

PORTS and HARBORS

JUNE 1962 Vol. 7 No. 2



GENERAL VIEW OF PORT OF LOS ANGELES

Introducing The Crests of Co-Member Ports

(Each Issue One Port)

THE PORT OF STOCKTON





General view of the Port of Stockton. In the foreground is Stockton Elevators, the largest single such facility in California and second largest on the West Coast. The ore dock is at upper part of the picture as are the two new berths acquired by the Port of Stockton.

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.

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THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

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Lt. Gen. Huang Jen-ling

Chairman, Board of Directors, China Merchants Steam Navigation Co., Ltd. Taipei, Taiwan, China

Chief of the Central Secretariat

Gaku Matsumoto

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Published by

The Central Secretariat of the International Association of Ports and Harbors

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Officers and Members of The Board of Directors of

The International Association of Ports and Harbors

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

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	Minister of Finance	National Port Service
		Ministry of Finance
Viet-Nam	Mr. Nguyen Van Chieu	Mr. Nguyen Ngoc Du
	Director, Saigon Port	Director
		Port of Da-Nang
		-

(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.

Second Seminar for Port Officials - October, 1962, Tokyo -

Encouraged by the considerable success of the Seminar on Ports and Harbors under the Colombo Plan, which was conducted in October. last year by the Japanese Government with the coordination of the Society for Economic Cooperation in Asia and the Central Secretariat of the International Association of Ports and Harbors, the Second Seminar on Ports and Harbors is now being organized. this time in a larger scale and with an enlarged attendance. The proposed Seminar will be conducted as a phase of the Technical Cooperation Scheme of the Colombo Plan in South and South-East Asia, the Technical Cooperation Plan for other Asian Areas, the

President Huang Confers with Central Secretariat

On his way to the United States and Europe on a business tour, Lt. Gen. Huang Jen Ling, IAPH President, visited Tokyo April 12, accompanied by Rear Adm. E. S. Yen and Mr. James Y. Liu in the Tokyo Branch of China Merchants Steam Navigation Co., his assistants in Taipei and Tokyo, respectively. They had a brief conference with the Chief of the Central Secretariat on the Association affairs on which decisions were made in the Executive Committee meeting in Taipei last March.

On June 19 when President Huang stopped over Tokyo on his way back from the United States and European trip, accompanied by Re. Adm. Yen, a similar conference was had by them and the Chief of the Central Secretariat chiefly

Technical Cooperation Plan for Near and Middle East and Africa and the Technical Cooperation Plan for Latin America, by the Japanese Government, with the Central Secretariat of this Association acting as the coordinator, for one month from October 3 to November 2, 1962 in Tokyo. Port officials to be invited from those countries to attend it will be 30. Official invitations will soon be extended by the Japanese Government to the Governments concerned so that they may recommend the attendant or attendants as allocated to each of them. The prospectus and program of the proposed Seminar are given elsewhere in these pages.

about the preparation now steadily under way for the 1963 Triennial Conference in New Orleans, U.S.A.

Board Meeting by Correspondence

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The Board of Directors meeting by correspondence was convened on May 15, 1962, with June 13 as the date for closing the vote, for the deliberation on the recent affairs of the Association as well as the decisions made by the Executive Committee meeting, March 7-8, 1962, at Taipei, Taiwan, China, including the election of new members, settlements of accounts for the past fiscal year and working budgets for the current fiscal year, and the agenda and program for the Third Triennial Conference. All items on the agenda were unanimously approved as of June 13, 1962.

* * *

Permanent Councillor Travels to Europe

Mr. H. D. Leonhardt, General Traffic Manager, C. F. Sharp & Co., Tokyo, who is on the Permanent Council of IAPH, left June 14 Yokohama on board Lloyd's "Schwabenstein" on an European trip. He intends to meet the port officials at Hongkong, Singapore, Penang, Port Said, Genoa, Marseilles, Antwerp, Rotterdam and Hamburg, where the ship will call at on the way. He is scheduled to return to Japan towards the end of September.

New Members

During the past three month from April to June, 1962, the Central Secretariat welcomed the following ports and organizations as the new members in this Association. They are in the order of application accepted:

Regular Members

Empresa Puertos de Colombia, Carrera 10a. No. 15-22-90 Pisco, Bogota, Colombia (May 4, 1962)

The Port of New York Authority, 111 Eighth Avenue, New York 11, N.Y., U.S.A. (June 11, 1962)

Supporting Member

Tai An Steamship Co., Ltd., 46, Kuan Chien Road, Taipei, Taiwan, China (April 10, 1962)

Los Angeles Port Executives Visit Central Secretariat

Dr. Joseph D. Carrabino and Dr. George Wall, president and vice president, respectively, of the Los Angeles Board of Harbor Commissioners; Mr. J. F. Parkinson, assistant general manager and Mr. Troy S. Garrison, public relations director of the port, who were with the Los Angeles Port Trade Mission, visited the Central Secretariat on April 12. The Chief of the Central Secretariat and other staff members exchanged views with them in a Japanese dinner party given in their honor.

Prospectus of Second Seminar on Ports and Harbors

October, 1962

(Below is given essentials of the prospectus of the Second Seminar on Ports and Harbors made public by the Japanese Government.—Editor)

(1) Purpose

As a phase of the Technical Cooperation Scheme of the Colombo Plan in South and South-East Asia, the Technical Cooperation Plan for other Asian Area, the Technical Cooperation Plan for Near and Middle East and Africa and of the Technical Cooperation Plan for Latin America, this Seminar is organized by the Japanese Government with the intention of contributing towards the further development and improvement of the participating countries' Ports and Harbors by introducing the actualities of the Japanese Ports and Harbors through the joint efforts of the Government authorities and private circles concerned. Furthermore, it is aimed at the promotion of mutual understanding and friendship among the peoples who are connected with the Ports and Harbors in these parts of the world.

(2) Countries and Participants to be Invited

One or two port administrative and engineering officers will be invited from each of the member countries of the above mentioned Technical Cooperation Plans. The total number of participants will be limited to 30.

(3) Application Procedure

1. The Government intending to send participants under the above mentioned Technical Cooperation Plans to this seminar is requested to send the application form (Form A-2) and the nomination form (Form A-3) duly filled to the Japanese Government, not later than August 20, 1962.

2. Upon receipt of the application and nomination forms, the Japanese Government will inform the respective governments of the acceptance or non-acceptance of applicants on or about August 31, 1962.

(4) **Place** (Lecture and Lodging)

Asia Center of Japan No. 44 Shinsaka-machi, Akasaka, Minato-ku, Tokyo, Japan Tel. 408-1101

(5) **Period**

October 3-November 2, 1962 (one mnth)

(6) Language

English

(7) Lectures, Discussions and Observations

1. Lectures

The following lectures will be prepared by the Port and Harbor Bureau, Ministry of Transportation, Japanese Government.

- a. Port Management and Operation.
- b. Port Construction and Improvement.
- c. EEC and Japanese Economy.
- d. Development Projects of Ports and Harbors.
- 2. Discussions

Several kinds of problems on ports and harbors of the participating countries and of Japan will be discussed in the Seminar. Accordingly, participants may submit the problems for discussion on October 8, 1962, to the Port and Harbor Bureau, Ministry of Transportation. 3. Field Trips

- a. Six Major Ports (Tokyo, Yokohama, Osaka, Nagoya, Kobe and Kanmon)
- b. Port and Harbor Technical Research Institute.
- c. Industrial Plants (Shipyards, Iron and Steel, Electronics, Railways, Automobile and Civil Engineering Machinery Factories.)

(8) General Information

- 1. Participants are requested to arrive in Japan on or before October 3, 1962.
- 2. Necessary arrangements for the participants will be made by the Agency for Technical Cooperation. On arrival at Tokyo Internatinal Airport the participants will be met and guided to the hostel by officers of the Agency for Technical Cooperation.
- 3. Participants who have completed this seminar will be presented the certificate of the seminar.
- 4. Participants will strictly follow the seminar as organized by the Japanese Government.
- 5. The average temperature in Tokyo is as follows:

Month	F	С
October	61.52	16.4
November	51.80	11.0

6. The Agency for Technical Cooperation will be glad to have any kind of requests or information as to the seminar from applicants or participants.

