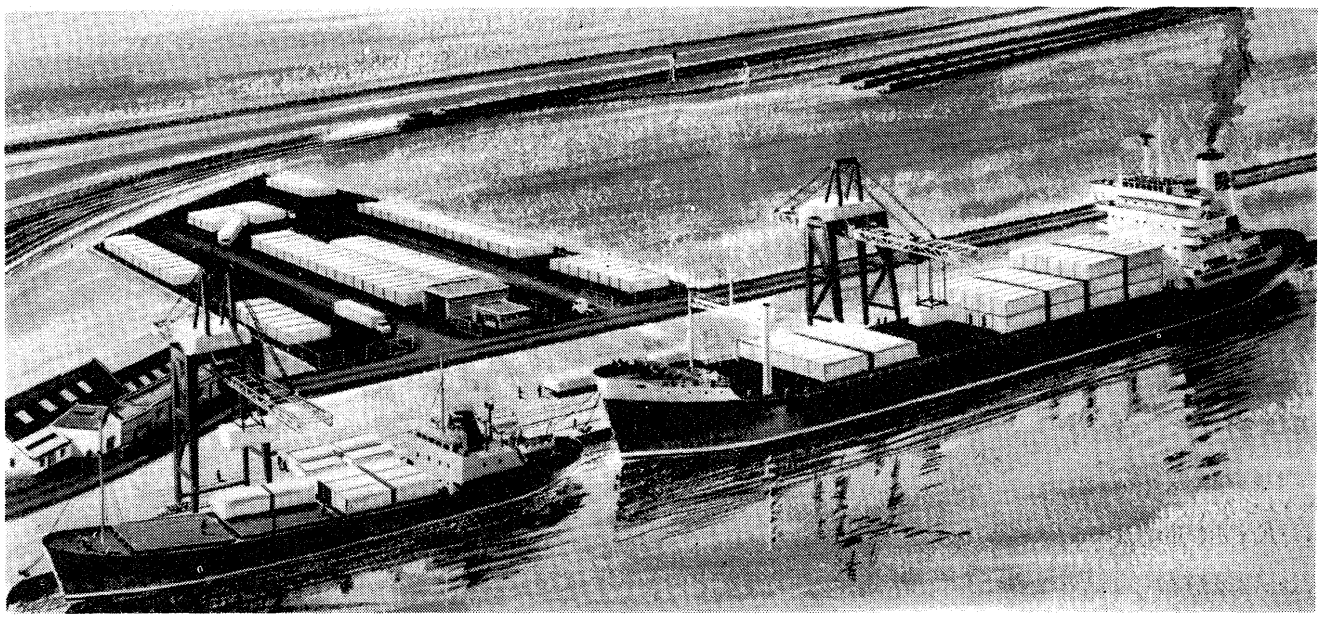
Turning to the question of port organisation, I think I can say that there is now a majority who consider the setting up of a National Ports Authority, with financial responsibility for the ports, as being essential. No one wants to see anyone at the centre trying to take decisions on dav to day operations at the ports but if the problems of the industry are to be dealt with on a nationwide basis it is important that the policy making body should be responsible for the financial success or otherwise of the decisions they take. The Government's solution for this is the proposal to set up a National Ports Authority. Below this level there are to be Regional Port Authorities with a wide measure of independence. Traditionally ports have not been organised into groups or regions but rather have grown to the position where the activities of individual organisations relate only to one estuary or even to only a part of

one. Examples are Southampton Water and the Humber where local bodies are responsible for conservancy work in the approach channels while my Board own the public docks. London is an example where the Port of London Authority have jurisdiction over the Thames and the public docks but even here they are not responsible for the Medway. My own Board, which owns 29 docks round the country, is the only example of group ownership but even these docks were brought together by the accident of railway ownership and not as part of a preconceived plan.

Thinking in terms of regions, the economic planning regions into which the country is divided come first to mind but they are hardly suited to docks and possibly the natural division would be into regions based on the four great estuaries, i.e. Humber, Thames, Severn and Mersey, with a fifth region for Scotland. In this grouping 12 out of the 15 ports selected by Lord Rochdale's Committee as being "major" fall either in or close to the estuaries and in the case of Southampton, which is one of those left out, it is possible to regard Southampton Water as another "estuary" and to add to a sixth region. At the other end of the scale it can be said that there are over 300 ports in Great Britain although obviously not all of them deal with commercial traffic. About 70 handle at least a moderate volume of foreign trade but it is hardly possible to contemplate each of these as a region. A middle course would be to accept the estuarial concept proposed by Lord Rochdale's Committee under which the number of estuarial authorities would be, say, 12 or 14. In this case, however, the port organisations would not be regional but rather estuarial with the additional responsibility for the management of the ports on either side along the coast line. The real question here is whether with the larger number of regions or estuaries each will be of sufficient size to be efficient in real terms and able to adopt some of the more sophisticated management techniques which cost money and from which the benefits can only be obtained by large scale operations. In this connection it must be remembered that the industry comprises only about 130,000 men while the port authorities have a revenue of not much more than £100 m. London and Liverpool employ two-thirds of the dockers and probably about half of the total number of employees. Thus with any appreciable number of regions some will be relatively small. My own Board has successfully solved the problem of dealing with 14 management groups of differing sizes but here we are in complete control and although substantial powers are delegated to our Docks Managers, common services are provided at the centre to assist them. This may not be possible if the regions are to be autonomous statutory bodies.

Transferring containers to ships direct from road transport on the Sea/Land container service from Grangemouth Docks. This was the first fully containerised deep-sea service to operate from the United Kingdom.

The real organisational problem is whether the region is to cover a substantial geographical area with a sufficient number of ports to warrant a separate regional management office or whether "region" is to be synonomous with "estuarial authority" with responsibility for lesser ports nearby. If the regions are numerous the introduction of a regional level between the National Authority and the ports could be both expensive and frustrating in which case it might be better for the National Authority to work



An artist's impression of the new Container Terminal at Grangemouth in Scotland, as it will appear when completed towards the end of 1967. Two new 32 ton gantry cranes are being provided by the British Transport Docks Board. The first will come into operation in June this year.

direct with the Organisation in direct control of the estuarial port. An alternative might be to have groups of ports rather than regions with each group of sufficient size to provide an efficient management structure or there could be a combination of regions and groups to give the same effect. The problem is an interesting one and also an important one because a good management structure is of first importance if overall national efficiency is to be achieved.

Next I want to mention the improvements which are being made to the ports of this country in terms of physical assets and I will put these into four principal categories. Firstly, there is the need for deep water berths for bulk carriers of oil and ore and grain. Secondly, there is the provision of adequate facilities for the medium size vessel whether a cargo liner carrying a miscellany of goods or a chartered vessel with a full cargo of fruit or timber or some other commodity. Thirdly, there is the provision of facilities for goods and passengers to and from the Continent. Lastly there is the passenger liner.

With bulk carriers the problem is size and the outstanding example is oil. In less than twenty years the maximum size of tankers has increased from 16,000 tons to 200,000 tons capacity and possibly more in particular trades. These monster vessels are used for carrying crude oil to the refineries and the bulk of the development work in connection with terminals to accommodate them has been done by the oil companies themselves. Milford Haven, Fawley in Southampton Water, the terminals in the Thames estuary and the one at Loch Long come readily to mind and vessels of 100,000 tons are being dealt with. Some 86 m. tons of petroleum and petroleum products were imported into this country last year and the cost of carrying oil has been significantly reduced. All praise must go to the initiative and enterprise which has been shown. For iron ore, the import of which totals about 19 m. tons each year, the position is not so far advanced. It is only with the development of the larger oil carriers that there has been the realisation that the same principles can be applied to the carriage of ore and rich deposits in such far distant places as Brazil and Australia exploited. My own Board are building a deep water harbour at Port Talbot in South Wales and another terminal is planned for Uskmouth near Newport (Mon.). These will take vessels up to 100,000 tons and the harbour at Port Talbot has an even greater potential. Elsewhere the present maximum size of vessel that can be accommodated is not much above 35,000 tons. Next on the list of bulk commodities comes grain but the total volume entering the country is only about eight and a half million tons and a great deal of this goes to mills round the country. In London a scheme for deep water facilities at Tilbury is in hand.

If I may next turn to the medium size vessel there is on the one hand the cargo liner on the fixed route and on the other the chartered ship going from port to port as cargoes offer. The problem here is not so much that of the quay and shed as of the methods in use which require the cargo to be handled piece by piece to and from the inland vehicle and to and from the ship. Since the war the practice of sorting to marks and sub-marks has increased, with the result that more space is required and a further complication is the changeover from rail to road transport which has found weak spots in port facilities. Even at the best berths in this country, which are at least as good as those elsewhere, difficulties arise due to labour shortages, to congestion, to lack of control by the port authority and to excessive requirements for sorting.

General cargo is most affected and this is the type of traffic which is likely to be dealt with in containers, about which I propose to say more later.

My third category under this heading is the provision of services to and from the Continent and here there has already been a revolution. The roll-on/roll-off services which originated in the Thames and across the Straits of Dover have now fanned out to such an extent that they run from as far north as the Tyne to Norway and from as far south as Southampton to Spain. These two and other ports between them serve Norway, Sweden, Denmark, Germany, Holland, Belgium and France. There are also container services on the same routes and the carriage of goods by traditional methods has either virtually ceased or is likely to do so shortly. Lorries now run deep into Europe and there has also been a vast increase in tourist traffic. If I may take my own Board as an example, I can cite the fact that by 1967 we shall have provided in four years no less than 11 roll-on/roll-off berths at five different ports. The expansion of trade with the Continent has given impetus to the development but credit must also be given to the method which has enabled quicker turnrounds to be achieved and taken away from the port the detailed handling and sorting of goods. These are essentials if casual labour is to be eliminated at an economic cost.

My fourth category is the passenger liner and here I want to say very little. There is an increasing tendency to separate passenger operations from freight and the businessman no longer travels for any distance by sea except as a relaxation. An increasing proportion of the ocean passenger business is being dealt with at Southampton which is amply equipped with first-class terminals and has deep water. Cruising is becoming more and more popular and this and longer distance journeys will continue not so much as a means of transport but as an extremely pleasant way of life. In general, however, the ocean passenger liner is not likely to be a problem in so far as facilities are concerned.

Perhaps in conclusion about this particular aspect of modernisation I might say something about my own Board's activities for we have authorised some £53 m. on dock reconstruction and development in the last three years. This includes such varied major works as the Port Talbot tidal harbour, a new arm to the deep water King George Dock in Hull, a new entrance lock at Grangemouth, a new oil terminal at Immingham, new quays and improvements at Swansea and Newport, a new goods/passenger terminal at Southampton as well as seven new dredgers and the 11 roll-on/roll-off terminals previously mentioned. Many of these works are already operational and most are past the planning stage or either under construction or likely to be very soon. Bearing in mind that we represent only about one-third of the ports industry of the country the total is impressive and our forward programme provides for a further £70 m. in the next five years which will keep what are at present Britain's only nationalised docks well to the forefront.

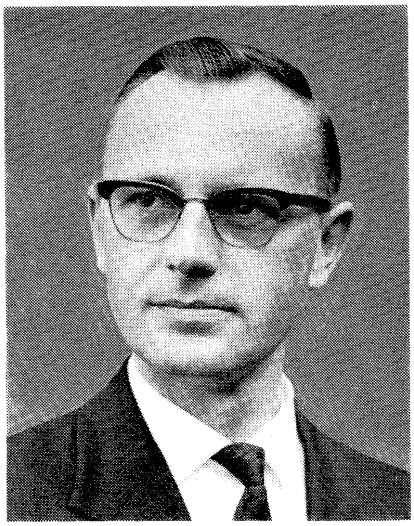
Already I have mentioned new methods in operation between this country and the Continent and now I would like to say something about "containerisation" in the long distance liner trades as it is likely to affect the port. In this context I am thinking of purpose-built cellular-type vessels carrying containers for which the standard dimension looks like being 8' × 8' in lengths of 20' or 30' 40'. About one-third of the country's trade comes under the category of general cargo and the impact of this new development is likely to be both considerable and complex. In the first place, it looks as if trans-ocean container ships will be both fast and big. One American company is to build a 1200 container ship next year with a speed of 26 knots. If this is to be the type of vessel its operation will demand a high degree of cargo concentration, not only to make the best use of the vessel, but also of the containers. Clearly, to achieve a quick turnround and to be able to work with timetable precision, the container ship must be certain of a berth on arrival at a port and this will justify long-term leases and operational control of port facilities. At the same time, however, it would appear that in future each major trade route will tend to be served by a greatly reduced number of ports and that whereas now ships tend to go where the cargo is, in the future the containers and not the ships will do this. If this is so, and larger and faster ships are used between pairs of ports, each turning round more quickly than is conceivable under existing conditions, there is likely to be a vastly increased carrying capacity per ship. Much, of course, depends on the length of voyage but on the North Atlantic the ratio has been put as high as eight or even ten times the capacity of today's conventional cargo ship. There will thus be less ships required and less berths, although each berth will require a greatly increased area of land. An estimate has been made that 80% of U.K. exports to North America could be containerised and carried in five container ships of this type now being built by U.S. operators. Since these vessels would not return empty, it can be argued that they could carry back to the U.K. our imports from North America. This type of development may well alter very considerably the role of the port authority, whose function in the past has been to own, allocate and supervise port facilities on a common use basis. This resulted from the fact that individual users did not generally have a sufficient volume of traffic to warrant the exclusive use of a berth or berths. High-volume bulk traffics, of which oil is the best example, are generally controlled completely by the shipper using his own facilities and since containerised cargo is effectively bulk cargo, and may well be subject to economics of scale, the same transfer of responsibility to the shipper may take place. This could limit the role of the port authority to overall planning for development, to development to the requirements of specific users and

(Continued on Page 23)

THE PORT OF ANTWERP

By R. Vleugels

General Manager
The Port of Antwerp
Belgium



Mr. Robert L. M. Vleugels

Making acquaintance.

Antwerp, Belgium, a main North Sea port, ranks among the five toppers of the world's port business. It is located at some 40 s.m. upstream from the wide estuary of the river Scheldt.

On the spot where Romans settled in the 3rd century Antwerp developed as a port and as a commercial and industrial center. Suffering decline, fighting for free trade, enjoying prosperity during a rich past, Antwerp became in the 16th century as much as the commercial nucleus of the western world. Still nowadays ancient cultural monuments in the city's center vividly recall the magnificence of that age.

The industrial expansion of the 19th century, involving the rapid industrialization in Belgium (independent since 1830) and in the surrounding West-European countries led to a fresh revival which continued into the large scale expansion of the recent period.

The district of Antwerp, including the city itself and a number of surrounding boroughs covers an area of some 100,000 ha (250,000 acres) and houses about 1 million inhabitants. It is nearby to the district of Brussels, the growing capital of the European Common Market.

Although the harbour and its connected activities since times immemorial have been the bases of Antwerp's growth, industry plays a very representative part in the overall economic picture. Numerous industries settled in the Antwerp district. That industrial expansion is still accelerating. As an illustration: the number of employed people increased from 188,611 in 1950 to 253,961 in 1965.

The city's overall area covers 35,000 acres, out of which 25,000 acres are occupied by the port, inclusive of the industrial sites adjacent thereto.

The recent extension of the port area offered attractive opportunities to new industrial locations. Several great concerns belonging to the sectors of oil refinery, petrochemical and chemical industry and motorcar assembly settled there. In fifteen years time the surface taken by industry in the port area rose from appr. 300 acres up to 4,500 acres.

All that activity is integrated in the widespread hinterland.

Where does the traffic come from?

Thanks to its central position in relation to the important centers of industry and of consumption in continental Western Europe and being linked to them by waterways (Rhine, Albertcanal, Meuse, Scheldt and connected canal systems), railways (Belgium has the densest railway system in the world) and highways and expressways (f.i. the Baudouin expressway to Germany) Antwerp constitutes a main gateway to the sea-borne raw materials and products. In 1965 the total maritime goods traffic rose to 59.4 million tons.

Not less than 90% of the sea-borne trade of the Belgian-Luxemburg Economic Union (B.L.E.U.) is shipped or received via Antwerp. The tonnage for 1965 amounted to 46.6 million tons. Worthwhile mentioning is the importance of the international trade of the B.L.E.U. (less than 10 million inhabitants). For the year 1965 imports totalled 6,374 million U.S. dollars as compared to exports amounting to 6,382 million U.S. dollars. About one third of that trade is sea-borne.

As a transit port, Antwerp can present most representative figures as well. In 1965, 12.7 million tons of cargo transited via Antwerp to or from Holland, the North and the East of France, the German Rhine-Ruhr districts, central and southern Germany, Switzerland and even more distant regions. (Transport is effected as far away as Spain, Austria, Roumania, Etc. . .)

Administration and operation of the port.

The port of Antwerp is to be classified among the municipal ports. The city council and the board of Burgomaster and Aldermen are responsible for the administration of the city and of the port, which is part of it. One of the Aldermen is especially entrusted with the port's interests.

The entire port area (10,000 ha = 25,000 acress) as well as the substructure, quays, locks, bridges, distribution of electricity, and the main part of the port equipment belong to the city. Such does not exclude at all that private enterprise takes a very important and ever growing share in the total investments made in the classic port function.

The Belgian State's participation involves: maintenance of the Scheldt river on Belgian territory, sea-and estuary pilots service, sanitary inspection, customs service, river police. The Belgian State also contributes with investments in substructural works as docks and locks.

Handling of cargo, storage, forwarding, agency, ship repairing, shipchandlery and so many other functions are fulfilled by private enterprises.

General view of the roads.

Cargo handling is private business. Stevedoring enterprises employ some 14,000 registered dock labourers. Working hard for good money their productivity is very high. Dock workers in Antwerp respect themselves and their employer's interest. There is good understanding between employers and their labour. Under mutual agreement their relation is ruled by a social contract, which is supervised by the Ministry of Labour. The fact that dock labourers remain with the job, often for generations, illustrates an enviable social climate. The records on cargo output and turn round of ships constitute another example of the sound mentality and know how of the Antwerp docker. For all visitors it must be significant that in front of City Hall a statue by Constantin Meunier honours the docker and pays the community's respect to him.

The administration and management of the port being assured by the municipality of Antwerp, several municipal services are responsible for the operation. About half the number of some 8,000 city employes are grouped in those services. Their set-up is rather classic.

Under the supervision and coordination action of a general manager are grouped:

a) the technical department, responsible for planning, extension and maintenance works, operation of technical equipment, electricity distribution;

b) the harbour master's office, responsible for the nautical and quay side operations, inclusive of the tugging in the docks, and assisted by a managing officer who is entrusted with the commercial operations of quays, sheds, warehousing facilities and leasing of land;

c) the finance department, in charge of invoicing, book-keeping, budget, financial control and cash operations. The general management itself splits up in a section for administration and operation and a section for study, prospection and public relations.

