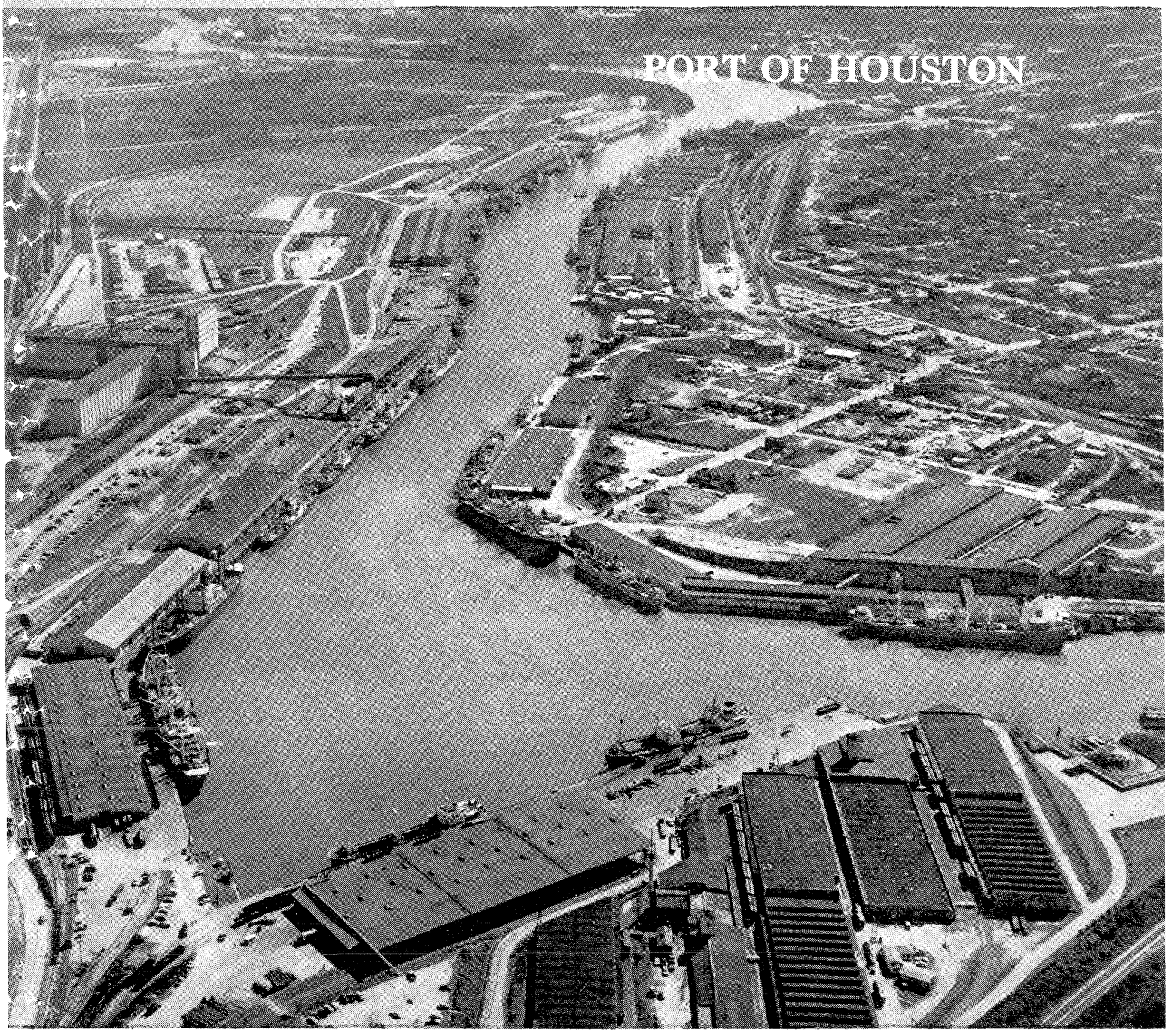
PORTS and HARBORS

SEPTEMBER 1965 Vol. 10 No.3



THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

Introducing The Crests of Ports

(Each Issue One Port)

THE PORT OF PENANG

Aerial view of Swettenham Pier

PORTS and HARBORS

SEPT., 1965 Vol. 10, No. 3

PORTS AND HARBORS is quarterly published by the Central Secretariat of the International Association of Ports and Harbors as an official journal of the Association, to provide its members with information concerning port and harbor developments in the world.

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The Central Secretariat of the International Association of Ports and Harbors
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From the Central Secretariat

By Gaku Matsumoto

Chief of the Central Secretariat

Conference Proceedings and Speeches

The printing of Proceedings (Volume No. 1) and Speeches with Summaries and Discussions (Volume No. 2) at London Conference 1965 has been finished and will be forwarded to the Members in due course. Directors and Members are kindly requested to induce non-members, for instance, people relating to ports and shipping, also library or students, to buy as many copies as possible at the prices and postage mentioned on the inside of the back cover, to relieve the Association partly from the burden of printing cost.

Subscription forms are herewith attached.

For your ready reference, we give below the names of eleven speakers and their subjects:—

Dr. Chujiro Haraguchi Mayor of Kobe City	"Development of regions to bring prosperity to ports"
Mr. Dudley Perkins General Manager Port of London Authority	"Port Management"
Mr. Howard A. Mann Chairman, Canadian National Harbours Board	"The relative merits of private, state and civic ownership of ports"
Mr. V. G. Swanson Chairman, Melbourne Harbor Trust Commissioners	"The role of the port authority in the changing pattern of cargo movement on the Australian Coast"
Mr. Austin J. Tobin Executive Director Port of New York Authority	"A port's foreign representative-what is his field?"
Sir Andrew Chrichton Managing Director P. & O Steam Navigation Co.	"The relationship between all those engaged in a port and their employers"
Sir Donald Anderson Chairman P. & O. Steam Navigation Co.	"What does the user expect from a port authority"
Lord Rochdale Chairman, National Ports Council	"The constitution and functions of the national ports Council in the United Kingdom"
Mr. E. H. Simoes General Manager Bombay Port Trust	"The role of the port in developing economy"
Capt. Stig Axelson General Manager Port of Gothenburg	"Big ports, small ports—what are their respective roles?"
Dr. Heinz Kaufmann Manager, Authority for Harbour and Shipping, Hamburg	"The economic importance of a free port"

International Port Development Committee

The Activation Committee established at the London Conference has since been re-named as above at the suggestion of Mr. Austin J. Tobin, Chairman of the Committee.

The Committee is to comprise of ten members, of whom nine members have so far been appointed as follows:—

Mr. Austin J. Tobin,
Port of New York Authority, U.S.A.
Mr. M. Chandrasoma,
Port of Colombo, Ceylon
Mr. V. G. Swanson,
Port of Melbourne, Australia
Dr. C. Haraguchi,
Port of Kobe, Japan
Mr. E. J. Wesley,
Port of Monrovia, Liberia, West Africa
Mr. F. Posthuma,
Rotterdam, Netherlands
Mr. Swang Samakoses,
Bangkok, Thailand
Sir Arthur Kirby,
London, England
Mr. W. J. Amoss,
New Orleans, U.S.A.

President of Los Angeles Harbor Commissioners Elected

George D. Watson was elected on July 28 to a second term as president of the Los Angeles Board of Harbor Commissioners by his fellow Board members at the municipal body's annual reorganization meeting.

Elected vice-president was Pietro Di Carlo, who was appointed to the Harbor Board last summer.

Watson, 46, electronics firm president and manufacturer, is the first commissioner to be elected to a second consecutive term as president since Mayor Samuel Wm. Yorty made his first Harbor Board

(Continued on Page 17)

Port Development in A Developing Economy

By Goh Koh Pui

Chairman

The Port of Singapore Authority

Mr. Goh Koh Pui

Ports and harbours around the world are important links in the chain of international transport of goods and passengers by sea. The individual countries which make up the trading community of this interdependent world require port facilities adequate to meet the needs of the expanding trade and industry. Because of this important economic role which they play, ports constitute a vital element of the transport infra-structure of a nation. Unfortunately however, insufficient attention has been paid to this important factor in many countries, as a result of which serious bottlenecks occur in ports with a consequential queuing up for berths and slower turnround of vessels calling thereat. General congestion is not uncommon in such ports. A further consequence may result in the increase of port charges which will ultimately pass on the consumer market of the respective country.

In most developing countries, there is a struggle to increase per capita income thus improving the standard of living. Plans for accelerated economic and social development have been formulated, and the role which ports are called upon to play in such circumstances makes it necessary to focus special attention to their existence. Part of the reason of this trend of economic activity is that most developing countries are primary producers of a limited range of bulky agricultural and mineral products. It is, therefore, highly essential that transport costs are kept to a minimum, and in this respect, the provision of efficient and adequate port facilities will go a long way to ensure a higher return for their products. Such surpluses from higher returns by way of scarce foreign exchange may be utilised to finance further economic development. Furthermore, in the process of economic development, which in most cases involves the construction of basic infra-structure and industries, considerable quantities of plant and equipment will have to be im ported from overseas countries, besides the handling of the raw materials to feed these industries. Thus additional burdens are placed on the ports. The net result is that ports in most developing countries have been called upon to play a far greater role than originally envisaged, sometimes leading to serious congestion and increased port charges, thus creating a very serious problem in many ports. In fact, congestion in some cases has reached such a stage as to pose a threat that the desired economic development will be impeded. Such a problem must necessarily be solved expeditiously, as otherwise in the long term the additional costs for transportation of goods to and from the ports will have to be borne by the economy of the country by way of higher costs and prices.

Even in normal circumstances, most ports in developing countries already have enough problems to keep the port operators fully occupied without the additional burdens enumerated above. For a port undertaking to meet the needs of a developing economy, especially when skilled and trained personnel are in short supply, it is a major task in itself to ensure that existing facilities are being utilised efficiently to their maximum capacities by better organisation, improved techniques and methods of cargo handling. Port planning and development to overcome bottle-necks and also to meet any anticipated increase in traffic therefore call for the highest degree of expertise, and apart from the problem of executing the development projects, difficulties are being experienced in securing sufficient funds for such projects.

The problem of port development in developing countries is further made difficult by the fact that not only demand on port facilities has increased, but, due to the change of economic condition, the character of the demand has also changed. The trend today is for longer vessels (which is equivalent to a shrinkage of berthing capacity) with deeper draft to be constructed, which means that the dredging problem in ports is further aggravated, resulting in loss of valuable time and utilisation of berths. Industries too have been attracted by the special facilities provided by ports where bulk handling facilities are available. On the other hand, however, certain ports have already located within the port areas certain industries which take up much valuable land, thus hampering the free development of port facilities.

