

PORTS and HARBORS

JUL. - SEP., 1966 Vol. 11, No. 3



THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

Introducing The Crests of Ports

(Each Issue One Port)

THE PORT OF AUCKLAND





Auckland City and suburbs with the Waitemata Harbour in the foreground and in far distance, the Manukau Harbour.

PORTS and HARBORS

Jul.-Sept., 1966 Vol. 11, No. 3

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

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INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

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WHO's WHO in IAPH-3

-Know themby face-

NO.2 STANDING COMMITTEE

(in alphabetical order)

SPECIAL COMMITTEE

(in alphabetical order)



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Commitee Member Chairman Melbourne Harbor Trust Commissioners Melbourne, Australia



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Mr. Joseph Walrond McEwen, A.M.I., Mar. E.

> Committee Member General Manager Nigerian Ports Authority Nigeria



Fifth I.A.P.H. Conference

The Venue Is Tokyo

Members are now aware that our next Conference will take place in Tokyo from 8th to 13th May, 1967, at the invitation of our Japanese colleagues. May I ask you all-and I address myself particularly to Corporate Members-to see to it that you are well represented. The discussions will be of absorbing interest, and I believe every delegate, whether from an old-established port or from a port in a developing country, will have something to contribute as well as something to learn. This is your biennial opportunity. Do not miss it.

Remember, also, that at the same time there will be held a meeting of the Association. If you value the Association and wish its influence to grow, I ask you to take part in it. Your Executive Committee, and the Central Secretariat (to whom we are all so much indebted), do their best. But the real strength of any Association lies in its Members. Come, please, in a critical and enquiring spirit, and help to lay down the guide lines for the next two years.

It is needless to say that our Japanese hosts have drawn up an alluring programme. Those who have visited Japan before may know what to expect but will, I believe, be delighted at the prospect of enjoying it again. Those who will be making their first visit will come in keen expectation, and will not, I am sure, be disappointed. So do help to make up a record attendance.

Surero

Viscount Simon President

The 5th Conference of the International Association of Ports and Harbors convenes in Tokyo from May 8 to 13 next year. Preparations for the Tokyo Conference are at present in steady progress with the Conference Secretariat as the center. The number of participating delegates is not ascertained as yet but we are expecting to see a greater number of the people relevant to ports attend than those attended the London Conference.

IAPH encourages mutual understanding between port officials through the exchange of information by issuing pamphlets and the Association Organs such as this Ports and Harbors. However, in deepening international interflow of mental communication nothing is more important than person-to-person contact of mind and heart among the members. Biennial Conference of IAPH provides invaluable opportunity for all the people of the world who are related to ports and who have concerns with Ports and Harbors.

We also plan to invite all the delegates to the Centennial Anniversary of the Opening of Kobe Port celebrated on May 15, following the Tokyo Conference so that you may have the opportunity of inspecting the Port of Kobe, one of the typical trade ports of Japan.

Extending our most cordial invitation to you all to join us both in Tokyo and Kobe in May, 1967.



Yours sincerely,

Chujiro Haraguchi

Conference Chairman Chujiro Haraguchi

I.A.P.H. 5TH CONFERENCE-TOKYO

1. Organization

Conference Site:

Tokyo Prince Hotel, Shiba Park, Minato-ku, Tokyo, Japan

Date:

May 8 (Monday)-13 (Saturday), 1967.

Patron:

His Imperial Highness Prince Nobuhito Takamatsu, Honorary member of I.A.P.H.

Conference Host:

The Minister of Transport, Japanese Government.

Conference Chairman:

Dr. Chujiro Haraguchi, Mayor of Kobe, First Vice-President of I.A.P.H.

Conference Secretariat:

Directed by the Director of Bureau for Ports and Harbours, Ministry of Transport, Japan.

Address:

Room 451-2, Nippon Bldg., 8, 2chome, Ohtemachi, Chiyoda-ku, Tokyo, Japan.

Cable Address:

"IAPHMEET TOKYO".

Registration Fee:

¥36,000 (or U.S. \$100) to cover a delegate and his wife. Others accompanying a delegate (e.g. daughters) U.S.\$50 each. These fees do not include the post-Conference tour.

Conference Languages:

English and Japanese, in accordance with the By-Laws, but translation facilities into French, German and Spanish shall also be provided.

Post-Conference Tour:

Immediately after the Conference, through May 13 (Saturday) – 16 (Tuesday) for a fee of U.S.\$135 per person, including tours in Kyoto and Kobe areas.

2. Port Equipment Show

IAPH International Exhibition of Port Equipment:

May 8-14, 1967, 10 a.m.—6 p.m. at Tokyo Prince Hotel; 60 indoor and 57 outdoor booths. For particulars, refer to the Central Secretariat.

3. Program

The Organizing Committee of the 5th Conference in Tokyo has announced the full conference program in a wide chart which is rearranged below:

Monday, May 8

Daytime:

- Registration, Tokyo Prince Hotel Afternoon: Board Meeting
- Evening: Reception by Minister of Transport

Tuesday, May 9

Morning: Opening Session Coffee Speech: Dr. Hajime Sato Speech: Mr. S. Aldewereld

Noon:

Luncheon (For ladies, luncheon at Korinkaku)

Afternoon: Plenary Business Meeting Speech: Mr. F. Posthuma Coffee 10-minute speeches (For ladies, tea ceremony at Korinkaku)

Evening: Free

Wednesday, May 10

Morning: Speech: Mr. H. C. Brockel Coffee Speech: Hon. T. H. Boggs 10-minute speeches (For ladies, flower arrangements at Sogetsu Kaikan) Noon:

Luncheon (including laides) Afternoon:

Tour of Tokyo

Evening:

Reception by Governor of Tokyo

Thursday, May 11

Daytime:

Tour of Ports of Tokyo, Kawasaki and Yokohama.

(For ladies, trip to Nikko and back)

Evening:

Free

Morning: 10-minute speeches Coffee Speech: Comdr. E. H. W. Platt 10-minute speeches (For ladies, free or guided shopping) Noon: Luncheon (For ladies, luncheon at Japanese restaurant and ancient Japanese costume show) Afternoon: Plenary Business Meeting Coffee Plenary Business Meeting Evening: Dinner by Lord Simon, President Saturday, May 13 Morning: Closing Session Board Meeting Noon: Luncheon (including ladies) Afternoon: Depart for Kyoto. All gatherings are to be informal (men in dark suits and ladies in cocktail or native dresses). Ladies who do not wish to attend ladies' events may join coffee and luncheon sessions of the conference. The program of the post-conference tour sponsored by Dr. C. Haraguchi, the First Vice-President, Mayor of Kobe, is set as follows:

Friday, May 12

Saturday, May 13

Accommodations in Kyoto

Sunday, May 14

Sightseeing in Kyoto. Accommodations in Kyoto

Monday, May 15

Commemorating ceremonies of the 100th anniversary of Port of Kobe. Accommodations in Kobe.

Tuesday, May 16

Tour of Kobe. Accommodations at Arima Spa.

Wednesday, May 17

Return to Tokyo.

On page 16 of the last issue, the 3rd and 4th lines in the last column should have come on top of the second column.



Mr. Austin J. Tobin

FORUM ON PORT PROBLEMS

The Role of International Port Development In Expanding Commerce By Austin J. Tobin

Chairman of the Committee on International Port Development, International Association of Ports and Harbors

(Reprinted from International Trade Forum June 1966 published by GATT)

Today's technology has dramatically expanded the speed and capacity of vessels carrying cargoes between the world's ports. Too often the saving of time and money that these technological advances anticipated have not been fully realized because of inefficient port operations. The intensification of trade between the industrialized and nonindustrialized nations over the last years has, in particular, brought about a greater appreciation of the vital role the ports of the world play in international commerce.

Ship delays caused by chronic shiphandling congestion, poor methods, inadequate navigational aids, labor problems and poor port administration have added heavily to costs of international commerce. Inefficient port operations are particularly damaging to the growing economies of the emerging nations. Poor port conditions result in high cargo handilng costs and depreciate the prices of goods exported by emerging nations and also increase the costs of their imports. Port development has thus become an important aspect of national development in the non-industrialized nations.

