

PORTS *and* HARBORS

DECEMBER 1963

Vol. 8 No. 4



PORT OF HONG KONG

THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

Introducing The Crests of Ports

(Each Issue One Port)

THE PORT OF HONG KONG



Part of the Western District of Victoria city on Hong Kong Island. On the opposite side of the harbour is Kowloon peninsula which, with New Kowloon, has a population of over 1,500,000. The rural New Territories lie beyond the hills.

THE INTERNATIONAL ASSOCIATION OF PORT AND HARBORS

OBJECTS AND PURPOSES

(Per Article 3 of Constitution)

The objects and purposes of this Association shall be:

- (a) To associate its members from all countries together in the common cause of mutual international friendship and understanding;
- (b) To exchange information relative to port and harbor organization, administration, management, development, operation and promotion;
- (c) To encourage, develop and promote waterborne commerce to and from all world ports and harbors; and
- (d) To encourage the standardization and simplification of procedure governing imports and exports and the clearance of vessels in international trade:—
thereby promoting the peace in the world and the welfare of mankind.

UNDERTAKINGS

(Per Article 3 of Constitution)

This Association shall carry out the following undertakings in order to accomplish the objects and purposes specified in the foregoing Article:

- (a) The holding of conferences of the International Association of Ports and Harbors as provided in the By-Laws;
- (b) The publication of the minutes of Conferences, an official Association journal or other publication and other special publications concerning ports and harbors, as may be authorized by this Association;
- (c) The establishment of relations with other international organizations, associations and agencies on matters of mutual international interest concerning ports and harbors;
- (d) The establishment of a center or centers for the collection, tabulation and distribution of information concerning ports and harbors from throughout the world for the benefit of members of this Association and other interested persons;
- (e) The dissemination to ports and harbors, and governmental agencies and private operators thereof, of the accomplishments of this Association as expressed in resolutions, bills, reports of committees, and the published proceedings thereof;
- (f) The establishment of committees from among the membership of this Association for reference purposes of members engaging in the organization, administration, development, operation, utilization, management or promotion of ports, harbors and other waterfront facilities;
- (g) The assumption of other undertakings necessary to effectuate and realize the objects and purposes of this Association.

PORTS and HARBORS

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 development in the world.

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THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

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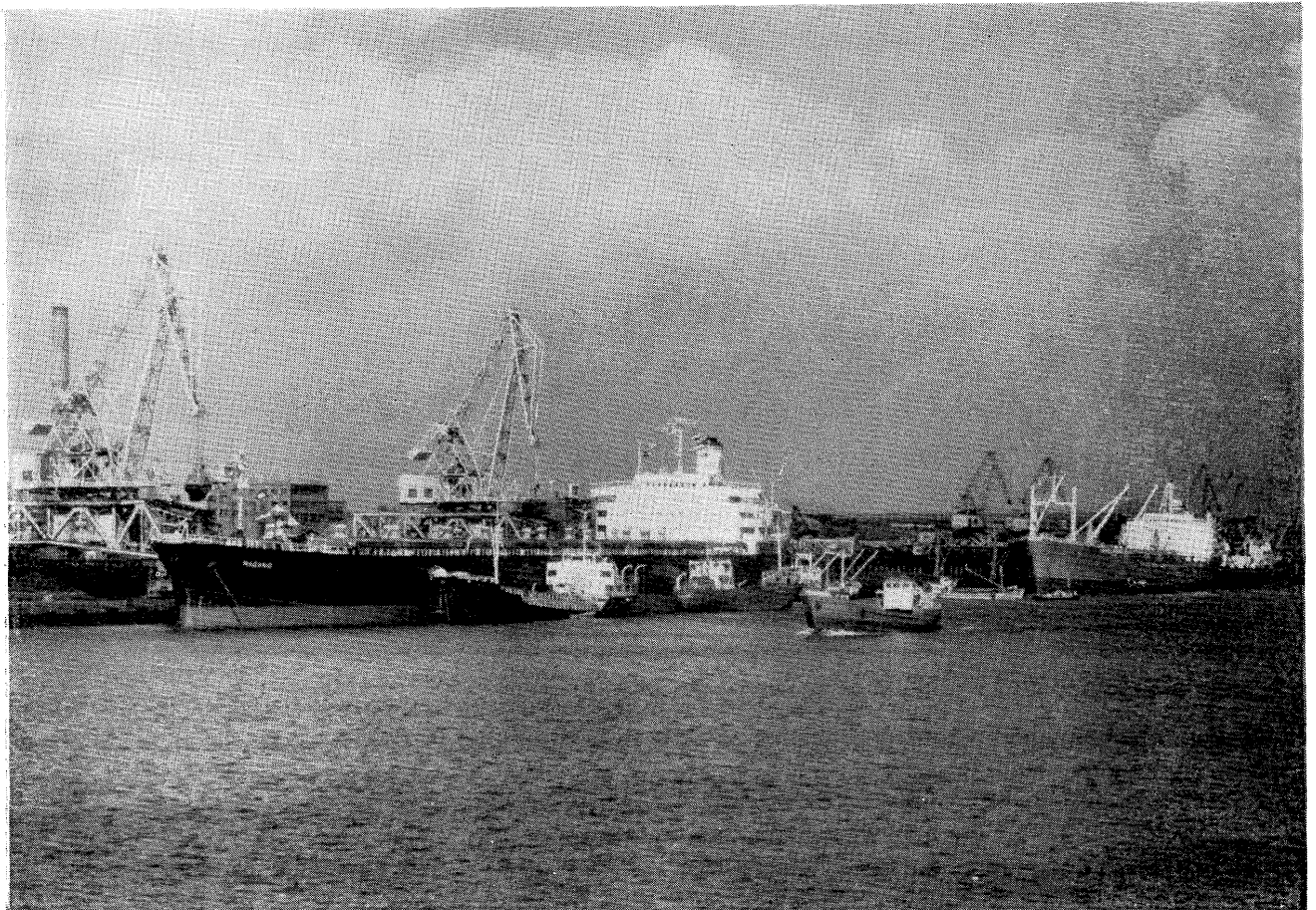
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PORT OF HIROHATA

JAPAN



This picture shows vessels are unloading Ore and Coal at the Central Wharf and Kamoda Wharf of the Port of Hirohata. The first improvement of the port in large scale was completed some twenty years ago to allow 10 vessels including 10,000 tonners load/unload at wharves, and now the port has become one of the major industrial ports in Japan.

(See Page 17)

From The Central Secretariat

By **Gaku Matsumoto**
Chief of the Central Secretariat
I.A.P.H.



Mr. John P. Davis, President of IAPH and Commissioner of the Port of Long Beach, addressing at the General Meeting of the Japan Port and Harbor Association. Standing besides him is Mr. Motoo Kiyooka, senior under-secretary, IAPH Central Secretariat, interpreting.

IAPH President visited Japan

Mr. John P. Davis, the President of the International Association of Ports and Harbors, arrived at Tokyo Airport on Sunday, October 6.

His main object of the visit was to attend the General Meeting of the Japan Port and Harbor Association at its invitation.

Prior to leaving Tokyo for Niigata where the said Meeting was held, Mr. Davis discussed with the Central Secretariat staff and exchanged views on the Association affairs on October 7 and 8.

At the General Meeting of JPHA in Niigata, a congratulatory address was made by Mr. Davis as follows:—

Mr. President—Members of the Japan Port and Harbor Association.

Gentlemen,

First may I express to you my deep appreciation for the kind in-

*The Chief and Members
of
The Central Secretariat of IAPH
send
Best Wishes
for
the New Year*

visitation extended to me to join in your deliberations. I have just returned from a meeting of the Pacific Coast Port Authorities in San Francisco and the American Association in Portland Oregon. Mr. Rae Watts and Mr. Stanton presidents of these associations send you their personal greetings and best wishes for a successful conference.

I also bring you greetings from the Harbor Commission of Long Beach, my home port. We in Long Beach have come to appreciate perhaps more than others the importance of Japanese commerce. For a very simple and practical reason. You are our largest and most valued customer. In view of this ever increasing trade we are constantly improving our facilities and refining our services. Currently we are building a huge pier that when completed will provide 40 more deep water berths. We extend to you a most cordial invitation to visit us whenever you are in our Country.

Last May in New Orleans I was honored with the Presidency of the International Ports and Harbors Association. It is in that capacity I am with you today. This organization was started some ten years ago in Kobe Japan. A dream of your President Mr. Gaku Matsumoto and may I say this that were it not for the support given this association by its Japanese friends it would not be alive today. Your vision of an international association welding together in one fraternity the ports of the world is well on its way to ultimate accomplishment. I am happy to report to you that in 1962 we acquired memberships from the Ports of London, Rotterdam and New York. Not only their memberships but their active support in our activities.

In 1965 we hold our next conference in London. In 1967 in Japan. It is our hope that a great number of you will find it convenient to attend.

In this ever diminishing world of ours the need for closer personal contacts among the peoples of the world is becoming more apparent. No longer can one nation isolate itself as self sufficient. Regard-

less of size or importance we are all dependent on each other. The continued well being of the Japanese economy is of major importance the world over.

I believe that we who are the carriers of world commerce can play an important part in creating a climate of better understanding among the Nations of the World. We represent a vital and lasting contact. That of goods and services. I enlist your continued support of the International Association of Ports and Harbors as it makes its contribution towards that ideal of men of good will everywhere. World peace and understanding.

Thank you again for your kind invitation.

IAPH Central Secretariat Chief becomes Hon. President of JPHA

At the General Meeting of the Japan Port and Harbor Association held on October 10, Mr. Gaku Matsumoto, the Chief of the IAPH Central Secretariat and the President of the JPHA resigned from the post of the President and was elected as the Honorary President.

Visitors from U.S. West Coast Ports

Mr. Albert Perrish, Board President, Dr. George R. Wall, member, and Mr. Robert W. Wilkinson, Board Secretary, of Board of Harbor Commissioners of Los Angeles, and Mr. Bernard J. Caughlin, General Manager of Port of Los Angeles visited Japan on November 12 to confer with shipping and government officials on the effect of the merger of Japanese Steamship Lines upon the municipal port's operation and commerce.

* * *

Mr. Peter M. Tripp, President of Board of Port Commissioners, Oakland, and Mr. Ben E. Nutter, Executive Director of Port of Oakland and member of Executive Committee of IAPH (who visited Japan with Senator William F. Knowland and Mr. Fred Dubois, Public Relation Director of Port of Oakland) kindly called at this office on November 20 and exchanged views with the Chief Gaku Matsumoto and officers on



MR. PETER M. TRIP, President of the Board of Port Commissioners of the City of Oakland, California, also is senior member of the Board.



MR. BEN E. NUTTER, serving both as Executive Director and Chief Engineer, is the chief executive officer of the Port of Oakland.

the Association affairs generally.

The party also paid visits to Osaka and Fukuoka-sister city of Oakland.

* * *

The Central Secretariat thanks Mr. Thomas P. Guerin, General Manager of Portland Commission of Public Docks and the President of the American Association of Port Authorities, accompanied by Mr. Minozuke Shimosato, Representative of Portland Commission of Public Docks in Japan, for his visit to its office on November 25 giving a chance to exchange views on port problems in general.

Upon inducement by the Central Secretariat, Mr. Guerin kindly promised that he would endeavor to make Portland become a member of IAPH when he returns home.

Meeting of Board of Directors by correspondence called

In accordance with the provision of Section 39, Article IX of the By-Laws, a meeting by correspondence of the Board of Directors was called on December 10, under authorization of President John P. Davis, with January 10, 1964 as the voting date, to approve the election of all 6 applicants to the membership, as per the details of applicants reported in the previous issue of the "Port and Harbors".

It is hoped all Directors would approve same.

* * *

I.A.P.H.'s Membership Campaign

During the year 1963 the Central Secretariat has repeated a membership campaign on all occasions available. Letters of solicitation were sent out to almost all principal ports throughout the world. Though answers to these letters have proved rather weak, yet we are encouraged by the steadily increasing membership. As of December 18, 1963, the Association has 120 members representing 28 countries. In December, the following have applied for membership through good offices of Sir Leslie Ford of London and our President Mr. John P. Davis of Long Beach:—

Regular Member:

Port of Copenhagen Authority,
Denmark (1 Unit)

Corporate Supporting Members:

Marine Terminals Corporation,
Long Beach, U.S.A. (1 Unit)

Metropolitan Stevedore Co.,
Wilmington, U.S.A. (2 Units)

It is our great pleasure that the Commercial Port of Guam has been recently reinstated as a Regular member.

* * *

A Project of a Port Corporation, Japan

In reply to the enquiry made by Mr. Howard A. Mann, the Chairman of National Harbours Board, Ottawa, Canada, the IAPH Central Secretariat advised him in the following line:—

"The project is still in the plan-

ning stage in the hands of the Japanese Ministry of Transportation, and when the draft takes more concrete form, it will be put before next Diet for approval.

The Ministry's idea is roughly as follows:—

1. To establish a Port Corporation for construction of 63 berths in Yokohama (including Kawasaki), Nagoya and Kobe.
2. The cost for construction/improvement of facilities is estimated at Yen 40,000 million.
3. The Port Corporation will rent them through individual port authorities to shipping companies and others at a certain dues.
4. The Port Corporation will closely study the construction plan with the individual port authorities concerned.
5. Function of the individual port authorities will not be affected by the introduction of the project at issue."

* * *

How to fight against Marine Borer

The undermentioned article is an extract from the report which IAPH Central Secretariat sent to Mr. M. W. Clifton, the Secretary of the Australian Port Authorities Association, answering to his enquiry how to fight against Teredo Borer which caused extensive damage to timber wharf structures throughout Australian ports, particularly those in Tasmania.

Introductory Remarks

The use of Metallic Soap solves the problem that the preservatives are soluble in sea water.

Living creatures engaged in the boring of holes in timber are totally non-existent in fresh water. However, in the case of sea-water may be found specimens belonging to the Rhynchomollusca group and generically known as Teredines such as Teredo, Bankia and Martesia, as well as those coming under the Crustacea group and generally styled as Wood Lice comprising Limnoria, Chelura and Sphearome, all of which possess the characteristic trait of boring holes in timber.

The various measures hitherto adopted for safeguarding wooden vessels and timber for marine engineering purposes against the ravages of the said Marine Borer may be roughly classified as follows:

(1) Chemical Methods

- a) The use of Paint composed of such poisonous substance as a Copper Compound as its main constituent.
- b) The injecting of medical fluid such as Creosote.

(2) Physical Method

By covering over with copper sheet.

(3) Utilizing Living Habits of Marine Borers

- a) Encasing the timber in wooden boards (in order to utilize to best advantage the customary habit of Marine Borers of switching to other directions whenever coming up against any end surfaces whilst boring holes in timber).
- b) Using of species of timber disliked by Marine Borers.

Among the foregoing, the chemical methods as per Item (1) are most widely in use. In neither case, however, can satisfactory results of a permanent nature be attained in view of such grave defects as: In the case of Paint, they are apt to drop off due to shock, etc. When applying the injection method, the medical fluid is liable to flow out into the sea-water.

