PORTS and HARBORS

SEPTEMBER 1961 Vol. 6 No. 3

PORT OF OAKLAND'S
Outer Harbor Terminals

THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

Introducing The Crests of Co-Member Ports

(Each Issue One Port)

THE PORT OF OAKLAND

Port of Oakland Outer Harbor Terminals, leased to Encinal Terminals, are steel and concrete with 336,030 square feet of space. Adjacent is open area for future container and bulk handling facilities, with two berths, and Port warehouses. Encinal also leases Ninth Avenue Pier.

PROGRAM OF SEMINAR ON PORTS AND HARBORS UNDER THE COLOMBO PLAN OCTOBER 4—NOVEMBER 3, 1961

(Organized by the Japanese Government)

	Morning	Afternoon
Oct. 4 (Wed) 5 (Thu) 6 (Fri)	Registration and Orientation	
7 (Sat)	Opening Ceremony, to be followed by Reception at noon	
8 (Sun)	Free	
9 (Mon)	"5-Year Harbor Perfection Program"	"Port Administration"
10 (Tue)	"Outline of Japanese Major Ports"	"National Income Doubling Plan and Government Investment in Ports"
11 (Wed)	"Future Projects for Japan's Major Ports"	Observation visit to Port of Tokyo
12 (Thu)	"Japanese Harbor Transportation Service"	"Protection against and Responsibility for Damage to Cargo"
13 (Fri)	"Port Management Businesses"	"Prevention of Sea Casualties"
14 (Sat)	"Lighthouses ad Other Navigation Guides"	Observation visit to Komatsu Works
15 (Sun)	Free	
16 (Mon)	"Ports as Seen from Ship's Navigation"	"Ports in Relation with Regional Development Project"
17 (Tue)	"Planning of Harbor Structures"	"Cargo Handling Machinery and Dredging Fleet"
18 (Wed)	Observation visit to Transportation Technical Research Institute at Kurihama	
19 (Thu)	"Disaster Prevention Measures in Ports"	"Port Statistics"
20 (Fri)	"Fishing Ports of Japan"	Observation visit to Port of Yokohama
21 (Sat)	Visits to Tokyo College of Mercantile Marine and Ishikawajima Shipyard	
22 (Sun)	Free	Leave Tokyo by rail at 6:30 p.m.
23 (Mon)	Arrive Moji at 10:32 a.m. Visit to Yawata Steel Mill. Stay at Kokura	
24 (Tue)	Visits to Dokaiwan, Kokura, Moji and Shimonoseki Ports. Stay at Kokura.	
25 (Wed)	Leave Kokura by rail at 10:11 a.m.	Arrive Osaka at 9:07 p.m. Stay at Osaka
26 (Thu)	Visits to Port of Kobe, Mt. Tsurukabuto reclamation sand collecting grounds, and Shin Mitsubishi Heavy Industries Shipyard. Stay at Osaka.	
27 (Fri)	Visits to Port of Osaka and Osaka Castle	Visits to Takeda Pharmaceutical Works, Kanegafuchi Spinning Mill. Stay at Osaka
28 (Sat)	Visit to Matsushita Electric Works	Sightseeing in Kyoto. Stay at Kyoto
29 (Sun)	Leave Kyoto by rail at 5:02 p.m.	Arrive Nagoya at 6:44 p.m. Stay at Nagoya
30 (Mon)	Visits to Port of Nagoya, Nagoya Castle, Nippon Toki Porcelain Factory, Shin Mitsubishi Heavy Industries Factory Leave Nagoya at 4:44 p.m.	Arrive Tokyo at 9:00 p.m. Stay at Tokyo
31 (Tue)	Discussions	Exchange of trainees' views. Stay at Tokyo
Nov. 1 (Wed)	Evaluation	Closing Ceremony. Stay at Tokyo
2 (Thu)	Preparation for leaving for home	Stay at Tokyo
3 (Fri)	Disbandment of seminar	

Coordinating Organizations:

Asia Kyokai (Society for Economic Cooperation in Asia)
Central Secretariat of the International Association of Ports and Harbors

THE INTERNATIONAL ASSOCIATION OF PORTS 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.

CONTENTS SEPTEMBER, 1961

Vol. 6 No. 3

From the Central Secretariat ..... Chief of the Central Secretariat 3

Participants in Port Seminar under Colombo Plan 4

Port of Long Beach Celebrates Golden Jubilee 6

The Port of Rangoon 9

Earth Transportation System Adopted for Kobe Port's Reclamation Works 13

Comprehensive Development Plan for Port of Oakland 17

Port of Anchorage, Alaska 25

Development of Indian Ports—A Brief Survey 26

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Chairman, Board of Directors
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Taipei, Taiwan, China

Chief of the Central Secretariat

Mr. Gaku Matsumoto
President, Japan Port and Harbor Association
Tokyo, Japan

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(Director and Alternate Director for Brazil are yet to be elected.)

From The Central Secretariat

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

President Menveg Resigns

It is with the deepest sense of regret to report to all members that pursuant to the termination of his term of office as Commissioner of the Port of Los Angeles on June 30, 1961, Mr. Lloyd A. Menveg, President of the International Association of Ports and Harbors, has tendered his resignation to the Board of Directors, in accordance with Article V, Sec. 21, Par. 2 and Par. 4, of the By-Laws.

Mr. Menveg was elected President of this Association by the Second Triennial Conference held in June 22 through 25, 1959, in Mexico City, Mexico. Since his election, he has greatly contributed as our President to the development of this Association by his able leadership and dynamic personality. His distinguished services rendered with such devotion and energies to this Association will always be remembered by all members with the deepest sense of gratitude and greatest tribute.

* * *

Gen. H. J. Ling Acts as President

Pursuant to the resignation of President Lloyd A. Menveg, First Vice President Gen. Huang Jen Ling, has been requested, in accordance with Article V, Sec. 21, Par. 2 and Par. 4, of the By-Laws, to act as President of this Association for the unexpired term of office of the outgoing President.

* * *

New Orleans Will Be Site of 3rd Triennial Conference

With the cooperation of our members, the Central Secretariat has been exerting as much efforts as possible for seeing the time and place of the Third Triennial Conference definitely decided as soon as possible. However, member ports in Asiatic and European regions finding it impracticable under the circumstances to sponsor it in the scheduled year of 1962, the Chief of the Central Secretariat has been in negotiation with the Port of New Orleans on its realization early in 1963 under the port's sponsorship.

Considering that any meeting of this Association had never before been held in this part of the United States, the Port of New Orleans was deeply interested in inviting the Triennial Conference to New Orleans and accepted the proposition to sponsor it in 1963. Arrangements have already been made by the Port of New Orleans to hold the Third Triennial Conference on May 1-4, 1963 (Wednesday through Saturday) inclusive, at the new Royal Orleans Hotel, with the Port of New Orleans as sponsor.

On the part of the Central Secretariat, it has immediately submitted the matter to the Board of Directors meeting by correspondence. As soon as the Board's approval has been obtained, the Central Secretariat is intended to officially proceed with the preparation for the Conference, in close cooperation and communication with the Port of New Orleans. Also, its particulars will be reported to all members.

* * *

Board Meetings by Correspondence Called

A meeting by correspondence of the Board of Directors was called with September 15, 1961 as the voting date, of the deliberation of current Association affairs, including the cooperation extended to the holding of the Seminar on Ports and Harbors under the Colombo Plan. All items in the agenda were unanimously approved by the Board meeting.

On September 1, 1961, another meeting by correspondence of the Board of Directors was urgently called, with September 30, 1961 as the voting day. This Board meeting was for reporting the resignation tendered by President Lloyd A. Menveg and the assumption of the Presidency by First Vice President Gen. Huang Jen Ling as well as the offer made by the Port of New Orleans to sponsor the Third Triennial Conference on May 1-4, 1963, in New Orleans.

* * *

Colombo Plan Port Seminar to Take Place

As preannounced in the previous issue of this guarterly, the Central Secretariat has since been engaged in the preparation, in close cooperation with Asia Kyokai (Society for Economic Cooperation in Asia), for working out a program and making necessary arrangements for the Seminar on Ports and Harbors under the Colombo Plan.

As the first of its kind to have ever been held in the Far East, this proposed Seminar has been very favorab'y responded by many of the Colombo Plan member countries, which have filed applications

(Continued on Page 4)

SEMINAR ON PORTS AND HARBORS

October 4 -- November 3, 1961, Tokyo, Japan

(Continued from Page 3)

for participation with the Japanese Embassies in their respective countries.

According to the concrete and final program of this one-month Seminar, October 4 to 6 inclusive, will be set as the period of orientation, October 7 as the day for the opening ceremony; October 9 to 30 inclusive, for lectures and field trips; and November 1 for the evaluation and the closing ceremony. The Seminar will be broken up on November 3 and the participants will return to their respective countries.

Lecturers on 17 port problems have been selected from among the experts in their respective lines. In between the lectures, the trainees will visit, except Sundays, the Ports of Tokyo, Yokohama, Nagoya, Osaka and Kobe, making also a field study trip to important shipyards, electronic plants, etc.

The subjects of lectures are: Outline of Japanese Major Ports; Policy on Ports; Port Administration; National Income Doubling Plan and Port Investments; Port Statistics; Port Management; Prevention of Cargo Damage and Responsibility; Harbor Transportation Works; Japanese Fishery Ports; Disaster Prevention Measures of Ports; Ports in Regional Development Plan; Future Plan for Japanese Major Ports; Prevention of Marine Casualties; Navigation Guides; Ports as Seen from Ships' Navigation; Planning of Port Structures; and Cargo Handling Machinery and Work Vessels.

The participants are: 2 from Malaya; 2 from Thailand; 1 from Singapore; 1 from Sarawak; 3 from the Philippines; 1 from Cambodia; 1 from Indonesia; 2 from India; 2 from Ceylon; 3 from Pakistan; and 2 from Burma. Besides them, there will be one guest observer from the Philippines.

* * *

Participants in Colombo Plan Port Seminar

Federation of Malaya

Mr. Laksmana Mohamed Razalli
Mentri Besar, Peril Administration
The Ruler And State Government of Perlis

Mr. Arunasalam Nallusamy
Secretary
Penang Port Commission

Thailand

Mr. Bunchai Mahavasu
Chief of Engineering Department
Port Authority of Thailand, Bangkok

Mr. Komon Kamonnawin
Chief of Port Operation Department
Port Authority of Thailand, Bangkok

Singapore

Mr. Loh Heng Kee
Traffic Manager
Singapore Harbour Board

Sarawak

Mr. Chin Kay Kho
Chief Clerk (Administrative Assistant)
Administration Office of the Kuching Port Authority

Philippines

Mr. Jose A. Cruz
Chief, Division of Ports & Harbors
Bureau of Public Works, Manila

Mr. Matias A. Antolin
Harbor Superintendent
Bureau of Customs

Mr. Antonio F. Villacorta
Supervising Civil Engineer III
Division of Ports & Harbors
Bureau of Public Works, Manila

Cambodia

Mr. Es Syakra
Charge des affaires administratives et techniques du service du Port de Phnom-Penh

Indonesia

Mr. Mohamad Sjachroel
Pandjarmasin

India

Mr. B. K. Advani
Mr. R. Sivinivasan

Ceylon

Mr. Alfred Silva Kohoban-Wickreme
Port Commissioner & Chairman
Port Commission in charge of the administration of the ports in Ceylon

Mr. Cadiravail Mylvaganam
General Manager
Port Corporation, Colombo (Director for Ceylon, IAPH)

Pakistan

Mr. P. B. A. Saleem

Mr. S. M. Ali Yasuf

Mr. M. Baymond

Burma

Mr. U Win Pe
Commissioner
Board of Management for the Port of Rangoon (Alternate Director for Burma, IAPH)

Mr. U Kyaw Win

Guest Observer

Mr. Francisco H. Calinawan
General Manager
Manila Port Service, Philippines (Alternate Director for the Philippines. IAPH)

New Harbor Commissioners of Los Angeles

The new Board of Harbor Commissioners of Los Angeles was appointed July, 1961. The new Commissioners are Dr. Joseph D. Carrabino, Dr. George R. Wall, Mr. Gordon G. Maclean, Mr. Albert Perrish and Mr. George D. Watson.

Dr. Joseph D. Carrabino, 37, UCLA professor and production management expert, was elected July 16 president of the new Los Angeles Board of Harbor Commissioners by his fellow commissioners.

Dr. George R. Wall, 48, San Pedro osteopathic physician and surgeon, was elected vice president.

* * *

AAPA Convention at Long Beach

Clarence D. Martin, Jr., under secretary of commerce for transportation, U. S. Department of Commerce, will be the principal speaker at the International Luncheon September 28, during the 50th annual convention of the American Association of Port Authorities in Long Beach, California.

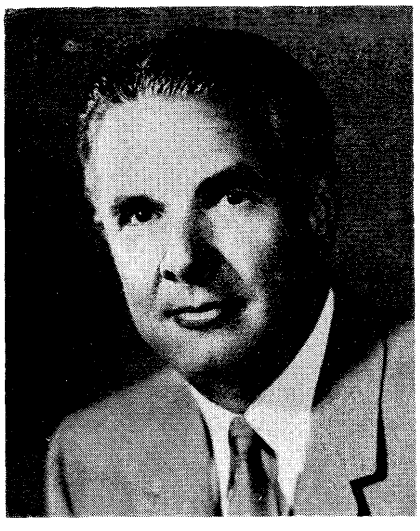
The five-day golden anniversary meeting of the AAPA September 24-29, will attract some 500 delegates and wives who will come from most port cities in the United States. Delegates will also come from Canada, Latin America, Europe and the Orient.

Host Port of Long Beach is also celebrating its 50th anniversary. Some of the highlights of the convention for delegates will be tours through Long Beach and Los Angeles Harbors, trips to Marineland and Disneyland.

President of the AAPA is B. J. Caughlin, general manager of the Port of Los Angeles. Other officers are M. C. Cunningham, first vice president from Mobile, Alabama; J. L. Stanton, second vice president, Baltimore, Maryland; and T. P. Guerin, third vice president, Portland, Oregon.

Dr. Joseph D. Carrabino
President, Los Angeles Board of Harbor Commissioners

Dr. George R. Wall
Vice President, Los Angeles Board of Harbor Commissioners



Gordon G. MacLean
Member, Los Angeles Board of Harbor Commissioners

Albert Perrish
Member, Los Angeles Board of Harbor Commissioners

Los Angeles Leads Pacific Coast Ports in Tonnage

The Port of Los Angeles again led all ports on the Pacific Coast in cargo tonnage during the fiscal year ending June 30, 1961, the Los Angeles Board of Harbor Commissioners was told at its meeting on September 13.

A report submitted to the Board by William J. Bullock, chief accounting employee, showed that cargo crossing the municipal port's wharves during the year totaled 25,275,706 tons, an increase of 333,694 tons over the preceding year's total.

Gross revenues dipped silghtly, with $8,344,409 coming in during 1960-61, as compared with the $8,971,359 reported for the previous 12 months.

There were 4551 ship arrivals, against 4618 in 1959-60, Bullock said.

Contributing to the port's total income were: shipping services (dockage, wharfage, pilotage, etc.), $5,061,581; rentals, $2,485,706; and miscellaneous (oil royalties, ferry, permits, railroad, etc.), $797,121.