And it is not easy to remove the industrial plants overnight. Such factors mean that port development will have to be geared to a highly integrated basis encompassing not only deep-water berths of greater quayage and up-to-date design and construction, but also ancillary facilities for the handling and storage of cargo.

The problem of port congestion and consequent high port charges in developing countries can only be solved by a better and well co-ordinated port development scheme, provided conditions of maladministration, improper techniques and outmoded methods of operation in cargo handling can be removed. If an efficient administration is not first achieved, the position will be further aggravated as the same poor organisation will be unable to cope with the expanded port facilities. In brief, justification for port development would depend, to a large extent, on the efficient management and operation of the port as a whole. From the point of view of shipping and its economy, the basic problem of port development therefore resolves itself into one of ensuring that the capacity of the port facilities is adequate to meet fully and economically the expanding and ever changing needs of the traffic using the ports. In can be readily recognised that this is by no means a simple task, as it is necessary before planning and development take place to determine whether it would be more desirable to wait the demand for the facilities, or, alternatively, to provide the facilities first. In this regard, it is not an easy task for anyone to decide, as in most instances, projections are not possible owing to the lack of accurate statistics and other importan information.

If the first alternative is taken, it may be considered imprudent as the price to pay for the resulting congestion and queuing up of vessels may be too high in terms of its adverse effects on the economy of the country, although port development projects usually involve the normal heavy capital expenditure, and care must be exercised in finalising development plans. Conversely, if one were to emberk on development projects on a large scale in anticipation of future needs without a reasonably accurate forecast of future trends, it may lead to an unnecessary and wasteful use of scarce capital and resources which most developing countries can ill-afford. There is also the factor of competition for capital investment and priority in the employment of resources must be very carefully assessed. Furthermore, too early a construction with inadequate returns to capital in the initial stages cannot be justified in an economy where everyone is clamouring for a better standard of living. The compromise might appear to be that it is better to adopt a phased development over a period of years in such a manner as to provide the necessary facilities sufficient to meet the current needs and also to take into account the anticipated growth in traffic over the next five years. Development plans should be so formulated with provision for extensions as and when required thus avoiding the unpleasant process of re-planning etc. This pragmatic approach appears to be most desirable and logical.

The question now remaining is why port facilities in most developing countries have not kept pace with the growing needs even though the issue of port development is so clearly defined. One of the answers to this question is that in most developing countries where capital is extremely scarce, port authorities are most reluctant to embark on spending very large capital sums, as assets like deep-water barths are irrevocable owing to its indivisible character and little alternative use. Even in cases where the authorities concerned have decided that port development is essential and enjoys priority, the problem of financing the projects still remains. This is a very real problem indeed. However, it is encouraging to note the role which is being played by the International Bank for Reconstruction and Development in assisting to finance such development projects. The interesting factor which presents itself in obtaining assistance from the I.B.R.D. is that its conditions and terms for the loans are most stringent and rigorous and only port undertakings which are viable are given consideration. This aspect is of special significance in developing countries where technical expertise to assess and determine the needs for such projects is usually lacking. Accordingly, in the field of international financing, very useful contributions can be made by the World Bank and the Governments of the highly developed countries, in order to ensure that the chain of international transport of goods by sea is not seriously affected by a weak link.

Another important aspect of port development which should not be overlooked is that port development in a particular area should not be undertaken in isolation, without taking into account the existing facilities and those which are being planned in other ports which serve the same national economy. It is desirable, as far as possible, to avoid a duplication of facilities leading to unnecessary competition for scarce capital and waste of facilities. This brings one to the whole rationale of economic development, i.e. to maximise both social and economic welfare. Port development must necessarily be co-ordinated and integrated into a national development plan in order to achieve maximum results, as port development is only one of the many aspects in the development of the national economy.

PORTS and HARBORS

SEPTEMBER, 1965 Vol. 10, No. 3

PORT OF PENANG

By Loo Hock Beng

Penang Port Commission

A. INTRODUCTION

Penang, one of the constituent States of Malaysia, is located on the north-west coast of Malaya. It comprises the Island of Penang and a strip of the mainland known as Province Wellesley. The Island is separated from the mainland by a channel known as Penang Roads, which is about two miles wide at its narrowest point and which affords safe and sheltered anchorage for all types of vesels.

The port limit is defined as all the waters contained within the parallels of 5° 16′ N. and 5° 29′ N. and the meridians of 100° 16′ E. and 100° 25′ E. and any navigational river, channel or creek leading into such confines including all piers, jetties, wharves, landing places, quays, docks and other similar works whether within or without the line of high water mark and any portion of the shore or bank within fifty yards of the high water mark, subject to the rights of private property therein. The working of all vesels within the port limit is subject to the Penang Port Commission Ordinance and By-Laws.

There are two entrance channels to the port, the North channel, more generally used by deeply laden ships because of its greater depth (26 ft. at M.L.W.O.S.) and the South channel (21 ft. M.L.W.O.S.) used by coasters and also by large vessels of medium draft approaching the port from the South. Navigational aids, such as lighthouses and light buoys are constantly maintained to ensure safe navigation, and pilotage is available throughout the 24 hours.

Penang, the largest port in the States of Malaya, is a trade routes from Europe, Middle-East, India and South Africa to the Far East, Australia and the Americas. It is also an important port for coastal traffic to and from Indonesia, Burma and Thailand.

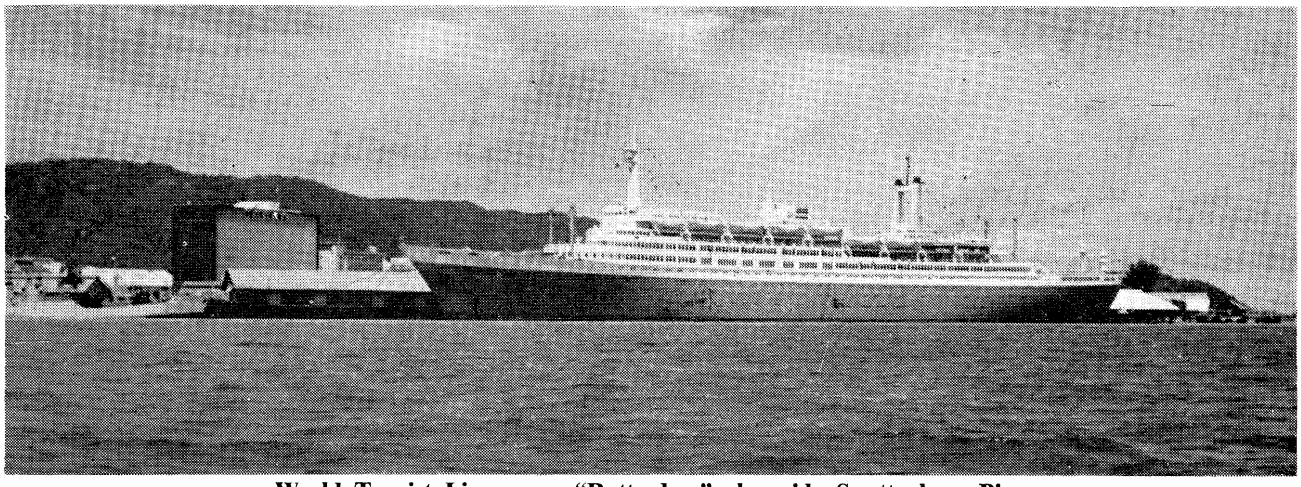
The Port of Penang is the principal point of entry and exit of goods to and from the entire North-Western region of Malaya. The main exports from the port are the raw materials produced in the hinterland, chiefly tin (which is smelted locally, amounting to more than one third of the world's production), rubber, copra, coconut and plam oil, iron and ilmenite ores. The imports consist mainly of foodstuff—rice,, sugar and flour—engineering and building materials, machinery for mines and estates, and manufactured goods.

B. HISTORICAL

Penang was founded as a British trading settlement by Captain Francis Light in 1786 and was administered by the East India Company. However, when the Straits Settlements were formed in 1867, the control of Penang passed from the Company's hands. As trade increased and ships of greater draught began to call at Penang, a wharf known as Swettenham Pier was constructed and completed in 1905. It was then only 600 ft. long and was subsequently increased to its present length of 1,200 ft. in 1910. The Settlement Government established a "Penang Committee" in 1905 to administer the Swettenham Pier and a dockyard at Prai. These undertakings were later taken over by the Marine Department under the control of the Harbour Master. In 1913, the Government established the Penang Harbour Board as a statutory body incorporated under the Ports Ordinance, to which were transferred the port facilities of the Swettenham Pier and the dockyard at Prai.

The Penang Harbour Board continued to administer the port area in Penang and to provide port services such as berths, lighterage, fresh water supplies and dockyard services. In 1924, the Board took over the Ferry Service between Penang Island and the mainland from a private company.

Meanwhile the Federated Malay States Railway (now known as the Malayan Railway) embarked on an



World Tourist Liner m.v. "Rotterdam" alongside Swettenham Pier

A busy day on Swettenham Pier

ambitious scheme to cope with the increasing traffic by constructing what was intended to be a deep sea wharf, 2,600 ft. long, at the mouth of the Prai River. Owing to lack of adequate investigation, the wharf turned out to be unusable for ocean going vessels, as due to heavy siltation at the river mouth, constant and extensive dredging failed to maintain the required depth of water. The wharf is now able to accommodate only coastal steamers and native lighters.

During 1949 and 1950, as trade began to expand, the main ports in the Federation of Malaya began to experience congestion. The Federal Government, therefore, set up a Committee known as the Federal Government, therefore, set up a Committee known as the Federal Ports Committee to investigate into the working of the various ports. For the Port of Penang, the Committee recommended that a new port authority be set up to take over the undertaking of the Penang Harbour Board and the Malayan Railway port installations at Prai, and to co-ordinate the activities in the port. Accordingly the Government repealed the old Ports Ordinance and replaced it with the Penang Port Commission Ordinance which enabled the present port authority to be established on 1st January 1956.

C. CONSTITUTION OF THE PENANG PORT COMMISSION

The Penang Port Commission, as provided by the Penang Port Commission Ordinance, consists of a Chairman, who is appointed by the Yang di-Pertuan Agong; the General Manager, and not less than five and not more than seven other members who are appointed by the Minister, charged with the responsibility for the Penang Port Commission. The present Commission comprises the Chairman, the General Manager and six other members.