Address: Agency for Technical Cooperation

No. 37 Shinsaka-machi, Akasaka, Minato-ku, Tokyo (Correspondence before June 30, 1962, shall be addressed to Asia Kyokai)

(9) Coordinating Organization

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

Tentative Program of Seminar on Ports and Harbors

I	Date		Morning	Afternoon
Oct	•			
3	(Wed)	Arrival, Regist- ration		
5	(Fri)	Orientation		
6	(Sat)	Opening Cere- mony		
7	(Sun)	Free		
8	(Mon)	Lecture	EEC and Japanese Eco- nomy	Outline of Japanese Major Ports
9	(Tue)	Lecture	Port Management and Operation	Discussion
10	(Wed)	Lecture	Port Construction and Improvement	Discussion
11	(Thu)	Lecture	Development Project of Ports and Harbors	Discussion
12	(Fri)	Briefing and Observation	Briefing on Port of Tokyo	Inspection of Port of Tokyo
13	(Sat)	Observation	Ishikawajima-Harima Heavy Industries Co., Ltd.	
14	(Sun)	Free		
15	(Mon)	Lecture	Port Cargo Handling	
16	(Tue)	Observation	Leave Tokyo for Kuri- hama Port & Harbor Technical Research In- stitute, Ministry of	
17	(Wed)	Observation	Transportation Port of Yokohama	Ports of Hawasaki and Shintsurumi Marshalling Yard of Japan National Railways.
18	(Thu)	Observation	Mitsubishi Dockyard	
19	(Fri)	Discussion	Problems Proposed by Participants	Discussion
20	(Sat)	IAPH Hours (Special lec- tures)	-	Leave Tokyo for Moji, Southern part of Japan
21	(Sun)	Observation	Arrive at Moji	Port of Kanmon and Kanmon under sea tun- nel.
22	(Mon)	Observation	Yawata Iron & Steel Works Co., Ltd.	Leave Kokura for Osaka
23	(Tue)	Observation	Arrive at Osaka	Port of Osaka
24	(Wed)	Observation	Briefing on Port of Kobe	Inspection of Port of Kobe
25	(Thu)	Observation	Leave Kobe for Kyoto	Matsushita Electric In- dustrial Co., Ltd.
26	(Fri)		Observation in Kyoto	Leave Kyoto for Nagoya
27	(Sat)	Observation	Briefing on Port of Nagoya	Inspection of Port of Nagoya and Shin-Mitsu- bishi Heavy Industries Co., Ltd.
28	(Sun)	Trip	Leave Nagoya for Tokyo	
29	(Mon)-	Discussion	Problems on Ports and	
30	(Tue)		Harbors concerned the	
31	(Wed)	Evaluation	Seminar Report Making	
No	v.			

Port of New Orleans' **European** Office

The Port of New Orleans will establish its newly authorized office for the development of trade with European countries in Milan, Italy, Richard G. Jones, president of the Board of Commissioners of the Port announced.

Paul L. Vogel, European trade director for the port, will open the new office in early July, Jones said. Vogel formerly was world trade development director for International House of New Orleans.

Selection of Milan as office site was based on that city's importance as a trade center and the fact that it is within rapid reach of every important city in Western Europe, Jones added. Vogel will travel extensively throughout the area, periodically visiting shipping and manufacturing interests at the major ports and trade centers.

Vogel visited Milan in the spring and fall of 1961 and was a member of International House's 43rd trade and travel mission for four days of conferences with Italian trade interests and a visit to the annual Milan trade fair. Sam Israel, Jr., Secretary of the Board was also a member of this mission.

Jones pointed out that Milan is the center of one of the great industrial complexes of Western Europe and is the headquarters of a large number of important companies whose business relations with the United States have increased rapidly in recent years.

The rapid development of the European Common Market during the last five years has provided an incentive for increasing numbers of European and American firms to locate manufacturing and marketing facilities in the Milan Area

Port of New Orleans trade with the world gives Europe the major share, with 38 per cent of total trade in 1960. Italy alone accounted for 11 per cent or \$72 millions in value of New Orleans-European trade. New Orleans, which for many years carried on most of its trade with Central and South American countries, now does about 36 per cent of her trading with those countries. Total European trade in 1960 amounted to \$671 millions, according to the U.S. Department of Commerce.

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1 (Thu) Closing

Ceremony 2 (Fri) Leaving Japan

Port and Harbor Fair in Tokvo

As part of the enterprises in commemoration of the 40th anniversary of founding of the Japan Port and Harbor Association, the Port and Harbor Fair will be held, under the joint sponsorship of said Association, Port Cargo Handling Mechanization Association, Japan Operation Ship Association, Japan Reclamation Association and Nihon Keizai Press, for two weeks from August 31 to September 13 at Pavilion No. 2 and other sites of the Tokyo Trade Center, Harumi. The Fair will be patronized by Prince Takamatsu as Honorary President and Hayato Ikeda, Prime Minister as Honorary Vice President. Noboru Saito, Transportation Minister and Eisaku Sato, International Trade and Industry Minister will be Honorary Chairmen, while Gaku Matsumoto, Chief of the Central Secretariat, International Association of Ports and Harbors and President, Japan Port and Harbor Association and Naoji Yorozu, President, Nihon Keizai Press will act as Chairmen.

The Fair, first of its kind to be held in Japan, is aimed at acquainting the public with all about ports and harbors, in view of their growing importance as the basis of national industrial development.

Exhibits will be roughly divided into the following four groups:

1. Group A

Data showing the history, present state, etc. of Japanese ports and harbors as the basis of industrial development will be put on display.

2. Group B

All kinds of models of Japanese ports and harbors in operation and under construction as well as planning will be exhibited by the respective authorities concerned.

3. Group C

Exhibits will be arranged by port and maritime industries as well as their related industries.

4. Group D

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The open space in front of pavilion Nos. 2 and 3 will be also made use of for exhibits.

* Los Angeles Port Trade **Mission to the Far East**

An eight-man Port of Los Angeles trade mission, headed by Mayor Sam Yorty, visited ports in Japan and the Far East in April to call on officials and strengthen the bonds of friendship and trade

between the port and areas where much of its commerce originates.

In addition to Mayor Yorty, the group included Los Angeles Councilman Karl L. Rundberg; Dr. Joseph D. Carrabino and Dr. George Wall, president and vice president, respectively, of the Board of Harbor Commissioners of Los Angeles; Mr. John F. Parkinson, assistant general manager, and Mr. Troy S. Garrison, public relations director of the harbor; and Mr. Arthur G. White, executive assistant to Mayor Yorty. Mr. Melvin J. Erickson, President of the Los Angeles Airport Commission, accompanied the group to inspect Japan's airport facilities.

Included in the itinerary was a three-day stay in Nagoya, Los Angeles' "Sister City", and a visit to the International Trade Fair in Osaka. Members of the trade mission also met with officials and shippers in Tokyo, Yokohama, Kobe, Taipei, Hong Kong and Manila. In Japan almost every toplevel businessman and government official concerned with world trade attended the mission's receptions in all the cities visited. An audience with Crown Prince Akihito and Crown Princess Michiko and a meeting with Prime Minister Ikeda highlighted their visit.



Photo shows Dr. Joseph D. Carrabino (right), president, and Dr. George Wall (left), vice president, of the Los Angeles Board of Harbor Commissioners, on an inspection cruise of Yokohama Harbor, on the occasion of the Port of Los Angeles Trade Mission's visit to Japan last April.

New Crane for Toronto Port

The giant dockside crane, towering 149 feet in the air, newly installed in Toronto Harbor, passed all tests put to it recently.

Engineers representing the Port of Toronto, the Consultants, Ewbank, Tupper & Associates Limitied, and the Contractors, Dominion Structural Steel Limited, increased the lift on the crane till it was handling a 50% overload. This lift was only a few feet in the air to make a sure the gear and boom would take the strain.

A 25% overload, however, has been swung through the entire motion that would be taken in loading or unloading a ship.

The 1/2 million crane, located on the E. L. Cousins Docks in the eastern section of the harbour, is designed to handle 300 tons.

Recent enquiries from importers and exporters indicate that the crane will be used for both U.S. and Canadian shipments.

Mr. E. B. Griffith, the port's General Manager, stated that the Commissioners believe it will lend impetus to the movement of cargo to and from the heavily industrialized Province of Ontario.

L.A. Port Decides to Deepen Fairway

Accommodation of the world's largest ships will be made possible at the Port of Los Angeles by the approval June 20 by the Board of Harbor Commissioners of a \$2,-059,290 contract for the deepening of the municipal harbr's fairway to its supertanker terminal and the site of its proposed bulkloader.

Awarded to the Western Contracting Corporation of S'oux City, Iowa, the lower of two bidders, the dredging project will increase the depth of the 500-foot-wide fairway from its present 46 feet to 51 feet.

Of the 2,367,000 cubic yards of dredged material, 500,000 cubic yards will be deposited inside the breakwater at Cabrillo Beach, adding six acres of land to the site of the proposed small boat marina in that area. The balance will be used to improve the beach beyond the breakwater. The entire pro-



ject is to be completed in 330 calendar days.

The port's supertanker terminal, located at Berths 45-47 in Outer Harbor, was dedicated in July of 1959 and includes automatic equ pment which unloads the huge oil carriers at the rate of 35,000 barrels an hour. Site of the proposed bulkloader, which is part of the port's current expansion program,

is at Berths 48-50.

Mr. Frost Honored by Retirement Luncheon

Dudley W. Frost, executive director of the Port of Oakland, was honored at a civic retirement luncheon June 26, at Goodman's, Jack London Square.

Frost retired June 30 after 10 years as the chief administrative officer of the Port.

Sponsoring organizations for the luncheo nevent are the City of Oakland, Board of Port Commissioners, County of Alameda, Oakland Chamber of Commerce and Oakland Junior Chamber of Commerce.

Cooperating groups included the World Trade Club of San Francisco, Marine Exchange, Bay Area Council, Propeller Club, Oakland's Downtown Associations, and others from throughout the Bay Area.

A. E. McIntyre, president of the Chamber of Commerce, was master of ceremonies for the program.

The luncheon was scheduled for 12:30 p.m., following an informal reception.

Frost is an internationally recognized Port administrator who has guided millions of dollars in expansion and improvement prejects undertaken during the past decade.

Previously, he had served the Port as a member and president of the Board of Port Commissioners.

International Trade Center in Toronto

A \$60,000,000 trade, hotel and transportation complex has been approved in principle by the Toronto Harbour Commissioners and will be developed by Levy Industries Limited on the Lakefront between Yonge and Bay Streets.