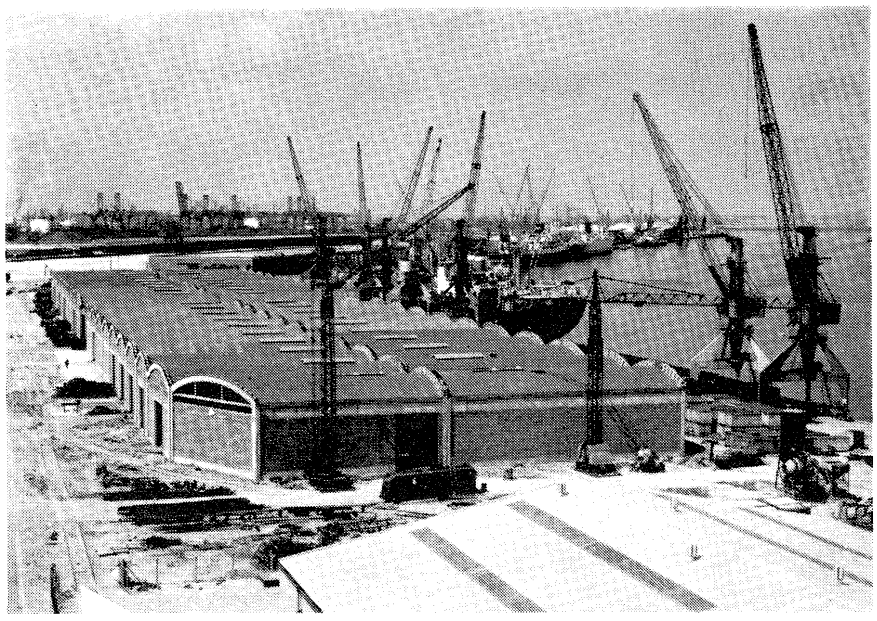
Close cooperation between public services and private enterprises is a primary condition of efficiency. Local organizations like the Chamber of Commerce, the Chamber of Industry, the Labour Unions, the Federations of Shipowners, barge operators, ships agents, forwarding agents, stevedoring firms, warehouse keepers, etc. . . are in constant contact with the port administration.

Most important was the creation, some years ago, of the association "ASSIPORT" which coordinates the activities of these federations in the field of building up private tariffs and in organizing the public relations activities. Thanks to good understanding between the parties involved several valuable measures were taken which considerably reinforced the competitive power of the port as a whole.

How traffic increased.

a) Seagoing vessels.

The number of arrivals went up following a fairly sharp rising trend. In 1965 the port welcomed 18,065



Southern quay of the 6th Harbour dock equipped for general cargo handling.

vessels. This year the 15,000th ship arrived on October 30th. The aggregate tonnage increased more rapidly as a result of the growing average size of the vessels. The total represented 55.4 million net tons (Belgian measurement) or appr. 43.7 million net tons (Lloyds Register).

Schedule No. 1 shows the development since the year 1950, which reflects the figures noted during the last prewar years.

The flags flown by the merchant fleets who participate in the port's activity are those of all maritime nations. The Belgian fleet, though modern and active, only represents less than 5% in the total tonnage. In the classification of flags the German one is ranking first with 14.6% of the total tonnage of seagoing vessels. It is closely followed by the Norwegian, British and Dutch flags, which individually take a share of 10% at least.

If largely 90% of the maritime traffic at Antwerp is carried under foreign flag, the international maritime operators support this port by assuring some 13,000 sailings per year in the frame of about 300 regular lines.

The maximum draught of ships calling at Antwerp is determined by the hydrographic characteristics of the river Scheldt, the locked docks offering constant waterdepths of 36 up to 54 feet. River draining works did consistently improve the navigability of the channel. The increasing number of ships with great draught on arrival at Antwerp confirm that evolution, as schedule No. 2 indicates.

Further projects are executed in order to bring the maximum draught up to 42 feet.

Presently ships of 55,000 dwt regularly call at Antwerp, but already some units of 65,000 dwt loaded up to 60,000 tons of cargo did safely arrive.

b) Seaborne cargo traffic.

The movement of seaborne cargo via the port of Antwerp shows a booming growth, which was still accentuated in the most recent years. The effect of the port expansion works is clearly visible indeed. The sharp rise of the traffic is proving how necessary the new investments were.

The various percentages of growth compared to the preceeding year demonstrate how after an impressive growth of the inbound cargo, also the outbound cargo developed more than satisfactorily in the recent period. On the whole the inward traffic with respect to 1950, increased by 279%, the outward movement by 76%.

How is Traffic Composed?

The schedule No. 4 reflects a relative equivalence between the different groups of commodities. It

Schedule No. 1.

Year	Number	NRT (in 1000 T)	BNT (in 1000 T)	Index
1950	9.687	18.144	22.604	100
1955	13.731	27.658	33.957	150
1959	16.022	34.341	43.469	192
1960	16.570	35.780	45.291	200
1961	16.945	36.464	46.156	204
1962	17.966	39.507	50.009	221
1963	17.856	41.298	52.276	231
1964	18.550	43.207	54.693	241
1965	18.065	43.753	55.383	245

Schedule No. 2.

Draught in feet	Number of Ships 1953	1955	1957	1959	1961	1963	1965
33	2	18	37	52	62	88	88
34		8	23	62	80	149	113
35			4	26	87	108	164
36			1	1	34	74	106
37					4	44	115
38					2	12	89
39						1	15
40							1
Total	2	26	65	141	269	476	691

Schedule No. 3. Seaborne cargo traffic in 1000 tons (1 T=1000 kg)

Year	Inwards	%	Outwards	%	Totals	%
1950	10.661		10.846		21.507	
1955	17.519		14.822		32.341	
1960	21.981		15.543		37.524	
1961	23.347	+ 6.2	15.425	— 0.6	38.772	+ 3.0
1962	26.500	+13.5	15.591	+ 1.1	42.091	+ 8.5
1963	33.382	+26.0	15.416	— 1.1	48.798	+15.9
1964	36.430	+ 9.1	16.898	+ 9.6	53.328	+ 9.3
1965	40.390	+10.8	19.050	+12.7	59.440	+11.4

Schedule No. 4.

Commodity	1950		1965	
Mineral oil and derivates	2.053.000 t.	10%	21.517.000 t.	36%
Dry bulk cargo	9.115.000 t.	42%	19.195.000 t.	32%
General cargo	10.339.000 t.	48%	18.728.000 t.	32%
	21.507.000 t.	100%	59.440.000 t.	100%

Schedule No. 5. SEABORNE TRAFFIC TO OTHER CONTINENTS IN 1965 (in 1000 tons) (Index: 1950 = 100)

Continents	Inwards	Index	Outwards	Index	Total	Index
Europe	10.066	278	6.768	135	16.834	195
Africa	6.945	574	1.847	155	8.792	367
N.&S. America	9.907	236	6.159	245	16.066	239
Asia	13.194	926	2.082	148	15.376	542
Oceania	179	94	203	52	382	66

should be stated that about 25% of the tonnage is composed by cargo destined to or originating from the industries established in the port area itself.

Though the impact of bulk cargoes became more important in the cargo turnover, Antwerp did not lose at all its main characteristic of being a leading general cargo port, with 5.6 million tons unloaded (1965) and not less than 13.1 million tons loaded. Antwerp remains a leading general cargo center.

The seaborne traffic shows a widely varying character as regards origin and destination. Of course the cargo movement (seaborne) to and from other European countries takes an important share, but traffic with other continents, comparably to 1950, recorded a much greater progress, Oceania excepted.

And what about inland transportation?

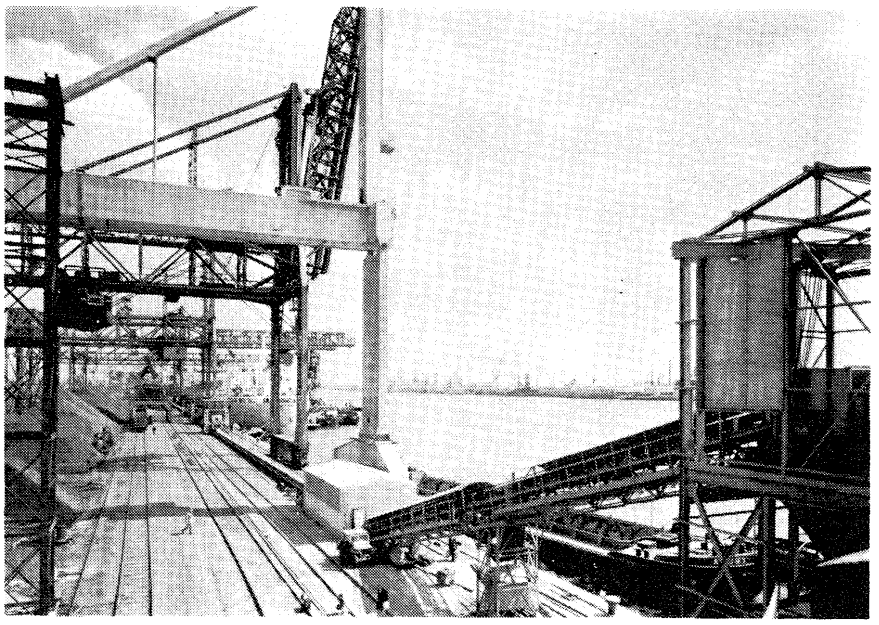
Compared to the other means of transportation inland navigation carries the greatest number of tons of cargo between Antwerp and its hinterland. Per year about 58,000 barges of all sizes with an average carriage capacity of 500 tons arrive in the harbour. They carry some 32 million tons of cargo per year and may come from one of the inland public and private ports along the dense canal system of Belgium, or from Basel in Switzerland, from Mannheim, Duisburg or any other port on the Rhine, from the just canalised Moselle river, even from Paris, though the latter example applies to exceptions.

In short, inland navigation spreads over the West-European waterways. The so called Rhine traffic at Antwerp involves 7.3 million tons per year. The link between the port and that river will be modernised and shortened in the course of the next years, thus improving that traffic relation very considerably.

Transport by rail is in the picture with a tonnage of over 13 million tons per year. An excellent railway equipment is installed on each dock with links to four main marshalling stations in the port area.

Not less than 700 Km (430 miles) of double railway track are available. No wonder that often Antwerp is characterised as to be a railway port; a question of relativity. Anyhow railway services secure a good deal of cargo to the benefit of our port.

Transportation by road is rapidly developing, reaching figures in 1965 which are thirteen times higher than those of 1950. All together some 3 million tons of dry goods were carried by road, out of which 750,000 tons have transited to European countries. Further growth is prospected as an effect of the expansion of the network of the European expressways, Antwerp being located on the juncture of some main expressways. Already now the so called E 39 links Antwerp directly to the German network bringing our port at a few



Northern quay of Hansa dock equipped for transshipment and stockage of ores, coals and other bulk goods.

hours drive from the main industrial centers of the Rhine region. The expressway E3 passing via Antwerp is under construction on Belgian territory and is to be completed 1971. One of the next undertakings is the E10 between Amsterdam-Antwerp-Brussels-Paris. All those facts and projects are strengthening Antwerp's position.

The expansion.

Being faced with a great demand for quay-site facilities and for industrial sites the port of Antwerp had to be widely expanded soon after World War II.

The 52 km (appr. 30 miles) of quay length were not sufficient. The city of Antwerp, in cooperation with the Belgian government, set up a big expansion scheme in 1956.

The investment law was voted by Parliament fixing the amounts of investment over a period of 10 years.

The city of Antwerp itself took a considerable part in it and added important funds in order to widen the project.

The program involved both substructural and equipment and was intended to extend the port facilities and to modernize the existing ones.

The full list of the works which were executed and of the installations which were installed would be too long for this article.

As a non-exhaustive indication I might compare some general characteristics of the port before and after the execution of the projects which will be completed in the course of 1967.

The length of the docks will be increased from 30 to 50 miles.

The acreage of the docks which amounted to 462 ha (1,150 acres) will be doubled. As the program is almost completed these lengths and surfaces are for the greater part available already now.

Some 2,000 ha (5,000 acres) of industrial land were added to the already equipped sites.

The original expansion scheme has been extended during its execution as it clearly appeared that all needs could not be fulfilled if no further extension was secured.

In brief, the following main substructural works were carried out:
— a dock for supertankers;
— a new oil pier;
— the 5th Harbor Dock with an Industrial Basin;
— the 6th Harbor Dock.

The works which are nearing their completion are:
— the Canaldocks B1, B2 and B3;
— the Industrial Basin;
— the Churchill Harbor Dock and, last but not least
— the Zandvlietlock, which is the biggest in the world and which will increase the sluicing capacity of the port with about 75% (length 500 m with 57 m) (1640 ft x 187 ft).

A number of new installations and equipment have been built both by the city and private investments. So f.i. 200 new electric luffing cranes were given to traffic mainly since 1960.

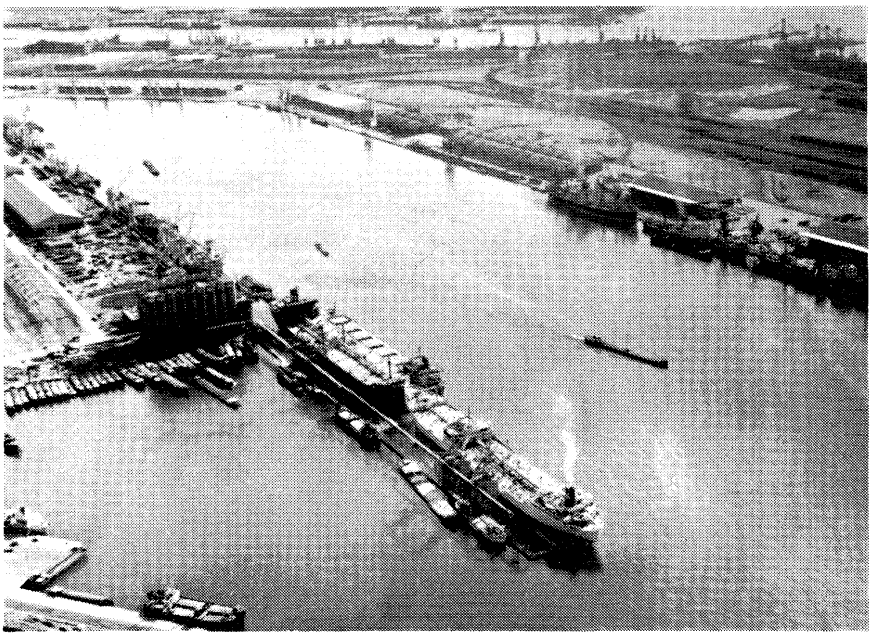
Over 55 ha (135 acres) of covered storage space was added putting the overall covered storage space up to 182 ha (450 acres), not including the storage capacity for oil and derivates (4.9 million m^3, 17.8 million cb.ft.); but I avoid to cite too many figures. I just want to stress that thanks to the investments equivalent to a value of 200 million U.S.-dollars by the public authority and some 700 million invested by private enterprises, including new industries, the port of Antwerp shows up as if it was reborn, younger and more vital than ever.

Booming industrial development in the port area.

When the industrial function is being commented upon as a separate element here, the reason of it consists in shedding special light on the port's task as a place of settlement for new industries and as the nucleus from which an industrial basin is to spring up.

Prior to 1950, only a few industrial enterprises were operating in the port area, viz. 2 motorcar assembly plants, 2 smaller refineries transforming petroleum and a few important shiprepairing shops plus saw-mills. A vast increase in the use of mineral oils provided the big impetus for an industrialization on a large scale. Close in the new petroleum port, which came into existence in 1951, 2 new refineries were set up, viz. S.I.B.P. and ESSO, which subsequently were considerably expanded; R.B.P. and ALBATROS were then already established in the port. The total refining capacity of the Antwerp refineries, amounts to some 16 million tons per annum. Through expansions and the erection of a new refinery by ALBATROS, this capacity is to jump up to some 22 million tons in the course of the next few years.

The presence of the refineries



Center for transshipment of cereals at the 6th Harbour dock.

soon led to the setting up of chemical plants on such sites as were still "open" around the petroleum port. The main factories concerned are dealing with the processing or transforming of by-products of mineral oils, as PETROCHIM and UNION CARBIDE (manufacturing polyethylene) and AMOCOFINA (producing additives for lubricating oils). Two plants—one for the production of basic products for the plastics industry and one for the production of synthetic rubber—are still under construction in this port sector.

Thanks to the expansion program several leading German, U.S., French and Belgian concerns were put in a position to erect factories inside the port area. This matters mainly chemical plants, with the result that Antwerp is about to become the main centre of the chemical industry in Belgium, and one of the main centres in Europe. The Bayer concern has available a site of 160 ha, on part of which a caprolactum-and fertilizer-plant is now being erected.

The American MONSANTO group disposes of 100 ha on which a production unit for plasticizers has been constructed. The Belgian SOLVAY group has command of another 100 ha where the erection of an electrolysis plant is contemplated. The firm ALBATROS is building a new refinery upon a site which extends in all over 120 ha (300 a). The "Badische Anilin & Soda Fabrik" is building a complex of production units for caprolactum, fertilizers, vinylchloride, etc. . . .on a land covering together some 440 ha (1100 a). The erection of further plants is under study.

Very important is the new settlement of GENERAL MOTORS. Upon a site of 135 ha (335 acres) a new motorcar assembly plant with a contemplated output capacity of 230,000 cars per annum is nearing completion. Worth mentioning is, that the present assembly plant of GENERAL MOTORS is being maintained.

A FORD assembly plant, being operated since the thirties, meanwhile switched over, viz. in 1963/-1964, to a tractor manufacturing plant with an annual output capacity of 60,000 units.

The port being only developed on the right bank of the river some industries already had to settle upon industrial land which was made available on the left bank.

About 600 ha (1500 acres) are being prepared to that purpose. The Canadian POLYNERS firm is already installed there producing synthetic rubber.

ATLANTIC POLYMERS is building and UNION CARBIDE and PETROCHIM will follow soon. These four industries will occupy the full area which is available today. Further extension is looked forward to.

If in 1950 the total area occupied by the port industries amounted to 125 ha (375 acres) that figure increased to over 1900 ha (4,750 acres) in 1965.

And what further?

The above general outline of the activities prevailing in the port of Antwerp tends to show that the latter is just now going through one of the most expansive periods in its history, both as regards extending the lay-out of the port and the traffic growth, also as regards industrialization.

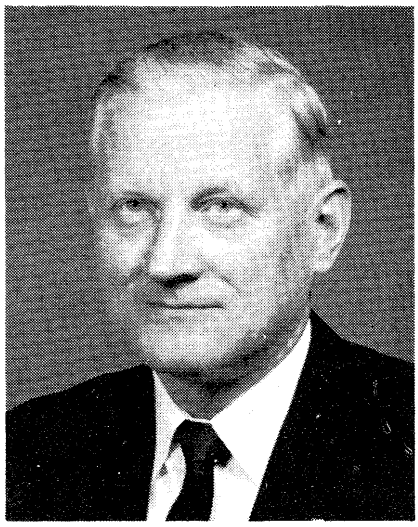
Antwerp has to be expanded if it wants to follow up the demand and the trends which are clearly appearing. A new Harbor Dock (the so called 9th), a new lock mainly intended for barge traffic and an eventual second big lock for sea vessels are prospected. Greater extension is to be planned on the left bank of the river Scheldt where sufficient land can be made available, if needed, even to double the port's surface again. That is the work for tomorrow.

The Antwerp and the Belgian Community is optimistic about the future and certainly want to make use of all its means to secure the further growth of the port.

CONTAINERIZATION

Panacea or White Elephant?

By W. J. Young
Director, Far East Bureau
Virginia State Ports Authority
U. S. A.



Mr. William J. Young

This is the title of an article, written by the author several years ago, about seavan containerization and it is as appropriate now as then.

The purpose of this discussion is to explore the subject of containerization a bit by pulling aside some of the optimistic smokescreens put up by its most ardent advocates and see if there aren't a few drawbacks and problems which should be given careful consideration before we blow in all of our money to provide for services which do not need to be provided for—at least not to the extent which is now planned.