D. DUTIES OF THE PENANG PORT COMMISSION

The duties of the Commission as provided by the Ordinance are:—

(a) To manage and work the the former undertaking of the Penang Harbour Board and the Prai Wharf undertaking of the Malayan Railway Administration, and such other property and installations as may be acquired by the Commission.

(b) To maintain, or provide for the maintenance of, adequate and efficient port services and facilities including ferry services, at reasonable charges for all users of the port consistent with the best public interest.

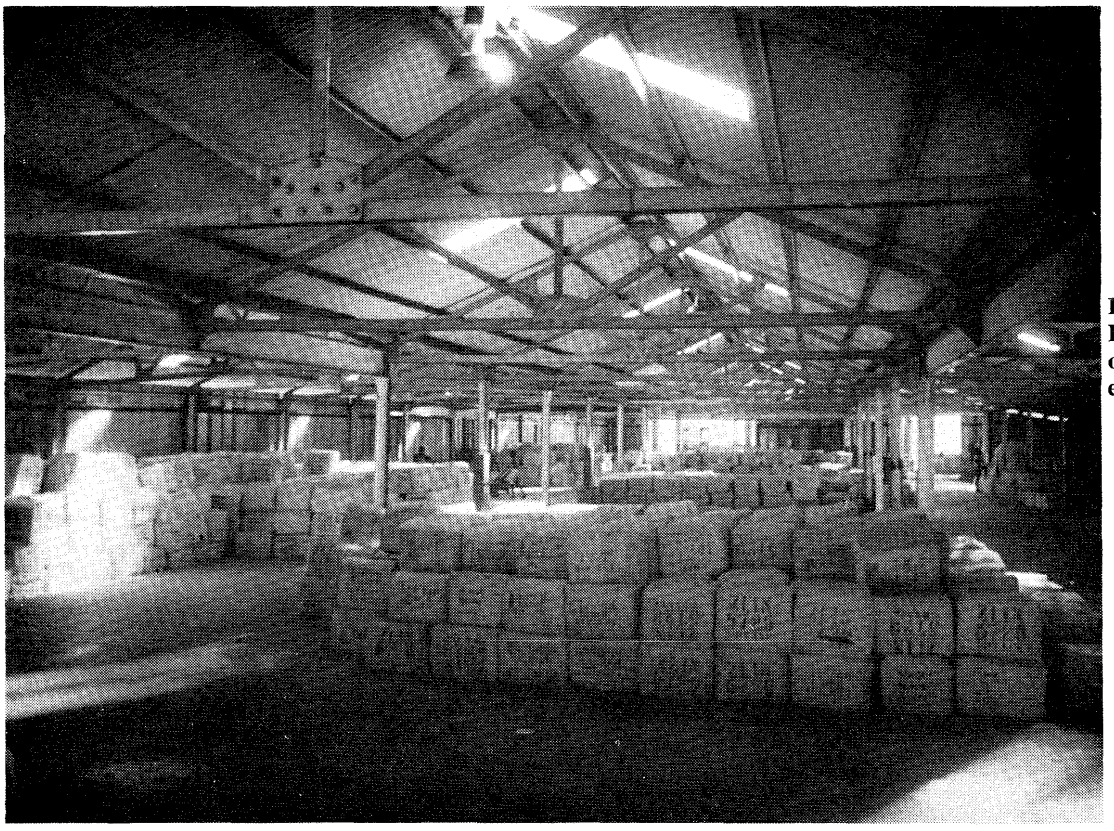
(c) To co-ordinate the activities of the port.

(d) To promote the improvement and development of the port.

E. PORT CONSULTATIVE COMMITTEE

Provision is made for close liaison and consultation with the users of the port and persons providing port services through the Port Consultative Committee, the members of which are appointed by the Minister charged with the responsibility for the Penang Port Commission. The Commission may consult the Committe on any matter concerning the port, and is required to consult the Committee on the following matters:—

(a) Any substantial alteration in



Interior of Mitchell Pier showing bales of Rubber ready for export

the scales of rates framed by the Commission.

(b) Any substantial change in the organisation of the Commission.

(c) Any major scheme relating to the expansion or development of the port.

The Chairman of the Commission is also the Chairman of the Port Consultative Committee and other members of the Committee are appointed from time to time by the Minister. The present members comprise representatives of the various Chambers of Commerce in the States of Penang and Perak; representatives of the tin, rubber and oil industries; and also of the shipping agencies and lighter owners in Penang.

F. SCALE OF RATES, DUES AND CHARGES

In accordance with the Penang Port Commission Ordinance, the Commission is empowered to make its own financial provisions to fulfill its duties as the port authority, and may levy rates on the facilities provided by or under the control of the Commission. The scale of rates is gazetted and is published in a hand-book.

G. GENERAL ACCOUNT OF THE COMMISSION

All accounts of money received and paid by the Commission are annually audited by the Auditor-General and are open to inspection by any member of the Commission. About half the revenue earned by the Commission is from the traffic handled by the Commission. Another 30% of the revenue comes from the Ferry Service, while the rest is from rent on the Commission's property, interests on investments, general charge on cargo and port dues, and income from services rendered by the Commission's dockyard and engineering department to private concerns.

As provided by the Ordinance, the income derived by the Commission is applied primarily in the payments of salaries, wages, fees, allowances, gratuities, pensions, compensation and compassionate allowances due to the members of the Commission, as well as to the officers and staff of the Commission. These payments constitute almost 50% of the expenditure, the rest of which is made up of wharf services and contract labour, materials and supplies, renewals provision, and loans service. Any surplus fund is set aside as reserve fund for future capital works, or for investments in trust funds or as fixed deposits in banks.

H. MANAGEMENT OF THE PORT COMMISSION

The principal executive officer of the Commission is the General Manager who is assisted by the Asst. General Manager. Subject to the directions of the Commission, he exercises supervision and control over the acts and proceedings of all officers and employees of the Commission in matters of executive administration, and in matters concerning the accounts and records of the Commission. In addition, he is responsible for the co-ordination and overall supervision of all Departments of the Commission.

I. FACILITIES OF THE PENANG PORT COMMISSION

(a) Commission's Port Area on Penang Island

This area consists of the Swettenham Pier and its adjacent lighter basins, godowns and transit sheds. The Pier is 1,200 ft. long and can provide berths for two ocean-going vessels. The minimum depth alongside is maintained by periodical dredging at 32 ft. L.W.O.S.T. The reinforced concrete wharf has a load capacity of 10 cwt. per sq. ft. There is no obstruction along the entire length of the wharf and motor vehicles can enter the wharf to discharge or take delivery of cargo

from the godowns. The warehouses consist of two transit sheds on the wharf, with a total area of 50,000 sq. ft. and godowns adjacent to the transit sheds, with space up to 141,-000 sq. ft.

(b) **Commission's Port Area at Prai**

This area comprises a 2,600 ft. wharf with a depth of water varying from 10 ft. to 18 ft. alongside and a large area containing godowns, open storage space and a latex bulking installation. The concrete wharf has a load capacity between 6 and 10 cwt. per sq. ft. The wharf is well served by both road and railway and allows motor vehicles and railway trucks to discharge and to take delivery of cargo direct from the warehouses and open storage space.

There are five transit sheds along the wharf with a total area of 89,-600 sq. ft. Adjacent to the wharf are eleven godowns with a total area of 118,000 sq. ft. and seven private godowns with an area totalling 124,500 sq. ft.

(c) **Cargo Handling Facilities at Mitchell Pier, Butterworth**

Mitchell Pier, formerly used as the Butterworth Terminal of the Ferry Service, has been converted into a cargo handling point. Two large lighters can berth alongside the Pier which is equipped with two mobile cranes and a conveyor belt for rapid loading and unloading of bagged cargo and cartons. The Pier is ideally suited for the shipment of bales of rubber and suitably packed general cargo.

(d) **Cargo Handling Equipment**

The Commission's port area is well-equipped with mechanised cargo handling equipment. There are two cranes at Swettenham Pier and three at the Prai Wharf, each crane having a capacity of three tons. In addition, there are 20 mobile cranes, the largest having a capacity of 7 tons, at the Swettenham Pier and 14 mobile cranes at Prai Wharf with capacities up to 5 tons. Scores of tractors, trailers and fork-lift trucks make up the rest of the mechanised cargo handling equipment of the Commission.

(e) **Facilities at Bagan Dalam Slipway**

The Commission's dockyard at Bagan Dalam, Butterworth, was modernised and extended in 1959 and there are now three slipways having a lifting capacity of 60, 600 and 700 ton displacement. All the Commission's craft, including the ferry vessels, are maintained and repaired at the dockyard, which also undertakes repair of other vessels which are within its capacity. The repair yard, which is equipped with three 10-ton travelling derricks with radius ranging from 30 to 90 ft. is capable of effecting major repairs to coastal vessels and minor repairs to ocean-going vessels. Divers' service is also available. The dockyard undertakes the construction of lighters and other small harbour craft, and it takes pride in being the first dockyard in South East Asia to have constructed all welded aluminium alloy lighters. To date, 15 such lighters have been constructed and put into service. The operational cost of the aluminium alloy lighters is very favourable when compared with that of steel and wooden lighters.