Recognizing the essential part which the ports play in national development, the International Association of Ports and Harbors, at its last biennial meeting in London in May 1965, created a Committee on International Port Development to assist the emerging nations in developing their port facilities. The Rt. Hon. Viscount Simon, Chairman of the Port of London Authority and President of the International Association of Ports and Harbours, and Mr. Gaku Matsumoto, Secretary of the Association's Central Secretariat in Tokyo, asked me to assume the chairmanship of the Committee. I am honored to have as my fellow members a number of distinguished port officials: V. G. Swanson of the Port of Melbourne; M. Chandrasoma of the Port of Colombo; Dr. L. E. Palacios of the Ports of Colombia; Mayor C. Haraguchi of the City of Kobe; E. J. Wesley of the Port of Monrovia; S. Samakoses of the Port of Bangkok; Ir. F. Posthuma of the Port of Rotterdam; Sir Arthur Kirby of the United Kingdom; W. J. Amoss of the Port of New Orleans; and George Watson of the Port of Los Angeles. The Committee's objectives are:

- i) to contribute to the expansion of world trade by actively assisting in the important and constructive development of the world's ports and harbors;
- ii) to encourage the more developed and experienced ports in extending, when requested, their advice and active assistance to the developing ports on a direct port-to-port basis and to share with them their professional and technical knowledge of port development and operations;

- iii) to encourage and facilitate training programs and group seminars for the staffs of the developing ports at the facilities of the ports of the IAPH; and
- iv) to encourage the developing ports to take advantage of international programs of port aid and assistance and to facilitate their access and participation in such programs.

While the IAPH program on port development is directed toward assisting the ports of the emerging nations, I must hasten to state that port development is equally important in industrialized countries. Port development is a continuing order of business for the world's port operators. A port is not a static monument to be built once and left unattended. It is a dynamic organ through which flows the economic life blood of a nation. In order to do its work effectively, it must increase its functional and operational capacity as conditions of technology and world commerce change.

Port development today is not confined simply to building marine terminal facilities. It involves consideration of a variety of economic conditions for the region in which the port is located. These realities have set into motion great developments in the world's leading ports.

The Port of Rotterdam, the world's busiest harbor, is now developing Europort, which promises to open a new era of port development on the European Continent. The Port of Marseilles, which traditionally has served as a general cargo port, and lies at the crossroads of trade between Europe, Africa and the Middle East, has developed its petroleum facility of Lavera into one of the world's great petroleum installations.

At the Port of New York, we have similarly entered into an era of expansion to meet the growing needs of waterborne commerce. At Port Newark and the Elizabeth-Port Authority Marine Terminal, we have under development a 1,400acre port project specifically designed to accomodate the new containerships that are creating a modern industrial revolution in transportation of goods.

The development of these modern marine facilities will mean more jobs and more business for the people of the area and more revenue for the neighboring municipalities. When Port Newark and the Elizabeth-Port Authority Marine Terminal are in full operation, employment will be provided for an estimated 18,000 people with an annual payroll of \$95 million. In addition, this development will attract other industries that rely upon waterborne commerce in their operations.

In this respect, it is interesting to note the rapid development that has occurred at the Port of Ashdod in Israel under these very conditions. Several years ago, Mr. Eugene Black, who was then President of the World Bank, asked me to work with the Israeli Government in its study of the most suitable organization to administer that country's ports.

At that time, the Israeli economy was expanding. Its exports were growing, its population—due to immigration and to a high birth rate—was rapidly increasing. The Port of Haifa had performed miracles of cargo handling, but Eilat was only in an early stage of its development, and the Government had recognized the need for a modern port on the Mediterranean to handle the country's expanding trade and the growing economy. The planners of Ashdod anticipated the technological changes which have since been achieved in seagoing vessels. They also anticipated changes which have occurred in the methods of transporting commodities and have planned terminal facilities accordingly. Most important of all, however, was the recognition given to the important role the new port would play in the economic development of the region surrounding Ashdod.

Because of my past involvement with the Israeli ports, I was quite pleased to receive a request recently, as Chairman of the Committee on International Port Development, from the Israeli Ports Authority for a technical advisor to help officials at Ashdod develop a master plan for the industrial area of the port. In response to this request, the Port of Rotterdam volunteered the services of its Chief Engineer of Technical Services, Ir. M. van den Doel. Ir. van den Doel has had extensive experience in port development activities and is currently responsible for engineering services in the development of the Rotterdam Europort.

Looking to the African Continent, we also find other lessons in national development that have been helped along by port development. The West African nation of the Ivory Coast was long recognized as a country of rich potential in agriculture and industry. However, the resources of the country were not fully utilized until that country's port problem was solved. The Port of Abidjan, which today is one of the finest ports in West Africa, owes its life to the opening of a seaway through the sandbar that shelters the Ivory Coast's lagoon system. The Vridi Canal, which was opened in 1950, was a major engineering contribution made by the French to the then territory of the Ivory Coast. With the opening of the Canal, deep-sea vessels were given access to the African mainland, permitting more efficient handling of export commodities at lower transportation costs. The Canal also permitted the importation of heavy industrial machinery thereby opening an era of industrial development in the country.

Liberia was similary able to start its economic growth with the development of the Port of Monrovia. Prior to construction of the port, the highest grade hematite iron ore deposit in the world remained untapped at Bomi Hills. Today, Liberia has four iron mines in operation, and this has revolutionized the country's economy.

These are but a few examples of how port development can play an important role in the development of non-industrialized nations. Today, the transportation infrastructure is the vital element in the movement of peoples and goods, particularly the ports of maritime nations. Increased mobility permits greater commercial exchange, thereby permitting a wider distribution of wealth within the nation. Transportation also means the movement of goods from the producer to the market place. Whether these goods are consumed domestically or overseas, they must reach the market place at the cheapest cost possible in order for the producer to receive the maximum benefits from his labor.

It is hoped that through the effort of the Committee on International Port Development, this aspect of port development can be brought home to the port managers of the developing nations. What is more, members of the IAPH stand ready to assist them in attaining their individual goals of better and more efficient port operations. Since the inauguration of this program, we have received a number of requests for assistance from ports throughout the world. Some of these have originated with international organizations but most have been direct requests by port operators.

At present, we have under consideration requests for advisors to ports in Africa and Latin America. One request involves a serious port congestion problem, and the other a problem of warehouse storage for cargoes.

The Port of New York Authority is also receiving its first trainee, under the auspices of our Committee, from the Port and Harbor Bureau of Japan. A staff member of the Bureau's Research Department will be assigned to the Port Authority's Marine Terminals Department for one year to study the

(Continued on Page 22)

Port of Anchorage

Alaska's Newest and Largest Port

By Capt. A. E. Harned, U.S.C.G. (Ret.)

Port Director Port of Anchorage, Alaska U.S.A.

Nature conspired with a maximum tide range of 40-feet and an ice-choked Cook Inlet to make Anchorage one of the most challenging spots in the world to locate a municipal sea port. Doubting Thomases had plenty of reasons to scoff but a devoted City Council and Port Commission, citizens with courage, and skilled engineers and construction people teamed up to establish the Port of Anchorage. The need was so great for service to central Alaska that a way had to be found to provide a port, and the voters authorized many millions in bonds with faith that it could be done.

Alaska is a big land, with 571,-000 square miles to equal a combined France, Spain and Sweden. It is also equal to about one-fifth of the Continental United States, and big enough to swallow Texas and have lots of land left over.

Captain James Cook first discovered the long inlet in 1778 but the Russians took over from the English flag until Alaska was purchased in 1867 for the well-publicized \$7,200,000, a sum that has been repaid to the nation many times over.

Over a century later, President Woodrow Wilson's order to build the Alaska Railroad created a need for a facility to receive materials for the extension of the rails to Seward and Fairbanks. Ocean Dock was built for this purpose in 1917. Later it was operated by the U.S. Army for the receipt of military freight, mainly petroleum products.

The City of Anchorage was incorporated on November 23, 1920, but it was still many years before it would build its own port facilities. Our records show that in 1927 the City was negotiating with the Alaska Railroad to build a 100-foot dock. However, the total cost, \$2,257.49, for labor and materials was too high and the first official dream in this regard was delayed. Other and larger wooden mooring facilities were built by private industry during the 1930's, 1940's and 1950's, though few totally survived winter ice damage.

A modern dock at the Port of Anchorage was first conceived in 1946 when a far-sighted City Administration appointed its first Port Commission. After 12 years of studying the financial and engineering aspects and three years of construction, City Dock, a \$8.2 million facility was proudly commissioned. (Note: As federal and State funds were unavailable, financing was entirely with City of Anchorage bonds). On April 12, 1961, the 117-foot tug SHINN was the first ship to call at the new terminal and paid a dockage fee of \$3.50 (in cash).