The author is an advocate of containerization of commercial cargoes for shipment by sea, and, most certainly, of the warehouse-to-warehouse concept. In 1959, there was organized and operated under his management the first commerical cargo containerization service from Japan to the U.S. with published through rates including the through bill of lading. It was not a success because the Conference Line Steamship companies (who were not charging for the use of their containers) refused to go along with our stand that containerization is a premium service and should be charged for as such. They know better now. We maintained that the minimum charge for containerization to pay costs and return a small profit, including rental of the containers, had to be $5.00 a ton to be paid by the shippers. But, we also insisted that if we could not save the shippers that much or more a ton, then containerization was not warranted, unless the advantages of security to the cargo itself, was worth the premium charge. Later, the steamship companies realized that we were right in our contention that it is a premium service and there is now a surcharge for containerized cargo.

So that we will have a better understanding our subject, let's review some of the advantages of containerization of seaborne cargo for the exporter and importer, which are generally accepted as the following six:

1. Large increase in the amount of pay cargo shipped for each cubic foot of space paid for. This is based on the fact that goods which need special packing and crating for open stowage, can be safely shipped in ordinary cardboard cartons by seavans. The difference in cube and weight of a crated article as compared with the same article in cartons is from 15% to 50% in favor of the carton. This represents a substantial saving in both ocean freight paid on the cubic measurement and in overland freight in the United States which is paid on the actual weight.

2. Safety from damage to contents caused by careless and rough handling in transit. Because of their great weight, containers can be handled only by folklifts and ships' tackles. There is no chance of the cases being dropped or crushed in transit.

3. Safety from pilferage. Once the goods are packed, the containers are sealed and locked. There is nothing on the outside of the containers to indicate the type of goods shipped in them. If there is pilferage, it is easy to determine where it took place and who is at fault.

4. Lower insurance costs due to safety from damage and pilferage. (This is a sometime thing. Insurance companies have found that shipper-loaded containers are not always stowed as they should be with the result that during the passage by sea and on board trucks or cars, original loose stowage and consequent shifting results in considerable damage.)

5. 10 to 15% savings in costs of packing and duty on the packing material.

6. Single-control one-cost through-service from shipper's warehouse to consignee's warehouse, or, as is usually the case in Japan, from pier area warehouse to consignee's warehouse.

It cannot be denied, these are six big advantages and true ones. There are other inherent advantages, also, but they are more obscure and harder to pinpoint. Nevertheless they exist and are money in the bank.

Now let's look at the other side of this coin:

First, it costs money to containerize cargo and somebody has to pay for it, either the shipper, the carrier, or the consignees. No-one wishes to absorb any part of the extra costs, unless offset by savings in freight or other advantages obtained by containerization.

Second, it requires special equipment to handle containers efficiently.

Third, unless a great change can be made in the method of packing to effect large savings in material and cubic space required, such as eliminating heavy wooden crates and excessive padding, there is no way for the shipper to offset the extra

costs of containerization.

Fourth, very little benefit accrues to the exporters by containerization. For most forwarders in Japan, the cost of delivering goods in containers from factory or warehouse to on board vessel is almost double that for usual export packing. Most of the benefits accrue to the consignees and are the results of savings in freight or ease of handling at destination. Consignees feel that these benefits should all come to them and do not wish to share them with carriers or shippers.

Fifth, to get the most efficient use of containers requires large container storage space, warehouses and bonded warehouses, plus loading facilities such as trucks, forklifts, trained crews, and, preferably, quay and lighter loading capability adjacent to warehouses. In Japan, this practically eliminates all but a few forwarding companies in each port.

Sixth, and very important, because of the traditional paternal and fraternal attitude most Japanese companies maintain towards service organizations with whom they have done business over the years, they are loathe, and quite naturally so, to make any changes in their methods of doing business which will require them to cease giving their business to packing and forwarding companies in which the companies or officials may have financial interest or are operated by retired employees of the companies, and upon whom it would work a real hardship if such a change was made.

Seventh, the most effective method of containerization is the "one rate, one bill of lading through-service" from factory or warehouse in Japan to customer's warehouse in the United States. However, this requires that the exporters change their usual selling terms from FOB (vessel port of loading) to ex-factory, or FOR (free on rail at warehouse or pier) or delivered in forwarder's warehouse. This most exporters are reluctant to do, and some refuse outright to do so because such sales lose their export status, resulting in the loss of certain tax and exchange benefits.

Eighth, again emphasizing that true containerization requires complete through-service, with one control and one charge from origin to final destination, present sales methods, as indicated above, requires the carrier (by carrier is meant the organization providing all the services required for the through service) to make separate arrangements with the exporters and the consignee for collecting the handling, loading and transportation charges. This is awkward, and sometimes impossible, because the exporter is not willing to pay any more for this service than it would cost him by the usual export shipping method.

Ninth, through-container service, the ultimate of which is the true through bill of lading, requires that carrier (as defined in Eight) buy all the services and pay the regular tariff rates assessed against the containerized cargo on the same basis as if it was being shipped in individual export packaging. Until letters of credit terms are changed to call for through bills of lading instead of clean on-board ocean carriers' bills of lading, the carrier must buy the separate services and furnish the usual documents. Thus, the through bill of lading simply becomes a freight bill covering all the services in one invoice.

Tenth, both the exporter and the importer have to be equally sold on the uses and advantages of seavan containers—it can't be a one-sided affair. An exporter could be forced against his will by his importer customer to containerize his product, if highly competitive, but it would not contribute to friendship and goodwill. If the carrier in his zeal should circumvent this double selling requirement by selling the importer over the objections of the exporter, it could have, and has had, rather bitter results for the carrier.

Eleventh, it will be a long time before the hodge-podge of bastard-sized containers, running from the little "cargo-guard" boxes of 144 cubic feet to some of the much larger containers originally designed for household effects, are completely phased out, so it will be possible for a while for shippers to find boxes to fit the exact cubage of a particular shipment. However, when these boxes are gone, and only the standard 8×10', 20' and 40' sizes are in use, then for total containerization, it is going to be necessary for almost complete consolidation of cargo at port of exit to take care of the multitude of small less-than-container-size shipments which make up a large part of the total general cargo shipments on every ship.

The foregoing have been pro and con looks from the points of view of the shippers and the consignees. Now, let's take a look at some of the legal obstacles which have to be overcome:

Clean on-board ocean bill of lading. From the time of the Phoenicians, the one controlling negotiable document in ocean trade has been the clean on-board ocean bill of lading. International laws, customs and consular procedures, banking and letters-of-credit, marine insurance and claims are based on this document. Even if the goods are exactly as ordered, and all other contract requirements fulfilled, a defect in the ocean bill of lading can be cause for rejecting an entire shipment out-of-hand. In order for containerization to be effective, consignees will have to agree to accept what amount to received-for-shipment ocean bills of lading before a through warehouse-to-warehouse, one bill of lading service can be possible.

International banking. In order for a letter of credit issued by a bank to be negotiated, and payment made against it, it is usually required that ownership and control of the cargo be transferred from the shipper to some responsible agent who takes custody of the goods and guarantees delivery to the destination specified. In the past, this responsible agent has been the vessel and its captain as represented by the steamship company. Of course, there are exceptions to this, when the firm putting up the letter of credit is known to be financially responsible and capable to make good any losses to the bank, for the importer to specify in his letter of credit that a warehouse receipt for the goods may be accepted by the paying bank in lieu of an on-board bill of lading, but this is not a general rule. It has to become one

for full containerization to be possible. Normally, importers do not trust their exporters or exporters' warehouse companies enough to accept warehouse receipts in place of on board bills of lading.

Customs procedures. Progress is being made and for the comparatively few shipments of commercial cargo now being made in containers to and from the United States and Japan present customs procedures in both countries have not been too serious in causing delays. If and when the bulk of all the shipments are in containers, then it is imperative that customs procedures on both sides of the ocean be streamlined. The present Japanese requirement that all goods for shipment on a particular vessel be in bonded warehouses not less than 72 hours prior to the arrival of the vessel, will be a particularly serious obstacle to be eliminated. While it works out fairly well now, with the massive consolidation required for full containerization programs, that 72 hours is going to be precious time for the ships.

Japan is overhauling its 1912 customs regulations and has greatly eased import procedures—in fact they can be a model for all maritime nations. This new system makes possible almost automatic clearance of inbound cargoes by a method whereby the importer is charged with the responsibility of preparing the import declarations, including the rate of duty which should be assessed, which permits the goods to be released without inspection. This is a great forward step. If Japan will eliminate the present requirements for customs inspections of export cargo, an ideal condition will be established for eventual full containerization in her primary trade routes.

Now the U.S. and Japan are about to get into a hassle over the coastwise movements in each country of empty containers in ships belonging to the foreign flag.

While none of these legal difficulties is insurmountable, it will take time—lots of time—to bring about the necessary corrections.

Now let's get down to some nuts and bolts!

We'll start with Japan:

Forwarders: Eventually, when the hundreds of little and medium-sized forwarding companies have been eliminated and containerization is in the hands of the few companies equipped to handle them efficiently (and that day is coming, but some years away, I fear) then full containerization and containership programs will be possible. Until then, you can bet your bottom dollar that ships in foreign trade are going to have more conventional general cargo shipments offered them than in containers. The solution to this situation would be for the Japanese government to provide containerization facilities in each port and do the containerization on a fee basis for all forwarders, or for the steamship companies to do the containerization, at their own expense, using local stevedores.

Roads: While the situation is improving, road conditions in Japan are such as to prevent all but a comparatively few exporters or importers to receive the large containers at their warehouses and load or unload them there. Even then, they will either have to hold the trucks delivering the empty containers until the goods can be loaded or unloaded, or own or rent cranes or forklifts to unload and load the containers from and to the trucks. Therefore, for years to come, it can be conceded that in Japan the great bulk of containerization will be at facilities in the pier areas, but it is quite probable that adequate facilities will be provided at the major ports.

Stevedores: Due to large "solatiums" paid into the Longshoremen's Union on the Pacific Coast of the United States, the steamship companies can now practically dictate all the conditions as to the uses and numbers of stevedores and longshoremen required to handle containers. However, this is not true on the East Coast of the United States where a royalty is paid the union on each container handled nor is it true of the stevedoring guilds in Japan. It hasn't been too much of a problem to date, but as the volume of containerized shipments approaches a peak, it is a matter which will have to be settled.

Ocean Freight Rates: In the early days of containerization, the advantages to the shippers was stressed. Now, the reason given for the great burst in enthusiasm for containerships is the large saving in port expenses and faster turnaround for the shipowners. When one considers that less than 20% of the cost of foreign trade transportation is accounted for by operating vessels at sea, and that approximately half of the total cost of transportation in foreign trade is accounted for by what takes place at steamship piers and within ten miles of ports, one can easily realize why the steamship companies are anxious and justified in seeking means to reduce their port costs.

Those steamship companies who are the great advocates of the full containership as the answer to these backbreaking portside expenses feel that containerization is the answer, and they are willing to encourage shippers to containerize their shipments by offering incentives by way of reductions in freight rates for shipper-containerized cargo. The alternative is for the steamship companies to do the containerizing themselves using stevedores, feeling that a ship is practically loaded if all the cargo is ready in containers prior to arrival of the vessel.

In any case, since containerization costs money, somebody is going to have to pay for it—and that somebody is not going to be the shipper or the consignee, unless containerization brings him some benefit in money, time or safety to his goods greater than ordinary export shipment.

Capital investment in container ships: It was recently announced that the Japanese Ministry of Transportation plans to authorize building a total of 29 containerships on a five-year program starting fiscal 1967. 25 of the ships are to be able to carry 1,000 containers each and four 500 containers each, or a total afloat capacity of 27,000 units. The total cost of the ships is estimated as almost ¥29 billion, or almost $175 million dollars. That's a lot of money! What are they going to do with all of their wonderful conventional-type freighters? Scrap them over the next five years? Nevah hoppen!

Capital investment in containers: To maintain a two-way pipe-line—and a two-way pipeline of equal volume each way is a must for profitable operation—will require three or four times the number of containers as are afloat at any one time. Perhaps this is even a conservative estimate. These standard containers are not merely large boxes. Far from it! In addition to being large boxes, they have to be equipped with tie-downs to permit being carried by flatbed trucks, railcars and with the attachment of fifth-wheels and bogey-wheels, converted to regular truck trailers and hauled by tractors over the highways. The containers and bogeys have to comply with all the state and federal highway regulations for size and equipment and the bogeys licensed in all the states through which they may travel.

The Japanese government figures that for the capacity of 27,000 containers a total of 39,000 containers costing ¥28,656 million ($78,000,000) will be constructed, according to the newspaper reports. Presumably this figure includes some port handling facilities, since it is estimated that the unit cost of a container will be around $1,000 each. So 39,000 containers will cost about $30 million. This is a staggering sum, but it still does not provide for a pipeline requirement of at least three containers for each one afloat. Using the 3-for-1 formula, the cost would be $117 million.

One has no idea what the cost will be of the full containerships planned by the United States and UK/Continental shipping lines for the transatlantic trade, except that it is tremendous, even if one omits the fantastic scheme of the Lykes Line to build huge barge ships whose barges for one ship will carry the equivalent of the cargos of ten or fifteen conventional ships. Until recently, the only real capital investment in ships planned by those U.S. lines who have indicated that they are going to enter the transpacific trade with containerships is rather modest by comparison. The American President Line, the pioneer containership operator in the transpacific service, has announced a definite building program and that is to convert four ships from conventional to containerships, approval of which has not been granted by the Maritime Administration. A week or so ago it was announced in the Japanese newspapers that for the transpacific trade Matson was requesting tenders on full containerships to handle 24' containers and that Sealand intends to convert present ships and build new vessels to handle both their present 35' containers and the 20' size. It appears that Matson and Sealand intend to perpetuate their non-standard sizes to further confuse the situation.

The other lines in the transpacific trade are being cautious and taking a wait-and-see attitude. Some have merely equipped their new ships, or converted old ones, with heavy-lift booms of sufficient capacity to handle any loaded containers which may be offered them and have made no other special provisions. It is considered that they are wise, because, it is the author's and other qualified persons' opinions, it is going to be a long, long time before any conventional ship in the transpacific trade is going to be offered more containers than it can accommodate on deck or in the squares of the hatches, and it is going to be an equally long time before the need for conventional stowage of general cargo disappears. Therefore, it would appear that this massive planning for total immediate containerization (and five years is immediate) is simply mad.

The following observation was made by some competent observers who recently made a trip to Europe to survey the prospects for full containership operations to supplement their similar survey in the United States:

"The number of containerships being built or converted may, for the next several years, exceed the available east-or westbound cargo to be containerized. Because of this excess, some shipping companies may well be hurt, and all will be hard put to find sufficient cargo to utilize their ships or to find other types of cargo to compensate for empty spaces in the holds which are intended for containers. . . . ."

Registering and recording containers: Much thought has been given to the tremendous problem of keeping track of the hundreds of thousands of containers adrift in the world. An International Container Pool has been organized and the mutual use of each other's containers contemplated by member steamship and other container-owning companies such as forwarders. That's fine and it must be, but just think of the communications networks and computer requirements for such a herculean task. Piracy and theft of containers has not been unknown in the past. They can even be converted to quite nice little cottages, as was discovered by some of the household effects people looking for missing containers. Any way, this is a mammoth problem, far from being solved, and one which is going to take much time and expertize to perfect.

One could go on and on painting a black picture, but it is only black because of the crazy pace which the shipping industry is taking to bring about this very fine method of shipping, seavan containerization. None of the problems discussed above are insurmountable—but they can't be accomplished in a day. The race to be first in the industry is completely ill-advised. No one line is going to get a stranglehold on all the business in any trade just because it makes the first complete changeover to full containerships. Other shipowners are not going to just roll over on their backs and give up—they're not that breed of cats.

One hopes that the lines will approach the problem on the basis of simple economics and not as a result of what seems just plain panic.

Perhaps with so much containership tonnage available in world trade which may have a hard time finding enough containerized cargo, at tariff rates, the owners may soon have to resort to a device, which the author believes, will come eventually, anyway. However repugnant the idea may be now to shipowners, it is a maritime version of the railway piggyback system, now in wide use in the United States, whereby the steamship lines will name a flat rate per container without regard to commodity—whether it be hides, guts or feathers. Although the author ar-

rived at this conclusion independently several years ago, I was very much interested to read recently the following in a paper presented by Mr. John L. Eyre to the American University, School of Business Administration in Washington, D.C. Mr. Eyre at that time was with Arthur D. Little, Inc., who were working on a research project on containerization under a joint industry government grant of several million dollars (Mr. Eyre, an advocate, is now being criticized by some as a "turncoat" because he, too, is pleading for sanity in this industry):

"Under a plan known as Plan III TOFC (Piggyback) Eastern USA railroads now move truck-trailers between their own terminals for stated flat rates—which do not consider the nature of the cargo in the trailers. This is a cost-based rate-making concept which is not generally found acceptable in international maritime trades. While there is substantial debate on this point, the author considers acceptance of the Plan III Concept absolutely essential to the development of container operations in martime trades. It is logical to assume that this principal will be resisted to the bitter end by established steamship conferences—but that non conference operators (possibly also bulk carriers) will be quite pleased to accept the business."

If one had time to go through the file the author has collected over the past few years on the subject of containerization and, especially, the large bulk of material collected in the last few months, it is believed one would come to the same conclusions as the author. Containerization is not a panacea for the ills of the shipping industry. It is only a technological improvement on a system which has been in effect since movement of cargo by sea first started a way back in antiquity. Instead of shipping cargo in many little individual boxes from place to place, it is the shipping of many little boxes in one big box from place to place at, presumably, less cost than before.

Containerization can become the shipping industry's Great White Elephant unless progressive judgement is used to balance planning, new ships and equipment against the needs of commerce, time required by shippers, consignees, banks and governments to adjust to this radical departure from traditional methods —plus the most economical utilization of capital and conventional tonnage to bring about this balance.

Editor's Note:

Following submission of the manuscript for this article, Mr. Young received information that the Waterman Steamship Company, of New York, is putting into effect a "freight all kinds" freight rate for containerized cargo **exported** from the United States to Europe, if shipped in containers leased or owned by the exporters. Flat freight rates per container regardless of what is loaded in them, have been named for the one-way trip to Europe as $400 for the 8×8×20′ size and $800 for the 8×8×40′ flexivans.

While no similar flat rates have been named for containers from Europe to the United States, the U.S./Europe rates do represent a giant step towards the ultimate seaborn "piggyback" method propheciied in Mr. Young's article.

Challenge—

(Continued From Page 12)

to such general functions as conservancy, navigational aids and security.

