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JAPANESE TRADE STUDIES

EX 3711-A

THE SHIPPING INDUSTRY OF JAPAN

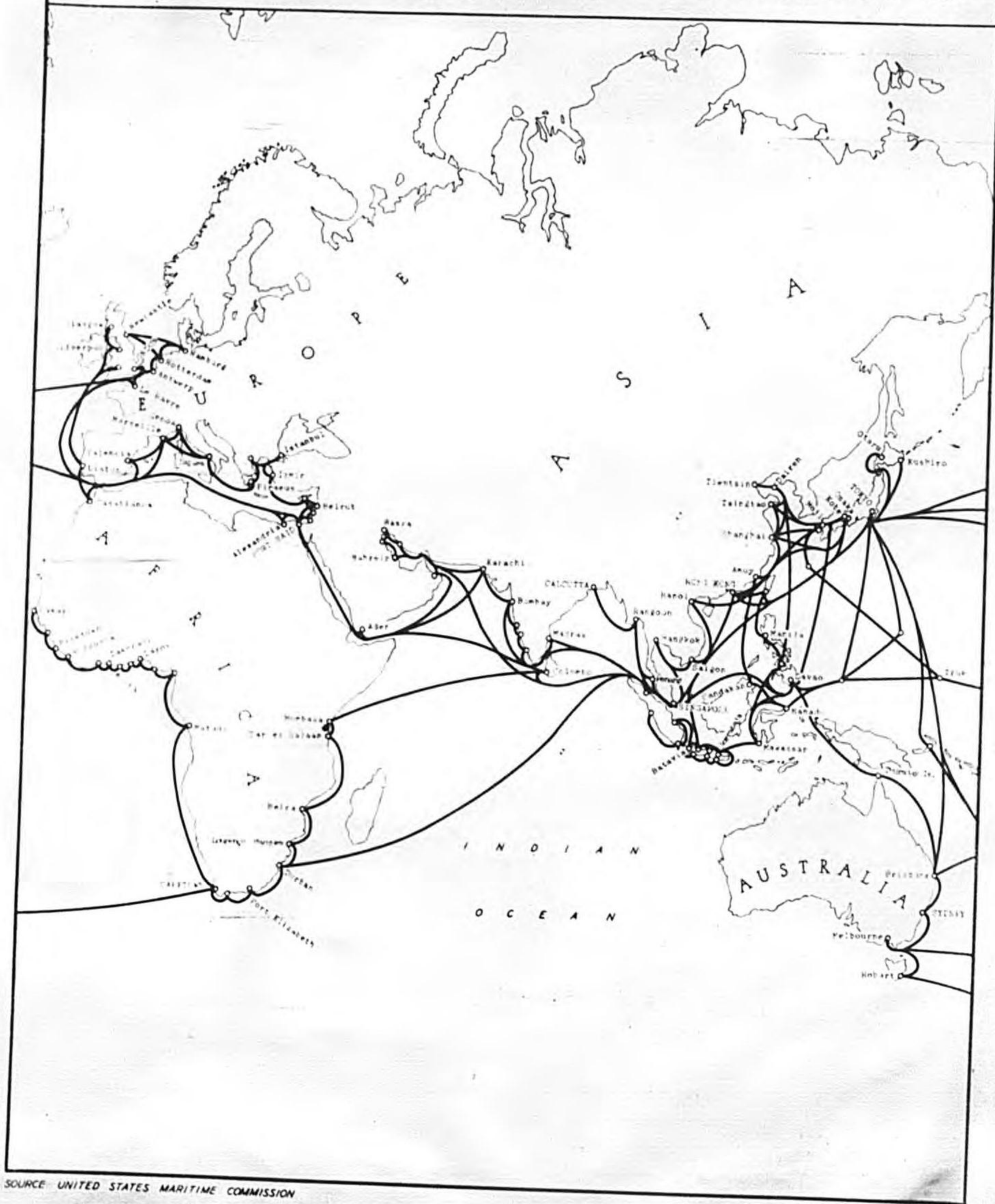
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Prepared for the
Foreign Economic Administration
by
J. D. Travis
a member of the staff of the
United States Tariff Commission

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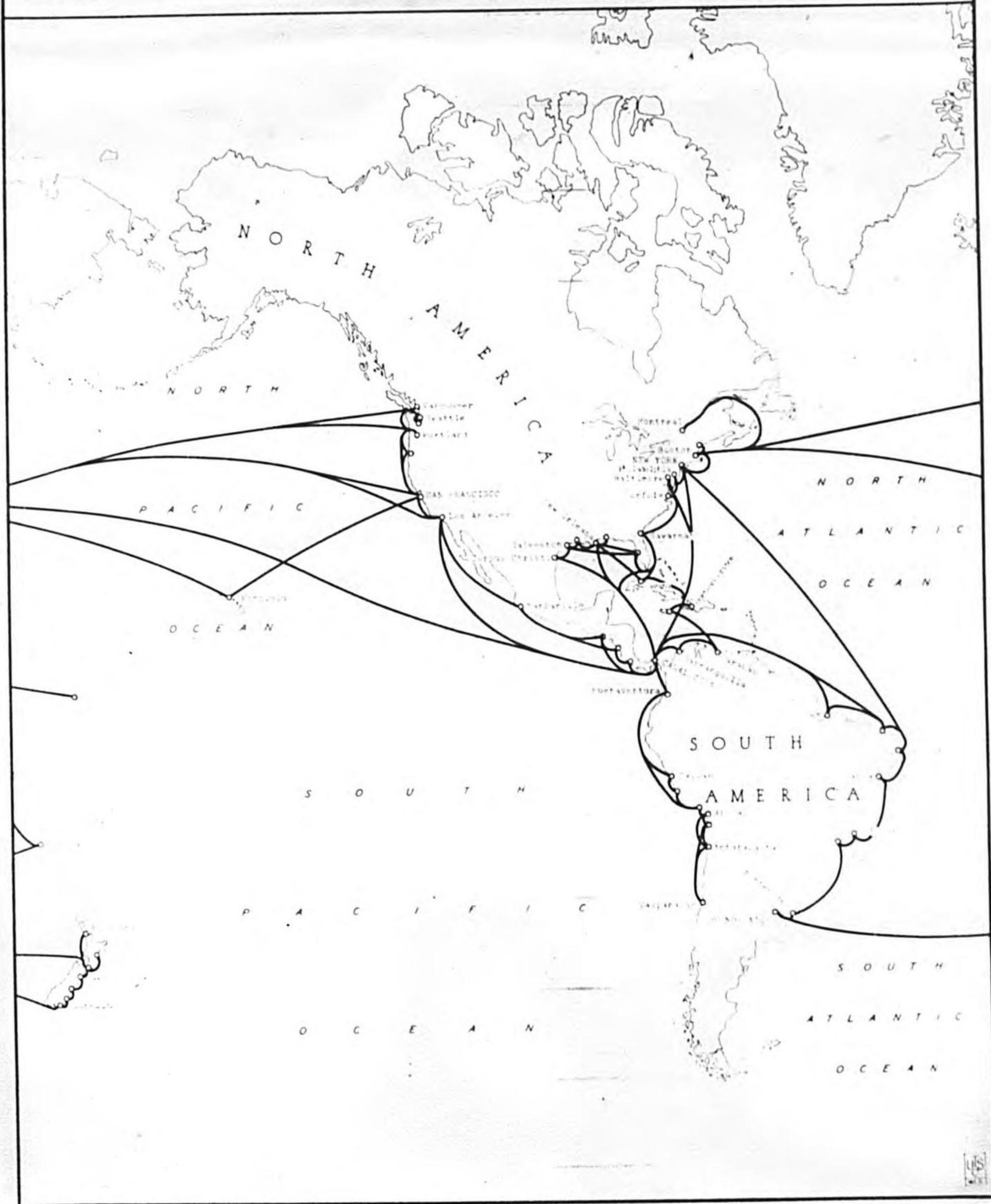
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MAP I OVERSEAS AREAS
PRINCIPAL JAPANESE STEAMSHIP ROUTES, 1938-39



SOURCE: UNITED STATES MARITIME COMMISSION

MAP I OVERSEAS AREAS
PRINCIPAL JAPANESE STEAMSHIP ROUTES 1938-39



FOREWORD

This survey is a part of a larger project on the trade of Japan proper with its Empire and with foreign countries. The project includes compilations (annotated) of the imports and exports of Japan proper by sources and destinations; a series of "special industry analyses" discussing from a commodity or individual industry viewpoint the outstanding items entering into the trade of Japan proper; surveys of certain of the colonial areas, emphasizing their Empire and foreign trade and postwar problems relating thereto; and an over-all survey of the trade of Japan proper.

This particular study constitutes an attempt to portray the part which the shipping industry played in the economy of Japan in the prewar period, and to indicate to the extent now possible the effects which the loss of its merchant marine and the strict control of its shipping industry will have upon Japan and other nations in the postwar period.

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THE SHIPPING INDUSTRY OF JAPAN

Summary and Conclusions

Between World Wars I and II the Japanese merchant marine developed into the world's third largest merchant fleet, exceeded in size only by the fleets of the United Kingdom and the United States. This merchant fleet carried most of the commodities in which Japan traded before the war, and it also served to a limited extent in the carrying trades between other nations. In addition to operating ships in international and domestic waters, Japan became an important shipbuilding nation. These activities--both shipbuilding and shipping--were important in the prewar economy of Japan, providing employment for large numbers of Japanese, improving the facilities for expanding the country's foreign trade, and providing a fruitful source of international credit. In addition, a large and growing merchant marine and an active shipbuilding industry provided Japan with a tool which is essential to large scale aggressive military activity by an island nation.

In the past two decades Japanese shipbuilders have constructed vessels that compare favorably with those of other nations, demonstrating that the Japanese have the technical ability to build as well as to operate merchant ships. Various types of vessels, both large and small, were constructed, including such types as tankers, freighters, and combination passenger-cargo ships. Because cheap labor was plentiful in Japan and many of the materials necessary for shipbuilding were close at hand or readily accessible, shipbuilding costs were comparatively low, and normally equalled about 55 percent of prewar costs in American shipyards and about 66 percent of prewar German and British costs. From the economic standpoint, therefore, Japan has been a relatively low-cost, efficient shipbuilder. Despite its low cost position in relation to other nations, however, Japan has almost continuously subsidized its merchant shipbuilding program. This was done in order to enhance the rate of modern ship construction, to increase the size and capacity of shipyards available to the government, and, most important, to afford the government an opportunity to influence the design and types of ships built in accordance with the country's military as well as economic needs.

Japanese steamship operations along Occidental lines began in the near-seas area of Japan in 1885, and in the long voyage trades about 1894 when service to Bombay was inaugurated. The first war with China broke out in 1894, and, inasmuch as the existing fleet was inadequate to sustain the Japanese army abroad, a number of foreign-built vessels were purchased. Thus the value of a merchant marine as an instrument of war was realized. The need of merchant ships in time of war was again demonstrated in 1904 when the Russo-Japanese war began. During the decade between these wars, the growth of Japanese shipping was gradual, but when World War I began, the Japanese took advantage of the withdrawal of other nations from commercial shipping, and thereafter progress was

made at a very rapid rate. Japanese owners retained the foothold thus gained and by the time the war ended were operating to practically all parts of the world; the tonnage of the merchant fleet at that time—approximately 3 million tons—was the fourth largest in the world.

Between World Wars I and II the Japanese consolidated their position by placing additional ships on routes already adequately served, by replacing old and out-moded vessels with new modern ships and by pioneering new trade routes wherever possibilities for the development of Japanese export trade appeared favorable. One method used by Japanese operators to break into established trade routes was that of rate cutting. This is an old means of gaining admission to steamship pools, conferences, and rate agreements between lines, and did not originate with the Japanese. If adhered to long enough the practice is usually successful in forcing the established operators to permit the new line access to the trade on more or less equal terms. At the outbreak of World War II, Japan had a well-balanced merchant fleet of about 5.6 million gross tons; this compares with approximately 21 million tons for the British and about 9 million tons for the United States.

In the years preceding World War II the Japanese operated their merchant fleet over a network of sea lanes that encircled the world and actively competed in all of the more important trade routes except those of the North Atlantic. Even in the latter area, the Japanese furnished irregular services that in time could have developed into direct competition with existing lines. The extent of Japanese merchant ship operations in 1938-39 is shown in map I, which graphically displays the overseas shipping routes of Japan. In 1939 the Japanese ships serving in the overseas area reportedly totaled 1.6 million gross tons (2.1 million deadweight tons).

In addition to overseas trade routes, the Japanese operated extensively in the Far East and enjoyed almost a monopoly in the trade in the waters in the vicinity of Japan. Domestic interisland and coastwise trades were reserved entirely to Japanese operators; the trade of Korea and Formosa was almost wholly carried in Japanese vessels. This area is designated in Japanese trade and statistical publications as the "nearseas" area. The more important nearseas trade routes plied by Japanese vessels in 1938-39 are shown in map II. In 1939, ships serving in the nearseas area totaled 2.7 million gross tons (3.5 million deadweight tons).

In addition to subsidizing the domestic shipbuilding industry, Japan has continuously subsidized the operation of its merchant marine. In this instance also, the Japanese were among the lowest cost operators, and judging by the American concept (absorption by the government of the difference between American and foreign costs of operation) there was no economic justification, except perhaps in the earliest days of Japanese steamship operation, for the payment of any operating subsidy by the government. Whatever the level of activity on which Japan is allowed to engage in shipping and shipbuilding in the postwar period, the subsidization by the Japanese Government of either shipbuilding or ship operation appears inexcusable on economic grounds.

It is generally assumed that Japan will be prohibited after the present war from building or operating large ocean going vessels and from providing any extensive merchant marine services in international trade. The terms of such a prohibition and the possible effects resulting therefrom have not been clearly defined. It appears that very little of the merchant fleet of Japan that existed in 1938-39 will be afloat or undamaged at the end of the present hostilities. This situation to some extent obviates the necessity for controlling an existing Japanese merchant marine and instead poses the problems of (1) the degree to which Japan should be limited in rebuilding or purchasing a merchant marine (2) the areas in which Japan should be allowed to operate a merchant marine, and (3) the determination of the tonnage of foreign shipping which might be required to carry Japanese foreign trade in the postwar period.

The complete elimination of an island nation such as Japan from merchant shipping might require too great a readjustment in the country's economy, considering the large quantity of Japan's prewar overseas trade. The proportion of Japan's trade which occurred in the nearseas area (map II) was relatively large—approximately 40 percent of the total tonnage of the country's trade. It appears advisable, therefore, to allow Japan to supply some shipping services in the nearseas area but at the same time to impose restrictions on the size of vessels which might be built or operated by Japan. If large ships are necessary in the nearseas trade they could be operated by nations other than Japan. Such a program would involve the strict control of the size and specifications ^{1/} of ships to be built in Japan, and the limitation of Japan to supplying certain shipping services in the nearseas area only. The size and capacity of building and repair yards also would have to be restricted.

Severe limitations on the number and more especially the size of ships built in Japan will result in a drastic reduction in the number of workers employed in the industry. While during the war employment has risen precipitously, even in earlier years large numbers—over 100,000—were so employed. These restrictions will also preclude the possibility of large ships from other nations undergoing any major repairs in Japan. Such work will have to be done elsewhere, on the Asiatic mainland or perhaps in such areas as the Philippines.

The restrictions on the area of operations allowed Japan's merchant shipping would have numerous other effects as well. In the prewar period the large proportion (65 percent) of Japanese trade (imports and exports) carried in vessels of Japanese nationality provided a substantial economic activity for the Japanese and created sizable foreign credits for the account of Japan. In the period 1932-36 the average annual net credit from its shipping amounted to about 150 million yen. The elimination of Japanese merchant shipping in overseas trade will greatly reduce, of course, the international credit to be obtained by Japan from shipping services. The services rendered by Japanese shipping in the nearseas

^{1/} It is not reasonable at this time to fix the specifications or size limits of ships which might be built or operated in the nearseas area by Japan. Such a determination can only be made by an expert commission.

area in the postwar period, provided Japan is allowed to render this service, will offset to a limited extent the debits incurred by Japan for freight services rendered by other nations in carrying its overseas trade. Much depends, of course, on the volume of nearseas and overseas trade in which Japan engages.

Some basis for the determination of the amount of foreign shipping needed to carry Japan's postwar overseas trade may be obtained by an examination of the total trade of Japan on a tonnage basis during recent prewar periods--for example, the 1928-32 annual average tonnage compared with the 1933-37 annual average. As indicated by table 1, the total trade of Japan increased from an estimated annual average of 32.2 million weight volume tons in 1928-32 to 44.7 million in 1933-37, an increase of 12.5 million tons. Throughout the period 1928-37 there was little variation between the percentage of the trade moving in nearseas and overseas areas: the proportion remained at about 40 percent for the nearseas area and about 60 percent for the overseas area. During the decade Japanese vessels transported approximately 75 percent of the total trade of Japan and foreign vessels 25 percent. In the nearseas area (including Empire areas served almost exclusively by Japanese vessels) Japanese ships carried over 95 percent of the total. In the overseas trade, where the Japanese lines encountered more competition, they carried more than 60 percent of the total. The ability of the Japanese to maintain their relative position in the carrying trade despite the increase of 12½ million tons of cargo during the latter period was made possible by the steady growth of the merchant marine.