Dr. Joseph D. Carrabino, president of the Board of Harbor Commissioners, pointed out that the Port of Los Angeles is self-sustaining and its earnings are reinvested in improving and expanding its operations and facilities.

Photo shows an artist's drawing of a new $2 million bulk loading facility to be constructed at the Port of Long Beach.

Port of Long Beach Celebrates Golden Jubilee

During this 50th anniversary year of the Port of Long Beach, many projects and activities have been completed and many new ones have been started.

Leading off the year at this second largest port on the Pacific Coast (10,600,000 tons for 1960-61) was the opening of the unique supertanker terminal on Pier E. Operated by Richfield Oil Corp., this terminal is the only one in the world at which any supertanker can discharge at dockside with a full load. The 70,700-ton supertanker Princess Sophie with a draught of 44½ feet set a world record for dockside discharge at this terminal with 519,000 barrels.

Costing $2,843,000, the 19-acre facility has a frontage at the pierhead line of 1225 feet. Water depth at dockside for supertankers is 52 feet at mean, lower, low water. To accommodate these giant vessels the Long Beach Harbor Department dredged to 52 feet from dockside at Pier E. through the middle harbor and along the fairway to the breakwater and open sea, a distance of three miles. Fill from this project was used to build the new Piers F and G.

A series of Chiksan unloading arms connected to one, 24-inch and one, 14-inch line allow 500,000-barrel and over cargoes to be transferred in 24-30 hours.

Another facility that just went into operation at the dynamically expanded Port of Long Beach is the port's new grain terminal.

Fastest of its kind in California and the most modern one on the Pacific Coast, the Terminal will load ships at the rate of 1300 tons or 43,000 bushels per hour. As the only port grain elevator facility in Southern California, the structure can store over 1,000,000 bushels of grain. It also has storage bins for copra.

The Long Beach Harbor Department built the $2,500,000 terminal and has leased it for 40 years to the Koppel Bulk Terminal as operators on Pier A, Berths 210 and 211.

With over 7,000 feet of rail trackage and 320,000 feet of paved work area, the elevator can load or unload ships at the rate of eight 50-ton rail cars or twelve 20-ton trucks per hour.

Another time-saving factor allows trucks and rail cars to be dumped by hydraulic tilt platforms. Airveyors unload the ships at the rate of 150 tons per hour.

The 24-story workhouse, nerve center of all operations, is one of

the tallest buildings in Southern California.

Engineering plans have taken into consideration future expansion to the extent of a 9,000,000-bushel-capacity storage complex. Within a year, the new grain terminal will be handling over 10,000,000 bushels annually.

Earlier in the year, the Long Beach Board of Harbor Commissioners gave the go-ahead signal for construction of Pier J, which will be the largest man-made pier in the world when completed in about four years.

Containing 311 acres, the new pier will be 12,700 feet in length and will have 12 new berths.

Pier J, along with new Piers F and G, are only part of the port's 20-year expansion program which when completed will double the number of berths from 35 to 70.

The port's outer harbor will be dredged to a depth of 70 feet to provide the 33 million cubic yards of fill required to build this huge peninsula.

Along the inner side or sheltered section of the pier, facilities will serve steamship lines already at the port which wish to expand and for new steamship lines which have already negotiated for space.

Cost of the principal stage of the pier to "visible sand grade" will be $24 million.

A passenger terminal will also be built on the pier for an anticipated 50 passenger ships per year, including services currently provided by Cunard and the P & O-Orient Lines.

Strategic areas will be set aside for oil wells to develop the port's and city's oil properties, an operation which will make the port's dynamic expansion program a reality.

Approximately 110 acres of the pier not dedicated to world trade will be devoted to such enterprises as sportfishing landings, restaurants, hotels, motels, marine exhibits, parkways and numerous tourist attractions.

The Board of Harbor Commissioners have been asked to provide space on Pier J for a 1966 Worlds Fair, entitled "Planet of Man International Exposition", and which is expected to attract over 50,000,000 people during the year.

Anticipated total cost for Pier J will be $81 million by the Long Beach Harbor Department and $14 million by private interests.

Construction will soon start in the port on what will be in August of 1962 the largest bulk loading facility on the Pacific Coast.

With a loading capacity of 2800 tons per hour for iron ore, the new bulk loader is expected to handle about 2,000,000 tons of iron ore, petroleum coke, potash, coal and mill scale during its first year of operation.

The bulk loader will be constructed on a 300,000-square foot site on the port's new Pier G. Designed by Kaiser Engineers, the facility will be built by the Long Beach Harbor Department for $1,500,000 and will be leased to the Metropolitan Stevedore Co. for 40 years.

The traveling, loading gantry will be capable of traversing a 600-foot length of the pier front to load vessels from a 48-inch wide belt. The loading boom will protrude 58 feet from the face of the pier, enabling it to load 45,000-ton vessels.

On the site there will be a stockpile area with a capacity of 100,000 tons. Kaiser Steel Corp. iron ore from Eagle Mountain, California, will be transported to the Port of Long Beach at the rate of 100 rail cars every third day. Kaiser recently signed a 10-year contract for the sale of a total of 10,000,000 long tons of ore to the Mitsubishi Shoji Kaisha Ltd. of Japan, an exporting operation which will be handled by this bulk loader.

As a result of a three-way loading system, a 45,000-ton ship will be loaded in 24-36 hours. The system includes loading directly to the ship from the pits beneath the rail cars, loading directly to the ship from the stockpile, and a combination of these two methods.

As of this summer, the Port of Long Beach became one of the few ports in the world without any wooden wharfs—all are now concrete.

To let people know about these new facilities and those of the future, as well as to explain why the Port of Long Beach is the most modern port in the United States, trade missions were sent to South America and Europe. Another trade mission will leave for the Orient in October.

Purpose of these missions was not only to tell about the port but also to explain to shipping people, bankers, and others in world trade that the Port of Long Beach serves the second largest market in the nation with a population of 10,000,000.

Other activities during the year have included the making of a port movie, 28 minutes, sound, color that dramatically tells the story of the port built by oil.

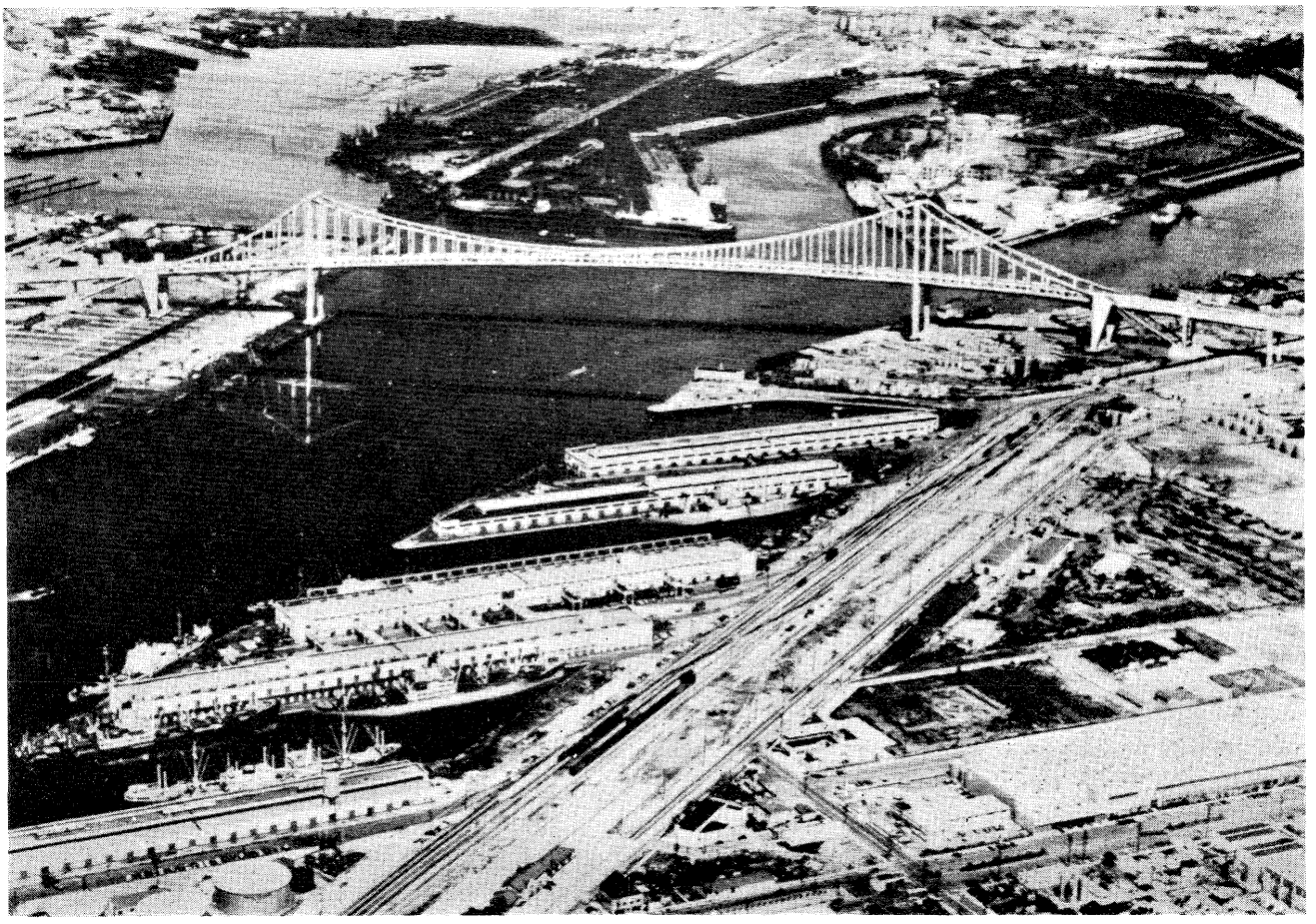
To acquaint the people of the Long Beach-Los Angeles area with the port during its golden anniversary, free harbor cruises were given during the month of June.

In celebrating to the day the arrival of the first ship in the port on June 2, 1911—a lumber vessel, the port presented a plaque to another lumber vessel, the Trolleggen, when it arrived in the port on June 2, 1961.

During May, the Long Beach Harbor Department was host to 400 executives from the Long Beach-Los Angeles metropolitan area who attended the 35th Annual World Trade Week Executives Harbor Day.

Two of the highlights of the year so far were the arrivals on their maiden voyages of the S.S. Oriana and the S.S. Canberra, largest passenger-carrying capacity vessel afloat. Both of these P&O-Orient Line passenger ships, as well as others in the line, make their Southern California port of call the Port of Long Beach.

During September the Port of Long Beach will be the host port for the annual convention of the American Association of Port Authorities which is also celebrating its 50th anniversary.



Artist's conception of Vincent Thomas high-span traffic bridge, now under construction, which will link San Pedro side of Port of Los Angeles (left) with Terminal Island (right) over Main Channel. On San Pedro side, bridge approach highway will connect with important Los Angeles Harbor Freeway. Entire project is slated for completion in late 1963.

1,500-Foot Suspension Bridge over Los Angeles Port's Main Channel to Join Freeway

A long-needed $21,000,000 bridge across the Main Channel of the Port of Los Angeles is now under construction and is scheduled for completion by late 1963.

The high-span traffic bridge will connect two important areas of the harbor and City of Los Angeles—San Pedro and Terminal Island. At the same time, the bridge will tie into the important Harbor Freeway, thus insuring speedier transportation of overseas shipments off-landed at Terminal Island wharves for the Southern California market.

Construction of the bridge's substructure—more than 200 tons of piling, concrete footings and excavation work—got under way last spring when Guy F. Atkinson Co. was awarded a $2,634,040 contract.

Last week, a five-ton hammer on a 140-foot crane made the first start toward the span's superstructures. State and harbor officials gathered at the site to watch the first of 990 steel piles as they were hammered 30 to 45 feet into the ground for one of two main towers.

Most prominent among state officials was Vincent Thomas, assemblyman from the San Pedro district of Los Angeles. It was Thomas who led the fight to obtain funds for the toll bridge which will bear his name.

Superstructure of the 1,500-foot center suspension span bridge—third largest in California—will be completed by Kaiser Steel Corp. after substructure construction is finished. Kaiser's contract, amounting to $11,373,999, entails erection of the main towers and suspension of cables.

Four lanes of automobile traffic will travel over approximately 2,000 feet of Main Channel, one mile north of the present ferry service, which will be discontinued. The 185-foot vertical clearance, from bridge deck to water level, will permit the ta lest ships afloat to pass under the span.

The entire structure, from end to end, will measure 6,060 feet. Of this, 4,000 feet will comprise approach roadways—one making direct connection with the Harbor Freeway on the San Pedro side, and the other merging into Seaside Avenue on the Terminal Island side.

Bridge officials said that the principal source of financing is the State Highway Fund, from which the California Highway Commission has made available $12,400,000. Other financing includes recently sold revenue bonds totaling $5,000,000, and more than $4,000,000 from state highway users taxes allocated to the City and Country of Los Angeles.

Operating costs are to be covered by tools and other incidental revenues, while risk insurance and maintenance costs will be paid for by the State Public Works Department.

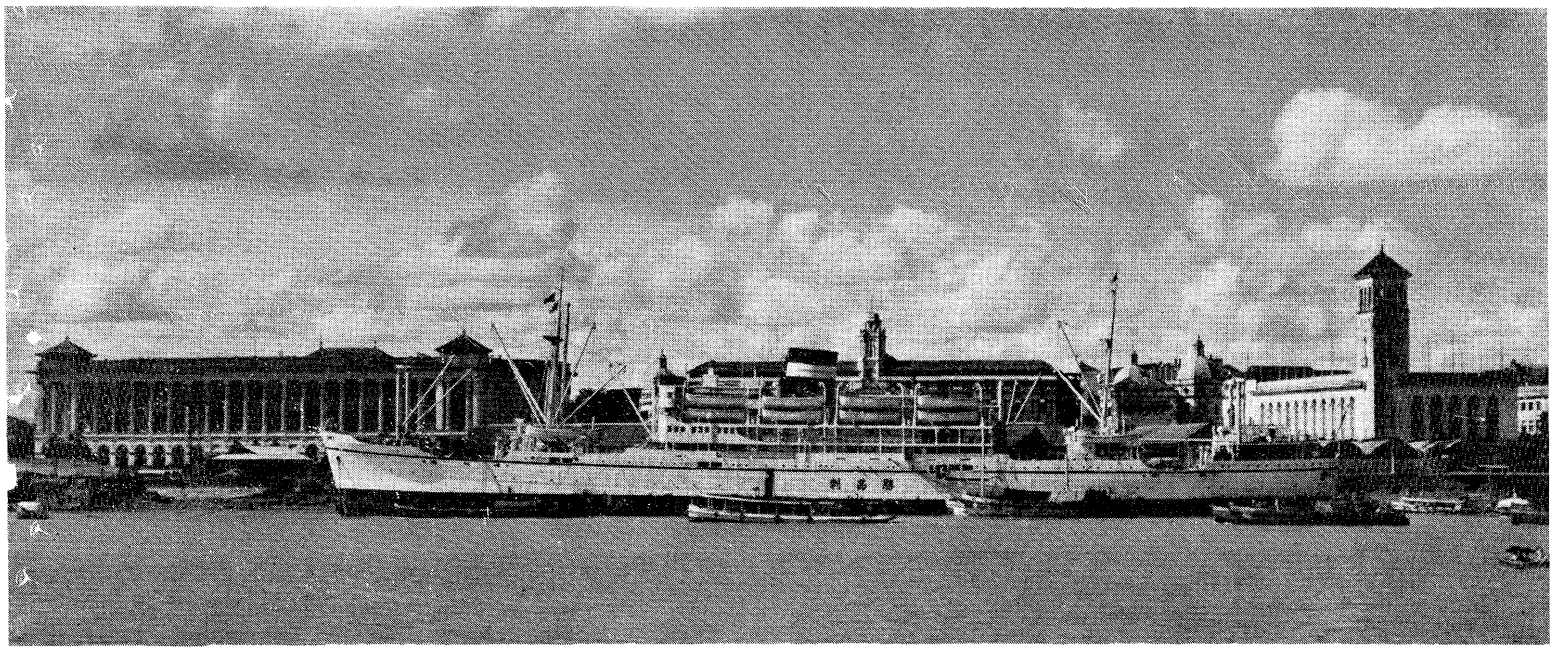
The Port of Rangoon

The Port of Rangoon is the premier port of the Union of Burma. Rangoon handles 85% of the country's sea-borne trade and the entire import trade of the country passes through it. Before World War II, Rangoon handled an annual sea-borne trade of over 5 million tons of which imports represented 1,388, 839 tons and exports 3,994,522 tons. In the years immediately after the war, this figure dwindled down to less than 2 million tons and though there has been a steady increase since then, the volume of trade is well below that of the pre-war level. The total trade tonnage for 1959-60 shows a figure of 3.3 million tons which constitutes 61.2 per cent of the pre-war volume of trade and is also the highest tonnage reached during the post-war years. The importance of Rangoon port to the country's economy can easily be seen from the above figures.