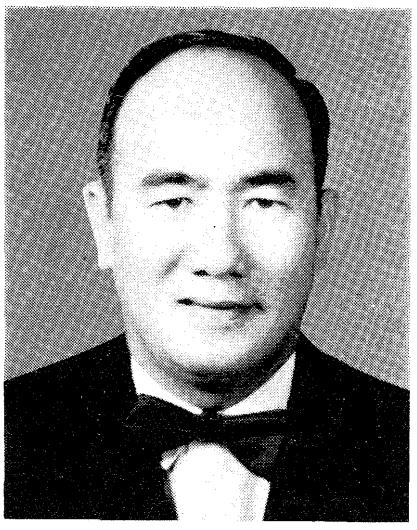
But before this stage is reached, there will be problems of obsolescence and redundant berths. Throughout the country there are some 900 general cargo berths and under existing plans, another 70 are to be built. With 100% containerisation, possibly not more than 100 berths in all would be required and even if there cannot be complete containerisation, at least there would appear to be an amplitude of berths. Perhaps the saving grace from the point of view of the port authority is that many of the existing berths are outdated and new berths are necessary whatever method of cargo handling is to be used. Provided the construction and land area of a new berth are right it can be adapted for either container operations or conventional methods. On the other hand, existing berths are in general not suitable for container working because they lack the land area for marshalling the containers. Thus it will be the older berths which will go out of use and since docks generally started in or near existing towns or sites which have over the years spread themselves, it may well be that some of them have a development value greater than their value as a dock. Southampton has a good example in that the former Inner Dock, the oldest in the port, is now filled in and the space devoted to parking and marshalling areas for two roll-on/roll-off services. Similarly at Hull the closure of the remaining Town Docks is contemplated while London and Liverpool also have their problems in this direction and in one case I believe there is the complication of the architectural merit of the dock warehouses. There is, however, the problem of obsolescence to be faced and this may well be a very real one, not only for port authorities but also for shipowners.

If then containers are likely to bring about changes in the ports they will not be the only ones. The problems of industrial relations and of port ownership and management are being tackled albeit we do not know more than the general outline of future organisation. The modernisation of docks and harbours and the construction of new berths is proceeding. Already there has been a changeover in the methods used on the cross-channel and near continental services. Soon there will be further changes on the ocean routes as container ships come into use. The ports exist to serve shippers and shipowners and the question is whether they will be ready to provide the services necessary. Already much money is being spent on new works and thought given to organisation, and these with industrial relations are the big problems. Goodwill is needed on all sides without too much looking back to entrenched positions and to methods which have become outdated. Given this and not too many delays in making decisions as to what is wanted the ports can succeed and I believe they will.

FULL PROGRAM OF THE TOKYO CONFERENCE

	Date & Time	General Assembly	Date & Time	Receptions, Tours & *Ladies Program*
May–8 (Monday)	9:00 a.m.— 5:00 p.m. 2:00 p.m.— 4:00 p.m.	Registration Board Meeting	6:30 p.m.— 8:30 p.m.	Reception by the Minister of Transport*
May–9 (Tuesday)	9:00 a.m.—10:00 a.m. 10:00 a.m.—10:20 a.m. 10:20 a.m.—11:20 a.m. 11:20 a.m.— 0:20 p.m. 0:20 p.m.— 1:30 p.m. 1:30 p.m.— 2:20 p.m. 2:20 p.m.— 3:20 p.m. 3:20 p.m.— 3:40 p.m. 3:40 p.m.— 5:00 p.m.	Opening Session* Coffee** Dr. H. Sato (Paper Presentation) Mr. S. Aldewereld (Paper Presentation) Luncheon** Business Plenary Meeting Ir. F. Posthuma (Paper Presentation) Coffee** 10–Minute Speeches	12:00 — 1:30 p.m. 1:30 p.m.— 3:30 p.m. Evening	*Luncheon at Korinkaku,* *Demonstration of "Chanoyu", Japanese Tea Ceremony, at Korinkaku* Free
May–10 (Wednesday)	9:00 a.m.—10:00 a.m. 10:00 a.m.—10:20 a.m. 10:20 a.m.—11:20 a.m. 11:20 a.m.— 0:30 p.m. 0:30 p.m.— 2:00 p.m.	Mr. H. C. Brockel (Paper Presentation) Coffee** The Hon. T. H. Boggs (Paper Presentation) 10–Minute Speeches Luncheon*	10:00 a.m.—12:00 2:00 p.m.— 6:00 p.m. 7:30 p.m.— 9:30 p.m.	*Demonstration of "Ikebana", flower arrangement at Sogetsu-Kaikan* Organized Tour to Various Places in Tokyo* Reception by the Governor of Tokyo*
May–11 (Thursday)	8:00 a.m.— 6:00 p.m.	Tour to Tokyo–, Kawasaki–Yokohama Ports**	7:40 a.m.— 7:20 p.m. Evening	*Organized Tour to Nikko* Free
May–12 (Friday)	9:00 a.m.—10:00 a.m. 10:00 a.m.—10:20 a.m. 10:20 a.m.—11:20 a.m. 11:20 a.m.—12:00 12:00 — 1:30 p.m. 1:30 p.m.— 3:00 p.m. 3:00 p.m.— 3:20 p.m. 3:20 p.m.— 5:00 p.m.	10–Minute Speeches Coffee** Comdt. E. H. W. Platt (Paper Presentation) 10–Minute Speeches Luncheon** Meetings of Various Committee Coffee** Business Plenary Meeting	10:00 a.m.—12:00 12:30 p.m.— 3:00 p.m. 7:00 p.m.—10:00 p.m.	*Free (Guides will accompany ladies for shopping by request)* *Luncheon at Hannya-en, Old Japanese Costume Show* Dinner by President Simon*
May–13 (Saturday)	9:00 a.m.—10:30 a.m. 10:30 a.m.—12:00 12:00 — 1:30 p.m.	Closing Session* Board Meeting Luncheon*	Afternoon	Leave Tokyo for Kyoto by New Tokaido Line. Stay in Kyoto
			May–14 (Sunday)	Sightseeing in Kyoto Stay in Kyoto
			May–15 (Monday)	Ceremony and festival commemorating the 100th Anniversary of the Port of Kobe. Stay in Kobe
			May–16 (Tuesday)	Excursion of City and Port of Kobe Stay in Arima Spa.
			May–17 (Wednesday)	Return to Tokyo

Remarks: * Ladies are invited
** Ladies not participating in the Ladies Program are invited
This Program is subject to minor adjustment later



Mr. Loh Heng Kee

Introduction Of A Two-Shift System

By Loh Heng Kee

Director-Operations
The Port of Singapore Authority

Readers will recall that an article on the Port of Singapore was published in the I.A.P.H. Journal of March 1963 (Vol. 8 No. 1). Since then, much water has gone over the dam.

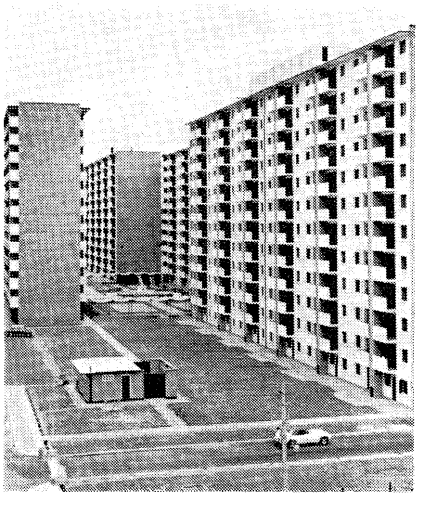
The Singapore Harbour Board, which was a statutory body incorporated in 1913, has been replaced by the Port of Singapore Authority. Unlike the S.H.B., the P.S.A.'s jurisdiction has been extended beyond the 300 ft. of waters from the wharf edge. It now controls 125 square miles of sea around Singapore Island including the Inner and Outer Roads, Explosive and Immigration Anchorages and other areas of water within Port Limits. Other functions like conservancy, dredging, signal stations and shipping controls which were hitherto the responsibilities of the Director of Marine, have now been transferred to the Port Authority. The Pilot Association has ceased to operate. Pilotage service for the entire port is now controlled by the P.S.A. which employs its own Harbour Pilots.

With the promulgation of the P.S.A. Ordinance by the Singapore Government, a corporation known as the P.S.A. was established on 1st April 1964. The old S.H.B. badge which appeared in the March 1963 issue of "Ports and Harbors" has been superseded by a new crest which is reproduced here. It is hoped that with its increased functions and responsibilities, the P.S.A. will continue to provide an integrated and efficient service to international shipping in this area.

Increased Shipping and Cargo Tonnages

Shipping tonnages and other statistics for 1961 were given in the previous article. Since then, the N.R.T. of shipping handled in Singapore has increased by 20%. In 1965, it was 89.2 million net registered tons and this figure is rising steadily. Cargo-wise (inclusive of mineral oils), there has also been an improvement—the 18.3 million tons handled in 1961 has risen to 21.3 million tons in 1965.

Although the P.S.A. will shortly implement the second phase of its East Lagoon Project with the construction of 4 additional deep-water berths with a depth of approximately 13 meters, ships are generally berthed on arrival. However, during a few days of the month when there is a higher concentration of arrivals in the port, ships may have to wait for a few hours in the anchorage before coming alongside.

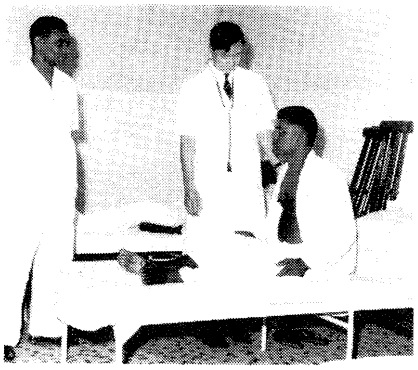


New P.S.A. Housing Estate at Everton Park—the Authority's latest addition of modern multi-storey housing units for its employees.

In view of the fact that 75% of the total import, export and transhipment trade are handled at the P.S.A. wharves, quick despatch of shipping and cargo is vital. The berth occupancy in Singapore exceeds 90% and the output of break-bulk general cargo averages 1,000 tons per meter per year. If the facilities and standard of work fail to meet requirements, congestions, delays and other attendant problems would arise. It is, therefore, imperative that organisational planning and operational methods are geared to the heavy and exacting demands of international shipping and commerce.

Waterfront Workers

Although Singapore is a highly mechanised port, the labour element represents a major commitment of the P.S.A. Unlike most port authorities, Singapore employs its own labour to undertake all cargo-handling operations at the wharves. Contract labour, however, is available at the Anchorage. Since taking over the entire labour force from its three stevedoring contractors in 1948, the P.S.A. now has approximately 12,000 employees on its pay roll. The majority of them are stevedores, winchmen/signalmen, godown stackers, mechanical equipment drivers, ships foremen and wharf labourers. The rest are clerical staff, tug and waterboat crews, firemen, police constables, railway personnel, oil gangs, cooks, sweepers, sanitary and road workers, checkers, fitters as well as other



Free medical attention for all the Authority's employees.

categories of employees in its Dockyard Department.

The Authority's housing estates now serve 50% of its employees. Accommodation inclusive of light and water is provided gratis. Workers also enjoy free medical services and other amenities. At the commercial wharves, the stevedores, mechanical equipment drivers and wharf gangs are fed twice a day by the Authority's Central Kitchen. These, together with other fringe benefits, salaries, allowances and wages, cost the Authority the equivalent of 63.9% of the total revenue of the P.S.A. in 1965.

It is indeed a substantial amount! Therefore, it is vitally important that its utilisation and deployment of manpower must be related to increased productivity. The old system of working long hours cum regular overtime affected both the output and the health of the workers. Fatigue, especially amongst the older age groups, was constantly a source of worry. Working as many as 20 to 25 nights per month over and above their regular 8 hours each day left the workers with hardly any form of social or recreational opportunities. It was natural that productivity dropped as the men, especially those on the ships, were compelled to organise their own unofficial rest breaks by turn to overcome the stresses and strains of long hours. The overtime system was clearly becoming increasingly costly and inefficient. Management therefore decided to introduce a new scheme which would benefit the workers, the users and the organisation itself.

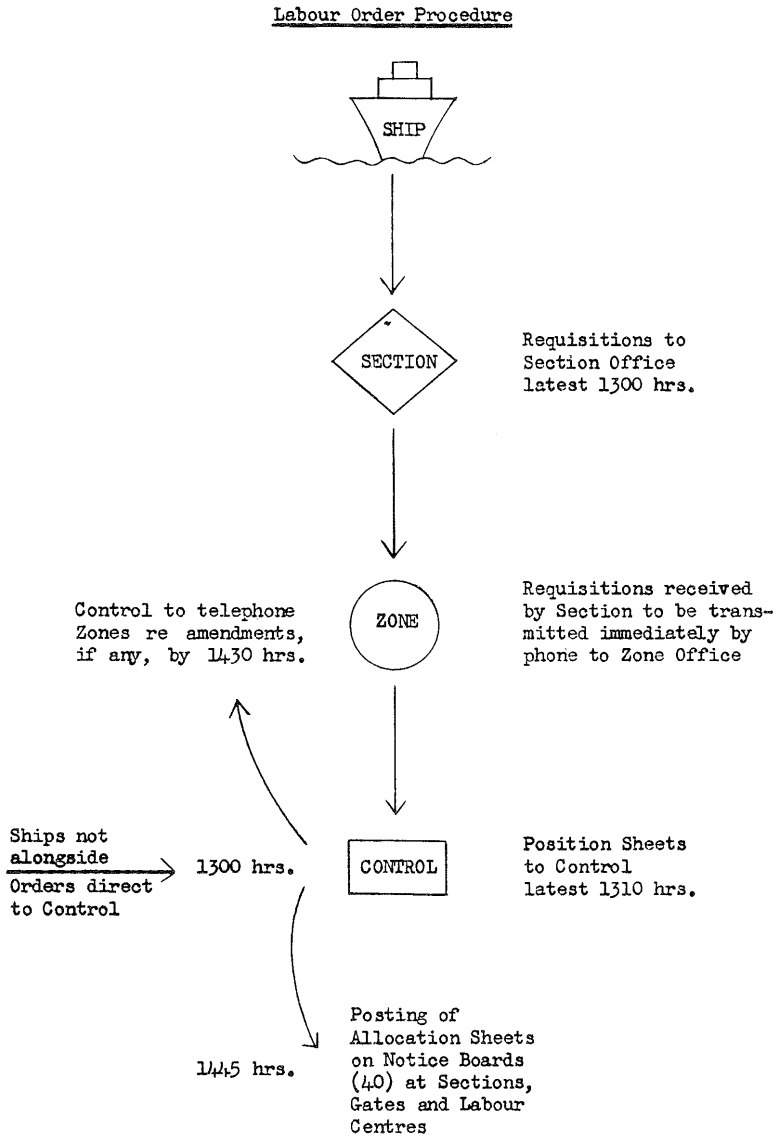
Working Hours

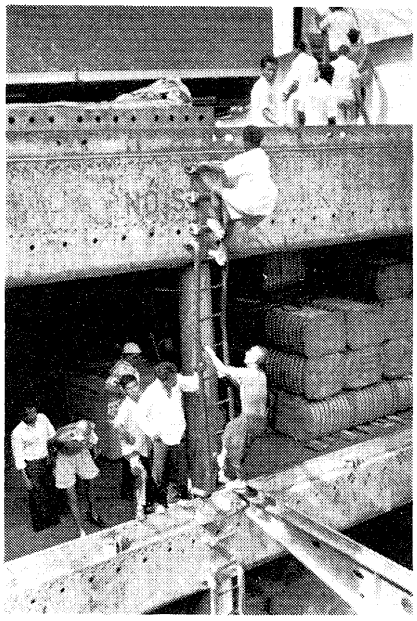
The stevedore gang size as inherited from the contractors was unusually large. Intensive and extensive work study exercises proved that a gang size of 17 men was excess to normal requirements. Such uneconomic deployment of labour was not conducive to efficiency and productivity. Transferability of labour from one gang to another to assist those working under more difficult conditions in the other parts of the ship was restricted. As a result, utilisation of manpower was unrealistic and wasteful.

The normal day time working hours were from 0700 to 1700 hours including a meal break of 2 hours between 1100 and 1300 hours followed by a compulsory overtime working period from 1900 to 2300 hours. Subject to the availability of gangs, a vessel requiring urgent despatch could work the optional 2nd half night period from 0100 to 0500 hours upon payment of a special fee. It was sometimes possible for a ship to have a small balance of cargo like 30 tons to load or discharge by 1700 hours. This would involve working a half night and the payment of overtime for the whole period. Completion of work would take about an hour or so, but the men would get the full half night pay which was equal to 8 hours work in a day. The 2nd half night period of 4 hours was calculated at 1½ times the pay for 8 hours in the day.

Reduction of the Dockers' Working Time

Overtime was voluntary to the dockers. There were occasions





Completion of the first-shift.

when the men, for various reasons, at short notice, were not available for overtime work. This left Management in a somewhat awkward position with urgent ships remaining idle at the berths. Sometimes the men had to attend Union meetings and other activities resulting in a shortage of labour. Shipping companies experienced difficulty in planning their work schedules as stoppages, for one reason or another, affected the turnround of their ships.

Being alive to the many problems which were adversely affecting the port, the workers and the users themselves, the P.S.A. was convinced that shift working was the answer.

Negotiations for a double shift system of 7 working hours broken by 1 meal hour with the Union took many months to finalise because the workers were naturally fearful of a decrease in take-home pay. They wondered if the carrot offered by the employers of a reduction of 5 working hours per day (from 12 to 7 hours) without adversely affecting their take-home pay was only a gimmick. They argued that the loss of overtime earnings would cause serious economic problems to their families in view of the fact that overtime earnings, which had been a practice for many years, had always been budgeted by the men as part of their normal income. After many meetings and much discussion, Management gradually succeeded in convincing the men that shift working would benefit them as much as the organisation and that implementation of this scheme was a step in the right direction.

Shift Working Benefits

The plan worked out by Management offered the men, amongst other things, an assurance that there would be a reduction in working time by more than 40% and that no loss in take-home pay compared with pre-shift earnings would occur provided a high level of productivity was maintained.

This was apparently too good to be true, but though the men were somewhat dubious, they did not object to implementation on a trial basis. Management on the other hand was confident that the scheme would work and reassured the men that with a higher gang-hour rate, there was no reason why they could not maintain or even improve on their present level of income. The extension of the ceiling of the incentive bonus system from 13.5 T.P.G.H. at 35% of basic pay to 16.5 T.P.G.H. at 60% of basic pay, offers them greater opportunity to earn more so long as the men are prepared to increase their output.

Implementation of a Double-Shift Scheme

Before the proposed two-shift system could be implemented, a full re-organisation programme had to be undertaken. With the concurrence of the Labour Union, the following major changes were introduced:—

(a) **Change of working hours**

1st Shift: 0700 to 1500 hours
(7 working hours)
Meal break: 1100 to 1200 hours
2nd Shift: 1500 to 2300 hours
(7 working hours)
Meal break: 1830 to 1930 hours

(b) **Reduction of stevedore gang-size**

17 men (including 4 winchmen/signalmen) to
13 men (including 3 winchmen/signalmen).

(c) **Transferability of Labour**

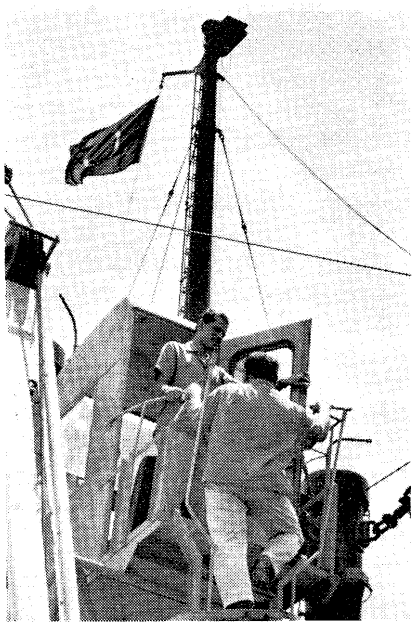
Stevedore gangs should be transferable from hatch to hatch within a ship. Transferability of part gang up to 3 men to assist another gang in the same ship to be effected should the need arise.