Details are now being worked out between the Board and Levy Industries Limited so that the successful bidder can start immediate development of the multimillion dollar waterfront expansion.

The project, to be completed in time for Canada's Centennial in 1967, will be called the International Trade Centre, it was announced by Mark A. Levy, President of Levy Industries Limited, at a press conference in the office of Mayor Nathan Phillips.

The first stage of the development will contain a display mart with an exhibition area larger than a football field, a trade building which may be as high as 33 storeys and become Toronto's tallest building, an 800-room hotel, 200-roo mmotel, and up to 33storey office building, a bus terminal, heliport, enclosed shopping mall and underground parking for at least 1,500 cars.

It will be located on approximately nine acres bound by Yon e Street, Queen's Quay, Bay Street and the Gardiner Expressway (now Lakeshore Blvd.) and constitutes the largest and most ambitious development ever undertaken in downtown Toronto.

A future stage of development in the central section of the Port including a promenade to permit the public to watch ocean shipping in the harbor at the very water's edge is being studied by the Harbor Board at this very moment said Harry G. Kimber, Chairman of the Toronto Harbour Commissioners.

Development of the entire area has been long under study by the Harbour Commissioners and after viewing models of possible developments, several groups and syndicates submitted proposals. The Levy project was chosen, said Mr. Kimber, after long deliberations by the Harbour Board. The documents being prepared are for a leasehold arrangement for the nine-acre site with eventual option to purchase.

Mr. Levy said the centre will be developed by a wholly-owned subsidiary of Levy Industries Limited. It will be independently financed, not to put any strain on the resources of Levy Industries Limited or any of the companies it controls.

"Construction will begin within a year", Mr. Levy has promised the Harbour Board. "We are most anxious to complete the development in time for Canada's Centennial in 1967, and we will appear before the various Boards and Officials as quickly as possible to expedite the project and move in the construction men.

"In addition to our desire to have this development as a monument to Canada's 100th anniversary, we feel that it will provide Toronto's construction industry and building trades with a vast stimulant and will provide thousands of jobs for Toronto citizens."

Container Terminal of Long Beach

Sea-Land Service, Inc. of the Port of Newark, N. J., will start operation in September of a 468,-000-ton-a-year container terminal in the Port of Long Beach, California, as the result of action by the Long Beach Board of Harbor Commissioner June 11.

The commissioners allocated \$300,000 for construction of a truck terminal with office building, warehouse and garage to be leased to Sea-Land for 20 years. And they gave the first reading to a lease ordinance to operate the container terminal.

The water-side container terminal will be located on a six acre site on the port's new Pier G. It will handle 40 sailings or 360,000 tons the first year and be increased to 52 sailings or 468,000 tons the second year.

In the Sea-Land operation merchandise and materials are moved in truck-vansize containers which can be lifted or placed on tractor trailers by deck cranes from special cargo cells in container ships.

Cargo Movements thru San Francisco

Port of San Francisco cargo for the first three months of the year was up more than 60,000 tons over last year's January-March volume, Port Director Rae F. Watts reports.

Gains registered in January and February accounted for a threemonths total of 1,319,606 tons of cargo loaded and discharged at the port, as compared with 1,256,983 in the same 1961 quarter.

Watts attributed the increase in part to heavy grain shipments and mounting imports of foreign automobiles, European manufactures, and coffee.

California's Governor Edmund G. Brown asked five Western U.S. railroads last month to reduce their overland freight rates on hard winter wheat, enabling California to develop new trade with the Far East.

The governor wrote to the presidents of the Western Pacific, Atchison, Topeka & Santa Fe, Union Pacific, Southern Pacific, and Great Northern railroads.

He asked a reduction in the rate from 81 cents per 100 pounds to 71 cents, a rate agreed on earlier by the roads' Transcontinental Freight Bureau.

Dietary preferences are changing in the Orient from soft white wheat to hard winter varieties, the Governor pointed out. Oriental buyers are exploring U.S. sources of the wheat, with volume orders depending in part on the availability of the grain at west coast ports.

Action must be taken soon to lower the overland grain rate, the Governor emphasized, "to expedite the movement of wheat surpluses from the great plains areas of the midwest to the new markets of the Orient."

California port officials say there is a market in Japan alone for 500,-000 tons a year of winter wheat and that Japan would like to buy this wheat at west coast ports because of shipping and trading advantages.

PORT OF STOCKTON

- Leading Bulk Ore Handling Facility -

Port of Stockton, the leading bulk ore handling facility on the Pacific Coast and the fastest growing cargo port on the West Coast, specializes in new concepts for the handling of bulk materials and continues to expand and improve its cargo handling range of service.

The warehouse division of the Port of Stockton has developed a new concept in distribution of imports. By naming a package rate including all the myriad of required warehousing services and storage for four months, the importer is offered an economical package allowing him to know his fixed distribution costs for the next four months or until the goods are shipped to his customer. Stockton is the only Pacific Coast port at which such a plan is available.

And to guarantee better control and speedier service, Port of Stockton is the only port using electronic data processing machines to maintain inventories, for receiving and shipping documentation and for expediting paper work. This new service, started early in 1962, is now in full operation.

Another unique feature at the Port of Stockton is its bulk liquid handling facility as demonstrated by the SS ANGELO PETRI, the only bulk wine ship in the United States and one of the few in the



Mr. Elmo E. Ferrari Director of Port of Stockton

world.

The 21,700 ton vessel, which makes Stockton its home port, carries 2,812,185 gallons of select California wines to Houston, Texas, and Newark, N.J., for bottling



 $1\frac{1}{2}$ -MILLION DOLLAR "NEW LOOK"—Its capacity doubled by the vast 100 per cent expansion just completed, the Port of Stockton bulk orehandling facility now can service two vessels simultaneously, as this bird's-eye view shows. The vessel at the left is docked to the new, million-dollar wharf, while the ship at the right is berthed at the original dock.



The MARINE RICE PUEEN, constructed specifically to carry bulk rice, is based at Port of Stockton. The vessel, with a capacity of 10,-000 tons, carries 500,000 bushels of rice to Puerto Rico where the rice is unloaded directly into a mill for final processing.



This is the artist's concept of the multi-million dollar expansion program at the Port of Stockton bulk handling facilities. An area designated for a future identity-preserved area is identified by (1). Number (2) locates the three identity-preserved areas for stockpiling 200,000 tons of ore. Concrete tanks (3) are for specialized bulk materials. A new overhead conveyor (4) connects the new facilities with the present belt system leading to the docks.



Stockton Elevators, with a 4,500,000 bushel capacity for storing grain and special facilities for handling rice, is the leading point for the MARINE RICE QUEEN.



Stockton Elevators at Port of Stockton, with a capacity of 4,500,-000 bushels, is the largest single such famility in California and second largest on the West Coast.



The ANGELO PETRI, at home at the Port of Stockton, receives bulk wine from the Allied Grape Growers' bulk wine facility through 1,100 feet of stainless steel tubing from the shoreside tanks. Ship's capacity is comparable to the wine storage capacity of about 2,500,000 gallons of wine,

and distribution to Atlantic seaboard states and midwestern markets. Depot facilities at the Port of Stockton contain 26 storage tanks to match the special cargo tanks on the ship. In addition to wine other bulk liquid handling facilities handle molasses from the Phillipines and Hawaii, liquid fertilizers from Germany and Norway, Petroleum products and Jet aircraft fuel.

The Port is also the point of origin for the Marine Rice Queen, the only vessel built for the exclusive handling of bulk milled rice, on regular runs to Puerto Rico with 500,000 bushels of California rice in the holds.

Construction of four bulk rice silos in 1960 and 22 silos for handling and storing other grains in 1961, increased the capacity at Port of Stockton to $4\frac{1}{2}$ million bushels, the largest such single installation in California.

This year, two more ships' berths, 1,200 lineal feet of dock space, were acquired on Stockton Channel along with 90,300 square foot transit storage shed and a hard-surfaced open storage area of 156,000 square feet. The latest in the port's continuing emphasis to best serve worldwide shipping, is the proposed multi-million dollar expansion of the bulk material handling facility including enlargement of the storage areas and increased loading capacity.

Among the projects included in this expansion are the erection of several tanks to handle up to 50,-000 tons of magnesite, coke and other specialized bulk materials on an identity-preserved basis.

Revamping of the ore storage area will allow for stockpiling of 200,000 tons in three identity-preserved areas.

The loading capacity at the twin ore piers will increase loading from the present 1,000 tons per ship to 1,800 tons at each pier.

"Completion of these projects plus installation of additional equipment will allow tonnage to be loaded to the 40,000-ton class vessels, resulting in a very substantial savings to shippers," Elmo Ferrari, Director of the Port of Stockton, said.

Two giant whirley-type gantry cranes mounted on special tracks with 30-ton capacity each, have also been instrumental in luring new cargo tonnage to the port military cargo, scrap iron, pipe, and logs from the Sierra Nevada mountains. The volume of logs, exported primarily to Japan, has been increasing with 60 million board feet estimated for this year.

Pioneering of the new concept of bulk material handling by the Port of Stockton 10 years ago has resulted in a continuous growth in tonnage handled.

More than one million tons of the 3,388,020 tons of cargo handled in 1961 moved across the bulk materials facilities. A majority of this cargo is destined for Japan.