As a result of having conducted practical tests by bearing in mind that Metallic Soap is insoluble in water and substituting the poisonous substance with Metallic Soap, the author has succeeded in ascertaining that well-nigh 100 per cent successful results can be achieved against Marine Borers by adopting the injection system as mentioned under "Chemical Methods."

In other words, by injecting liquid soap into the timber after having first of all injected a copper compound therein as poisonous substance, the copper compound becomes deposited within

the timber in the form of Metallic Soap, and facilitates the injection of same.

The use of Copper Sulphate is recommended as a copper compound due to permitting of easy permeation into timber as well as its being easily transformed into metallic soap.

Preliminary tests relative to the experiments were conducted at the Transportation Ministry Ports & Harbors Bureau's Technical Research Section from June 1929 until July 1930, following by others at the Transportation Technical Research Institute's Ports and Harbors Facilities Dept. From October 1930 until June 1931.

Selecting of Density of Insecticide

(1) Density of Copper Sulphate Solution

After preparing copper sulphate solutions of varying densities of 5%, 8%, 10%, 15% and 20% respectively and injecting same as Cupreous Soap into "Sugi" (Japan cedar) timber measuring 6 cm. square and 30 cm. long, the varying degrees of erosion caused by Marine Borers were investigated by carrying out experiments similarly to the preliminary tests conducted with non-treated timber in the marine borers' culture tank of the Fisheries Experimental Laboratory at Kominato by immersion for periods of 2, 4, 6, 8, 10, 12 and 24 months.

As a result of the said tests, it was ascertained, as per Table 2, that damage by ma-

rine borers can be prevented by solutions of 10% density or over.

(2) Density of Liquid Soap

The injecting of Liquid Soap is for the purpose of producing Metallic Soap non-solvent against water by making same react against the duly injected copper sulphate solution, same possesses no direct efficacy whatsoever in regard to safeguarding against marine borers.

Hence, from the standpoint of facilitating permeation into the timber, it is desirable for the said solution to be diluted to the extent that it does not hinder the making of a fully insoluble cupreous soap in combination with copper sulphate.

Furthermore, in the event of the reaction velocity of the two being too great, there is the fear of difficulty arising in regard to subsequent injections due to a diaphragm having become already formed at the cross-section of the timber, which also makes it desirable to dilute same to some extent.

By taking the afore-mentioned factors into consideration, tests were conducted firstly by inserting liquid soap of various degrees of density into a test tube and dropping a copper sulphate solution of 10% density into same, whereby it was found that those of around 1.006 Baume or over in density at normal temperature formed cupreous soap simultaneous to the dropping of the copper sulphate

solution, thereby clearly demonstrating the excessiveness of reaction velocity. At around 1.006 or under, not only was no reaction observed even at time of same becoming deposited at the base of the test tube when coming into contact with the copper sulphate solution, but it was only after repeated shaking of the test tube that a state of combination was witnessed.

On the basis of the foregoing it was adjudged that Liquid Soap of around 1.006 Baume density under normal temperature was the best suited.

From the foregoing it was concluded that the most appropriate degrees of density of the said solutions for insecticide use are 10% for the Copper Sulphate Solution and 1.006 degrees Baume for the Liquid Soap at time of normal temperature.

Concluding Remarks

Methods of protecting timber against the ravages of Marine Borers by the use of Metallic Soap have been duly explained in the foregoing clauses, the characteristic features of which are as follows:—

- (1) Insolubility in water.
- (2) Owing to the insecticide being injected throughout the entire interior of the timber, the preventive efficacy is not in any way impaired even in the case of the surface of the timber or a portion thereof becoming damaged.
- (3) Due to Copper Sulphate being the main constituent this insecticide is also efficacious as a Preservative.
- (4) This insecticide permits of easy injection into Timber.

Among its other special features are low cost, easy handling, and simple compounding of the medicinal fluid, as well as the fact that slight variations in Density are immaterial (provided that the density of the Copper Sulphate Solution exceeds 10%).

In brief, the special merit of this insecticide, as compared with others, lies therein that its efficacy is of a permanent nature.

Table 2. Extent of Damage by Marine Borers

Length of Immersion (Months)	Density (%)	5	8	10	15	20
2		Nil	Nil	Nil	Nil	Nil
4		"	"	"	"	"
6		Eroded	"	"	"	"
8		"	"	"	"	"
10		"	Slightly Eroded	"	"	"
12		"	"	"	"	"
24		—	—	"	"	"
Judgement		Unsatisfactory	Unsatisfactory	Satisfactory	Satisfactory	Satisfactory

Continued on Page 8

FORUM ON PORTS PROBLEMS

A Method of Computing Costs of Capital Investment

By

Albert Lyle King

Director, Marine Terminals

The Port of New York Authority

It is somewhat surprising to realize that many ports do not place emphasis on calculating the exact annual cost or, in some cases, even the approximate cost of the capital investment in new piers.

A port need not follow a policy of complete self-support to benefit from the knowledge of costs. It is essential to know whether investment is losing money or earning net revenues.

It is highly desirable for all ports to know in advance of investment in construction what the probable annual cost of the proposed investment will be. The exact annual cost should be computed immediately upon completion of a project.

There are some unclear views in port circles as to exactly what kind of cost formula is complete and accurate that can be applied to all construction projects on a universal basis. I venture to suggest one method out of many that has proven to be satisfactory in all respects.

Let us assume that a public port agency is planning to build a new two-berth pier. Before embarking on the project, a general determination is made regarding the chances of financial success. Preliminary estimates of construction cost are used based on past construction experience of the port agency, or the experiences of others, making allowance for those conditions

which are dissimilar. The revenue that can be derived from the usage of the pier is also estimated. If the estimated cost of the project appears to bear a satisfactory relationship to anticipated revenue, the final and detailed construction cost estimate can then be prepared. This final estimate involves the pricing of all the labor and materials in the project at current market prices.

The cost of constructing the pier project is divided into direct and indirect cost items both of which are converted to annual financial charges which would apply evenly each year over the life of the project, similar to a home mortgage. Some of the direct costs would include for example the acquisition of the property the demolition of any existing old structures on the site, and all payments made to contractors or others for the purchase of materials, labor and services going into new construction.

The indirect costs are usually those described as overheads and which are nevertheless real costs and must be included for completeness. These indirect costs or overheads can often be stated as a percentage of direct costs. A simple construction project such as a cargo pier usually has an overhead of about 15% of the direct costs. More complicated structures, such as an office building or a pas-



Mr. Albert L. King

senger terminal, require a larger overhead factor up to about 25%, inasmuch as more design work is necessary and more field supervision during construction.

The overhead can, in turn, be divided into segments. Taking 15% overhead on a cargo pier for example, we find it is divided about 5% for the engineering plans and specifications, 5% for the engineering supervision during construction and about 2% for administration. The administration is, of course, the miscellaneous time and effort that goes into the project by all the departments and executive staff of the port organization, including such things as legal work in preparing and awarding con-

struction contracts, public relations work and other staff effort. The remaining 3% is the financing cost, most of which is interest on money being spent on the project during the period of construction.

The total construction cost, including overheads, can then be converted into an annual sum. One method of doing this is known as the "sinking fund" basis. An annual factor of a per cent per year of investment is derived by a combination of the number of years over which the investment is to be paid back and the interest rate paid on the money invested in the project. For example, a life of 30 years at an interest cost on money invested of 3¾% produces a factor of 5.61% per year for the 30 years without allowing any margin of profit above direct cost.

To this annual cost for writing off the investment in the project must be added a factor for the value of the property acquired for the project, which is usually viewed as real estate not subject to depreciation. If that view is adopted, the annual charge is simply the interest on the money represented by the value of the site.

To the above annual charges must be added any other obligation which the builder of the pier may have. One of these might be the structural maintenance cost. This includes such things as repairs to the fender system, pavement, roof, walls, electrical system, water system, doors, heat, etc. The total maintenance cost over the 30-year life of the pier can be calculated in advance, based on experience and other maintenance cost data available. The same amount can then be considered as the cost of maintenance each year, whether it is actually spent or not. It may be that the builder of the pier accepts also the dredging responsibility. If so, that cost can be calculated in the same fashion as maintenance.

In large ports there is also to be considered a portion of the cost of investment and maintenance in such things as the roadway system, watermain system, and rail track system. These are outside of actual pier project itself, but necessary in the port area to serve the project.

In addition may be added a por-

tion of the day-to-day expenses of operating the pier organization from an administrative standpoint. This prorate may be made on the basis of payrolls, or physical size of the pier project compared to other port facilities under the same management, or perhaps on the basis of revenue from this pier compared to other; or any other common denominator that results in a fair prorate for ac-

Property acquisition	\$ 1,000,000	\$ 37,500 (1)
Demolition and site preparation	100,000	5,610 (2)
construction costs (direct)	4,000,000	168,300 (2)
Overhead	615,000	34,502 (3)
Total cost	<u>\$ 5,715,000</u>	<u>\$ 302,012</u>
Maintenance	900,000	30,000 (4)
Share of utilities		20,000 (5)
Insurance premium		10,000
Dredging		10,000
Administration		20,000 (6)
		<u>\$ 392,012</u>

- (1) at 3¾% per year
- (2) at 5.61% per year
- (3) at 15% of direct costs
- (4) Projected estimate for 30 years, which is subject to adjustment periodically to reflect increased maintenance costs
- (5) Prorate of street system in port area, rail track network, etc.
- (6) Prorate, which is subject to adjustment periodically to reflect increased costs

Continued from Page 6

Factually, at time of injecting this insecticide into various species of timber, same can be easily injected from one end of the timber with the use of an Air Compressor without necessarily having to use an Injection Tank as was used in my experimental tests.

The ending of pressure-injecting is determined by attentively observing the dripping of the medical fluid from the cross-section of the timber.

The Technical Research Institute, Japanese Ministry of Transportation.

* * *

N.Y.K. Ship Sets Record

m. s. "Yamashiro Maru", newly built ship by the Mitsubishi Shipbuilding and Engineering Co., Nagasaki, for the owner Nippon Yusen Kaisha, attained a speed of 22.45 knots on her trial.

The vessels is of 10,466 tons gross equipped with UEC Diesel

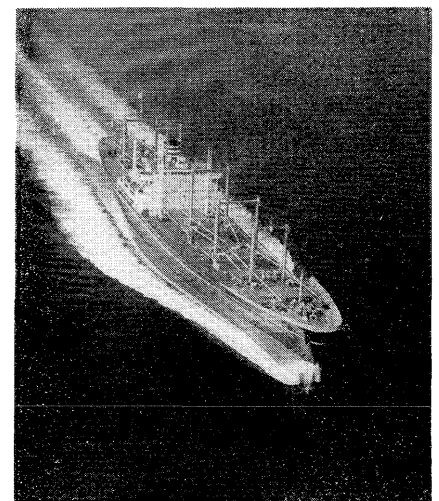
counting purposes.

Maintenance costs, and day-to-day administrative costs tend to increase over the 30-year life of the pier. This can be taken care of by corresponding increases in usage charges every few years.

Following is a recapitulation of how this kind of cost formula would apply to this pier project, using hypothetical figures:

Engine of 13,000 hp.

It is generally believed that a 10,000 gross tonner requires an engine of 18,000 hp. or over in order to obtain a speed of 20 knots, therefore, the record established by the Yamashiro Maru is being highly spoken of among the shipping circles.



m.s. "Yamashiro Maru" at full speed with Balbous Bow which N.Y.K. placed on her for the first time.

PORT OF HONG KONG

By K. Milburn

Marine Department

Hong Kong

Hong Kong is a British administered territory situated just inside the tropics to the east of the estuary of the Pearl River and adjoining the province of Kwangtung. In essence it is an international trading centre with a predominantly Chinese population. It is a blend of eastern and western industrial and business practices backed by British legal and banking systems adapted to the peculiar needs of the port. Recent years have seen some decline in the traditional entrepot trade but this has been more than compensated for by Hong Kong's emer-

gence as a manufacturing centre and its commercial climate which is conducive to trade. The principal port is Victoria but by common usage this is referred to as Hong Kong harbour and will be used thus in this context.

Climate

The climate of Hong Kong is governed by the monsoons, and although the Colony lies within the tropics it enjoys a variety of weather from season to season unusual for tropical countries. The winter monsoon blows from the north or north-east and normally begins during September. It pre-

vails from October until mid-March, but can occur as late as May. Early winter is the most pleasant time of the year, when the weather is generally dry and sunny with mean daily temperature about 70° F; this is the most popular time of the year with tourists. After the New Year the sky is more often clouded, though rainfall remains slight; frequently the days are overcast and dull with chilly winds. Coastal fogs occur from time to time in early spring—during breaks in the monsoon—when warm south-easterly winds may temporarily displace the cool north-easterlies.

The summer monsoon blows from the south or south-west and although it can occur from mid-April until September it is not as persistent as the north-east monsoon of winter. During this part of the year the weather is almost continuously hot and humid, and is often cloudy and showery with



The most important island is Hong Kong Island, which together with adjacent islets has an area of 29 square miles. Victoria, the capital and centre of commerce, is situated on the north side. On the mainland opposite is the ceded territory of Kowloon, which has an area of 3¼ square miles. North of Kowloon, stretching to the Chinese border are the New Territories, which have a land area of 365½ square miles. They were leased from China on July 1, 1898, for 99 years. Between Hong Kong Island and the mainland lies Victoria Harbour, one of the three most perfect natural harbours in the world. It varies in width from one to three miles and has a total area of 17 square miles.

This picture shows the Colony by night. Victoria City, on Hong Kong Island, with Kowloon on the opposite side of the harbour. There are 10,000 movements of ocean-going ships in and out of the harbour each year.



This picture shows the business district of Victoria city, Wanchai and Causeway Bay. The three tall buildings at centre are (from left) the Chartered Bank, the Hong Kong & Shanghai Bank and the Bank of China. On the seafront (left) is the 12-storey High Block of the New Hong Kong City Hall, built at a cost of HK\$20 million (£1,250,000 Sterling; US\$3,500,000). The new road to the eastern suburbs runs through part of the original Naval Dockyard, which has been reduced in size. On the opposite side of the harbour is Kowloon.

occasional thunderstorms. Summer is the rainy season. The annual rainfall has varied between 46 inches and 120 inches, but the normal value is 85 inches. On average the five dry months from November to March yield only nine inches as compared with 76 inches spread over the other seven months.

The mean daily temperature ranges from about 58° F in February to over 82° F in July and the average for the year is 72° F. During the hottest month, July, the mean maximum temperature is 86.9° F, but the summer temperature often exceeds 90° F. February is the coldest month with a mean minimum temperature of 55.6° F, but the temperature can be expected to fall to 45° F in most years. The mean relative

humidity exceeds 80 per cent from mid-February until early September. November is the least humid month with 69 per cent relative humidity, but the lowest reading of 10 per cent was recorded in January.

Gales caused by tropical cyclones may be expected in any of the months from May to November, but they are most likely from July to September. The passage of these cyclones several times a year at varying distances from Hong Kong brings spells of bad weather with strong winds and heavy rain. Gales are experienced once a year on average, and less frequently the centre of a mature typhoon passes sufficiently close to the Colony to produce winds of hurricane force when damage and loss of life may occur. The last

occasion when such winds were experienced was in September 1962 when the centre of typhoon WANDA passed over the southern part of Hong Kong Waters.