Wharf gangs could also be switched from hook to hook, but as the complement of such gangs ranges from 9 to 5 men, the transfer of part gang was not recommended. Invariably, wharf gangs were fully mechanised—assisted by forklifts, cranes, platform trucks, etc.

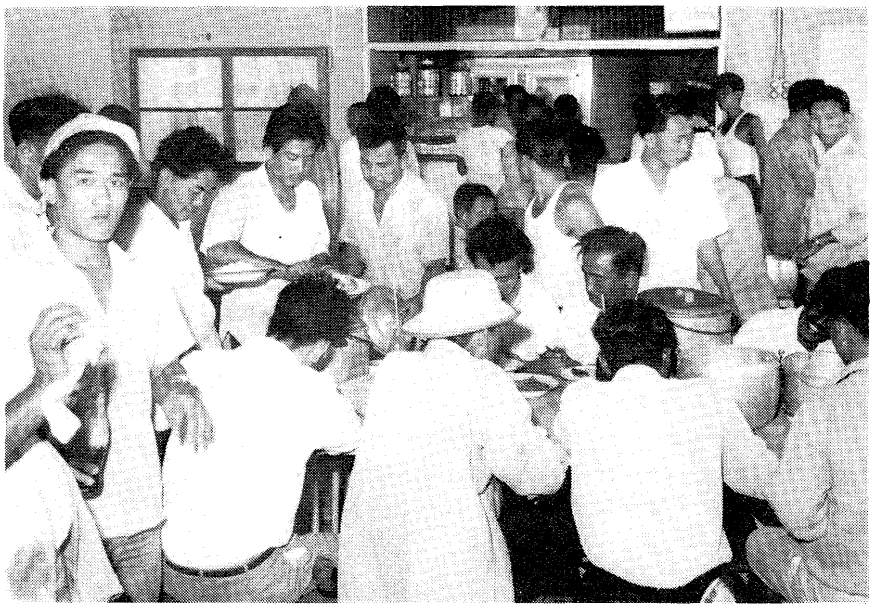
On completion of work on a vessel, the stevedore and wharf labour could be allocated to work on another ship during the same shift.

(d) **Incentive Bonus Scheme**

The rate per gang-hour was calculated on an overall basis and a bonus was declared each week based on the T.P.G.H. computed during the week. The range was from 10 T.P.G.H. at 17% of basic pay to 13.5 T.P.G.H. at 35%. In order to provide greater incentive to the men, the bonus scale was revised as follows:—



Tower crane drivers changing shift.



Wharf workers enjoying their meals provided free by the Authority twice a day.

Tonnage Per Gang Hour (T.P.G.H.)			
		Present	Proposed
Over	Under	%	%
	10.0	Nil	Nil
10.0	10.5	17	17
10.5	11.0	23	23
11.0	11.5	25	25
11.5	12.0	27	27
12.0	12.5	30	30
12.5	13.0	33	33
13.0	13.5	35	35
13.5	14.0	35	38
14.0	14.5	35	42
14.5	15.0	35	46
15.0	15.5	35	50
15.5	16.0	35	55
16.0	16.5	35	60
Pre-shift ceiling			

(e) Based on the revised rates of pay mutually agreed to by both the Labour Union and Management, the men's wages were to be increased on the day of implementation of the two-shift system.

(f) There should be a shift allowance for all shift workers.

Reorganisation of Labour Force

A major exercise had to be undertaken to ensure that labour shortages during the first or second shifts were reduced to a minimum. New gangs had to be formed to supplement the existing ones both on board and on wharf. To satisfy average requirements, it was considered necessary to have a minimum of 180 stevedore gangs and 170 wharf gangs. It was vitally important not to overprovide and to maximise the utilisation of the labour in view of the 26-day guaranteed wages. But at the same time there must be sufficient gangs to meet normal requirements as serious shortages could well lead to a heavy reduction in output and delay in turnround time. Therefore, a happy medium must be struck and a solution found to meet peak period requirements.

The deployment of the stevedore and wharf gangs is given below:—

	Stevedore	Wharf
1st Shift	80	85
Floaters	20	15
2nd Shift	80	70

(Gangs would take turn as floaters on a rota basis. Weekly changeover from one shift to the other.)

Care must also be exercised to ensure a minimum intake of fresh labour for the formation of new gangs in order that additional expenditure is pared down as much as possible. With the reduction of 4 men in each stevedore gang and their re-deployment, only a small number of new recruits was required to bring the gang strength up to the required level.

In order to avoid labour shortages during peak periods, a casual pool was formed. These casual workers were paid only when there was work for them. However, they received a reporting fee on days when they reported and no work was available.

Apart from the abovementioned categories of employees, detailed planning was also required along similar lines in respect of other shift workers—e.g. Ships Foremen and Assistant Foremen, Godown Stackers, Mechanical Equipment Drivers, Extra Labour Gangs for miscellaneous work, Cargo Supervisors, Checkers, Survey and Clerical Staff, Tonnage Clerks, Watchmen and Messengers.

In the near future it is also envisaged that complementary operations undertaken by the P.S.A. tugs, mooring boats, berthing and unberthing labour and Control Officers will likewise be placed on shift working. Tug services are already available on a 24-hour basis. The Berthing Control Office and Pilotage are also operational throughout the day and night. Very soon it is hoped to gear all operations on the same basis to reduce restricted night berthing and unberthing operations of vessels at the P.S.A. wharves as much as possible. Such facilities and service should enable vessels to come alongside or to depart at any time of the day or night, thereby reducing port time to a minimum.

New Problems

The operation of a shift system has introduced other problems, one of which is the dissemination of allocation information to the first shift workers regarding the next day's work. This information must be available before the men leave the wharf for home after completing the shift at 1500 hours, otherwise it means that the gangs would not know where to report the next morning. Confusion could cause considerable delay in starting work. As it involves 3,000 to 4,000 men per shift, the system must be simple, efficient and easily understood. With this in mind, the following procedure was introduced. It has to be closely followed by shipping agents in placing their requisitions for labour for the next day:—

This arrangement has one dis-

advantage. Ships find it difficult to forecast more than 24 hours ahead their labour requirements for the next day's 2nd shift. In the light of working experience, Management is actively considering a revision of the procedure with a view to allowing orders for the 2nd shift to be placed the same morning.

In order to ensure a smooth change-over from 1st to 2nd shift at 1500 hours without undue loss of working time, everything must be done to see that the 2nd shift workers are at their respective places of work (e.g. on the forklifts, cranes, ships hatches and winches, godowns, towing machines, wharf offices, and equipment sheds) in time to continue operation immediately.

Another important factor which has to be carefully considered in a port highly geared to mechanisation is the complement of mechanical aids. Shift working entails the operation of equipment for longer hours despite a change-over of drivers before commencement of the next shift but the machines, particularly the forklift trucks and cranes, need not be changed. However, they must be operational without any break for long periods up to 14 hours per day. The modus operandi of returning (say) the battery-electric forklifts to the depot during the meal break after each working period of four hours for a change of batteries or for a booster charge had to give way to new working arrangements. Therefore, new methods and new machines must be found to overcome this problem in order that the double-shift system would produce the desired results.

Other problems like the quick despatch of food to the thousands of workers from the Central Kitchen to all parts of the wharves covering a distance of 3 miles during the one-hour break have to be resolved. A good hot meal is most essential to the workers and they have to have a little rest after the meal before resuming work. If the food arrives too early, workers are tempted to stop work before time—if late, they might not have sufficient time to complete their meal. Therefore, timing is important to avoid disruption of work.

The new $150,000 Clubhouse for the recreation of the Authority's 12,000 employees and their families.

Increase of Wharf Working Time

The two-shift system has brought about a 16.7% increase of the vessel's working hours—i.e. from 12 to 14 hours, but the stevedore's working time was reduced by 41.7% (from 12 to 7 hours). This eliminates the problem of fatigue and provides the workers ample opportunities for their social and recreational activities. More rest and leisure hours will help the men to work harder and step up their productivity. This in turn will earn them a higher bonus.

Leisure time problems are not uncommon. To assist the men to spend their leisure hours usefully, the P.S.A. in August 1965 completed the construction of a new $150,000 social and recreational clubhouse adjacent to a 10-acre playing field. Activities such as football, hockey, softball, rugger, cricket, basketball, tennis, athletics, badminton, sepak raga, table-tennis, judo, body-building, boxing, billiards, and other indoor games are organised for the benefit of all categories of P.S.A. employees from senior officers to stevedores and messengers, all enjoying the same amenities provided by the Club. Subscriptions of $1.00 and 50 cents per month are collected depending on the earnings of workers.

The advantages of shift working as planned and referred to earlier in this paper are threefold—it benefits the waterfront workers, the users (i.e. shipowners/shipping agents, the consignees and consignors) and the port authority itself. This, therefore, has the support of all the parties concerned and as a result of close co-operation received, the results of shift working have been most encouraging. The gang-hour rate has increased from 13.9 T.P.G.H. in October 1964 (date of implementation of the shift system) to 14.8 T.P.G.H. after a period of 12 months.

Economics of Shift Work

It may be interesting to touch briefly upon the economics of shift working. Undoubtedly the eradication of overtime and the increase of working hours per day mean the utilisation of more workers. This helps to spread employment but the viability of organisation must be preserved. The shrinking of the stevedore gang size from 17 to 13 men did help to a large extent the formation of additional gangs required for the new system of cargo handling both on board and on wharf. If this had not taken place, implementation of the scheme might well have been impossible.

Then there are other categories of workers like cargo supervisors, drivers, stackers, clerical staff and watchmen involved in shift working to be considered. Furthermore, negotiations to finalise the workers' demands for increases in pay had to be concluded. Then there was the

(Continued on Page 39)

Grain Company's Experience in Efficient Transportation

By M. R. Laserson

Vice President
Continental Grain Company

Mr. Myron R. Laserson

Speech delivered by Mr. M. R. (Mike) Laserson at "Port of Beaumont Night" January 24, 1967 before Members and Guests of the Sabine District Traffic Club, Beaumont, Texas.

Introduction of Mr. Laserson was by John H. Groh, Port Director, Port of Beaumont, Texas.

Your speaker tonight is Mr. M. R. (Mike) Laserson, Division Manager, Continental Grain Co. from Kansas City, Missouri. Mr. Laserson is in charge of Continental's entire grain operations in the Southwest, which includes elevators at Omaha, Neb., Kansas City, Mo., Kansas City, Kansas, Enid, Okla., Beaumont, Amarillo, Brownwood, Ft. Worth, Friona, Frisco, Herford, Houston and Plainview, Texas.

Mr. Laserson's career with Continental Grain Company started in 1954 when he joined the Company's training program as a merchandising trainee in Kansas City. In the spring of 1956, he was transferred to the Export Department in New York, and in the autumn of 1957, he was sent to Paris, France for further export training. In the spring of 1958, he was transferred to the Portland, Oregon office and a year later he moved to the St. Louis, Missouri office. In 1960, he attended the program for management development at the Harvard Business School which is a program for middle management executives and lasts for about seventeen weeks. In 1961, he was transferred to Kansas City as assistant manager and later that year he was named manager of the Texas Division, with headquarters at that time at Fort Worth, Texas. In 1964, he was named Vice President and was transferred to the New York headquarters of the Company. In the spring of 1966, with the creation of the Southwest Division, he was named division manager and was transferred to the new headquarters in Kansas City. It is a personal privilege and pleasure to have the honor to introduce to you your speaker of the evening, Mr. Mike Laserson.

Text of Mr. Laserson's speech:

It is certainly a pleasure for me to be here tonight to talk to you about Continental Grain's very happy association with the Port of Beaumont. I can assure you that this is not going to be a very long speech and I suppose this will be all right with you because, as you know, our association with the Port of Beaumont has not been very long.

Continental Grain has been operating the elevator here for the last two years. I remember the starting date very well because after months and months of long negotiation, just 20 minutes after the contract was finally signed, the longshoremen went out on strike and we sat here for two months looking at ourselves and paying expensive rent. This was one of those times when my superiors complimented me on my sense of timing.

You might be interested in hearing about the negotiation. This was the first time I was ever involved in a lease of this kind and I was told to bring with me a lawyer from Chicago. The Port, of course, was represented by the very able Mr. Easterling and, as we sat in discussion for several days, it became apparent that, while the Port and Continental Grain wanted very much to get together and write the contract, the lawyers were determined not to let our early agreement in principle go into effect without a long, hard fight. It was almost amusing, looking back, to see those two very articulate and energetic attorneys worry themselves and the rest of us about the real and true meaning of every word in a 36-page lease. After weeks of this—back and forth—and involving several trips from New York to Beaumont, the Port's chairman, Ray Coale, finally saved the day and a lot of time for all of us. He suggested that we write this lease and agree to the terms without the lawyers and then give the lawyers the job of expressing the formal agreement. This suggestion was quickly seized by both sides and after that it only took us about an hour to arrange the whole matter.

It has been this kind of attitude that we have experienced in our relationship with the Port ever since and it is this spirit of cooperation and fast decision-making that has enabled us and the Port to make Beaumont one of the leading export centers of the United States. Last week the U.S.D.A. published, that during December, the total grain exported from Beaumont, 6.6 million bushels, exceeded the exports of any other Texas port. These shipments included wheat to Belgium, Holland, Brazil, Germany, Algeria, Peru, the U.A.R., Morrocco, Israel and Costa Rica, and grain sorghum to Belgium, Holland and India.

This brings to mind an underlying premise in our negotiations. When one talks about an export elevator and discusses capacity, one needs to consider a reasonable ex-

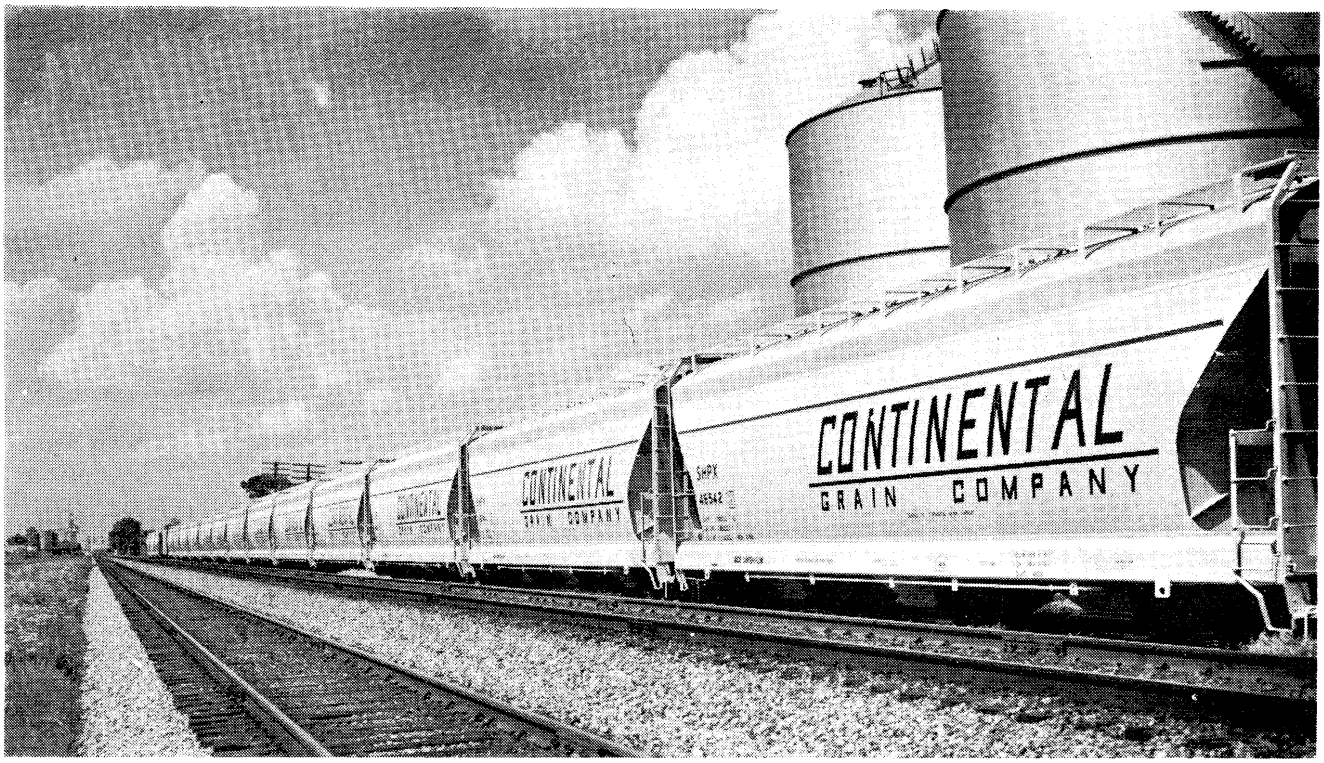
pectation of volume to be handled as well as mere size and equipment. Obviously, the more grain we could reasonably expect to handle, the more valuable the property should be and, theoretically, the more money we should be willing to pay as rental. On the other hand, the more volume handled at the elevator, the more income generated for the Port's economy as a whole, because increased tonnage means increased revenue from dockage, payrolls, inbound freight, etc. We and the Port, therefore, were both interested in establishing a means or incentive to maximize volume.

As it turned out, we had only one problem. We both minimized the potential for this elevator. In the calendar year 1965, we loaded over fifty million bushels of grain at this facility on 91 ocean vessels, and in 1966 we increased this volume by more than 50% to 76,681,000 bushels. While we were negotiating the lease, there were some of us who thought we would be doing well if we were able to handle as much as 50 million bushels in any given year.

Since many of you are engaged in the railroad industry, it would be of interest to you that during the calendar year 1966, we unloaded at Beaumont elevator more than 35,000 box and hopper cars. Most of this grain involved long-haul movement from west Texas, Kansas, Nebraska, and Colorado, and I think we can correctly say that this traffic is of major importance to the railroad industry.

It is a matter of record, and we are very proud of this fact, that the dispatch of railroad equipment and ocean vessels at the Port of Beaumont is surpassed by no other port. In fact, the record is so good that when we do have demurrage problems from time to time, everyone in the entire organization is surprised and the problem is quickly corrected.

Some of you might properly ask whether the activity at the Port of Beaumont has taken grain business away from other ports and I would like to state right here and now that, in my view, it has not. Certainly the competitive nature of the grain business would indicate that when Continental and, say our good friends at Cargill, are competing for the same business, it is really the ports of Beaumont and Port Arthur that are competing for this business; but it is my opinion that the modern facility here at Beaumont has, in fact, increased the over-all volume of available business. I would illustrate this point by telling you that in 1965, 46% of our wheat business at Beaumont was what we call commercial business, by which we mean business with dollar buyers as opposed to business that is done under PL 480 or the so-called government give-away programs; and in 1966, 75% of our wheat business at Beaumont was commercial business. The significance of these figures stems from the fact that commercial exports account for only about 40%



of all wheat exports from the United States.

Our company has made a continued and strong effort to increase commercial sales of wheat through our overseas offices and organization, and the success of these efforts has contributed to an over-all increase in United States exports. Some of you may remember our most famous commercial transaction, which was before we operated the elevator here in Beaumont. I am speaking, of course, of the Russian wheat transaction which was a million-ton sales and still the largest of its kind ever done in our business. Other transactions, most of which do not receive the publicity that comes from a Russian trade, includes sales of 500,000 tons of wheat to South Africa over a 2-year period, all of which has been or will be loaded at Beaumont. This kind of business is for cash dollars and certainly aids in alleviating the balance of payments problem.