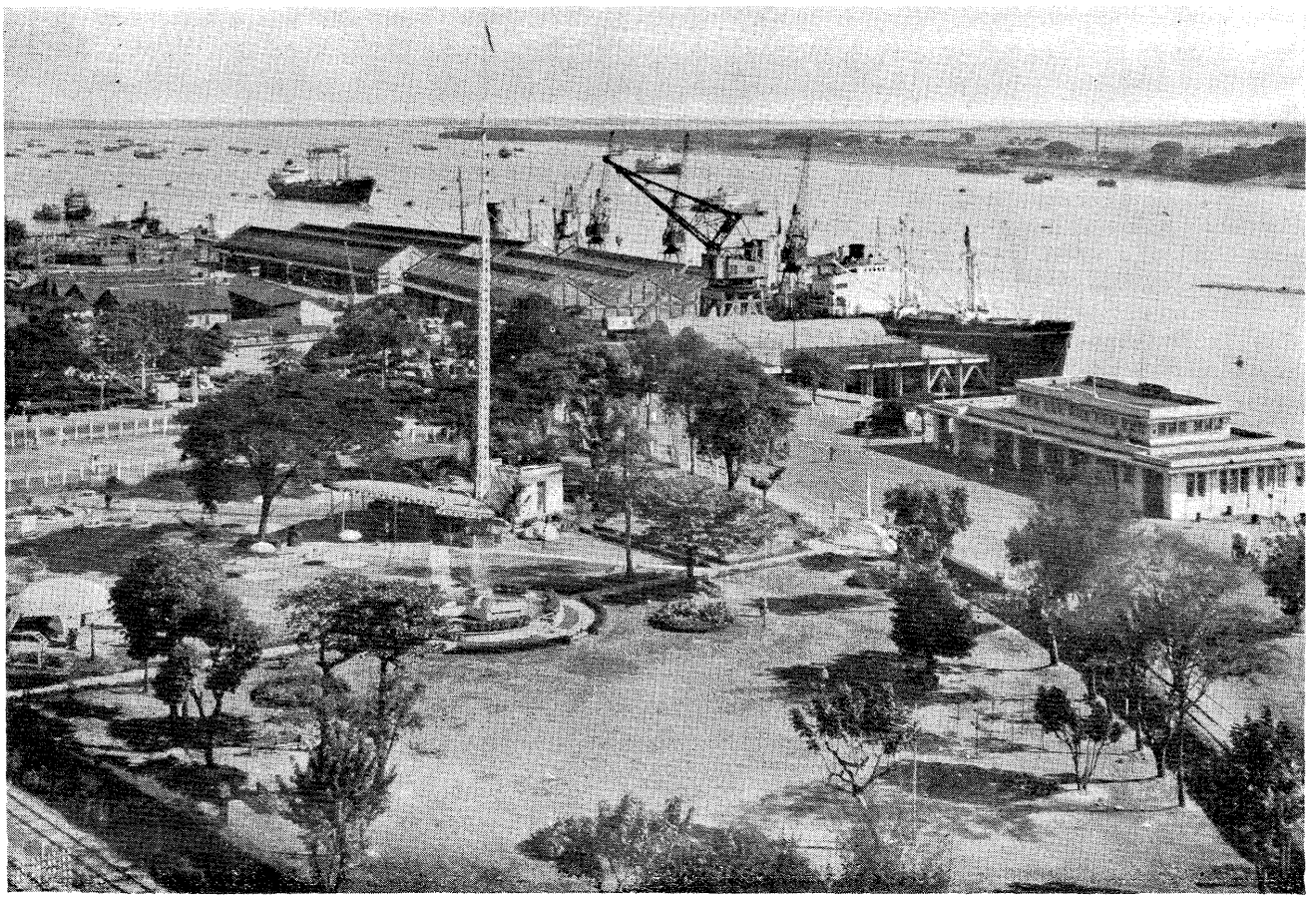
The Port of Rangoon was one of the most heavily damaged ports during the war. By the time the war ended, there was not a single building in the Port area which had not either been totally destroyed or heavily damaged. A photograph showing the extent of damage of the wharves is attached. Many of the deep-water wharves had large gaping holes in them from bombing. Out of a total number of 9 wharves, 3 had been so badly damaged by bombing that it was not possible to put them into use. Practically every pontoon jetty on the foreshore had been sunk while in the river there remained only one steamer mooring out of 35 existing before the war, all others having been sunk or lifted and removed elsewhere during the war. It would not be an exaggeration to say that no other port in the East had taken as much damage as the Port of Rangoon had done.

Since 1946 the Port Authorities have been vigorously planning the reconstruction of these war-damaged facilities. To begin with, immediately after the war, war surplus materials were quickly put into use to allow trade to be resuscitated. Nissens sprang up along the wharves. Piece-construction pontoon units were hastily assembled and used on the foreshores. The damaged wharves were cleared and sunken wrecks removed and it became possible to ship out of the country the rice exports that had been accumulating during the war years. This phase of temporary improvisation undertaken with war surplus materials could not last for ever. The war surplus materials deteriorated rapidly and the need for replacing them with more permanent materials soon became felt.

The Port of Rangoon was then fortunate in obtaining from the Economic Co-operation Administration the much needed aid. This was in 1951-52 when E.C.A. gave to the Port 10 Steel Pontoons each measuring 120′ × 20′, 1 large Tank Pontoon measuring 500′ × 40′ and 5 medium sized Pontoons measuring 200′ × 40′ for use on the Board's various foreshores. In addition to these pontoons, E.C.A. also provided steel structurals for the construction of Transit Sheds to replace the decaying Nissens. All together 5 big Transit Sheds covering a total area of 204,000 sq. ft. were constructed under this aid programme. Two sets of Fixed Moorings for sea-going steamers, a considerable number of workshop equipment, mechanised cargo handling equipment and a variety of Civil Engineering plant also formed part of this aid. The major portion of these materials came from Japan. With the receipt of



A view of the Rangoon River front, the building with the tower on the right being the Head Office Building of the Board of Management for the Port of Rangoon.



A view of a section of the Harbor from the Head Office Building.

this valuable help the Port of Rangoon was able to overcome the difficulties resulting from the deterioration of war surplus facilities.

The tonnage handled by the Port had in the meantime been increasing steadily and with the development plans being undertaken by the Government, it became necessary to plan ahead for the day when the country's trade tonnage would reach the pre-war level. Three wharves destroyed during the war had still to be rebulit. The Board's flotilla was only a fraction of what it used to be before the war. Most of the vessels that had been lost had still not yet been replaced while the vessels then being used were also getting much too old for effective and economic use. The Port was fortunate at this juncture to obtain a loan of U.S.$ 14,000,000 from the International Bank for Reconstruction and Development. With the receipt of this loan in 1956, the Port was again able to carry out yet another programme of expansion and modernisation. This loan has now been almost fully spent and the Port of Rangoon is proud to report that today the Port has been restored, not only its pre-war standard, but in many aspects has even surpassed that level. The three war-damaged Sule Pagoda Wharves Nos. 5, 6 and 7 have now been completely rebuilt as can be seen from the pictures of these wharves. They represent a great advance on the facilities provided by the Port before the war. Cargo handling equipment for use on the wharves have been very generously purchased. A new Suction Dredger, a new Bucket Dredger with two Hopper Barges, a Firefloat, a Combined Salvage and Port Tug, two Diesel Tugs, a Buoy Vessel, a Light Vessel, a Pilot Vessel and Moorings for sea-going vessels have been purchased and have been put into use.

The Port of Rangoon was one of the best ports in South East Asia before the last war. With the extensive damage suffered during the war, the Port has suffered such a set-back that due to lack of facilities ships were delayed prior to 1955. Such delays are now a thing of the past. Great strides have been made in implementing the long-term rehabilitation of the Port and the Port Authorities take much pride in the fact that today the facilities of the Port surpass even those of pre-war days. Existing facilities in the Port of Rangoon may be seen from the account given below:—

(a) Anchorage. The Port is accessible to vessels of 550 ft. B.P. Length and drafts of 30 ft. at Springs. The draft of vessels is controlled by the depths of water prevailing on the Inner Bar about 11 feet datum and on the Outer Bar of about 14 feet, which depths are subject to seasonal variations and are least during the dry season from November to May. The river at the city is 800 yards wide, the foreshore of the harbour extending 7,200 yards. Least depths of water alongside the wharves and pontoons are 18 to 36 feet, while at the moorings it is 21 to 46 feet. While in port, ships lie alongside wharves or at moorings. The Port is equipped with 18 sets of swinging moorings and 8 sets of fixed

moorings in the Inner Harbour; 3 swinging buoys at Hastings; and 1 fixed mooring for oil tankers in Liffey Reach, 1 swinging buoy for B.O.C. tanker "Beme" and 1 fixed mooring for oil barges.

(b) Wharves. There are 11 Wharf Berths for seagoing vessels comprising of 2 Nos. at the Brooking Street Wharves and 7 Nos. at the Sule Pagoda Wharves for handling of general cargo. Of the 7 latter berths, Sule Pagoda Wharves Nos. 5, 6 and 7 were formally dedicated as recently as 5th July 1961 when the Dedication Ceremonies were performed by His Excellency the President of the Union of Burma. This project was undertaken at a total cost of K 545, 40,000, the 3 new wharves being each served by double storeyed Transit Sheds 450′ × 212′ equipped with cargo lifts, chutes, etc., and a trucking alley 30′ wide on the upper storey for direct loading to the ships.

In addition to the above there are 2 berths at Ahlone for handling of rice exports.

The Port maintains a large floating pontoon for embarking and disembarking sea-going passengers, 48 pontoon jetties and 16 fixed cargo boat jetties for riverine and coastal craft.

(c) Pilotage. The Board is the sole authority for pilotage in Rangoon over a distance of about 43 miles from the harbour to the Pilot Station—the M.P.V. THAMADA. Pilotage is compulsory to all seagoing ships.

The Pilotage service at present consists of 25 pilots, 15 Outer or River Pilots and 10 Inner or Harbour Pilots, under the immediate control of the Master Attendant and his assistant, the Harbour Master.

The Survey Department of the Board is responsible for the surveying and sounding of the Rangoon River and its approaches as well as the preparation of charts indicating latest depths available. This is the only hydrographic survey department of its size in Burma and of late it has increasingly been rendering service to Government in the survey of the coastal waters of Burma.

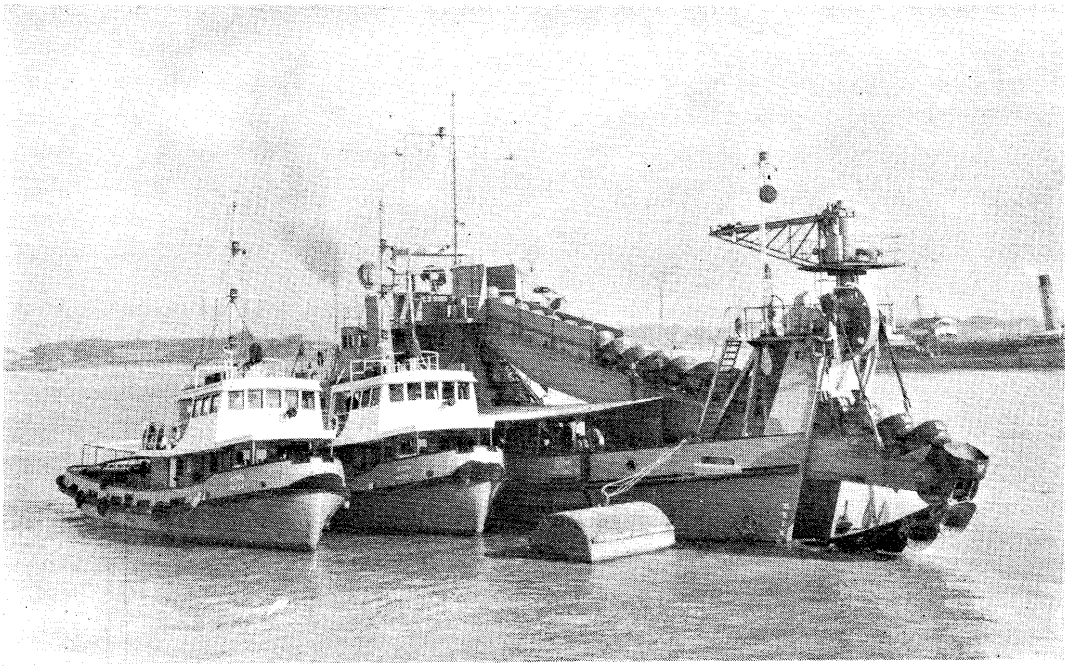
(d) Storage and Cargo Handling Facilities. The Board provides extensive storage accommodation, consisting of 840,300 square feet of transit sheds and 943,000 square feet of godowns with special warehouse provision for bonded, duty paid and hazardous cargoes. Open storage facilities are also aavilable.

The heaviest lift available in the Port is a 40-ton wharfhead crane located at Brooking Street Wharf No. 1. Apart from this, the Port maintains 54 Nos. mobile cranes, 14 Nos. electric cranes, 6 Nos. steam cranes of various capacities, 100 Nos. tractors and 36 Nos. forklift trucks. Heavy orders have been placed for further supply of cranes and cargo handling equipment and with their arrival in due course the Port expects to be fully mechanised in the sphere of cargo handling.