Geology

The territory of Hong Kong consists of many rugged and irregular islands with deeply dissected peninsulas. The general appearance is that of an upland terrain which the sea has invaded. The highest peaks and most prominent ranges of hills are composed of either porphyries or volcanics. At lower elevation there are granite hills with well etched peaks. The plains are all recent alluvial deposits. Only the soil of the flat agricultural alluvial districts in Deep Bay has any depth. Elsewhere in the Colony the soil cover is usually thin, sometimes no

more than two or three inches. The soils are generally acid and of low fertility, needing the addition of lime, potash and superphosphates. Rice remains the major crop by area, its production and value otherwise are surpassed by market garden cropping. Production is very intensive and in certain areas as many as 8 crops of vegetables are grown each year. It is not possible to domestically sustain the present population of over three million people, and the importation of food is a major port activity.

Industry

Since 1949 the pattern of Hong Kong's economy has changed. Industry, which before the Second World War was of secondary importance to the enterpot trade, has assumed a dominant role and over three-quarters of the Colony's total exports are now manufactured or processed locally.

Although no special benefits are available to industry by way of profits tax or protective tariffs, the general facility with which industry may be established and conducted in Hong Kong has proved attractive both to local and overseas investors. Apart from a very few revenue-producing duties, the Colony is a free port and Government regulation of trade is kept

to a minimum.

The variety of goods produced by local industry is now considerable. In general, while the heavier industries such as shipbuilding and ship-breaking continue to be important, the Colony has become best known for the price, quality and range of the products of its light industries.

There are many factors favouring industrial development in the Colony. They include low taxation, plentiful productive labour, facilities, and freedom from locally imposed trade restrictions. These, in general, more than compensate for important handicaps such as an absence of raw materials, a scarcity of water and a shortage of land suitable for industrial purposes.

The Port

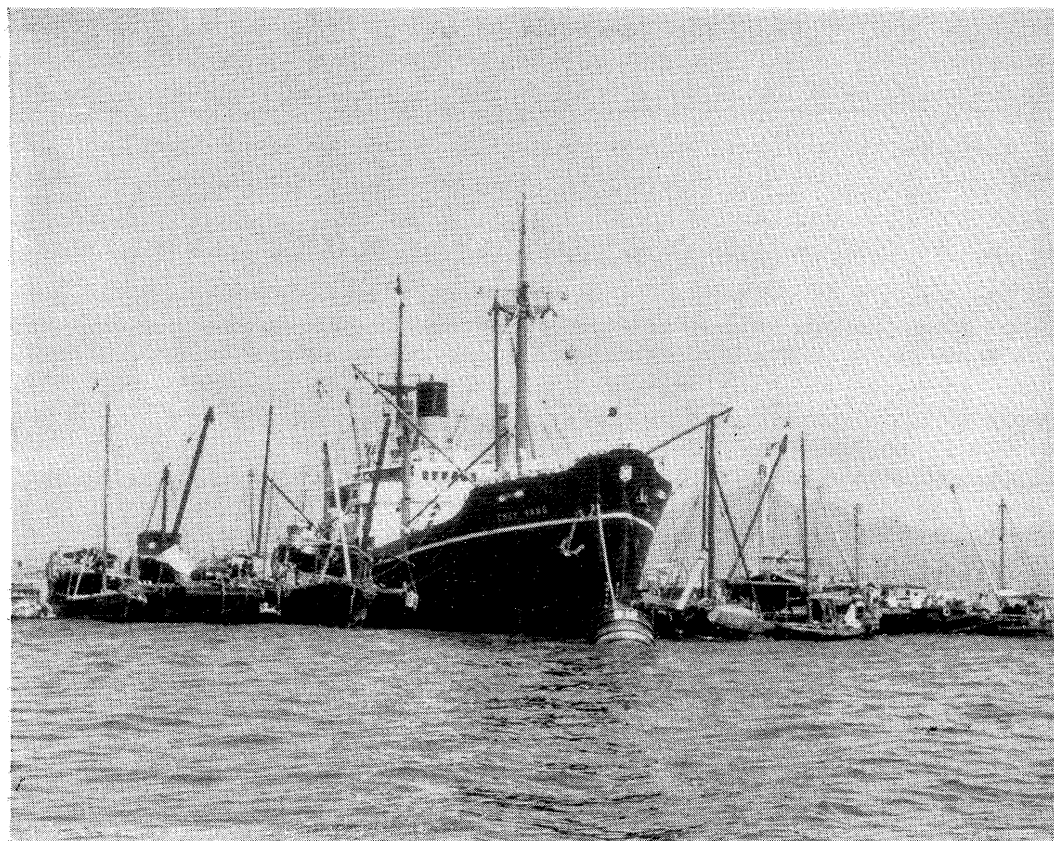
The port is contained in a fine natural harbour to which have been added all the facilities required by modern ship operators. Berths at Government buoys or at private wharves and piers allow a continual flow of ocean and coastal shipping to pass through the port without delay, while modern cargo handling equipment ensures the rapid turn-round vital of shipping economy. All the ancillary services

essential to the efficient day-to-day running of a ship can be provided at short notice by ship contractors, repairers and chandlers specializing in maintenance and painting, victualling watering and refuelling.

The Director of Marine, assisted by the staff of the Marine Department, is responsible for the administration of the port. The department co-operate closely with shipping and commercial interests through various port committees to ensure that port facilities and services keep pace with the ever-changing needs of Hong Kong and of the shipping companies.

Vessels enter the harbour by Lei Yue Mun in the east, with depths up to 36 feet, by Sulphur Channel in the west, with depths of 28 feet, or south of Stonecutters Island, also with depths of 28 feet. The approaches are reasonably free from hazards and well marked by day and night. Although pilotage is not compulsory, it is recommended owing to the density of traffic and the constant reclamation and harbour works.

In recent years tourism has assumed importance in Hong Kong and the liner companies whose vessels regularly call at the Colony are understandably anxious



A freighter moored in Hong Kong harbour off-loading cargo into junks. The junks deliver consignments to warehouses ashore, or direct to consignees.

that their passengers should enjoy facilities equal to those provided for air travellers. Private enterprise, aided by Government, is to provide the most spectacular amenity the port has ever known—an ocean terminal adjoining the Star Ferry concourse in Tsim Sha Tsui. The large capital expenditure is being met by the Hong Kong and Kowloon Wharf and Godown Company, with Government providing a direct grant. The terminal is estimated to cost \$46 million (HK) of this about \$25 million (HK) will be needed to construct the pier, while the balance will be used for the superstructure. The new terminal pier will be situated near the existing No. 1 pier and will be 1,250 feet long and 250 feet wide. The ground floor of the superstructure will be used as a cargo transit shed, while the first and second floors will have facilities for dealing with passengers and their baggage. A new oil tanker terminal was completed last year at Tsuen Wan, bringing the number of terminals to four. First class bunkering services are provided, either at the oil depot wharves or by lighter. Fresh water is also available, although the supply may be limited in the dry season.

Ferry Services

The Island of Hong Kong is divided by the harbour from the larger urban area of Kowloon but, because the commercial centre of the Colony is located on the Island cross-harbour passenger and vehicle ferries play a vital role in transporting hundreds of thousands of office and industrial workers. These ferries are operated by private companies but the Government has regulatory powers to ensure efficient operation. There are two large ferry companies and four minor ones each having a franchise to operate a certain route or routes.

The Hong Kong and Yaumati Ferry Co., Ltd. is the biggest operator and runs a fleet of 62 modern diesel engined ferries. During 1962 the company carried 112.6 million passengers and 2.5 million vehicles. The second largest company operates nine vessels across the shortest stretch of the harbour, three quarters of a mile, and at peak periods a ferry leaves

from each side of the harbour every three minutes. During 1962 this company, the "Star" Ferry Co., Ltd. carried 47 million passengers.

Ship Entering

Quarantine and immigration formalities take place at the eastern or western quarantine anchorage. Port Health and Immigration Department launches are on duty from 6 a.m. to 11 p.m. in the eastern anchorage and from 7 a.m. to 6 p.m. in the western anchorage. Radio pratique may also be granted in certain cases and this arrangement, apart from reducing the number of movements within the busy part of the harbour, is popular with passengers and consignees as it means that disembarcation and cargo work can begin immediately a ship is berthed.

Special Cargo Anchorages

Two types of special cargo anchorages exist in Hong Kong. One for ships carrying dangerous goods, petroleum, explosives and a variety of other hazardous goods; and an anchorage for ships discharging timber logs direct to the sea for rafting. The main dangerous goods anchorage is located at the western end of the harbour while others are established adjacent to the major oil installations.

The anchorage for discharge of logs was established in 1963 as a result of a problem created by logs being discharged haphazardly within harbour limits and endangering small craft, waterside installations and navigation in the harbour. This special anchorage is situated at Lantau Island some 10 miles from Hong Kong Harbour and is the only place where ships may discharge timber logs direct to the sea. Last year imports of logs were valued at 82 million dollars.

Port Communication

First sighting reports of vessels in the eastern approaches are made from the signal station at Waglan Island and passed to port control, owners and agents. Three other signal stations, manned continuously, report all shipping movements to the port control office and maintain ship-shore communications in the harbour and approaches. Navigational warnings, distress and weather messages are

passed through the marine radio system, while marine officers attached to the port control office are available at all times to deal with emergencies and queries.

Radio telephones on a common circuit are installed in the Marine Department signal tower, at Waglan and Green Island lighthouse, at the port control office and in marine and port health launches. Police, Immigration, and Commerce and Industry Department launches are fitted with radio telephones on their individual departmental circuits. Vessels at buoys and wharves may hire radio telephone to link up with the public telephone services. The public correspondence radio-telephone services in accordance with the Hague convention are operated by Cable & Wireless Limited.

Port Security

The Marine Division of the Hong Kong Police is responsible for internal security and its launches maintain constant patrols in the harbour and waters of the Colony. Fire is an ever present hazard to shipping and one of the largest and most up-to-date fire-floats in the world, the Alexander Grantham, is maintained in constant readiness by the Hong Kong Fire Services Department. Smaller fire-floats are stationed both inside the main harbour and in the smaller ports of the Colony. At two key points within the harbour portable banks of carbon dioxide cylinders are maintained, each bank being capable of smothering a fire in the largest hold of any ship visiting the port.

Liner Services

The Colony continues to develop its industries, and shipping companies bring in the raw materials and take away the finished products. Many well-known and old-established shipping companies maintain regular and frequent services to and from Hong Kong; some 20 companies provide regular sailings to Europe and an equal numbers to the North American continent. There are also regular services to Australia, New Zealand, South America, South Africa and Asian ports.

Mooring and Berths

Fifty-seven moorings for ocean-going vessels are maintained by the Marine Department. Of these



DOCKS IN KOWLOON

Ships from all parts of the world drop anchor in Hong Kong. Many of the cargo carriers go to buoys in the harbour, where they are loaded or unloaded by Chinese junks, but most passenger ships tie up alongside the docks in Kowloon. The principal wharf company has permanent storage space for 760,000 tons and the total available is well over one million tons. Most cargo handled in Hong Kong is at some stage transported by lighter and over 2,000 lighters and junks are used for this purpose. Hong Kong's continued development as a centre of light industry is well supported by the shipping companies, who both bring the raw materials and take the finished products to all parts of the world. Over 20 companies provide regular sailings to Europe, and the same number are run to the North American continent.

This picture shows ships tied up alongside the Kowloon docks. The largest vessel is a British troop carrier. The docks are only five minutes walk from the centre of Kowloon.

32 are classified as suitable for the use of vessels up to 600 feet in length in typhoon conditions, and 25 for vessels up to 450 feet in length. Commercial wharves are able to accommodate vessels up to 750 feet in length with a draught up to 32 feet. In addition to harbour moorings and wharfage considerable anchorage space, with adequate holding ground, is available both inside and beyond harbour limits. It is estimated that wharf and godown companies have total storage space of well over 1,000,000 tons, catering for the storage and transshipment of all types of refrigerated, dangerous and ordinary goods.

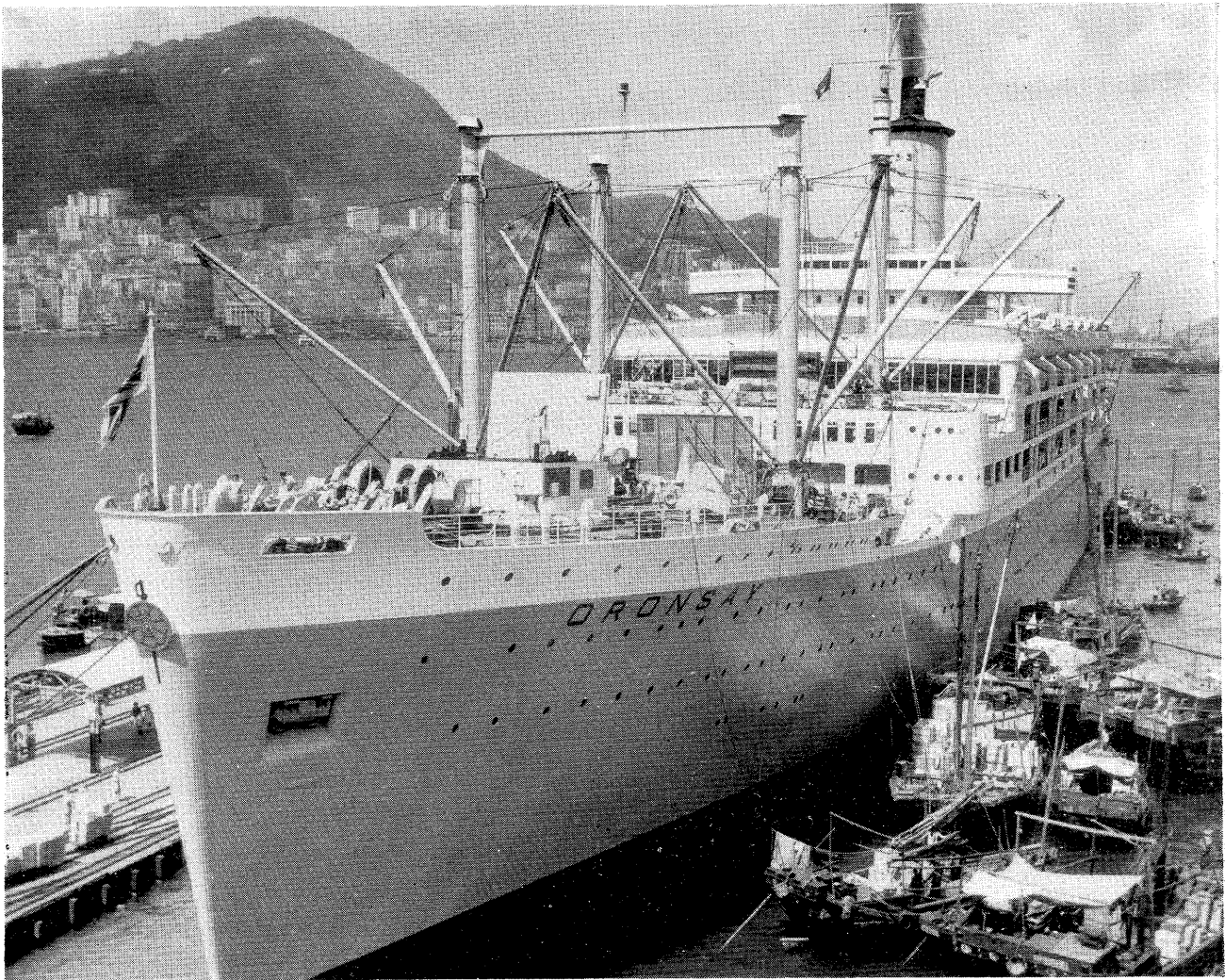
Cargo Handling

The number of ocean-going vessels using the port are in the region of 6,000 per year. These ships bring in between 6 and 7 million tons of cargo and exports are over two million long tons per year. Most cargo handled in Hong Kong is at some stage transported by lighter. There are now several hundred lighters and junks used for this purpose and more than 250 have engines. This mechanized fleet is expected to grow in the future as it is a form of transport particularly suited to the handling and delivery of the small parcels of cargo which make up a considerable proportion of

the tonnage handled in the port.