Environmental conditions posed unusual problems for design of the port facilities. Since the maximum tidal range in Knik Arm is about 40-feet, and 30-feet of water had to be provided alongside the wharf for berthing fully loaded ships at low tide, the wharf deck had to be set at about 75-feet above harbor bottom—equivalent to the height of a seven story building. During the winter, large ice floes impinge against the wharf. Ice also freezes on the piles, giving almost a solid



Capt. A. E. Harned

block of ice and posing additional loads on the piles. It was, therefore, necessary to design the wharf foundations for higher loads than would be carried by most wharves. Difficult soil conditions compounded the problem and extensive soil boring and pile test programs were necessary to give safe designs.

The piles supporting the wharf consist of cylindrical steel pipes or caissons ranging in diameter from 16-inches to 42-inches with angular bearing plates near the bottom of the piles to spread the loads in the manner of a footing, thereby minimizing stresses in the soil. The piles along the perimeter of the wharf are filled with concrete and all ohtre piles are filled with sand.

The City Dock consists of a 600foot by 271-foot marginal wharf with a 150-foot by 350-foot transit shed, four dockside travelling cranes, railroad tracks and an access roadway. The wharf and its approach trestle consist of reinforced concrete deck supported on 1150 steel piles. Two railroad tracks are provided on the 46-foot wide apron at the outboard side of the wharf for direct loading of all cargo from ships to rail. Land-ward of the transit shed, which is also used for temporary storage, sorting and processing of cargoes, two additional railroad tracks and truck loading accommodations are provided for pick-up and delivery of cargo. For transfer of cargo between ship and the wharf, two 40-ton cranes with five ton level luffing jibs and two $7\frac{1}{2}$ -ton level luffing cranes built for high speed operation, are installed



on the wharf apron. The 40-ton cranes are used for the handling of truck trailers, heavy containers and other heavy lifts. When not so used, their jibs may be used together with the $7\frac{1}{2}$ -ton cranes for handling general cargo. The use of high speed dockside cranes is very beneficial for efficient operations at the wharf inasmuch as ships gear used at most mainland ports can be used only a few hours a day because of large tidal variations at Anchorage.

Although tonnage in creased steadily in 1961, 1962, 1963, there was much doubt about the success of the City's new facility. There is little doubt that it took the Great Alaskan Earthquake of Good Friday 1964, to guarantee financial success to the City Dock.

Although damage to the Municipal Terminal was in excess of \$3,-000,000, the Corps of Engineers and Federal, City and State agencies working in close cooperation with local construction and electrical companies and "outside" consultants, produced remarkable results immediately after the quake.

Within 96 hours, achievements included the roadway made passable, telephone communications resumed, temporary repairs made to the wharf, emergency generators for power to the terminal building and most important of all, the City Dock was receiving freight! Leakage of gasoline storage tanks in the Port area delayed the immediate restoration of permanent power to the dock, but this service was made available as soon as the area was deemed no longer hazardous. Additional repairs to the wharf, the terminal building and roadways proceeded at an amazingly fast rate.

Of the Port's four level luffing Gantry cranes which looked as if a giant hand had played jack straws with them, three were made operational and were bailing cargo within a week. Parts were utilized from the fourth crane to repair the other three.

The Port of Anchorage was the only deep water port in south central Alaska after the earthquake and tsunamis due to the ports of Seward and Whittier being inoperable. Consequently, all shipping for central Alaska, including Fairbanks, was diverted to our Port. Needless to say, cargo ships and tankers were required to anchor for many hours while awaiting an open berth at our single 600-foot dock.

Knowing we could anticipate a tremendous increase in the number of ships in the Port of Anchorage, not only the ones normally going to Whittier and Seward, but also the Port of Anchorage Municipal Terminals and portion of Industrial Park. City Dock, Petroleum Terminal with condemned Ocean Dock on right. Texaco fuel farm on right (Shell Standard and Union not in picture), Sea-Land Terminal, Trans-World Alaska, Inc. in center, open storage on left. Approach trestle to new dry cargo Terminal No. 2 now under construction on far left.

additional traffic necessary to bring in reconstruction supplies, the Port Commission took steps for an immediate expansion program. The need for haste became even more obvious when the oil companies informed us they planned to have their major oil storage supply in the Port of Anchorage rather than rebuilding their smaller facilities at Whittier and Seward. This 300 per cent increase in storage capacity made it apparent that a new Petroleum Terminal would be required as soon as practicable to provide fuel for heating and the heavy equipment used in cleaning up the earthquake damage.

A temporary wooden tanker berth was constructed in record time with



the first tanker, Richfield's FRANK A MORGAN, docking on July 20, 1964, less than four months after the quake. But as expected, the dock did not survive the ice of the winter of 1964-65. Substitute petroleum facilities were made available the following spring on the City Dock to handle the large amount of petroleum products.

In 1964, City Dock handled 815,-000 tons of dry cargo and petroleum products as compared to less than 200,000 tons in 1963!

A goodly amount of this increase in dry cargo tonnage was due to Sea-Land Service, Inc., a new carrier to the Port of Anchorage. Sea-Land commenced their weekly year-round service with two C-4 cargo ships in May 1964, between Seattle and Anchorage. To accommodate the growing tonnages moving to south central Alaska, Sea-Land has converted its ships the SS ANCHORAGE and SS SEATTLE to a capacity of over 300 vans. The vessels originally carried 188 eight by eight by thirty-five foot cargo vans plus loose stow cargo. The ships were also modified for yearround activity to operate in the ice. Although the last two seasons have been abnormally severe as far as ice conditions are concerned, Sea-Land has not, to date, had any ice damage and only two brief delays due to heavy rifted ice.

More recently the City installed a high-speed PACECO $27\frac{1}{2}$ -ton container crane on City Dock especially for Sea-Land, which has reduced her ships' in-port time, enabling them to make calls to the Port of Anchorage approximately every $5\frac{1}{2}$ days rather than the previous seven-day schedule.

The advent of Sea-Land's container service has undoubtedly led to lower transportation costs in this area. Not only is there faster service than heretofore, but there is less damage and pilferage than in earlier methods. 27¹/₂ ton PACECO high speed van crane offloading 300 vans from Sea - Land's SS AN-CHORAGE. Standard Oil tanker in center at Port of Anchorage Petroleum Terminal.

There is ice in Cook Inlet five months of the year. However, with the average tidal range of 28-feet at the Port and accompanying strong currents, the ice is far from solid. As stated above, Sea-Land, with its large powerful ships, has been very successful in maintaining its schedule throughout the year. Smaller ships and tugs towing barges have used the Port many years during the winter but have experienced damages and delays.

Seeing the large number of oceangoing ships in Knik Arm, the citizens of Anchorage became aware of the importance of their new Port and the possibility of its financial success. Too, they could see from



7¹/₂ ton high speed level luffing crane.

their homes and the numerous viewpoints in the City, the ships at anchor awaiting an empty berth. Expansion of the Municipal Terminal was indeed a necessity! Consequently, in March 1965, the voters authorized bonds in the amount of \$1.75 million for a new tanker facility, which was started in April of the same year. In October at another election, the voters approved bonds for a second dry cargo wharf. These were General Obligation bonds on the City of Anchorage with no Federal or State aid.

The Petroleum Terminal was built of concrete and steel, substantially the same design as the original City Dock, and was completed in record time in November 1965. Because of lack of water at the face of the dock, a breasting barge is now used to place tankers in deep water. However, when dredging, now in process, is completed, tankers 640feet long can be accommodated with 35-feet of water at MLLW. Heated fresh water lines will permit ballast-ing tankers during winter operations.

The new dry cargo Terminal No. 2, is now under construction and will be operational in 1967. This 600-foot marginal wharf is an extension of City Dock but will have no transit shed. It will provide berthing for the oil exploration and production supply vessels which have more than tripled in number during the past two years. These craft move supplies and personnel to rapidly developing oil fields in Cook Inlet 50-100 miles below the Port of Anchorage. Over \$500 million has been spent in the last few years by the several oil companies who are just beginning to put oil and gas ashore from their new platforms. There is little doubt that this industry will expand tremendously in the near future. Our new facility plus those now being built in lower Cook Inlet will certainly give these fleets, which are 65-foot to 165-foot in length and presently are using smaller facilities permitting half-tide operations only, a

more efficient modus operandi.

The new terminal will also provide berthing facilities for the foreign trade which is expanding at a promising rate. Inbound cargo, mainly ferrous products, has increased and an enlarged interest in exporting Alaska's almost untouched natural resources should prove valuable to all concerned in the near future.