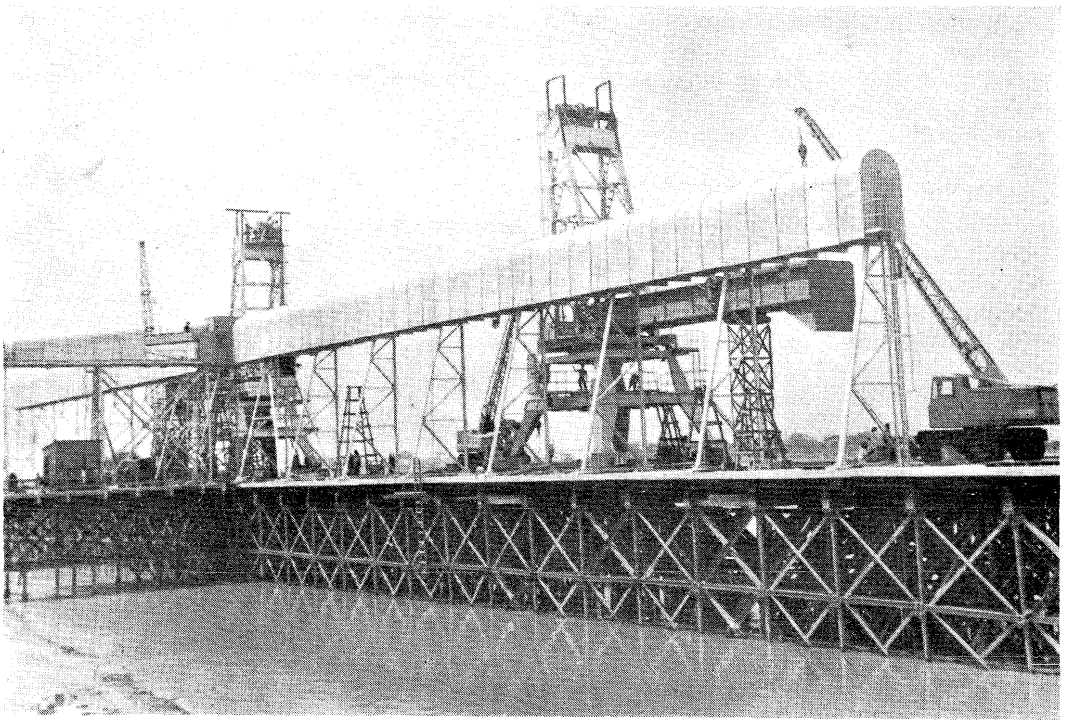
(e) Tugs and Launches. The Board's fleet consists of ten vessels totalling 5,400 tons gross and 20 smaller craft. The fleet includes 1 seagoing salvage tug and 7 smaller tugs, 1 suction hopper dredger, 1 bucket dredger, 4 grab dredgers, 1 fire-fighting tug, 1 pilot vessel, 2 buoy laying vessels and 1 survey vessel, 2 water and ferry launches, 8 harbour launches and 1 dumb water boat.

(f) Supplies, fuel, water, etc. All kinds of oil are supplied by the Burma Oil Co. (Burma Trading) Ltd., at Seikkyi, Rangoon, ex wharf, 35 feet L.W.O.S.T. alongside, bunker coal is supplied by the Civil Supplies in stream. Fresh water is supplied by the Inland Water Transport Board and Eastern Bunkerers Ltd.

(g) Repair facilities for Shipping. The Port of Rangoon has no large dock with facilities for repairs and building. There is, however, a small tidal dock capable of taking vessels up to 1,000 tons and 250 feet in length; a patent slip to take vessels up to 200 tons and a number of slipways.



Additions to the Board's flotilla, the bucket dredger "Kyant Khaingyay" and the harbor tugs "Hayma" and "Tayza".

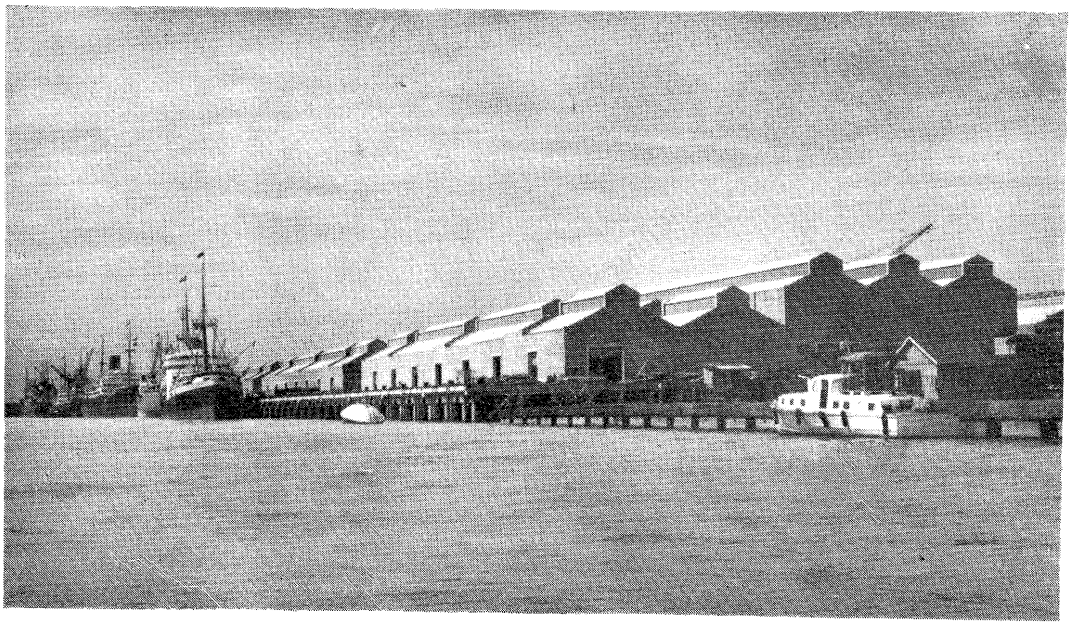


The rice loading wharf at Hteedan.

Arrangements are now in hand for the designing of a new slipway which when completed will accommodte vessels of up to 1,500 tons.

Apart from the restoration of physical facilities, the Port has, especially during the last year, made great strides in streamlining and improving its internal organisation. In the field of wharf operations the methods of storage within the transit sheds have been streamlined to enable easy sorting and clearance of goods from the wharves. The Tally System for both import and export cargo has been reintroduced and the deployment of cargo handling gear put on a more efficient basis with a view to increasing the handling rate. The Board is also now responsible for the direct delivery of cargoes from the wharves saving valuable time spent in co-ordination and simplifying wharf control. Stricter security measures have been enforced at the wharves and the Security Staff themselves made to undergo rigid training. All the measures listed above have yielded handsome dividends and have greatly expedited the handling of cargo.

The Government of the Union of Burma is now about to embark on its 2nd 4-Year Plan of development and the Port of Rangoon will be required to play a very important part in the successful implementation of this Plan. The expansion and the modernisation works that have just been completed have placed the Port in a very happy position to be able to meet these obligations. The Port of Rangoon, however, does not intend to rest on its laurels but is even now making further plans to improve services and to quicken yet further the good turn-round of vessels now obtaining at Rangoon. It is hoped that further development plans will yield the same degree of success as has already been achieved.



The newly constructed Sule Pagoda wharves Nos. 5, 6 & 7, the opening ceremony of which was performed on 5th July, 1961.

Earth Transportation System Adopted for Kobe Port's Reclamation Works

Kobe is a good natural harbor. Port construction work in the modern sense of the words started there late in the Meiji Era (around 1912), and ever since up to the present time assiduous efforts have been made for port expansion, improvement and repair.

Last year, about 6,000 ocean-going vessels and 7,900 coasters visited Kobe, and the tonnage of cargoes handled at the port amounted to approximately 17,700,000 tons, comprising 9,900,000 tons of foreign trade goods and 7,800,000 tons of merchandise to and from other Japanese ports. In value, goods handled at Kobe Port accounted for 30 per cent of the national total in the same year.

The growth rate of Japanese economy is roughly estimated at 10 per cent annually. To cope with growth at this high rate, trade ports and industrial areas are being expanded all over Japan. At Kobe, Pier No. 7 and Pier No. 8 in the new harbor were completed previously, and now Pier No. 3 of Hyogo and Maya Wharf to cover a ground space of 661,000 square meters and to be equipped with 16 berths are under construction.

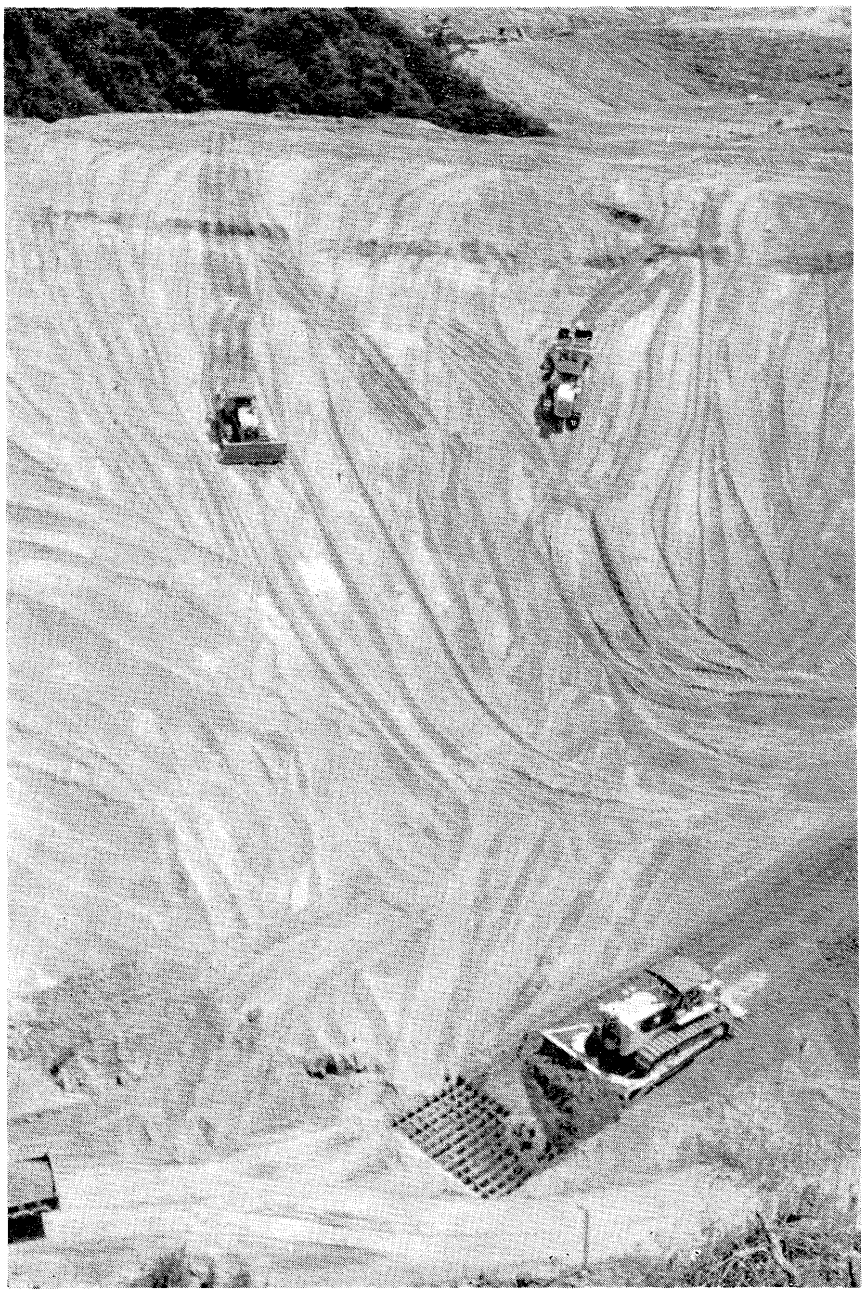
Kobe is sandwiched between sea and mountainous districts. Because of the smallness of the level ground litt'e space is available for the building of factories. Therefore, the growth rate of industries in the city is poor, and there was a general demand for the stabilization of the economic basis by fostering the growth of industries. In response to such demand the reclamation of sea areas for the purpose of creating an industrial zone has been envisioned.

Necessary Earth and Its Source

According to the plan, the reclaimed land will have a total area of 6,081,200 square meters which will consist of 4,957,500 square meters to the east of the Commercial Harbor and 1,133,700 square meters to the west of the same. The amount of soil necessary for the reclamation is estimated at 85 million cubic meters, not including 11 million cubic meters to be used for the expansion of the Commercial Harbor. Accordingly, a total of about 100 million cubic meters of earth will be used.

Because the water is deep in Kobe Port, as much as 50 cubic meters of earth per tsubo (3.305 square meters) is needed for the reclamation. Unlike the case with other ports it is difficult to utilize earth obtained from dredging by a suction dredger, and the said amount of soil has to be procured elsewhere.

Terminus of belt-conveyor, with the stockpile underneath.



Earth collecting site on Mt. Tsurukabuto, showing the entrance to the belt-conveyor in the foreground.

As a result of careful studies it has been decided to use soil of sea bottom, 4.5 meters deep, excavating it with a special vessel called an ejector-ship and also to cut into a mountain behind the City. Rokko Mountain Range generally consists of air-s'aked granite, and it is easy to bore into it. Moreover, the dry quality of the soil facilitates the cutting operation.

For the reclamation of 1,133,700 square meters of waters west of the Commercial Harbor, 11 million of soil is necessary. As the earth collection sites, two municipal forests have been selected, and it has been decided that the earth be carried on dump trucks.

The reclamation of the eastern area demands a greater amount of earth. In view of the time schedule for the reclamation as well as the geographical conditions around the spot, it has been decided to purchase 330,500 square meters of plot on Mt. Tsurukabuto, which is situated at the back of Kobe University. From there 1,500,000 cubic meters of earth will be carried.