The port continues to enjoy a very pleasant relationship with Stockton's sister city, the Japanese port city of Shimizu. Port and civic officials have exchanged visits to further dedicate the 6,000 mile bridge of friendship between Stockton and Shimizu.

The Port of Stockton maintains direct contact with the Orient trade through a sales office in Tokyo. Capt. Shizukazu Onishi, managing representative, heads the staff of import and export experts.

KANDLA – India's New Major Port –

Introduction

To serve the north western part of India, the Government of India, in the year 1948 decided to construct a new major Port at Kandla on the West coast of India. The decision for locating the new Port at Kandla was based on the recommendations of the West Coast Major Port Development Committee appointed by the Government of India to recommend a suitable site for the construction of a Major Port to serve the north western part of India. The Committee, after considering the various alternative sites, recommended Kandla, as the most suitable site. for the construction of a new Major Port.

Located in the gulf of Kutch in a sheltered creek which is about 2,500 to 3,000 ft. wide, and has depths varying from 30 to 50 ft. at low water, the harbour is well sheltered from the swell and waves of the south west monsoons. The tidal range in the creek is about 13 ft. at Neaps and about 22 ft. at Spring tides. Geographically the Port is very well situated to serve its hinterland comprising of an area of about 3,000,000 sq. miles of the north western part of India which is populated by about 50 million people.

At Kandla there existed a minor Port since the year 1931. In this Port there was an R.C.C. Jetty with 30 ft. depth of water at L.W.O.S.T. to take deep drafted steamers alongside it. Side by side with the decision of locating a new major port at Kandla the Government of India decided to construct a 187 miles metre guage railway link connecting the Port with its hinterland. At present the Kandla Port is serving its hinterland with this rail link. Another railway connection for connecting areas under a different guage known as the Broad Guage is under contemplation. When this is laid, the economic hinterland of the Port will expand considerably.

Work in connection with the preliminary investigations required prior to the construction of the Port was started in the year 1949. These preliminary investigations covered, Traffic, Marine and Engineering Surveys, to determine the amount of traffic to be handled, the

facilities to be provided and the factors to be encountered with, in the construction and provision of the required facilities. While Global tenders for the main harbour structures for the work were invited, other appurtenant works were started in the year 1950. The work on the main harbour structures was started in the year 1953. The various units of the harbour were put into use as and when completed. The oil imports were inaugurated through the Port in April 1955, when the Government of India declared Kandla as a Major Port. The Main Quay with 32 ft. depth of water alongside it at L.W.O.S.T. was opened to traffic in the year 1957, as and when any of its portion was ready for use. At present the Port is functioning successfully. The needs of extension of the Port facilities are always kept in view. The main facilities provided so far are given hereunder:

Facilities Provided

 (a) A deep water Quay 2700 ft.
 long 75 ft. wide capable of providing accommodation for four large sized ships alongside or five ocean going ships of the normal cargo carrying capacity. The quay has been equipped at the rate of four



Ships berthed alongside the Quay, Port of Kandla.

three ton cranes, and one six ton electric crane per berth and one crane of 10 tons capacity at the southern end, i.e. in all 21 cranes of the latest type. The designed depth of water alongside the berths is 32 ft. at L.W.O.S.T.

(b) Three large single storied transit sheds each 450 ft. long and 140 ft. wide with a total storage capacity of about 15,-000 tons of cargo. These transit sheds which have foundations capable of taking an additional floor when one is required, have been provided alongside three of the four berths, the fourth berth having an open area opposite it.
(c) Four double storied warehouses each 500 ft. long and 120 ft. wide owned by the Port, one warehouse corresponding to each of the four berths, have been provided parallel and behind the transit sheds with necessary connect-



ing bridges at first floor lever, whereby it becomes possible to move cargo from the first floor of the transit sheds to the first floor of warehouses. These warehouses have a total storage capacity of 56,000 tons of cargo and are served by 16 electrically operated cargo lifts.

- (d) Three railway lines on the Cargo Jetty and on either side of the transit sheds and warehouses to enable the cargo to be moved expeditiously to and from the Port. These railway lines have been provided with dual guage points and crossings to enable them to be converted into metercum-broad guage tracks by the laying of only one additional rail to serve the port when the broad gauge (5'-6'' gauge)connection to the hinterland which is under consideration is completed.
- (e) An Oil Berth about two miles north of the general cargo berths to handle the oil imports through the Port. This oil berth has been connected by two steel pipe lines, one 16" diameter and the other 12" diameter running over a length of over six miles to carry oil pumped from the tankers into the oil installations.
- (f) Three mooring berths for any cargo ships that may not find



Administrative office building of the Kandla Port.

berthing space alongside the main quay berths with a fleet of lighters and sufficient tugs to enable the cargo operations to be carried out at the mooring berths.

- (g) A tidal basin with a lighters wharf served by electric quay cranes and other facilities for unloading lighter cargo, a wharf for sailing vessels and a heavy lift berth for handling heavy lifts upto 60 tons by a Gantry crane.
- (h) Two landing stages with approach bridges over R.C.C. floating pontoons one for receiving ferry passengers and the other to serve the need of the launches and other light craft belonging to the Port.
- (i) A projecting jetty capable of berthing reinforced cement concrete boating dry dock for repairs to the Port craft.
- (j) A mooring berth for loading salt from barges which bring the salt from the Salt Jetty owned by a private company manufacturing salt where barges are loaded by conveyor belt.
- (k) Automatic fire fighting water sprinkler arrangement with a fire alarm system for one double storied warehouse which has been earmarked for the storage of cotton.
- (1) Facilities for the fumigation in barges, for imported cotton.
- (m) A modern type of radar, has been provided in conjunction with V.H.F. radio telephone sets which make it possible for the ships to keep in touch with the harbour control.
- (n) Sufficient number of mobile cranes and fork lifts to assist in the various operations involving the handling and movement of cargo in the Port.

Constructional Features

The important constructional features of some of the main structures are given hereunder:----

(i) Quay.

The Quay which is 75 ft. wide has been built as an open type of construction. The depth of the quay face is 62 ft. which includes



Grain being handled pneumatically on the Quay.



Handling of Cotton Bales on the Quay.



Port & Customs Office Building with Radar Tower.



Passenger landing stages under construction.



Construction work of the Quay in progress.



Casting of Caissons in the Floating Dry Dock.

a depth of 32 ft. of water alongside at L.W.O.S.T. the top level of the quay being at +30 L.W.O.S.T. This deep Quay has been designed to carry three railway tracks running underneath the portals of the cranes on the Quay. Conduits have been provided in the Quay for carrying oil and water pipelines and electric conductors for supply of electric power to the cranes. Cast steel bollards each capable of resisting a pull of 100 tons, have also been provided at intervals of 75' on the Quay. The quay has been designed to carry a uniformly distributed live load of 6 cwts. per sq. ft. It has also been designed to carry the loads of the Quay cranes, the railway engines and to withstand horizontal berthing stresses arising on account of the berthing of ships. The quay has been founded on R.C.C. hollow piles manufactured by the centrifugal spinning process. Kandla Port being in the seismic zone the design for the structures to be evolved had to take earthquake forces into account. In addition, the soil on the banks of the creek where the Port is built is soft and the tidal range is as high as 24 ft. From these considerations a type of construction which would involve a solid vertical faced continuous wall alongside the water front was not considered suitable for the Quay. Accordingly an open type of structure founded on R.C.C. piles was adopted. Each R.C.C. hollow pile was apportioned a load upto 90 tons. The design of the Quay took into account the horizontal forces from earthquake based on a factor of O.I.G.

The banks of the Kandla creek where the Quay is built are at a level which was about 4' lower than the level of the highest spring tides. The top soil which consisted of soft clayey material was incapable of bearing any appreciable load for a depth of about 40 ft. Below this 40 ft. depth there is a layer of silt and sand. The piles that were driven were founded in the sandy layer. The whole area of construction was surrounded by an earthen dyke to serve as a cofferdam. The height of the dyke was about 6 ft. to enable it to exclude tide water from the area of construction. The area enclosed by the cofferdam was then excavated by mechanical excavators and manual labour by 10 ft. R.C.C. hollow piles were then driven inside this excavated area known as the construction pit. The lengths of the piles varied from 60 to 78 ft. The tops of these piles were connected by reinforced cement concrete bracings to enable them to act together. Reinforced cement concrete columns were raised over the piles and R.C.C. decking supported over them. After the superstructure work had thus been done, the earthen dyke in front of the structures which served as a cofferdam during construction was dredged out by means of a cutter suction dredger. The slopes underneath the Quay were designed to be 1:3 from a level of -32 to +10with a berm of 87 ft. at the level of +10 and a further slope of 1:3from +10 to +30, the original ground level. A cross section of the Quay is attached. After the dredging was done the soil undernearth the Quay assumed an irregular profile. Specially designed mechanical equipment operating on barges in front of the Quay was brought in and the slopes trimmed to the designed profile to prevent any undue slips which may be harmful to the structures.

(ii) Transit Sheds.

The transit sheds have been designed for a live load of 4 cwts. per sq. ft. on the ground flood. The foundations of the transit sheds are strong enough to enable the addition of another floor whenever found necessary, the slab of the first floor having been designed for a live load of 3 cwts. per sq.ft. The columns in the transit sheds have been placed in such a manner as to enable the easy movement of mechanical equipment inside the transit sheds and also to make available as much space as possible for stacking of cargo. A foreman's cabin at mid-floor level has been constructed to enable the super visory staff to supervise the operations in the transit sheds with ease.