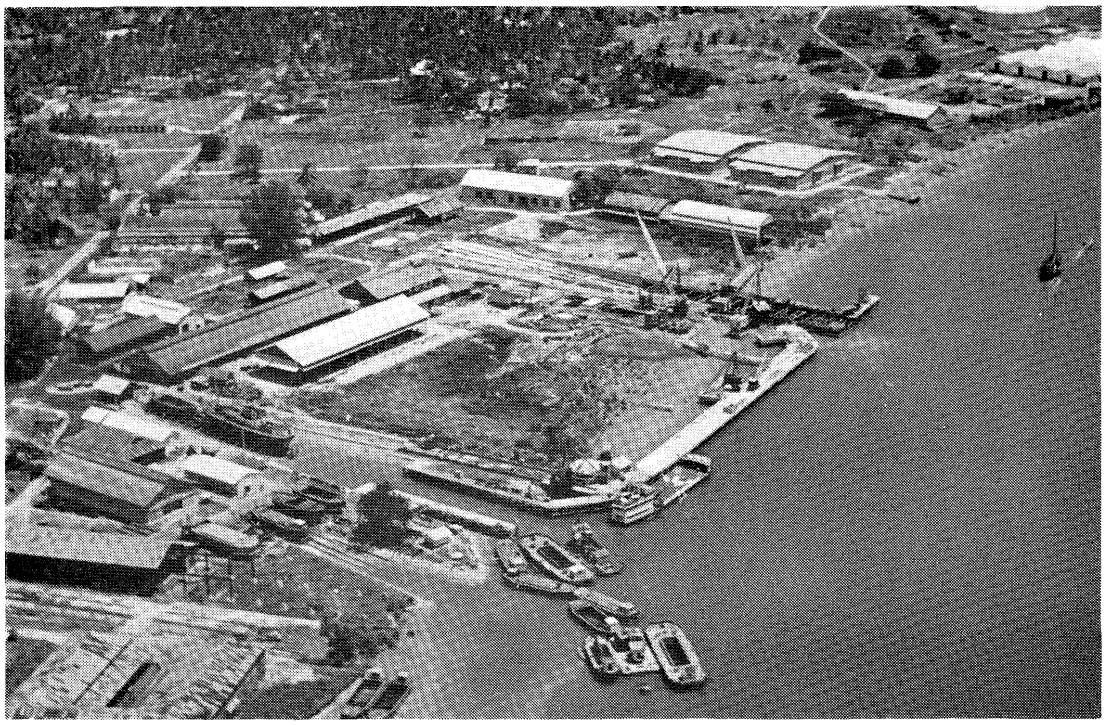
(f) **Lighterage and Fresh Water Service**

Penang being mainly a lighterage port, the Penang Port Commission maintains a fleet of 95 lighters made of wood, steel and aluminium, with a total capacity of 5,500 tons. They are used for loading and discharging ships in the roads and for the movement of cargo between Penang Island and the mainland. The Penang Port Commission is the sole supplier of water to ships in the port. A fleet of three water-boats, with a combined capacity of 500 tons, is maintained for the supply of fresh water to ships in the roads. Alongside Swettenham Pier, ships are supplied with water through pipelines. One of the water boats is equipped for fire-fighting.

(g) **Ferry Service**

The Commission operates the ferry service between Penang Island and Butterworth on the mainland with five endloading vessels equipped with Voith-Schneider propellers.

Slabs of Refined Tin being stacked at Pier ready for export



Aerial view of Bagan Dalam Slipway

Each ferry vessel can carry 460 passengers on its upper deck and 32 motor vehicles of average size on the lower deck. The ferry terminals and the ferry vessels are designed to take loads up to 8 tons per axle and can take vehicles up to 8 ft. wide and 11 ft. 6 ins. in height.

In 1964, the ferry service carried 10.11 million passengers as compared with 9.97 million in 1963. The number of motor vehicles carried increased from 1,405,600 in 1963 to 1,537,200 in 1964. These represent an increase of nearly 1.4% in passenger and about 4.9% in motor vehicular traffic.

The Commission, being mindful of the need to cater for the increasing traffic, has taken steps to purchase another ferry vessel at a cost of $2 million. This ferry is expected to be put into service in June, 1965.

(h) **Signal Station and Communication**

The signal station, which is located on the roof of the Penang Port Commission office, provides a 24-hours service using day and night signalling, international code of signals and hand semaphore.

Communication between the Commission's Lighter Office and personnel working on board the ships in the roads and between the Commission's tugs are maintained by V.H.F. radio net-work.

(i) **Tugs, Launches, Dredgers and Buoys**

The Commission's other craft comprise four tugs which are equipped for fire-fighting, five launches for transportation of its personnel in the port area, and three grab dredging units with attendant hopper barges. Two Lambert-Garland Patent Mooring Buoys for ocean-going vessels up to 600 ft. in length are available in the channel, and are regularly serviced and maintained by the Commission. Arrangements are in hand to invite tenders for the construction of a berthing tug which will also be equipped for fire fighting in the port.

(j) **Passenger Terminal and Administrative Office Building**

Ever since Swettenham Pier on Penang Island was constructed no proper passenger terminal has been provided. In order to provide waiting room, toilet, canteen and Customs examination facilities for passengers making use of Swettenham Pier, the Commission has decided to build a passenger terminal which will also house the Commission's administrative offices. The building is now under construction and is expected to be completed in the second half of 1965.

J. OTHER FACILITIES OF THE PORT

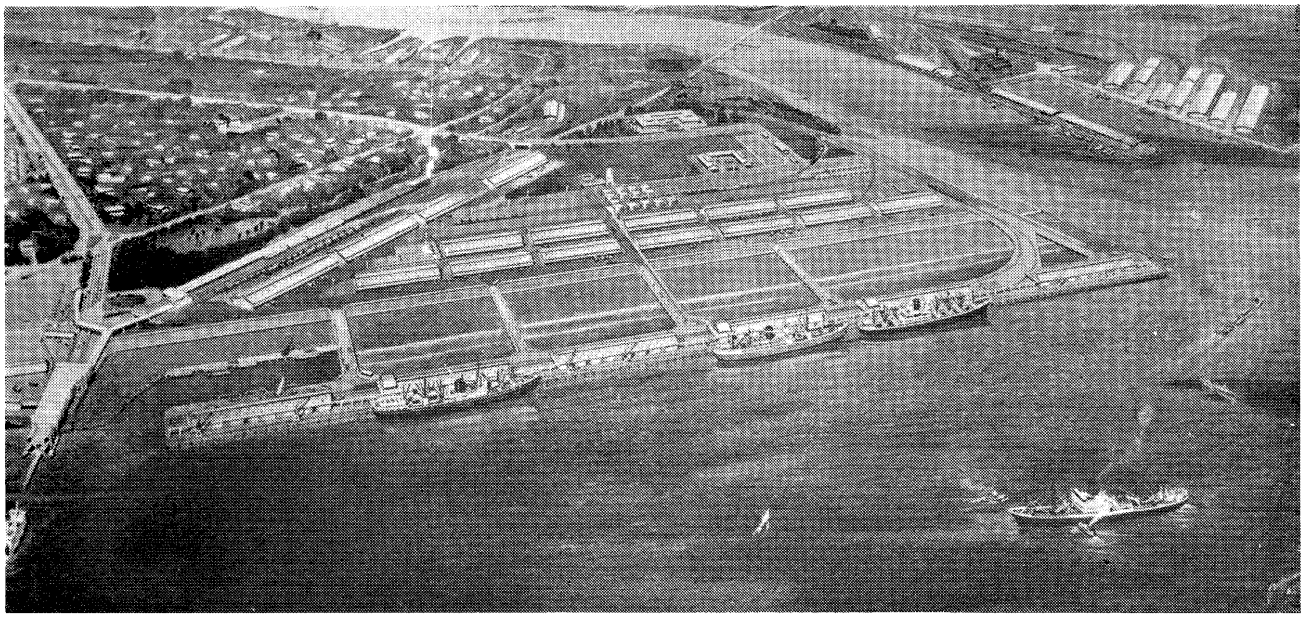
(a) **Marine Department**

The Marine Department is responsible for the enforcement of the requirements of the Merchant Shipping Ordinance and for the implementation of the Government's policy on shipping and maritime matters throughout the Federation. It provides a variety of services to shipping and to Government departments in the Port of Penang through its Harbour Master and port officers.

The Marine Department is also responsible for the dredging of approaches to the Port. Its present dredging equipment is being increased and a hydrographic survey unit is being formed to chart the channels and to improve the effectiveness of dredging operations.

(b) **Navigational Aids**

The Director of Marine is the Chairman of the Light Dues Board, a statutory authority responsible for the management and expenditure of the Light Dues Fund which provides for the maintenance and improvement of the Federation's lights and navigational aids. A chain of electrically operated lighthouses is maintained along the Straits of Malacca, and numerous lights, buoys, beacons and leading marks are positioned in the approaches to the major and minor ports. In Penang the lighthouses at Fort Cornwallis and Pulau Rimau were fully electrified with modern equipment in 1962 and now provide im-



An artist's impression of the Deep Water Wharves, Butterworth

proved light service and visibility for ships passing through the North and South Channels.

(c) **Pilotage and Pratique**

Request for pilotage can be made through the usual international code, and although pilotage is not compulsory, it is advisable for ships with deep draught. However, when vessels are berthing at, or leaving any of the Commission's wharves or buoys, pilotage will be required. Exceptions may be made at the discretion of the Traffic Manager where the vessels do not exceed 600 tons gross. Pilotage service is rendered by internationally qualified pilots whose official body is the Penang Pilots' Association. The points where pilots board vessels are the North Channel Light Float and the Rimau Buoy at the South Channel.

(d) **Anchorage**

Anchorage is available between Fort Cornwallis Lighthouse and Spithead Buoy, with anchorage off Prai River for ore-carriers. Quarantine anchorage is situated at the North-East of Middle Bank. For war-ships and vessels carrying dangerous goods, man-of-war anchorage and explosive and dange-chorage and explosive and dangerous petroleum anchorage are provided.

(e) **Private Lighterage Service**

In addition to the lighterage service offered by the Penang Port Commission, about 450 lighters of varying sizes are operated by private concerns under port conveyance permits issued by the Penang Port Commission. These lighters convey general cargo between ships and shore, and iron ore to ships anchored off Prai River. Goods handled by these private lighters are landed or loaded over the free public lighter wharf at Weld Quay on Penang Island, at a number of private landing places along Prai River and at Prai Wharf administered by the Penang Port Commission.

(f) **Facilities at Weld Quay**

The existing facilities at Weld Quay are the public lighter wharf and the public landing place at Church Street Pier. When work on the reclamation of the remaining portion of the quay stretching from Church Street Pier to the new ferry terminal is completed, it will form a continuous stretch of lighter wharf for the use of private lighters. The development of this portion of Weld Quay is being undertaken by the Penang Port Commission. The State Government of Penang has agreed to hand over the administration and control of Weld Quay to the Penang Port Commission after completion of the development of Weld Quay.

(g) **Labour**

Apart from specialised and skilled labourers employed direct by it, the Penang Port Commission obtains the stevedore labour at the Wharf from a labour supply contractor. A number of private firms supply stevedoring labour to ships in the roads.

(h) **Bunkering Facilities**

Penang is not a main bunkering port but bunkers may be obtained by coastal vessels at the two wharves at Butterworth owned by Shell Malaysia Ltd. and Esso Standard (M) Ltd., and at the wharf at Prai owned by Caltex (M) Ltd. Limited quantities of bunkers can be supplied by two barges with a total capacity of 520 tons, owned by Straits Towage Syndicate.

(i) **Private Godowns at Permatang Pauh**

There are a number of private godowns owned by private traders at Permatang Pauh which is about two miles from the mouth of the Prai River. The foreshores along Prai River up to the pontoon bridge are vested in the Penang Port Commission, which issues permits for handling goods over the foreshores and licences for the occupation of foreshores periodically in order to exercise control over the activities at the landing place along Prai River.