During the earlier of the two 5-year periods covered by table 1, only the comparatively minor Manchurian invasion by the Japanese occurred, while the latter period saw the beginning of the second war with China. Assuming that the increase of 12½ million weight volume tons of cargo in the latter period largely represented materials for war, the shipment of which will be forbidden in the postwar period, Japan's trade may revert to its 1928-32 level or even lower after the war, depending on the stringency of the policy adopted by the Allies toward Japanese trade and industry.

In the event that Japanese flag shipping is restricted to the nearseas area after the war, some increase in the amount of foreign ship tonnage for the overseas trade of Japan will be necessary. For example, foreign ships annually carried an average of 10.2 million tons of the overseas trade of Japan during the 1933-37 period, while the total overseas trade of Japan during the earlier 1928-32 period was 18.8 million tons. Reversion to the level of the latter period would mean that the same number of foreign ships (or equivalent tonnage) would have to transport approximately 85 percent more cargo than they did during 1933-37, or that a larger number would have to be employed. Foreign vessels did not in fact obtain full cargoes in the past because of the keen competition of the Japanese lines for their own country's traffic, and it is probable that a maximum increase of less than 50 percent of the prewar foreign flag tonnage will be sufficient to transport the postwar overseas trade of Japan.

In the immediate prewar period, the Japanese probably operated a total of about 2.5 million tons of shipping in overseas trade. Considering that Japan will likely have a smaller volume of trade in the future and that ships other than Japanese were not fully loaded, the increased amounts of foreign shipping needed to carry Japan's trade on overseas routes after the war will be by no means formidable. This additional tonnage requirement will provide no great outlet for surplus allied merchant vessels. The allied fleet is at present nearly 20 percent larger in terms of tonnage than the world prewar fleet, including axis vessels.

Table 1.- Japan: Estimated commodity trade carried by Japanese and foreign vessels, by areas, 1928-32 and 1933-37

(Quantity in thousands of weight volume tons) ^{1/}

Areas	Japanese vessels		Foreign vessels		All vessels	
	Quantity	Percent of all vessels	Quantity	Percent of all vessels	Quantity	Percent of all vessels
1928-32:						
Nearseas	12,444	92.9	949	7.1	13,393	100.0
Empire ^{2/}	9,387	100.0	-	-	9,387	100.0
Other ^{3/}	3,057	76.3	949	23.7	4,006	100.0
Overseas	12,128	64.5	6,683	35.5	18,811	100.0
Total	24,572	76.3	7,632	23.7	32,204	100.0
1933-37:						
Nearseas	16,862	96.7	582	3.3	17,444	100.0
Empire ^{2/}	15,029	100.0	-	-	15,029	100.0
Other ^{3/}	1,833	75.9	582	-	2,415	100.0
Overseas	17,033	62.5	10,200	37.5	27,233	100.0
Total	33,895	75.9	10,782	24.1	44,677	100.0

^{1/} Weight tons of 2,240 pounds and volume tons of 40 cubic feet.

^{2/} Includes Korea, Formosa, Kwantung, and Manchuria (after 1931).

^{3/} Includes Asiatic Russia, Hong Kong, and China (including Manchuria prior to 1931).

Source: United States Tariff Commission estimates based on table 16 and annual and monthly returns of the foreign trade of Japan, Korea, and Formosa.

Note.- Where data indicating tonnages involved were not available, estimates were based on values, using the same relationship factor that existed between known tonnages and values. Estimates thus made involved approximately 20 percent of the total tonnage.

The imposition of size restrictions on the Japanese fleet that may be permitted to operate in the nearseas area in the postwar period might necessitate the employment of a number of large foreign vessels in these trades also. Russia and China might be interested in the trade, and the British (based on Hong Kong) are almost certain to resume shipping in the area, perhaps on an increased scale. The establishment of shipping services over nearseas routes to Japan by foreign operators on any extensive scale might afford an outlet for a modest amount of surplus American tonnage.

In general, from the economic standpoint, the elimination of Japan from supplying merchant shipping services in overseas trade will have a more serious detrimental effect on Japan's economy than it will have beneficial effects on the economies of other nations which will supply additional amounts of such services. The number of nations to supply the services is considerable, and when divided among them, the additional benefits to be derived by any single nation from carrying Japan's trade becomes small. In the case of Japan, the elimination of its merchant marine in overseas trade will reduce the volume and total value of its foreign trade; it is apparent that the extensive shipping services the country supplied at low cost and the foreign credit so created were a positive encouragement to its foreign trade, compared with the level that would have been realized had the country been forced to utilize ships of other nations. The strict control of the shipbuilding industry in Japan and the size and areas of service of the Japanese merchant marine will, however, severely curtail the country's ability to make war.

Merchant Ship Construction

Introduction.

Japanese shipbuilders have demonstrated that they have the requisite knowledge for merchant ship construction by building during the past 25 or 30 years some of the most modern passenger and cargo carriers afloat. In the short space of time since the beginning of Japan's industrial development and expansion, that country advanced from a position of obscurity to third place among the maritime nations of the world. Lloyd's Register of Shipping for 1920 credited Japan with 1,940 ships of almost 3 million gross tons, which placed that country behind Great Britain and the United States as a maritime nation and ahead of such seafaring peoples as the Norwegians, Swedes, and Dutch. This third place position was maintained by Japan up to the beginning of World War II. (See table 7.)

The attainment of such a position among maritime nations is particularly noteworthy in view of the fact that Japan's first domestically-constructed steel ocean-going steamer of large size was not completed until 1898,^{1/}

^{1/} The first vessel of any considerable size built in Japan was the "HITACHI MARU" of 6,172 tons, built at Nagasaki in 1898. Previously, in 1895, the "SUMA MARU" of 1,522 tons had been completed and delivered as the first steel ocean-going steamer of any kind ever built in Japan. (Marine Engineering and Shipping Review, May 1942, p. 104.)

so that Japan's position was achieved in the comparatively short time of 22 years. While high rank among international shipping nations would probably have been reached ultimately by Japan because of its insular position, numerous ports and harbors, availability of cheap labor, and the need for foreign trade which accompanied the westernization of its industries, it is extremely doubtful if such notable success would have been achieved in so short a time without the additional stimuli of wars and financial assistance from the Government.

Historical background

Development prior to World War I.--Prior to 1870 the merchant shipping of Japan consisted largely of native junks. ^{1/} After the Government was reorganized in 1868 following the Meiji Restoration, the need for improvement in communications was recognized. In 1870 the Mitsubishi (Shipping) Company was formed, followed 2 years later by the establishment of the Japanese Mail Steamship Company; thus began Japan's entry into the shipping industry.

After 1870, Japan began to acquire ships of occidental type, and the first 25 or 30 years of Japan's modern maritime history were characterized by the purchase of foreign ocean-going vessels rather than by domestic construction. A punitive expedition against Formosa (Taiwan) in 1875 and a civil disturbance in 1877, occasioned the purchase of 45 foreign-built steamers by the Government. The first war with China in 1894 brought realization of the inadequacy of the merchant fleet to sustain an army abroad, and the Government again purchased vessels in the foreign market. Private shipping interests in Japan also purchased foreign-built vessels, and in 1895, according to Lloyd's Register of Shipping, Japanese registered tonnage of vessels of 100 gross tons and over totaled 339 ships of 279,668 gross tons. When the Russo-Japanese war broke out in 1904, resort was again had to foreign tonnage; the Japanese Government imported 164 ships of 310,000 gross tons during the war. ^{2/}

The extent to which military events accelerated the development of the merchant fleet of Japan is difficult to estimate, ^{3/} because by the

^{1/} During Japan's isolation from the rest of the world between 1640 and 1853, an imperial edict forbade the entry of foreign ships into Japanese ports and harbors, prohibited the building in Japan of any vessel of over 150 tons or 75 feet in length, and provided that such vessels as were built should have open sterns to further insure that they did not venture out of home waters. Despite these precautions, Japanese sailors made some remarkable voyages, and some of their open-sterned junks found their way across the Pacific. (Shipbuilding and Shipping Record, Japan and Her Shipping, London, England, October 30, 1941, p. 409.)

^{2/} Jesse E. Saugstad, "Shipping and Shipbuilding Subsidies," United States Department of Commerce, 1932, p. 324.

^{3/} Dr. Jujiro Ito, formerly professor at Waseda University, Japan, in an article on Mercantile Marine and Shipbuilding Industry, stated "Generally speaking, war has been the most potent factor in the development of the mercantile marine as to numerical strength, while for improvement in quality, it (the mercantile marine) has chiefly to thank Government protection."

time the Russo-Japanese war ended, the industrial expansion of Japan as well as the development of its foreign trade was underway, and this caused a demand for additional ships. Prior to the Russo-Japanese war of 1904-05, average annual production had been about 30,000 gross tons; this was increased during the period 1909-13 to 45,000 gross tons annually, but during the same 5-year period, foreign vessels were purchased by Japan at the rate of 56,000 gross tons per year. Furthermore, the foreign-built ships averaged 2,200 gross tons each as compared with an average of slightly under 500 gross tons each for Japanese-built vessels during this period.

Development during World War I.--During World War I Japanese shipbuilding yards made extraordinary progress. At the outbreak of the war Japanese shipbuilding had not progressed to the point where it could compete with the European industry. In 1913 there were only 6 yards capable of building vessels of 1,000 gross tons, and they had only 17 building berths, with a total employment of 26,000 men. By 1918, however, there were 57 shipyards and 157 building berths, employing 97,000 men. Wartime ship construction had such a stimulating effect on the shipbuilding industry of Japan that thereafter the importation of foreign-built vessels appears to have been unnecessary. Table 2 shows the annual launchings of steam vessels at Japanese shipyards during World War I, the vessels being listed according to size.

Table 2.- Japan: Steamship launchings, 1914-18

Year	:Ships of less than:		Ships of over :		Total	
	: 1,000 gross tons :		1,000 gross tons :			
	No. :	Gross tons :	No. :	Gross tons :	No. :	Gross tons
1914 -----	: 73 :	8,933 :	: 12 :	49,913 :	: 85 :	58,846
1915 -----	: 62 :	11,337 :	: 12 :	67,657 :	: 74 :	78,994
1916 -----	: 57 :	15,762 :	: 37 :	128,118 :	: 94 :	143,880
1917 -----	: 144 :	46,837 :	: 70 :	290,879 :	: 214 :	337,716
1918 -----	: 351 :	170,071 :	: 180 :	518,583 :	: 531 :	688,659
Total -----	: 687 :	252,940 :	: 401 :	1,055,155 :	: 998 :	1,308,095

Source: Saugstad, Jesse E., "Shipping and Shipbuilding Subsidies," United States Department of Commerce, 1932, p. 330.

Development between World Wars I and II.--Uncompleted war contracts resulted in continued heavy ship construction in Japan up to 1921. (United States shipyards were similarly engaged at that time, United States Shipping Board annual reports indicating the final completion of war contracts in May, 1922.) Between 1922 and 1928, shipbuilding in Japan declined to an average of about 70,000 gross tons per year. This compares with about 100,000 gross tons built and bought annually before the war, and with 260,000 tons built yearly during the 5 war years. The average rate of construction was advanced to 130,000 gross tons annually during the period 1929-31,

and the size of the vessels increased to approximately 7,000 gross tons. By way of contrast, the rate of shipbuilding in the United States during the 14-year period between the completion of World War I contracts in mid-1922 and the passage of the Merchant Marine Act in 1936, was slightly less than 40,000 gross tons per annum.

The upward trend of shipbuilding in Japan was followed by the occupation of Manchuria (Manchoukuo) in 1931-32. It is significant that the increased tonnage included 11 combination passenger-cargo ships totaling 133,700 gross tons which were suitable for troop transport use, and 6 tankers aggregating 50,000 gross tons, which increased Japan's tanker tonnage by 58 percent. As shown in table 3, construction of new ships in Japan during 1932 and 1933 was not maintained at the increased rate, but thereafter the industry "recovered," and by 1937 the World War I average rate was exceeded.

The comparative prosperity of Japanese shipbuilding during practically the whole of the world economic depression may be accounted for partially by preparedness for the Manchurian invasion during the early years of the depression, and by similar preparations for the so-called "China Incident" in 1936-37. The apparent imminence of World War II shortly thereafter, culminating in the actual outbreak of the European phase in 1939 and the Pacific phase in 1941, resulted in continued heavy ship construction in Japan for the remainder of the period herein discussed.

In the later years practically all the cargo ships constructed were of the most modern types, having high speeds and great steaming radii. Two of the fastest cargo liners in existence at the time were completed in 1938 for the "K" line (Kawasaki Kisen Kabushiki Kaisha). They were motor-ships with a carrying capacity of 10,250 deadweight tons and were capable of sea-speeds of 18 knots per hour fully loaded.

Table 3.- Japan: Annual additions to the Merchant Fleet, 1920-39

Year	Number	Gross tonnage	Deadweight tonnage
1920	79	383,944	575,916
1921	39	213,404	320,106
1922	10	59,385	89,077
1923	9	40,358	60,537
1924	13	51,618	77,424
1925	11	42,959	64,438
1926	11	49,085	73,627
1927	6	27,216	40,824
1928	12	57,604	86,406
1929	17	95,457	143,185
1930	23	201,263	301,894
1931	16	94,671	142,006
1932	9	40,082	60,123
1933	8	58,954	88,426
1934	17	121,154	181,726
1935	24	134,189	201,283
1936	37	206,900	310,350
1937	73	420,126	630,189
1938	66	391,806	587,709
1939	44	283,129	424,643
Total	1/ 524	2,973,302	4,459,889

1/ See also footnote 2 in table 4.

Source: Marine Engineering and Shipping Review, May 1942, p. 98.

Availability of shipbuilding materials in Japan

An inadequate domestic supply of the materials necessary for steel-making made it necessary for Japan to import large quantities of iron ore, pig iron, scrap iron and steel, and coal, for the Japanese steel industry. Most of these materials are available in the countries of the Far East--iron ore in British Malaya and the Straits Settlements, pig iron in Manchuria and British India, and coal in Manchuria and Korea. Being low-valued bulk commodities and readily accessible over water routes, transportation of these materials presented no difficulties either physical or financial. In fact some of the sources of supply are at no greater distance from Japan than are the Great Lakes iron ore deposits from Pittsburgh, Pa., or Youngstown, Ohio, and none of them are as far distant as are the Chilean iron ore ports from the North Atlantic seaboard.

Modern steamships are of steel construction; it has been estimated that 1 ton of steel will make 3 deadweight tons of shipping which, in turn, is equal to 2 gross tons at the ratio of 1.5 to 1.^{1/} On this basis the 521 ships of nearly 3 million gross and 4½ million deadweight tons that were added to the Japanese merchant fleet between 1920 and 1939 (table 3), could have been constructed from 1½ million tons of steel. Thus, for that 20 year period, the average rate of steel consumption for merchant shipbuilding in Japan was about 75,000 tons per year. This is slightly less than one-half the amount of steel that would have been required annually by the United States long-range ship construction program of 50 ships per year for 10 years which had been started when World War II broke out. During the same 20-year period (1920-39), finished steel production in Japan averaged 1.9 million metric tons per year; merchant shipbuilding therefore required only 4 percent of the total steel produced.

Before World War I a substantial part of the vessel propulsion machinery, such as steam turbines and Diesel engines, electrical equipment and accessories, were imported by Japan because facilities for domestic manufacture were inadequate. Subsequently, the establishment and development of industries in Japan with capacity for manufacturing such equipment gradually obviated the necessity for importing these materials, and at the time of the attack on Pearl Harbor, Japan's requirements of this nature were almost wholly satisfied by domestic production.

Shipbuilding costs--materials and labor.

Available data with respect to the former cost of shipbuilding materials and labor in Japan are extremely meager. It has been estimated, however, that despite the need for importing many of the raw materials needed in ship construction, the over-all total costs of ship construction in Japanese shipyards were about 45 percent less than American shipbuilding costs, and about 33 percent less than British and German costs.^{2/}

It appears that, like American shipbuilders, the Japanese normally consider labor to constitute approximately 30 percent of the cost of constructing a vessel, but there are many deviations from the average. For example, labor costs on three motor-propelled passenger ships of about 10,000 gross tons each, built in Japan in 1930, averaged about 36 percent of total costs. For vessels less elaborately appointed than passenger ships, such as medium-sized cargo ships, the percentage would probably be considerably less than 30 in normal times.—Census data on shipbuilding, compiled by the Ministry of Commerce and Industry at Tokyo, for the 5-year period 1931-35, indicated that wages accounted for about 25 percent of the total value of shipyard production.

^{1/} Factors Affecting Japanese Shipbuilding in World War I, United States Tariff Commission, September, 1943, p. 2.

^{2/} Clayton D. Carus, Japan: Its Resources and Industries, 1944, pp. 92-95; other information on this subject was supplied by the United States Maritime Commission.

The Japanese metals index stood at 100 in 1931, but by 1937 had risen to 302. Wages in 1937, however, instead of rising, had fallen to 82 percent of the official 1931 index, and on the basis of these indices, labor constituted a smaller portion of total costs in 1937 than in 1931. Accordingly, the differential between the cost of materials and the cost of labor tended to widen and shrink the 30 percent normally attributed to labor in the cost of ship construction. The overall costs of shipbuilding in Japan, however, although rising, were still considerably lower than those of Germany, Great Britain, and the United States during the later years of the 1930 decade.