Ownership ranges from fleet of company owned lighters, the largest being that of the Hong Kong & Kowloon Wharf and Godown Co., Ltd. with 85, to owner-operated cargo junks onboard which the family also makes its home.

If the shipper or consignee of cargo does not engage one of the large lighterage firms to move his cargo he will secure the services of a transportation agent, who will quote the client and all-in fee. A tallyman employed by the agency will then accompany the cargo on board the junk and present the appropriate Shipping Order or Delivery Order to the



Almost every day sleek ocean liners can be seen joining the cargo vessels of the world's shipping fleet in Hong Kong harbour. Indeed, Hong Kong owes its existence to its position as a major communications centre on the China Coast. In 1960/61 more than 10,979 ocean-going vessels entered and cleared the port. They discharged and loaded some 8,165,962 tons of cargo. At the same time 210,000 tourists arrived in Hong Kong and of these 20 per cent came by sea.

Hong Kong is served by 36 shipping companies and agents representing 76 shipping lines. Last year the Colony's tourist traffic increased by 32 per cent over the previous year, exceeding the most optimistic forecasts. The majority of these tourists (34.5 per cent) came from America, while 32 per cent were from the British Commonwealth. The number of tourists arriving into Hong Kong has doubled in four years and during 1961 the Hong Kong Tourist Association made arrangements to open offices in New York, Chicago and San Francisco.

This picture shows the P & O-Orient company's steamship Oronsay (28,000 tons gross) alongside the wharf in Hong Kong. The Oronsay is a regular visitor to the Colony sailing from London and Southampton. She carries 612 first-class and 804 tourist-class passengers.

ship. This agency then either sees that the goods are duly delivered and a mates' receipt obtained or, again in respect of imports, will see the goods into the lighter and accompany them to the discharge point where onward transportation will be arranged if required.

The large number of small craft which operate in the harbour create a special problem in density of water-borne traffic. There are some 23,500 vessels in this category, of which over 5,200 are mechanized, and examinations are compulsory for local certificates of

competency as master or engineer of all powered craft. These examinations are an important factor in ensuring a continued high standard of handling and safety precautions in small vessels. As a result, there have been far fewer accidents than might be expected considering the number of craft moving in the harbour and surrounding waters.

Pearl River trade cargoes are transported mainly by towed lighters or junks and a flourishing trade with Macau and adjacent Chinese ports exists. The princi-

pal imports from these ports consist of building materials, vegetables and fruits, sea products and foodstuffs, while the chief exports are fertilizer and foodstuffs. Internal trade in Colony waters takes place between the harbour area and outlying districts. Sand for building purposes is the chief commodity carried inwards, while outward bulk cargoes are mainly building materials, cotton bales, dangerous goods and foodstuffs.

Shipyards

Shipbuilding and repairing is the oldest of Hong Kong's indus-

tries. Following naturally from its development as a trading port, the Colony has become one of the finest ship building and repair centres in the East. Hong Kong shipyards can build large ocean-going vessels, including the construction and installation of engines. The various load line and classification societies are represented and Government has a staff of surveyors. This means that ships built or under overhaul can be fully surveyed and documented. At the other end of the scale, pleasure craft and utility vessels of all kinds including ocean-going yachts, vehicle and passenger ferries, sloops cruisers, speed boats of wood and fibre glass, tugs, yawls and steel lighters are regularly produced for local use and for export. The traditional Chinese junk, slightly modified from the basic design in use for many centuries, has also found acceptance abroad as a comfortable and stable pleasure craft.

Shipbreaking

The ship-breaking industry is still of major economic importance. Much of the scrap obtained is used in local rolling mills, which produce an estimated 9,000 tons a month of mild steel reinforcing

bars. This represents a large part of the requirements of the Colony's building industry and in addition a considerable quantity of rods and bars is shipped abroad, principally to south-east Asian territories.

Banking

The Colony has been part of the sterling area since August 1941. Exchange Control is administered under powers conferred by the Defence (Finance) Regulations, 1940. The system of control is based on that in force in the United Kingdom, with some modifications made necessary by the position of Hong Kong as an entrepot.

The Banking Ordinance provides that no institution may engage in banking without obtaining a licence from the Governor in Council and that each bank must publish an annual balance sheet. At the end of 1962, 92 licences had been approved, 46 banks being also authorized to deal in foreign exchange. Many of these banks have branches or correspondents throughout the world and are thus able to offer comprehensive banking facilities.

Customs

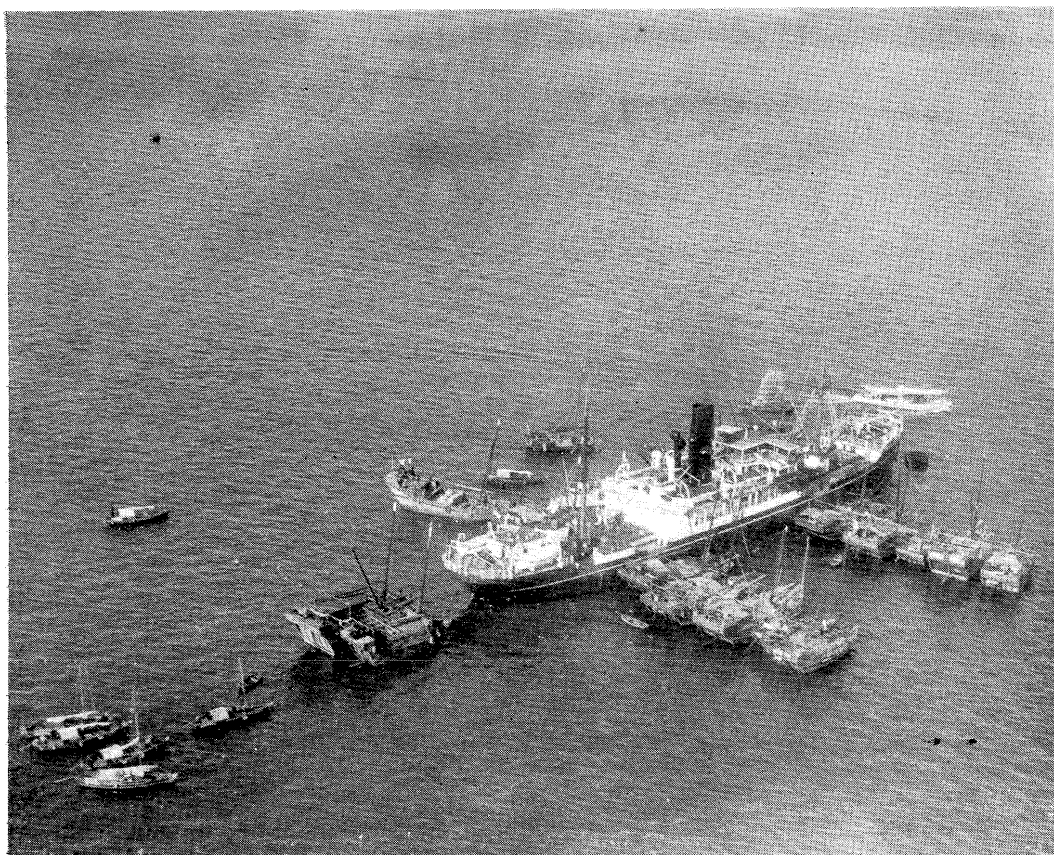
There is no general tariff and,

with the exception of five groups of commodities, imported goods are free of any duty levied for purposes of protection or revenue. The five groups of commodities, either imported into or manufactured in the Colony for local consumption, upon which duties are levied, are alcoholic liquors, tobacco, hydrocarbon oils, table waters and methyl alcohol. Firms wishing to import or sell these commodities must be licensed.

Toilet preparations and proprietary medicines containing more than two per cent proof spirit are dutiable on the alcoholic content at the rate appropriate to alcoholic liquors. Certain other imports, notably paints, are dutiable by virtue of their hydrocarbon oil content.

No duties are levied on exports. Drawback is paid, in certain circumstances, on duty-paid commodities used locally in the manufacture of goods subsequently exported.

Import and export licensing formalities are kept to a minimum. Licences are required only for materials of a strategic nature and for a few items on which it is necessary to retain control for other such reasons. The majority



A freighter discharging cargo into junks in Hong Kong harbour. Many vessels do not come alongside wharves, but moor at buoys where their cargo is collected by the junks, which deliver it to the warehouses ashore.

of export licences are required for exchange control purposes. The Commerce and Industry Department takes pride in the speed with which applications for import and export licences are handled, a licence normally being ready for collection a few hours after application has been made.

The preventive service is the uniformed and disciplined branch of the Commerce and Industry Department, with powers similar to those normally exercised by a customs and excise service for the protection of revenue from dutiable commodities.

The service operates a fleet of launches, of which two are vessels capable of patrolling offshore.

The service also plays an important part in the suppression of drug trafficking. A guard of preventive service officers goes aboard each vessel arriving at the immigration anchorage from ports from which drugs are suspected to be smuggled. The guard remains on board while the vessel is in the Colony waters, to prevent drugs being smuggled ashore. Officers frequently search these ships and it was as a result of such a search that the largest single seizure of 1962 (35 pounds of morphine and 268 pounds of opium) was made in a rope locker. Another large seizure of 44 pounds of morphine was discovered concealed in a cargo of incense powder.

Registry

The Hong Kong Registry of Shipping lists over 480 vessels under the British flag, totalling some 700,000 gross register tons. The Colony still remains one of the chief centres for trampship owning, in spite of the world-wide recession in shipping and a good deal of chartering business finds its way to Hong Kong.

Seamen

Officers of the Mercantile Marine Office supervise the engagement and discharge of seamen serving in British ships and ships whose countries have no consular representation in Hong Kong. It is estimated that some 30,000 Hong Kong seamen are regularly engaged in a sea-going capacity in ships of many different national flags.

Fishing

There are approximately 10,000 vessels actively engaged in fishing and licensed for that purpose. Nearly half this number are mechanized and these comprise some 900 trawlers, 1,600 long liners, 800 seine netters and 1,200 inshore fishermen. 'Inshore' in this context means those which fish within Hong Kong and Pearl River waters. The mechanized section of the fleet last year landed 77% of the annual catch and with the continuing trend towards mechanization this percentage will continue to grow such that within the next five years catches by fishing vessels depending solely on wind for propulsion will no longer be significant, much to the sorrow of the lovers of sail. Some of the junks are most aesthetically satisfying.

The fishing grounds of the Hong Kong fleet lie within the continental shelf to the south of Hong Kong and extend to Hainan Island and into the Gulf of Tong King. A small number of trawlers and long liners go further afield to about 9 degrees North, some 100 miles south-east of South Vietnam, again within the 100 fathom line.

Port Charges

Hong Kong has reputation for being an inexpensive port. The reason why costs can be kept down is because of the amenities provided by nature. It has not been necessary for example to undertake the tremendous capital ventures of constructing docks, and conservancy generally is not a big item. The charges made by the Hong Kong Government are in respect of light dues, mooring buoy hire and anchorage dues. Pilotage charges are based on tonnage and whether or not the pilot embarked inside the harbour limits. A vessel of 6,000 gross tons, for example, would pay \$120 for pilotage inwards. There is a charge levied for Sunday cargo working. Wharf services vary from company to company and charges are frequently a matter for negotiation. Stevedore charges, also a matter for negotiation range from \$6 per ton. Rate of discharge of general cargo is approximately 15 tons per gang hour. The principal wharf and godown companies operate under

published tariffs covering all operations connected with the handling of cargo. The hours of work are from 0800 hours to 1200 hours, and from 1300 hours to 1700 hours. Additional charges are made for work outside these hours. Charges for handling lines and for the use of tugs are also according to tariffs published by the controlling firms.

Currency Weights and Measures

The unit of currency is the Hong Kong dollar (H.K.\$) of 100 cents. \$16 (H.K.)=\$2.80 (U.S.)=£1 sterling=1,000 Yen (Approximately). As well as British weights and measures the following Chinese units are occasionally used:—

1 teal=1½ oz; 1 catty=1½ lb;
1 picul=133½ lb. or 1/17 of a ton;
1 chek=11½ to 14½ in.,
most commonly 14.14 in.;
10 chek=1 cheung;
1 lei=707 to 744 yds.

* * *

Mitsubishi to Help Build India Yard

NEW DELHI (Kyodo-Reuter)—A Japanese firm is to help India build a shipyard at Cochin on the west coast, it was stated in Parliament Tuesday.

Replying to questions in the Lok Sabha (Lower House) the Minister of Shipping, Raj Bahadur, said agreed proposals had been evolved a few days ago by the teams representing the Indian Government and Japanese firm (Mitsubishi).