(iii) Warehouses:

Close behind the transit sheds have been located the warehouses with a 80 ft. wide road in between. The road between the transit sheds and warehouses has also been founded on R.C.C. hollow piles. Four warehouses each 500 ft. \times 120 ft. with two floors have been constructed. Each of the four warehouses can store about 15,000 tons of cargo. These warehouses have also been founded on R.C.C. piles. Both the transit sheds and warehouses are connected by a bridge and are also served by road and railway lines on both sides of them. Each warehouse has four electrically operated lifts for easy movement of cargo from the ground floor to the first floor. In addition shutes have been provided for bringing down suitable cargo on them.

(iv) Oil Berth.

An oil berth with 32 ft. depth of water alongside it at L.W.O.S.T. has been constructed about two miles north of the main cargo jetties. This oil berth has been designed to withstand berthing stresses from oil tankers of 16,000 tons and also horizontal forces due to earthquake based on the factor of 0.10.G. The berth consists of three reinforced cement concrete circular caissons, 34 ft. outside diameter. These caissons are splayed out at the bottom to a diameter of 38 ft. to keep the loads on the soil within permissible limits. The caissons were cast in a floating dry dock and were towed to the site where they had to be sunk. The sinking of the caissons was done by the pneumatic process. The caissons are connected by reinforced cement concrete bridges supported on prestressed concrete girders. The oil storage tanks which were found economical to be located six miles inside the Land are connected with this oil berth by two six mile long pipe lines through which oil is pumped from the oil tankers to the oil tanks. The pressure of the oil so pumped is boosted in between the length of the pipe line to increase discharge of oil into the oil tanks. One of the two pipelines is of 16" diameter and the other is of 12" diameter. It is proposed to provide additional oil pipe lines as the oil traffic is rapidly expanding. (v) Passenger Landing Stages:

To meet with the requirements of a daily ferry service, transporting passengers from a nearby minor Port to Kandla and back and also for transporting the various port workers to their places of duty on the various floating craft, two passenger berths with landing stages have been constructed. These landing stages consist of reinforced cement concrete approaches with steel bridges on them resting over reinforced cement concrete floating pontoons alongside which the ferries and the various port craft are brought. The depth of water alongside these pontoons is 20 ft. at L.W.O.S.T.

The above are some of the important details of the main structures built at the Port of Kandla.

Approaches to the Kandla Creek

As already stated above the port of Kandla is situated on the Western bank of the Kandla creek which emanates from the gulf of Kutch. The Port is a tidal one and the entry of the ships in the harbour is, therefore, restricted to the period of high water which occurs twice every day. At present ships with drafts of 33 to 35 ft. can negotiate the approach channel at spring tides and those with a draft of 29 ft. to 31 ft. at neap tides. The entrance channel of the Kandla Port has been marked with the latest type of marking buoys fitted with lights and some with radar reflectors. Necessary pilotage facilities are available at the Port. Necessary hydrographic surveys are being continuously carried out in the estuary of the Kandla creek and its approaches from the sea. As is well known formation of bars at the junctions of creeks with the gulfs in the open sea is not an uncommon feature. For tackling the problem of removal of the bar at the entrance to the Kandla creek, experiments are afoot at the Central Water & Power Research Station at Poona. It is the intention to dredge the bar at the entrance to ensure that deeper depth of water is available at various stages of the tides. A modern type of dredger has been ordered by the Port and the same will be received in the middle of 1962.

(Continued on Page 24)

MARITIME PORTS OF COLOMBIA

— Outline and General Information —

General Comments

Prior to July 1, 1961 the principal ports of Colombia, named Santa Marta, Barranquilla. Cartagena, Buenaventura and Tumaco were under the jurisdiction of the Department of Navigation and Ports, a sub-division of the Ministry of Public Works. On that date, these five ports were transferred to a newly-created autonomous agency as the "Empresa Puertos de Colombia," herein after referred to as the National Port Authority. An Executive Secretary is responsible to a Board of Directors, consisting of the Ministear of Public Works and the Minister of Finance as exofficio members, and two additional members appointed by the Republic. The chief executive in each port is the Port Manager, who is advised by a local board of four prominent citizens. The Port Manager and two members of the local board are appointed by the National Board of Directors. a third by the Departmental Governor, and the fourth is selected by the port workers. The Authority handles its own money, independently from the government treasury, and is self supporting.

I. Geographical Location Main Ports

Sta. Marta: Position: Lat $11^{\circ} 15'$ N; long 74° 14' W, on Caribbean coast. Population 60.000. Well protected from prevailing winds. Strong N.E. trade winds may be expected during the first half of the year, and heavy rain from August to November. Maximum tidal range $2\frac{1}{2}$ ft. Warm climate 28° centigrade average.

Barranquilla: Position: Lat 10° 58' N; long 74° 47' W. On the west bank of Magdalena river, some 11 miles from the mouth, outflowing into the Caribbean coast. Population 400.000 Occassionally 17ft shoals occur at the mouth. The Authority takes care of the works at river mouth, named "Bocas de Ceniza." Original width was 2850.—Restriction to 1730 ft. is being performed. This will prevent solids sedimentation and shoals and bars formation. Tide rises and falls 2 ft. Rains and winds the same as Sta. Marta. Warm climate 28° centigrade.

Cartagena: Position: Lat $10^{\circ} 19'$ N; long $75^{\circ} 35'$ W, on Caribbean coast. Population 180.000. Cartagena has the largest, and by far the best harbor on the north coast of Colombia. Well protected from prevailing winds. Maximum tidal range 2 1/4 ft. with an average of 0.8 ft. Same conditions of rains. Warm climate 28° centigrade.

Buenaventura: Position: Lat 3° 54' N; long 77° 5' W. At the mouth of Dagua river, Buenaventura lies in an estuary of the Bay of Buenaventura, about 15 kms. from the Pacific Coast of Colombia. Population 60.000. Range of tide 8 to 13 ft. Soft muddy bottom. Heavy rain almost all the year. The port of Buenaventura, at present the most active in Colombia, is strategically located with respect to the the hinterland.—

Tumaco: Position: Lat 1° 50' N; long 78° 50' W, on Tumaco Bay, Pacific coast. Population 15.000. Tide variations 9 to 11 ft. Soft muddy bottom. Well protected from prevailing winds. Heavy rain almost all the year.

General comments: The Authority do not have permanent silting and dredging problems, except the entrance of the port of Barranquilla, the Magdalena river mouth, where occassionally a bar formation occurs. This problem is being avoided by narrowing the river mouth permitting the river current to increase in such a way that solids sedimentation will not occur. It is expected to have a width of 1730 ft. by the end of this year compared to the original 2850 ft.

Secondary Ports

Riohacha: On the Caribbean coast. Coasting traffic (salt, general merchandise)

Manaure: On the Caribbean coast. Salt coasting traffic.

Covenas: On the Caribbean coast. Crude oil exportation. This port is the terminus of an oil pipeline from an oil field pertaining to Colombian Petroleum Co.

Turbo: On the Caribbean coast. Coasting traffic (timber, bananas) Sn. Andres (Island). Near the coast of Nicaragua. Coasting traffic (coconuts)

II. Navigation

Main Ship-Customers of the Ports

Sta. Marta: Fruit carriers (banana exportation), freighters, passenger ships.

Barranquilla: Freighters.

Cartagena: Freighters, tankers (oil exportation and oil by-products importation for refining purposes), passenger ships.

Buenaventura: Freighter, passenger ships.

Tumaco: Freighters.

Access to the Harbors

Sta. Marta: The Bay of Sta. Marta is easy of access in all weathers by day or night. The natural inner harbor has about 300 acres of water. The harbor itself is a relatively open roadsted, but is protected from the prevailing northeasterly winds by an outjutting peninsula terminating in Punta Betin. In general, ample depth of 30 feet or more is found in the approach channels and the harbor itself.

Barranquilla: Channel from river mouth to port 860-1450 ft, depth 33 ft minimum from buoy No. 3 to port. Maximum depth at mouth from December to April, minimum from July to September. Maximum draft recommended for vessel using port 24 ft, sometimes reduced to 20 ft. Although the navigable channel downstream through the river is some what tortuous, it is well marked and, in general, provides adequate depths and widths to accommodate most vessels now engaged in this trade.

The 60 foot depth contour lies about 1,500 meters off the river mouth (Bocas de Ceniza), within which distance a sand bar has formed. The high silt content of the river, combined with the litoral drift of material along the coast, not only add new deposits but also tends to cause constant shifting of the bar. Remedial measures, including numerous studies, model experiments, dredging programs, breakwaters and training dikes have been tried or are still in pro-

gress. Two breakwaters, about 2400 ft apart at the out-shore end, have been constructed at the river entrance with the objective of increasing the depth at the sand bar by confining and directing the river's discharge. The west breakwater has been extended landward as a training dike. A new training dike on the eastern side, which will block off and render ineffective previously-built dikes and groins along that bank, is now under construction. Work on the bar has been attempted from time to time during the past ten years, using a seagoing hopper dredge. However, these attempts have not been succesful, partly, it appears, because of the unsuitability of the dredge for open-water situations.

The controlling depth at the entrance varies continuously, and the maximum draft is recommended by the port authority on the basis of soundings taken every other day with an allowance of five feet for swell.