Adoption of Belt-Conveyor Method

Rokko Mountain Range, because weathering is advanced, is apt to give rise to landslides. Actually, in July 1938 there were landslides in various parts of the district, and many houses were swept away, a number of people were killed, and the traffic was blocked. To make the matters worse, houses are densely congregated on the outskirts of the mountains, and arteries of traffic such as the State highway, the National Railways and important privately-owned lines run east and west. Special caution is deemed necessary in cutting in mountains of such geology. Earth of 1,500,000 cubic meters weighs about 33,000 tons, which according to the schedule, was to be carried out five years. The enforcement plan of soil transportation was as follows:

The annual amount of collection ... 3,000,000 cubic meters (in 280 working days)

The monthly amount of collection ... 250,000 cubic meters

The daily amount of collection ... 11,000 cubic meters

The amount of collection per hour ... 700 cubic meters

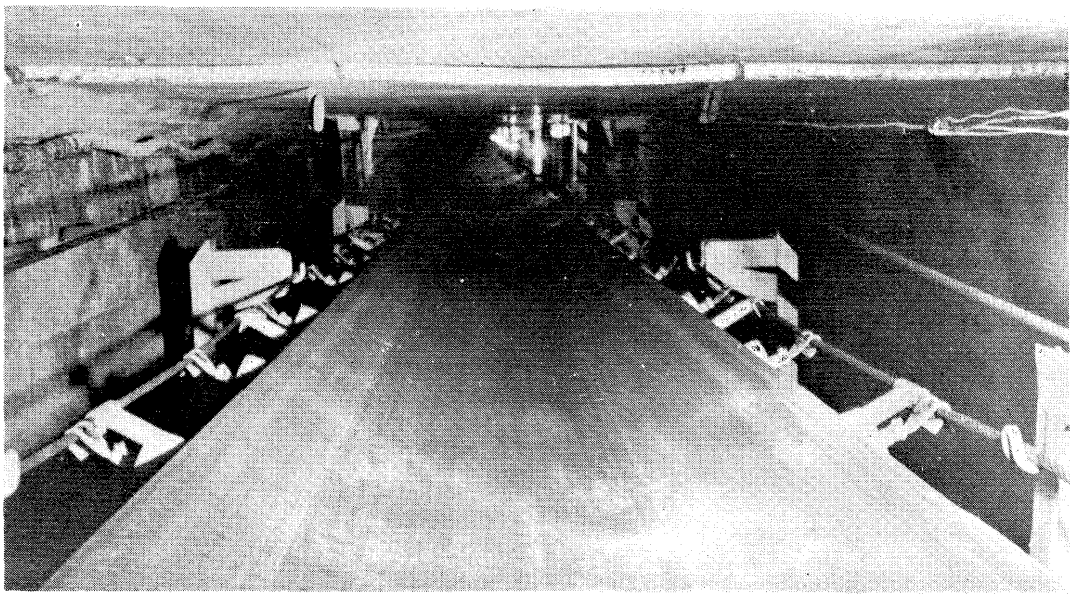
There are various methods to carry soil in reclamation works, such as (1) the use of a soil-carrying car, (2) the use of a dump truck, (3) the method of sweeping by sea-water, and (4) the use of a belt-conveyor.

The method (1) is difficult in the present case due to a very steep slope at the soil source and the necessity of a special route through a traffic-congested downtown.

The method (2) is actually being practised for the reclamation of the eastern area, but it seems to be difficult to procure an additional number of trucks.

According to the third method (3), a big pool will be built at the lower edge of the soil source, a couple of pipelines will be laid linking the pool with the sea; one pipe will pump up and convey sea-water into the pool and the other will carry the mud obtained by mixing up the sea-water and the soil down into the sea. There are problems in the performance of the pipes, their durability and the size limit of stones included in the mud.

The method (4) has made a big progress in recent years as a result of advancement of chemical fibers, and there are various types of it. For the present purpose, it has been decided to adopt chiefly the method (4) with (2) as auxilliary.



Belt-conveyor running through the tunnel.

Advantages of Belt-Conveyor Method in the Present Case

For the following reasons the belt-conveyor method has been selected:

(1) The cost of soil collection is the lowest by this method.

The equipment cost for the earth transportation from Mt. Tsurukabuto is ¥700 million. The percentage of this sum to the total soil collecting and carrying cost is in inverse proportion to the total amount of earth to be carried. If the entire amount of soil were small, the method (2) would be preferable, but if the total volume is large, the method (4) is recommendable. The marginal amount is 7,000,000 cubic meters.

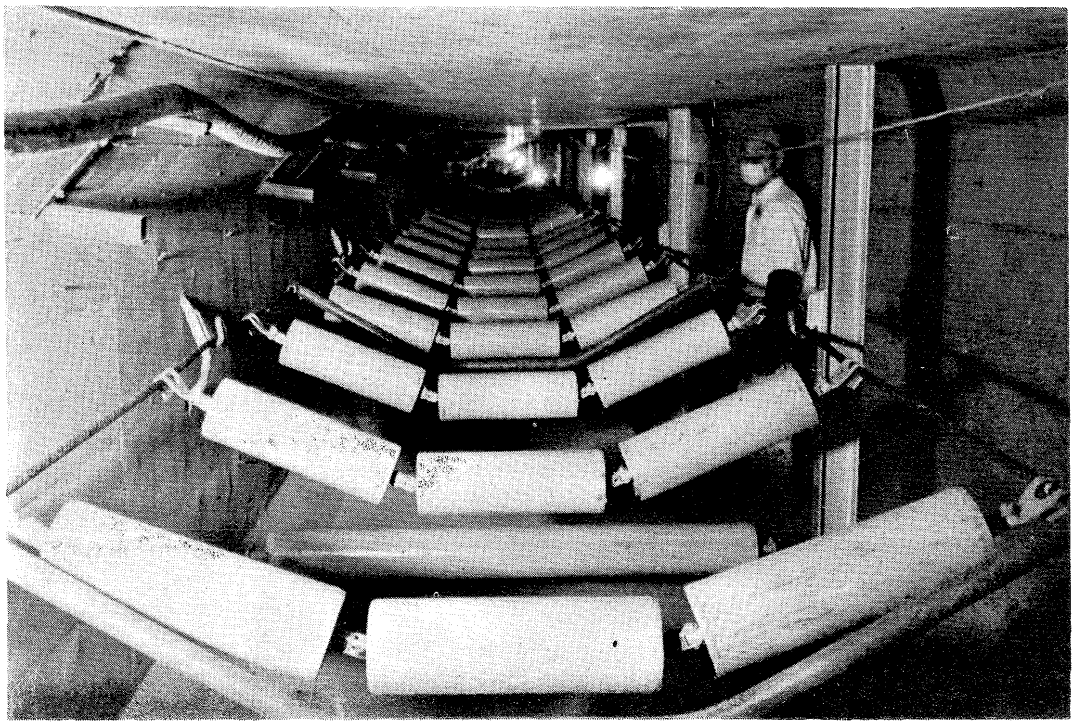
(2) In downtown districts, the belt conveyor goes underground and do not become an obstacle to the traffic.

(3) The stockpile at the end can be utilized as a depot of building materials.

(4) The site of the soil source on Mt. Tsurukabuto when the operation is over, can be used as a good residential area, the passage of the conveyor serving as drainage.

(5) When the conveyor is used down hill, the engine is free of load if the force necessary to rotate the belt coincides with the potential of the grade. For safety's sake, however, it was deemed necessary to lay the belt along a slope with a slightly smaller potential than such force. A grade of 5 per cent has been made the yardstick for designing.

(6) In order to carry down earth from a high mountain to a sea, the means of transport must be carried uphill beforehand. To minimize the loss of energy, one has to use a means of transport whose empty weight is small and loading capacity is large. In the case of a dump truck, the loading capacity and the empty weight are approximately the same. If the ratio between the loading capacity and the empty weight is examined with regard to the means of conveyance mentioned under (1) to



Framework of belt-conveyor.

(4), the following relations are revealed:

(1)	Soil carrier	1:0.5
(2)	Dump truck	1:1
(3)	Sea-water	1:4
(4)	Belt-conveyor	1:0.3

In the case of (4), the belt is endless, and that side of the belt which carries down the soil and the other side which goes up empty are in reverse grade to each other. When the belt rotates, no loss of potential arises. Accordingly, the empty load of the belt is actually much smaller than the above figures of 0.3.

(7) Presently there are eight main motors in operation, and their aggregate capacity is 775 KW. The voltage received is 3,300 V. Although 80A is required for no-load running, only 105A suffices for full-load operation. On that account the transport of soil can be made with a very small energy.

Earth Transportation

The distance from Mt. Tsurukabuto to the seafront is 3,500 meters, whose half meterage passes through a mountain pass. Through the mountain pass the conveyor is shielded by a U-shaped tunnel. The tunnel branches into three directions in its recess and is connected to shafts at its three ends. The shafts are also called "glory holes" and are 3.5 meters in diameter and 100 meters in depth. The earth collected to the glory holes by bulldozers are shifted to the belt-conveyor by means of steel sheets called feeders.

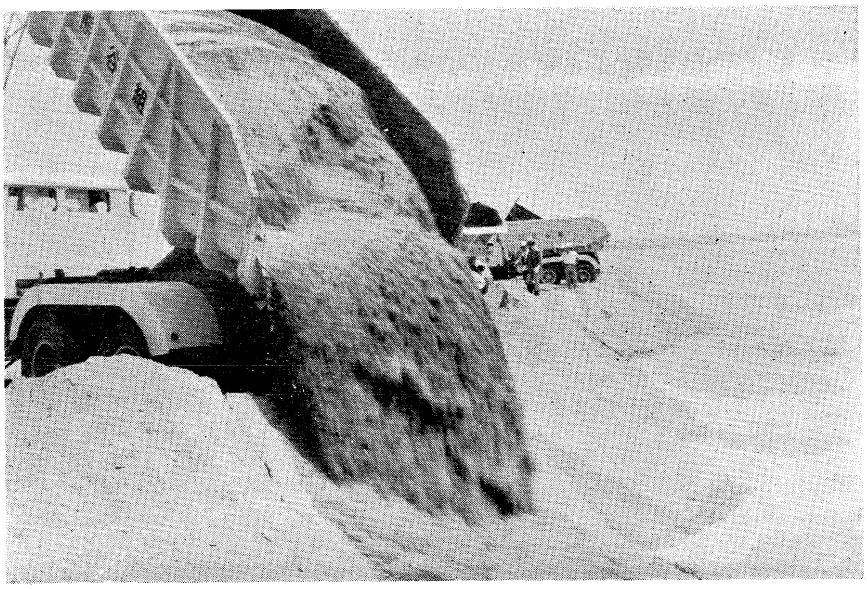
The feeder has two functions. One is to work as a cushion, and the other is to adjust the amount of soil to be loaded on the belt-conveyor. Its speed is variable in three steps.

The other half of the belt conveyor pass through downtown. There, the conveyor goes into a rectangular underdrain. The underdrain, which is at one meter below the ground surface, crosses with the highway, National Railways and private lines. At the waterfront it turns rectangularly and is lifted up to 25 meters below the ground surface.

The breadth of the conveyor is 1.2 meters, the speed is 150 m/min., and the carrying capacity is 1,600 t/h. The maximum dimensions of a load it can carry are 30cm. The belt made in 5 plies, being covered with a rubber coating, 4.5mm thick on the right side and 1.6mm thick on the reverse.

The soil carried by the belt is finally thrown into a concrete box called stockpile. The stockpile is capable of storing 10,000 tons of soil and is used chiefly as a temporary storage of soil arriving at night. At its bottom it has 12 drawers, and a 10-ton dump truck can load from each of them simultaneously. Dump trucks distribute soil to the three reclamation spots on the Maya Pier.

In the method outlined above, the reclamation works in Kobe Port are fairly progressing.



Earth is dumped into the sea.

Stockpile at end of belt-conveyor.

Comprehensive Development Plan for Port of Oakland

This is a special report on the expansion and improvement program of the Port of Oakland, which totals more than $30,000,000 in the five and one-half years from July 1, 1956 to the end of 1961.

Additional millions have been invested by private enterprise in development on Port of Oakland property, and more is in prospect.

This is progress which emphasizes the versatility of the Port of Oakland as a public service enterprise of the City of Oakland.

Development has been diversified, broadening and increasing the Port's services, utility and economic benefits to the community and contributing to the growth and economic strength of the entire area.

Improvements Varied

Capital improvements include development of marine terminals, a jet-age expansion of Metropolitan Oakland International Airport, industrial development, Jack London Square, small craft harbors and miscellaneous other projects.

It is the type of program envisioned when Oakland came to grips with waterfront problems.

These problems dated back to 1852, when the Town of Oakland was first incorporated through the influence of Horace Carpentier. Town Trustees gave Carpentier title to the waterfront and this was ratified by the State Legislature, again through Carpentier's efforts, when the City of Oakland was incorporated in 1854.

Years of litigation followed, with little waterfront development, until a court decision in 1907 fixed the city's rights below the low tide line of 1952. Harbor development was then placed under the Department of Public Works, which depended on meager bond issues and competition with other city departments for tax funds.

In September, 1925, a board of consulting engineers found Oakland's port progress "haphazard" and recommended the first steps for adequate development. The engineers proposed a general obligation bond issue of $9,960,000, which was promptly approved by the voters.

Another of their recommendations proposed revisions in the city charter to "take the control of the port out of politics".

This, too, met with voter approval at an election in 1926, when a charter amendment established the Port as a separate department of the City and vested exclusive control and management in the Board of Port Commissioners.

A year after the establishment of the Port of Oakland, the Port became self-sustaining and has not since required tax support for operations.

Developments Speeded

The Board, meeting for the first time on February 12, 1927, launched a program of Port construction and the development of commerce and industry which has continued steadily ever since and has accelerated under a planned capital improvement program, which nevertheless is flexible and under constant review to meeting changing conditions.

Charter changes, too, have been made to increase the flexibility of the Port. One of these, important to the current expansio nprogram, gave the Board of Port Commissioners the authority to sell revenue bonds, which are retired from Port income at no cost to taxpayers. It has made it possible

Members of the Oakland Board of Port Commissioners are (left to right): Carl H. Hansen, First Vice-President George J. Vukasin, President Peter M. Tripp, Second Vice-President Joseph W. Chaudet, and John F. Tulloch. The set in photo shows Dudley W. Frost, Executive Director of the port.

This is an artist's drawing of the new $5,200,000 passenger terminal under construction at Metropolitan Oakland International Airport. Shown are a portion of the parking lot, the curved, canopied ticketing building, the lobby and eleven story control tower, and finger.

Construction of the passenger terminal and other improvements from approximately the same angle as the artist's drawing, shows the parking lot, ticketing building, lobby and finger, with part of 10,000-foot runway at top. The expansion will be completed in 1962.

for the Port to expand without the necessity of new local taxes.

Three times since, the Board has sold revenue bonds. They total $8,000,000 and have been an important factor in the Port's ability to provide new facilities as they are needed.

Since the bond issue of 1925, the only general obligation bonds of the city necessary for Port purposes has been the $10,000,000 for the expansion and improvement of Metropolitan Oakland International Airport. General obligation bonds are retired from city taxes.

Port income is another major source of financing development. This income is both security for the revenue bond method of financing development. This income is both security for the revenue bond method of financing and to reinvest in new facilities. In the five fiscal years ending in 1956 through 1960, this has totaled $6,355,213.

Federal Aid Financing

An additional source of financing has been the Federal Airport Aid program. The expansion and improvement of Metropolitan Oakland International Airport has been granted more than $7,000,000 in Federal aid by the Federal Aviation Agency of the United States Government.

Members of the Board of Port Commissioners are appointed by the City Council upon nomination by the Mayor. There are five members appointed for six year terms. The terms are staggered to insure continuity of control and management.

All of Oakland's 19 miles of waterfront is in the "Port area" defined in the City Charter. Much of it is privately-owned.

Port property, both land and water area, totals 17,211 acres, or nearly 27 square miles. Of this, 14,258 acres are tidelands granted by the State of California in trust for commerce and navigation. Major facilities of the Port thus are built on reclaimed land.

From these land recovery programs, the Port of Oakland and its tenants generate economic benefits to the community and the area totaling more than $171,000,000 annually in payrolls, purchases of services, supplies and equipment, and local taxes paid to the City of Oakland and County of Alameda, based on a survey of 1958.