Earlier, I mentioned that Ocean Dock was operated by the U.S. Army. This wooden structure was condemned for dry cargo prior to the earthquake and totally thereafter. Military supplies now arrive from "The South 48" States via the Municipal Terminal of the Port of Anchorage and the Ports of Whittier and Seward, which have been rebuilt. Elmendorf Air Force Base and the Army's Fort Richardson are sizable and require many tons of supplies. Revenues from the cargoes for these nearby installations are obviously a great assist to the Port's budget. On the other hand, the Port Terminals assist them in maintaining their military posture.

In addition to the 1812-feet of berthing space of the Municipal Terminals, the Port has an Industrial Park adjacent to the wharves. Approximately half of the nearly 100 acres of this land has been leased to Sea-Land, oil companies, and Trans-World Alaska, an import-export firm. The remaining areas are available for staging, open storage or short term lease. City voters also authorized, in 1965, \$0.75 million for an expansion of the domestic water, fire protection and other utilities in this area.

Concurrent with expansion facilities, the Anchorage Port Commission, chaired by Wallace E. Martens, recommended a \$40,000 study for the development of the City's tidelands amounting to approximately 265 acres. Full utilization of this area will add sizable revenues to the Port and taxes to the City.

The Anchorage Port Commission, composed of five energetic old-time Alaskans appointed by the City Council, are most optimistic about the future of our State, City and

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The Experience of Marine Underwriters With Containerization —A Progress Report

(remarks presented to Bulk Packaging and Containerization Institute, New York City, 25 January 1966)

By Carl E. McDowell

Executive Vice President American Institute of Marine Underwriters

Containerization as a topic of after-dinner speeches, magazine and newspaper articles, and seminars, as you are all aware, has almost been done to death. One seriously wonders if it possible to say anything meaningfully new about containerization.

Of course, it is popular to be with the "in" group, to join the chorus singing the praises and extolling the promises inherent in containerization. It fact, it would be dangerous for a marine underwriter to say anything negative on the subject. He would be accused of blocking progress in the interest of preserving his business, which is to pay losses. (Surely you recall the golden promises that containerization would stop pilferage, eliminate the need for export packaging, and lower the cost of insurance. In fact, we were told why bother to insure cargo against such losses if they would be wiped out!)

It would not be popular to tell you the story of the container carrying camera parts which was systematically pilfered at sea by a crew member who cut a hole in the container. Nor the story of the container off-loaded to a barge at a South American port, that had its padlock broken while on the barge, was pilfered, and arrived at destination bearing a new padlock. I am afraid pilferage has not been defeated by containers. Instead, containerization has only challenged pilferers to invent new ingenious forms of larceny, petty and grand.

This leads me to the theme which

I hope you will remember from this talk: that the application to ocean transportation of the unit-load principle, including containerization and palletization, is almost as significant an advance in global economy as the transition from sail to steam, from wooden to iron ships. Marine underwriters, being aware of this fact, are strongly in favor of broad and rapid application of the unitload principle. They believe in it. They believe in it so firmly that they wish to make several suggestions to promote containerization.

These suggestions, which I shall make here, are the result of marine underwriters' experience with containerized shipments and with users of containers. Underwriters are in a peculiarly critical position from which to observe those aspects of bulk packaging and containerization that require improvement. They should be—their experience is gained from investigation of and payment of claims.

1. Cargo Protection Maintenance

Continuous, adequate **maintenance** of containers is a major requirement for the successful advancement of containerization. Maintenance not only applies to cargo protection, but to the other categories I have just mentioned. The experience which marine insurers have had with containerized cargo shows that ordinary wear and tear, and extraordinary damage to containers in use pose problems in cargo protection. As a result, cargo



Mr. Carl E. McDowell

claims continue to be made and the abundance of these claims dampens the desire of marine insurers to grant lower rates on containerized shipments.

Buckled container roofs trap water and leak. Crushed and indented sides and corners permit easy breakage and pilferage as well as water damage. Doors that do not fit properly are not weather proof and do not permit secure locking or sealing devices to be used.

In highway transportation, there is a strong correlation between the degree of preventive maintenance practiced by a trucker and his financial success. This will probably be equally true of the correlation between container maintenance and the financial success of the container operator.

Hence, **it is recommended** that owners of containers, ship operators carrying containers, and port authorities collaborate to provide separate or joint maintenance facilities at every point where containers are loaded aboard or off-loaded from carriers.

It is recommended that users of containers (i.e., shippers) arrange to inspect the condition and fitness of containers before loading them, and refuse to accept containers that are not in good condition.

It is recommended that ship operators inspect regularly and be accountable for the condition of their own container equipment. Also, ship operators should refuse to accept containers for shipment that are not in sound condition. May I point out here that it is highly possible that sometime in the near future shipowners' liabilities pertaining to seaworthiness may be extended to include containers. A French court has ruled that the container in which goods are stowed by the ship operator (and for which the ship operator issued the bills of lading) must be regarded as part of the ship's hold and not as a package.

Improvements in Container Design

The rapid advance of containerization has challenged the inventiveness of container producers and users to adapt containers to the commodities shipped. And container producers have been quite ingenious. Nevertheless, much more remains to be done.

For example, humidity and temperature control of goods in sealed containers still pose problems for shippers and carriers. Cargo underwriters continue to pay claims for goods that are stained or otherwise damaged by condensation.

Conventional ventilation of the ship's hold does not solve the requirements for ventilation within a container. The ship itself is a container; hence, a container within a container compounds the problems of ventilation and condensation.

At least one major coffee carrier has successfully solved this problem, so we know "breathing" problems associated with containers can be solved.

Parenthetically, let us acknowledge a continuing conflict of interest between specialization and standardization in containerization. On one had there is a drive for specialization in design and equipment of containers to adapt them to the characteristics of various commodities. On the other hand there is a drive for standardization of containers for general use, for interchangeability in leasing and pool operations, and for stowage aboard ship.

This conflict of interest has a direct bearing on marine insurance because underwriters must be sensitive to their loss experience and must rate their risks accordingly.

Safe Stowage of Goods Within the Container

Cargo underwriters also are paying claims for damage to goods caused by improper stowage within containers.

Rail, highway, and air carriers have dealt extensively with the means of preventing the movement and shifting of goods within their carrier units.

The ship operator, heretofore concerned with his huge floating warehouse and its compartmentalized holds, must now be conscious of the need to control the movement of goods inside separate containers.

It is really up to the container owner or operator to imaginatively control free space and movements inside containers, using shifting boards or other means.

In effect, containerization (which has the objective of speeding up vessel turn-around in port) is removing from the ship operator his control over the vital function of cargo stowage.

The ship operator is familiar with the relationship of stowage factors to cubic space and is capable of achieving a good stow. Hence, when ship operators stow goods in containers, through their experience and know-how in most cases they will eliminate the danger of internal damage. But shippers and forwarders are, in many cases, not wise in the proper ways of stowing cargo for sea voyages. How are they to be made aware of this problem, taught the principles of proper stowage, and held accountable for improper stowage?

These are recommendations you may wish to consider in making up containers for sea voyages: First, users of containers need clear, concise instructions regarding proper stowage of sea-going containers. Second, containers need to be equipped with retaining boards, straps, or other means of controlling or minimizing the shifting of contents while in transit. And third, inspection of loaded containers, or something equivalent to inspection, must be accomplished, and responsibility for certification

of inspection or its equivalent must be established.

Inspection and Certification of Loaded Containers

Now, let's deal more fully with inspection or its equivalent in relation to cargo protection.

We must acknowledge that the use of containers to expedite turnaround of a ship in port has disturbed some of the responsibilities and functions of shipper and carrier under the Carriage of Goods By Sea Act and the Harter Act.

For example, the ship operator has no practicable means of inspecting and certificating or of having some other responsible party inspect and certificate cargo stowage within a container originating away from ship-side. The function of inspection has evolved over many years with the growth in size of ships and the rapid expansion in variety of commodities shipped. The function of inspection has also reflected the growing importance of "public interest" in maritime safety, which gave rise to the statutory authority of such public and private groups as the United States Coast Guard and the National Cargo Bureau.

Our laws place responsibility on the shipper to disclose accurately the nature, value, and weights of merchandise being shipped. The shipowner must exercise due diligence to make the ship seaworthy, and he must properly care for, stow, and carry the cargo. On a containership-as well as on a conventional cargo ship-what constitutes the cargo: the container or its contents? And who is responsible for the stowage of the contents? The French court case, to which I have referred, may assist to answer the question.