In view of the long history of this problem and the highly-qualified technicians who have been engaged on its solution, it would be presumtuous to hazard an opinion as to the probable success of the present efforts. However, it is apparent that the situation at the Bocas de Ceniza constitutes a serious threat to the continued preeminence of this Caribbean port.

In addition to Barranquilla's access to the interior via the Magdalena river, a canal has been excavated which leads off from the river opposite the marine terminal and connects with Ciénaga, a station on the Atlantic Railroad 35 kilometers south of Santa Marta by way of a protected bay, the "Ciénaga Grande de Santa Marta." *Cartagena:* Entrance mouth of channel (Bocachica) has a minimum of 40 ft depth, 1950 ft wide. Bocachica entrance was dredged and straightened.

Not only has the port of Cartagena excellent access to the sea, but it is also a terminus for the network of inland waterways provided by the Magdalena river and its tributary streams. This results from the provision many years ago of the 128 kilometers "Dique Canal" which connects Cartagena's outer harbor with the

Magdalena river port of Calamar, situated on the west bank of the river 91 km. upstream from Barranquilla's maritime terminal. The "Dique Canal" was a straightened and widened to 50 meters in 1936. Buenaventura: River broad and deep. Good entrance channel. In general, the harbor offers good protection with adequate turning space and anchorage. Although least depth of about 20 feet over an outer bar are indicated, vessels drawing up to 30 feet can reach the inner harbor during high tide. *Tumaco:* The approach to the maritime terminal, situated about three kilometers from the town of Tumaco, is encumbered with many shoals and the tortuous entrance channel is restrictive in both width and depth. Only at high tide, which has a mean range of 8.7 feet, can vessels drawing up to 20 ft. negociate safely this channel.

Aids to Navigation

Entrance channels to all ports marked by red and white buoys.

Pilotage

Pilotage is compulsory in Colombia. Experienced pilots take care of the vessels at the entrance channels and lead them to docks—and anchorages. Pilotage in Colombia, except in Barranquilla, is a career inherited from one generation to the next, that is, a strickly familiar job. Pilots only teach their sons or nephews. It is curious to note that they train their sons years and years without pay until one of the older men dies or retires.

Anchorage and Moorings

Sta. Marta: Anchorage is safe anywhere in the harbor and bay. Good moorings at the railway terminus. Depth at anchorage from 26 to 80 ft.

Barranquilla: Vessels may anchor in the river and discharge passengers, etc, by tug. But as wharfage is payable in any case, it is cheaper to dock. Width of channel in front of moles 1420 ft.

Cartagena: Anchorage 8 fathoms $\frac{1}{2}$ mile soutward of Fort Pastelillo, 15 fathoms off Punta Cas-tillo Grande, east of Bocagrande. Largest vessel 45.000 n.r.t. and 43 ft draft anchored in harbor. Turning basin 33 ft depth.

Buenaventura: Depth at anchorage 30-66 ft. Vessels with explosives must anchor at Agua Dulce, inside harbor.

Tumaco: No anchorage space at the entrance channel.

General Comments: The same general rules observed in other countries are observed in Colombia. Tourist vessels have priority to dock when docking space is completely cccupied by cargo vessels. Mixed vessels (passenger and cargo vessels) have priority over anchored vessels if they have more than 24 passengers and less than 500 tons of cargo.

Tugs: According to the rules, towage is compulsory. The Authority has enough tugs to do the job.

Five tugs donated by the point IV arrived recently to Clombia.

III. Facilities

Piers, wharves Docks

Sta. Marta: The berthing space is divided into two sections.

1) The banana loading facilities consist of a 240 meters marginal wharf which is provided with covered railroad tracks and specially designed conveyor equipment for loading directly into the vessels.

2) Two berths for general cargo vessels are provided by a marginal wharf with a length of 330 meters. At the westerly end of this wharf, berthing space is available for coastal vessels.

Average depth along side wharves 38 ft.

Barranquilla: The terminal consists of three parts: the maritime portion providing four berths for deep-draft vessels along a marginal wharf 770 meters in length. The other two parts, the adjoining north and south basins, separated by the access causeway, are used by river vessels: The approximate depth of these basins is 14 ft, while 33 ft of depth is provided along the marginal wharf. Thirteen hundred meters of steel sheet bulkhead is available along a part of the perimeter of the north and south basins. Private wharves for cement exportation and petroleum products for coastal traffic are also available.

Cartagena: The maritime terminal located in the inner harbor, consists of two finger piers, each 180 meters long inner length, 200 meters long outer length, 40 meters wide.

Three wharves northerly, between and southerly piers, 50 meters, 133 meters and 52 meters long, depth 25-35 ft alongside, for river vessels and coastal traffic.

Depth at quays 33 ft, at No. 1 berth 39 ft. Oil loading terminal in outer harbor of Cartagena Bay at Mamonal, consisting of a "T" head pier with 37 feet depth alongside and four mooring buoys. Buenaventura: The terminal consists of a marginal wharf 1.175 meters long, plus a 200 meter angled berth at the western end. Thus, eight ships of average length can be accomodated, allowing 168 meters of berthing space each along the marginal wharf. The easterly apron of the old finger pier has collapsed, reportedly due to undermining by dredging too close to this structure. Depth alongside wharf 30 feet at low watertide.

Tumaco: The maritime terminal consists of a 300 meter marginal wharf, providing berthing space for two mediumsized vessels. Depths alongside this wharf are about 22 feet.

Fire-fighting Equipment

Sta. Marta: Manual fire extinguishers.

Barranquilla: One fire engine using water and foam. Manual fire extinguishers.-

Cartagena: Manual fire extinguishers.

Buenaventura: Two fire engines using water, foam and chemicals. One jeep with radio equipment, connected with the engines and coordinating fire extinguishing labors.

Tumaco: Manual fire extinguishers.

Storage Facilities

Sta. Marta: One warehouse, 25 by 120 meters at the main berth, one small warehouse for coasting traffic.

Barranquilla: Eleven well constructed warehouses, and 5 small sheds with 56.000 tons capacity and ample yard space.

Cartagena: Twelve warehouses with 40.000 tons of total capacity.

Ample yard space. Fumigation shed available.

Buenaventura: Five warehouses for imports, three for exports and one for coastal trading goods. Total capacity including closed hand open storage 100.000 tons.

Tumaco: Two warehouses one open shed, and ample yard space.

Handling Facilities

Sta. Marta: Four electric conveyors for bananas. Three cranes of 3, 10 and 15 tons capacity. Also fork lift trucks, tractors and trailers. Two tugboats of 600 and 150 HP.-

Barranquilla: 16 cranes ranging in capacity from $2\frac{1}{2}$ tons to 20 tons. Additional equipment consists of 52 fork lift trucks, 60 tractors, 932 trailers having capacities up to 30 tons, and some 2000 pallets. To transport workers to and from the terminal, the port owns and operates a total of 21 buses, with a combined capacity of 820 passengers. Floating equipment consists of 4-tugboats of 1200, 800, 320 and 170 HP respectively; a 60 ton floating derrick, three floating cranes and a 300 ton lighter.

Cartagena: On piers: four 3 ton electric travelling cranes for loading to pier. On wharf between piers two 3 ton electric travelling cranes, plus one 10 ton electric fixed crane. Eight caterpillar movable cranes between 3 to 12 tons. Fork-lift trucks, tractors and trailers $(1\frac{1}{2}, 3 8 \text{ and up to } 30 \text{ tons})$ capacity) Eleven buses, with a total passenger capacity of 515. owned by the port. Floating equipment consists of one 50 ton derrick, 3 tugboats 2 of 1200 and one of 150 HP, and one 200 ton lighter.

Buenaventura: 16 traveling cranes from 3 to 20 tons. Three mobile diesel cranes of 25 to 40 tons capacity. 100 fork-lift trucks. 22 tractors and 40 trailers of 30 tons capacity. Floating equipment consists of 3 tugboats (240, 1200 and 600 HP), two lighters and one floating derrick of 25 tons capacity.

Tumaco: Two mobile crances, two fork-lift trucks, two tractors and 20 trailers. Floating equipment consists of one 165-HP tugboat.

All this equipment is in bad condition.

Repairing Facilities

Sta. Marta: Minor repairs done at railway work shops.

Barranquilla: No dry dock, but marine repairs can be effected by Union Industrial (under the management of Todd's of USA) and several other ship yards.

Cartagena: A dry dock pertaining to the Navy can be used by us for floating equipment repairs (tugs, floating, derrick, minor ships, etc)

Buenaventura: Small repairs done. Tumaco: Small repairs done.

The terminals have their own machine shops for equipment.

Connection with the Hinterland

Sta. Marta: Roads and railways constantly expanding. Until the recent opening of the Atlantic Railroad, this port depended almost entirely upon the export of bananas grown in the general vicinity. A 95 km railroad from the port to the town of Fundacion served to collect this product. This railroad line has been incorporated into the Atlantic Railroad. Paved highway connection to Barranguilla. Local airport some 10 miles from the Terminal. The recent opening of the Atlantic Railroad is expected to bring a considerable increase in general cargo movement through the port.

Barranquilla: Paved highways to Cartagena and Sta. Marta. Connection with the hinterland through Magdalena river. Internanational airport some 12 miles from the Terminal. Paved highways to Bogota & Medellin via Cartagena.

Cartagena: Road to Medellin and Barranquilla. Connection with the hinterland through "Dique Canal" and Magdalena river. Local airport some 5 miles from the Terminal.