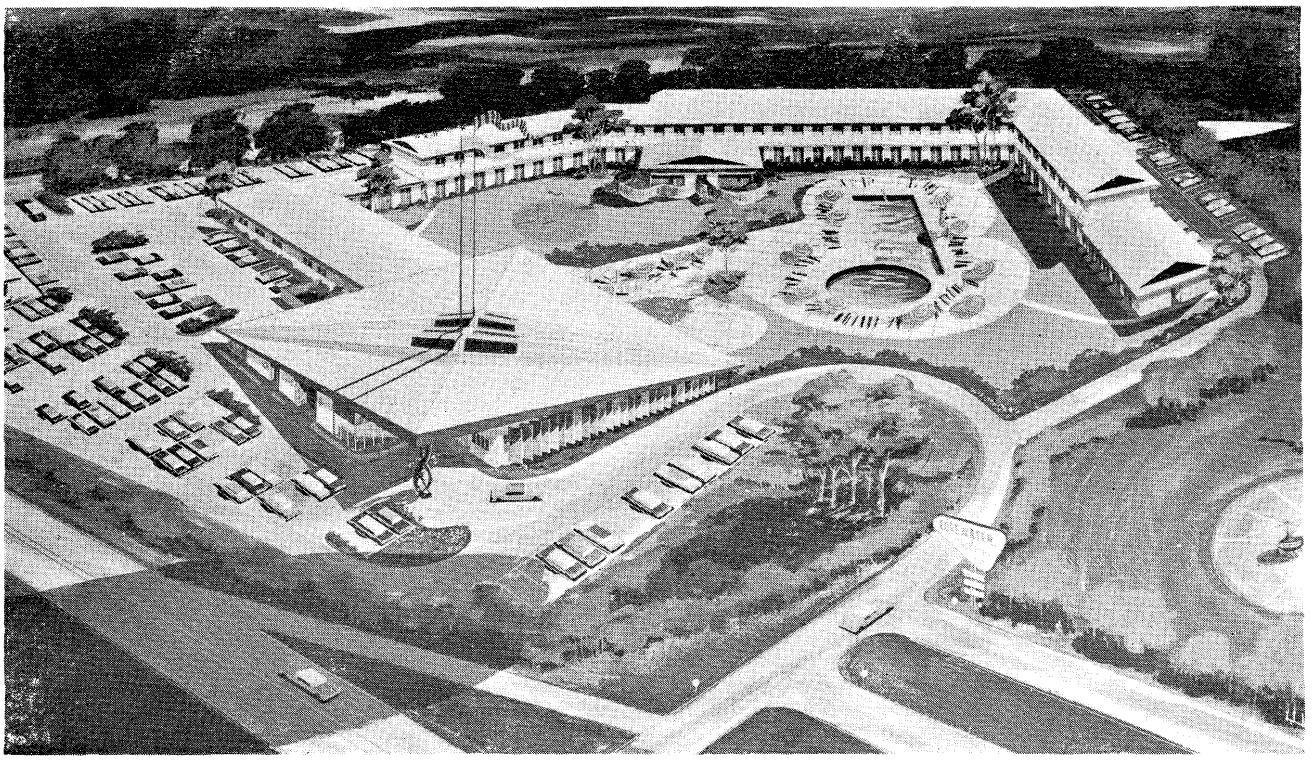
Some of the highlights of the improvement and expansion program follow.

$20,000,000 for Airport

The largest of the capital improvements is the expansion and improvement of Metropolitan Oakland International Airport. The expansion alone is costing $17,100,000, with another $2,500,000 in improvements and structures on the existing airport.

This is part of the passenger loading finger, a dog-leg structure, looking toward the main terminal lobby. Widened portion at bottom is for holding rooms, where passengers will wait to board their planes. The finger will have gate loading positions for 10 aircraft simultaneously.

Port of Oakland Industrial Park showing the lease and lease option areas for the new food and produce center. Area A consists of 68 acres under lease. Areas B and C are option areas, bringing the total to 173 acres for the Pacific Coast Wholesale Food Terminal.



The $2,000,000 Edgewater Inn, 175-room luxury motor hotel, is under construction in the Port of Oakland Industrial Park near the Nimitz Freeway on a 10-acre site leased by Transwestern Hotels. The hotel will have restaurant and banquet facilities, swimming pool, etc.

The expansion program, due for completion in about a year, will provide the area with one of the nation's finest jetage facilities, including a 10,000 foot runway with completely unobstructed overwater approaches at each end, a new passenger terminal complex, a separate air freight building, new parking lot, roadways, taxiways and heliport, among other improvements.

Other major capital improvements have included the construction of a $1,250,000 cantilever hangar, suitable for the largest jet aircraft; 24 light plane and executive aircraft T hangars at a cost of more than $200,000; resurfacing an existing runway, and pavement of apron parking areas, costing more than $500,000.

Harbor development has shared generously in the Port's expansion and improvement program.

More than $650,000 was invested by the Port to expand the oil handling and storage facilities in the Outer Harbor area. This is leased to the Mobil Oil Co. and is their Northern California and Neter. In the same expansion, Mobil vada storage and distribution cen- invested $470,000, for a total of $1,120,000, increasing its storage capacity to 550,000 barrels.

The Port spent $113,000 and the McGuire Chemical Company $750,000, for a total of $863,000, to establish the West Coast's first deep water chemical terminal, processing and packaging plant at the former Seventh Street Unit of the Port. McGuire receives chemicals in bulk both by water and rail.

Bulk Container Facility

At Grove Street Terminal, on the Inner Harbor, the Port and Howard Terminal jointly are expanding bulk scrap and container handling facilities at a cost of more than $300,000, with the Port investing $905,00 for railroad and crane tracks and other preparation and Howard providing two new Whirly cranes, equipment and construction at a cost of $219,200.

An open wharf with two berths at the Outer Harbor, recently returned to the Port after being under lease by Oakland Army Terminal, is planned for container and and bulk operatios. Open area at the Ninth Avenue Terminal also is available for this type of development.

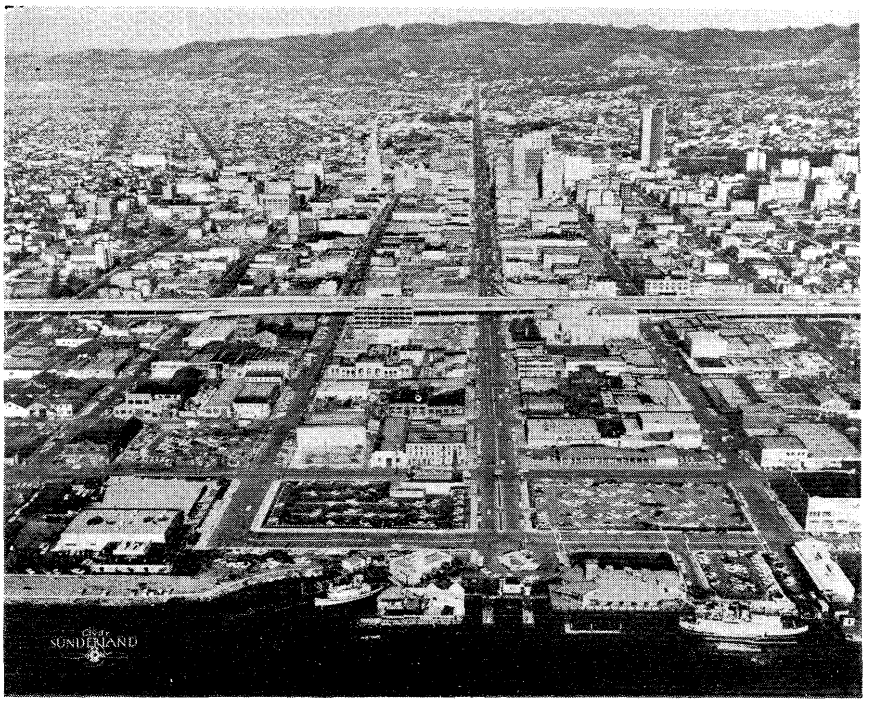
Additional cotton storage facilities were provided with the construction of a 160,000 square foot cotton warehouse at a cost of nearly $400,000. This provides storage for 30,000 bales of cotton. while an earlier warehouse has a capacity of 22,500 bales. Both are leased to the U. C. Cotton Compress and Warehouse Company, which receives cotton primarily from the San Joaquin Valley. Most of the cotton is exported over Port of Oakland piers.

Terminal Operations

Prime general cargo terminals of the Port are leased to private operators. Howard Terminal, of Oakland, leases the Grove and Market Street piers and Encinal Terminals, of Alameda, leases the Outer Harbor Terminal and Ninth Avenue Pier. Both pay minimums and the Port shares in the income after the minimum has been exceeded.

In 1960, Oakland harbor facilities, including the oil pier, handled 3,355,559 tons of cargo, an increase over the previous year's total of 3,051,430. The number of ocean-going vessels climbed from 2,056 in 1959 to 2,113 in 1960.

Here is the West Coast's first complete chemical terminal, processing and packaging plant, established by McGuire Chemical Company at the Port of Oakland's Seventh Street Unit. Some of the tanks for petrochemicals, received both from tankers and rail cars, are at right.



Jack London Square, the Port of Oakland's restaurant and convention center, on the Estuary, also showing the downtown Oakland area.

Development of the Port of Oakland Industrial Park has been undertaken on the basis of a report made by Stanford Research Institute, which found the site between the Nimitz Freeway and Metropolitan Oakland International Airport preeminently suited for industry and economically attractive.

Industrial Park Development

The Port has spent nearly $2,500,000 in the industrial park area in land purchases, land reclamation, roads, buildings and utilities to bring the land into use. Of the nearly 1,000 acres in the tract, 644 acres had been on the relinquent tax rolls for up to 18 years before the Port's acquisition. The entire tract was below high tide and is being reclaimed by the Port.

Two major developments now are underway. Most important is the lease to Williams and Burrows, Inc., and J. H. Whitney Co. for a modern food and produce center. They have a lease and lease options on 173 acres in the Industrial Wholesale Food Terminal, and anticipate private investments of up to $30,000,000.

$2,000,000 Motor Hotel

The first development will be the wholesale produce market, which is expected to occupy about 30 acres.

Construction of the Edgewater Inn, a $2,000,000 luxury motor hotel with 175 rooms, restaurant and banquet facilities, swimming pools and other facilities also is underway.

The Edgewater Inn is occupying a 10-acre site leased by Transwestern Hotels on Hegenberger Road near the intersection of the Nimitz Freeway.

In this area, the Port has just spent nearly $200,000 to widen a section of Oakport Street to four lanes and install the utilities to ready the land for industrial plants.

The lease for the food and produce center commits the Port to expenditures of $1,250,000 for utilities, roadways and railroads, which also will serve other areas of the Industrial Park.

Of the potential for the Port of Oakland Industrial Park, the SRI report said: "An industrial district such as this has tremendous importance for Oakland, because only on this property can a large segment of new industry be accommodated; and only on a single piece of property under single ownership can proper planning be done to develop an industrial district".

The report estimated that the economic benefits would be $60,000,000 to $90,000,000 a year, $35,000,000 to $46,000,000, in new construction, new tax revenues annually of $1,600,000 to $2,200,000, and additional revenues from sales taxes.

Jack London Square

Development of Jack London Square at the foot of Broadway, as a restaurant and convention center, continues to enhance the lower Broadway area, once cluttered with obsolete buildings and in an advanced state of deterioration.

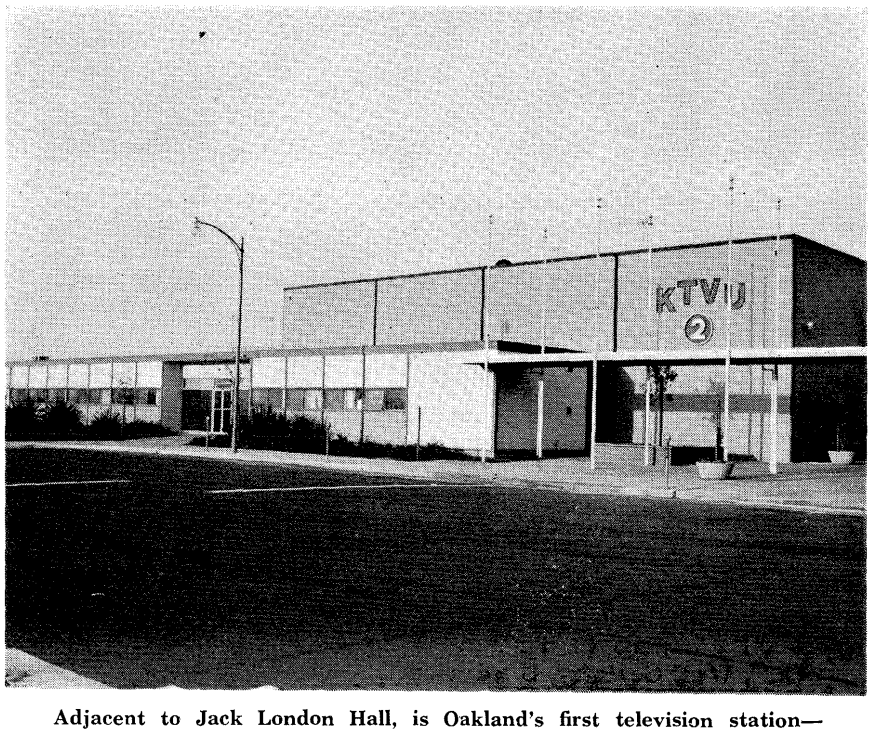
New development includes the construction of television studios at a cost of $243,000 for KTVU-Channel 2, Oakland's first television broadcasting station, and Jack London Hall, a 25,000 square foot covention and banquet building costing more than $500,000.

Remodeling of a warehouse building as the Port of Oakland Building is now underway under a contract of $868,000. It will include a Japanese restaurant on the ground floor, with an investment by the leesees of approximately $200,000, and a Polynesian restaurant on the roof, with an investment by the lessees also of $200,000. Port of Oakland offices will be on the third floor and the additional space on the first and second floors leased to new tenants.

Small Craft Harbors

Also under construction is the first stage of the Jack London Square Marina by Mardeco, Inc. The yacht harbor will have 89 berths at the foot of Washington and Clay Streets and the foot of Franklin Street in the first stage of development. When the new Oakland-Alameda tube is completed, the Marina will be extended. It will have more than 200 berths and represent private investment of approximately $150,000. The Port's share of the work, primarily in site preparation and land rehabilitation, is estimated at $100,000.

Jack London Hall, a 25,000 square foot convention and banquet dining, seats more than one thousand persons at one banquet.



Adjacent to Jack London Hall, is Oakland's first television station—KTVU, Channel 2. The building was constructed by the Port.

Another new yacht harbor, the Oakland Marina, has berths and storage for 159 boats and represents private investment of $150,000.

The Port has also constructed a new boat launching ramp and improved parking for cars and boat trailers on the airport channel.

Golf Course Site

Property in the eastern approach zone of the airport has been offered to the Oakland Recreation Department for golf course construction.

While these projects are the major items in a program extending from 1956 to the present, overall development has been continuous since the Port's establishment in 1927.

Continuous expansion and improvement is essential to the progress and development of the Port and the area which it serves by sea, air and land.