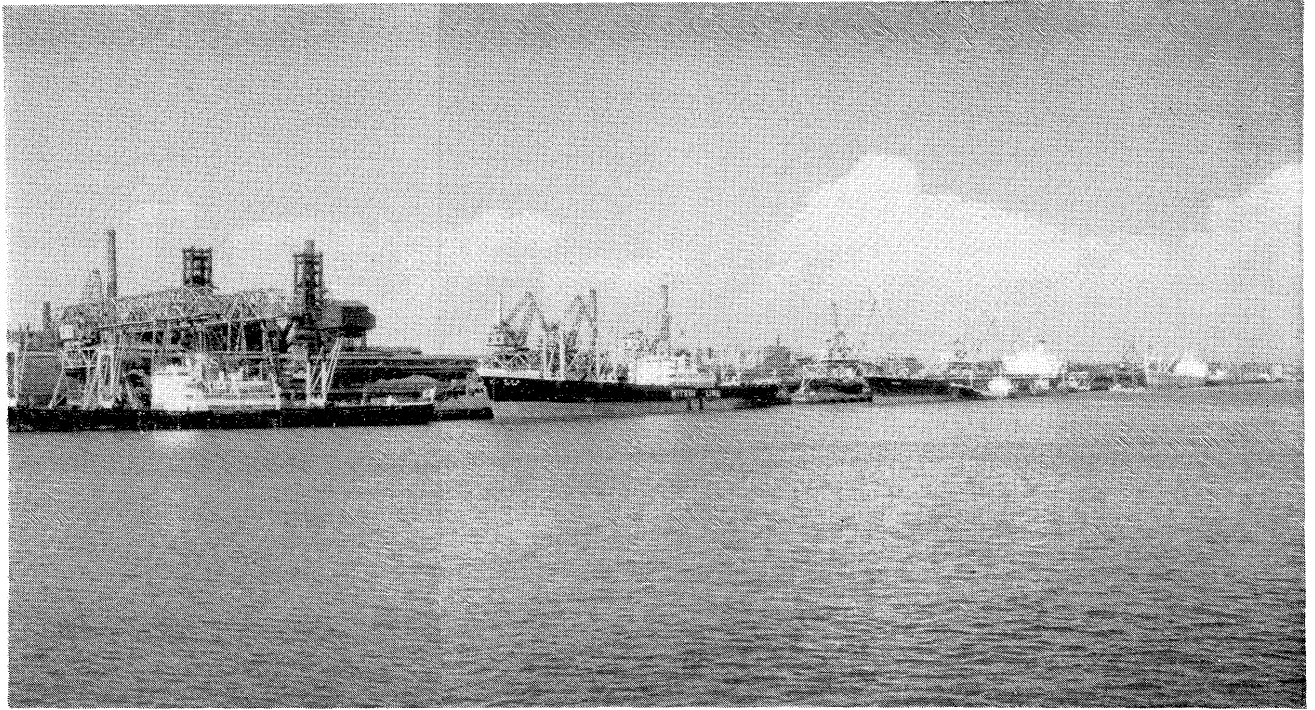
These proposals would be finalized by the Japanese firm and sent to the Indian Government, he said.

The minister indicated that the Japanese firm would be allowed to participate in the equity capital of the shipyard project in addition to providing technical assistance and guidance for the construction of a yard as well as ships.

The shipyard has been tentatively planned to manufacture four ships annually—two each of 15,000 and 30,000 tons.

(The Japan Times November 28, 1963)

PORT OF HIROHATA JAPAN



General view of Port of Hirohata

Located on the Inland Sea of the western mainland of Japan, the Port of Hirohata was opened as a modern port quite recently, but now has become one of the major ports mainly dealing with Ore and Coal and Steel Products

in Japan.

In 1937, the Japan Steel Works, later renamed as Fuji Iron and Steel Company, Ltd., started to renovate the port to enable 10 vessels including 10,000 tonners load/unload at wharves and the work

was completed in due time.

In order to meet the requirements of the port due to the recent enormous advancement in steel industry, the port authorities decided in 1959 to construct new pier and additional shore cranes



Cargo equipments installed at the wharves in Hirohata Harbor

also to extend the breakwater, dredging the fairway and the harbor at the same time. The works have been completed shortly and the port is since available for vessels of 60,000 tons deadweight.

It is expected that the depth of the port will be deepened to 14 meters to permit 80,000-ton vessel enter to the port.

Port Facilities

Channel and Fairways

Total length 3,400 meters, width 220 meters, depth 12 meters

Breakwater 1,146 meters

Wharves and Quays

	Length in meter	Depth in meter	Capacity D/W	Vessels
Yumemae Wharf	240	7.5	7,000 tons	2
Kamoda "	762	7.5	7,000 "	4
Central "	275	12.0	45,000 "	1
Tsuruta "	463	9.5	15,000 "	3
Shioiri "	210	9.5	10,000 "	1
" "	150	7.5	7,000 "	1

Mooring Buoys

Number	Capacity	Vessels
1	20,000 tons D/W	1
1	20,000 " "	1
2	3,000 " "	1
6	for small vessels and barges	24

Barges, Total number 18,

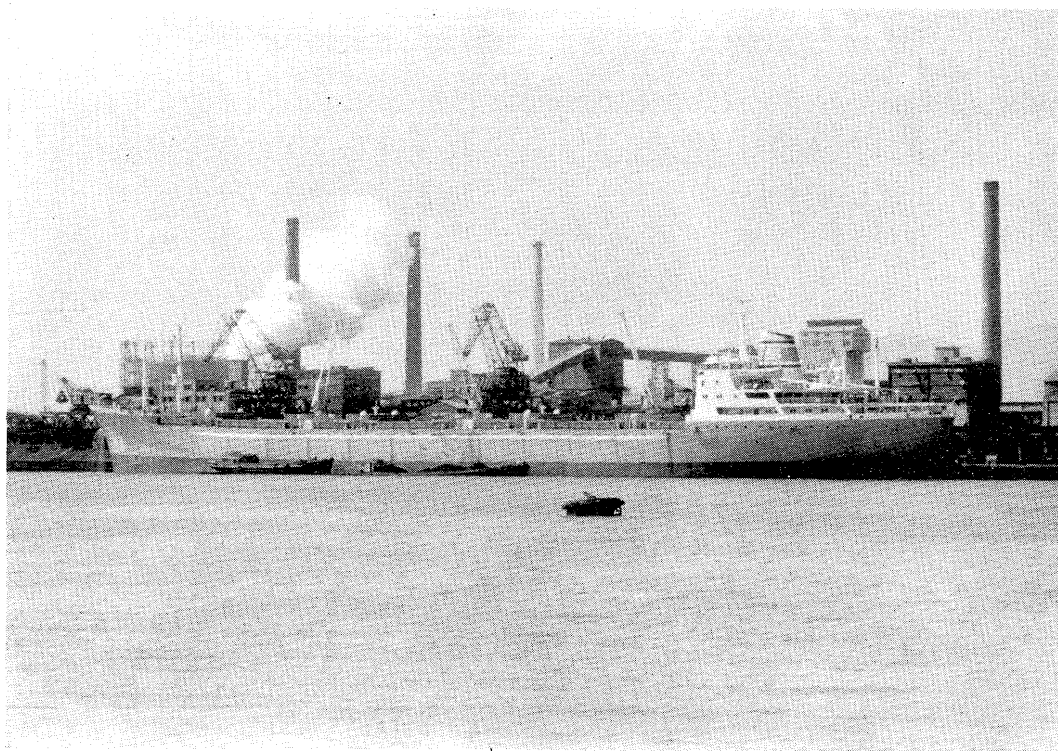
Tonnage 7,330

Cargo Movement in 1 year (Oct. 1962 – Sept. 1963)

	Export	Import
Iron Ore		2,372,000 tons
Coal		892,000 "
Iron & Steel	237,000 tons	
Others	5,000 "	143,000 "
Total	242,000 tons	3,407,000 tons



The Central Wharf where Iron Ore and Coal is discharged.



The Kamoda Wharf allocated for unloading Coal.

PROGRESS REPORT ON PHILADELPHIA PORT AREA

— Delaware River Port Authority —

THE MOVEMENT of international cargo over the area docks in the Ports of Philadelphia last year constituted another record. Volume was slightly in excess of 50 million short tons.

On overseas tonnage, imports approximated 46.5 million tons, a jump of 15% over 1961, and exports climbed by 14%, to 3.9 million tons. These are figures cited in the 1962 annual report of the Delaware River Port Authority.

Shipments of two bulk commodities, iron ore and grain, accounted for sizeable proportions of these volumes.

Field offices of the Delaware River Port Authority, located overseas and at home, indicate that many new export general cargo accounts, including commodities ranging from cement plants to bowling balls, are now using the Ports of Philadelphia.

James H. J. Tate, chairman of the Delaware River Port Authority, states "this is the third year

in succession that our Port area has been on top in this field, and the ninth consecutive year the leader in import tonnage.

"Imports and exports handled in 1962 had a value exceeding \$1.5 billion. Just 10 years ago, Philadelphia handled 25.8 million tons of foreign commerce, and now we have virtually doubled that total."

The 50-million figure represents 14% of the foreign commerce of the United States, it is further noted, and 27.9% of the total of exports and imports which moved through all North Atlantic Ports, Boston to Hampton Roads inclusive.

Altogether, more than 100 million tons of cargo flow through the Delaware River Port annually, making it the second largest port in the nation in total tonnage. Foreign commerce accounts for between 40 and 50 million tons of this total. Coastwise and inter-coastal shipping amounts to another

35 to 40 million tons, and intra-harbor movements contribute the remainder.

The Delaware River Port is the largest importing port in tonnage volume in the United States, accounting for 25% of the nation's total. Along with oil and ore, the ports handle heavy volumes of imported cocoa beans, sugar, molasses cork, clays, gypsum, lumber, woodpulp, paper, fertilizers, pig iron, hemp, wool and many other commodities. Exported through the ports are coal, grain, petroleum products, steel mill products, animal products, machinery, chemicals and automotive equipment.

The Ports of the Delaware River are located on the Atlantic Seaboard at the strategic center of the greatest concentration of industry, population, wealth and productive capacity in the Western Hemisphere.

The Port Area is the largest oil refining center on the East Coast, and ranks second largest in the country. The port authority states that more imported crude petroleum is unloaded from tankers here than in all other ports of the nation combined.

The area is major chemical manufacturing and steel producing center. Sugar refining and paper manufacturing firms have found the port waterfront ideally located

ed for their production facilities. The industrial diversification of the Philadelphia Ports Area is so pronounced that 90% of all industry types classified by the U.S. Bureau of the Census are located here.

From the Capes of the Delaware, to the head of navigation at Trenton, N.J., the river provides a strategic ally located water highway 135 miles in length.

The Delaware River has an authorized channel depth of 40 feet from deep water in Delaware Bay to the upper end of Newbold Island at Fairless, Pa., with a 25-ft. channel from this point upriver to Trenton.

Navigable throughout the year, the Delaware River is tidal to Trenton, the head of navigation.

The Ports of Philadelphia are served by over 100 scheduled steamship lines which link the ports directly with 270 ports in 75 foreign countries or territories.

The Delaware River Port Authority embraces port authorities of both Pennsylvania and New Jersey, the offices of the Authority being located at Bridge Plaza, Camden 1, N.J.

The purposes of the Authority include the development and improvement of the Port district, the promotion of the Delaware River as a highway of commerce, the improvement of terminal and other Port facilities for the promotion of commerce, the handling of any litigation involving rates, preferences, rebates or other matters affecting the vital interest of the Port.

Development and promotion of the Ports district is a direct responsibility of the Authority's Division of Port Development.

An advantage of shipping via railroad through the Port of Philadelphia is direct shipside service. Within the port area on both sides of the Delaware River four trunk line railroads serve the waterfront properties: The Pennsylvania Railroad, the Baltimore and Ohio Railroad, The Reading Company, and The Pennsylvania-Reading Seashore Lines.

In Philadelphia, The Philadelphia Belt Line Railroad owns franchises and rail trackage which provide access to waterfront facilities

by the several trunk line railroads. In addition to their vast port terminals, the three trunk line rail carriers maintain classification and storage yards with a combined capacity of 35,000 freight cars.

A large fleet of motor carriers serves the Delaware River Port and carries freight directly to and from shipside. Modern highways through the Port Area supplemented by the New Jersey and Pennsylvania Turnpikes and the Schuylkill Expressway provide ready access to all parts of the Delaware River waterfront.

The Philadelphia Port Area provides the shipper with excellent warehousing facilities either located directly on the piers or within

250 to 1,500 ft. of the general cargo piers. There are 28 dry cargo warehouse organizations with approximately 10.5 million sq. ft. of covered area. Open storage available amounts to another 9 million sq. ft. adjacent to the waterfront.

Tugs, lighters, and barges of every description are available for extra services when desired, although lighterage is not required for ordinary operations.

Fork lift trucks, tractors, pallets and special handling equipment for all types general cargo add flexibility to port operation.

Capacity and floating derricks to 125 tons capacity, gantry cranes to 75 tons, plus locomotive and truck cranes, are available.

* * * * *

RECENT SHIPPING FACILITATION DEVELOPMENT AND THE MARINE EXCHANGE PROGRAM

By Kenneth L. Chamberlain, Chairman, Maritime Facilitation Committee, Marine Exchange Inc. of the San Francisco Bay Region

This year has seen an extremely encouraging increase in facilitation activity all over the world. More and more people have been convinced that there is an enormous amount of time and money to be saved through work in this field. The interest has been apparent in both industry and government, and facilitation has formed a significant part of the program of almost all leading national and international maritime organizations. The pioneering work that resulted in the San Francisco publication in April, 1959 of the definitive study, *MERCHANT SHIPPING ON A SEA OF RED TAPE*, has as 1963 ends shown major progress towards achieving its aims. There is every sign that the momentum necessary for success internationally has now been generated.

The 1963 program of the Marine Exchange's Maritime Facilitation Committee has had four major parts: The bill of lading standardization project; a continuous evaluation of United States

Government requirements; general concern with what is going on in the international sphere and particular interest in Latin American facilitation developments.

1. Bill Of Lading Standardization:

1963 has seen the culmination of three years of intense study and much hard work by the subcommittee under the leadership of Alex C. Moshkin. In June 14, their Standard Export Bill of Lading Proposal was formally submitted to the United States Maritime Administrator, Washington, D.C., and copies of the report were widely circulated. The subcommittee members are to be particularly congratulated for this achievement, which is without doubt the most significant contribution made by the Marine Exchange to facilitation since its co-sponsorship and production of *MERCHANT SHIPPING ON A SEA OF RED TAPE*.