Buenaventura: This port derives its major business from the interior agricultural areas and from the communities in the Cauca valley and mountain basins which it serves. The largest of these is the city of Cali, with a population of 502.000, located about 75 airline kilometers to the southeast of Buenaventura. The railroad connecting these two cities, however, winds over a length of 175 km. as it crosses the intervening western range of the Andes mountains. The present gravel road connection has a length of 142 kilometers; however, a new road is under construction which will shorten this distance to about 123 km. The total 'highway distance between Buenaventura and Bogota will then be 531 km. The present rail distance is 6K4 km., plus a 100 km break between Armenia and Ibague where freight is moved by truck over a highway constructed by the National Railroads. Local airprt at Buenaventura for small airplanes.

Tumaco: The port of Tumaco serves a relatively limited area in the southwestern section of the country. Access to the interior was provided by a 47 km railroad to the town of El Diviso, where it connected with roads to Ipiales and Pasto. However, railroad service will be abandoned soon and the track will be removed, to be replaced by a highway now under construction.

Local airport available up to DC-3 airplanes.

IV. Importance of the Ports and Traffic

Sta. Marta:

	Imports	Exports	Coasting Traffic	Total
1961	28.271	218.208	10.950	257.429 tons.

Bananas exportation amounted to 216.339, that is, 99% of the The remainder of total exports. exportation: coffee, hides, timber, leaf tobacco, cattle since 1961, all these items in small amount. Banana exportation started in the beginnings of this century. Imports: General goods, particularly manufactued goods, oil.

Barranquilla:

			Coasting	{	River No	o of Vessels
	Imports	Exports	Traffic	Total	Traffic	Arrived
1961	304.596	38.422	32.060	375.078 tons.	237.616	599

Imports: General merchandise, fertilizers, provisions, machinery, chemicals, etc.

Exports: Cement, coffee, hides, tobacco, gasoline, cotton textiles, aluminum ware.

tion. During 1961 a total of 17.821 of sugar were exported, Sugar exportation started again in 1960 after a long period of importation of this product. Coffee exportation started by the end of century. (XVIII)

Cartagena:						
			Coasting	<u> </u>	River N	o of Vessels
	Imports	Exports	Traffic	Total	Traffic	Arrived
1961	316.256	60.796	2.979	380.033 tons.	163.542	904

Imports: General goods, fertilizers, copra, provisions, machinery, chemicals, petrochemicals, etc.

Exports: Coffee, raw cotton since 1959, hides, vegetable lard, crude oil, fuel oil, mineral concentrates. dividivi, gold, platinum, tobacco, etc. Raw cotton exportation is increasing considerably since 1959 .---

Crude oil and fuel oil exportation has been performed through the Mamonal oil Terminal. A total of 3.000.000 tons of products, have been shipped from this ocean terminal and its refinery. The terminal is supplied through pipelines to the interior producing fields and to a lesser extent (about 200.000 tons in 1961) by tanker barges. Besides, some 300.000 tons of petrochemical products are imported through this terminal for

Buenaventura:

		Coasting			No of Vessels
	Imports	Exports	Traffic	Total	Arrived
1961	637.139	296.006	26.549	959.694 tons.	1494

refining purposes.

Imports: General merchandise, fertilizers, provisins, machinery. chemicals, etc.

Exports: Coffee (main coffee ex-

porter port in Colombia, 90% of the total Colombian coffee exportation), hides, raw cotton, sugar, platinum, indiarubber, etc. The main Colombian product of exportation is coffee, totalling 70% of all Colombian exportation. The total coffee exportation of 1961 amounted to 268.615 tons,., or 90% of the total Buenaventura exporta-

No season problems. Rain difficulting operations somewhat. The amount of transit traffic is low. Filling operations have been completed on an area abutting the south basin of the Baranquilla terminal with a view to the establishment of a Free Trade Zone, where imported raw materials or other goods can be processed or packaged for export to other countries without payment of import duties.----

The fishing activity is low, but studies are being completed in order to interest the country in this industry .---

Port Charges: The port charges now at the international ports of Colombia were established by the Authority in December 1961. These charges cover pilotage, light

	Coasting			No of Vessels
ts	Exports	Traffic	Total	Arrived
39	296.006	26.549	959.694 tons.	1494

and buoys dues, harbor dues, berthing fees, towage, charges, for opening and closing of hatches, cargo handling, equipment rental, vessel services, and transit storage. The charges are the same in all ports.

V. Labor

The Authority has 6.144 workers divided as follows.----

Sta. Marta		
Permanent		81
Barranquilla		
Permanent	723	
Occasional	1.115	1.838
Cartagena:		
Permanent	402	
Occasional	1.119	1.521
Buenaventura	:	
Permanent	741	
Occasional	1.770	2.511
Tumaco:		
Permanent	60	
Occasional	57	117
Bogota (Cent	ral Office)	
Permanent	,	76
7	Fotal	6.144

The port of Sta. Marta recruits the occasional personnel from the old syndicate of banana loaders. This personnel amounts to some 90 workers.

The authority is now organizing a rigid system of recruitment of personnel, according to the importance and responsibility of each type of job.

Working time is as follows: permanent personnel works from 7 toll in the morning, and from 1 to 5, in the afternoon, saturdays from 7 to 12 in the morning, totalling 45 hours in the week. In Bogota office personnel works 44 hours in five days, Saturdays off. Occasional personnel at the ports works 24 hours if necessary.

Way of Payment: Every fifteen days to permanent personnel (fixed salary). Every ten days for occassional personnel, payment according to tariff per ton of cargo. Tariffs vary between Pacific Coast ports and Caribbean ports slightly. Pacific coast personnel is better paid because of the weather conditions, raining considerably more in the Pacific Coast

Permanent personnel has two classifications: salary per month (administrative personnel) and salary per day (operative personnel)

Overtime: Overtime is paid as follows: in Buenaventura, Tumaco and Bogota Office in the day time with 25% extra charge, 75% extra charge in the night time. Overtime in Sundays or holidays have an extra charge of 100% (day or night time)

In Barranquilla, Cartagena and Santa Marta overtime is paid with extra charge of 100% day or night time, Sundays or holidays.

Confederations and Syndicates

Several syndicates operate in our

authority:

- 1) Syndicate of workers in Bogota Office.
- 2) Barranquilla
 - a) Syndicate of workers of the Terminal.
 - b) Syndicate of maritime workers of Atlantic Coast.
 - c) Syndicate of river workers, maritime and seamen of Atlantic Coast.
- Cartagena Syndicate of workers of the Terminal.
- 4) Santa Marta Syndicate of workers of the Terminal.
- 5) Buenaventura Syndicate of workers of the Terminal.
- 6) Tumaco Syndicate of workers of the Terminal.

These are a total of 8 syndicates, all of them affiliated to the Confederation of Workers of Colombia (C.T.C.)

Social Services: The following services:

- 1) Vacations: 15 working days per year of working time.
- 2) Medical attention: Free Medical, surgical, Pharmaceutical, hospitalary attention and laboratory services to all the workers, their wife, father, mother, brothers and children if all of them depend on the worker.
- 3) Free dentist attention to the

Percentual Distribution of International Cargo Handling in the Main Ports of Colombia in 1961 Exports Imports % Tons. % Tons. Buenaventura 637.119 49.4 296.006 46.460.798 24.59.5Cartagena 316.256 23.6 38.422 6.1Barranguilla 304.546 Sta. Marta 28.2712.2218.208 34.3 Tumaco 3.670 0.3 23.866 3.7 637.296 100.0 100.0 1.289.805No of International Total Total **Vessels Arrived** Tons. % 1.494 Buenaventura 933.145 48.4904 Cartagena 377.054 19.6 599 Barranguilla 343.018 17.8 Sta. Marta 246.479 12.8Tumaco 27.5361.4 _ 1.927.101100.0

workers only.

- 4) Termination: One month of salary per year of service or proportional, payable according to the last salary.
- 5) Invalid pension to invalids, pension for "lepra" illness (Hansen sickness) and retirement pension after 20 years of service. The condition for retirement is 50 or more years of age.
- Life insurance, equivalent to 24 months of salary.
- Bonification (2 months of salary, one in June and one in December)
- Family subside up to salaries of \$2.000.00.—This subside is paid according to the number of children, in this way: The authority divides and pays 4% of the payroll (additional) into the number of children.
- 9) Transportation subside when the Terminal or office do not have its own vehicles for transportation. The payment is the net value of transportation in each town.
- 10) Funeral expenses for the worker and 1 year of salary to the widow (widower) and/ or sons.
- 11) Free Medical assistance and hospital expenses in case of wives maternity.
- 12) Indemnizations for working accidents according to the Colombian Code.
- 13) Salary paid for "not professional illness" up to 180 days as follows 2/3 of the salary for the first 90 days and $\frac{1}{2}$ of the salary for the remainder.

Full salary for the first 90 days and 2/3 for the remainder days up to 180 days, in case of tuberculosis. lepra or mental illness.

Cost of Labor

Despite the fact that tariffs of labour varies slightly from one Terminal to the other, as view of example the cost of labour at Buenaventura Terminal is as follows:

 $1) \ Imports \ and \\$

coasting traffic \$10.06 per ton

- 2) Exports 5.81 per ton
- 3) Loading to wagons 4.74 per ton
- 4) Loading to trucks 4.48 per ton
- 5) Unloading from wagons and trucks 3.01 per ton
- 6) Mail, per sack 0.70

Other Works

Winch operator, per hour	2.81
Fork lift truck operator,	
per hour	2.93
Tractor operator, per hour	2.53
Stevedors, per hour	2.11
Stowage over 2.50 meters	0.56
extra	per tor

Extra charge for work between 24:00 and 6:00 hours, 15% The Authority pays to the permanent and occassional workers, and charges a tariff to the customers. The same tariff is charged in all Terminals.