Government aid to shipbuilding

The low cost of ship construction in Japan, at least since World War I, compared to costs in many other nations makes it seem unnecessary for that nation to have stimulated by subsidization, the development of the shipbuilding industry. Evidently, however, the demands of foreign trade and military preparedness were not being adequately met by an unsubsidized industry, as Japan continued to pay subsidies to shipbuilders up to the beginning of World War II.

A ship construction bounty law was enacted by the Japanese Imperial Diet in 1896 and provided for subsidies of 12 yen (\$6.00) per ton for ships of 700 to 1,000 tons, and 20 yen (\$10.00) per ton for larger ships. An amendment to the law became effective in 1910, restricting subsidies to steel vessels of at least 1,000 gross tons, and scaled payments from 11 yen (\$5.50) to 22 yen (\$11.00) per ton. Both the original law and the amendment provided for an additional payment of 5 yen (\$2.50) per horsepower for all engines of Japanese construction that went into these vessels. Because of the large profits made by Japanese shipbuilders during the war, the construction bounty law was abolished in 1918. This action by the Government plus the depression in shipping which followed the immediate postwar boom, accounts for the shipbuilding slump that occurred between 1922 and 1928. (See table 3) During the decade of the 1920's the Japanese shipbuilding industry did not receive any direct financial subsidy from the Government but probably benefited from indirect aids of various kinds.

The Ship Improvement Facilities Act of 1932 made provision for the scrapping of 400,000 gross tons of vessels over 25 years of age and for the building of 200,000 gross tons of new ships. The new vessels were to be not less than 4,000 tons each and to have speeds of at least 14 knots per hour. They were scheduled for completion by March, 1935. It is reported that 94 ships of 399,240 gross tons were scrapped and that 31 vessels of 200,027 gross tons were built. —The Government subsidy amounted to 11 million yen and was disbursed at the rate of 55 yen per gross ton of new ships. It is also reported that the new vessels were constructed and fitted out almost entirely with nationally produced materials. ^{1/}

^{1/} Marine Engineering and Shipping Review, May, 1942, pp. 103-104. See also the section about "the availability of shipbuilding materials in Japan."

Two additional building plans followed, one in 1935 and another in 1936. The 1935 plan contemplated the scrapping of 11 ships of 52,718 gross tons and the building of 11 new vessels of similar tonnage. This building program was carried out, builders receiving 1.5 million yen at the rate of 30 yen per ton; because of a shortage of bottoms, however, only 2 ships totaling 16,677 gross tons were actually scrapped. The 1936 plan was similar to the previous plan and 9 new ships of 50,891 gross tons were built; no old vessels were scrapped. ^{1/} These three Government schemes for ship improvement, plus a further subsidy appropriation in 1937, resulted in the construction during 1934 to 1939 inclusive, of 261 vessels totaling 1,567,000 gross tons. (See table 4.)

Table 4.- Summary of ships launched in Japan under the Ship Improvement Facilities Act, 1934-39 ^{1/}

Type of ship	Number	Gross tonnage
Cargo vessels	203	1,065,263
Passenger-cargo ships	30	195,735
Tankers ^{2/}	28	306,306
Total	261	1,567,304

^{1/} See also table 3.

^{2/} In addition to these tankers, 5 whale oil factory ships averaging over 18,000 gross tons each, were completed for the Antarctic whaling industry. It is reported that after discharging whale oil in Europe, these factory ships customarily returned to Japan with cargoes of bulk petroleum. (Foreign Service News, United States Department of Commerce, April 29, 1938, p. 2.)

Source: East Asia Economic Intelligence Series, No. 6, The Shipping Industry of Japan, Tokyo, Japan, October, 1940, p. 16.

The 1937 appropriation also provided grants for the construction of 2 super passenger liners of 26,000 gross tons each, with speeds in excess of 24 knots per hour. They were scheduled for completion in 1942, and their cost was estimated at 28.8 million yen each. In the spring of 1939 the Imperial Diet approved a new ship construction subsidy law, providing for the construction of 200,000 tons of standard type ships during the ensuing 2 years. The subsidy appropriation amounted to 6 million yen at the rate of 30 yen per ton. The ocean-going vessels to be constructed ranged from 4,470 to 6,300 gross tons, and the ships to be used in the nearseas area varied from 490 to 2,750 gross tons. ^{2/}

^{1/} East Asia Economic Intelligence Series, No. 6, The Shipping Industry of Japan, Tokyo, Japan, October, 1940, p. 16.

^{2/} Japan Year Book, 1939-40, p. 595.

Shipyard employment

During the 8-year period between 1930 and 1937 the average number of employees in all categories at Japanese shipyards was 58,895 per annum, ranging from a low of 39,200 in 1932 to a high of 101,720 in 1937. Table 5 shows the number of shipyards in Japan employing more than 5 persons, and lists the total employees in each category by years during the period covered.

Table 5.- Japanese shipyard employees, ^{1/} 1930-37

(In number)

Year	Yards	Officials	Technicians	Operatives	Other	Total
1930	-	2,224	3,002	38,036	3,675	46,937
1931	-	2,053	2,805	33,439	1,207	39,504
1932	-	1,832	2,495	33,611	1,262	39,200
1933	360	2,069	2,677	39,068	1,878	46,052
1934	394	2,267	3,026	50,116	1,520	57,323
1935	395	2,302	3,416	53,918	1,692	61,728
1936	444	2,636	3,520	70,053	2,046	78,695
1937	559	3,874	5,019	89,736	2,532	101,720

^{1/} In yards employing more than 5 persons only.

Source: Japan Year Book, 1940-41, p. 516.

Location of shipyards and building ways

The names and location of the principal shipyards in Japan having the capacity to build vessels of 1,000 gross tons and over in 1938 are shown in table 6, together with the number of building berths and docks at every yard.

In addition to the large shipyards listed in table 6, there were also 1,217 minor yards in Japan as of the end of 1937. These included 832 shipbuilding yards capable of constructing vessels of 20 gross tons and over, and 323 yards with capacity for building ships of 100 gross tons and over. ^{1/}

^{1/} Japan Year Book, 1939-40, p. 599.

Table 6.- Principal Japanese merchant shipyards: Location, and number of docks and shipbuilding berths, 1938.

Name of yard	Location	Docks	Berths
		Number	Number
Kawasaki Dockyard	Kobe	1	7
Hakodate Dockyard	Hakodate	1	1
Ishikawajima Shipbuilding Co.	Tokyo	1	4
Tsurumi Steel and Shipbuilding Co.	Kanagawa	2	6
Uraga Dock Co.	Kanagawa	2	6
Harima Shipbuilding and Engineering Co., Ltd.	Near Kobe	1	5
Osaka Iron Works	Osaka	2	6
Osaka (Innoshima Works)	Hiroshima	3	6
Osaka (Bingo Works)	San-Nosho	2	2
Osaka (Hikoshima)	Shimonoseki	2	-
Kasado Dockyard	Kobe	2	-
Ohara Shipbuilding and Iron Works	Osaka	1	1
Namura Iron Works and Shipbuilding	Osaka	-	1
Fujinagata Shipbuilding Yard	Osaka	3	4
Harada Shipbuilding Yard	Osaka	2	2
Kinokawa Dockyard	Osaka	2	1
Mitsubishi Shipbuilding Yard (Kobe)	Kobe	3	3
Mitsubishi Shipbuilding Yard (Nagasaki)	Nagasaki	3	7
Mitsubishi Shipbuilding Yard (Yokohama)	Yokohama	3	5
Mitsubishi Shipbuilding Yard (Hikoshima)	Shimonoseki	3	-
Tama Shipbuilding Co., Ltd.	Okayama Pref.	1	5
Tochigi Shipbuilding Yard	Fukuoka	-	2
Mukojima Dockyard	Hiroshima	-	2
Tamatsukuri Shipbuilding Co.	Okayama	3	3
	Total	43	79

Source: Japan-Manchoukuo Year Book, 1940, pp. 226-227.

Merchant Ship Operation

Early development

Aside from military considerations, Japan became a maritime nation almost of necessity. The rugged topography of the Japanese mainland islands with the consequent agricultural unproductivity of comparatively large areas, the insufficiency of native minerals, plus the density of population, combined to make Japan a sea-faring nation. The need for importing part of the food requirements of the people and the raw materials for industry, together with the necessity for exporting the products of Japanese labor in order to pay for imports, contributed to the maritime expansion of the country. While Japanese shipping would probably have developed naturally as a result of such economic conditions, the rate of development was accelerated by the rapid expansion of trade and industry, military events, and financial aid from the Government.

Japan's modern shipping industry had its beginning in 1884-85 when its two most important steamship lines, the Osaka Shosen Kaisha and the Nippon Yusen Kaisha, were organized. The Osaka Shosen Kaisha resulted from the amalgamation of some 50 small competing lines which were engaged in the coastal trades. The new company was granted a subsidy by the Government and began operations with 93 vessels totaling 17,000 tons, chiefly covering mail routes on the western coast of Japan. In 1891 service was extended to Korea. The Nippon Yusen Kaisha resulted from the consolidation in 1885 of the shipping branch (organized in 1870) of the Mitsubishi Company with the Kyodo Unyu Kaisha, a semi-Government shipping company. It began operations under a Government aid scheme, with 38 vessels of 68,700 gross tons, in the coasting, China, and Vladivostok trades.^{1/}

The first overseas service by a Japanese steamship line was inaugurated in 1894 when the Nippon Yusen Kaisha began a service to Bombay. This was followed a year later by service to Manila by the same line. In 1896 pioneer Japanese services were opened to London, Seattle, and Australian ports by the Nippon Yusen Kaisha. At the same time the Osaka Shosen Kaisha expanded its operations to include Formosa, and also inaugurated service to Shanghai and up the Yangtze as far as Ichang with shallow-draft vessels. A new company, the Toyo Kisen Kaisha, was also organized in 1896 and, with three British-built passenger vessels, began a new service to San Francisco. Many smaller enterprises and individuals also entered the shipping trade with foreign tonnage for operation in the coasting trades and in charter services to ports in North China and Korea.

After the Russo-Japanese war ended, the Osaka Shosen Kaisha extended services to Tacoma, Washington, in 1909, and to Bombay in 1913. The Toyo Kisen Kaisha built new ships for the San Francisco line and for its line to South America. It also purchased two American tankers for transporting petroleum products. About the same time the Osaka Shosen Kaisha and the

^{1/} "Ships of Nippon," Far Eastern Trade, Japanese Chamber of Commerce, New York, N. Y., 1940, p. 25.

Nippon Yusen Kaisha, together with a number of lesser operators, sponsored the Nisshin Kisen Kaisha which, with Government aid, began operations between river ports on the Yangtze. A chartering organization, known as the Japanese Shipowner's Association, was developed about this time for the purpose of operating old foreign-built ships in the tramp trades, but little progress was made prior to World War I because of over-tonnaging and a depressed charter market.

World War I caused an extensive shipping shortage which, in turn, resulted in pressing demands for shipping space all over the world. This situation created a unique opportunity for Japanese merchant ship operators and they naturally took advantage of it. Their total gross tonnage swelled by more than a million tons during the war period, and new shipping services were opened to all corners of the globe. ^{1/} By the end of the war, Japan had risen from sixth place to third place among the maritime nations of the world.

Development after World War I

During the period between the two World Wars, the progress of Japanese shipping companies in world shipping was steady and continuous. Table 3 shows that during the 20-year period from 1920 to 1939, inclusive, Japanese shipyards built 524 ocean-going steam and motor vessels of 2,000 gross tons and over, aggregating slightly less than 3 million tons. By 1939 the gross tonnage of Japan's merchant fleet was about 5.6 million tons, ^{2/} or about 8 percent of the total world tonnage. The two nations which possessed greater tonnages than Japan were the British Empire and the United States with 21.2 million gross tons and 9.3 million gross tons, respectively (see table 7).

^{1/} Japan Year Book, 1939-40, p. 589.

^{2/} The total tonnage of the Japanese Merchant Fleet in the years just preceding the war is reported in different amounts in the various sources. Lloyd's Register of Shipping for June 1938 shows a total of 369 ships of 2,000 gross tons and over, aggregating 4,304,809 gross tons, and a total of 1,318 ships of 100 to 2,000 gross tons, totaling 702,903 gross tons, making a grand total of 2,187 ships of 5,006,712 gross tons under Japanese registry as of that date. This grand total is lower by about 600,000 tons than the totals shown in table 7 for the merchant fleet tonnage, only one year later, in 1939. There is also disparity between Lloyd's Register data and the official data of the United States Maritime Commission on this subject. In its report, No. 1100, of June 30, 1938, the Commission shows a total of 773 Japanese ships of 2,000 gross tons and over, totaling 3,998,274 gross tons. Attempts at reconciliation of the data have been unsuccessful; diverse methods of recording the size of the merchant fleet and somewhat differing dates on which recordings were made probably account for the disparities which exist.

Table 7.- World fleet, ^{1/} by principal maritime nations, in specified years, 1920 to 1939

Nation	1920		1925		1930		1935		1939	
	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons
British Empire	10,831	20,582,652	10,989	22,222,198	10,754	23,381,614	9,832	20,510,921	9,488	21,215,261
United States	4,889	13,789,874	4,265	12,948,632	3,530	11,388,367	3,015	10,190,091	2,733	9,336,155
Japan	1,940	2,995,878	2,087	3,919,807	2,060	4,316,804	2,146	4,085,650	2,337	5,629,845
Norway	1,777	2,219,388	1,805	2,680,642	1,916	3,668,289	1,862	3,967,972	1,990	4,834,902
Germany	1,138	672,671	2,028	3,073,713	2,157	4,229,235	2,080	3,703,662	2,466	4,492,708
Italy	1,115	2,242,393	1,353	3,028,661	1,380	3,331,226	1,231	2,884,406	1,335	3,448,453
France	1,758	3,245,194	1,828	3,511,984	1,651	3,530,879	1,479	3,025,136	1,282	2,952,975
Netherlands	987	1,793,396	1,099	2,600,831	1,401	3,086,315	1,414	2,558,383	1,532	2,972,871
Sweden	1,297	1,072,925	1,389	1,301,126	1,417	1,623,938	1,294	1,550,843	1,238	1,581,919
Total	24,732	48,614,371	26,843	51,759,767	26,266	58,556,667	24,353	52,477,064	24,401	52,114,089
All other	6,752	8,666,429	6,062	12,878,315	6,447	11,050,977	6,626	12,408,908	6,785	17,325,570
World total	31,484	57,280,800	32,905	64,638,082	32,713	69,607,644	30,979	64,885,972	31,186	69,439,659

^{1/} Includes vessels of 100 tons and over.

Source: Lloyd's Register of Shipping.

Description of the Merchant Fleet

A well-balanced merchant fleet consists of many types of ships, such as passenger liners, combination passenger-cargo ships, freighters, and tankers, and these must be of various sizes and speeds to meet the requirements of the conditions in the several trades in which they are operated. As of 1940, the Japanese merchant fleet ^{1/} included over 700 freighters of nearly 3½ million gross tons, 132 combination passenger-cargo vessels of 845,000 tons, and 49 tankers of about 460,000 tons. Among the dry cargo vessels (freighters) were 145 ships of between 6,000 and 8,000 gross tons, aggregating nearly 1 million tons, which constituted the largest single size group in that class of ship (see table 8a). Nearly 300 Japanese cargo ships were rated at 12 knots and over, which compares with 10 knots per hour for the average American prewar freighter of the Hog Island type (see table 8b). As to age, 236 dry cargo ships of about 1½ million gross tons were built subsequent to 1930, and thus were comparatively new and modern (see table 8c).

The largest group of combination type ships was in the 8,000 to 10,000 ton class with a total of 22 ships aggregating 204,000 gross tons. Out of the total of 132 combination passenger-cargo vessels, 49, or 37 percent, were capable of speeds of 15 knots per hour and better. Thirty-seven of these, or 28 percent, were built between 1932 and 1940, which placed them in the "new" class. They were mostly motor vessels of the most modern type and included some of the fastest ships afloat. Over 65 percent of the tanker fleet of Japan was built after 1930, and 20 out of the total of 49 were capable of speeds of 16 knots per hour and upwards (see table 8b).

^{1/} The total of 898 ships of 4,754,699 gross tons as of December 31, 1940, shown in tables 8a, 8b, and 8c refer only to ocean-going vessels of 2,000 gross tons and over, and are based on official statistics of the United States Maritime Commission. Lloyd's Register of Shipping (the principal official source of ship registration of all nations) includes vessels of 100 gross tons and upwards, and shows for Japan a total of 2,337 ships of 5,629,845 gross tons as of the same period (table 7). The difference between these figures amounts to 1,439 ships of 875,146 gross tons for which the average tonnage would be slightly over 600 gross tons each. These were doubtless of such type as required their employment in home waters only.