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PORT OF LATAKIA

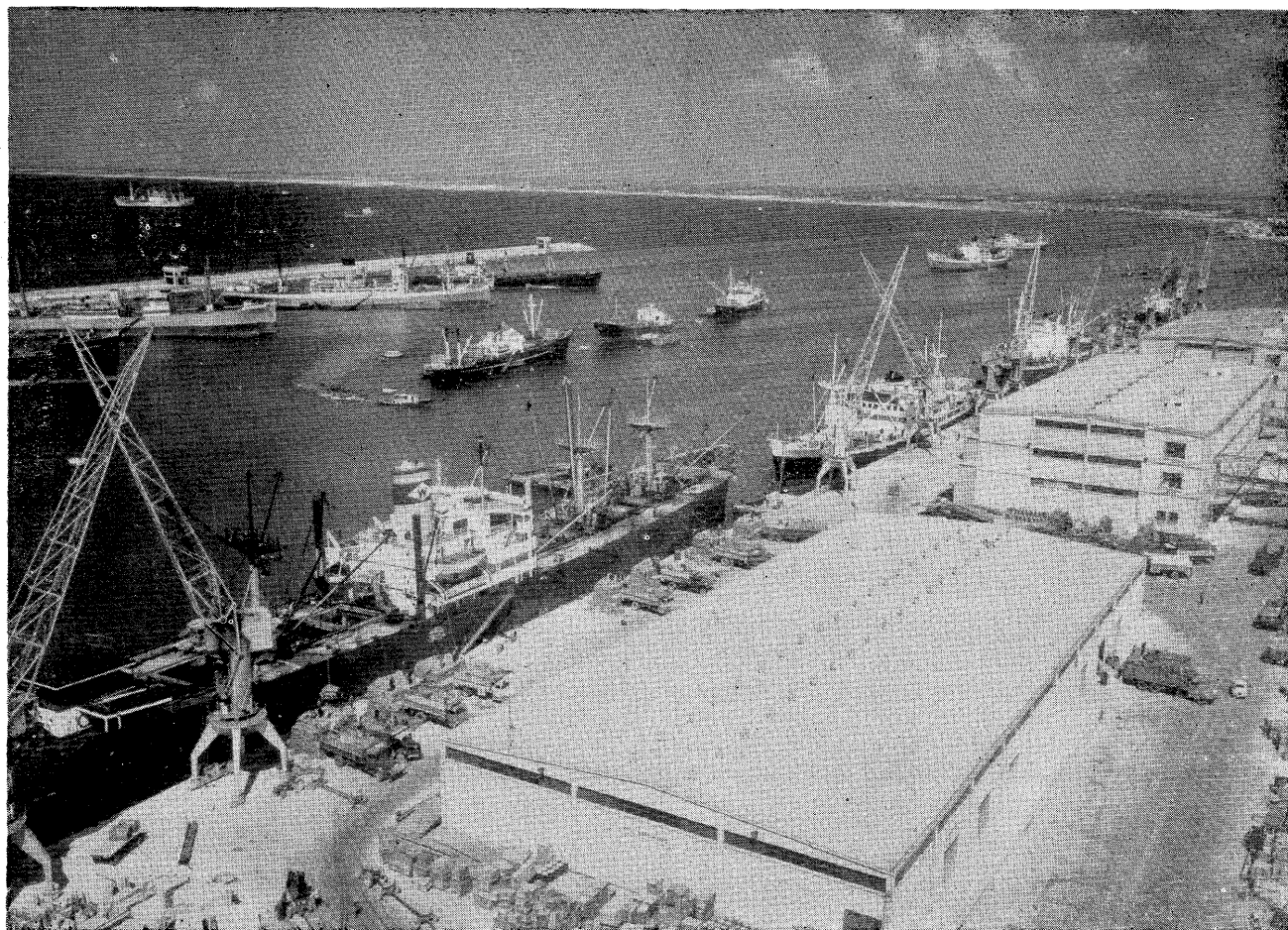
The Key Port of the Near East

By Fathi A. Wafa

Chief of Civil Engineering Department

Latakia Port Company

Latakia, Syria



The New Basin and Main Quay at Latakia Harbour

A LOOK ON SYRIA

The Port of Latakia is situated on the Northern Coast of Syria at the Latitude $35^{\circ} 30'$ North and Longitude $35^{\circ} 45'$ East.

The climate is mild subtropical with temperature varying between 0° Centigrade at the lowest in winter and 32° Centigrade at the highest in summer with an average of 16° in winter and 26° in summer.

Humidity is very high except when wind is N. or N-E.

The prevailing wind in all seasons is south westerly (Maltam).

The rainy season is concentrated

mainly in winter.

The tide is insignificant.

There is no fog.

The District of Latakia as well as the whole of the Syrian Territory beyond it, is one of the richest places of the world in historical sites, from the Stone Age to the present.

Many places, most interesting from the Archeological point of view, are worth visiting in the immediate vicinity of Latakia. Besides this fact, the district is also extremely rich in forests, beautiful scenery, and an abundance of summer resorts. In the summer one

can choose between enjoying the sane atmosphere and cooling climate of a summer station up in the mountains, or a swim and water-skiing in the refreshing waters of the Mediterranean at any of the innumerable and well equipped bathing stations along the coast.

A few miles North of Latakia lies the Ancient City of Ugarit (Ras Shamra). The city, fourty centuries old, was an outpost of civilisation, and its discovery in 1929 gave innumerable clarifications to the history of biblical times. The baked clay tablets un-

earthed on the site are written in what is probably the oldest alphabet known to the world. Excavations still in progress, give every year several new and interesting discoveries.

The Greek and Roman left a great impact on the Syrian soil, Palmyra is still today the queen of the desert, and entire city with its columns, its temples, statues, forum and theatre standing among the sands as gracefully as ever. The enchantment that grasps the visitor of Palmyra never fades and the desire to come back is always strong.

The Roman Theatre at Bosra is the best preserved in the world, the perfect acoustical quality of its stage has been the wonder of many an expert.

The Convent of Saint Symeon the Stylite of the fifth century A.D. is one of the finest examples of Byzantine Architecture.

The Crusaders left a string of

castles and fortifications strewn along the whole Syrian Coast. Several are still standing in the District of Latakia. The best preserved, one which has scarcely changed since the Templars, is the Kark des Chevaliers, witnessing to the age of chivalry and romance. It can be reached easily by road from Latakia.

Besides these, innumerable sites can be visited and enjoyed, sites which tell the whole History of Syria, rich in archeology, rich in spiritual values, as can be gathered from a visit to the different museums in the country, which can be counted among the richest and best kept museums in the world.

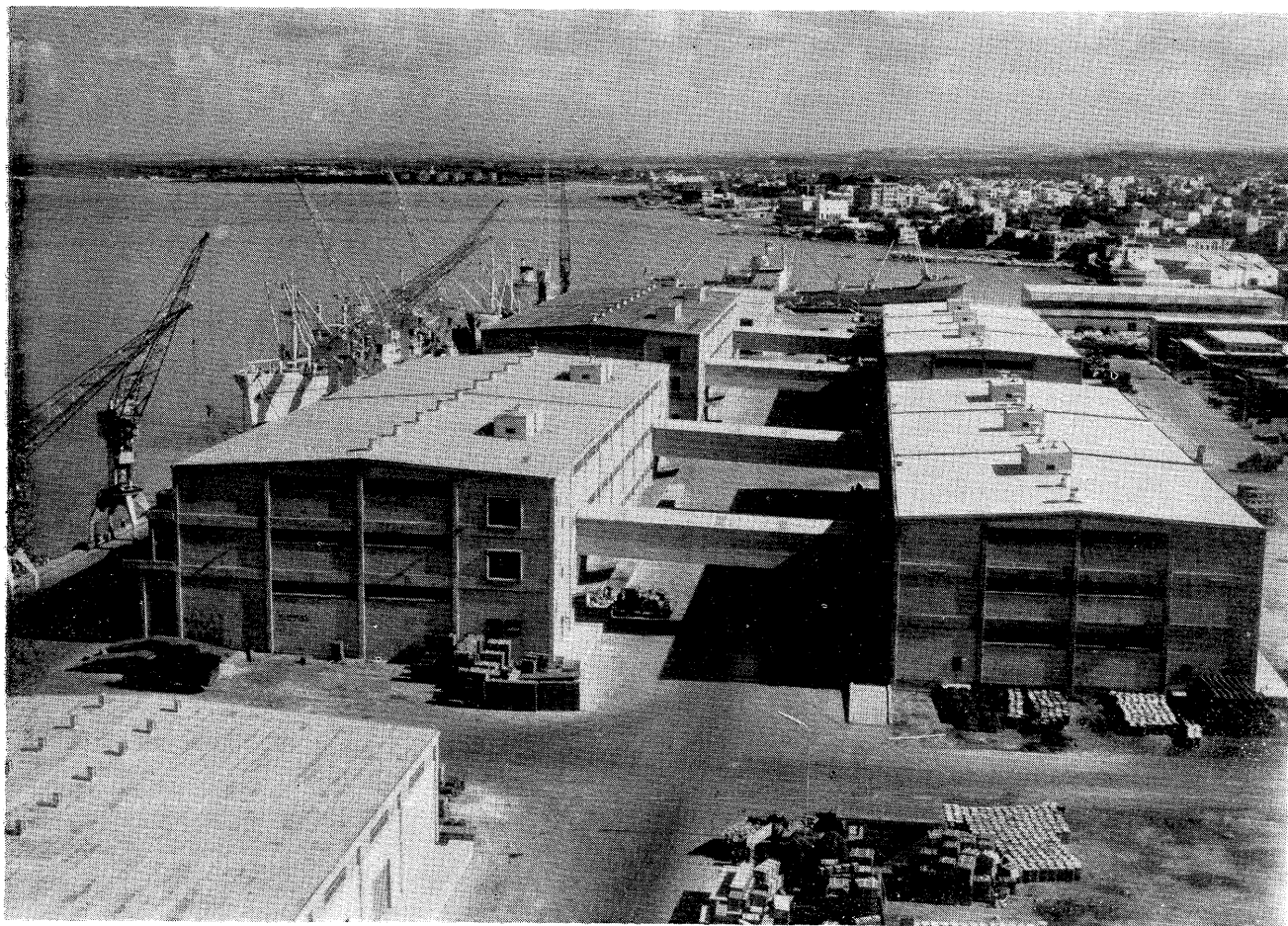
HISTORICAL BACKGROUND

A very small basin in Phoenician times, the Port of Latakia takes on some importance under the Greek and we know from Strabon that it is an excellent harbour. Later under the Emperor Septimus Severus in the third cen-

tury A.D. the Port of Latakia grows into an international center of Commerce. A coin of the same period minted at Laodicea (which is the Roman name for Latakia) shows a ship full of corn stalks passing under a lighthouse, with the sails drawn in, to facilitate manoeuvring into the harbour. A text from Malalas tells of how Septimus Severus accorded an annual donation of wheat to the people of Laodicea.

The Port of Latakia reaches a considerable importance at the time of the Crusaders, an Arab Historian of the time, speaking about Latakia says: "It is the most beautiful town of the littoral, an incomparable harbour easily accessible to ships".

It is in the course of that period that the port is at different times frequented by the Italians. Pisans in 1099 under Daimberto Archbishop of Pisa; Genoans in 1100, then again Pisans in 1108. These



Four Three Storey Warehouses at Latakia Harbour have bridge connection for the easy transport of goods



A Floating Crane of a 100 ton capacity at Latakia Harbour.

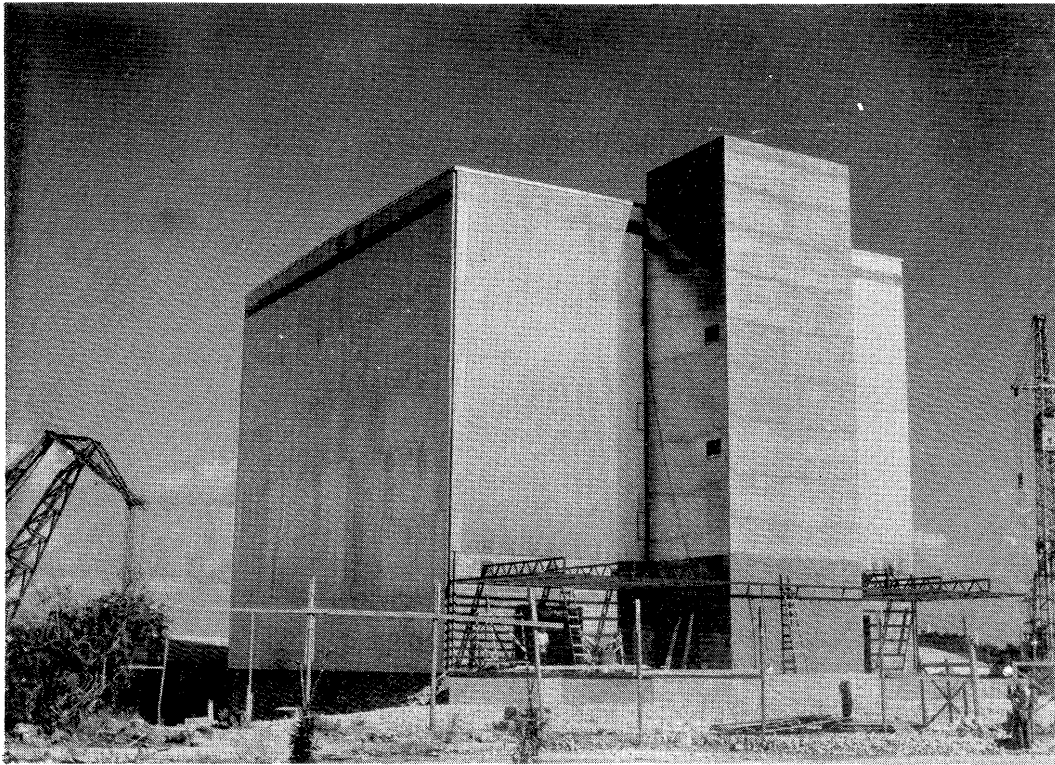
own large quarters near the harbour together with the Arcade Street leading from the city to the harbour. In 1163 the town of Amalfi buys three stores on the waterfront. Then under King Zaher, son of Saladdin, Venitians are granted some concessions including an hotel a church and a bath.

It is only under the Mameluks and the Ottomans that the Port of Latakia shrinks in importance. In

the 19th century it is nothing more than a small basin without any importance.

Several earthquakes shook the city culminating in the seism of 1822 that destroys the fortification at the entrance of the harbour which is almost completely obstructed. In 1875 a French Historian writes: "the entrance of the basin being too narrow and difficult for ships of big tonnage, the port is now little frequented."

After the First World War Syria is placed under French Mandate. French Administration divides Syria into small states and makes of Latakia the Capital of the Alawite State. Some works for the dredging of the small basin are then undertaken by a French Firm and a small quay constructed at the Southern side of the basin. The basin however, remains unaccessible to ship of medium tonnage and almost entirely unpro-



The New Administration Building of the Port of Latakia.

tected.

In 1945, Syria becomes independent. The Syrian Government begins seriously to think of developing the Port of Latakia. For this purpose a company is created in 1950 and shares issued which are in great part acquired by the Government. The purpose of the Company is to construct and exploit a sea port at Latakia. It is considered not only to ameliorate the existing basin, but also to build new breakwaters, basins and quays.

The maritime works for the first stage begun in 1953 by a Yugoslave Firm, Pomorsko Građevno Poduzeće, are finished by the end of 1956.

GENERAL INFORMATION

- 1—Water surface
53 hectares
- 2—Quays:
 - in a depth of 9-11
600 metres
 - in a depth of 7 m
260 metres
 - in a depth of 4-5 m
450 metres
 - Silo quay
180 metres
 - Passenger quay
180 metres
- 3—Breakwater
1342 metres
- 4—Berthing & Mooring available

- for medium sized ships.
- 5—Two 800 H.P. tugboats
- 6—(8) tugs of 100-250 H.P.
- 7—(88) lighters of a capacity up to 150 tons.
- 8—Warehouses:
 - 25 warehouses of about 75,000 sq. m. in area.
 - (4) three storey warehouses.
- 9—A slipway which can accommodate vessels of up to 900 tons, built especially for the maintenance of the port floating craft.
- 10—A passenger terminal designed on the most modern lines will be inaugurated in the near future.
- 11—A free zone area, still in the course of construction shall be open for traffic some time in 1964.

The employees of the Latakia Port Company carry on most of the work in the offices and warehouses belonging to the Company. They number about nine hundred. Other harbour works are undertaken by group of workers associated in different cooperatives which are paid by the Port Company on basis of tonnage of goods handled. They number about one thousand, but fluctuate according to the pressure of work.

The Port of Latakia being only

a few years old is equipped with the most modern handling and operating equipment. Amongst others we can enumerate:

(12) quay cranes of the most modern types that can unload goods directly from ship to warehouse.

One very powerful floating crane that can handle up to 100 tons.

(15) mobile cranes that can handle up to 25 tons.

(24) lift truck of 2-3 tons.

(20) tractors with a great number of trailers of 3-6 tons.

(40) lorries carry goods from the quay to the distant open storage.