Proposal for Deeper, Safer Channels

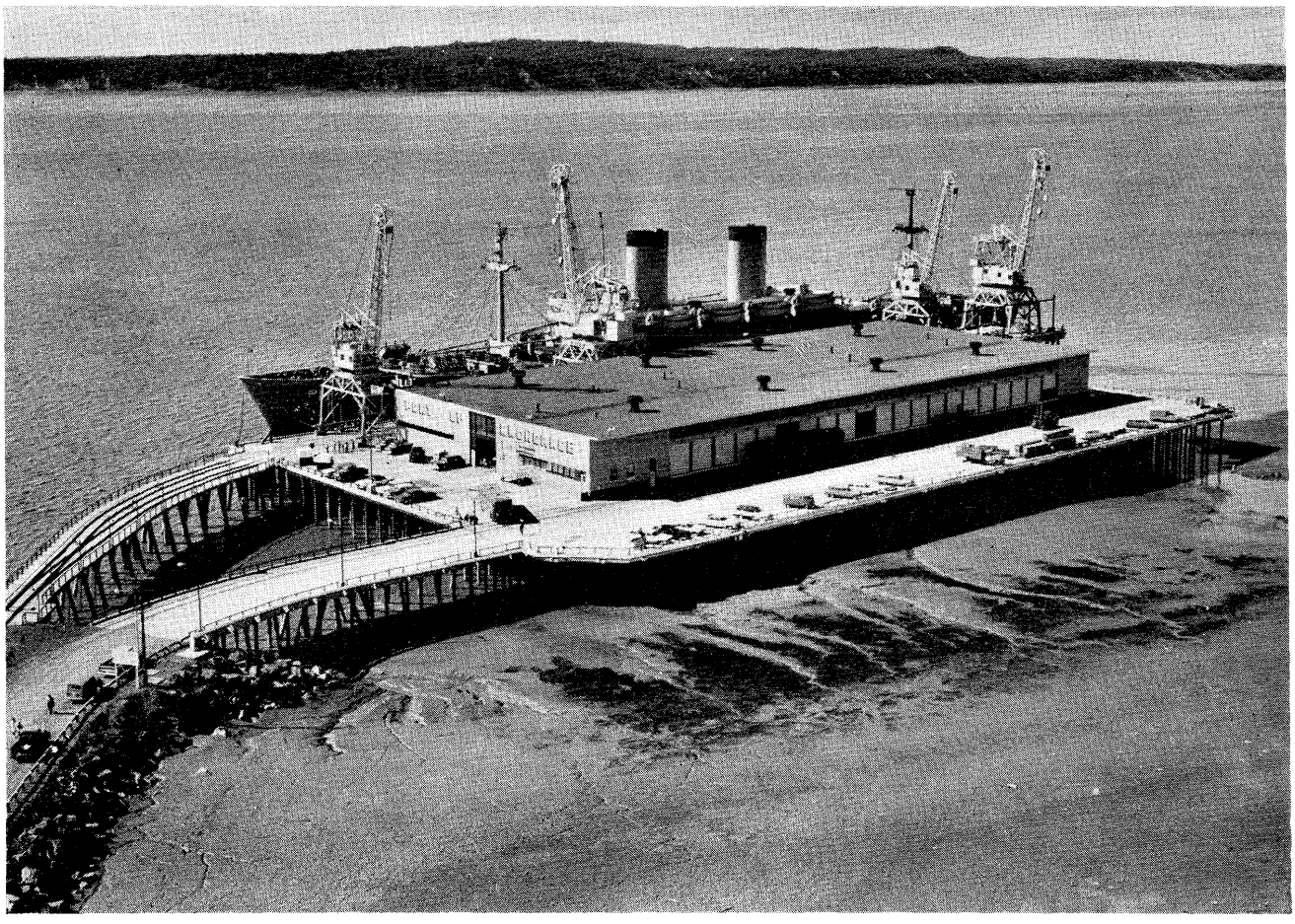
Eliminating sharp curves, taking advantage of tides and currents and use of new research methods have been proposed as means of preparing port channels to meet the demands of new, deep draft ocean vessels. The proposals were made in a nine nation report submitted at the XXth International Navigation Congress, meeting in Baltimore, Md.

Twenty-three experts who contributed to the report agreed that channels should always be as straight as possible and that hydraulic models can "provide reliable answers to specific problems" of channel design. They also recommended that channel widths should be three to four times the beam of the largest vessel using the port and six to seven times the beam when passing is allowed in the channel area.

The Soviet Union reports that it has initiated a seven year plan for harbor development and is searching for means of reducing sharply rising cost of maintaining deep water channels. The British claim some success in determining the cause of "squat"—the tendency of vessels to sink deeper in the water once underway. Models and prototype studies of this phenomena reveal that "squat" increases with speed and that the maximum "squat" is about three feet.

The report, submitted by C. F. Wicker, Engineering Advisor to the U.S. Army Corps of Engineers, Philadelphia District, warns that many ports will face increasing channel problems with the advent of larger vessels with wider beams and deeper drafts. It suggests that a criterion as to the width of the approach channels be adopted on a world wide basis.

The XXth International Navigation Congress is the quadrennial meeting of the Permanent International Association of Navigation Congress (P.I.A.N.C.) and is meeting in the United States for the first time since 1912. Aside from the technical sessions, the Baltimore Congress will feature tours of industrial, port and cultural sites in the Baltimore-Washington-Annapolis area.



PORT OF ANCHORAGE: Officials of Alaska's newest and most modern seaport officially dedicated the new $8,200,-000 terminal last month. The new terminal took over three years to build and is equipped with four modern level bluffing gantry cranes of high lift capacity. The development of the Port of Anchorage represents the first major seaport development in Alaska in over twenty years. It was built to serve the needs of the rapidly expanding City of Anchorage and to provide an export center for Alaska's natural resources. First major ship to call was the USS General Mann.

Handling Super Tankers

A sixteen nation report, citing new techniques of berthing supertankers of up to 100,000 tons has been submitted to delegates attending the XXth International Navigation Congress at Baltimore.

The report highlights such developments as the use of photographic and electronic devices to measure the velocity of vessels approaching docks; floating coffer dams to isolate polluted water areas in case of pipe line breakdowns; refinement of island terminals; use of nylon mooring ropes equipped with shock absorbers and the application of results learned from utilizing models of proposed facilities.

Thirty-three experts submitted material for the report which was distilled by C.W.N. McGowan of the Kuwait Oil Company in London. Mr. McGowan noted the recent increase in the size of tankers in the world fleet and warned that these giant vessels will require more than simply deep water in order that they might receive and discharge cargo swiftly and safely.

New oil terminals in the Arabian Gulf, West Germany, Sweden and the Soviet Union are all now experimenting with techniques designed to permit economical construction of terminals capable of handling the new, modern tankers.

French experts are working with a model designed to establish formulas for limiting the drift speed of ships while in Britain. Special studies are now underway to measure the force on pier fenders of the water brought in by a berthing vessel. In Morocco, nylon mooring ropes equipped with shock absorbers have been found to be effective in handling large vessels and in Portugal some 524 observations have been made on berthing activities to determine economical pier and mooring facilities.

The report concludes that much more research is needed in the field if the huge vessels now under construction are to be used to their most efficient level. It particularly recommends research in terminal design, measuring the height of waves inside of harbor areas and closer inspection of quick release gear, designed to free vessels swiftly in case of hazard.

The report is one of eleven subjects in inland and ocean navigation being probed by some 700 experts from all over the world at the XXth quadrennial meeting of the Permanent International Association of Navigation Congresses, meeting in Baltimore September 11th through 19th.

* * * *

Port of Anchorage, Alaska

(Formal dedications ceremonies for the new $8,200,000 terminal being held on July 8, 1961, the Port of Anchorage has emerged into full membership in the world of modern ports. Below is given a brief descriptive story of the history of the newest seaport in the United States and the most modern port in the 48th State. Ed.)

The Port of Anchorage is strategically located in central Alaska on the Knik Arm of Cook Inlet.

Alaska is a land of 571,000 square miles. It is about one-fifth the size of the 48 states, or stated another way, it is about the size of the countries of France, Spain and Sweden combined.

To develop the export potential of this great area, the Port of Anchorage as a municipal seaport only recently came into being, but the discovery of Cook Inlet dates back almost two hundred years.

Captain James Cook, sailing under the flag of England, first discovered the long inlet in 1778 and gave it his name. One Hundred and Thirty Six years later the City of Anchorage came into being following an order issued by President Woodrow Wilson ordering the Alaska Railroad to be built.

The construction of the railroad created a need for seaport facilities to unload the equipment and supplies necessary to complete the project. On November 23, 1920 the new municipality of Anchorage incorporated, but it was more than 30 years later before attempts to build city owned port facilities were undertaken.

As early as 1946, city officials created a Port Commission, and in 1952, George T. Treadwell, then Chief Engineer of the Port of Seattle, made a preliminary study of port requirements. These studies indicated the feasibility of constructing a deepwater cargo terminal at Anchorage. In 1954, the citizens of Anchorage anxious to improve their already booming city, approved the issue of $2,000,000 of general obligation bonds for port improvement. Private engineering and consulting firms were retained to conduct feasibility studies and engineering estimates for the planned improvement. These studies indicated the great potential of cargo movement into the Anchorage area from Pacific Coast points, and in 1956, $6,800,000 in revenue bonds were issued for the construction of first stage facilities.

The initial project now completed consists of a 600-foot long marginal wharf with a 50,000 square feet transit shed. Additionally, the new terminal uses four dockside travelling gantry cranes for cargo discharge. The dock is built of reinforced concrete deck supported on steel piling, with two rail tracks serving the 46-foot apron and another double track is located inboard of the transit shed to expedite rapid movement of inbound-outbound freight.

Severe tidal conditions in Cook Inlet, surpassed only by the Bay of Fundy, posed unusual design and construction problems in building what is rated to be the most modern terminal along the Pacific Coast. The fast moving waters of the inlet have a maximum tidal range of 40 feet. This factor when added to the necessity of providing a minimum of 35 feet of water at low tide for fully loaded freighters required that the wharf deck had to be set at about 75 feet above the harbor bottom. For purposes of comparison, this is equal to the height of a seven-story building.

To meet modern day requirements for rapid and efficient transfer of cargo, two 40-ton cranes with 5-ton level-luffing jibs have been installed on the wharf. Carriers in the Alaska trade move approximately 80% of all cargo via containers and vans; hence, heavy lifts are everyday routine. Supplementing the heavy lift equipment at Anchorage are two additional high-speed level-luffing cranes with 7 1/2-ton capacities. When combined with the 5-ton jibs on the heavy cranes, all four pieces of equipment can be used to handle the general cargo ships that call in the offshore trade.

The use of high-speed dockside cranes were a pre-requisite in the development of the new terminal because the normal practice of using ship's gear, utilized at mainland ports, could be used only a small portion of the day due to the unusual tidal ranges. The modern equipment cuts ship turn-around time to about one-half that of most United States ports where high-speed dockside cranes are not generally available. The fully mechanized terminal is capable of handling over 2000 tons of general cargo per day.

Original engineering and feasibility surveys of the port indicated only an eight month per year operation because of winter ice conditions generated from the many fresh water rivers that flow into the headwaters of Knik Arm. Recent experimentation with ice-breaking tugs indicates that the Port of Anchorage may soon be operating the year around.

The K Line, Kawasaki Kisen Kaisha, Ltd., provides frequent service to the Port of Anchorage from Japan and Port officials are predicting rapidly expanding trade between Japan and Alaska. Efforts are underway to expand the export of natural resources from Anchorage and these include all types of mineral ores, coal and timber. The strategic location of Anchorage, the State's largest city in terms of population, promises a bright future for this, the newest seaport in the United States and the only new port created in Alaska in the last 40 years.

Development of Indian Ports

— A Brief Survey —

Calcutta

In the River Hooghly the depths of water over the Balari Bar which used to range from 15′ 2″ to 17′ 6″ till 1945 dropped to 13′ in 1945, 12′ in 1952, 10′ 9″ in 1955, 8′ in 1957 and to 7′ 3″ in December, 1958. Intensive dredging has arrested further deterioration since then. The depth now available varies between 7′ to 11′ 3″ depending upon the continuity of dredging and the season. In the early months of the year 1959, the Ninan, Narpur and Eastern Gut bars showed signs of deterioration. This was an unexpected development caused mainly by the abnormal freshets of the 1959 season. Fortunately, an alternative route via Hopes' Crossing was available. The Port Commissioners also arranged for carrying out dredging of the bars on contract. The draft restrictions which were imposed following the deterioration of the Eastern Gut Bar were later restored. Yet another stretch which deteriorated during the year was Beaumonts' Gut in the estuary. Vessels now use the Eastern channel, thus avoiding Beaumonts' Gut.

A welcome acquisition during the year was the I.H.C. built second-hand vessel Maitena, ex-Hong-Kong. Her performance since arrival has been very satisfactory. Further substantial relief may be expected when the Churni the duplicate of the Bhagirathi arrives early this year from the U.K. The deterioration of Beaumonts' Gut has focussed attention on the desirability of building two additional dredgers to suit the requirements of the estuary where the wind and swell make conditions special. The necessary provision for such a dredger has since been made in the World Bank loan and steps for the preparation of specifications and drawings are now engaging the Commissioners' attention. Provision for the other dredger of the same type in replacement of an existing dredger has also been made in the Third Five-Year Plan. It is also proposed to refit the old Ganga at a cost of about Rs. 46 lakhs so that its life could be prolonged as much as possible.

Work on the Fulta Point Project is expected to be completed by the middle of this year despite the tragic loss of the dump dredger Lake Fithian in November, 1960. It is also hoped that some initial works for training the Balari Bar may be undertaken soon.

Establishment of an Auxiliary Port of Haldia

The possibility of developing a deepsea Port in the estuary of the Hooghly to supplement the facilities offered by the Calcutta Port has attracted the attention of Government and the Port Commissioners from time to time in view of the tendency of the Hooghly to deteriorate, the restrictions on the length and draft of ships visiting Calcutta, the congestion at Calcutta and the increasing severity and frequency of bore tides. Experts are agreed that Haldia in the estuary is the best site for the purpose. However, it has been considered desirable to study the hydraulics of the region and also the possibility of improving the approaches to the Haldia Port by dredging. Investigations into these matters have been undertaken by two U.N. experts. It may take another year before the results of their enquiries are available. Meanwhile, tentative estimates prepared by the Port Commissioners have shown that an expenditure of about Rs. 25 crores exclusive of the cost of rail connection between Haldia and Kharagpur and between the mines and the main line at Jaiupr, will be needed for developing Haldia as a Port. Foreign exchange to the extent of about Rs. 14 crores will be needed. The intention is that bulk traffic such as ores, foodgrains and coal should be handled at Haldia, the other traffic being handled at Calcutta as at present, but Haldia will also be used for the lightening and topping up of ships using Calcutta Port. The financial and traffic aspects of this problem are under detailed examination. Mr. Posthuma, Managing Director, Rotterdam Port, whose services were secured thorugh the United Nations Technical Assistance Administration Board recently has also gone into the problem. A provision of Rs. 7 crores has been proposed in the Third Five-Year Plan for the Haldia Project.

Working of Haldia Anchorage

In the meantime, Haldia is being used as an anchorage for the lightening of deep-drafted foodgrain ships for the duration of the fair weather season (November—February). During the season from November 1959 to February, 1960, sixteen vessels called at Haldia and lightened about 41,383 tons of food-grains. The anchorage commenced functioning again since the 15th December 1960.