Table 8a.- Japanese Merchant Fleet: Ocean-going vessels of 2,000 gross tons and over, by type and size, 1930, 1935, and 1940

Size (gross tons)	October 1, 1930				December 31, 1935				December 31, 1940					
	Freighters		Tankers		Freighters		Tankers		Freighters		Tankers		Total	
	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons
2,000-3,000	101	245,343	23	55,037	2,417	322,795	58	210,775	135	332,482	26	67,132	162	402,031
3,000-4,000	92	309,819	23	75,999	-	385,218	89	294,779	108	358,400	19	61,569	1	99,133
4,000-5,000	88	396,456	9	38,090	-	434,546	79	356,551	10	42,437	122	548,562	134	999,710
5,000-6,000	128	716,715	20	113,403	1	813,960	128	718,226	11	60,797	156	865,737	173	1,218,960
6,000-8,000	68	466,487	20	136,108	10	70,854	96	588,499	15	103,355	145	986,474	178	1,218,960
8,000-10,000	5	41,280	20	185,965	2	244,965	12	130,264	37	334,264	34	591,607	66	606,720
10,000-15,000	-	-	16	185,417	-	-	-	-	16	179,700	-	-	14	302,212
15,000-20,000	-	-	3	51,408	-	-	-	-	3	51,448	-	-	5	176,683
Total	482	2,176,098	134	840,824	14	96,836	482	2,271,094	107	700,354	609	3,127,956	49	4,754,699

Table 8b.- Japanese Merchant Fleet: Ocean-going vessels of 2,000 gross tons and over, by type and speed, 1930, 1935, and 1940

Speed (by knots)	October 1, 1930				December 31, 1935				December 31, 1940					
	Freighters		Tankers		Freighters		Tankers		Freighters		Tankers		Total	
	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons	No.	Gross tons
Under 12	385	1,599,191	27	80,433	58,734	421	1,738,158	330	1,335,649	423	1,427,298	460	1,900,128	
12	66	406,134	16	78,800	38,102	59	323,136	66	369,439	78	437,362	118	613,943	
13	27	143,147	32	151,652	-	187,777	24	127,099	22	145,593	55	273,010	3	17,852
14	-	-	17	133,795	-	-	24	187,737	13	95,521	24	186,318	8	116,765
15	4	27,626	10	110,997	-	-	11	64,444	29	201,901	34	245,049	2	17,185
16	-	-	4	50,973	-	-	10	85,827	24	197,141	22	155,216	2	19,545
17	-	-	2	33,910	-	-	14	110,176	26	236,187	9	76,768	7	65,630
18	-	-	2	10,527	-	-	2	10,527	3	207,093	6	55,051	45	389,252
19	-	-	2	10,527	-	-	2	10,527	3	51,448	2	10,527	1	99,050
20 and over	-	-	2	10,527	-	-	2	10,527	2	10,527	5	52,618	2	20,701
Total	482	2,176,098	134	840,824	14	96,836	482	2,271,094	107	700,354	609	3,127,956	49	4,754,699

Table 8c.- Japanese Merchant Fleet: Ocean-going vessels of 2,000 gross tons and over, by type and age, 1940

Built	Freighters		Combination		Tankers		Total	
	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons
	Before 1920	307	1,361,435	50	309,140	6	41,116	363
1921	70	350,103	8	31,424	1	2,417	79	383,944
1922	28	134,438	9	47,936	2	13,030	39	213,404
1923	7	33,283	3	26,102	-	-	10	59,385
1924	4	15,481	5	24,877	-	-	9	40,358
1925	12	48,451	1	3,165	-	-	13	51,616
1926	8	29,391	2	13,534	-	-	11	42,925
1927	9	34,531	2	14,534	-	-	11	49,065
1928	4	15,665	1	4,282	-	-	5	20,147
1929	7	29,294	2	6,283	-	-	9	35,577
1930	12	46,538	2	32,975	-	-	14	79,513
1931	13	85,965	8	100,736	-	-	21	186,701
1932	14	75,296	6	26,649	-	-	20	101,945
1933	2	4,251	3	15,237	-	-	5	19,488
1934	8	58,954	2	25,250	-	-	10	84,204
1935	12	85,793	6	31,880	-	-	18	117,673
1936	16	91,540	7	39,886	-	-	23	131,426
1937	30	137,398	2	21,400	-	-	32	158,798
1938	59	298,059	5	79,062	-	-	64	377,121
1939	53	271,901	7	7,800	-	-	60	279,701
1940	33	172,572	1	845,206	-	-	34	1,017,778
Total	9	53,806	132	845,206	49	459,338	898	4,754,699

Source: U. S. Maritime Commission, Division of Research, Report No. 1102, as of the dates indicated.

Table 9.- Japanese shipping: Leading shipowners in Japan, ^{1/} by name of owner, number of vessels, and gross tonnage, June 30, 1933

(Vessels of less than 200 tons excluded)

Name of owner	Number of vessels	Gross tonnage
Nippon Yusen Kaisha -----	90	660,354
Osaka Shosen Kaisha -----	121	537,415
Inairen Kisen -----	54	184,823
Yamashita Kisen -----	32	182,933
Kokusai Kisen -----	22	160,050
Kinki Yusen ^{2/} -----	47	154,882
Mitsui Bussan -----	36	143,851
Kawasaki Kisen -----	21	92,587
Nihon Suisan -----	38	82,027
Toyo Kisen -----	15	78,709
Kita Nihon Kisen -----	35	77,862
Kuribayashi Shosen -----	19	64,391
Railway Department -----	30	64,393
Tatsuzuma Kisen -----	15	62,544
Kawasaki Dockyard -----	9	56,335
Nanyo Kaiun -----	11	54,313
Chosen Yusen -----	25	53,653
Hokkaido Colliery S. S. -----	18	48,801
Yamatani Kisen -----	19	47,828
Shimatani Kisen -----	19	47,823
Mitsubisi Shoji -----	7	47,693
Nisshin Kisen -----	23	45,780
Settsu Shosen -----	17	44,781
Nihon Tanker -----	6	43,485
Iino Shoji -----	7	41,533
Taiyo Whaling -----	19	38,080
Naigai Kisen -----	8	37,804
Tochigi Shoji -----	13	36,793
Karada Kisen -----	7	36,773
Ishihara Sangyo -----	7	36,193
Toyo Kaibun -----	5	33,898
Total -----	855	3,299,208

^{1/} Includes only owners of 30,000 gross tons or more; excludes ships of less than 200 gross tons.

^{2/} Merged with Nippon Yusen Kaisha, August 1933.

Source: Japan-Manchoukuo Year Book, 1940, p. 217.

Vessel operating costs

Some of the costs of operation of Japanese ships were much lower than the cost of the same items of expense for British and American vessels— for example, crews' wages and subsistence. Other operating expenses, such as for fuel oil or coal, were substantially the same for the shipping of all three nationalities. Based on a study made in 1936, ^{1/} the British Imperial Shipping Committee found that for two comparable British and Japanese vessels engaged in similar trades, the British operator was at a considerable disadvantage. Wages paid on the British ship with a crew of 77 amounted to £6,277 annually, ^{2/} whereas wages on the Japanese vessel with a crew numbering only 61, amounted to £3,331 or 53 percent ^{3/} of British wages. Subsistence costs on the British ship were £1,589 and on the Japanese ship £799 or 50.3 percent ^{3/} of British costs. Thus on the basis of these two items, the Japanese operator's costs were only 52.5 percent ^{3/} of those of his British competitor. At the 1936 average rate of exchange, \$4.97 to £1, the difference amounted to \$18,570 per ship per annum.

Data are not available for a similar comparison between Japanese and American vessels, but some of the costs of operation have been obtained (see table 10).

Table 10.—Wage rates^{1/} of selected personnel on American and Japanese vessels of 5,000 gross tons and over, 1938

Rating	American vessel	Japanese vessel
First Mate -----	\$200 per mo.	\$39 per mo.
Chief Engineer -----	305 " "	60 " "
First Assistant Engineer ---	199 " "	38 " "
Radio Operator (1st class) -	128 " "	40 " "
Able Seaman -----	72 " "	14 " "
Ordinary Seaman -----	57 " "	12 " "
Fireman -----	75 " "	22 " "
Stiller -----	84 " "	17 " "

^{1/} The figures in the American vessel column represent averages, whereas the figures in the Japanese column are base-pay rates.

Source: Merchant Marine Statistics, U. S. Department of Commerce, Fiscal Year 1938, p. 120.

^{1/} British Shipping in the Orient, 38th Report of the Imperial Shipping Committee, H. M. Stationery Office, London, 1939.

^{2/} The low rates of pay and the number of crew members indicate the selection of a vessel manned with a Lascar or Malay crew.

^{3/} If the wages are compared on a per-man basis, the percentage is somewhat higher.

American manning scales are fixed by the vessels' certificates of inspection and vary according to size and type of vessel and the service in which engaged. (See table 11.)

Table 11.- United States Merchant Marine: Average number of crew members, by type of vessel, 1938

Number of ships	Service	Gross tonnage	Number of crew	Average crew
22	: Passenger	: 7,500 to 10,000	: 2,823	: 128
48	: Freighters	: 7,000 to 10,000	: 2,090	: 44
168	: Tankers	: 7,000 to 10,000	: 7,126	: 42

Source: Merchant Marine Statistics, U. S. Department of Commerce, Fiscal Year 1938, pp. 121-123.

Official manning scales for Japanese merchant fleet operation are not available, but from unofficial data it appears that a typical Japanese freighter in the 8,000-10,000-ton class probably carried a crew of 60 to 65 members. Based on the monthly wage scales for selected ratings listed above, Japanese wages averaged 21.6 percent of American wages on a man-for-man comparison, but by the extent to which Japanese crews exceeded American crews, the disparity was lessened, and accordingly it is estimated that for cargo vessels of comparable size, Japanese prewar crew wages were about 28 to 30 percent of wages paid on American vessels.

Subsistence costs also varied considerably as between Japanese and American vessels. In November 1938, the per diem subsistence cost aboard Japanese passenger vessels was \$1.23 for senior officers, 82 cents for junior officers, and 16 cents for crew members. In May 1939, the cost was \$1.09, 82 cents, and 39 cents, respectively, for a Japanese passenger ship in the Pacific trade. There was some variation between the cost of subsistence for officers and crew aboard American vessels, but the disparity was much smaller than that found on Japanese ships. In December 1937 subsistence costs aboard an American passenger ship in the Australian trade averaged 83 cents per man per day. In April 1938 subsistence costs aboard another American passenger ship in the Pacific trade was 94 cents per man per day, and early in 1940 the cost had increased to 98 cents per man per day. Lack of more detailed information precludes the presentation of comparable data on a ship-for-ship basis, but the foregoing is at least indicative of the decided differential that existed in favor of Japanese operators versus American.

Government aid to shipping ^{1/}

From an early period, antedating even the construction of the first ocean-going vessel in Japan in 1895, the Japanese Government was very active in fostering the growth and operation of its merchant marine. Ship operators were the recipients of considerable financial assistance from their government under the guise of postal subventions, mail contracts, navigation bounties, and trade penetration subsidies. ^{2/} Indirect aid was also extended steamship operators through the reservation of the whole of the coastwise trade and a substantial portion of the foreign trade to vessels of Japanese nationality. (Table 1 indicates that Japanese ships carried 76 percent of their country's total foreign trade in 1928-37.)

Financial aid was extended the Japanese lines by the Government during the early period of their existence in order to assist them in establishing, consolidating, and maintaining their foreign routes and services. Later, the emphasis in the governmental program was on larger-size, faster, and more modern vessels. For example, the subsidy law of 1896 provided basic operating subsidies for ships of 1,000 gross tons and 10 knots speed, with progressive increases for larger and faster ships. This law was modified in 1909 to the effect that on and after January 1, 1910, only vessels of 3,000 gross tons and larger, with speeds of 12 knots or better, and not over 15 years of age, should be eligible for subsidy benefits. To further encourage the use of speedier and newer vessels, the law provided for a 10-percent increase in subsidy for each knot of speed over 12, and for a 5-percent reduction in subsidy annually after a vessel passed its fifth year of age. At that time Japan had recently emerged from the war with Russia, and the law of 1909 appears to have recognized the war potential of a modern merchant marine, because provision was also made for a further 25-percent increase in the operating subsidy for vessels built according to Government plans and specifications.

Under the law of 1909, the routes, number, type, and age of vessels, and the number of voyages were to be determined by the Minister of Communications. Apparently, the law originally contemplated subsidization of overseas services only, but in 1915 the Japanese Diet construed it to include the subsidizing of companies ordered by the Government to operate in other services

^{1/} The shipbuilding section of this report includes a discussion of the Japanese Government's financial aid to shipbuilders in Japan which took the form of construction subsidies.

^{2/} During the 20 years between 1890 and 1909, Japanese steamship operators received an average of 1.9 million dollars per annum from the Government under mail subventions and the Navigation Encouragement Law of 1896. The routes served by these mail lines were between Japan and India, East Asia, Australia, the Philippine Islands, North America, and Europe. (Shipping and Shipbuilding Subsidies, U. S. Department of Commerce, 1932, pp. 332-335.)

as well. Thereafter, practically the entire shipping service of Japan was "ordered" by the Department of Communications and thus qualified for subsidy payments. ^{1/} Except for occasional modifications such as the "Postal Payments Plan of 1920-21," providing for extra subsidies for specified fast mail services under 5-year contracts, the basic operating subsidy plan appears to have remained substantially the same up to the beginning of World War II.

During the budget year April 1938 to March 1939, which immediately preceded the outbreak of war in Europe, the Japanese Government expended approximately 8 million yen (about 2.2 million dollars) for regular operating subsidies. The following tabulation furnishes the details of these expenditures by trade routes:

	Yen
North America (San Francisco) Route -----	2,561,231
North America (Seattle) Route -----	1,190,521
East Coast South America Route -----	1,035,314
West Coast South America Route -----	408,670
East Coast of Africa Route -----	300,000
West Coast of Africa Route -----	300,000
Scheduled Mail Subsidy -----	470,000
Persia (Iran) Route -----	150,000
South Seas Route -----	200,000
Dairen Route -----	20,000
Shanghai Route -----	300,000
Japan Sea Route -----	290,000
Petropavlovsk Route -----	20,000
Ferry Service between Hokkaido and Honshu --	5,000
Okinawa (Naha) Route -----	75,000
Okinawa (various) Routes -----	77,000
Hokkaido Routes -----	174,000
Miscellaneous (Japanese ports) Routes -----	388,000
	7,964,736

Source: U. S. Department of Commerce, 1932

Vessel services operating between Japan and west coast ports of the United States accounted for more than 47 percent of the total, while an additional 18 percent was for South American services. Thus, less than 35 percent of the total was allocated to areas other than the Western Hemisphere. Inasmuch as the European services are not listed, it is probable that the special mail contracts previously mentioned continued in operation on these routes.

The scope of this study does not permit a full discussion of all known aids to shipping, direct and indirect, that Japan and the other principal competing maritime nations extended their steamship operations before the war.

^{1/} Shipping and Shipbuilding Subsidies, U. S. Department of Commerce, 1932 p. 336.

It is pertinent to observe, however, that as operating costs for Japanese vessels were among the lowest in the world, the extension of operating subsidies by the Japanese Government is in conflict with the basic American concept of operating subsidies which, in brief, is based upon the principle that the Government should absorb only the differential between higher American and lower foreign costs of vessel operation. It is probable that the Japanese found justification for their subsidization activities in the desirability for the modernization of the merchant fleet, in the pioneering of services to undeveloped markets, in the furnishing of high-grade transportation for expanding foreign trade, and in military preparedness.

Regional apportionment of tonnage

Up to the beginning of World War I, Japan's shipping was still largely local in character, despite the establishment of services to Europe, India, Australia, and North and South America (see the section on Early Development). In 1914 about one-sixth of Japan's total merchant tonnage was engaged in these overseas trades, and the other five-sixths in the nearseas area and in the coasting and inter-island trades.^{1/} Thus, in 1914 Japan was using approximately 1.4 million gross tons of merchant shipping in home waters and adjacent areas, the small remainder being engaged in overseas trade. After the beginning of World War I, Japan concentrated more on overseas trade, and by 1939 the division between nearseas and overseas shipping was almost equal in point of tonnage, although due to the use of smaller ships, the number of vessels in the nearseas area was more than double the number in overseas trade (see table 12). Ordinarily, when a new ship was delivered from the yards it was placed in the overseas trade and the vessel it replaced, if not scrapped, was relegated to the nearseas trading area.

Table 12.--Japanese Merchant Fleet: Distribution by trade areas, November 1939

Area	Number of ships	Gross tonnage
Nearseas areas -----	622	2,167,744
Overseas areas -----	254	1,914,947
Total -----	876	4,082,691

Source: "The Shipping Industry of Japan," East Asia Economic Intelligence Series No. 6, Tokyo, October 1940.

The allocation of Japanese tonnage has not been static during recent years because the vicissitudes of war have caused greater or lesser demands on Japan's shipping in certain areas, particularly in the nearseas area.

^{1/} Government Aid to Merchant Shipping, U. S. Department of Commerce, 1925, p. 213.