The advent of the containership is necessitating the re-writing of principles and practices of ocean transportation. It is imperative that shipowners, insurers, and the government cooperate to facilitate containerization by adapting to containerization the regulations and procedures pertaining to cargo inspection and certification. Responsibilities must be reassessed and clarified.

It is recommended that your

Institute appoint a committee to study this matter and to make recommendations to industry and government. There is an urgency to this situation. And perhaps railroad representatives could contribute suggestions because of their own experience.

Now, in discussing cargo protection, let's turn from the subject of inspection to the subject of packaging.

Adequate Packaging

Cargo underwriters are paying unnecessary claims on inadequately packaged containerized shipments.

Some of these claims originate on through movements of containers. Others involve shipments in which the goods leave the container en route to destination.

All too often we read that containerized shipment "eliminates export packing." Various services claim savings in packing costs, claiming domestic packaging is adequate. These claims are frustrating the campaign being made by many interests to improve the packaging of merchandise moving in international trade.

Let me cite one example of inadequate packaging. If domestic corrugated cartons are removed from a steel container short of destination and then transported by usual connecting carriers, it is obvious that containerization has, in effect, increased rather than decreased the possibility of loss or damage, since there is increased handling and divided responsibility.

The advertisement of one operator claims as one of the "Advantages of (X's) Service" that it "Eliminates Export Packing—Prevents Damage and Pilferage." However, the cargo underwriter paid \$14,175 on one shipment for chipping, denting, and breakage of cooking stoves and coolers. The cartons were crushed because of inadequate packaging.

Obviously, wherever underwriters' experience reveals increased claims resulting from inadequate packaging of containerized shipments, the rates of insurance will tend to reflect the adverse experience and go up. At the same time, the underwriter will cooperate with that shipper and carrier to try to improve the outturn of future shipments.

Now, in connection with packaging as well as stowage within the container, no one, including myself, should close his mind to the probabilities of change. The ingenuity of man is going to bring forward many new ideas, new ways of safeguarding goods in transit. If, as I give this paper to you, we have not already heard some new ideas today, I think, in the talk following mine, we will hear something from Mr. Winne and Mr. Gauss on the use of plastic foams.

It is strongly recommended that container owners cooperate to maintain the hard-won respect of shippers regarding the need for adequate packaging in international trade. The numerous instances of inadequate packaging invite some form of regulation and of ship's side inspection of containers. Such regulation and inspection would be undesirable, interfering as they would with the facilitation of commerce—which is the great promise of containerization.

2. Facilitation

There are several technical aspects of containerization which may be grouped under the heading of "facilitation." These are technical matters that need to be dealt with to facilitate the future growth of containerization.

The ultimate goal is to achieve optimum through - movement of containers. Port-to-port movement of the containers satisfies the ship operator's need to expedite rapid loading and discharging and, therefore, vessel turn-around. But limiting containerization to port-to-port movement of the container fails to eliminate multiple handling of goods, exposure to theft and pilferage, and many related cost factor which concern shipper, consignee, and underwriter. It is recommended that a strong continuous campaign be developed on a broad front by commerical interests working with government to achieve the true goal of containerization on an international scale. A joint industry/government organization for this purpose would be useful.

Adequate port facilities adapted to container operations are essential. The Sea-Land and Matson operations illustrate what can be done. More significantly, they illustrate what has to be done.

Moreover, shoreside interchange arrangements with connecting land carriers must be developed. Development of container ports and feeder services to outports merit early consideration. Nor must we lose sight of concomitant developments in the area of palletization and such features as the "Hansa" floating container.

Customs penetration is another factor of facilitation. In this day and age of supra-nationality, surely some organization, say the United Nations, should be able to develop an internationl convention to simplify customs procedures relating to through container shipments. Some type of certification of contents in lieu of visual customs inspection at ports of entry, acceptable internationally, must be developed. Certainly the subjects of documentation, of container marking, and of inspection and certification of stowage of goods within containers must be examined.

3. Maritime Safety

The experience of marine underwriters with protection and indemnity insurance, sometimes termed "ship operator's third party liability," regarding container operations has developed some new and interesting problems.

These problems are encountered generally in container operations aboard conventional cargo ships, but can be found elsewhere.

Serious problems have been found to exist in the movement, stowage, and securing of containers aboard vessels. Also, a personnel injury hazard to longshoremen exists. But this hazard and other problems are being dealt with.

On deck stowage of containers creates special problems, and it is essential for longshoremen so occupied to use safety belts and hard hats.

The difficulties of moving heavy vans in conventional cargo spaces frequently result in damage to ship's structure and cargo gear, as well as to containers. These problems are being studied and solved.

There are serious difficulties in achieving a good, integrated stow

of containers when they are not of equal size. Much damage at sea results to containers, to their contents, and to the ship itself when containers of varying sizes are placed together and on top of each other.

The various extra fittings on decks of conventional vessels carrying containers regularly, such as tracks, chocks and padeyes, create extra hazards to personnel during loading operations and to seagoing personnel on deck when containers are not carried. We recommend application of white or yellow paint to these fixtures to minimize this type of accident.

The temperature of refrigerated containers must be checked regularly while the ship is at sea. Contemplate checking the temperature of a refrigerated container, climbing a narrow ladder 16 feet off the deck in the middle of the night with the ship rolling in heavy weather. Yes, containers have created some new and interesting situations, many of them related to safety and to insurance.

One improvement needed in connection with on-deck carriage of refrigerated containers is better protection of the refrigeration machinery from the effects of heavy weather at sea. Breakdowns of refrigeration machinery tend to occur at the very time that access to the containers is most difficult.

One highly competent and experienced underwriter's surveyor offers the following safety recommendations to ship operators in handling containers aboard conventional cargo ships:

- a) Know the exact weight of each loaded container.
- b) Know the complete contents of each container.
- c) Construct containers with sufficient strong eyes to permit both lifting and lashing when fully weight-loaded.
- d) Avoid dragging containers; skid the lighter ones into the wings of the hatch and stow the heavy containers in the square of the hatch.
- e) Have ship's officers provide careful supervision during stowage and securing of containers.
- f) Provide special inspection of the physical condition of

on-deck containers, including the refrigerating machinery of reefers.

 g) Continuously inspect ship's gear used in container operations and immediately replace gear which shows the slightest sign of wear or damage.

4. Legal Aspects

If, despite the precautions recommended earlier in this memorandum, or because they have not all been followed, the cargo in a container sustains damage, it will frequently be difficult to pinpoint the place where the damage occurred.

We recognize that the ideal situation is that in which a container is packed at the warehouse of the manufacturer or seller at an inland point, and is not opened until delivery to the ultimate consignee or purchaser some distance from the place at which it is discharged from an ocean steamer. However, this may create difficulty in determining from whom to seek reimbursement for a loss. An inspection and certification, as recommended earlier, carried out at the place where the container was first packed, will afford valuable evidence. It will indicate both the actual good order of the contents of the container at that point, and the fact that the goods have been properly and carefully stowed in the container so as to enable them to withstand the expected hazards of the particular transit.

Where more than one carrier is involved in through transportation, it is usual for each succeeding carrier to give its predecessor a receipt which should disclose the apparent condition of the container itself at the time of transfer of custody from one carrier to the next. Now, assume that the container itself is damaged and the successive receipts disclose on what leg of the transit that damage occurred. This information may well serve to pinpoint responsibility, especially if the location and nature of the nature of the damage to the goods within the container can fairly be related to the external damage to the container itself.

However, if the container is not

outwardly damaged, but the goods within the container are, the problem becomes more difficult of solution. In interestate rail transportation in the U.S. the Carmack amendment permits the goods' owner to impose responsibility on either the first or the last of the successive carriers. There appears to be no similar arrangement in respect of transporatation other than rail transportation in the United States. However, there is a common law presumption that the damage occurred in the hands of the last of the successive carriers. This presumption may serve as a some what less effectual substitute. In some instances it will, of course, be possible, if necessary, to institute litigation against all of the successive carriers, leaving it to them separately to produce evidence to escape responsibility and to shift it to a co-carrier. In many instances, however, this course will not be possible because jurisdiction cannot be obtained of all the successive carriers in any one Court.