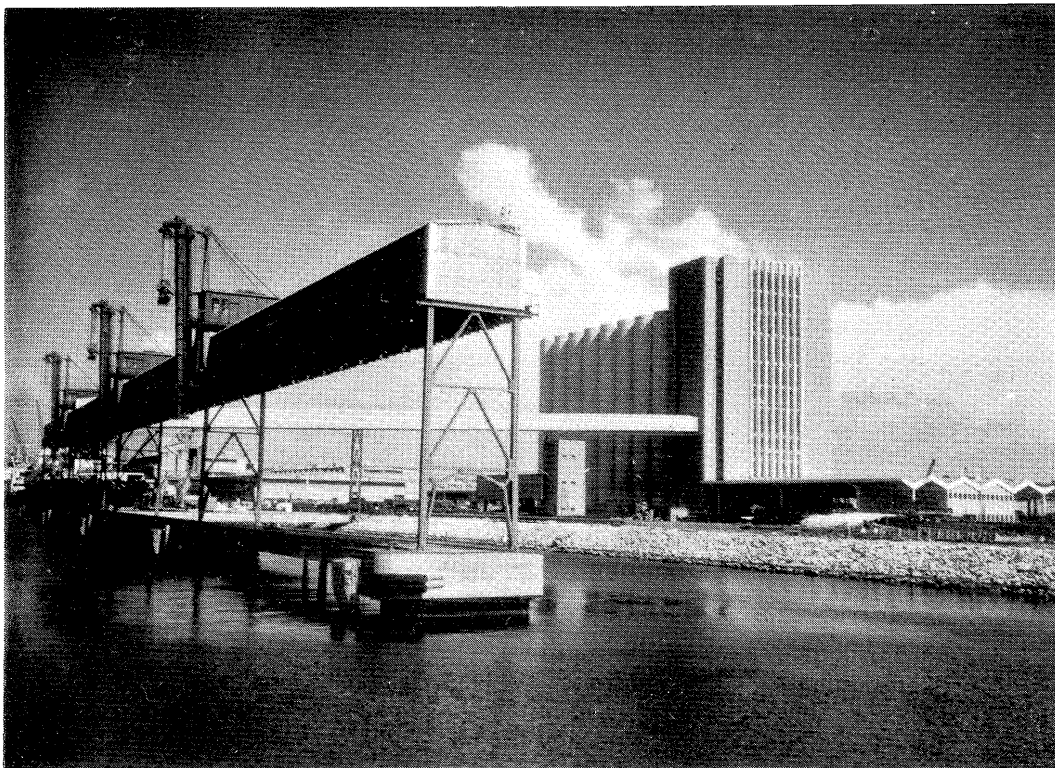
(6) 20-50 ton weighbridges.

Besides these different handling machines the Latakia Port Company possesses a grain silo that can boast an equipment of the most modern type and can store up to 40,000 tons of grain and handle about 600 tons per hour.

On the other hand a cold storage of approximately 1,500 tons capacity is being presently built in the Port Zone.

The Latakia Port Company is fully equipped for the discharge and loading of containers.

It is to be noted that the Port of Latakia is one of the cheapest in the world as far as port dues



The Grain Silo at Latakia can store up to 45,000 tons of grain.



The Latakia Port Company Cold Store in the course of construction.

on goods and vessels are concerned.

Moreover, the highly mechanized handling operations permit an extremely rapid discharge of goods.

Traffic in the Port of Latakia has grown very fast from 1950 onwards, from a total of 260,000 tons in 1950 to 890,000 tons in 1956 to 1,750,000 tons in 1962.

The main exports are grain and

cotton and the main imports are timber, and machinery.

The Port Company has registered a net profit of 104,653 Syrian Pounds in 1950 compared to a net profit of 3,551,126 Syrian Pounds in 1962.

In view of the growing volume of traffic in the Harbour, the Latakia Port Company has decided to develop the capacity of the port by

adding new quays and new warehouses to the existing facilities.

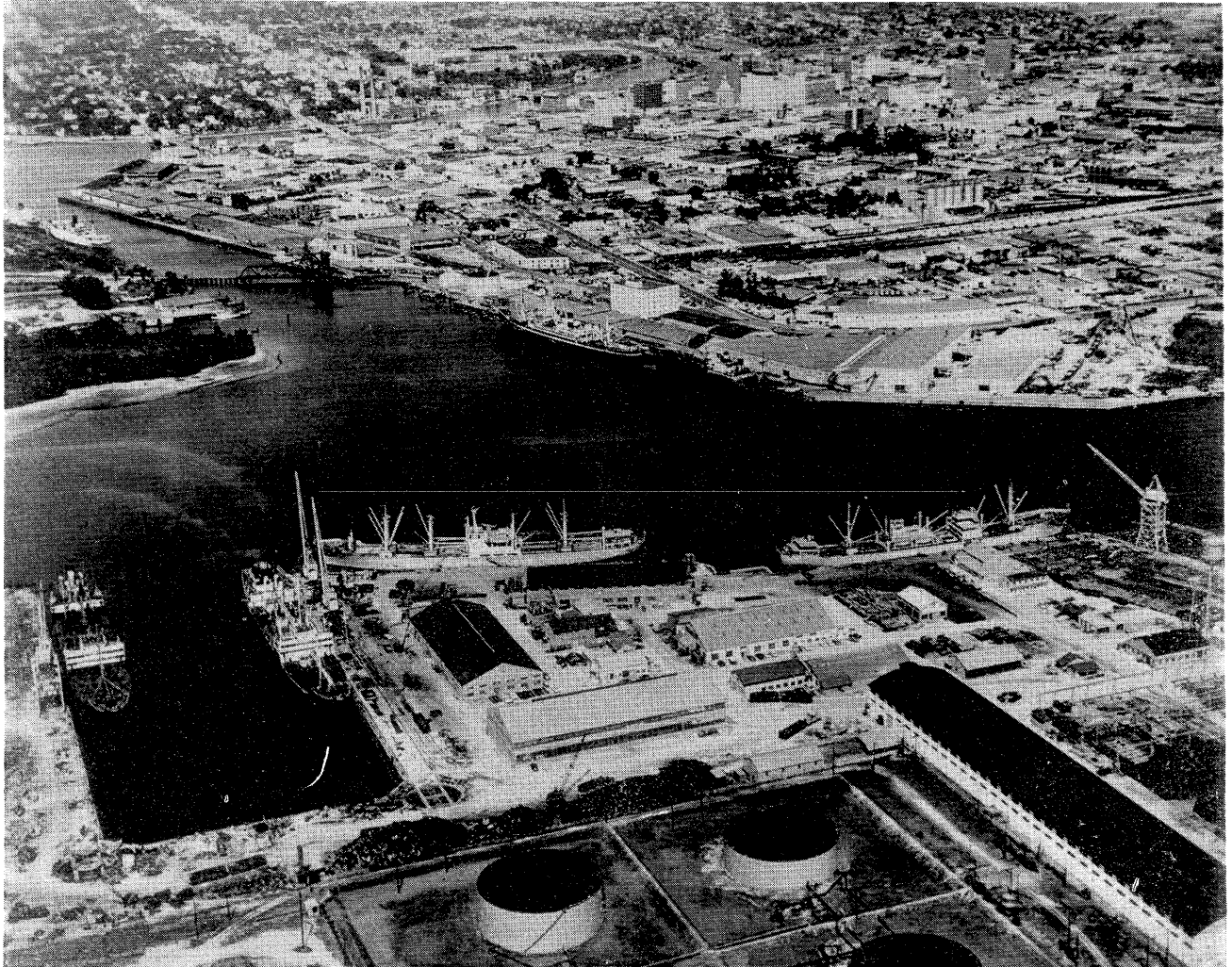
The new extension includes for quays up to 1,200 metres in water-depths of up to 14 m and an extension of the breakwater to afford protection to new basin.

The project when definitively adopted shall be the object of an international adjudication.

THE PORT OF TAMPA

Gateway to South and Central America

— Tampa News Bureau —



Rating among the nation's largest port cities, Tampa's harbor activity has nearly doubled in 10 years—from 7,517,476 in 1952, to 13,666,086 tons in 1962. In tonnage handled it is the largest port between Mobile and Norfolk.

Through its bustling port, Tampa has become widely recognized as the nation's gateway to South and Central America. Also, it is the closest American port to the Panama Canal.

The port is known throughout the world as a leading export point for phosphate fertilizer materials. However, in the past two years, a reduced rail freight rate on export-import items has placed Tampa in a competitive position with other Gulf and South Atlantic

ports for traffic moving to and from the midwest.

This rail rate equalization is adding substantially to the general cargo tonnage moving through Tampa's harbor.

The land-locked harbor is located on a large natural indentation of the Gulf of Mexico, and is only 35 miles from open sea. - Deep draft vessels enter Tampa's harbor via Egmont Channel.

Governing depth of the port and channels is 34 feet, since the

completion of a \$15,000,000 deepening and widening project. These deeper channels facilities movement of large vessels without penalty of light-loading, thereby contributing greatly to increased tonnage.

In addition to ideal shipping routes to the Caribbean, barge service is provided to other Gulf ports and the Great Lakes.

The port has 53 public and private piers and wharves, with more than 35,000 lineal feet of berthing

space. Warehousing facilities total in excess of 1,000,000 sq. ft. Of the 2,000,000 cu. ft. of cold storage area, 95 per cent is adjacent to the waterfront.

Also featured are two grain elevators of 300,000 bushel capacity, and storage capacity for more than 1,000,000 barrels of oil and oil products.

Aiding greatly in promotion of trade abroad are five Tampa banks, which have foreign trade development departments. There are also 19 foreign freight forwarders, two ship chandlers, 18 steamship agencies, 13 steamship companies, and six stevedoring companies serving the port.

Federal agencies include Plant Quarantine Division of the U.S. Department of Agriculture; U.S. Bureau of Foreign & Domestic Commerce; U.S. Customs; Passport Division of the U.S. Department of State; U.S. Immigration and Naturalization Service; and the U.S. Coast Guard.

Leading export commodity group in value for Tampa is phosphate fertilizer. Second is fruit juices. Third is iron and steel scrap, including tin-plated scrap. Fourth is copper ore, concentrates, unrefined copper and scrap. Fifth is fruits and preparations, canned goods, with the exception of juices. Petroleum products total approximately 65 per cent of inbound port traffic.

U.S. Customs collections in 1962 were \$7,855,856. In 1962, port tonnage was 13,666,086. A record of over 3,500 ships entered and cleared Tampa's port last year.

Governing body of the harbor is the Hillsborough County Port Authority.

mated processing equipment and urgent need to have a document which this type of equipment could handle.

The proposed bill of lading is letter-sized, and vertical in format. It is designed so that there can be simultaneous preparation of the bill of lading and export declaration, and for the inclusion of any ancillary official and commercial documents such as dock receipts, drawback applications, etc.

The responses received by the Marine Exchange have been overwhelming, and almost all favorable. The United States Maritime Administrator commended the Marine Exchange for its sound approach and stated that the project has been assigned high priority in Washington. With the Economic Commission for Europe rapidly nearing agreement on their own model layout for a standard bill of lading, the U.S. Government's view was that there was urgent need for agreement between East Coast and West Coast interests so that a unified front could be presented by the United States in discussions with ECE and other international bodies. Work is currently proceeding at a rapid pace towards a second meeting with both American Merchant Marine Institute and government representatives. The deadline at present set for general U.S. agreement on the format of a Standard Export Bill of Lading is January 1, 1964.

2. United States Government Requirements:

So far in 1963 the main points of interest to the Marine Exchange Facilitation Committee have been:

(a) National Facilitation Committee—In October, this new committee was established in Washington as an expansion of the former Water Transportation Facilitation Committee and gives evidence of renewed and even more widespread interest gives evidence of renewed and even more widespread interest of the Government in the benefits to be obtained from easing the paper work and restrictions connected with the movement of passengers, cargo, vehicles, vessels and aircraft, and their crews. It is intended to co-

ordinate the facilitation activities of all Federal agencies concerned with transportation.

(b) Baggage Declaration — The elimination of a written baggage declaration has been tried at the Miami, Honolulu, New York and San Juan airports. The Commissioner of Customs indicated that the results had been successful and as from January 1, the "oral declaration" procedure will be extended to all U.S. airports. Arrivals by sea are regarded in somewhat different light by Customs, but they have promised that they will give every consideration to extending the procedure to seaports, and a trial is now in progress with arrivals at New York.

Until such time as the oral declaration can be made at seaports, encouragement should be given to the retention of the baggage declaration currently in use by the passengers until the actual time their baggage is inspected. It would save much time for passengers and pursers if the vessel did not have to be responsible for collecting baggage declarations and presenting them to Customs. The Maritime Facilitation Committee is continuing to press for this change.

The short form 6059-B is still used with the so-called oral declaration procedure in use at airports. This really only provides a contact address, which in any case is already available on the I-94. The new oral declaration the Marine Exchange favors therefore would eliminate this short form as well as the standard baggage declaration. Also, with the so-called oral procedure, persons bringing into the United States goods purchased abroad with a value in excess of \$100 must still itemize these goods, and so full use of the oral declaration may still be some way off and will require continued effort by organizations such as the Marine Exchange.

(c) Simultaneous Immigration and Public Health Inspections

Continued from Page 20

Shipping Facilitation Development

The Standardization Project was started because of the enormous paper work burden in handling the two hundred or more different bill of lading forms used in the United States and in the preparation separately for Export Declarations.

Another key factor was the rapid increase in the use of auto-

of Crew and Passengers—It has been recommended as beneficial if the inspection of vaccination certificates could be carried out by the Immigration Officer at the same time as he is inspecting an I-94, I-95, or I-184, instead of having separate Immigration and Public Health inspections. This is currently being considered in Washington, but those favoring the idea will need all the support they can receive from industry.

- (d) The Introduction of a General Declaration—Marine Exchange has recently given attention jointly with the Pacific American Steamship Association to an American Merchant Marine Institute proposal for the adoption of a general declaration to replace either entirely or in part a number of forms currently in use. In preliminary discussion it was thought that the draft general declaration prepared by the International Chamber of Shipping was a more desirable document than the AMMI proposal, but before definite recommendations can be made it is necessary for the requirements of the various interested United States Government agencies to be explored fully. This is an area with great possibilities of achieving substantial facilitation and one, therefore, which warrants close attention.

3. International Maritime Facilitation:

The Marine Exchange is not a national body and therefore has no official status in the international field. The sort of work which can be done with benefit lies mainly in the area of commenting, recommending, probing new ideas and supporting new projects. It is encouraging to be able to record how well established the San Francisco Marine Exchange has become in this role, and how frequently the comments of the Marine Exchange are requested by both national and international organizations. Recent evidence of this has been the approaches made to us by Mr. Sepulveda-Whittle of the Economic Commission for Latin America, Mr. Busha of the Intergovern-

mental Maritime Consultative Organization and by the Port Authority of Thailand for information or assistance. Continuous liaison is maintained not only with the International Chamber of Shipping, but also with other international organizations such as the Intergovernmental Maritime Consultative Organization, Organization of American States, Economic Commission for Europe, Latin American Free Trade Association, etc. In addition, the Marine Exchange Facilitation Committee has a very close working relationship with PASSA and with the appropriate departments in Washington, so that its thinking can be voiced to those responsible for presenting the official United States viewpoint at international meetings.