Cargo Breakage and Pilferage Problems

It is difficult to avoid cargo breakage of the workers. In each Terminal there is a fund paid by the workers, and the Authority named "Damage Fund." 1% of the cargo workers payroll is paid by the workers, and another 1% by the Authority. When it is proved that damage of cargo is responsibility of the workers, this fund will pay the damage.

It is difficult too to avoid pilferage. Sometimes it appears a general complicity that renders almost impossible to punish guilty people. We are now considering a more modern way of identification of workers that will diminish pilferage apparently.

Refectories and First-aid Facilities

Each Terminal has a refectory administrated by private persons contracted by the Authority. This is the best proved way of food supply to the personnel. Each Terminal has complete and modern first-aid facilities.

Sports: Sports are strongly subsided, specially base-ball, softball and boxing.

VI. Have the ports responsibilities in other concerns?

The Authority does not have responsibilities in the field of railways, roads and airports. The creative law of the Authority specifies that it would take the responsibility of the cargo storage. However, as the cargo storage was run by the Custom House in Colombia prior to the formation of "Empresa Puertos de Colombia," and the Authority is only operating since last June/61, it has not still taken over this item. There are some formalities in discussion or under approval before we take the whole responsibility of the cargo. However, the Authority collaborates with the Custom House with watchmen personnel in order to avoid pilferage of cargo. On the other hand, there are not any ship repairing facilities, except barges welding work. The Authority uses to send dredges to Curacao for repairments. But now that the Colombian Navy has a dry dock in Cartagena, it will be used for future repairs of our tugs, boats, dredges or any other floating equipment.

VII. Future Projects

Emergency plan to be completed by the end of 1962:

Buenaventura: Repaying of warehouses and yards \$2.860.000.00.

For future integral plans of development, the following contracts of engineering studies have been signed with: 1) Parsons, Brinckerhoff, Quade and Douglas (American firm) associated with Restrepo and Uribe (Colombian firm) and Apron (Colombian firm) for the Atlantic Coast, and 2) Hidroestudios (Colombian firm) associated with Dehave (Dutch firm) and Nedeco (Dutch firm) for the Pacific Coast. Both contracts consist of two parts: 1) Study of on emergency plan to be rendered in six months and 2) study of a complete development future plan to be rendered in 18 months.

These consultants firms started working in March/62.

VIII. Special Problems

Administrative aspect: As this is a new entity, there are many problems to overcome. The main thing is to change from a direct government section to an autonomous, decentralized authority. New methods, standardization of rules, elimination of steps, etc. are slowly changing the mentalily of the workers. The willing of the Directors is to shift to a entirely private entity system, observing, of course, that the Authority belongs to the National Government, that is, to the Colombian tax payers.

Financial Aspect: The autonomous aspect of the Authority allows the Board of Directors to impose such a tariffs level as to cover the expenses and finance reasonably the investments necessary to modernize the ports to serve the users fastly and efficiently.

However, it is impossible to increase the tariffs more in Colombia in the near future, because the

Emergency plan to be completed	by the end o	f 1962:
Buenaventura:		
Repaving of warehouses and yards	\$2,860,000	
Transit Shed for No. 8 yard	552,000	
Oil Pier (repairments)	1,550,000	
Shelter between Sheds	260,000	
Access roads	1,300,000	
Hospital	1,200,000	
Lighting of yards and sheds	1,000,000	
Administration personnel housing	2,000,000	\$10,672,000
Tumaco:		
Transit shed	360,000	
Administration personnel housing	200,000	560,000
Sta. Marta:		
Transit sheds	3,600,000	
Small sheds	60,000	3,660,000
Barranquilla:		
Dredging of North & South basins	400,000	
"Bocas de Ceniza" Administration Building	300,000	
Paving	455,000	1,115,000
Cartagena:		
Transit sheds	540,000	
Sheds for equipment storage	360,000	
Paving	1,000,000	1,900,000
Total	·	17,947,000
(Approx equal to US\$2	,000,000)	· · ·

general economy of the Country would not resist it.

It is imperative that foreign countries finance with loans at long terms. President Kennedy's Alliance for Progress is considered decisive for Colombian ports, because such type of help is precisely what problems like these arisen in the ports could be solved.

Commercial Aspect: Directly the Authority does not have commercial problems. Relations with customers are excellent and bills are payed promptly. However, indirectly it is observed some inequality in freights between Pacific Coast and Atlantic Coast traffic producing car congestion in some areas and consequently retarding arrival of cargo to final destination, allowing users to complain periodically.

Ship documentation: The simplification of documentary requirements is one of the main subjects to be discussed in the II Inter-American Port and Harbor Conference, to be held in Cartagena, Colombia, from 20 to 30 November 1962. Arrangements for this conference are being conducted by the Permanent Technical Committee on Ports, dependent of the Pan American Union in Washington. A sub-Committee directed by Dr. Carlos Alban Holguin, Executive Secretary of the Authority "Empresa Puertos de Colombia" is preparing a proposal for simplification of ship documentation. A report of the Permanent Technical Committee states that "an annual total of approximately thirty million dollars (\$30.000.00) and eight hundred thousand (800.000) mandays of typing effort are unnecessarily expended to meet excessive documentation requirements". One United Nations specialized agency (International Maritime Consultive Organization) is deeply interested in seeing a reduction in this paper work. Generally speaking, it is difficult to ascertain where the Authority responsibilities end and

when Custom House ones start.

Relations are satisfactory and problems are solved promptly.

The Authority tries to have better care of cargo. Pilferage is continuous. A more close relation and coordination with the so-called Port Captains (depending of the Customs House) is being looked in order to reduce pilferage and cargo breakage.

The main problem connected with cargo handling is the lack of equipment in most of the ports. Generally speaking, stevedores and operators have good experience and sufficient equipment will allow them to perform a good job. The Authority will soon receive more equipment (i.e. fork-lift trucks, tractors, platforms and pallets). Relations with labor union are excellent and no strikes have occured in years.

The evacuation of cargo is an almost permanent problem in Buenaventura, because of the lack of railway equipment and shortage of trucks in Colombia. The Authority plans are being performed harmonically with those of railroads and roads in the country, and it is expected that this kind of problems be solved in the future.

Radiation Meters To Safeguard Port

To guard against the effects of any possible radioactivity in the Port of Melbourne from any source, the Port's Emergency and Safety Service is being equipped with American made dosimeters which measure the amount of radiation to which a person has been exposed.

The service already has a radiation meter which measures the amount of radioactivity in a particular area, but the Dosimeters will be carried by individual Em-

KANDLA (Continued from Page 17) Traffic

The main cargo jetties of the Port of Kandla, which is the youngest port of India started functioning in the year 1957. Its traffic which was nearly a million tons to start with has risen to over $1\frac{1}{2}$ million tons in a short space of five years. The traffic is likely to increase by leaps and bounds as the industrial expansion of the country in the hinterland grows. The main imports handled by the Port are oil, food grains, fertilisers, sulpher and rock phosphate etc. and the main exports are iron ore, salt, crushed bones, sugar etc.

Future Extensions

On completion of the four berths the traffic trends justified the extension of the Port. Accordingly work for the construction of an additional berth was started and has been nearly completed excepting for the work of dredging, which is expected to be done shortly.

Administration of the Port

The major Port of Kandla is administered directly by the Government of India, through its Ministry of Transport & Communications, who have appointed a Development Commissioner to carry on day to day administration of the Port.

ergency and Safety Service personnel who would be called on to carry out salvage, security or rescue work in an area contaminated by radioactive substances.

There is little danger of radioactive contamination in the Port, but the Emergency and Safety Service is being equipped with the instruments so that they can deal with the situation should an emergency of this nature arise. of

The International Association of Ports and Harbors

May 1-4, 1963

at Royal Orleans Hotel, New Orleans, La. U. S. A.

Central Secretariat of the International Association of Ports and Harbors

Rm. 715-A, N.Y.K. Bldg. 20, Marunouchi 2, Chiyoda-ku, Tokyo, Japan



These monster whirley-type gantry cranes at Dock 2, Port of Stockton, load equipment at the Port of Stockton, part of a three million pound load of equipment for a Brazil dredging operation.



Construction of the Quay in its initial stages, Port of Kandla, India.

Sprawling 7625-acre Port of Los Angeles, largest harbor in the Western United States, where 5000 ships annually provide service to more than 200 world ports. The \$155,-000,000 port is the largest man-made harbor in the Western Hemisphere. Facilities include more than 3,000,000 square feet of transit sheds with a total length of 12 miles, 38 acres of open wharves, 70 acres of wharves, platforms and ramps, and 133 acres of sheds, platforms, wharves and ramps. More than 2,000,000 tons of domestic and foreign goods flow through the harbor monthly. Since 1923, it has led all West Coast ports in cargo volume.

Central Secretariat of the International Association of Ports and Harbors Rm. 715-A, N.Y.K. Bldg., 20, Marunouchi 2, Chiyoda-ku, Tokyo, Japan