It is important to note that we can increase our exports of grain as we learn how to use new technology. There is an old adage that says big supplies create big demand, and certainly the United States is able to produce huge supplies of grain. In 1966, the United States exported a record of 2,071,600,000 bushels of all grains, up 19% from the previous peak in 1965 of 1,744,-100,000. The pace of this growth is emphasized by the fact that 1966 was the first year with exports above 2,000,000,000 bushels, while the 1,000,000,000-bushel level was reached for the first time in 1960. In 1955, our all grain exports were only 550,600,000 bushels and in 1951 were just 351,400,000. As the technology of the American farmer developed, so did his market place, and currently, the United States is the principal supplier of grains for the world.

Just as the efficiency of the farmer increased, so did the quality of the equipment necessary to the marketing and movement of grain. We have seen these developments in the very recent past and the building of the Beaumont elevator geared for high volume is an example of this. We know there is very real danger if we or the Port would sit back and be complacent with the permanent conviction that we have an ultra-modern facility. But at the time it was built, the Beaumont elevator, incorporated the genius and ideas and creativity of people who recognized the need for efficiency.

When we put engineering innovation together with dynamic marketing, we have a combination that has to be successful and it is certainly satisfying to watch our partnership mature so pleasantly.

Another important development in recent years has been innovation in the transportation industry within the United States and also for overseas movement. Truly significant in this regard has been the development of large-sized ocean vessels. While I have not had as much experience in this business as many of you, I can remember when a cargo of grain meant 10,000 tons. Today a 10,000-ton ship is almost considered a liner and it is not uncommon at all for us to load vessels three times that size. In using these large ships, the savings in transportation costs to both the consumer and the shipper are enormous. Labor cost is a big item in any transportation operation and when you consider that a 30,000-ton vessel requires a crew not very much larger than for a 10,000-ton vessel, you can see that the cost on a per ton basis goes down materially, with the savings passed on to customers in the form of lower freight rates. Also, many of these new large ships are bulk carriers, which means that the expense and time of trimming all but disappear as we pour the grain into big, open holds. It also means that we are able to use the

maximum output potential of the elevator.

We are grateful that the Port had the foresight to have enough draft at the elevator to accommodate these large vessels and, incidentally, we hope that the navigation people in this area will soon recognize the need to develop the channel to a depth of forty feet. It is ironic but not yet catastrophic that competitive ports established in the past have deeper draft than we do here

Another highly significant development in transportation has been the growing use of hopper cars in grain traffic. The cliche is that necessity is the mother of invention, and without seeking to offend anyone here, necessity certainly was the inspiration for the building of these special hopper grain cars. The railroad industry has gone through a long period during which attrition of equipment and expansion of overall business have contributed to, at times, an overwhelming car shortage. We and other grain companies, and to be fair, some of the railroads saw this approaching several years ago and took the necessary steps to put more equipment into service by encouraging the building of new and larger cars. We now operate hundreds of hopper cars which are used almost on a shuttle service between interior terminals and the Beaumont elevator. We have learned that these cars increase our volume potential, decrease our labor cost per unit, and, perhaps even more important than anything else, enable us to control logistics. This is because we have staff who know where every one of these cars is at all times and who know the requirements of the export program. It is unfortunate that there is still a shortage of this type of equipment, but we hope that the next few years will give the industry an opportunity to catch up with requirements. It is ironic that the carriers still are very slow in providing needed incentives in the form of point-to-point rates that eliminate costly transit and other down time so as to encourage shippers to participate more in the expansion of this fleet of equipment. We do see certain signs of change, and, although late, we are optimistic.

Another consideration in establishing freight rates is the fact that the government or C.C.C. is going, in future, to supply less and less of the export grain. I would suggest that, as we and other exporters, and as Beaumont and other ports, expand our efforts to move free grain on commercial terms. . . this as opposed to controlled grain. . . we will see considerably more competitiveness, and then economies in the making of freight rates.

I would like now to talk briefly about the future of the export business, which, of course, means the future potential for our activity at Beaumont. I know that all of you have read and listened with deep concern to reports of the dwindling supplies of grain in the United States. This country, as a major exporter and supply house of food for the world, has been practically forced to ration our grain exports because of the very real fear that adverse weather and world-wide famine can create a shortage of food for you and me. The Food for Peace Program, which has been our strongest and wisest weapon in the fight to keep the world free from want and hunger and even wider war, has had to be curtailed on account of the political necessity of avoiding soaring food prices here in the United States. This curtailment has occurred at a time when we pay producers millions of dollars to keep land idle because people in high places thought that the cost of assuring enough food for the world was too high.

We must all be concerned because the failure to pay this insurance premium has greatly increased the risk of complete catastrophe, if not a world cataclysm. We become all too conscious of this when we read in our newspapers and see on television the food riots in such countries as India. Again I would use the word ironic when I tell you that this past year Russia enjoyed a bountiful harvest and became an exporter of food grains for the first time in several years and is now supplying wheat to India while we, with idle production capacity, have had to reduce exports.

Here, too, we see prospects for change and hopefully, in the very near future. The Administration has decided to allow producers in the wheat belt to increase their planting some 30% over last year and we are told by the Department of Agriculture that producers in the southwest actually increased their plantings for the 1967 crop by 26%. If we get a normal crop, we again will be in a position to resume a heavy export activity. This is all the more important when we realize that tonight, while we have enjoyed this delicious dinner, two-thirds of the people in the world will go to bed hungry.

When we analyze the tremendous world need for our agriculture output and our technological capacity, to help feed the world, even while we help underdeveloped countries learn how to feed themselves, we can be confident that we will find the ways to satisfy these urgent requirements. We would predict that over the years, we will see wheat exports rise nationally to over a billion bushels (compared with 745,770 million expected this year) and certainly we would expect Beaumont to share significantly in the increase in total volume.

I am optimistic about this country's ability to produce and so I am optimistic about the export business. We need to work hard to stay on top of technological developments in elevator operations and in the services that are such a vital part of an export program. We need to maximize our use of the cheapest kinds of transportation and we need to reduce expenses and frills. We need to control logistics and we must be prepared to give our buyers what they want. Our commercial customers are particular buyers, and they buy quality and timeliness. If we can satisfy our buyer's requirements, as we have been doing, our business surely will grow and so will activity at the Port of Beaumont. The future is very bright indeed, Gentlemen, if we have the vision and the courage to grow in one of the world's most essential, exacting, and exciting businesses.

The export business will expand as a result of concerted efforts on the part of all interested parties—the exporters, the ports, the ocean carriers, the railroads, the farmers, to fulfill the opportunity being offered to free enterprise.

Port of Houston in Its Second Half Century

By J. P. Turner

Executive Director
Harris County Navigation District
Texas, U.S.A.

(Specially written for Ports and Harbors)

Mr. J. P. Turner

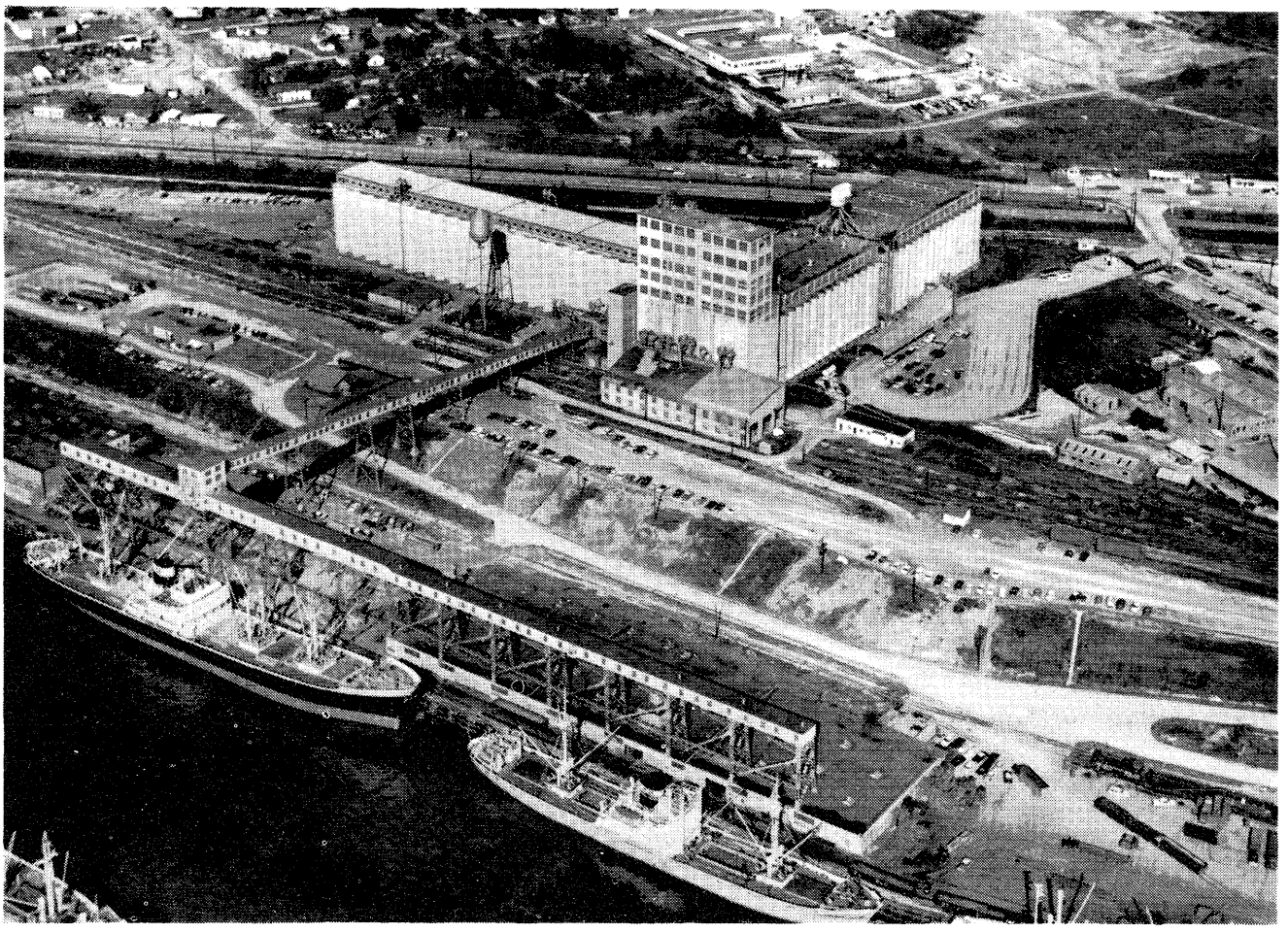
HOUSTON, Texas (Special) — Houston, a man-made port reaching for the moon as well as for the oceans of the earth, is moving ahead into its second half century of phenomenal growth with new wharves and cargo handling facilities under construction plus a rapid growth of port area industrial capacity to use or manufacture goods shipped through the port.

At the same time, Houston is the planning and flight control headquarters for all United States manned-spacecraft activities.

The Port of Houston has grown from zero start in 1915 when the first ocean cargo was handled in its newly dredged Ship Channel to being the third port in the United States in total tonnage at a current yearly average of more than 60 million tons.

Located 50 miles inland from the Gulf of Mexico, off Galveston Bay, the Port of Houston is fully protected from ocean storms and offers almost five million square feet of modern dockside transit shed facilities and more than three million square feet of hard surface open wharf space plus almost un-

Aerial view of the Port of Houston looking downstream (East) with new construction barely visible at left at the turn of the channel. The huge 3 billion dollar industrial complex of the Ship Channel begins at the turn of the stream and continues twenty-five miles downstream to Baytown at the mouth of Galveston Bay.



The six million bushel capacity public grain elevator of the Navigation District.

limited open ground storage space.

Major terminal facilities are located along the 25 mile channel leading inland from Galveston Bay. However, the Harris County Houston Ship Channel Navigation District's new Bayport Terminal is located on Galveston Bay's western shore further down toward the Gulf of Mexico.

The Houston Ship Channel has a depth of 40 feet from the Gulf of Mexico through Galveston Bay to the Clinton Island Turning Basin, a distance of about 40 miles, and a depth of 36 feet the remaining ten miles into the original, or upper Turning Basin. The Channel has a width of 400 feet, with 1200 foot wide Turning Basins.

Vertical clearance on the Channel is 165 feet above mean low tide where power lines cross. Ultimately, a high level bridge will be built, by early 1970, and maintain the same clearance.

In most cases wharves are built parallel to the banks of the Channel but in a few instances slips have been opened into the banks for docks. These are further down stream and not in the Turning Basin area where a majority of the general cargo wharves are located.

Bulk liquids such as petroleum, liquid chemicals and petroleum products are handled over company-owned docks and from privately-owned liquid terminals, three of which are located on the Houston Channel.

Grain, mostly wheat, is exported through four grain elevators with a total capacity of 24 million bushels. A fifth elevator of 3 million bushels capacity has been started and by mid-summer, the Port of Houston will have elevators totaling 27 million bushels of storage capacity at shipside.

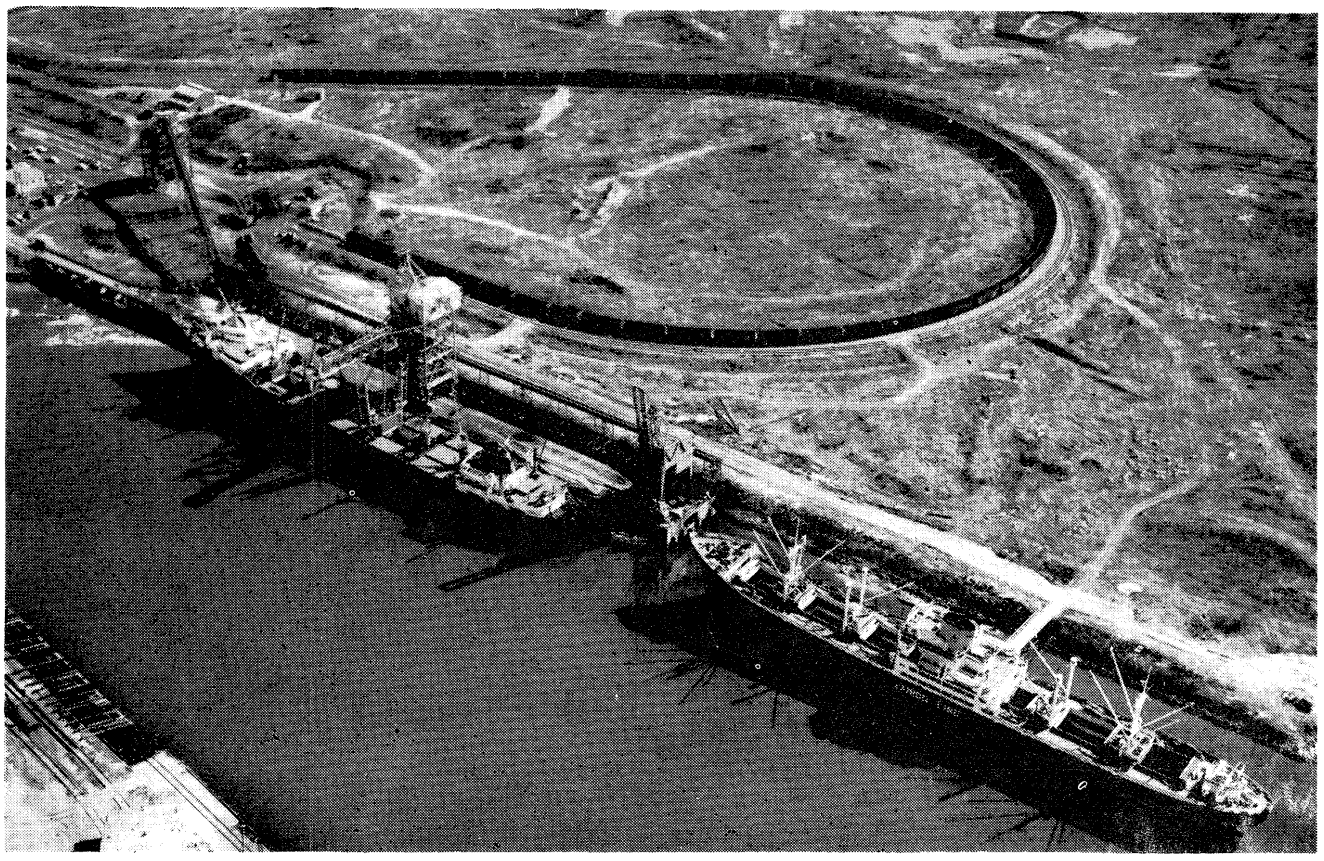
For the last several years, the Port of Houston has been the leading port for wheat exports and in 1966 had a record-breaking total of 193 million bushels of grain shipped, 157 million bushels of it wheat. Houston, while ranking first in wheat, ranks third nationally in total grain shipments.

Frozen or cold storage items shipped via Port of Houston are moved directly to or from waiting refrigerated railcars or trucks. Cold Storage or freezer warehousing is done in off-channel commercial cold lockers.

All cargo handling is done with mechanical equipment at the Port of Houston. Stevedores and terminal operators are fully equipped with forklift trucks, tractors and cranes. Bulk materials are handled through a 1,000 ton per hour mechanical loading and unloading plant.

A dockside bagging plant allows quick bagging of materials that have been moved into the port area in bulk, but which the shipper wants to handle as general cargo at destination.

Houston was the first port to load Sea-Land Service, Inc. truck-



The three million dollar bulk materials handling plant of the Navigation District where bulk materials can be loaded or unloaded at the rate of 1000 tons an hour. Manganese ore, coal, potash, soy meal and other commodities move through this bustling facility daily.

size containers and is remaining in the forefront of this service. The Harris County Navigation District, the public port authority, has installed a 27.5 ton electric PACECO container-handling crane at a cost of $800,000. The only one of its kind on the Gulf of Mexico, the crane can stack the standard 8 x 35 foot Sea-Land containers three high on the decks of container ships and work 30 containers an hour.

Houston has no all-passenger ship service and makes no special provisions for passenger accommodations. However, a growing number of freighter passengers are debarking or embarking at the Port of Houston and reportedly finding service satisfactory.

With more than one and one quarter million population, Houston has become the center of the U.S. petroleum industry and petrochemical industry with headquarters of a number of the world's largest oil companies, the headquarters of the Manned Spacecraft Project of the National Aeronautics and Space Administration, and the seaport for the great central basin of the North American continent lying between the Mississippi River and the Rocky Mountains.

The Port of Houston is served by six trunk line railroads, thirty-eight motor freight carriers, eight barge lines, eleven export packers, thirty-five freight forwarders, nineteen stevedoring companies plus a large number of marine outfitters and ship chandlers.