K. TONNAGE HANDLED IN PENANG

The port of Penang handled during the year 1964 a total of 3.21 million tons of cargo. This represented a decline of about 124,600 tons from the figure for the previous year. This reduction is due to the decrease in the general cargo

handled which fell by about 104,-100 tons to 2.14 million tons compared to 2.25 million tons in 1963, and to the decline in the export of iron ore, the export of which fell in 1964 to 592,500 tons compared to 653,300 tons in 1963. Import of fuel oils showed an increase of 61,-100 tons, while trade in bulk vegetable oils showed a decrease of 13,-900 tons. A table showing the principal characteristics of the total trade of Penang during 1964 is given below:—

Out of the total trade of 3.21 million tons the Penang Port Commission handled 1.47 million tons in 1964, while in 1963, out of the total trade of 3.34 million tons, the Penang Port Commission handled 1.63 million tons.

	Thousands of tons			
		1964		1963
	Imports	Exports	Total	Total
General Cargo	1,520.2	621.9	2,142.1	2,246.2
Bulk latex	7.7	7.4	15.1	14.3
Bulk vegetable oils	10.2	9.1	19.1	33.0
Fuel oils in bulk	422.5	—	422.5	361.4
Ores	—	592.5	592.5	653.3
Coal	21.9	—	21.9	29.6
Total	**1,982.3**	**1,230.9**	**3,213.2**	**3,337.8**

L. TRADE WITH NEIGHBOURING COUNTRIES

The patern of trade between Penang and the neighbouring in the following trable:—

Analysis of Penang's Trade with:	IN THOUSANDS OF MALAYAN DOLLARS 1962 Imports	1962 Exports	1962 Total	1963 Imports	1963 Exports	1963 Total
Indonesia	151,438	21,310	172,748	103,818	2,397	106,215
Thailand	132,053	20,829	152,882	128,809	19,961	148,770
Burma	22,196	3,764	25,960	24,126	2,830	26,956
Total	305,687	45,903	351,590	256,753	25,188	281,941
Total Trade of Penang	663,700	1,177,600	1,841,300	672,600	1,166,600	1,839,200
% of Total Trade of Penang	46%	3.9%	19.0%	38.2%	2.1%	15.3%

(Compiled from Summary of Trade of Penang with Indonesia, Thailand and Burma, 1963, by the Economic Officer, Penang)

From the above analysis it will be noted that the trade of Penang with the neighbouring countries of Indonesia, Thailand and Burma averaged almost 20% of the total trade in Penang, and while the direct import from these countries represents about 40% of the total value of import into Penang, the export to these countries is hardly more than 5% of the total value of export from Penang.

Imports from Indonesia consist mainly of tin ore and concentrates, which are smelted in Penang, and rubber and spices which are locally processed for re-export. Imports from Thailand are made up mainly of tin ore and rubber both of which are processed for re-export, and rice which forms to bulk of the import for consumption in the Federation. The items of import from Burma follow almost the same pattern as that of Thailand but on a smaller scale.

Owing to the present political difficulties with Indonesia, trade with that country declined tremendously as shown in the following table:—

	January to November 1963 Imports	Exports	Total	January to November 1964 Imports	Exports	Total
Indonesia	$103,606,595	2,395,328	106,001,923	3,080,124	340,140	3,420,264
Thailand	$119,551,655	18,542,782	138,093,437	147,667,742	20,398,011	168,065,753
Burma	$ 22,380,925	2,724,861	25,105,786	9,896,065	5,011,914	14,907,979

M. DEEP WATER WHARVES AT BUTTERWORTH

The only deep water wharf for ocen-going vessels in the port of Penang at present is Swettenham Pier on Penang Island providing berths for two ocean-going carriers. General cargo (excluding bulk oil and iron ore) handled in Penang in 1960 totaled almost 2 million tons of which it is estimated approximately 1.25 million tons were destined to or originated from the mainland. By 1970, it is anticipated that the general cargo traffic through the port of Penang will have increased to approximately 3 million tons per annum and of this, it is expected that 1.8 million tons will move directly to and from the mainland. This conclusion takes into consideration the following factors:—

(a) Increasing trend of population in the hinterland of the port, comprising the States of Penang, Perlis, Kedah and Perak.

(b) The average rate of increase in general cargo through Penang during the past ten years.

(c) The tonnage of imports which may be expected to arise from Government development plans and the purchasing power set free by large amounts of Government spending under the

Five - Year Development Plans from 1961 to 1965, and 1966 to 1970.

(d) The increasing volume of import of raw materials for the factories at the industrial sites at Butterworth and Tasek.

The Penang Port Commission therefore submitted to the Government of the Federation of Malaya a bid for the inclusion in the National Development programme a project for the construction of deep water wharves and ancillary port facilities at Butterworth between the new ferry terminal known as Pengkalan Sultan Abdul Halim and the northern bank of the Prai River. Surveys and investigations by the Penang Port Commission's consulting engineers have shown this to be the most suitable location for deep water facilities at Butterworth and a tidal model study carried out indicated that no serious tidal, navigational and dredging problems would be likely to arise from the construction of deep water wharves at this location on the recommended alignment.

The project has been accepted by the Government for inclusion in the Development Plans and the cost of the project is estimated at $50 million. Part of the money will be obtained by direct loan from the Malaysian Government and the other part will be through a loan from the Federal Republic of Germany. The Penang Port Commission will provide the finance for the ancillary facilities.

The Scheme provides for a deep water wharf 3,450 feet long linked by five access bridges to a port area extending over about 80 acres, which will be formed largely by the reclamation of mangrove swamp and seabed. The wharf will provide six berths averaging 550 feet each for ocean-going vessels, with an area at the southern end for the working of lighters. Each berth will be provided with a transit shed of 30,000 sq.ft.

Present planning provides for approximately 250,000 sq.ft. of warehouse space for the receipt of export cargo for shipment, storage of import cargo not directly removed from the transit sheds and for dutiable goods. In addition a considerable area will be available for private warehouses and storage space, while an area of approximately 200,000 sq.ft. will be set aside as open storage space. An area of approximately 100,000 sq.ft. has been allotted for the development of bulking installation for the export of latex and vegetable oils.

All transit sheds, storage sheds, open storage areas and bulking installations will be served both by road and rail, with direct connections to the main road and railway system. The handling of cargo both on the wharves and in the port area will be mechanised to the maximum possible extent.

The planning of the project was completed by the Commission's consulting engineers, Sir Bruce White, Wolfe Barry & Partners. The contract for the first phase of the project i.e. reclamation and dredging of the site has been awarded. It is hoped that the first phase will be completed by the middle of 1965. Tenders have been invited for the construction of the wharf and it is hoped that the first three berths will be ready for use by ships by the middle of 1968, and the remaining three berths by 1971.

Aerial view of Prai Wharf

Ports of Ghana

By F.J. Ivimey

Deputy General Manager
(Ports) Ghana Railway and Harbours

It is now just over two years since Tema, Africa's largest artificial harbour, was officially opened by Osagyefo Dr. Kwame Nkrumah, President of Ghana. Prior to this, small quantities of imports had been handled there during a period of limited operations as a sufferance port whilst Accra Port, a distance of 18 miles away, was gradually being closed down.

The opening of a new port built from scratch is a comparatively rare event in any country and the resultant impact on the country's industry and employment is necessarily far-reaching. Tema provides an excellent illustration. The site of a fishing village on the open coast has in ten years been transformed into a busy harbour and town supporting a population of over 40,000 and a wide variety of industries. This new port of the West Coast of Africa became fully operative on January 1st, 1962 and imports rapidly soared from some 20-25 thousand tons per month to 80-100 thousand tons per month in the first quarter. A particularly striking feature of this rapid advancement was the smooth and trouble free start reported by Principals of Shipping Companies operating in this trade.

This £G.30 million project of the Ghana Government was first conceived as a vital adjunct to the Volta River hydro-electric undertaking now nearing completion and the aluminium smelter works which was planned to exploit Ghana's enormous bauxite deposits. There was no deep water port near at hand to handle the huge quantities of materials and equipment connected with the dam. Furthermore, a modern deep water port at the Eastern end of the country and near to the capital city had become a pressing need to relieve the overloaded deep water port of Takoradi in the Western Region (150 miles from Accra) and the outmoded surf ports.

Prior to January 1st, 1962 when Tema became a full Customs port, the ports of the country (in order of importance) consisted of Takoradi and the surf ports of Accra, Cape Coast, Winneba, Axim and Keta. With the opening of Tema to full scale operations the surf ports were all converted to a "sufferance" basis with the result that today cargoes handled through them are infinitesimal and it has been possible to remove all staff and dispose of port buildings and equipment.

The picturesque and time-honoured surf boat has over the years done a wonderful job in handling passengers and cargo, particularly at Accra where 80,000 tons of imports were handled monthly, but this handling method had its drawbacks and damage and losses overboard were considerable As a reminder of this, a Marine Salvage contractor has, over the past year, been lifting from the sea-bed many items of cargo including asbestos sheets and pipes, iron rods, batteries and bottles of liquor not much the worse for lengthy submersion in the sea, and it is apparent this operation will continue for some time to come. But "the old order changeth" and has given way to new and up-to-date methods. The country's growing needs are now handled almost exclusively by the modern deep water, road and rail-connected ports of Takoradi and Tema. The ports with the exception of Accra have had no rail link.

Administration

The ports are Government-owned, administered and operated by the department of Ghana Railway and Harbours, one of the largest single economic operations in the country. It has over 15,000 employees. New legislation introduced in 1962 (Ports Act) provided for the General Manager of Ghana Railway to be the Authority for all ports, subject to directions of a general nature by the Minister of Communications and Works. Stemming from the Ports Act and in order to embrace the new Port of Tema, new Regulations dealing with control and management, pilotage and dues and rates, have recently been introduced and have common application to all ports.

With a single Authority responsible for Railway—589 route miles of 3′ 6″ guage—and Ports, a close-knit and well-integrated organisation has been evolved, the one side serving the other and vice versa to the advantage of each. There is a pooling of experience and facilities provided by all departments, i.e. Engineering (civil, mechanical and electrical), Traffic, Accounting, Stores, Personnel and Police, Fire and Ambulance Services, thus saving the costly duplication which would be required under a separate Ports Authority set-up which would be extremely difficult to achieve with the existing shortage of experienced professional staff, administrators and technicians. To assist the General Manager and Harbours Authority in this joint function, there are two Deputy General Managers—one for the Ports and one for the Railway.