The extent of such changes in tonnage distribution are determined by the degree of preparation necessary for war and the intensity of the campaign itself. For example, during the 1930-39 decade, the Manchurian campaign and the "China Incident" required so much local shipping that it is difficult to establish a figure that could reasonably be considered adequate for Japan's "normal" nearseas shipping requirements. A contemporary writer has stated that Japan usually required about 1 million tons to handle its normal peacetime inter-island and coastal trades, about 2.5 million tons for nearseas trade, and 2 million tons for overseas trade--a total of about 5.5 million tons. ^{1/} Table 12 does not include the tonnage engaged in inter-island and coastal trades; however, if a million tons were added for these trades, the total would also be over 5 million tons of shipping. (See table 7, which evidently includes coastwise and inter-island shipping.)

Shipping Routes and Commodity Trade

The shipping routes most heavily traversed in carrying Japan's present foreign trade and the quantity and nature of the commodities carried over those routes indicate to some extent (when probable changes in the economy of Japan are considered) the direction, size, and nature of Japan's future trade. Information showing the tonnage of the various types of commodities carried on the different important overseas trade routes of Japan is not available in complete form. It was possible, however, to obtain the tonnage of groups of commodities and of certain individual commodities carried on the various routes; frequently it was necessary to convert certain quantities reported in units other than weight into weight. The use of these data and also the value of the trade of Japan in certain commodities where no quantity was available gave a relatively satisfactory estimate of the volume of Japan's trade and the shipping required to carry it on each route. The results have been summarized in tables 13 to 16, and are given in more detail for each route in tables 17 to 33.

The total value of the foreign trade of Japan proper, including that with Empire areas (Korea, Formosa, Manchuria, and Kwantung Leased Territory) in 1938, amounted to approximately 7.7 billion yen (about 2.2 billion dollars). Exports and imports were about equally divided as to value, but in terms of quantity imports far outweighed exports. Exports to the Empire areas mentioned above amounted to approximately 2.1 billion yen and, adding a small amount for China, Hong Kong, and Asiatic Russia, 62 percent of all Japanese exports are accounted for. Imports from Empire areas were of lesser value than exports, but accounted for almost 45 percent of the total imports of commodities into Japan. In both cases, the trade with Korea was by far the largest in value of all Empire areas. There is indicated rather clearly, therefore, the directional flow of Japan's trade toward oriental regions, especially those in close proximity to Japan. If the percentages of trade with the Philippine Islands, Australia, Netherlands Indies, southeastern Asia, and India are included, the predominance of the Far East in Japan's trade is more strongly emphasized.

^{1/} "Japan: Its Resources and Industries," Clayton D. Carus, 1944, pp. 92-95.

Imports consisted principally of foodstuffs, various oils, textile raw materials, minerals, ores and metals, and instruments and machinery, and included such specific commodities as rice, petroleum, raw cotton, fertilizers, coal, iron ore, and scrap metal. Most of the foodstuffs were imported from Korea, Formosa, and Manchuria, while the petroleum, textile raw materials, and ores and metals were imported to a large degree from overseas areas, particularly British India, the United States, and southeastern Asia. Rice was perhaps the most important single foodstuff imported, and was shipped chiefly from Korea and Formosa (see table 13). Despite the nearly even balance between total import and export values, the commodities mentioned were imported in such volume as to require a much larger amount of shipping than was needed for exports.

Table 13.- Japan: Imports of merchandise, by principal areas and countries, by commodity groups, 1938
(In millions and tenths of millions of yen, i.e., 00,000 omitted)

Commodity group	Total all countries 1/	Areas in the vicinity of Japan					
		Total 1/	Manchuria and Kwantung	China	Korea 2/	Formosa 2/	Other 2/
Grains, flours, starches, and seeds	305.1	283.4	122.3	9.8		128.0	1.3
Beverages, conestibles, and tobacco	253.8	224.8	8.9	11.7		203.1	1.6
Skins, hairs, bones, horns, teeth, tusks, shells, etc., and manufactures thereof	41.3	12.5	4.0	7.0		1.5	2/
Oils, fats, waxes, and manufactures thereof	331.7	10.6	5.7	-6		4.3	2/
Drugs, chemicals, medicines, compounds of preparations thereof, and explosives	195.8	37.1	20.7	.8		13.8	1.8
Dyes, pigments, coatings, and filling matters	10.2	2.9	.1	.5		.9	1.4
Yarns, threads, twines, cordages, and materials thereof	573.4	96.9	10.4	82.7		1.8	2/
Tissues and manufactures thereof	7.8	3.2	2/	2/		3.2	2/
Clothing and accessories thereof	3.5	3.2	2/	2/		5.4	2/
Pulp for paper making, papers, paper manufactures, books, and pictures	53.8	15.1	6.6	.1		5.6	12.7
Minerals (nonmetallic) and manufactures thereof	126.8	87.9	40.4	29.7		.2	-
Potteries, glass, and glass manufactures	4.4	1.5	1.3	2/		2/	2.3
Ores and metals	662.0	86.3	73.5	10.5		.5	2/
Metal manufactures	8.9	.6	.1	2/			
Clocks, watches, scientific instruments, firearms, vehicles, vessels, and machinery	314.4	2.4	.1	1.2		1.1	2/
Miscellaneous articles, articles by parcel post, and travelling effects	136.6	92.5	80.1	7.0		4.9	.5
Total, all groups	3,771.6	1,700.5	396.9	162.8	710.5	408.7	21.6

Total, all groups

- 1/ Includes exports from Formosa and Korea to Japan. Detail does not include exports from Korea, which are not available by commodity groups.
- 2/ Exports to Japan.
- 3/ Includes Asiatic Russia, Hong Kong, and French Indochina.
- 4/ Includes Union of South Africa, Mozambique, Kenya, Uganda, Tanganyika, and Italian Somaliland.
- 5/ Less than 50 thousand yen.
- 6/ Excludes exports of mineral oils from Formosa to Japan—not available in 1938.
- 7/ Excludes exports of ores and metals from Formosa to Japan—not available in 1938.
- 8/ Not available.
- 9/ Includes imports into Japan of "plants and animals (living)" valued at 1.6 million yen and exports from Formosa, of same, valued at 0.1 million yen.

Source: Compiled from official annual and monthly statistics of Japan, Formosa, and Korea.

Table 14.- Japan: Exports of merchandise, by principal areas and countries, by commodity groups, 1938
(In millions and tenths of millions of yen, i.e., 00,000 omitted)

Commodity group	Total all countries 1/	Areas in the vicinity of Japan					
		Total 1/	Manchuria and Kwantung	China	Korea 2/	Formosa 2/	Other 2/
Grains, flours, starches, and seeds	83.5	76.9	41.8	24.2		10.9	2/
Beverages, conestibles, and tobacco	279.2	171.9	64.9	52.1		52.4	2.5
Skins, hairs, bones, horns, teeth, tusks, shells, etc., and manufactures thereof	14.4	7.5	4.9	1.6		.9	.1
Oils, fats, waxes, and manufactures thereof	59.5	33.6	16.5	9.9		7.1	.1
Drugs, chemicals, medicines, compounds of preparations thereof, and explosives	88.4	60.0	25.8	19.1		14.7	.4
Dyes, pigments, coatings, and filling matters	24.3	20.1	11.1	5.4		3.0	.6
Yarns, threads, twines, cordages, and materials thereof	478.3	44.5	26.6	12.7		3.6	1.5
Tissues and manufactures thereof	769.7	263.9	167.2	49.2		38.5	9.0
Clothing and accessories thereof	154.8	44.0	29.3	4.5		9.7	.5
Pulp for paper making, papers, paper manufactures, books, and pictures	90.9	78.1	47.5	19.8		10.0	.8
Minerals (nonmetallic) and manufactures thereof	32.1	22.2	6.4	4.7		7.6	.6
Potteries, glass, and glass manufactures	70.4	21.0	11.9	4.5		4.0	.2
Ores and metals	111.1	103.1	94.7	8.7		12.7	.3
Metal manufactures	118.4	96.1	62.7	12.9			
Clocks, watches, scientific instruments, firearms, vehicles, vessels, and machinery	290.2	249.2	170.9	52.0		23.0	3.3
Miscellaneous articles, articles by parcel post, and travelling effects	272.0	161.9	64.4	29.4		67.0	1.1
Total, all groups	3,912.4	2,417.3	848.1	310.7	921.3	311.6	22.6

Total, all groups

- 1/ Includes imports into Formosa and Korea from Japan. Detail does not include imports into Korea which are not available by commodity groups.
- 2/ Imports from Japan.
- 3/ Includes Asiatic Russia, Hong Kong, and French Indochina.
- 4/ Includes Union of South Africa, Mozambique, Kenya, Uganda, Tanganyika, and Italian Somaliland.
- 5/ Less than 50 thousand yen.
- 6/ Excludes imports of mineral oils into Formosa—not available in 1938.
- 7/ Excludes imports of ores and metals into Formosa—not available in 1938.
- 8/ Includes exports from Japan of "plants and animals, living" valued at 4.1 million yen, and imports into Formosa of same, valued at 1.1 million yen.

Source: Compiled from official monthly and annual trade returns of Japan, Formosa, and Korea.

Overseas areas														
Total	Asia					Oceania		Africa		Europe	North America			Mexico, Central and South America
	Total	Philippine Islands	Netherlands Indies	Br. Malaya and Straits Settlements	British India	Total	Australia	Total	South and East Africa	Total	Total	United States	Canada	
21.7	12.6	5/	6.7	5/	0.3	4.1	4.1	0.2	5/	0.2	5/	5/	5/	4.6
29.0	9.1	0.9	7.2	5/	5/	1.0	1.0	8.9	3.2	1.8	3.7	2.9	0.8	4.5
28.8	3.6	.5	.3	0.3	1.9	3.7	3.2	.3	5/	1.3	11.5	11.5	5/	8.4
320.6	55.6	5/	44.4	5/	.1	.4	.3	5/	5/	4.8	259.0	240.2	18.8	.8
158.7	54.8	5/	14.1	36.4	1.2	1.4	.4	3.4	3.0	71.2	19.9	19.8	.1	8.0
7.3	5/	-	5/	5/	5/	5/	5/	5/	5/	4.3	3.0	3.0	5/	5/
476.5	138.7	11.9	5/	5/	117.2	73.4	65.1	37.3	9.5	5.6	167.9	167.9	5/	53.6
4.6	.4	5/	5/	5/	5/	5/	5/	5/	5/	3.2	1.0	1.0	5/	-
.3	5/	5/	5/	5/	5/	5/	5/	5/	5/	.2	.1	.1	5/	5/
41.7	5/	5/	5/	5/	5/	5/	5/	5/	5/	20.0	21.7	16.2	5.5	5/
38.9	8.7	5/	5/	5/	5/	5/	5/	5/	5/	3.2	12.6	7.5	5.1	5/
2.9	5/	-	5/	5/	5/	5/	5/	5/	5/	2.9	5/	5/	5/	5/
575.7	136.9	14.4	10.0	59.4	47.7	9.7	8.0	5/	5/	96.3	316.9	262.8	54.1	15.5
8.3	5/	-	5/	5/	5/	5/	5/	5/	5/	3.1	5.2	5.2	5/	5/
312.0	5/	5/	5/	5/	5/	5/	5/	5/	-	150.9	161.1	158.1	3.0	5/
44.1	15.8	7.7	4.0	.4	.1	.9	.5	.3	5/	6.2	20.4	16.6	3.8	.5
2,071.1	436.2	35.4	88.2	100.7	171.7	97.5	82.6	60.2	17.2	375.2	1,004.0	912.8	91.2	98.0

Overseas areas														
Total	Asia					Oceania		Africa		Europe	North America			Mexico, Central and South America
	Total	Philippine Islands	Netherlands Indies	Br. Malaya and Straits Settlements	British India	Total	Australia	Total	South and East Africa	Total	Total	United States	Canada	
8.6	0.4	0.1	5/	5/	0.3	0.6	0.1	5/	5/	5.8	1.3	0.5	0.8	0.5
107.3	10.8	3.1	2.4	1.4	1.7	7.4	2.9	6.1	0.6	55.4	26.1	23.3	2.8	1.5
6.9	.3	5/	.1	5/	.1	.4	.3	.1	5/	2.4	3.4	3.2	.2	.3
25.8	2.2	.5	.2	.4	.6	.6	.3	1.0	.2	11.7	9.7	9.4	.3	.6
28.4	7.4	.7	1.7	.5	3.6	2.4	1.4	.5	.3	4.4	12.1	11.9	.2	1.6
4.2	2.6	.2	.7	5/	1.4	.2	.1	.1	5/	.7	.2	.1	.1	.4
433.8	54.8	1.5	11.9	.2	37.2	8.1	7.9	2.2	.9	61.5	294.0	298.7	.3	8.2
505.8	243.2	10.3	49.6	9.5	96.2	50.0	40.2	93.2	43.6	42.6	28.2	24.2	4.0	44.6
110.8	40.6	5.7	10.9	2.3	10.0	6.3	2.4	21.9	13.7	23.3	8.7	7.8	.9	10.0
12.8	5.6	.6	1.6	.3	2.1	1.7	1.1	.2	.2	2.1	2.6	2.5	.1	.6
9.9	8.3	2.7	1.5	2.5	.5	.4	.1	.2	.2	.5	.1	.1	5/	.4
49.4	19.5	1.8	5.4	.6	8.5	5.5	4.3	3.9	2.5	4.2	12.4	10.5	1.9	3.9
18.0	12.6	.6	4.3	2.4	5.4	1.3	1.2	.2	.1	.6	.1	.1	5/	1.2
22.3	10.8	.9	3.7	.6	3.6	1.3	.9	2.1	1.4	2.8	3.8	3.3	.5	1.5
41.0	32.5	2.2	4.6	1.1	8.5	1.3	.6	1.5	1.2	2.4	.8	.6	.2	2.5
110.1	20.4	1.6	5.3	.9	8.3	8.8	5.3	4.1	2.7	37.5	31.5	28.6	2.9	7.8
1,495.1	474.0	32.5	103.9	22.7	188.0	96.3	69.1	137.3	67.6	257.9	440.0	424.8	15.2	82.6

Japan's exports differed very substantially from its imports. Whereas the latter were predominantly raw materials for use in the industries of Japan, the former consisted largely of manufactured materials. Foodstuffs was an important group in both the import and the export trades, but while imports consisted mainly of rice and other grains, exports were largely fish and manufactured fish products, especially canned goods. The textiles group was also important in both trades. Raw cotton and wool were the major textile imports, but silk and partly and fully manufactured textiles, including clothing, comprised a large part of the exports. While the textile group represented a very large proportion of the total value of Japan's exports, in relation to shipping space its requirements were much less than for many other cheaper commodities entering into the export trade. (See table 14.)

In general, therefore, it appears from tables 13 and 14 that while Japan had a slight export balance of merchandise trade in terms of value in 1938, its requirements for shipping were probably much greater for the import trade than for the export trade.

This conclusion is even more apparent from a consideration of the tonnage of the import and export trade of Japan (see table 15). In the period 1933-37 imports carried on a weight basis exceeded exports carried on the same basis by 12 million tons, while the imports carried on a volume basis exceeded exports by 5.6 million tons. In fact, during the 12-year period from 1928 to 1939, the nature of the foreign trade of Japan also changed materially. The latter half of this period, particularly, was characterized by a considerable increase in the importation of raw materials and the exportation of finished manufactures. This is evidenced by table 16, where a radical increase in weight tons of imports and a corresponding increase of volume tons of exports is shown. ^{1/} The raw materials, by and large, inclined to rather heavy dense commodities, whereas the finished manufactures tended towards bulky goods of low density per cubic foot.

For example, during the period 1933-37, imports of commodities carried on a weight basis totaled 14.2 million metric tons as compared with 3.9 million tons for the 5 years 1928 to 1932--an increase of about 5 million tons. This compares with an increase of only about 1 million tons in the importation of commodities carried on a volume basis. This change is the result mainly of a large increase in the importation of "ores and metals," and "minerals and manufactures." On the other hand, in the period 1933 to 1937 exports of commodities carried on a weight basis showed an absolute decline of almost 200,000 tons, while exports of commodities carried on a volume basis increased by 3 million tons. The chief reason for the change in the totals was the greater proportion of textile manufactures, metal manufactures, and foodstuffs (largely canned goods) exported in the more recent period.

^{1/} The weight tons and volume tons in tables 15 and 16 are not equivalent, but jointly represent the quantity of Japan's trade. The source material does not so state, but the "weight" columns probably represent the weight of commodities on which the steamship lines assessed freight rates on a "per ton" basis, and the "volume" columns the cubic measurement, expressed in volume tons of 40 cubic feet, of commodities on which the lines assessed freight charges on the "per 40 cubic feet" basis.

Table 15.--Japan: Tonnage of merchandise trade, annual, 1928-39, and averages, 1928-32 and 1933-37

Year	Exports		Imports	
	By weight	By volume	By weight	By volume
	1,000 tons ^{1/}	1,000 tons ^{2/}	1,000 tons ^{1/}	1,000 tons ^{2/}
1928 ---:	2,448	3,443	8,555	9,868
1929 ---:	2,442	3,764	10,218	10,963
1930 ---:	2,533	3,713	9,043	9,591
1931 ---:	1,938	3,356	8,006	10,257
1932 ---:	1,889	4,067	8,177	9,556
Average,:				
1928-32:	2,250	3,669	8,800	10,047
1933 ---:	2,248	5,059	10,360	9,599
1934 ---:	1,881	6,384	12,284	10,769
1935 ---:	1,948	7,097	14,795	11,461
1936 ---:	2,216	7,248	15,825	12,079
1937 ---:	2,024	7,620	17,703	12,577
Average,:				
1933-37:	2,063	6,682	14,193	11,297
1938 ---:	2,798	7,327	13,869	9,746
1939 ---:	2,077	9,245	17,150	10,343

^{1/} Weight ton = 2,240 pounds.