Five of the most significant international conferences in 1963:

- (a) International Chamber of Commerce, Mexico City, April, 1963. At this important meeting, Ralph B. Dewey, president of the Pacific American Steamship Association, addressed the Sea Transport Commission of the International Chamber of Commerce, putting forward the joint thinking of both PASSA and the Marine Exchange and making specific reference to some of the work that was going on here on the West Coast, particularly the bill of lading standardization program. At the same meeting, tribute was again paid the pioneering Pacific Coast program; Mr. H. E. Gorick, Commission Rapporteur and International Chamber of Shipping Secretary General, cited our report (MERCHANT SHIPPING ON A SEA OF RED TAPE) as the basis for present international facilitation efforts, including the United Nations' work program.

- (b) International Standards Organization, Stockholm, May, 1963. The United States was represented by Harold E. Harriman of the National Archives and Records Service. The main spheres of interest were to draw the attention of this international group to the work that was being carried out in the United States on

bill of lading standardization and to develop interest internationally in the dictionary of standard commodity descriptions that has for sometime been the subject of extensive study in Washington. The Marine Exchange Facilitation Committee has met and Corresponded with Mr. Harriman on numerous occasions so that he has been made well aware of the Marine Exchange viewpoint on these particular topics.

- (c) Organization of American States II Inter-American Port and Harbor Conference, Mar del Plata, Argentina, June, 1963. Ralph B. Dewey, president of PASSA, again was a member of the United States delegation. It has always been the joint opinion of PASSA and the Marine Exchange that every encouragement should be given to reaching agreement on a Convention for the facilitation of waterborne transportation. From time to time during the months preceding the Conference there were expressions of doubt in various quarters that the time was not yet ripe for the conclusion of any such Convention. The West Coast opinion as expressed by Mr. Dewey was, we feel, a significant factor in the attitude adopted by the United States delegation which at the Conference firmly supported the Convention.

Following the correction of certain defects in treaty procedure and after agreement that the details of the standards and recommended practices to be adopted should be worked out subsequently as an Annex to the Convention (rather than as a part of the Convention itself), there was more than enough support at Conference for the Convention to be ratified without further delay. This represents a great step forward as far as the Western Hemisphere is concerned and has been a great stimulus in other parts of the world. Groups of experts will shortly be engaged in working out the details of the standards and recom-

mend practices for the entrance and clearance of vessels crew, passengers and cargo in the Western Hemisphere.

(d) International Maritime Consultative Organization, London, May, 1963. Groups of experts drawn from all over the world were established by IMCO for a thorough study of the procedures and paper work with which maritime transportation is involved, and had their first meeting in November, 1962. At the insistence of the United States delegation, it was agreed to accept the OAS Convention as a basis for their work. During the early part of 1963, three subcommittees specialized in problems of Customs, Immigration and Public Health inspection. They met to determine what documents were strictly necessary, what were of doubtful value, and what could be abolished. The whole group of experts then reconvened in London in May and generally agreed to draw up a Convention for the facilitation of maritime transportation. The actual articles of Convention are now being studied. As with OAS, it has been agreed by IMCO that the standards and recommended practices should be separate from the Convention in the form of an Annex, and that reaching agreement on these should not delay the ratification of the General Convention. Further sub-group meetings have occurred to work out the

details of the Annex, such as the recent session of the IMCO Customs sub-group on November 4. The aim is to be able to submit a Draft Convention and Annex to IMCO's participating governments in the spring of 1964. A diplomatic conference is then planned in the spring of 1965, at which it is hoped that the Convention will be ratified. The progress being made by IMCO, and the alert response of national governments to questionnaires IMCO has circulated, is indeed impressive.

(e) Economic Commission for Europe Standardization of Export Documents, Geneva, October, 1963. This meeting work. The U.S. aim was primarily to persuade ECE members to delay the adoption of their model layout for a standard bill of lading until the United States could present a single proposal on this subject following agreement between East and West Coast interests. This aim was largely achieved. Interest was expressed in the U.S. work on a standard dictionary of commodity descriptions, and more definite steps were taken toward the production of a technical manual on Export Document Standardization.

4. Latin American Facilitation:

Marine Exchange has given particular attention to facilitation development in Latin America, partly because of the special interest of a number of members in this area, also due to the particular problems evident in Latin Ameri-

can countries, and in response to the greatly increased awareness in Latin America of what can be achieved through facilitation. Reference has been made above to the ratification of the OAS Convention at Mar del Plata in June of this year, which forms the center stone of Latin American activity. LAFTA and ECLA, however, also have their own contributions to reduce the problems facing maritime transportation. Of particular interest is the LAFTA meeting in Mexico City in January, 1963, when an Advisory Commission of Transportation was established with aims including modernization, simplification and standardization of maritime and port legislation, the facilitation of the dispatch of vessels and crew with special reference to consular intervention and the standardization of documentation. The Marine Exchange has established close contact with Mr. Thomas Sepulveda-Whittle, who is Maritime Transport Consultant for ECLA and who played a key role in both the LAFTA January meeting and the OAS Convention. Matters of particular concern to the Marine Exchange at present are:

- (a) The coordination of the work OAS, LAFTA and ECLA;
- (b) The development of standard documents;
- (c) The elimination of abuses connected with consular visas and related fees;
- (d) The lack of uniformity and stability in the application of regulations.

* * *

November 13, 1963

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THE VINCENT THOMAS BRIDGE

Southern California's First Major Suspension Span

History of the Project

The Port of Los Angeles has steadily increased in importance until today it is second only to New York in the United States. During this growth the perimeter of the various sloughs and inlets in the harbor area inside Termini-

nal Island—Cerritos Channel, the East and West Basins, and several smaller basins—have been cleaned out and deepened. Many wharves and docks have been built, and repair facilities and dry docks provided.

As the facilities along the main-

land shores became more and more crowded, the natural step was to develop the inner shores of Terminal Island, and eventually the outer shores as well, protected by an extensive breakwater system. Several important government installations were built on the is-



The \$21,400,000 Vincent Thomas Bridge, spanning the main channel at the Port of Los Angeles, provides a vital link in commerce by connecting the Terminal Island District, background, with the San Pedro mainland of the harbor. Its Terminal Island terminus is near the site of the proposed Los Angeles World Trade Center and the new Customs House, while its San Pedro side is near the Harbor Freeway, leading directly to the hub of Los Angeles.

land. Today the facilities in the Los Angeles Harbor area (including Terminal Island) not only are concerned with the many phases of shipping, shipbuilding and ship repair, but also include production, refining and storage of crude oil and gasoline, generation and transmission of electric power, lumberyards, packinghouses, and canneries.

The well developed inland basins are a boon for ocean-going ships, which can steam confidently into protected berths to be quickly unloaded and on their way again. At the same time, these wide, deep waterways cutting far back into the land have created serious obstacles for the movement of goods on wheeled carriers.

Hence the problem of adequate

vehicular connections between the port cities of San Pedro, Wilmington, and Long Beach on the one hand, and Terminal Island on the other, has been under study for a long time. Both bridges and tubes have been suggested by numerous individuals, and as far back as 1928 an official recommendation was made for a tube as a replacement for the ferry between San Pedro and Terminal Island.

Due to wartime needs, a pontoon bridge was installed in 1944 between Long Beach and Terminal Island, and this bridge is still in use, but the City of Long Beach has a new one in the design stage. In 1948 the Terminal Island Freeway, with a lift span bridge across Cerritos Channel, was completed

with federal funds to provide access to the naval base on the island, taking much of the load from the old Henry Ford Avenue bascule bridge.

In 1956 a final study was made on the need for a vehicular crossing from San Pedro to Terminal Island. The cost of a tube was compared to a high level bridge sufficiently elevated for passage of vessels beneath. The study showed the cost of a tube was about the same as a high level bridge, but that the bridge would carry four lanes of traffic, whereas the tube would only carry two.

The bridge which resulted from this final study will be opened for use this fall. It has been named the Vincent Thomas Bridge in honor of Assemblyman Vincent

Thomas of San Pedro, who has constantly been in the fore of activities to get such a crossing built.

The Steel

First steel for the Vincent Thomas Bridge was erected Tuesday, January 30, 1962. Since then, many thousands of tons have been used in the towers and superstructure; and for pilings, reinforcing, and cables.

Steel used today is a far cry from that used only 20 or 30 years ago. Modern metallurgists with their special alloys and mixtures have provided structural steel with much more strength, but no more weight. The savings in weight results in cumulative savings all through the engineering of the structure.

In building the Vincent Thomas Bridge, riveting was discarded as an outmoded procedure. All field joints are bolted, but good-sized sections were prefabricated by welding at the plant. This type of construction eliminates much of the tedious labor of building a bridge by riveting it together piece by piece on the site.

In the photo at upper left, for instance, which shows the first steel going into place, the piece being lowered weighed 24 tons.

Seven of these sections were prepared for each tower. Modern advancement in welding techniques enabled the designers to plan the towers as the first welded suspension bridge towers in the United States. Welded steel pilings also were used, varying length between 75 and 130 feet, supporting the towers, the bents, and the anchorages. In all, 990 steel piles were driven to support these structures, each pile supporting 145 tons.

The Cable Anchorages

In a suspension bridge, one of the most important parts is the cable anchorage, into which the cable is fastened. In the Vincent Thomas Bridge, the anchorages at either end had to be designed to withstand a pull from the cables of about 10,000 tons.

This does not mean the problem can be solved so simply as merely hanging a 10,000 ton weight at the end of the cable. The resultants of the forces involved can require considerably more than that.

First of all, such a weight, if unsupported, would settle into the earth. Obviously, if no other forces were involved, this would tighten the cables, raising the center span. But this tendency to sink, working against the pull of the cables, really creates a resultant force which if unchecked would cause the anchorage to slide toward the bridge center. Hence the cable actually would sag, lowering the center span.

To offset these composite forces, the anchorage blocks, weighing 23,000 tons, are set on dozens of steel piles driven diagonally downward in the direction of the resultant force. The piles thus serve a double purpose. They not only support the tremendously heavy anchorage structure, but in effect create an upward and backward thrust to resist any tendency of the block to slide forward.

Building a suspension bridge is a problem in creating a delicate balance between tremendous forces.

The Deck

Although there are hundreds of finishing touches, the final major portion of a bridge project is paving the deck. On a large bridge such as the Vincent Thomas, the deck in effect hangs in position. To pave it, steel reinforcing bars are fastened into place in a tight network, and a temporary plywood flooring built beneath the reinforcement to hold the concrete until it is cured. This flooring is then removed.

Paving on this type of bridge does not go forward as it would on a highway, starting at one end and progressing to the other, as this would pull the suspension span out of balance. To keep everything balanced, a chart is made out ahead of time, laying out alternating sections to be paved. This entails doing a section on one end first, then an opposite section on the other end. Next might be a section near the center, followed by its counterpart opposite it.

Two courses of paving are laid. First comes the base course, of lightweight concrete, then a surface layer of special grout for better wearing. During paving operations the Division of Highways Bridge Department kept four inspectors on this part of the operation alone. One inspected the sur-

face finish, another the laying of the wearing course, a third watched the base course to make sure it was adequately vibrated, not too stiff, and struck off correctly. A fourth inspector worked at the trucks checking on mixing time, moisture, amount of air entrainment and yield, determining this by constantly taking samples.

Fact Sheet

Named in honor of Assemblyman Vincent Thomas, 68th District, San Pedro, in recognition of his efforts for the project, by Assembly and Senate resolution in 1961; resolution authored by Congressman Augustus Hawkins, then chairman of the Assembly Rules Committee, Hugh M. Burns, president pro-tempore of the Senate, Senator Randolph Collier, father of the California freeway system.

Location The bridge spans the main channel of the Port of Los Angeles to join the San Pedro mainland and the Terminal Island districts of the harbor. On the mainland, the principal approach is from Pacific Avenue; on Terminal Island, it is alongside Seaside Avenue near Reeves Field. The bridge facilitates traffic from the harbor's growing Terminal Island District into the commercial and industrial complex of Los Angeles, via the Harbor Freeway.

Financed by State Highway Fund, from which about \$12,400,000 was made available; \$5,000,000 in revenue bonds; \$3,000,000 from state highway users tax allocated to Los Angeles City and County; \$1,000,000 in cash and \$2,500,000 worth of rights-of-way by the Los Angeles Harbor Department.

Cost on completion \$21,400,000 (rights-of-way not included)

Total length 6,060 feet (California's third largest bridge)

Main suspended span 1,500 feet long

Side suspended spans 500 feet long

Approach spans 145 feet to 230 feet long

Clear Height above high water 185 feet (permitting passage of world's largest ships)

Main towers 365 feet high

Main cables 14 inches in diameter

Other materials 228 prestressed concrete piles . . . 998 steel H piles, totaling over 100,000 lineal feet . . . 46,000 cubic yards of



Assemblyman Vincent Thomas, veteran law-maker from San Pedro, views the bridge named in his honor at the Port of Los Angeles. The 6060-ft. long span, crossing the harbor's main channel, is the third largest bridge in the state.

concrete . . . 6,200,000 lbs. of reinforcing steel . . . 22,000,000 lbs. of structural steel . . . 2,540,000 lbs. of suspension cable . . . 8,750 cubic yards of lightweight concrete for the roadway slab . . . bridge painted iridescent green.
Substructure contractor Guy F. Atkinson Company

Superstructure contractor Kaiser Steel Corporation
Designed by State of California, Division of Highways, Bridge dept., Sacramento
Four-lane toll bridge 25¢ passenger cars; charge for trucks based on number of axles
Dedication date Saturday, Sep-

tember 28, 1963

Open to traffic Early in November (following painting and completion of other detailed work)

Article and Photos Contributed by:

Mr. G. Robinson
 Special Event Coordinator
 Port of Los Angeles

BALTIMORE SHIPS STEEL PILINGS TO PHILIPPINES



....BALTIMORE SHIPS PIER TO PHILIPPINES Some 4,000 tons of steel pilings comprise the first shipment via Baltimore for a 16,000 ton pier project in Manila, Philippines. Fabricated by Union Metals Manufacturing Company of Canton, Ohio, they were delivered in 99 carloads for loading on the S.S. FLYING ENDEAVOR at the Western Maryland Railway's Port Covington terminal.

**Communications Department
Maryland Port Authority**

GENERAL VIEWS OF HONG KONG

Victoria city, on Hong Kong Island, is the Colony's centre of business and administration. The latest census showed the total population of the island to be just over one million, while the estimated total population of the Colony at the end of 1962 was 3,500,000.

During the past 10 years Victoria has completely changed in appearance. Pre-war buildings have been demolished to make way for 'skyscrapers' of 20 storeys and more, and the process is continuing at a pace that never slackens. It has been estimated that every day of the year private investors put more than HK\$1 million (more than £62,000 Sterling; US\$-200,000) into new building projects.

This picture shows the business district of Victoria city, with Kowloon on the opposite side of the harbour. The twin cities are connected by frequent ferry services that carry 37,000,000 passengers and 2,000,000 vehicles each year.

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