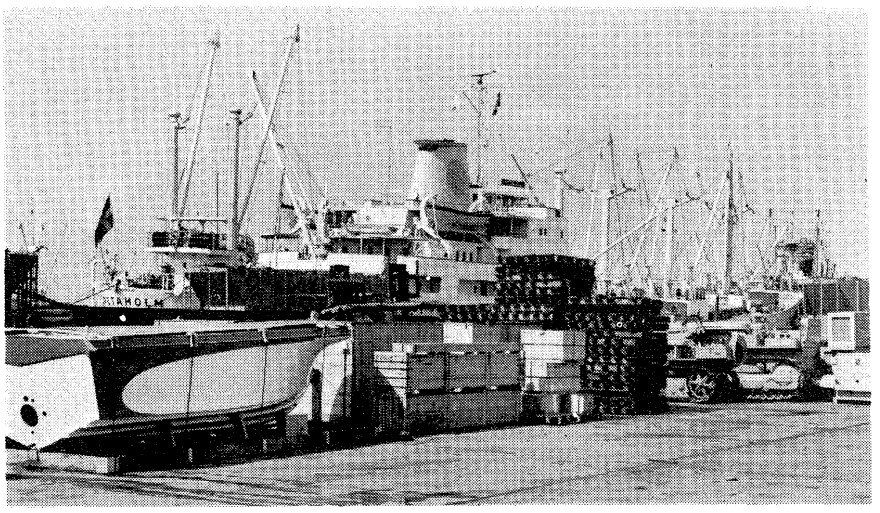
Thirty-five countries have consular offices in Houston, giving the city better representation than any other Southwestern U.S. city.

The railroad center of the southwestern United States, Houston has full rail service to all parts of the United States, Mexico and Canada. Houston is a major junction point on the Federal interstate highway system and so has overnight truck service within 500 miles of the port.

The Intercoastal Waterway that goes from Brownsville, Texas, on the border with Mexico, all the way to New York and that joins the great Mississippi River inland waterway system, crosses the Houston Ship Channel at Galveston. Houston has access to 27,000 miles of inland waterways, covering the whole central and eastern parts of the United States and handles 20 million tons of barge traffic annually.

More than 100 steamship lines serve the Port of Houston, handling an average of 60 million tons of cargo each year and making the Port of Houston the third port in total tonnage in the United States.

Development projects under construction or announced include three new general cargo wharves now being built by the Navigation District, at a cost of $5 million, the new Bayport Terminal, already in use by barge traffic and slated for deepwater use in the future; one new grain elevator; expansion of private-use docking facilities by various petroleum and manufactur-



General cargo assembled on one of the open wharves of the Port of Houston. The Port has open wharves interspersed with its transit sheds in order to accommodate the heavy cargo such as steel (imports) and machinery (exports) assembled on them.

ing concerns; the construction of a steel mill and the expansion of an existing steel mill.

All general usage docks, publicly or privately owned, are operated on a nonpreferential basis and under the same tariff. The Navigation District now has in use 25 general cargo berths plus a dry bulk materials berth, totaling almost two million square feet of open wharf and hard surface storage area. In addition, the Navigation District has a shell-surfaced parking area behind the docks to hold hundreds of automobiles, tractors, and other light vehicles for customs check and servicing after unloading from ships.

New construction is adding three berths or 1800 feet of wharf frontage to the existing facilities. Wharf 26 will be an open wharf with 184,030 square feet of heavy duty, reinforced concrete surface.

Wharves 27 and 28 will be covered with a single shed 1080 feet long by 200 feet wide with only one row of columns down the center. The waterside will have 56.5 foot aprons extending from the sheds and carrying three sets of rail tracks plus tracks for a 40-ton diesel-electric gantry crane.

Privately owned or operated general use terminals account for 23 of the Port's general cargo docks.

Three large industrial tracts have been opened for development in the Channel area. The land, all on the north side of the Ship Channel is served by general cargo facilities and has full rail and highway access. One, a 200 acre site is immediately adjacent to the Navigation District wharves and owned by the District.

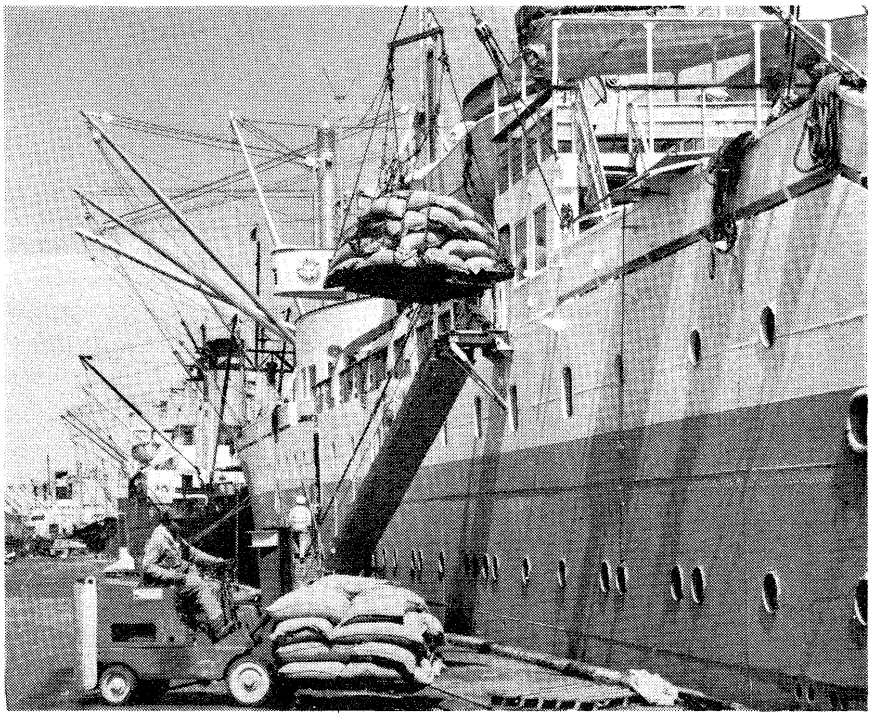
In 1966, there were 4.266 ships calling at Houston, some 400 more than 1965. The ratio is about 5 foreign flag vessels to three American flag ships. The majority of the U.S. ships are tankers and most of the foreign ships are cargo freighters.

Its fifty-second year of operation was a good one for the Port of Houston. The 1966 movement of 60,361,341 tons topped 1959's all-time high of 60,265,293 tons. Of particular significance was an increase of more than a million tons in the Port's foreign trade to 15,-224,000 tons, nearly three-fourths of it exports. Of this, more than half, or 5.8 million tons was bulk grain, principally wheat, which surpassed 1965's record grain year of 5.1 million tons. Some 37 per cent moved through the Navigation District's Public Grain Elevator with its 6 million bushel storage capacity.

Foreign general cargo, inbound and outbound, showed an increase over 1965 from 3.9 million tons to 4.3 million tons.

A banner million and one quarter tons of iron and steel products, more than a million tons of it foreign, topped the inbound categories and 1965's previous record total. Also strong in the inbound

Coffee is one of the big imports of the Port of Houston, which ranks third in the nation behind New York and New Orleans in the importation of this drink. Here bags from Brazil are being unloaded.



picture was coffee, paper and newsprint, wood and products, textiles and fibers, and machinery and vehicles.

Outbound the leader in ocean freight general cargo was rice, followed by flour and petrochemical products, such as synthetic rubber, resins, fertilizers and carbon black.

Inland waterways barge traffic amounted to 12.4 million tons, mostly bulk and fairly even between shipments and receipts. Local barge traffic, mostly shell, came to 10.3 million tons. Coastwise deepsea shipments, largely bulk petroleum, were 19.9 million tons.

The Port of Houston serves the great agricultural Mid-America region west of the Mississippi River and east of the Rocky Mountains. The Mid-America region is also one of the fastest growing industrial regions in the country.

Houston, itself, is often called the Miracle City of the United States, being one of the fastest growing major cities in the world. It is now the sixth largest city in the United States with a metropolitan population of more than 1.6 million.

The Ship Channel is maintained by the United States Corps of Army Engineers and there is no charge for its use. Pilotage is required on all vessels. The Houston Pilots Association maintains a pilot boat off the Galveston bar to meet all entering vessels. Pilotage is charged at a rate of $7.00 per draft foot, one way.

Dockage fees at general cargo wharves are charged at the rate of three cents per registered ton the first day, two cents the second day, and one cent per registered ton for each succeeding day.

Wharfage fees vary with types of cargo, but are competitive with other Gulf and Atlantic ports.

Singapore—

(Continued From Page 30)

question of additional capital expenditure for the acquisition of new plant and equipment not to mention higher maintenance costs and other recurrent expenditure.

To ensure the feasibility of the shift system, two things must be done—(a) to increase productivity and (b) introduce an interim revision of the 10 year old P.S.A. Tariff. Since 1954 when the Tariff was gazetted, it had not been disturbed. Wage and other cost increases for the past 10 years had reduced the profitability of the Authority. With further changes in the pay structure and upward revision as regards other items of expenditure, the Authority was compelled to introduce a more realistic scale of rates bearing in mind that the additional financial burden was spread evenly and fairly amongst all the users of the facilities.

Apart from the increases noted above, it is interesting to note that under the shift system no overtime charges, except on Sundays and Holidays, are levied. Ships can work up to 2300 hours each night from Monday to Saturday without incurring overtime. This would result in a saving of a substantial sum amounting to a few million dollars per annum in labour charges by the shipping community. This saving to the shipping community went a long way to offsetting the tariff increases introduced in October 1964, and therefore the net rise in their costs was comparatively small.

Advantages

In the light of working experience since the implementation of shift working, the advantages of shift working can be summed up as follows:–

To the Waterfront Workers

1. Less working hours (a reduction from 12 to 7 hours).
2. More leisure time and workers can plan ahead their social and recreational activities.
3. The eradication of excessive overtime work will improve the workers' health.
4. Fresher gangs and higher productivity will mean bigger bonus and more take-home pay.
5. The workers now enjoy a guaranteed minimum wage of 26 days.

To the Shipowners/Shipping Agents

1. Increased working time (from 12 to 14 hours) means quicker turn-round of vessels. Higher productivity. less stand-by of labour and increased efficiency should result in greater output.
2. Quicker despatch means less demurrage.
3. No overtime charges working up to 2300 hours on normal working days—Monday to Saturday.

To the Traders and Transport Operators

1. Better cargo delivery service. Prior to shift working, the sheds closed after every 4 working hours for a 2 hour meal break and then reopened for another 4 hours. This caused interruption of activities of the haulage companies. Now with shift working, consignors and consignees can despatch cargo or effect delivery from the sheds from 1700 to 1800 hours without any break.
2. Direct shipment to vessel or delivery from vessel can be effected up to 2300 hours each day without interruption except during the two meal breaks of one hour each.
3. No overtime charges during week days—Monday to Saturday up to 2300 hours. Before shift working was introduced, shippers or consignees were required to pay overtime charges if work continued after 1700 hours.

To the Port Authority

In keeping with the social progress of the country, overtime working, which has become an obsolescence of time, has been successfully superseded by more advanced working arrangements. This generates greater confidence. Shipping companies can further expedite the despatch of their vessels. The Port Authority has a more contented, vigorous and dependable labour force. Such progress helps to stabilise working conditions and encourage higher productivity. Should the need arise, a limited 3rd shift could be incorporated into the existing system of work.

Conclusion

The Port Authority having successfully implemented shift work now looks confidently to the future to meet the demands of the container age. It is fully alive to this new concept of shipping and cargo handling and hopes to provide the required facility for the handling of full container vessels in the not too distant future.

Port of Fremantle Development

By H. C. Rudderham
General Manager

Mr. H. C. Rudderham
General Manager

Judged by the expansion of the Port activity over the last decade, and supported by reliable estimates for the future, the trade of the Port of Fremantle can be expected to double within the next ten years.

To match this growth additional facilities will be required and in keeping with the Port of Fremantle's reputation as a modern first class world port, the Fremantle Port Authority has planned progressive development to meet not only the anticipated demands of increased trade, but also the exacting requirements of new cargo.

Inner Harbour

Work already in hand for up-river extension of the Inner Harbour will, when completed, provide three new berths each 750 ft. long. A contract for the dredging of the area to a depth of 36 ft. at low water has recently been finalised. This work, which is expected to commence in September 1966 and be completed by early 1968, will maintain the minimum depth of 36 feet below water throughout the whole of the Inner Harbour and entrance channels.

As a preliminary to the dredging, the Port Authority is currently driving steel sheet piling on both sides of the river. This work is almost completed on the south bank and will be starting on the north side in the near future.

A large quantity of earth filling has been dumped on each bank of the river in readiness for berth construction, and this material is being levelled and consolidated progressively behind the sheet piling.

Re-orientation of the road link between Stirling Highway and the port environs on the north side of the harbour will release valuable land for the development and utilisation of the two North Wharf berths, which have been specially designed for container cargo, and at the same time provide greatly improved road access to North Wharf.

It is anticipated that one of the new berths at North Wharf will be operational by mid-1968 in order to meet the needs of fully containerised ships from overseas, the first of which is expected to arrive about that time.

Outer Harbour

The Port Authority is also carrying out extensive developmental work in the Outer Harbour.

Access to the deep protected waters of Cockburn Sound is at present limited to ships which can safely negotiate the 38 ft. deep channels through Success and Parmelia Banks.

To meet the requirements of tankers of up to 70,000 tons and other bulk carriers expected in the near future, it is necessary to deepen these channels to 45 feet below datum. World wide tenders for the necessary dredging work were invited, and a contract has now been negotiated. Dredging is expected to commence this month and to be completed in about August next year.

To cater for larger ore carriers in the 40,000-50,000 ton class, and to supplement existing facilities to match extensive industrial development, a second jetty adjacent to the existing steelworks jetty at Kwinana is now under construction for Australian Iron & Steel Pty. Ltd. This jetty is scheduled for completion early in 1967.

The Port Authority has undertaken the deepening of the approach channels to these jetties to 38′6″ to accommodate the larger ships and the necessary dredging work will be completed by March 1967.

Construction of the Port Authority's new bulk cargo jetty, which will be situated immediately south of the oil refinery jetty at Kwinana, is due to commence in the near future. Initially the jetty will provide one berth which will be fitted with machinery for the bulk unloading of phosphatic rock and similar material at 500 tons an hour for a fertiliser works which is under construction in the immediate vicinity. At a later stage the jetty may be extended to provide additional berths which would be equipped for the bulk loading of iron ore and similar cargoes.

Future Development Plans

The rapid development of Western Australia, both primary and industrial, and in particular the planned expansion of major industries requiring import and export facilities within the area served by the Port of Fremantle, has already placed increased pressures on the existing port services, and has shown the need for a speeding up of progressive port development to handle expanding trade.

It is apparent that after planned upstream development of the Fre-

Port of Fremantle Inner Harbour Entrance to Swam River looking towards the City of Perth, Capital of Western Australia.

mantle Inner Harbour is completed to the limit permitted by the railway bridge, it will be necessary to establish in the near future additional port facilities elsewhere.

Vast potential for future expansion lies in the protected deep waters of Cockburn Sound in the Port of Fremantle's Outer Harbour. This magnificent natural harbour is virtually tideless and has no silting problem. Industrialisation of the immediate hinterland will undoubtedly lead to rapid port development in this area, and extensive surveys have recently been undertaken in order that the Fremantle Port Authority will be prepared to meet the demands these developments will create.

Following an analysis of these surveys, a comprehensive long range plan for extensive Outer Harbour development has been recently presented to and accepted in principle by the State Government.

The plan provides, inter alia, for the handling of bulk cargoes on the mainland foreshore in the vicinity of Kwinana and for general cargo and container berths between the mainland west of Rockingham townsite and the southern end of Garden Island. The appropriation of a substantial area of land for the development of extensive ship building and ship repair facilities has also been made in close proximity.

A causeway connecting Garden Island will provide protected deep water for shipping in Cockburn Sound and open up the island for further development, while general cargo berths and berths for handling containerised cargo will be built on land reclaimed in the lee of the causeway.

Large land areas adjacent to the berths, and extensive road and rail services to meet forseeable and long range needs, have been planned for the efficient operation of these berths.

These plans for port expansion in Cockburn Sound have been prepared as a result of an appraisal of its vast natural potential and will form a blue print for the future development in the area, broad enough in concept to meet the anticipated needs of the present, but flexible enough to be modified to match the growing demands of the future.

CARGO:

Where cargo comes from, where it is going and—most importantly—why . . . these are the things that the Delaware River Port Authority's Origin and Destination Study is seeking to determine.

By Jack Curtin, Editor, DRPALOG

All of a sudden, port development is where the action is in the Ports of Philadelphia. Some days, it seems, we're almost knee-deep in plans and programs for a great golden tomorrow along the Delaware. And hardly a week goes by when we aren't confronted with a statement from one group or another carefully pointing out why it is incumbent upon some one else to do the job that must be done if the local port community is to live happily ever after.

This is all to the good, of course, because for too long a period no one made much of an effort to improve conditions along the waterfront. The current ferment can only serve the port and, in the long run, the entire Delaware Valley.

Yet, with it all—with the concern about updating and constructing port facilities to meet modern requirements—one element in the equation for the future has apparently been either taken for granted or ignored.

All of the attention, it seems, has been focused upon the development to services and facilities to handle goods and merchandise and materials, and no one has paid much—if any—heed to the freight itself.

The missing ingredient, in a word, has been *cargo.*

Cargo is, after all, the *sine qua non.* When we talk about the importance of the river to the Delaware Valley or the significance of the port in the local economy, what we really mean is the business generated by the availability of these natural resources. Without a regular flow of goods in and out of the port, and facility—new or old, ultra-efficient or barely adequate—is worthless.

The questions that arise are the key to all of the planning and development which everyone agrees we need: Is there a substantial untapped source of cargo available to the port? If so, what kind of cargo is it—and what kind of facilities and services does it demand? How can it be attracted to the port? These are obvious questions, but there has been little public attention paid to them of late.

The significant word above was "public," because behind the scenes the most extensive survey of its kind ever conducted has been underway since 1964: the Delaware River Port Authority has devoted thousands of dollars and man-hours to an Origin and Destination Study of general cargo moving through the Ports of Philadelphia.

The Authority has engaged in similar studies in cooperation with other organizations in the past, but on a much smaller scale. And this is the first time that DRPA personnel and facilities have been directly involved in such a project.

Emphasis in the study is on general cargo, although some information regarding bulk movement through the port will also be included. General cargo—which can be defined as commodities which are bagged, boxed, crated or handled in separate stevedoring drafts—is the most desirable classification for a port to handle because of the higher revenues it produces; a study for the Port Authority recently indicated that it contributes $16.21 per ton to the economy of the local area. This lucrative category accounts for less than ten percent of the total tonnage in the Ports of Philadelphia at present, and virtually all developmental plans and projects are designed to increase that percentage.

Port Authority representatives contacted 5100 firms over the past two years, including every exporter in Pennsylvania and southern New Jersey and a representative sampling of manufacturing firms in Delaware, Maryland, New York, Ohio, West Virginia, Michigan, Indiana, Illinois and Wisconsin. Of this total, 2400 were in Pennsylvania, New Jersey and the immediate surrounding states which provide at least two-thirds of the port's cargo and 2700 were in the Midwest.

The final report is not expected to be ready before next September, although a preliminary export containing most of the essential facts is scheduled for this January. One stage of the study—export figures for Pennsylvania, New Jersey, Delaware and Maryland—has already been completed.

The survey is being conducted and tabulated by the Division of Port Development under the direction of Nelson Bean, manager of research and promotion. It has several broad general purposes:

—to provide an accurate source of information to be used as the basis for all port development planning by the Port Authority;

—to provide facts and figures to and in determining the location and nature of new port facilities;

—to provide a wealth of economic data and statistics which can be used to strengthen old business and develop new business for the port.