In a small country there is nothing to be gained by setting up two expensive organisations from which the port users will get no better service. The Port Revenue account is kept separately but is combined with the Railway account in the Net Revenue Appropriation and Balance Sheet. Although there is no discrimination between road and rail traffic in the ports, it is only natural that the staff make every effort to see that the Government-owned railway gets the maximum possible traffic—to the ultimate advantage of the taxpayer.

The Authority runs its own pilotage service, compulsory at both Takoradi and Tema. It also operates all towage facilities and excellent ocean-going tugs both steam and diesel are available for this service. The Authority is responsible for conservancy in the harbours

and owns several dredgers both of the bucket and grab types. Siltation takes place at Takoradi but so far Tema has not presented a maintenance dredging problem. It is also responsible for all lights and buoys. There are eight lighthouses along the coastline of the country situated at Keta, Tema, Accra, Cape Coast, Sekondi, Takoradi, Cape Three Points and Axim. At Takoradi and Tema, there are marine workshops and repair facilities for vessels, together with slipways and small drydocks. Both harbours are equipped with VHF radio telephone through which signal stations are in direct touch with tugs, mooring launches, and ships within the range of 40 miles. At the present time there is only one coastal radio station, situated at Takoradi, but it is hoped that a similar station will be located at Tema in due course to make possible long-range contact with vessels at sea.

At each port there is a Port Manager and a Harbour Master, the former being responsible to the General Manager for all traffic and commercial operations, the latter for the marine operations of the port.

Port Advisory Committees under the chairmanship of the Authority meet monthly at both ports and Shipping Agents, Cargo Handling Agents, Chambers of Commerce, Customs, Police, Port Health, Marketing Boards, Trade Associations, and other interested bodies are represented so that day-to-day difficulties may be dealt with through discussion. Sub-Committees on Timber, Security, Documentation, have also been set up. This consultative method has proved extremely helpful in maintaining smooth relations and promoting understanding with the customers and users of the ports and particularly in bringing into operation new port facilities as these become available.

Cargo Handling

The working of cargo at all ports until recent times was undertaken by the Shipping Companies for all practical purposes. With the opening up of Tema, the Ghana Government decided to take a more active part in the actual working of the port, and for this purpose, formed a new wholly-Ghanaian enterprise —the Ghana Cargo Handling Company—in which it was the majority share-holder, to carry out exclusively all shore-handling operations at the new port in the first instance. The work of stevedoring at Tema was handed out to four companies under licence, while at Takoradi, during the same period, the Authority set up its own Master Porterage and Stevedoring Organisation which assumed responsibility for all shore - handling and stevedoring operations previously in private hands. This Master Porterage and Stevedoring Organisation was a 'pilot' scheme to pave the way for the extension of the Ghana Cargo Handling Company's activities into both ports.

Commencing in the second half of 1964, the Ghana Cargo Handling Company have taken over all the shore-side and ship board cargo working at both Tema and Takoradi, and this has enabled a unified system of working in methods and charges to obtain at each port.

Port Facilities

At Takoradi there are two breakwaters with berths for six ships alongside the Main Wharf, one at the Bauxite Pier and one tanker at the Oil Berth. In addition there is a coal wharf for small coasting type vessels, and moorings for nine ocean-going vessels. The entrance to the harbour is 600' wide with 35′ safe draught. Safe draughts at the main cargo wharves are between 26′ and 28′. At the moorings the berths vary between 22′ and 30′. Lengths of vessels which can be accommodated on the main quays are between 250′ and 600′, while those at the mooring berths range from 320′ to 600′. There are 16 3-ton and one 15-ton electric portal cranes on the main wharf, two 5-ton electric grab cranes on the coal wharf, six 3-ton cranes on the West Lighter Wharf (1400′ in length). In the timber area, there are six 10-ton electric cranes and one 15-ton derrick crane for log handling, twenty 3-ton electric overhead cranes in the Sawn Timber sheds for unloading from road vehicles and rail/wagons into lighters. Up to 12,000 logs can be stored in log ponds along the Main Breakwater. The Cargo Platform, used for the storage of outside cargo, is equipped with two 5-ton and one 7-ton portal cranes together with ten 3-ton mobiles.

Manganese is railed from Nsuta (38 miles) and loaded to ship by a conveyor with a capacity of up to 3,000 tons per day. Bauxite is railed from Awaso (147 miles) to a stock pile outside the harbour and conveyed thence by bucket ropeway direct to ship. Bunkers, both diesel and fuel oil, are available on the Main Wharf and Oil Berth. Fresh water is obtainable at all berths or from water barges. There is a slipway for vessels up to 500 tons dead weight and a small drydock for vessels up to 100 ft. in length. A cement clinker jetty, designed to take clinker by conveyor belt direct from ship to shore grinding plant, projects from the reclaimed area on the north side of the Lee Breakwater.

Good passenger handling facilities with waiting halls, bars, shops and lifts are provided at No. 4 berth to service regular Mail Boats. In addition to excellent quay transit sheds there are large storage sheds (capacity 50,000 tons) on the West Wharf for cocoa, where fumigation and sampling take place prior to loading into lighters for shipment at the buoy berths.

At Tema a water area of about 500 acres is enclosed by two breakwaters 7,200′ and 4,800′ long with an entrance 800′ long with an entrance 800′ wide with depth of 36′ MLWS. With the present stage of harbour development, twelve berths for large oceangoing vessels have been completed—five on the finger quay, and seven on the marginal quay with depths of water from 28′ to 30′ at MLWS. Three of the five berths on the finger quay have transit sheds 460′ long with a clear span of 85′ while the fourth is a well-equipped double storey passenger shed 500′ long and 85′ wide with electric lifts. Regular Mail Boat services now serve this port. Six of the seven berths on the marginal quay have transit sheds 400′ long with a clear span width of 125′. This straight quay, now not far short of a mile in length, is a fine example of modern port plan-

ning and layout. There is a wide quay apron of 70′ and this with the large clear span sheds is admirably suited to the running of mobile cranes, lorries and forklift trucks on the quay and inside sheds. All shed offices and cages have been concentrated along one end of the building to afford maximum unobstructed working area and allow the most efficient use to be made of stacking trucks, etc. The Ghana Cargo Handling Company own a considerable fleet of mechanical equipment including sixth 15-ton trailers with towing units, 48 forklift trucks and 14 mobile cranes.

Each shed has a rail platform along its entire length. The quays are at present served by six 3-ton and five 5-ton portal cranes. More portal cranes are on order to serve the latest two berth extension to the marginal quay. One 25-ton mobile crane is also available while the provision of a heavy lift portal crane of approximately 80 tons on the main quay is contemplated. Both quays have large areas, amounting to 34 acres in all, for the open storage of rough cargo.

An oil berth on the lee breakwater, far removed from the main cargo quays, accommodates tankers up to 600' long with a draft up to 32' at MLWS. Equipped with the latest type loading arms, fire-fighting equipment and oil spill boom the terminal is connected with the Oil Refinery by a 24" pipeline — 3½ miles long, the property of the Authority—for unloading crude and by several smaller pipelines for shipment of products of the Refinery.

For storage of cocoa, four large warehouses providing accommodation for some 50,000 tons are now in use. Each warehouse is connected to the two loading berths by a conveyor system over which the bags—sixteen to the ton—of cocoa beans are carried by belts to the quayside where they are ploughed off into four outloaders and chuted direct into ships hatches. The bags are automatically counted and weighed. This conveyor, working alongside conventional methods of loading pre-slung cocoa using ships cranes, has produced some excellent loading figures as high as 2,300 tons per day per ship. It has been found that the conveyor has the added advantage of keeping heavy loads of traffic off the Port road system.

A Palm Oil pipeline connects vissels on the Main quay to a Tank Farm in the vicinity of Tema Railway Station.

A large area of some 60 acres divided into 133 plots, all rail and road connected, is set aside as a Commercial Warehouse area. Most of the plots have been taken up by various port users. Almost 60 offices in the Port area have now been let to Shipping Agents, Importers and other bodies.

There is a fishing harbour to the east of the Lee Breakwater and within port limits. Enclosed by two more breakwaters, the harbour provides 38 acres of sheltered water and 1300' of quay and a boat building yard.

A Dockyard area built on reclaimed land inside the Lee Breakwater comprises a small dry dock 174' long, workshops, two slipways and 600' of fitting-out quay.

Trade of the Ports

As mentioned earlier, during the past three years there has been a change in the pattern due to the birth of Tema, the latter having taken over not only all imports (including oil) and exports of Accra Port but also, as expected, a pro-

TAKORADI	**1962-63**	**1961-62**	**1960-61**
No. of vessels cleared	1,431	1,586	1,627
Imports (tons)			
General	455,985	628,593	826,692
Coal	37,306	28,685	62,045
Petrol & Oils	212,133	208,856	241,168
TOTAL IMPORTS	**705,424**	**866,134**	**1,129,905**
Exports (tons)			
Cocoa	219,514	257,387	177,290
Manganese Ore	429,500	478,770	496,955
Bauxite	244,504	233,614	235,264
Timber	586,987	534,646	857,398
General	57,583	75,805	62,227
TOTAL EXPORTS	**1,538,088**	**1,580,222**	**1,829,134**
TEMA			
No. of vesels cleared	954	689	149
Imports (tons)			
General	909,614	741,214	172,371
Petrol & Oils	202,298	——	
Crude Oil	136,135	——	
TOTAL IMPORTS	**1,248,047**	**741,214**	**172,371**
TEMA			
Exports (tons)			
Cocoa	189,878	209,848	34,815
Timber	410	1,138	——
Petroleum	17,027	——	——
General	17,492	15,833	——
TOTAL EXPORTS	**224,807**	**226,819**	**34,815**
ACCRA			
Imports (tons)			
General	——	168,597	443,404
Petroleum products	51,262	237,904	246,593
TOTAL IMPORTS	**51,262**	**406,501**	**689,997**
Exports (tons)			
General	——	196	2,109
Cocoa	——	564	84,918
Miscellaneous	——	647	2,949
TOTAL EXPORTS	——	**1,407**	**89,976**

portion of import tonnage previously handled at Takoradi and moved by road to accra. The result is that today Tema has become the country's principal Import port (import tonnage January 1964 105,000 tons General Cargo, 84,000 tons Crude oil) while Takoradi continues with its vital role of handling the bulk of the country's exports (export tonnage for January 1964 163,000 tons). For the same month the exports at Tema were 18,000 tons (mostly cocoa) and 19,000 tons oil products, with imports at Takoradi at 41,000 tons. The following summaries demonstrate clearly these trends up to September 1963 showing the rapid build up of Tema (particularly oil resulting from the new Refinery), the running down of Accra, and the present approximate equal distribution of the country's most valuable export—cocoa—between the two main ports.