^{2/} Volume ton = 40 cubic feet.

Source: Monthly Return of the Foreign Trade of Japan.

Table 16.- Tonnes of merchandise exported from and imported into Japan ^{1/}
5-year averages, 1928-32 and 1933-37

Commodity group	Average, 1928-32				Average, 1933-37			
	Exports		Imports		Exports		Imports	
	Weight Tons	Volume Tons	Weight Tons	Volume Tons	Weight Tons	Volume Tons	Weight Tons	Volume Tons
Grains, flours and seeds	92,865	217,120	675,286	1,229,453	79,601	265,717	489,493	1,144,400
Beverages, comestibles and tobacco	64,926	492,364	342,083	609,492	46,853	894,482	1,050,934	371,542
Skins, hairs, bones, horns, teeth, tusks, shells and manufactures thereof	66	5,696	5,199	159,720	77	14,124	4,452	168,351
Oils, fats, waxes and manufactures thereof	20,821	77,687	205,939	1,802,426	2/ 29,365	2/ 184,020	2/ 391,460	2/ 3,006,778
Drugs, chemicals and medicines	27,384	119,682	161,732	379,363	72,033	258,128	174,787	475,851
Dyes, pigments, coatings and filling matters	11,499	25,712	8,814	54,839	17,509	68,033	3,150	47,254
Yarns, threads, twines, cordages, and materials thereof	22,433	160,805	49,437	1,584,744	20,987	221,320	55,655	2,348,536
Tissues and manufactures thereof	7,480	624,568	722	38,027	11,140	1,014,526	1,754	43,473
Clothing and accessories thereof	4	134,148	1	2,510	1	276,201	-	3,883
Papers, paper manufactures, books and pictures	4,730	149,817	29,004	105,790	8,414	220,448	84,909	202,344
Minerals and manufactures thereof	1,897,590	399,664	3,382,072	188,226	1,273,863	579,265	5,220,056	136,474
Potteries and glass	2,146	416,601	4,039	50,227	6,907	745,702	8,670	27,726
Ores and metals	96,800	13,052	3,159,179	219,300	2/ 369,760	2/ 61,481	2/ 5,479,157	2/ 166,022
Metal manufactures	23,148	87,189	29,179	53,199	65,550	229,833	10,624	23,989
Clocks, watches, scientific instruments and machinery	7,549	91,810	26,216	328,135	2/ 18,815	2/ 290,518	2/ 36,472	2/ 275,245
Miscellaneous articles	21,366	722,634	877,945	3,436,702	3/ 125,966	3/ 1,464,064	3/ 2,363,182	3/ 3,544,776
Total	2,300,807	3,738,549	8,956,847	10,242,153	2,063,252	6,681,660	14,193,336	11,297,037

^{1/} Does not include trade with Korea and Formosa.

^{2/} Average 1933-36.

^{3/} Includes "Oils, fats, waxes and manufactures thereof"; "Ores and metals"; and "Clocks, watches, scientific instruments and machinery," in 1937. These commodities were not separately reported in 1937.

Source: Monthly Return of the Foreign Trade of Japan, 1928-37.

Note.- Weight ton = 2,240 pounds; Volume ton = 40 cubic feet.

The steamship routes shown on the world map in the summary and conclusion probably include all overseas routes of consequence served by Japanese flag line operators before World War II. Even if satisfactory data were available, specific analyses of all of these routes is unwarranted; accordingly such analyses are limited to those overseas vessel routes deemed of most importance. These are the steamship routes served by Japanese steamship lines between Japan and (1) the United States, (2) Latin America, (3) Europe, (4) British India, (5) Philippine Islands, (6) Netherlands Indies, (7) Australia, and (8) South and East Africa. These routes are discussed in the following sections in some detail as to numbers of vessels engaged and their gross tonnage and nationality, as are the more important commodities or commodity groups transported over each route.

Japan-United States shipping

From the point of view of direct interest to the United States, the route between Japan and North America was the most important trade in which Japanese shipping lines engaged before the war. Table 17 shows the names of the Japanese lines in that trade and the lines with which they competed during the immediate prewar period. The number and gross tonnage of the vessels employed are shown by lines, according to the particular United States coastal areas served, i.e., the Pacific, Atlantic, and Gulf ranges of ports.

Japanese lines operated almost one-half of the ships and tonnage employed in the liner trade between Japanese and American ports during the prewar period. In numbers of ships Great Britain was in second place with 19 percent of the total and the United States was third with 14 percent. On the basis of vessel tonnage, however, the United States was ahead of Great Britain by a very slight margin. Services were provided by seven Japanese lines, six American, five British, two Norwegian, one German, one Swedish, and one Danish.

After eliminating all known duplications arising through vessels calling at more than one of the three major ranges of ports in the United States, it appears that a total of 236 vessels of nearly 1.7 million gross tons were employed in the prewar liner trade between Japan and the United States. The Pacific coast accounted for 102 ships of 823,490 gross tons, the Atlantic for 110 ships of 726,242 tons, and the Gulf for 24 ships of 119,908 gross tons.

Regular liner services constituted only a part of the total shipping service between Japan and the United States, as tramps and tankers were also of considerable importance.^{1/} However, since these latter do not operate on regular scheduled routes, it is not possible to tabulate their services in the same manner as the liners. Their relative importance is shown in Table 18.

The tramps were predominantly of Japanese nationality, with a small number of vessels flying the flag of other countries such as Norway, Greece, etc. Historically, the United States has not participated in tramping operations; consequently this country did not share in the transportation of tramp cargoes. American flag tankers did not engage in the trade of Japan, the traffic being reserved almost exclusively to tankers of Japanese nationality. In the tramp trade, exports from Japan were negligible; imports consisted largely of scrap metal, iron and steel, and lumber. The one-way tanker traffic consisted of imports by Japan of petroleum and petroleum products. Incidentally, Table 18 shows clearly the complete lack of balance between Japan's export and import trade with this country, the ratio on a tonnage basis being 24 to 1 in favor of Japan's imports from the United States.

^{1/} Tramp trade wherever a full cargo offers and do not operate on a regular schedule, and tankers generally operate as industrial carriers, transporting traffic in one direction only and returning in ballast.

Table 17.- Japan/United States shipping: Number and tonnage of vessels, by nationality of line and United States areas served

Nationality and name of line	Pacific Coast		Atlantic Coast		Gulf Coast		Total vessels		Percent of total	
	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons
Japanese										
Nippon Yusen Kaisha	28	261,681	15	113,334	5	34,853	28	261,681		
Including duplications	18	183,200	10	78,481	-	-				
Eliminating duplications	22	121,259	16	89,966	18	100,726				
Kawasaki Kisen Kaisha	10	54,121	16	89,966	2	10,760	28	154,847		
Including duplications	15	125,897	10	84,843	-	-	15	125,897		
Eliminating duplications	5	41,054	10	84,843	-	-				
Osaka Shosen Kaisha	16	98,852	8	53,611	-	-	16	98,852		
Including duplications	16	98,852	-	-	-	-	16	98,852		
Eliminating duplications	(10)	67,301	10	67,301	(10)	67,301				
Kokusai Line	(11)	74,382	11	74,382	(11)	74,382	11	74,382		
Mitsui Line	5	33,073	(5)	33,073	(5)	33,073	5	33,073		
United Ocean Transport Line	107	782,445	75	516,510	49	310,335	113	816,033	47.8	48.8
Total, including duplications	54	410,300	57	394,973	2	10,760				
Total, eliminating duplications										
United States										
American Pioneer Line	7	-	7	41,621	-	-	7	41,621		
American Mail Line	4	60,543	-	-	-	-	4	60,543		
Madrigal Line	3	21,361	-	-	-	-	3	21,361		
States Steamship Line	6	33,966	-	-	-	-	6	33,966		
American President Line	11	135,305	(11)	135,305	-	-	2	15,463		
American Gulf-Orient Line	24	251,175	(2)	15,463	2	15,463	33	308,259	14.0	18.5
Total, including duplications	24	251,175	7	41,621	2	15,463				
Total, eliminating duplications	7	43,243	-	-	(7)	43,243	7	43,243	3.0	2.6
German										
Hamburg American Line	4	19,547	-	-	-	-	4	19,547	1.7	1.2
Swedish										
Norwegian										
Fern Line	(8)	34,225	-	-	8	34,225	8	34,225		
Barber Line	10	67,247	(10)	67,247	-	-	10	67,247		
Total, including duplications	18	101,472	10	67,247	8	34,225	18	101,472	7.6	6.1
Total, eliminating duplications	10	67,247	-	-	8	34,225				
Danish										
Isbrandtsen-Moller Line	(16)	83,951	16	83,951	-	-	16	83,951	6.8	5.0
British										
Blue Funnel Line	3	31,878	11	74,882	-	-	14	106,760		
Prince Line	-	-	5	39,264	-	-	5	39,264		
Barber Line	-	-	4	24,447	-	-	4	24,447		
American-Manchurian Line	-	-	10	67,104	-	-	10	67,104		
Reardon-Smith Line	3	31,878	30	205,697	12	59,460	12	59,460		
Total, including duplications	3	31,878	30	205,697	12	59,460	45	297,035	19.1	17.8
Total, eliminating duplications	179	1,313,711	151	1,065,794	78	462,726	408	2,842,231		
Total, all lines, eliminating duplications	102	823,390	110	726,242	24	119,908	236	1,669,540	100.0	100.0

All known duplications have been excluded from the total.
 The Barber Line operated both Norwegian and British flag vessels, and this accounts for its being shown under two nationalities.
 Note: The figures in parentheses indicate that the vessels and tonnage so represented served the particular area indicated secondarily, the principal service being indicated elsewhere without parentheses. In other cases, where more than one route was served by a single company, the duplication has been eliminated in the totals, as indicated.

Table 18.- Japan-United States trade by type of carrying vessel, 1938

Type of carrier	Imports		Exports	
	Tonnage	Percent	Tonnage	Percent
Liners -----	1,721,300	23.3	254,200	83.1
Tramps -----	1,346,465	18.3	13,954	4.6
Tankers -----	4,304,908	58.4	37,599	12.3
Total -----	7,372,473	100.0	305,753	100.0

Source: United States Maritime Commission.

Referring to the liner trade, Japan's imports from the United States in that type of carrier were almost 7 times as great as its exports to the United States in liner type vessels. Moreover, 63 percent of the imports and 92 percent of the exports were transported in Japanese flag liners. (See table 19.) The overall perspective obtained by a joint consideration of the liner services and the previously discussed tramp and tanker movements reveals clearly how the ocean carrying trade between Japan and the United States was dominated by the Japanese prior to the war.

Table 19.- Japan-United States liner trade by flag of carrier according to United States port group of arrival and departure, 1938

Flag of carrier	(In long tons)			Total	
	Via Atlantic Ports	Via Gulf Ports	Via Pacific Ports	Tonnage	Percent of total
Imports into Japan					
Japanese -----	469,900	338,800	357,100	1,165,800	67.8
All other -----	177,800	23,200	124,500	325,500	18.2
Total -----	647,700	592,000	481,600	1,721,300	100.0
Exports from Japan					
Japanese -----	142,500	3,800	88,500	234,800	72.7
All other -----	10,000	-	2,400	12,400	3.7
Total -----	152,500	3,800	90,900	247,200	100.0

Source: U. S. Maritime Commission.

Japan's imports from the United States of the principal commodities that moved in the liner trade in 1938 consisted largely of scrap metal, iron and steel and other metals and ores, raw cotton, petroleum and petroleum products, fertilizers, and fertilizer materials. Metals and ores accounted for over 54 percent of the total liner movement. The chief exports to the United States from Japan in 1938 were glassware, chinaware, silk, oils, textiles, teas and spices, and animal, fish, and dairy products. (See table 20.)

Table 20.- Japan: Import and export trade with the United States carried in liners, 1938^{1/}

Imports		Exports	
Commodity	Quantity : Long tons	Commodity	Quantity : Long tons
Metal scrap -----	443,480	Glass, porcelain, and certhenware -----	31,951
Iron and steel -----	328,021	Silk -----	21,583
Metals, other -----	135,905	Oils: animal, fish and vegetable -----	20,255
Ores -----	28,346	Textiles -----	15,379
Petroleum and products --	127,576	Teas and spices -----	8,514
Cotton, unmanufactured --	265,551	Animal, fish and dairy products -----	12,824
Machinery, heavy -----	29,230	Fertilizers -----	13,656
Vehicle -----	6,788	Animal feeds and fodder --	16,562
Fertilizers -----	36,938	Rubber, except rubber goods -----	5,756
Phosphate rock -----	100,843	Fruit and vegetables ----	5,613
All other ^{2/} -----	188,652	Paperstock -----	10,644
		All other ^{3/} -----	91,035
Total -----	1,721,300	Total -----	251,290

^{1/} Includes cargo moving in liner vessels only, tramp steamer and tanker traffic excluded. See text.

^{2/} This represents 11 percent of total imports.

^{3/} This represents 36 percent of total exports.

Source: United States Maritime Commission.

Japan-Latin America shipping

Because of the number of countries involved, and the relative unimportance of the area in the total trade of Japan, Latin America has been considered as a unit rather than by individual countries in indicating the ocean borne traffic between Japan and that area of the world. Japan's trade with the Latin American countries constituted 5.2 percent of the value of its trade with all overseas areas, and only 2.4 percent of the value of its trade with the world.

The principal prewar Japanese steamship services touching at Latin American ports were (1) Kawasaki Kisen Kabushiki Kaisha (K line) from Japan to California, south to Mexico, Central America, West Coast South America, north to Los Angeles, and thence back to Japan; (2) K line round-the-world service calling at East Coast South American ports, United States Gulf ports and returning to Japan via Panama Canal; (3) Nippon Yusen Kaisha from Japan to United States Atlantic and Gulf ports, thence to Pacific coast ports via Panama Canal, thence to Canal Zone, Curacao, Puerto Cabello, La Guaira, Havana, and returning to Japan; (4) N.Y.K. line, practically duplicating service number 1 of the K line; (5) Osaka Shosen Kaisha round-the-world service from Japan to India, South Africa, East Coast South America, Pacific coast of the United States via Panama Canal, and returning to Japan; and (6) Yamashita line from Japan to the United States Pacific coast, Canal Zone, United States Atlantic ports, the West Coast of South America, back to California via Panama Canal, and thence returning to Japan. (See Map 1.)

None of the services mentioned operated directly from Japan to Latin American countries but were via the ports of other countries. No table has been prepared showing detail of vessels and tonnage inasmuch as these data are included in table 17, which lists services between Japan and the United States. The Japanese lines had no direct liner competition and such indirect competition as existed was inconsequential. There were probably some tramp operations in the grain trade from the River Plate and in the nitrate and copper trades from Chile to Japan, but there were no advertised liner services in competition with the Japanese lines.

Table 14 indicates that textiles comprised 75 percent of the total value of all exports from Japan to Latin America in 1938. In table 13, covering imports into Japan from Latin America during the same year, the more important groups were textiles (chiefly raw cotton and raw wool), ores and metals (principally ores containing gold, silver, and copper), hides and skins, and drugs, chemicals (largely tanning materials), and medicines. These commodity groups accounted, by value, for 55, 16, 9, and 3 percent respectively, of total imports into Japan from Latin America.

The source material from which tables 13 and 14 were prepared was reviewed to ascertain the importance of the individual Latin American countries with respect to trade with Japan. The percentage distribution by value of the trade between Japan and the Latin American countries is shown in table 21.

Table 21.- Japan: Apportionment of trade with Latin American countries, 1938

Country	Imports into Japan	Exports from Japan	Total trade
	Percent of total	Percent	Percent of total
Brazil -----	47.1	11.6	30.1
Argentina -----	24.8	21.9	23.4
Chile -----	11.4	6.8	9.2
Sub-total -----	83.3	40.3	62.7
Mexico -----	4.8	5.9	5.3
Peru -----	2.0	6.4	4.1
Venezuela -----	1.5	6.1	3.7
Panama -----	-	6.8	3.3
Curacao -----	-	6.0	2.9
All other -----	8.4	28.5	18.0
Total -----	100.0	100.0	100.0

Source: Computed by the U. S. Tariff Commission from Annual Returns of the Foreign Trade of Japan, 1938, Vol. 2.

The A B C group of countries (Argentina, Brazil, and Chile) accounted for 63 percent of Japan's total export-import trade with Latin America in 1938. Over 83 percent of Japan's imports from Latin America were from these three countries, while all other Latin American countries accounted for the remaining 17 percent. This trade concentration was not so great in the case of exports from Japan, the A B C group taking only 40 percent while the remaining 60 percent was divided among all other Latin American countries.