As Haldia is situated 65 miles away from Calcutta, on the opposite bank of the Hooghly, special arrangements for supply of labour are necessary for its working. In 1959, when the anchorage was operated for the first time, these arrangements were entrusted to a private firm having rupee capital and registered in India. The anchorage was worked from 3rd November 1959 to the end of February 1960. The Company engaged a nucleus of trained labour from outside, but 70 per cent. of the total labour was recruited locally. Sixteen food ships lightened at Haldia discharging 41,383 tons of cargo. The rate of handling was encouraging. The Port Commissioners paid for the stevedoring at Haldia and transport by lighters to Calcutta. They were in turn paid by the Food Ministry at a lump sum per ton. The Cal-

cutta Port Commissioners suffered a loss of Rs. 9,859. The saving in freight charges to Government as compared with cost of discharge at Visakhapatnam was estimated at Rs. 2.88 lakhs and on the basis of discharge at Madras Rs 8 06 lakhs.

Bombay Harbor Channel

A survey of the Bombay harbour channel carried out in 1954-55 showed that there had been heavy silting of the channel and that a programme of capital dredging would have to be undertaken. Hydraulic model experiments were conducted at the Central Water and Power Research Station, Poona in order to select a suitable site for dumping the dredged spoil. As a result of the model experiments, two sites, one off the Prong's Reef and the other off the Thal Reef, have been found suitable for disposing of the spoil during the flood and ebb tides, respectively. The governing depth in the channel at present is 30 ft. In accordance with the recommendations made by Mr. Posthuma, the U.N. expert, it has been decided by the Port Trust to fix the width of the channel to be dredged at 1,500 ft. for the greater part of its length. They also propose to adopt a working depth of 32 ft. below chart datum. The total quantity of silt to be lifted from the channel on this basis is estimated at 10.56 million tons. The cost of the scheme is estimated at Rs. 500 lakhs including an expenditure of Rs. 130 lakhs in foreign currency.

Madras

A new, fully mechanised berth with its root taking off from the eastern extremity of the ore berth and jutting into the harbour basin has been constructed for the faster unloading of colliers. This berth can accommodate steamers of 500′ in length and 30′ draft. The cost of the berth alone is about 28 lakhs, and that of the plant and equipment is about Rs. 42 lakhs. The berth has been put into use from the 24th October, 1960. The berth can also be used for unloading rock phosphate in bulk.

Mechanical Ore Berth

As part of the Second Plan works, a fully mechanised ore berth was commissioned at Madras Port on the 28th September, 1960. Although intended primarily for mechanised handling of iron ore, it can also be used as a general cargo berth. The capital cost of the berth is about Rs. 64.70 lakhs and that of mechanical handling equipment is about Rs. 65 lakhs. During the year 1959-60, the Port handled about 5 lakh tons of iron ore by the ordinary manual method. The new mechanised berth is equipped to handle about 1.2 million tons of iron ore annually on a two shift basis. The actual quantity of ore that can be handled at this berth, however, depends (i) on the State Trading Corporation offering the requisite quantities of ore to the Railways for movement and (ii) the Railways being able to move quantities of that order to the port. The Railways have agreed to move during the period 1st July, 1960 to 30th June, 1961, about 9 lakh tons of iron ore. The Port Trust has actually handled 2¾ lakh tons during the seven months from 1st April, 1960 to 31st October, 1960.

The iron ore for Madras Port comes from Bellary mainly and to some extent from Mysore. Measures are under consideration for stepping up the export of iron ore through Madras Port to 2 million tons during the Second Plan. Among other things, this will require improvement of the line capacity from Hospet to Madras.

Cochin

The four-berth scheme is the most important scheme undertaken by Cochin Port during the First and Second Five-Year Plan periods. The estimated cost of the scheme is about Rs. 224 lakhs. The new berths are located in the Ernakulam channel between Willingdon Island and Ernakulam. The new wharf under construction is 2200′ long with facilities such as cranes, railway tracks, transit sheds, warehouses, open cargo stacking space, etc. The work on the scheme was started in 1955 and is nearing completion. All the four berths are expected to be brought into commission in October/November, 1961.

Visakhapatnam

Visakhapatnam Port will be the outlet for large-scale export of iron ore to Japan in the near future. To handle this export and also generally to add to the berthing capacity of the port, it is proposed to construct four additional berths, two for ore and two for general cargo, and to mechanise the two ore berths by the installation of an ore loading plant, at a total estimated cost of Rs. 5.8 crores for the entire scheme. Aid to the extent of Rs. 2.10 crores will be available from the U.S. President's Asian Economic Development Fund to meet the foreign exchange component of the expenditure involved.

Repairs to Break-water

The break-water at Visakhapatnam port was constructed in 1934. It consists of two derelict ships sunk in a line. These acted as a kind of nucleus round which huge quantities of boulders and stones were thrown. The inside of the ships was filled with sand, stone and concrete. On the weather side of the ships, a concrete wall was built up from the lower dock to the upper dock. This break-water successfully withstood the impact of violent wave action even during severe storms. In recent years, it has been in need of repairs. Certain interim repairs to the break-waters were carried out during the years 1957-58. A comprehensive scheme for the complete restoration of the break-water and preventing further deterioration costing about Rs. 17 lakhs has been sanctioned by Government.

New Road-cum-Rail Bridge

It is proposed to construct a new road-cum-rail bridge connecting the Visakhapatnam Port with the Oil Renery, the Hindustan Shipyard etc. On account of damage caused to the existing bridge during the rains in 1958, restrictions had to be imposed on traffic passing over it. The scheme is expected to cost about Rs. 58 lakhs. Detailed estimates and plans submitted by the port authorities are under the consideration of Government.

Deepening and Extension of Dry Dock

The port has recently acquired a new dredger the Visakha, which has an overall length of 348'-5" with a draft of 13'-6". The present dry dock is not suited for the satisfactory docking of this vessel. The vessel can enter the dock only at high water and that too only during some months of the year. This is a serious restriction. To remove this defect, the dry dock floor has to be deepened by 4'-6". The dredging suction ladder cannot also be inspected, repaired and painted unless it is drawn out. This is not possible now as the dry dock is not long enough. The dry dock has, therefore, to be lengthened. Though the deepening and extension of the dry dock is mainly required for the docking of the dredger Visakha it will incidentally have the added advantage of providing dry docking facilities for a large number of small craft simultaneously. The estimated cost of the project is Rs. 15.68 lakhs. Work on the project was started in November, 1960.

Kandra Approach Channel

The problem of improving the conditions over the bar at the entrance to Kandla creek continues to engage the attention of the port authorities. The navigational channel across the bar ("the mid-channel"), was dredged during the period January to April, 1959 by the Suction Dredger Visakha which was brought from Visakhapatnam Port. The channel maintained its depth upto the end of the south-west monsoon, i.e., September, 1959. Thereafter, it began to deteriorate and a new channel called "the Breach channel", which began to develop, was dredged by the dredger Visakha of Visakhapatnam Port during the monsoon season of 1960, and brought into use from the 25th August, 1960.

The breach channel is being regularly and frequently sounded. Some deterioration in depth in the southern portion of the channel and also some shifting of the channel has been noticed. These isolated patches are being removed by the Port's Suction Dredger Rukmavati. An order for a new dredger has been placed on Messrs. I.H.C., Holland, at a total estimated cost of Rs. 77.56 lakhs. The capacity of the hopper of the dredger is 800 cubic metres. The maximum dredging depth will be 1500 metres below water surface in light condition. This dredger is expected to be available by the middle of the year 1962.

The question of stabilising a suitable channel for use by ships is being examined by the Port Administration in consultation with the Central Water and Power Research Station, Poona.

Free Trade Zone

With the completion of the major harbour works and the railway and other ancillary works at Kandla employment opportunities in the township of Gandhidham were considerably reduced. As one of the effective measures for increasing the employment potential of the place and attracting large and medium scale industries to it, a tentative scheme for the setting up of a Free Trade Zone at Kandla was formulated. The scheme was given wide publicity in India and abroad and comments and suggestions were invited with a view to ascertain the reaction of trade and business interests.

In the light of the comments and suggestions received, the scheme is being considered further and it is hoped that a decision will be reached by Government in the near future.

Introduction of Metric System

In August, 1960, the major ports switched over to the metric system for purposes of calculating wharfage charges.

Loan from World Bank

In 1958, the port authorities of Calcutta and Madras obtained loans of $29 million (Rs. 13.80 crores) and $14 million (Rs. 6.67 crores) respectively from the I.B.R.D. to meet the foreign exchange requirements of the development schemes included in the Second Five Year Plan. So far they have withdrawn Rs. 3.93 crores and Rs. 1.33 crores, respectively. Substantial sums are expected to be withdrawn during the coming year to complete the works in progress.

Third Five Year Plan Relating to Major Ports

The Planning Commission have fixed an overall ceiling of Rs. 75 crores for schemes pertaining to major port development during the Third Plan period. The port-wise allocation is tentatively as follows:—

	Rs. in crores
Calcutta	28.55
Bombay	25.61
Madras	7.32
Cochin	1.73
Visakhapatnam ...	6.28
Kandla	4.30
	73.79
plus	1.21 (kept in reserve)
	75.00

The provision of Rs. 75 crores includes a sum of Rs. 37 crores for schemes carried forward from the Second to the Third Five-Year Plan and Rs. 7 crores for the Haldia Project.

(The above article has been quoted from "Indian Shipping", Journal of the Indian National Steamship Owners' Association, Bombay, Vol. XIII, No. 6, June, 1961.—Editor)

New Oil Storage Tanks for Los Angeles

A 24-year lease to the Socony Mobil Oil Company for installation of oil storage tanks on a Terminal Island backland parcel August 23 was granted by the Los Angeles Board of Harbor Commissioners.

The land, consisting of 524,600 square feet and located on Pilchard Street, south of Seaside Avenue, will be used to construct holding tanks and pumping equipment in order that oil may eventually be received through pipe lines from the supertanker oil terminal in the Outer Harbor of the Port of Los Angeles.

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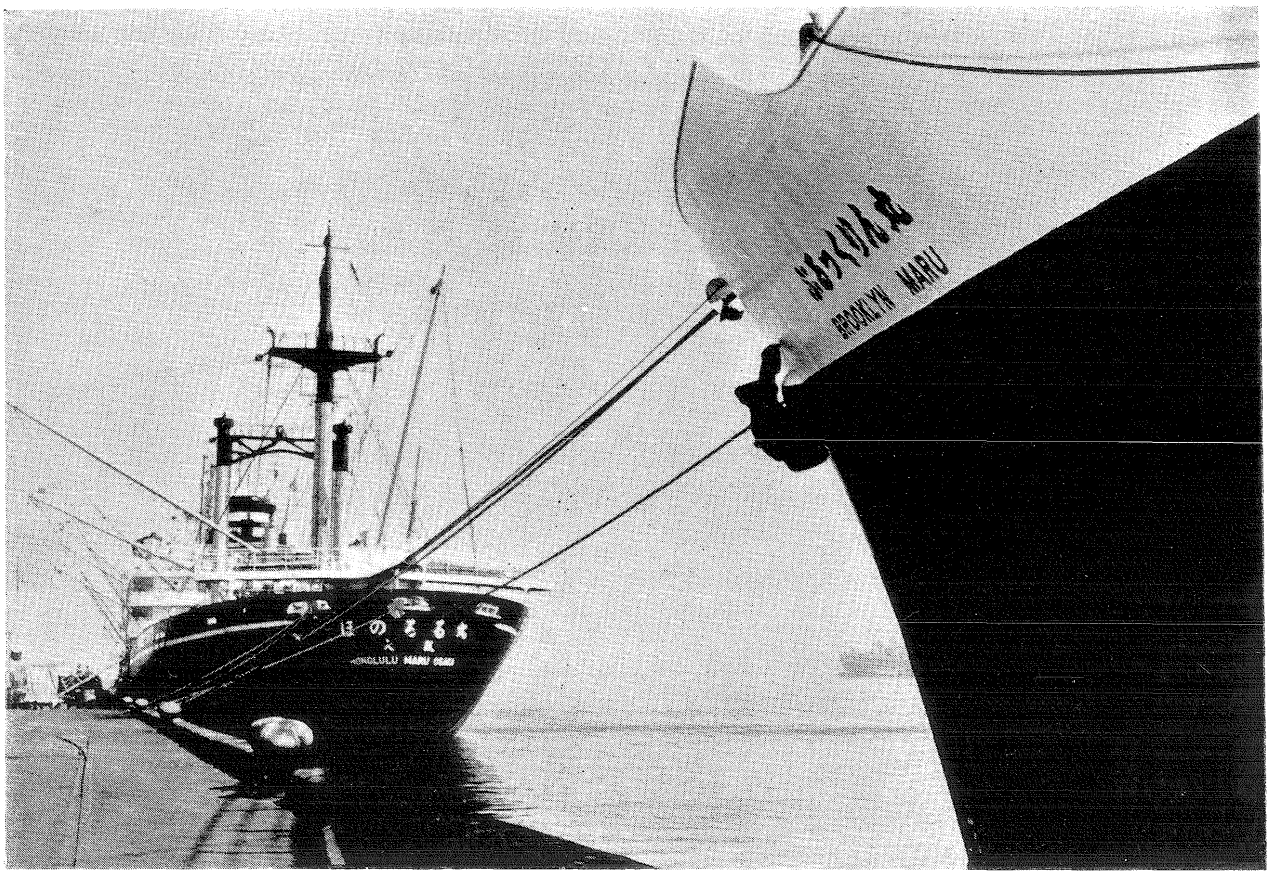
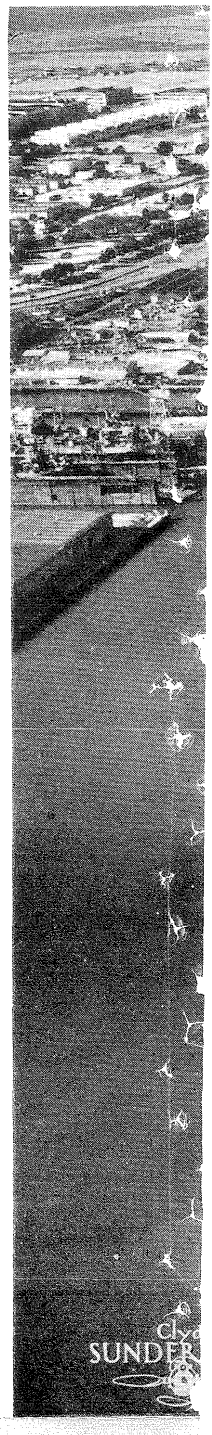


Japan sends more flag vessels to Los Angeles Harbor than any other nation. A recent survey shows that one out of every three ships leaving this port heads for Japan, while one out of five arrivings is from Japan. Japanese ships also play an important role in transporting goods that make up the two-way trade between Southern California and other markets—in South America as well as in the Far East.



This is a portion of the Inner Harbor, showing the Port of Oakland's Grove Street and Market Street Piers, both leased to Howard Terminal, and Howard's own facilities immediately adjacent. This is where a $300,000 project to expand bulk facilities is now underway.

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