Development

New projects inside the port area at present in course of planning and construction at Tema include a Shipbreaking Yard to supply scrap to the Kwame Nkrumah Steelworks located to the rear of the port, a Shipbuilding Yard with a Graving Dock (length 910'), a Cement Works, and an interlocking complex of food industries comprising a flour mill, fish canning factory, fish meal plant, oil utilization plant, a can making shop and an animal food factory. The fishing harbour is being extended to cater for the Ghana Fishing Corporation's growing fleet of trawlers and the expansion of the Fishing industry —a new outer south breakwater 1800 ft. long with a corresponding extension (1200') to the outer east breakwater will form a new Outer Fishing Harbour. The small drydock in the Authority's dockyard is being doubled in length to cater for the needs of the Ghana Navy.

Work is also proceeding rapidly on the new Accra-Tema motorway which when completed will supplement the coastal road and strengthen road communications to the port which recently have been strained to the limit. At Takoradi the planning of a new Cement Factory in the port area linked to the Clinker Jetty has commenced.

With the implementation this year (1964) of Ghana's 7-year Development Plan, the country's ports are now in a strong position to deal with the expanding economy resulting from the Government's progressive policy of industrialisation and agricultural development. Indeed it is confidently predicted that port facilities are now adequate to meet the expected increases over this period.

(Continued From Page 3)

appointments in 1961. Watson was appointed to the Commission that same year.

A Harbor area resident for over 20 years, Watson is president of Engineering Electronics Company, Los Angeles, currently engaged in contributing to the nation's space program. He lives with his wife at 3430 Carolina Street, San Pedro.

Di Carlo, 67, has lived in San Pedro (Los Angeles Harbor) since 1906 (58 years). He was born in Italy and came to the United States in 1901.

Di Carlo is president of Di Carlo's Baking Company and P.D.C., Inc., an investment company. He is also president and chairman of the board, Cabrillo Savings & Loan Association.

In 1954 Di Carlo was awarded the Medal of Solidarity from the Italian Government. He is a former member of the Los Angeles Board of Zoning Appeals, and was president and chairman of the Board of Directors of the Fishermen and Merchants Bank of San Pedro until it was merged with the California Bank in 1964.

Both men will serve in their elected offices for a term of one year.

Other members of the five-man Board of Harbor Commissioners are Albert Perrish of Los Angeles, Dr. George R. Wall of San Pedro and the newly-appointed former Councilman, Karl L. Rundberg of Pacific Palisades.

Giant Ships

The Transportation Ministry of Japan decided last Wednesday to seek the opinion of its advisory body, the Shipbuilding Technology Council, on the "technolomeasures relative to the possible construction of giant ships" (ships with a deadweight of about 200,000 tons are meant).

The council (chairman: Masao Yamagata) is expected to conduct one-year studies on the technology relative to the building of the hulls of such mammoth ships, the thickness of heavy plates to be used and other related items, the automation of ships and safety measures.

U.S. Shipping Strike Appears to Be Broken

NEW YORK (AP)—The 78-day-old United States Atlantic and Gulf Coast shipping strike appeared to be broken Wednesday night as radio officers in New York and Houston voted to accept a new contract.

The United States Line's 13,000-ton frieghter American Crusader cast off from her Hudson River pier, the first of some 100 strikebound ships to get under way.

Earlier, striking members of the International Organization of Masters, Mates and Pilots voted overwhelmingly to accept new contract terms.

Officials of the American Radio Association said votes had not yet been tallied in 10 other ports where ballots were cast. But the sailing of the American Crusader for Philadelphia with radio officers aboard indicated union officials expected the final vote to be favorable.

The strike was one of the longest and costliest in American maritime history.

Both the radio officers and the deck officers have been preparing the ships for sea since Monday when both unions disbanded picket lines in anticipation of a favorable vote. Members voted in 12 Atlantic and Gulf Coast ports, results were announced in New York.

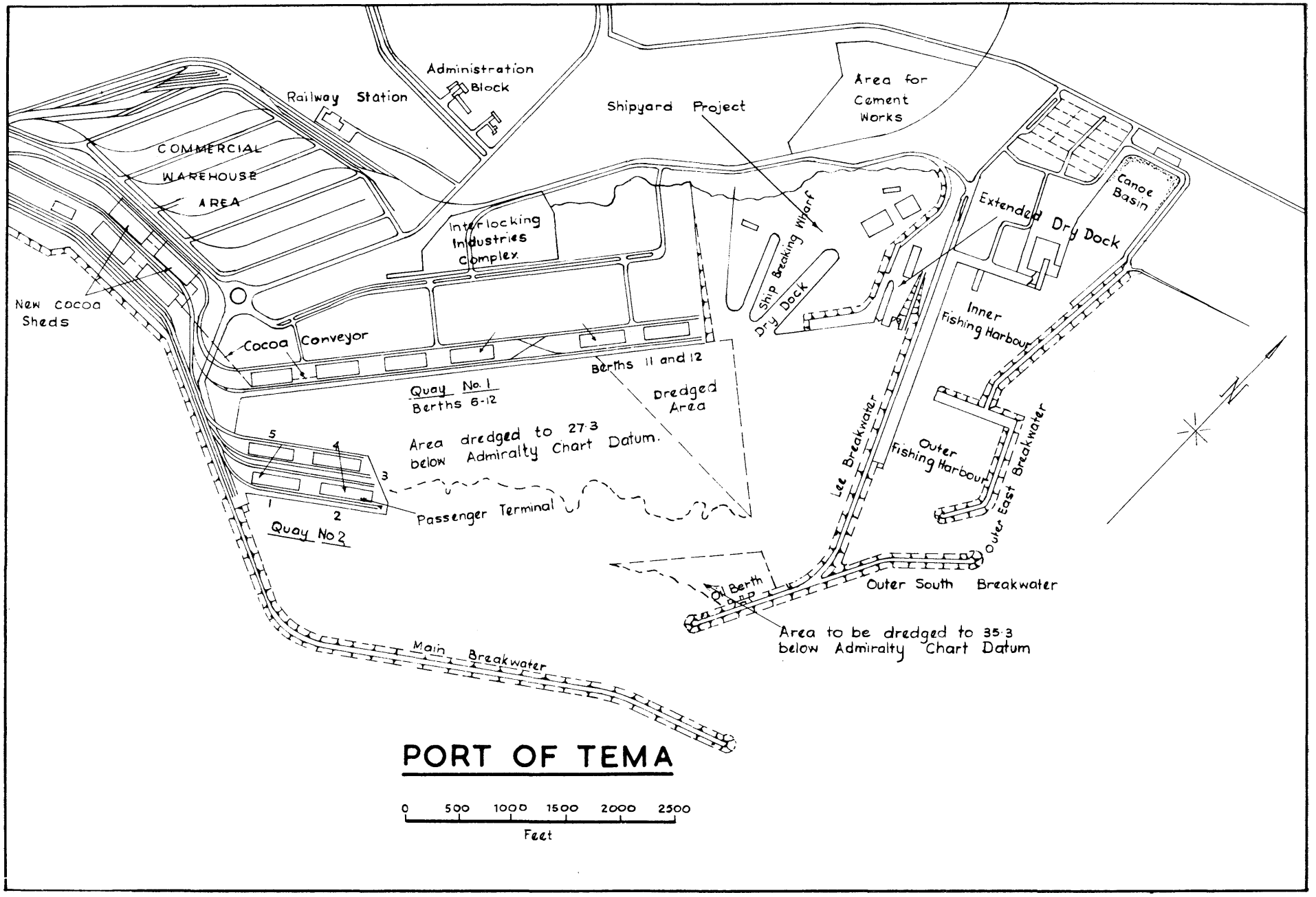
The International Organization of Masters, Mates and Pilots and the American Radio Association, both AFL-CIO-affiliates, have struck eight subsidized shipping companies represented by the American Merchant Marine Institute June 17.

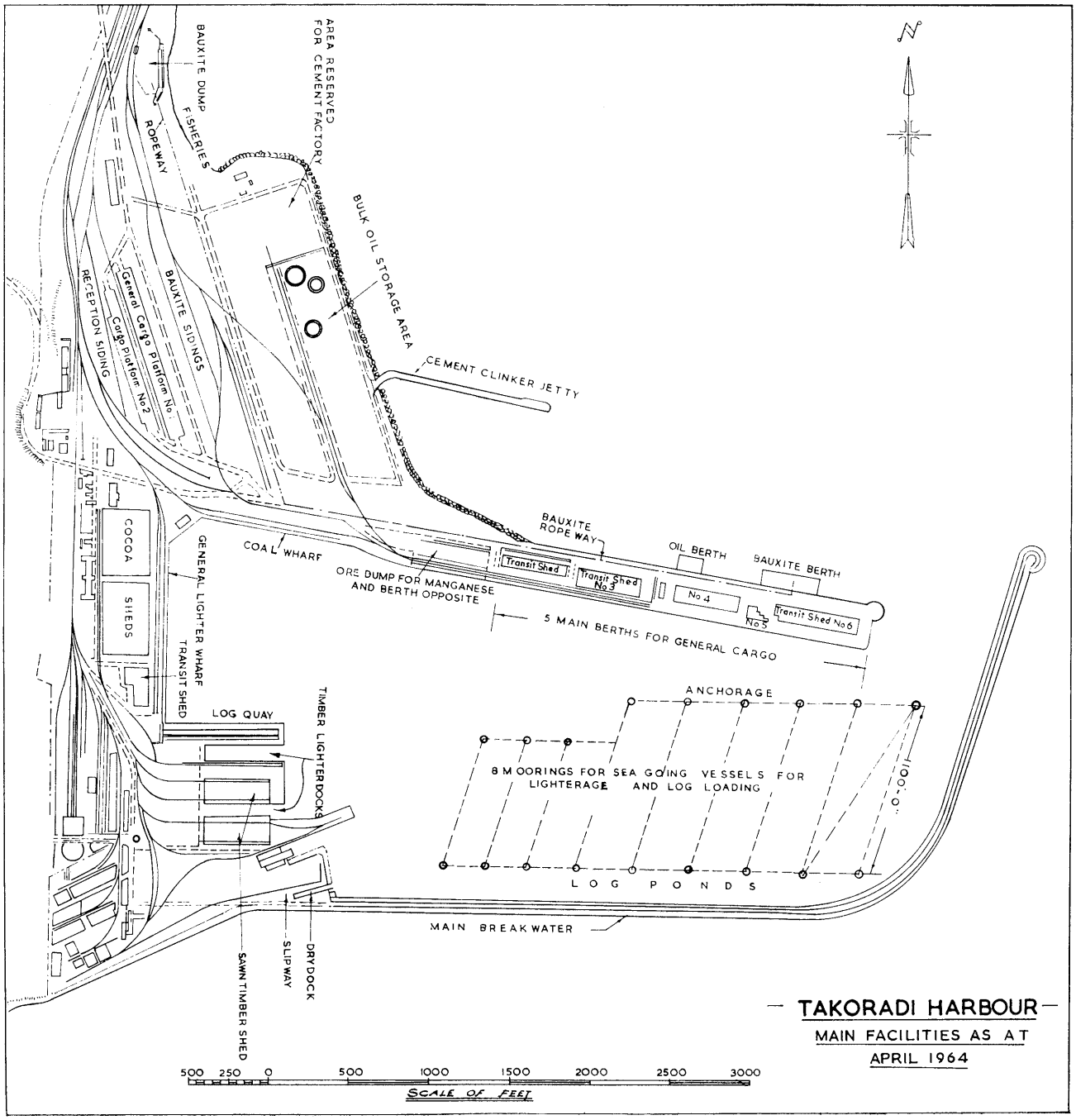
Marine engineers had ratified an agreement Aug. 19, freeing five passenger liners from the strike.