A second problem is the monetary extent of liability which can be imposed. Because of the size of the container, the goods within it will frequently be worth many thousands of dollars. The mere fact that the container itself is of large size does not prevent it from being considered a package. Under The Hague Rules, which govern most ocean bills of lading in international commerce, the limit of the ocean carrier's responsibility for damage to a package is \$500. It becomes important, therefore, to determine whether the container itself or each package within the container is the 'package" contemplated by The Hague Rules. While there are no authoritative decisions on the point as yet, it seems probable that which is the "package" will depend on the facts of the particular case; as for example, whose container is used, where the container was packed and by whom, and what tariff provisions and bill of lading provisions may say. In addition, the place where the container is carried on the vessel may be of importance, for if the container is carried on a ship's deck under a bill of lading which states that it is stowed on deck,

(Continued on Page 23)

The Port of Auckland Recent Development and Future Planning

Specially Written for "Ports and Harbors"

By R.C.F. Savory, C.B.E., F.I.O.B., Chairman, Auckland Harbour Board New Zealand

The City of Auckland, New Zealand, is situated on an isthmus of land formed by an estuary of the Waitemata Harbour, a natural harbour flowing into the South Pacific Ocean, and the Manukau Harbour, another natural harbour which flows into the Tasman Sea. At the narrowest part of this isthmus the harbours are separated by no less than one mile. The City of Auckland itself supports a population of 550,000 and the Auckland Harbour Board administers both the Port of Auckland on the Waitemata side and the smaller coastal port of Onehunga on the Manukau side. The actual estuary of the Waitemata Harbour has an area of 77 square miles with a water frontage of 197 miles, and the Manukau is approximately 152 square miles and has a harbour frontage of 240 miles. The latter Port is limited by a bar at its entrance to serve only coastal trade and both Harbours are subjected to a tidal range from approximately 5'6" to 12'.

Although New Zealand had been known to navigators since its discovery by the Dutchman Able Tasman in 1642, it was not until 1840, some 200 years later, that the then Governor of the Colony, William Hobson selected Auckland as New Zealand's Capital at that time. The Port itself however, was not constituted until the year 1871 when the executive authority responsible for the administration of these Ports was vested in the Auckland Harbour Board which today consists of 15 Members who represent and serve 750,000 people within the harbour district, an area of 3,500 square miles extending from the Kaipara Harbour in the North to the southern boundaries of Waipa and Raglan Counties in the south. As the largest Port in New Zealand, Auckland handles more cargo (excluding bulk oil) than any other Port in the country.

Through the Port of Auckland last year a record figure of 3,871,-000 tons of cargo was handled. The bulk of this representing imports brought to New Zealand from all points of the compass. It is interesting to note that from a typical discharge programme of recent arrivals at the Port, the following variety of cargo and its origin were—

Japan -

steel, coffee, cement, electrical equipment, chemicals, machinery and general cargo.

British Isles ----

motor vehicles, steel and general cargo.

Australia —

machinery, salt, wire, oil, polymer, yarn, tubes, steel and glass.

Thevenard -

bulk gypsum.

Gulf of Mexico -

- bulk sulphur.
- East Africa -
- asbestos.
- **Geelong** (Australia) bulk wheat.

bulk whea

Nauru Island — bulk phosphate.

Continent of Furence

- **Continent of Europe** motor vehicles, glass and general cargo.
- United States of America aircraft parts and timber.

Exports which consist mainly of



Mr. R.C.F. Savory

milk products, butter, meat and cheese, together with wool, tallow, hides and pelts, are despatched principally to Japan, Britain, Africa, America and the European Continent.

In addition passenger movement in the same period was 52,500 persons who were largely catered for in a modern Passenger Terminal built by the Auckland Harbour Board expressely for the comfort of tourists visiting New Zealand.

3,000 vessels visit the Port each year, being accommodate at 22 berths which are fully equipped with all modern facilities including fast electric quayside cranes, capacious transit sheds and ample open sorting and storage areas.

Since World War II the steady rise in tonnage has necessitated continual planning to keep pace with shipping requirements. Two fine new wharves, Jellicoe and Freyberg, have been built, and these have been designed to most modern standards to allow scope for full use of latest mechanical cargo handling equipment which has been provided.

The demand for facilities at Auckland will continue to increase as the population of New Zealand expands at its highest rate in the North. Of the population of Auckland City, statisticians estimate that 110 persons per 1,000 of the total population of 550,000 are engaged in the 2,332 factories operating in the area. Most of the raw materials for these factories comes across the wharves at Auckland.

The Auckland Harbour Board employs a staff of 1,300 who provide, operate and maintain all the



services used for shipping and cargo movement at the Port of Auckland. The staff are constantly studying new methods of cargo handling and are anxious that in Auckland ships will find facilities equal to those found anywhere in the world.

Port Facilities at the Port of Auckland

Wharves

Auckland has eleven commodious city wharves exclusive of those used by ferries, launches and fishing fleets. The total length of berthage available in the Port is 30,386 feet; 12,862 feet being devoted to coastal shipping and 17,524 feet to overseas vessels. All berthage for overseas vessels is served by railway sidings connected with, and operated by, the New Zealand Government railway system. The most recent addition to the wharves of the Port is Freyberg Wharf which came into use in 1961. It provides two overseas berths with all modern facilities including quayside cranes, large transit sheds and ample open areas.

Docking

Calliope Dock on the north side of the harbour adjacent to the Naval Base, is 605 feet long, and 65 feet $7\frac{1}{2}$ inches wide at the blocks. Dockside services available for the use of ships in dock include dockside crane, electric light and power, compressed air, fresh and salt water, etc.

The Board also operates two slipways which can accommodate vessels of 200 tons and 600 tons respectively.

Floating Crane

The Board's 100 ton self-propelled diesel-electric floating crane "Hikinui" has sufficient height and radius to enable it to serve the largest ships, even when they are floating light.

Anchorages

Anchorage in sheltered water with excellent holding ground is available for both large and small vessels. Specially defined anchorages are available if required for Central business area of Auckland City showing also portion of the wharf area. In the background can be seen the Auckland Harbour Bridge.

vessels under quarantine or carrying explosives.

Tugs

Three powerful twin-screw tugs of 1,700 I.H.P., 1,500 I.H.P., and 900 I.H.P., the property of the Board, are available day and night.

Cargo Handling

The Board's wharves are equipped with single and double storeyed sheds for the sorting and storing of cargo in transit, their total floor space being approximately 1,040,-000 square feet. In addition, 145,000 square feet of floor space is provided by the Board for the storage of cargo in off-wharf stores and a further 135,000 square feet is now under construction.

The wharves are well equipped for the speedy and economical handling of cargo, few ports in the world enjoying better facilities. Equipment includes 52 five-ton portal and semi-portal cranes, varying in maximum radius from 44 feet to 78 feet with lifting speeds at full load of 120 feet a minute. There are also 26 three-ton portal and semi-portal cranes with maximum radius of 44 feet to 70 feet and lifting speeds at full load of 150 feet a minute. Three five-ton and one four-ton travelling roof cranes are provided at Princes Wharf for the stacking and handling of cargo between and on the roofs of sheds. Six one-ton monorail cranes are provided on the roadside of Princes Wharf sheds for handling cargo from top floors to road vehicles or vice versa. Powerful mechanical tractors are available to assist in the handling of railway wagons. Selfdumping grabs are provided for use

S.S. ORIANA being nudged by Auckland Harbour Board tugs into the Princes Wharf Passenger Terminal berth. Note the coaches ready to take tourists to the many scenic resorts within close proximity to Auckland. with quayside cranes for bulk cargoes.

Double-storey sheds are equipped with electric lifts, elevators, hoists and chutes for the transfer of cargo between floors, and balconies on the quayside of sheds enable cargo to be landed direct on to upper floors. Bledisloe Wharf is connected to a bulk cool store by conveyor at second-floor level to facilitate the rapid transfer of cargoes of butter from cool store to crane slings. The wharf shed is also well equipped with fifteen overhead cranes of 30 cwt. capacity, installed on the first floor, for handling and stacking cargo and transfers from the floor to the roadway below.

Mobile cargo-handling equipment owned and operated by the Board includes two cranes of $12\frac{1}{2}$ tons capacity, four of six tons, three of five tons, three of three tons and two of $2\frac{1}{2}$ tons capacity. There are also 74 tractors, 353 trailers, 71 mobile stacking hoists and a front-end loader.

Three portable hoppers for bulk wheat are available and there are also six bulk cargo hoppers at Jellicoe Wharf for handling granular cargo.

Special Services

The wharves are lighted to modern standards and light, power and telephone mains are available to shipping. Water is available at all wharves at a moderate charge, with reductions in price for quantities. It is also supplied at reduced rates to tankers and ships of war.