Imports from Brazil constituted in value well over half of Japan's imports from Latin American sources. Imports from Brazil are mostly raw cotton, with coffee, of considerably less value, being the second most important item. In quantitative terms, these two commodities aggregated about 57,000 tons in 1938. Argentina was second in terms of value in the import trade of Japan with Latin America. However, imports from Argentina weighed 50,000 tons, and were in this respect nearly equal to imports from Brazil. Grain,

hides and skins, wool, and quebracho extract accounted for nearly 85 percent by value of the imports into Japan from Argentina. Grain was the principal tonnage item. While in terms of value Chile was the third most important of the Latin American countries engaging in the import trade of Japan, in terms of tonnage Chile ranked first. The outstanding commodities were nitrate of soda, and ores containing copper, gold, and silver. The nitrate aggregated 26,000 tons and the ores nearly 65,000 tons.

Argentina was Japan's largest market in Latin America. Grey cotton cloth alone comprised about 75 percent of the total value of the exports to Argentina in 1938; this single commodity totaled about 8,300 tons by weight. Textiles comprised about 85 percent of Japan's exports to Chile in 1938. Tissues and fabrics, by far the largest type of textiles sent to Chile, weighed about 2,800 tons. Similarly, textiles comprised about 60 percent by value of the exports to Brazil; the outstanding type of textiles exported in this case was yarns, which weighed about 700 tons.

Japan-Europe shipping

The vessels of various flags engaged in trade between Japan and European countries before the war relied for the most part on traffic originating and terminating at their home ports. Most of the vessels served some intermediate ports en route. In both numbers of vessels and gross tonnage, the ships operated by Japan exceeded those of any other nationality, with the Germans in second place, and the British third. American participation in the trade was incidental, being confined to the round-the-world ships of the Dollar Line which made calls at French and Italian Mediterranean ports on their homeward itineraries. (See table 22.)

Between Japan and the United Kingdom the most nearly comparable services were those of the Nippon Yusen Kaisha and the British Peninsula and Oriental Line each of which offered fortnightly passenger and mail services between Japan and London, and the British Blue Funnel Line and the Nippon Yusen Kaisha with monthly freight services between Japan and Liverpool. The ships in the trade totaled 31, averaged 11,800 gross tons each, aggregated 366,185 gross tons, and provided 77 sailings per year in each direction. (This excludes the Yamashita Line because of the irregularity of its service.)

In the trade between Japan and Germany, the North German Lloyd and the Hamburg-American Line combined to give shippers a weekly service, supplemented by monthly services by the Nippon Yusen Kaisha, Wilhelmsen Line (Norwegian), East Asiatic Line (Danish), and Swedish East Asiatic Line (Swedish). Irregular service was also offered by the Yamashita Line. The total liner vessels in this trade numbered 58, averaged slightly less than 8,000 gross tons each, and totaled 504,151 gross tons. Regularly scheduled sailings numbered 100 in each direction in 1938.

Between Japan and France, the French Messageries Maritime, having Marseilles as its home port, maintained a fortnightly service, with the Japanese lines furnishing the chief competition. The comparatively small amount of traffic that moved between the two countries probably did not warrant a great deal of competition by other steamship lines.

The Danish, Swedish, and Norwegian lines previously mentioned provided regular services between Scandinavian countries and Japan, and the Nippon Yusen Kaisha served the area irregularly. Subject to sufficient cargo inducement, the German lines also called occasionally at Scandinavian ports.

Most of the trade between Japan and Belgium, Holland, and interior Europe entered and cleared through Antwerp, Rotterdam, and Hamburg, with the Adriatic ports of Trieste and Fiume accounting for a much smaller percentage. Among the various European countries in this group, Holland was the only one with its own line in the Japanese trade. However, since much of the trade necessarily involved transshipment, most of the lines in the Japan-Europe trade probably participated.

Table 22.-- Japan-Europe shipping: Advertised services via Singapore, India, and Suez, 1938-39

Nationality	Names of Lines	Vessels			Sailings		
		Number of total	Percent of total	Gross tons	Percent of total	Per year	
Japanese	Nippon Yusen Kaisha:	10	8.8	106,860	10.0	26	
	London service	7	6.1	48,915	4.6	12	
	Hamburg service	5	4.3	35,423	3.3	12	
	Liverpool service	5	4.3	25,916	2.4	Irregular	
	Genoa, Antwerp and Scandinavian service	7	6.0	43,644	4.1	Irregular	
Japanese	Yamashita Line:	34	29.5	260,758	24.4	50	
	Antwerp, Hamburg, London	17	14.9	167,288	15.7	38	
German	Total Japanese	11	9.6	82,655	7.8	14	
	North German Lloyd:	28	24.5	249,943	23.5	52	
German	Hamburg-American Line:	11	9.6	168,837	15.8	26	
	Total German	5	4.3	55,066	5.2	13	
British	Peninsula & Oriental S.N.C.:	16	13.9	223,902	21.0	39	
	Blue Funnel Line:	9	7.9	126,420	11.8	26	
French	Total British	9	7.9	61,122	5.7	12	
	Messageries Maritimes	9	7.9	57,274	5.4	12	
Norwegian	Wilhelmsen Line	7	6.0	44,658	4.2	12	
	East Asiatic Lines	7	6.0	42,239	4.0	12	
Danish	Swedish East Asiatic Line	5	4.3	1,066,316	100.0	215	
	Holland East Asiatic Line	115	100.0				
Swedish	Grand total						
	Dutch						

Note.-- Eight (8) vessels of the Dollar Lines round-the-world service totaling 86,193 gross tons, also operated in this trade. They were largely homeward bound from Japan and called at French and Italian Mediterranean ports. They are not listed here because data covering them are included in the table showing Japan-U.S.A. steamship services.

Source: Compiled by U. S. Tariff Commission.

As to the commodities moving in the Japan-Europe trade, Germany supplied nearly one-half by value of Japan's imports from Europe, while the United Kingdom received over 50 percent of Japan's exports to Europe. These two countries accounted for 63 percent of the total trade of Japan with Europe. Individually, France was third in importance, but was fourth if the four Scandinavian countries are considered as a unit. The remaining 19 percent of the trade was divided chiefly among the interior countries such as Switzerland, Austria, and Czechoslovakia, and the low countries, Belgium and the Netherlands. (See table 23.)

Table 25.- Japan: Trade with principal European countries or areas, 1938

(Value in millions and tenths of millions of yen, i.e. 100,000 omitted)

Country or area	Imports		Exports		Total trade	
	Value	Percent of total	Value	Percent of total	Value	Percent of total
Germany	170.9	45.5	32.9	12.7	203.8	32.2
United Kingdom	62.9	16.3	132.8	51.5	195.7	30.9
Scandinavia ^{1/}	44.5	11.8	17.6	6.7	62.1	9.8
France	13.2	3.5	36.6	14.2	49.8	7.9
Interior Europe ^{2/}	43.9	11.8	2.1	.9	44.0	7.2
Low countries ^{3/}	19.3	5.1	21.5	8.4	40.8	6.4
All other	20.5	5.5	14.4	5.6	36.9	5.6
Total	375.2	100.0	257.9	100.0	633.1	100.0

^{1/} Includes Sweden, 5.1; Norway, 3.2; Finland, 1.1; and Denmark 0.4 percent.

^{2/} Includes Switzerland, 4.9; Austria, 1.7; and Czechoslovakia, 0.4 percent.

^{3/} Includes Belgium-Luxemburg, 4.0 percent and the Netherlands 2.4 percent.

Source: Annual return of Foreign Trade of Japan.

Based on data respecting commodities for which both weight and value figures were published, Japan's imports from Germany in 1938 are estimated at approximately 560,000 tons and its exports to Germany at 71,000 tons. Imports consisted of about 240,000 tons of fertilizers, 155,000 tons of ores and metals, 75,000 tons of machinery, and 90,000 tons of other miscellaneous cargo. Among the more important Japanese exports were 19,000 tons of oils and waxes, 11,500 tons of beans and peas, 10,500 tons of fish meal, and 4,500 tons of textiles. These four commodities or commodity groups, in terms of value, represented over 50 percent of the total value of all exports from Japan to Germany in 1938. (Lack of detailed information prevents the estimating of a greater percentage.)

The disparity tonnage-wise between Japan's imports from and exports to Germany, 88.7 and 11.3 percent respectively, of the total trade, in tons, doubtless caused some difficulties in practical steamship operation. The scarcity of outward cargoes from Japan to Germany was probably offset to some extent, however, by the acceptance of cargo in Japan for destinations other than Germany which could be discharged en route or at German ports for transshipment.

The trade between Japan and the United Kingdom in 1938 was valued at only 1.3 percent less than the trade between Japan and Germany. Whereas, however, Japan imported far more goods from Germany than it exported to that country, in the case of the United Kingdom the flow of traffic was reversed, Japan exporting to the United Kingdom goods valued at more than twice those imported from that country. Based on statistics relating to commodities for which both weight and value figures were published, total exports from Japan to the United Kingdom in 1938 are estimated at about 167,000 metric tons. The principal commodities exported were canned goods (largely marine products) estimated at about 55,000 tons, lumber and timber 20,000 tons, beans and peas 12,000 tons, oils and waxes 7,000 tons, textiles 5,500 tons, veneer 5,000 tons, rugs 4,000 tons, and various miscellaneous commodities 58,500 tons. The total weight of Japan's imports from the United Kingdom in 1938 are estimated at approximately 65,000 metric tons. The principal commodities were ores and metals 38,650 tons, machinery and instruments 11,700 tons, chloride of potash 1,500 tons, and various miscellaneous items totaling about 12,300 tons. In terms of value the machinery and instruments accounted for over 60 percent of the total value of all commodities.

In terms of cargo tonnage, Japan's exports to the United Kingdom accounted for 72 percent and imports 28 percent of its total trade with that country in 1938. While this represents a slight improvement over the cargo tonnage situation that prevailed with respect to Japan's trade with Germany, it nevertheless reflects a very decided lack of balance between export and import cargoes. However, since the outward lines from the United Kingdom were in position to offer space to India, Netherlands Indies, the Philippines, and China en route to Japan, they probably obtained sufficient tonnage for other destinations to offset the lack of cargo for Japan.

In 1938, Japan exported to France merchandise valued at 36.8 million yen, and imported goods valued at 13.5 million yen. Raw silk, silk waste, and other textiles, totaling 2,475 metric tons accounted for 73 percent of the value of all exports to France. The other principal exports were canned goods 2,819 tons, oils and waxes 1,321 tons, and kidney beans 1,295 tons. In terms of value these four commodities or commodity groups comprised 82 percent of the total exports from Japan to France in 1938. The tonnage was very small in comparison with the value, chiefly because of the high value of the raw silk shipments. The principal commodities on the list of Japan's imports from France in 1938 were ores and metals 32,348 metric tons, fertilizers 16,677 tons, chemicals 6,658 tons, and argols (arabic tartar) 761 tons.

The French flag line, Messageries Maritimes, probably carried the bulk of Japan's imports from France because of the superior service offered. It is even more likely that the Japanese line carried the major portion of Japan's exports to France. This conclusion is reached because these exports consisted largely of raw silk which, because of its value, yields a high freight revenue to the carrier. (High-value commodities are frequently carried on an ad valorem basis.)

The Scandinavian countries (here comprising Sweden, Norway, Finland, and Denmark) accounted for 11.8 percent of Japan's imports from Europe in 1938, and for 6.7 percent of its exports. With respect to trade with Japan, Sweden and Norway were the most important of the four countries in the Scandinavian group. The principal imports from Sweden were: woodpulp 25,000 metric tons, ores and metals 16,000 tons, machinery 3,000 tons, and paper and paper products nearly 2,000 tons. From Norway Japan imported 15,400 tons of woodpulp, 4,400 tons of ores and metals, 1,000 tons of paper and paper manufactures, and small quantities of other merchandise. Among Japan's more important exports to Sweden were: 1,876 metric tons of textiles, 524 tons of oils and waxes, and 300 tons of canned goods. Among the exports to Norway were: oilcake 4,757 tons, oils and waxes 4,124 tons, textiles 700 tons, peas 277 tons, fishing nets 190 tons, and bamboo 110 tons. The trade of Finland and Denmark with Japan has not been analysed commodity-wise because it was negligible in quantity.

Most of the trade between Japan and Belgium, Holland, and interior countries of Europe was handled through the port of Hamburg, Rotterdam, and Antwerp; comparatively small quantities moved via the Adriatic ports of Trieste and Fiume. The quantities were not sufficient to warrant individual country analyses. Switzerland was perhaps the most important of these countries, exporting to Japan considerable high-valued merchandise such as instruments, watches, and the like. The ports of the low countries of Belgium and the Netherlands served a large part of the hinterland of Northern Europe and their 6.4 percent share of the total trade of Japan with Europe in 1938, as shown in table 23, quite possibly included a portion of this entrepôt trade as well as their own trade with Japan.

Much of the traffic mentioned above was destined for or originated at interior points in Europe and moved under through freight billing arrangements which enabled shippers to control the routing in many instances. Shipper preference in these instances, therefore, probably influenced, to a larger extent than elsewhere, the movement of goods via vessels of specified nationalities.

Japan-British India shipping ^{1/}

Table 24 shows the principal steamship services that were being operated in the direct trade between Japan and British India prior to the beginning of World War II. These services are in addition to those listed in table 22 covering the Japan-Europe trade routes, most of the lines in which trades served Indian ports en route. One of the latter services, the British Peninsular and Oriental Line, was one of the pioneers in the trade.

Table 24.- Japan-India Shipping: Advertised services, 1938-39 ^{1/}

Flag of carrier	Name of line	Number of ships	Percent of total	Gross tonnage	Percent of total	Frequency of sailings
Japanese	<u>Nippon Yusen Kaisha:</u>					
	Bombay line	8	21.1	55,793	23.7	Fortnightly
	Calcutta line	8	21.1	39,370	16.8	Monthly
	<u>Osaka Shosen Kaisha:</u>					
	Bombay line	5	13.2	33,211	14.1	Fortnightly
	Calcutta line	6	15.8	33,691	14.4	Fortnightly
	<u>Kokusai Kisen Kaisha:</u>	Not available				
	Total Japanese ^{2/}	27	71.1	162,065	69.0	7 per month
British	<u>British India Steam-</u>					
	<u>Navigation Co.</u>					
	Calcutta line	5	13.1	43,346	18.5	Fortnightly
	<u>Indo-China Steam-</u>					
<u>Navigation Co.</u>						
Calcutta line	6	15.8	29,297	12.5	Fortnightly	
	Total British	11	28.9	72,643	31.0	4 per month
	Grand total	38	100.0	234,708	100.0	11 per month

^{1/} Exclusive of lines that served Europe with stops en route in India, shown in table 22.

^{2/} Excludes the Kokusai Kisen Kaisha for which data are not available.

Source: Compiled by United States Tariff Commission.

^{1/} For the historical data respecting vessel services and apportionment of cargo tonnage extensive use was made of the 35th Report of the Imperial Shipping Committee, "British Shipping in the Orient," London, 1939.

The trade between Japan and India began to assume significant proportions very soon after Japan was opened to trade in the latter half of the last century. There were two distinct trade routes, one to and from Bombay, and the other to and from Calcutta; the former was developed first.

At the outset the Bombay-Japan traffic was handled exclusively by the British Peninsular and Oriental Line, but after 1888 it was divided with the Navigazione Generale Italiana and the Austrian Lloyd Lines on the basis of two-thirds for the British line and one-sixth each for the Italian and Austrian lines. This arrangement held until 1896 when the Japanese Nippon Yusen Kaisha line was admitted to the Bombay-Japan Steamship Conference with an 18 percent share, taken wholly from the British line's proportion. In 1913 another Japanese line, the Osaka Shosen Kaisha, was admitted and traffic shares were adjusted on the basis of 28 percent British, 28 percent Nippon Yusen Kaisha, 12 percent Osaka Shosen Kaisha, and 16 percent each for Italy and Austria. These latter two subsequently withdrew and in 1921 shares of traffic were apportioned one-third British, and one-third each for the two Japanese lines. In 1925 the Kokusai Kisen Kaisha (Japanese) was admitted to participation but without any guaranteed proportion of the traffic. A revision of the arrangement took place in 1928 providing for 36 sailings per year each for the British line, the Nippon Yusen Kaisha, and the Osaka Shosen Kaisha, and allowing the Kokusai Kisen Kaisha 12 sailings from Bombay per year. ^{1/} This agreement was still in existence in 1939.

The Calcutta trade with Japan was carried entirely by British vessels until 1911 when the Japanese Nippon Yusen Kaisha started a service and began drastically cutting rates in order to get a foothold in the trade. A deputation was sent to Japan to try to reach an agreement but without success. The withdrawal of British shipping during World War I enabled the Japanese line to consolidate its position and led to the formation of the Calcutta-Japan Conference in 1918. The British India Steam Navigation Company and the Indo-China Steam Navigation Company (British) were allowed 52 sailings jointly per year, and the Nippon Yusen Kaisha 26 sailings yearly. In 1921 the Osaka Shosen Kaisha entered the trade at cut rates and was subsequently admitted to conference membership in 1924. Sailings were apportioned 36 per annum for each of the two British lines and the Nippon Yusen Kaisha, and 12 per annum for the Osaka Shosen Kaisha. In 1928 this arrangement was modified to give the Osaka Shosen Kaisha 24 sailings per year. This agreement was still in force when World War II began, with a total of 72 sailings for the British and 60 for the Japanese. This exceeded the requirements of the trade during the recent depression, but the Japanese lines refused to rationalize and even exceeded their proportion of agreed sailings.