Last Sunday, President Lyndon B. Johnson, at his Texas ranch, announced that tentative agreements were concluded with the deck and radio officers.

The two unions lifted their picket lines Monday and the following day ship officers and longshoremen boarded the strike bound ships in ports from Maine to Texas to prepare them for a quick getaway when formal ratification was voted.

(Japan Times, Sept. 3, 1965)


Administration Block
Railway Station
Shipyard Project
Area for Cement Works
COMMERCIAL WAREHOUSE AREA
Interlocking Industries complex
Canoe Basin
Extended Dry Dock
Ship Breaking Wharf
Dry Dock
New Cocoa Sheds
Cocoa Conveyor
Inner Fishing Harbour
Berths 11 and 12
Quay No. 1
Berths 6-12
Dredged Area
Area dredged to 27·3 below Admiralty Chart Datum.
Lee Breakwater
Outer Fishing Harbour
Outer East Breakwater
Passenger Terminal
Quay No 2
Oil Berth
Outer South Breakwater
Area to be dredged to 35·3 below Admiralty Chart Datum
Main Breakwater
N
PORT OF TEMA
0 500 1000 1500 2000 2500
Feet


BAUXITE DUMP
FISHERIES
ROPEWAY
AREA RESERVED FOR CEMENT FACTORY
BULK OIL STORAGE AREA
CEMENT CLINKER JETTY
BAUXITE SIDINGS
RECEPTION SIDING
General Cargo Platform No. 2
COCOA SHEDS
GENERAL LIGHTER WHARF
TRANSIT SHED
COAL WHARF
ORE DUMP FOR MANGANESE AND BERTH OPPOSITE
BAUXITE ROPE WAY
OIL BERTH
BAUXITE BERTH
Transit Shed
Transit Shed No 3
No 4
No 5
Transit Shed No 6
5 MAIN BERTHS FOR GENERAL CARGO
ANCHORAGE
8 MOORINGS FOR SEA GOING VESSELS FOR LIGHTERAGE AND LOG LOADING
1000'-0"
LOG QUAY
TIMBER LIGHTER DOCKS
LOG PONDS
MAIN BREAKWATER
SAWN TIMBER SHED
SLIPWAY
DRYDOCK
500 250 0 500 1000 1500 2000 2500 3000
SCALE OF FEET
TAKORADI HARBOUR
MAIN FACILITIES AS AT APRIL 1964

(Continued from Page 2)

Singapore	Mr. Goh Koh Pui, P.P.A. Chairman Port of Singapore Authority Singapore	
Malaysia		
Mexico	Ing. Daniel Ocampo Siguenza Residential Engineer of Port Construction, Villahermosa, Tabasco	Ing. Mario E. Villanueva Reyes Residental Engineer of Port Construction, Coatzacoalcos, Ver.
Netherlands	Ir. F. Posthuma Managing Director Port of Rotterdam	Ir. J. den Toom Managing Director Port of Amsterdam
Nigeria	Mr. J. W. McEwen General Manager Nigerian Ports Authority Lagos	Mr. J. F. Lane Chief Traffic & Commercial Manager Nigerian Ports Authority Lagos
Norway	Mr. T. Jacobsen General Manager Port of Oslo	
Pakistan	Mr. I. A. Abbasi, S.Q.A. Chairman Karachi Port Trust	Mr. R. D. Kabraji Deputy Traffic Manager Karachi Port Trust
Peru	Mr. Mateo Kalafatovich Director Bureau of Port Administration Peruvian Government Lima	Mr. Rene Guevara Mechanical Engineer Bureau of Port Administration Peruvian Government Lima
Philippines	Mr. Florencio Moreno Secretary, Dept. of Public Works & Communications Manila	Col. Julian C. Chaves General Manager Manila Port Service Manila
Sweden	Mr. John Iwar Dahlin General Manager Port of Helsingborg	Mr. C. P. F. Lindskog Director Port of Stockholm
Thailand	Maj. General Prachuab Suntrangkoon Director Port Authority of Thailand	Capt. Lapo Israngkura, R.T.N. Deputy Director (Operations) Port Authority of Thailand
United Kingdom	Mr. Dudley Perkins Director-General Port of London Authroity	Sir Arthur Kirby, K.B.E., C.M.G. Chairman British Transport Docks Board
U.S.A.	Mr. George D. Watson President Board of Harbor Commissioners City of Los Angeles	Mr. T. P. Guerin General Manager Commission of Public Docks Portland, Oregon
	Mr. Albert Lyle King Director of Marine Terminals Port of New York Authority	Mr. W. J. Amoss Director of the Port Board of Commissioners of Port of New Orleans
Venezuela	Dr. Andres German Otero Ministro de Hacienda Ministerio de Hacienda Caracas	Sr. Cesar Bustamante Administrador General de los Servicios Portuarios Nacionales Ministerio de Hacienda Caracas
Vietnam	Mr. Nguyen Van Chieu Director Directorate of Saigon Port	Mr. Nguyen Ngoc Du Director Port of Da-Nang

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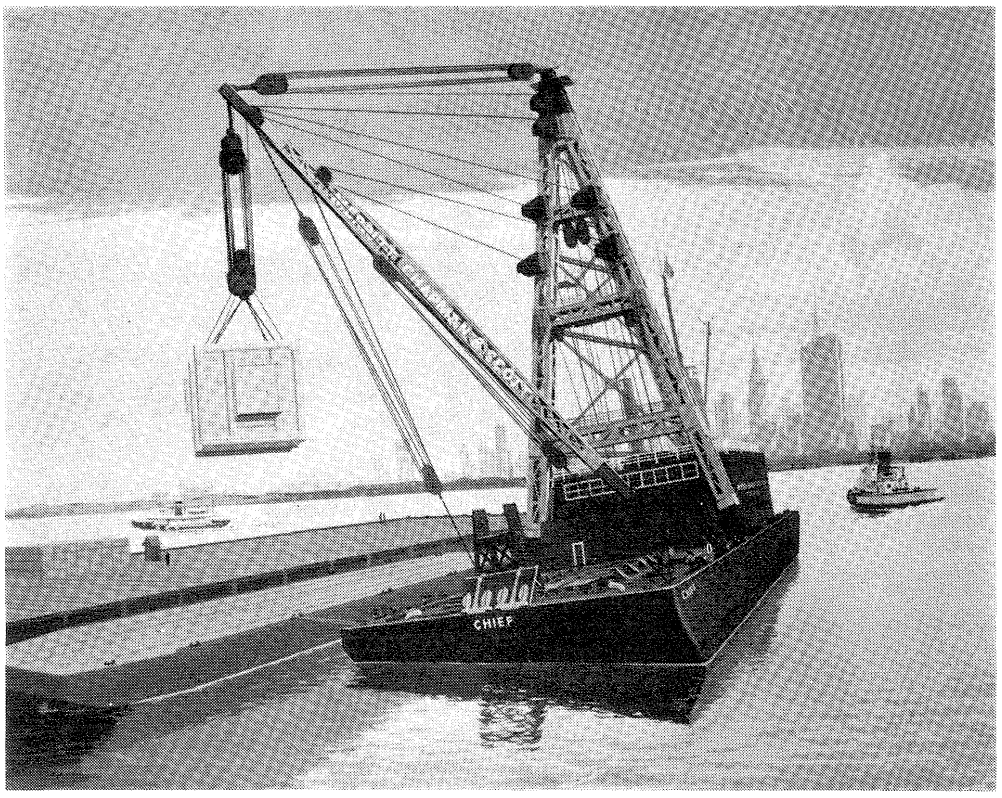
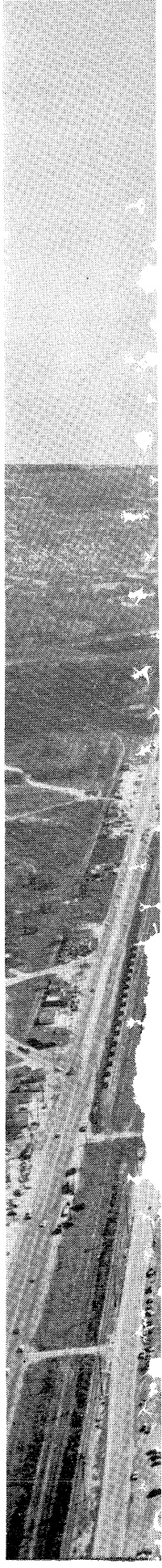


A heavy hoist cargo derrick, named "Chief", the most powerful in the world with a lift capacity ranging to 500 tons.

Merritt-Chapman & Scott Corporation, New York, N.Y.



The Turning Basin at the Port of Houston, fifty years old and fifty miles from the sea. The Port of Houston can offer berths for one hundred ships. In 1964 the Port of Houston recorded 4,194 ship arrivals. On an average, each ship spent $15,000 for fuel and other supplies while in the Port of Houston. →

Central Secretariat of the International Association of Ports and Harbors

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