Coal is available for bunker purposes and fuel oil is obtainable by pipe line at Wynyard Wharf or from modern barges especially constructed for the purpose. A garbage vessel calls daily by arrangement with the Board, for the collection of ship's refuse.

Passenger Terminal

The northern end of Prince's Wharf has been developed as a modern Passenger Terminal for the efficient and expeditious handling of passengers and luggage. Customs facilities, banking, tourists' requirements, souvenir stalls and light refreshments are provided in congenial surroundings. Ample parking is available.

Fire Fighting

All wharves are equipped with fire hydrants. The Board's tugs, "Te Awhina" and "Aucklander" are also equipped with up-to-date fire-





New Zealand butter being loaded at Auckland. The gravity rollers terminate a mechanised conveyor system which loads directly from nearby cool stores.

fighting appliances.

Diver

Diving equipment and the services of trained divers are available for underwater inspections and repairs.

Lighterage

A fleet of lighters of 200 tons capacity is available to facilitate the discharging and loading of vessels. These operations are assisted by the provision of a lighter basin adjacent to capacious off-wharf storage sheds. Open areas alongside the lighter berths are provided for storage and handling of suitable cargoes.

Pilotage

Pilotage is compulsory and pilots are employed and licensed by the Board. Vessels trading to Australia, certain islands in the South Pacific and coastal shipping, are exempt from pilotage fees after payment of two fees annually, in addition to the inward fee on first entry, provided the Master holds an exemption certificate.

Vessels requiring a pilot advise the Harbourmaster by radio and arrangements are made for the pilot launch to meet them at the entrance of the harbour. Masters of vessels leaving port are required to apply to the Harbourmaster for a pilot at least two hours before his services are required.

Port of Onehunga— Manukau Harbour

Although, as previously mentioned, the Manukau Harbour is restricted to ships of shallow draught as determined by the bar at its entrance, the Port of Onehunga has played a very important part in the movement of cargo in and out of the Auckland area to the southern ports of New Zealand. The sea distance to Wellington and ports south is some 200 miles shorter than the route from Auckland.

The post-war establishment of new industries in the adjacent areas and the advantages of the shorter sea route to the south encouraged the coastal shipping companies to institute direct services with modern vessels carrying up to 1,000 tons of cargo. From 1950 to 1955, trade doubled to 90,000 tons and to meet the increased demand for facilities. the wharf was widened so as to double the capacity of cargo sheds and provide cartdocks at their rear. This enabled better utilisation of available berths and by 1960 trade had increased to 130,000 tons. The continued growth of new industries, including a steel mill rolling bar from scrap and demands for facilities to handle bulk cement, timber and other raw materials from the south, necessitated urgent further expansion of the port facilities. Works commenced in 1963 were a new reinforced concrete wharf extension and bulk cement berth. This has doubled general berthage to 800 feet and also provides a new cargo shed, gear stores and mobile plant garage and a two-storeyed building for shipping offices and Harbour Board staff.

Trade expansion has continued, the year ending September 1965, showing a total of 252,000 tons handled.

Future Development

One of the handicaps in meeting the changes in ship design and cargo handling methods is the inflexibility of a port. Whilst ships can be redesigned for particular purposes and new ships built to meet these changes, quays, sheds, railways, waterways, are so permanently integrated into the pattern of the port that they cannot be modified overnight and very meticulous and careful long range planning becomes essential. Covering a wide range of activities in both harbours, a comprehensive outlook is required in meeting this variety of requirements.

Dominant in the development picture at Auckland is the construction of the new Tasman Wharf comprising two deep water berths totalling 1,200 feet. This wharf will be backed by some 13 acres of supporting land. Modern sheds and crane equipment will be installed and provision is being made to take care of container handling in our overseas trade. As a part of this development work is a specialised wharf for roll on roll off vessels. The first of these ships is expected to be on the New Zealand coastal run in July next year. The total estimated cost of this new development work is $\pounds 3\frac{1}{2}$ million.

When Tasman Wharf is completed in 1970 it is proposed to reconstruct King's Wharf (built in 1908) which has become obsolete in design and because of its restrictions is used only by coastal and intercolonial vessels. This wharf, primarily due to its proximity to cool stores, road and rail services, offers an excellent opportunity for the development of a modern mechanised export zone. However recent decisions to develop the Port of Tauranga as an export port will undoubtedly influence thinking as to the design of the wharf and its future use.

Greater use in the future has been planned for the inland waterway of the Tamaki River which leads to Auckland's major industrial areas. The Auckland Harbour Board has already commenced to develop for port associated industry 35 acres of land situated at Mt. Wellington with frontage to the Tamaki River. Provision is being made for the handling of waterborne cargoes carried by barge and other shallow draft craft and for marine requirements such as shipbuilding and repair establishments. Stage 1 is expected to be completed this year when Stage II involving the construction of quays will follow.

With land value as it is today development will continue where necessary by reclamation using spoil dredged from approach channels and berths. An immediate project due to be implemented is a reclamation in Hobson Bay which will eventually provide many acres of new land for city purposes.

Port expansion to the upper harbour has been provided for by the vesting in the Board of 2,900 acres of harbour bed and the purchase by the Board of 400 acres of land at Te Atatu. Long range planning provides for the eventual establishment of bulk oil installations in this area along with other major industrial installations with direct ship to shore handling facili-There is sufficient foreshore ties. and land available in this area to completely duplicate the existing commercial port facilities.

As part of the planned development of the eastern section of the Port, the Harbour Board has obtained the co-operation of the Railways Department and the Auckland City Council in a plan to "feed" the waterfront rail system directly to eastern wharves. The effect of this will be to clear the major portion of rail traffic from overcrowded Quay Street which runs the length of Auckland's wharves.

Road transport through main highways radiating from Auckland is to further be improved when a system of motorways under construction and planned will allow rapid access not only to all points north or south but also to the industrial areas of Auckland.

Port Labour

The labour force for the Port of Auckland is divided into two main sections, those employed by or on behalf of Shipping Companies and those employed by the Harbour Board.

The Waterside Workers Union numbering some 1,800 men provides the labour to perform the work of loading and discharging ships and the men are engaged in terms of a Waterfront Principal Order (Award) under a bureau system of allocation administered by the Waterfront Industry Commission. Under the bureau system of engagement the employer (Shipping and Stevedoring Companies) requisition for the labour required and the bureau allocates them accordingly. The labour works under the gang system, that is they are grouped together in a gang. They

are employed as a gang and work together as one unit. The cooperative contract system operates whereby in addition to wages the profits from the contracts are paid to the workers as a bonus. Work is rotated and each worker gets an equal share.

The Auckland Harbour Board employes permanent drivers to operate its quayside cranes, fork lift trucks, tractors, and other mechanical cargo handling equipment. This operational section of the Board numbers some 500 men. The plant and equipment is ordered as required by the Shipping and Stevedoring Companies. The Port works a 10 hour day for $5\frac{1}{2}$ days per week.

Land Development

Although the Auckland Harbour Board's main function is to administer and develop the Port proper, nevertheless over the years it has become the owner of very extensive land areas. With the vesting of the harbour bed in the Board in the 1870's all reclamations completed have added additional value to the Port and the City of Auckland. This land has been increased by direct purchase and endowments from the Crown.

The benefits of land ownership are of considerable importance to the Port, not the least being the increasing income derived, which provides a worthwhile subsidy for charges required of shipping and cargo passing through the Port.

All the Board's city land has been acquired by reclamation and this work in itself is an interesting story of Auckland's growth over the last century. Some 41 separate reclamation projects have been carried out since the first area of 9 acres was filled in, in 1859. By this means 400 acres have been added to the City's land area and because of its favourable location, values are high.

Extensive land areas abutting the Manukau Harbour were transferred to the Board when it took over responsibility in that region in 1911. The intention was that these endowments would be available either for port operation purposes or could be developed to produce revenue to subsidise costs at the Port of Onehunga.

Abutting the Waitemata Harbour and the Tamaki River the Harbour Board has purchased areas strategically placed for the future needs of the Port. Notably these areas include 400 acres at Te Atatu, 110 acres at Kauri Point, and 32 acres in the industrial zone of Mt. Wellington. The Board's various properties are situated in widely separated localities and they possess most varied characteristics. Chief interest in this regard is concentrated on the 400 acres of land at the front door of Auckland City. Being reclaimed ground the flat topography permits all types of industrial and commercial uses. It should be appreciated too that the City's street system has benefited tremendously by the roading layout on this land.

There are over 1,000 properties listed on the Board's rent-roll embracing commercial, industrial, residential, farm, bush and scenic units, as well as slipway, jetty and shed sites on the foreshores of both harbours.