Additionally, the survey has provided the advantage of having an official representative of the port call personally upon thousands of users and potential users of the port. The benefits of such calls can often be immediate; in one instance field representative Jim Cooper of the DRPA Philadelphia office arrived at the office of the traffic director of a Midwestern manufacturing firm only a few hours after that official had been given the job of examining and evaluating his company's entire import/export flow. This gave Cooper the opportunity to "sell" the port and to make arrangements to have the traffic director visit Philadelphia to inspect local facilities.

Personal touches such as these are only secondary, however; the primary benefits will come from the broad conclusions that can be drawn when the report is completed.

"By its very nature, this is not going to be a strictly *statistical* report," Bean points out, "because of the diversity of companies and goods involved and because the information-gathering process was spread over two years. We will not end up with exact figures for a given time period; we will have reasonably accurate total figures which will paint a clear picture of where we stand in the port and of the directions in which we should be moving.

"For that matter, we will not release specific individual figures to the public at all; we have assured all of the participating firms that this material will be regarded as confidential."

The section of the report that has already been completed is indicative of the final product, according to Bean.

"Among the most significant facts revealed to date," he says, "is that there is an additional two million tons of general cargo originating in the area which is a logical market for the port.

"We have determined that a total of three million tons of overseas general cargo exports originates in Pennsylvania, South Jersey, Delaware and eastern Maryland each year, and that 1,100,000 tons of that moves through the port. Another million tons go to New York and some 60,000 tons go to Baltimore.

"Beyond that, we learned that about half of that three-million-ton total originates in the immediate Pennsylvania and New Jersey areas, of which we get 885,000 tons. Thus, there is over half a million tons of general cargo locally which is being lost to the port. Now that we know that it is there—and exactly where it is—we can undertake a specific program to draw it to the Ports of Philadelphia."

This is the sort of material that will be provided by the final report. It will include four general statistical tables, several special studies which "break down" some of the specifics of the local situation and a tabulation of all shippers surveyed by size, territory, commodity and port used.

The general tables will include, in addition to the four-state export figures already completed, import figures for the same area and then import and export tabulations for the entire area surveyed. Specific break-downs will be prepared comparing the use of rail and truck facilities in the movement of goods to waterside, indicating the various packing methods used and listing overseas origins and destinations of cargoes.

The survey questionnaire asked firms the type of products which they ship, product weight, value of exports and imports, which port is used—and why, methods of transit to waterside, how products are packaged and where, frequency of shipments, terms of sale, destinations or origins of products and general background about their business activities.

One of the key questions in that list is the "why" of port usage.

"We've known that the selection of a port is often made by a customer because he wants to consolidate his shipments," says Bean, "but now we've also determined that the decision is just as often made by a broker or freight forwarder who chooses the port best for him. For example, many New York-based forwarders are reluctant to route cargo through Philadelphia because that would mean splitting the commission with a local firm. It's perfectly understandable that they would feel that way, but with this information perhaps we can find the company in question a local forwarder who can offer the same services and thus gain the business for the port."

The most obvious and repeated reasons for port selection are because a given facility is closer, more convenient or more economical, of course, and there is little that can be done to shift business which goes to other ports for such reasons except to seek possible adjustments in freight rates or sailing schedules to improve Philadelphia's competitive position.

But there are a surprising number of shippers who use one port or another merely out of habit, and these are firms ripe for a visit from DRPA field representatives.

"If we uncover a company which has no particular reason for using a competing port," says Bean, "we begin to look for reasons why our port could do the job better to make a convincing argument for a change. Conversely, when we find someone using our port just because he has always done so, we want to make sure that he is aware of all the good reasons for continuing to use it."

Final interviews in the survey were not completed until last month; now the emphasis has shifted to the compilation of the data. Primary responsibility for the painstaking and tedious task of transcribing the thousands of bits of information into a coherent report lies with DRPA statistician Roupen Berberian.

"After I sat down with Nelson and he outlined the basic requirements of the survey, the first thing I had to do was develop a questionnaire," recalls Berberian. "My original model was about three times longer than the version we actually used—I included just about everything I could think of, as well as any items which seem significant on other questionnaires of this type."

It was decided to utilize existing lists of export firms in Pennsylvania and New Jersey for the interviews, with participants in the outlying areas being selected from Dun & Bradstreet lists prepared by the firm's Division of Marketing Services. Fifty local "pilot firms" were selected and visited by Berberian and DRPA economist Bill Bennington, who had some previous experience in interviewing techniques.

"Under actual interviewing situations we were able to see which approaches were best," says Berberian, "and to eliminate duplicate questions. Additionally, to shorten the interview, I went through and took out any questions which we could get the answer to ourselves later from other questions on the list.

"One thing we learned, though, and that was to leave in a few cross-

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New VHF Radio Plot System Pinpoints Golden Gate Ship Traffic

Marine Exchange, Inc.

of the San Francisco Bay Region

San Francisco, Calif.:—Inauguration of the nation's first comprehensive harbor ship traffic radio plot system was heralded today as a major advance in maritime safety and improved vessel utilization by George J. Gmelch, president of the Marine Exchange.

The breakthrough in achieving a common working system using a shoreside intelligence center and radiotelephone reports from all regional shipping culminates a six-year Exchange study and development program, according to Gmelch.

Nearly 5,000 commercial ship arrivals are logged annually by the Exchange at Golden Gate ports; in addition to this heavy vessel traffic participation, Coast Guard and other military sea traffic will take part, as will tug boat operators, Bay and river equipment users and key shore installations.

Heart of the new system is a ship location and movement "console" located in the Marine Exchange's main lookout station, on San Francisco's pier 45 next to famed Fisherman's Wharf. Here, a regular stream of radiotelephone reports are received from ship pilots and other navigators—advising of their locations, intended moves and destinations within the Bay and river system.

Navigators also report defective or missing channel buoys, obstructions, visibility and weather conditions, or mishaps and other emergencies.

At the Exchange's central station, this information flow is translated into immediately available reports for use by other ships, or prompts required action—such as Coast Guard assistance, dispatch of tugs, or advice of a change in vessel arrival time.

Often, pilots and other waterborne traffic hear the message to the Exchange as they monitor the navigation radio frequency, reducing their need to call for current traffic reports on the channel segment which they are entering.

But each can request vessel activity summaries for their area. At pier 45, the around-the-clock ship reporters scan the console, on which movable "tiles" represent each vessel or floating unit currently operational on the Bay and river system. These markers are mounted in side-lighted racks—one for each segment of the waterway system. Insert cards on the tiles record the ship's name and other pertinent information, including the time and location of the last position report. At a glance, the central operator can summarize known traffic and other relevant data for the navigator calling.

A minimum of six "calling in" points have been established for ship location reports, with others optional, depending on weather, traffic and visibility conditions.

Fourteen lift bridges and locks in the region participate, as well as Coast Guard shore stations, tug dispatch offices, ports and barge operators. Currently, navigation information is transmitted exclusively on VHF channel 18A (156.90 Megacycles), with two additional channels used for dispatch and business operations. Consideration is being given to further specialization by early use of channel 6 (156.30 Mc/s.) for all docking and undocking operations—communications between tugs and ships—and reserving channel 18A for information relating only to vessels underway in the navigation system.

Technical advisor for the system is William Nations, Port Radio Officer for Pacific Far East Line, Inc., who designed the console, perfected its use and wrote the 15-page operations manual the Marine Exchange is distributing to participating companies and pilots.

The system has been operating on a limited basis for several weeks, according to Nations, with "highly encouraging results". A near-capacity load is expected in early 1967 as more navigators participate and winter reduces visibility. Inauguration of the safety program also coincides with record Golden Gate shipping activity—recently logged by the Exchange as the highest since World War II.

While "first of its kind" in the United States—in terms of its comprehensive coverage of a wide region encompassing a variety of traffic and conditions—the Golden Gate program is considered by its sponsors as probably an interim measure, hopefully leading to an integration in the future with harbor radar. The Marine Exchange currently operates a 3 cm. surveillance radar at pier 45, but lacks the network system highly developed in European and United Kingdom harbors. Ultimate tie-in of radar-developed plots from shore stations would further aid navigators—just as aircraft are assisted today, and has been proven feasible in Europe and Japan. The Exchange's graphic display console is similar to the techniques perfected by the Federal Aviation Agency, which cooperated in its development.

Proposed: A World Maritime Bank

(Editorial in "Shipping and Trade News," Tokyo, January 2, 1967)

It would be highly opportune if a world maritime bank were established for the purpose of financing projects of harbor improvement in any part of the world where such work is needed.

This idea of a world maritime bank calls for the investments by various governments, public institutions, and business circles the world over who are interested in the promotion of international shipping as well as in the consolidation of equipment of underdeveloped harbors.

If and when such a bank is established, its management is to be guided by a policy commission, consisting of members representing the shipping interests of different nations.

It is expected of this policy commission to advise the said world maritime bank to advance low interest yielding loans to harbor authorities so that the latter may undertake the needed readjustment of their harbor facilities—under the surveillance of the bank.

There are harbors and ports that are always congested and ships are delayed due mainly to the inadequate accommodation of the waterfront facilities, notably the cargo handling mechanical equipment, customs sheds and warehousing accommodations, tug services, dredging, wharf structures and so on.

If and when such harbors and ports are improved to the extent of a certain international standard, with the loans made available by the said bank, it would no doubt contribute substantially toward better business of shipping interests. Their ship operations will be expedited with higher efficiency.

Shipping companies will become a major beneficiary of such projects of harbor improvement; they could perhaps afford to shoulder part of such expenses; if, therefore, they pay their share of the construction cost directly to the bank, the latter should be able to recover part of its original investments speedily.

While merchant ships constitute part and parcel of harbors and ports, their owners and operators are the best customers of, as well as the greatest beneficiary from the waterfront facilities; any project of harbor improvement should therefore be a matter of major concern for shipowners and operators; that is, they are in a position to approach modestly the harbor authorities for their cooperation, and moreover, to inspire them to materialize their improvement plans.

It so happens, however, that shipping men with international vista are generally endowed with the spirit of independence; they are generally reluctant to be advised by outsiders as to what they should do. They have always followed the path of their own selection.

In this particular case, however, it seems that shipping men would do well by listening to our suggestion.

It will be recalled that the march of time is such that shipping enterprises may yet tumble to the rank and file of less lucrative and unattractive business, unless they find ways and means of operating their ships with greater efficiency.

It is true that they can increase the tariff rates if they will, but such a measure may only cover the recent all round inflation of the operational cost. Moreover, it is becoming increasingly difficult to maintain the freight at a level where shipping enterprises would like to support.

On the other hand, already much discussed about flag discrimination —that undesirable practice inspired by shipping nationalism or by political considerations on the part of newly developing shipping nations —shows a tendency to become strengthened; during this time, some government interferes with the free activities of the freight conferences on the ground of its self-made anti-monopoly law, while some shipping interests are steadily gaining ground on the strength of their newly inaugurated containerization services.

On the top of all such developments, one cannot remain blind to the fact that the world merchant marine is swelling at an amazing rate of ten million G/T a year. Such a development is bound to account for a severe competition on a worldwide scale.

The operation of ships with higher efficiency seems to be one of the key factors that reassures the lasting survival of the shipping industry; and a secret that enhances the said efficiency consists in the improvement of harbor facilities.

Cargo—

(Continued From Page 43)

check questions which asked for the same information in a different way. Some people, for whatever reason, are afraid of hurting an interviewer's feelings and will tell you what they think you want to hear They'll say they use the port for some shipments even though they don't, for example, and it's always good to be able to double-check."

Berberian and Bennington, together with Cooper and Wallace (Bud) Sheehan from the Philadelphia office, then got the actual survey underway in March, 1965. Before it was all over last month, that quartet conducted about half of the total interviews and also trained the fieldmen in the other DRPA offices for their participation in the project.

The group perfected an interview technique that took about half an hour. They found the "cold call" approach best suited to their purposes and insisted upon talking to traffic manager or higher, often

ending up with firm's presidents as a result. "We wanted policy-makers," says Berberian, "because of the kinds of questions we were asking."

The coding and compilation of the final data has actually been going on for over a year, with particular emphasis in recent months in preparation for the upcoming deadline. John Ruffin, a trained computer programmer, has been working with Berberian since October 1965 in directing the transferral of information from the questionnaires onto keypunch cards for computer use.

"There are times when judgments have to be made," points out Berberian, "since we obviously cannot transfer all the many reasons given for using or not using the port into computer terms. And we also have to check the questions against one another to insure that we have an accurate picture."

Because of the confidential nature of the material, all coding and keypunching operations are done on DRPA's premises, and the questionnaires are kept in locked files once the necessary information has been transcribed onto computer cards.

"Once all of this is in the computer we'll be able to provide all kinds of information," says Berberian. "For example, Port Planning may want to know everything about a given commodity—what areas it comes from, what influences packing facilities have upon it, how it is transported to the docks. We'll be able to provide it."

"What we will have by this time next year," concludes Bean, "is data at our fingertips that we have never had before. Some of it, undoubtedly, will merely bear out things we have always known—although we will now have the satisfaction of having the figures to back us up—but we're sure to find some surprises in all this, too. All in all, this report should be a giant step forward in our program of well-reasoned planning for the future."

Chukyo Soko is located in Nagoya which is in the middle of Tokyo and Osaka. It has a ground area of 12,425 m^2, Warehouse building of 2,790 m^2 within the Nagoya Port district. Also, for the purpose of Inland transportation a transit station with ground area of 83,850 m^2 and a Main Office. Warehouse building of 25,705 m^2 is located in Nagoya City. Close cooperations between these bases are favouring Chukyo Soko with high reputation as a circulation warehouse. Even in Japan it is one of the leading Warehouse with a large scale Storehouse at one base. Chukyo Soko handles Export, Import Cargo, utilizes the Railway by sidetracks, and the Transportation Department operates the Interland Transportation, also the intensification of quality control is executed by the 5,090 m^2 fixed temperature Storehouse. We always concentrate our full attention to our services, and are making practical applications of the huge ground area for handling the containers, also strengthening the palletize handling, and endeavouring to modernize ourselves as a circulation Warehouse.

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YAWATA STEEL introduces new range of sheet piling

Encouraged by the country's continuing construction boom, Yawata Steel, Japan's oldest and largest manufacturer of steel and steel products, has carried out important improvements in the design and variety of steel sheet pilings.

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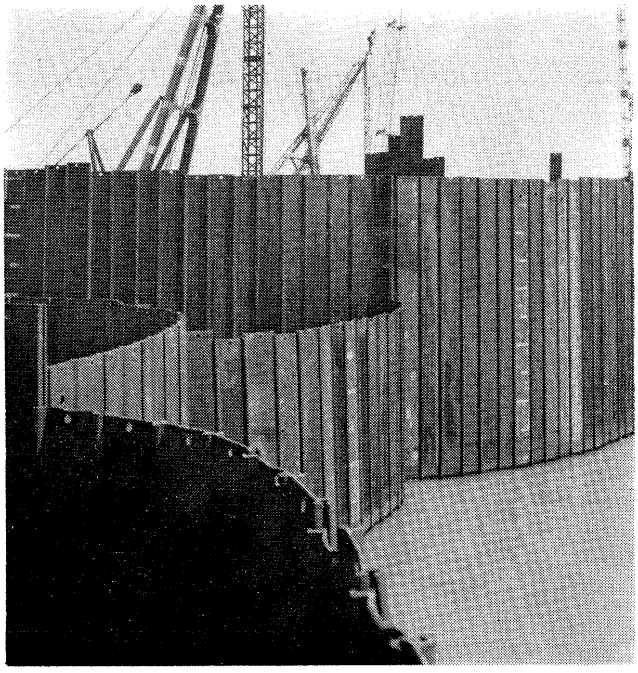

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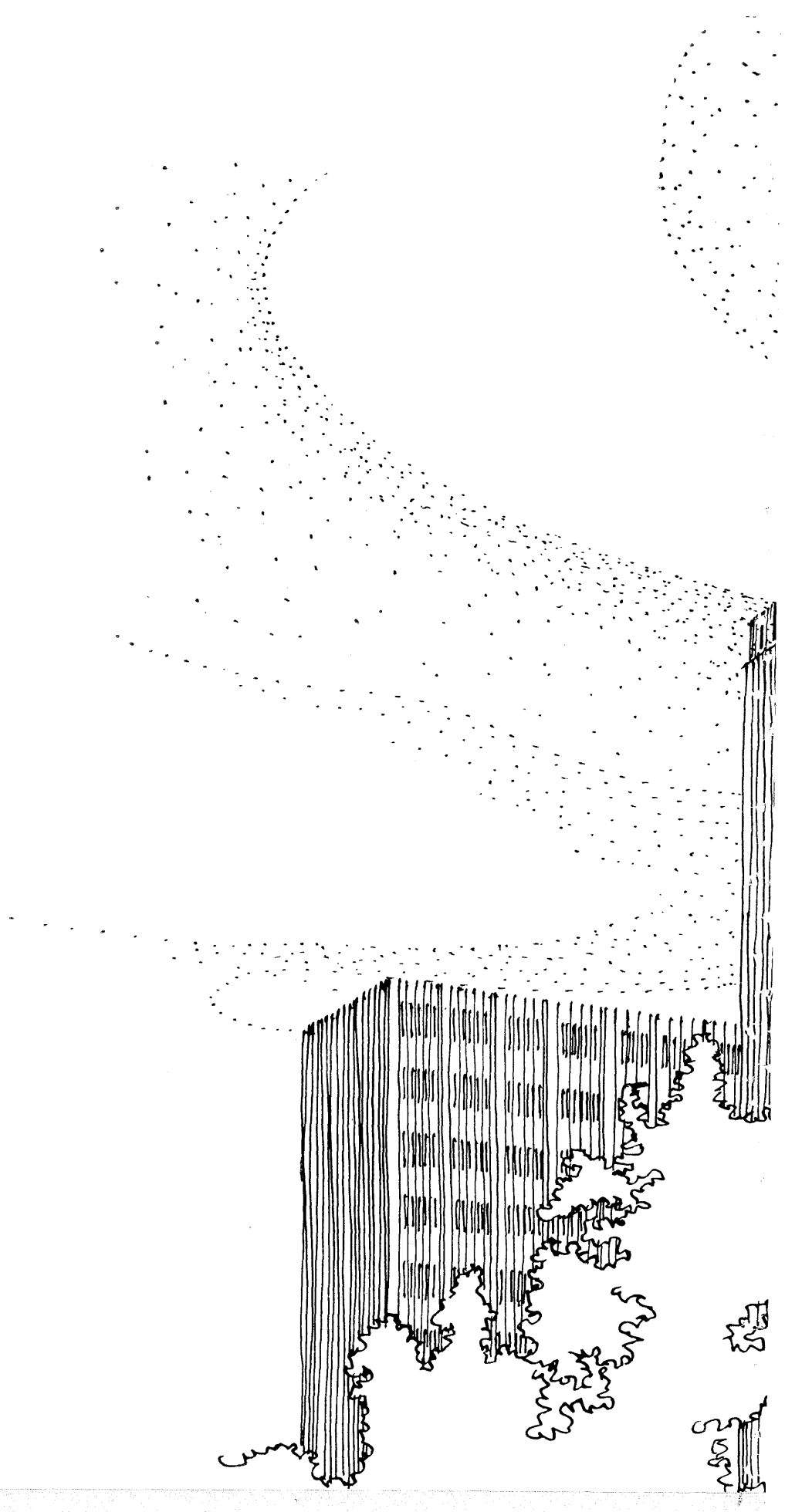

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