Another prominent element in the City's transport system is provided by the 75 acre main railway yard which is on reclaimed land to the east of the City centre.

While 400 acres have been added to the City by reclamation, only 53% of this area remains in the Board's ownership. In fact the net areas are-

Commercial land	13 acres
Industrial Land	110 acres
Recreation Reserve	20 acres
A.H.B. occupied land	72 acres
	Constraints of the second s

²¹⁵ acres

The remainder of the area has gone over to the City and Crown ownership in the form of the street system and railway yard, plus the Chief Post Office, Bus Station, Power Station, and sundry smaller properties.

As to the areas occupied industrially and closely related to port operations, the principal users are, freezing and cool stores for export of primary products, fruit, vegetable and fish markets; petroleum products (bulk storage) and the ship building industry. Commercial use

of Board land consists of mixed retail, office, hotel, warehouse, and other activity in the vicinity of Queen Street. This is the Board's land with highest value.

The Board being conscious of its civic responsibilities became concerned when its central area in the lower part of the City failed to maintain a standard in keeping with the development of the Auckland City. Consequently much thought was given to re-planning, and following the calling of tenders on a world wide basis a contract has been entered into with an international consortium for the leasing of the land upon which the first stage of redevelopment will take place. This will involve the tearing down of decadent buildings and replacing with modern style commercial structures. It is expected that regular callers at the Port of Auckland will see in a few years time a complete change in the skyline of the City when viewed from the harbour.

Tobin—

(Continued From Page 8)

development of marine facilities in the Port of New York.

We are also undertaking a program designed to train fundamental maintenance mechanics in Latin America for stevedoring equipment such as forklifts, hi-lo's and light cranes. If this endeavor is successful, we look forward to expanding the program to other areas where such assistance might be needed.

Aside from the personnel assignments that have taken place in connection with the program, we have received a number of requests for information, which have been replied to by mail. In one instance, a Latin American port requested information on the operation of, and safety measures to be taken at, oil piers. Through the Committee on International Port Development, this in formation was solicited from ports in America, Europe and the Far East, thereby giving the Latin American port officials the benefit of a wide range of experience among port operators on three continents.

In another case, rock samples were forwarded to the IAPH Committee requesting our advice on dredging methods to be employed

in a harbor in India. We promptly forwarded practical recommendations on methods of removing the material from the harbor area. In addition, the names of companies specializing in such activities were supplied to the port officials.

The Committee on International Port Development is not in competition with any existing aid agency nor does it infringe upon the work of consultants in the field of port development. The assignments of port personnel from one port to another are for particular situations for short periods of time. It is conceivable that individuals undertaking assignments under the auspices of the IAPH would recommend to a particular port that it obtain consultant services of a particular type or secure financial assistance from one of the many national and international sources.

At the commencement of our program, we held discussions with representatives of the World Bank, the United Nations, the United States Agency for International Development (AID), and others involved in technical assistance for the developing nations. We obtained the views of the officials of these agencies as to the areas in which our Committee could best function in conjunction with their own responsibilities and work. From these discussions, we received a number of interesting suggestions that we have attempted to pursue in conducting our work. Among the activities suggested were:

- (1) Establishing "emergency teams" composed of port technicians and workers at all levels (including, for example, foremen and other supervisory personnel on the docks) from the developed ports, that would be able to provide emergency advice to ports experiencing technical difficulties. Such teams could recommend temporary measures to alleviate specific problems until longrange and lasting solutions could be applied through longer-range multilateral or bilateral aid programs.
- (2) Assembling information on the various aid programs concerning individual ports and, when requested, assisting in the coordination of such programs

and in their adaptation to specific port requirements.

- (3) Encouraging developing ports to seek assistance in improving their operations.
- (4) Arranging for the training in developed IAPH ports of individuals having supervisory responsibilities in longshore or other port work.

The Committee has actively sought to establish its role of providing trouble-shooters in areas where critical port problems exist and providing training facilities for officials from developing ports. In carrying out its work, the Committee must rely on voluntary contributions in the form of manpower and the underwriting of travel and subsistence costs by the member organizations of the IAPH and the developing ports participating in the program. The basis of our activities necessarily confines us to porjects which are deemed important by the developing nations. We believe that such co-operation on a portto-port basis will help to bring the port operators of the world into closer fraternity, which will in turn contribute to better understanding and co-operation between them.

Port assistance is a two-way We are sure that IAPH street. members participating in the program will gain considerably from this new experience in international co-operation. Although we categorize the ports of Africa, Southeast Asia and Latin America in general as being "developing" ports, many of these harbors are older and more renowned than the so-called "developed" ports. They have acquired through the centuries a tradition and experience in port operations that exceeds that of many of the "developed" ports. Participation in this program can result in beneficial exchanges of information and techniques between all ports.

Also, the developed ports have a vested interest in improved port operations overseas. The industrialized nations of the world must rely on the facilities in the developing countries to move their goods. Foreign trade to the industrialized nations means overseas markets for substantial portions of their production. It might also mean for their national industries the difference between profit and loss. We might say that the nations of the world today have grown physically closer due to the technological advances in transportation and communication. We have grown politically closer together through alliances and treaties. We have grown economically closer because we know that a growing exchange of goods between nations is essential to the well-being of every country in the world.

Anchorage-

(Continued From Page 12) Port. They are continually striving to provide adequate facilities for the best possible service at rates as economical as practicable. There is little doubt that timber and mineral products have not been exploited to any great degree as yet. "State-side" as well as foreign representatives are frequent visitors to the Port to determine the feasibility of exporting the State's natural resources.

Also, tremendous interest has been shown in the need for a south central Alaska capable of performing repairs to the numerous oil boats and fishing boats in the area. Present practice is to make temporary repairs on the mud flats of Cook Inlet and then take the vessels to Seattle, some 1695 nautical miles for complete repairs. Obviously this is a very costly and time consuming process.

Another possible new facility in the Port of Anchorage is a bulk handling facility for gravel. At present there is a very small reserve of gravel in the Anchorage area. However, some of the finest and readily accessible gravel is only a few miles up the Knik River. Fortunately the Port of Anchorage does have space and an ideal situation for the installation of a bulk handling plant to handle the gravel barged down the river.

The writer admits to being a member of the Greater Anchorage Chamber of Commerce. Typical of their aims, beliefs, and actions, there is little doubt in my mind of the future potential and certainty of growth of this entire State. Anchorage is not only the center of population and finance of the State, but is strategically located in a manner to serve the greater portion of the population. As such, Anchorage is bound to grow as will the Port of Anchorage.

"The ultimate potential of the Port of Anchorage and the role that it will play in the development of Alaska are both far beyond the initial steps and stages of current day operations". This succinct statement was made in the fall of 1963, when our financial success was far from assured. However, it has been and is the philosophy of those concerned with the present and future of our dynamic City and its Port.

Containerization—

(Continued From Page 16)

The Hague Rules do not apply at all and the \$500 limit may be supplanted by some contractual limit in the bill of lading which in most instances will be no higher than \$500, and may be lower.

Conclusion

Marine underwriters encourage the development of containerization. They also encourage palletization. These are significant steps toward trade development and toward improvement of loss ratios. To the extent that experience of individual shippers and ship operators results in improvement in loss ratios, such experience will result in favorable adjustments in the rates of the assured.

New concepts, such as containerization, develop new problems. With the hope of facilitating the rapid progress of containerization, this talk has reviewed some of the problems as revealed by underwriters' claims experience.

From the marine insurers' viewpoint, the advantages of containerization have substantially exceeded the disadvantages. The favorable balance is particularly noticeable in connection with the operation of specially constructed containerships, and with door-to-door through movements of containers. The future of such trade indeed looks much brighter for all those so engaged.

CORRECTION

On page 16 of the last issue, the 3rd and 4th lines in the last column should have come on top of the second column.

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The Cover

A picture of the model of the Auckland Harbour Board's proposed downtown development scheme is here superimposed on an aerial view of the lower city area. The building in the centre left is the 22-storey office block on the corner of Queen St and Quay St opposite the present Ferry Buildings. Opposite Prince's Wharf is the 13-storey motor hotel at the corner of Quay St and Lower Hobson St. Behind this is the car parking building. At the corner of Quay St and Lower Albert St, between the 22-storey office block and the hotel, is the airline terminal behind which rises the 31-storey office block. On the corner of Queen St and Customs St in the left rear of the block is the shopping centre, including the mall which forms a bridge across Lower Albert St to give access to the car park.



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