^{1/} Only 2 ships of the Kokusai Kisen Kaisha line were permitted to unload cargo at Bombay.

Table 24 shows that the British provided about 30 percent of the direct Japan-India ship tonnage and the Japanese about 70 percent in 1938. This is somewhat disproportionate to the amount of cargo carried under each flag inasmuch as the British liner carried only about 20 percent from Bombay and 15 percent to Bombay, with the Japanese carrying 80 percent and 85 percent respectively. The lack of similar percentage apportionment by flag of carrier for the trade between Calcutta and Japan is probably due to the fact that from the standpoint of tonnage exported, Calcutta is of less importance than Bombay. (The latter is the principal cotton shipping port of India.) On the basis of the sailings permitted under each flag, however, the corresponding cargo proportions would have been about 55 percent for the British and 45 percent for the Japanese.

The details of the principal imports and exports in the trade of Japan with India indicate a fairly well-balanced trade, both as to tonnage and value, with the balance slightly in favor of Japan. (See table 15.) This condition is particularly true of 1938, however, because of the curtailment of cotton imports by Japan that year for the purpose of conserving foreign exchange, and should not be assumed as wholly representative of other periods.

Cotton was the principal import, by weight, into Japan from India in 1938 and represented 66 percent of total imports in terms of value. The quantity shipped, however, 186,000 metric tons, was less than half the yearly totals shipped in 1935 and 1937. Japan's exports to India were more varied in character; the principal items consisted of various textiles aggregating about 73,000 metric tons, logs, lumber and veneer totaling approximately 38,000 metric tons, and a total of about 16,000 metric tons of ores and metals. These three groups accounted for approximately 70 percent of the total exports in terms of value.

Vessels in the liner trade apparently were sufficient in number to discourage any attempt on the part of tramp tonnage to break into the import trade as there is no evidence of tramp participation. The only commodity likely to have been of interest to tramp tonnage was cotton, and since this was the most important single commodity moving, freight rates were probably adjusted by the liners whenever tramp competition threatened, with the result that the regular liners were able to retain this traffic for themselves. In the one all-direction (exports from Japan) there were no commodities that moved in sufficient volume to attract tramp tonnage. Attention is called to the absence of tramp vessels in the Japan-India trade because it is unusual to find a complete lack of this type of vessel operation in an important trade.

Table 25.- Japan: Import and export trade with India,
by principal commodities, 1938 ^{1/}

Imports	Quantity	Value	Exports	Quantity	Value
	Metric tons	1,000 yen		Metric tons	1,000 yen
Cotton, ginned -----	185,765	110,331	Tissues, cotton ----	53,285	67,878
Leather, sheep and goat -----	20,176	1,088	Ores and metals ----	15,873	5,346
Jute -----	9,931	3,244	Yarns and threads --	14,007	36,140
Coal -----	3,190	47	Pastboard -----	10,260	929
Animal sinews ----	2,620	573	Window and plate glass -----	8,327	642
Tanning materials ----	2,553	262	Machinery, parts and accessories --	5,465	5,430
Plant fibers -----	2,217	525	Tissues, other than cotton -----	5,451	23,070
Indian corn -----	1,078	100	Sulphur -----	5,102	454
Gunny bags -----	1,038	371	Chemicals -----	5,079	2,827
Shellac -----	903	678	Building tile ----	4,299	597
Kidney beans -----	789	70	Cement -----	3,380	65
Castor seed -----	711	161	Beer -----	2,414	639
Oilcake (rapeseed) ----	610	47	Flour, meal, and starches -----	2,376	313
Plumbago -----	361	114	Fertilizer materials:	2,248	252
Hides and skins -----	204	205	Iron mfrs. other than furniture --	2,001	1,377
Jute tissues -----	68	40	Paints and dyes --	1,674	1,016
			Veneer -----	1,450	301
			School slates ----	1,393	295
			Cycle parts and accessories ----	1,139	988
			Enamelled iron-ware	1,000	530
			Tar, all kinds ----	925	599
			Pottery -----	896	154
			Bricks -----	853	91
			Hardened oil ----	793	153
			Appliances -----	375	69
			Latex tires and tubes	358	572
			Figured wood or cutting -----	344	314

Table 25.- Japan: Import and export trade with India,
by principal commodities, 1938 ^{1/}—Continued

Imports	Quantity	Value	Exports	Quantity	Value
	Metric tons	1,000 yen		Metric tons	1,000 yen
			Confectionery -----	274	132
			Comestibles in tins and bottles	257	95
			Iron furniture -----	191	216
Total, commodities listed -----	232,214	120,856	Total, commodities listed -----	151,429	151,514
Total imports -----		171,712	Total exports -----		134,923
Commodities listed, percent of total imports:		70.4	Commodities listed, percent of total exports -----		80.5

^{1/} Commodities were chosen on the basis of their weight or apparent bulk rather than value; the list does not include certain principal items for which weight is not available, and could not be derived.

Source: Annual Return of the Foreign Trade of Japan, 1938, Vol. 2.

Note.-- Quantity data for certain commodities were obtained by conversions as follows: jute tissues at 9½ oz. per sq. yd., cotton, artificial silk, and staple fiber tissues at 4 sq. yds. to 1 lb., woolen tissues at 6 oz. per sq. yd., woollen worsteds at 10 oz. per sq. yd., silk tissues at 7 sq. yds. per lb., window glass at 1.16 lbs. per sq. ft., plate glass at 3 lbs. per sq. ft. (based on ½" size), beer at 47.654 gals. per Koku (liquid) and 8.6 lbs. per gal., soap at 4-5 oz. to 1 bar and 4 lbs. per doz., figured mats or mattings at 30 lbs. per roll and ½ lb. per sheet, and veneer at 2.7 sq. ft. to 1 kin (1.32277 lbs.).

Japan-Philippine Islands shipping

In table 26 the services of the principal steamship lines serving the trade between Japan and the Philippine Islands in the period immediately before the war are shown. The lines listed, all Japanese, employed a total of 13 vessels of 63,396 gross tons and for the most part confined their operations to this particular trade. The trade was also served by various other lines in the Far East-Europe and Far East-North American trades. (See footnote to table 26.) It must be emphasized that the liner trade was relatively unimportant between Japan and the Philippines, the bulk of the traffic being handled by tramp vessels under charter.

Table 15.- Japan-Philippine Islands shipping:
Advertised services, 1938-39 ^{1/}

Flag of carrier :	Name of line	Number of vessels :	Gross tonnage :	Frequency of sailings :
Japanese :	Nippon Yusen Kaisha	3	13,214	Twice every 3 months
do. :	Yamashita Line	3	16,700	Irregular
do. :	Osaka Shosen Kaisha	3	16,033	Monthly
do. :	Nippon Yusen Kaisha	2	9,308	Monthly
do. :	Mitsui Bussan Kaisha	2	8,141	Weekly
		13	63,396	

^{1/} In addition to these direct lines a large percentage of the many lines in the Far East-Europe and the Far East-North American trades (trans-Pacific) called at Manila, P. I., en route to and from Japan before the war.

Source: Compiled by the U. S. Tariff Commission.

Table 27 shows the principal imports and exports in the trade of Japan with the Philippine Islands in 1938. From the standpoint of quantity, the total of 910,951 tons of iron ore imported was the most important commodity traded in that year. The ore was shipped in chartered vessels, predominantly Japanese, operated for the most part by the Mitsui Bussan Kaisha and the Philippine Iron Works. An occasional Greek or Norwegian tramp was also used in the ore trade. The carrying capacity of the vessels ranged from 6,000 to 8,500 long tons, with the average running to perhaps 7,500 long tons per voyage. On this basis the 1938 ore movement required about 120 voyages or 10 loadings per month.

Table 27.- Japan: Import and export trade with the Philippine Islands, by principal commodities, 1938

(In metric tons)			
Imports ^{1/}			Exports ^{2/}
Iron ore	910,951	Coal	186,799
Lumber and timber	3/ 205,742	Cement	25,041
Manganese ore	49,003	Vegetables	16,420
Manila hemp	37,719	Fish and fish products	9,220
Copper ore	24,200	Cotton and artificial silk	4/ 6,215
McLasses & syrup	18,196	textiles	3,053
Iron and steel	13,900	Wax	2/ 758
Textile fibers	4,916	Broadstuffs	608
Chrome ore	1,925	Wines, spirits, etc.	572
Coira	1,824	Coke	358
Hides and skins	1,292	Fruits and nuts	326
Leaf tobacco	1,134	Dairy products	219
		Tops	
		Paints, pigments and varnishes	
Total	1,270,802	Total	252,179

- ^{1/} Separately listed items represent 99.3 percent of the total, by value.
- ^{2/} Separately listed items represent 53.2 percent of the total, by value.
- ^{3/} Converted from cubic meters on the basis of 424 board feet per cubic meter, 2.05 long tons per 1,000 board feet, and 1.016 metric tons per long ton.
- ^{4/} Converted from square meters at 4.196 square feet per square meter.
- ^{5/} Converted from liters at 2.20469 liters per liter, including packing.

Source: Bulletin of Philippine Statistics, Vol. 5, Nos. 1-12, Manila, 1939.

Next to iron ore in quantity was lumber and timber, the amount of which exceeded 200,000 metric tons in 1938. This was chiefly used in the dense traffic in hardwoods. It was primarily used with extensive in Japan for conversion into plywood and veneer for export. Approximately one-half of the lumber and timber imported from the Philippines moved in chartered cargo vessels and the other half in the vessels of the regular Japanese lines, chiefly the Nippon Yusen Kaisha, Osaka Shosen Kaisha, and Yamashita lines.

The manganese, copper, and chrome ores in the same category as iron ore as far as the flag of the carrying vessel was concerned. From the standpoint of quantity, manila hemp was the only other item imported of any importance. It and the other remaining items moved in the regular Japanese lines.

Considered separately, only two or three items in the list of exports from Japan to the Philippines in 1933 had any significance from the viewpoint of shipping requirements, namely coal, cement, and vegetables. (See table 27.) It is probable that some of the chartered Japanese tramps which carried iron ore from the Philippines to Japan were used to transport coal and cement from Japan to the Philippines. The small remaining shipments were doubtless transported in the regular Japanese liners serving the trade. (It will be noted that the column for exports in the table covers only 52.2 percent of the total in terms of value, whereas the column for imports covers 99.3 percent. This difference occurred because lack of detailed description would not permit conversion to weight basis of a large number of the export items.)

Japan-Netherlands Indies shipping

Japanese, Netherlands Indian, and European steamship lines served the trade between Japan and the Netherlands Indies in the immediate prewar period. The Japanese and Dutch lines operated on regular schedules, while the European lines' calls were incidental to their main services, the Netherlands Indies being served en route. To avoid duplication, the latter services are not shown in table 28 following, inasmuch as they are included in table 22 covering services between Japan and Europe.

Table 28.- Japan-Netherlands Indies shipping:
advertised services ^{1/}, 1938-39

Flag of carrier :	Name of line	Number of vessels :	Gross tonnage :
Japanese	:Nanyo Kaiun Kabushiki Kaisha)	12	72,000
	:Isaiharu Sangyo Kaiun		
	: Kabushiki		
Dutch	:Java-China-Japan Line	7	52,575
	Total	19	124,575

^{1/} Data for ships and tonnage are metric tons.

In the middle 1930's there was a rate war between the Dutch and Japanese steamship lines in the trade, which arose largely because of over-tonnaging by the Japanese. The dispute was eventually settled and in 1936 an agreement was reached between the parties whereby shipments from Japan to the Netherlands Indies were apportioned 62 percent to the Japanese lines and 38 percent to the Dutch line. On shipments in the reverse direction, the agreement provided for a 60-40 division in favor of the Japanese lines. ^{1/}

The trade between Japan and the Netherlands Indies in 1936 amounted to 780,611 metric tons of cargo imported into Japan from the Netherlands Indies, and 256,859 metric tons exported from Japan to the Indies. This trade represented only about 3 percent (imports 2.3 percent, exports 3.7 percent) of the total value of Japan's foreign trade (including trade with Korea and Formosa). The trade with Japan was of greater importance to the Netherlands Indies, however, as it represented 15 percent of its exports to all areas and 3 percent of its imports. Imports

^{1/} "The Dutch East Indies," Amary Vandenbesch, 1941, p. 401.

into Japan from the Netherlands Indies consisted largely of petroleum products, timber, and grain; exports were mainly cement, cotton textiles, metals and manufactures, glassware, and china. (See table 29.)

Table 29.- Japan: Import and export trade with Netherlands Indies, by principal commodities, 1938

(In metric tons)			
Imports		:	Exports
Fuel and motor oils -----	282,189	:	Cement ----- 92,814
Ores and minerals -----	177,710	:	Cotton textiles ----- 45,899
Timber, other than teak ---	73,600	:	Glass, china, and earthen- ware ----- 34,069
Benzine, gasoline, and kerosine -----	62,880	:	Metals and manufactures --- 23,765
Maize -----	61,519	:	Chemicals ----- 12,779
Metal, other than tin -----	61,239	:	Wooden manufactures ----- 11,896
Sugar -----	14,914	:	Sardines ----- 7,014
Rubber -----	9,679	:	Machines and instruments -- 5,820
All other -----	36,881	:	Paper and paperware ----- 4,683
		:	Bleaching earth ----- 2,955
		:	Bicycles and parts ----- 2,800
		:	Asphalt ----- 2,530
		:	Building materials ----- 2,328
		:	All other ----- 7,507
Total -----	780,611	:	Total ----- 256,859

Source: Jaaroverzicht van den in-en uitvoer van Nederlandsch-Indie, Gedurende het jaar 1938.

Japan-Australia shipping

In the trade between Japan and Australia in the immediate prewar period, there were three Japanese lines and one British line, each of which operated a monthly service in each direction. The names of the lines, number of ships, and their gross tonnage are shown in table 30.

Table 30.- Japan-Australia shipping: Advertised services, 1938-39

Flag of carrier	Name of line	Number of vessels	Gross tonnage	Frequency of sailings
Japanese	Nippon Yusen Kaisha	3	23,889	Monthly
" "	Osaka Shosen Kaisha	3	16,273	"
" "	Yamashita Line	3	21,697	"
British	Eastern & Aus- tralian Steam- ship Co. Ltd.	3	21,061	"
		12	82,920	

Source: Compiled by United States Tariff Commission.

In addition to the regular liner services, of which the Japanese furnished 75 percent and the British 25 percent, there was a considerable tramp trade. This trade was confined to carrying the bulk imports of iron ore, scrap iron and steel, and grain into Japan from Australia. Japanese ships carried 80 percent of the liner trade and over one-half of the tramp trade. ^{1/}

Of the Japanese exports to Australia the most important commodities were those in the textile and potteries groups. (See table 31.) There were no heavy tonnage items such as would have required the chartering of extra vessels. Among the Japanese imports from Australia, however, there were a number of heavy tonnage commodities - iron ore, scrap, grain, wool, and zinc being the most important. Just as the textile trade was the most important to Japan, the wool trade was the most significant to Australia. The exchange of these commodities between the two countries was in accordance with a trade agreement which was in effect from January 1, 1937 to June 30, 1938, and which, with some modifications as to quantity, was extended for an additional year beginning July 1, 1938. If this agreement had not been in force it is likely that smaller quantities of raw wool and textiles would have moved on this route.

As indicated previously, the iron ore, scrap, and grain cargoes from Australia moved in chartered tramp vessels. Effective July 1, 1938, according to the official year book of the Commonwealth of Australia, the exportation of iron ore from Australia was prohibited as a conservation measure and such shipments as were made after that date were probably in fulfillment of prior commitments. It is highly probable that iron ore will not be exported from Australia after the war. Thus, aside from any postwar decisions that may be made respecting international trade with former enemies, this prewar embargo on iron ore exports from Australia will doubtless result in a material decrease in the amount of tramp tonnage that was formerly employed on this route.

^{1/} Imperial Shipping Committee, 38th Report, "British Shipping to the Orient," London, 1939.

Table 31.- Japan: Import and export trade with Australia, by principal commodities, 1/ 1938

Imports			Exports		
	Quantity	Value		Quantity	Value
	Metric tons	1,000 yen		Metric tons	1,000 yen
Iron ore -----	87,601	655	Sulphur-----	10,179	655
Scrap iron and steel -----	47,008	2,891	Potteries -----	9,262	1,600
Wool, sheep --	35,468	64,882	Textiles, cotton:	7,302	15,070
Grain -----	31,318	4,090	Artificial silk :		
			and mfrs.-----	4,958	17,897
Zinc bars and blocks -----	8,232	2,857	Metals -----	3,787	1,251
Pig lead -----	3,641	1,067	Comestibles, in tins -----	2,782	2,438
Beef, fresh --	1,324	720	Raw silk and mfrs. -----	628	8,389
			Veneer -----	484	220
			Talc powder -----	296	17
			Cement -----	120	3
			Wool and staple fiber textiles :	62	247
Total, commodities listed -----	214,592	77,162	Total, commodities listed -----	39,860	47,787
Total imports: Commodities listed, percent of total imports -----	-	82,600	Total exports: Commodities listed, percent of total exports -----	-	69,125
		93.4			69.1

1/ Commodities were chosen on the basis of their weight or apparent bulk rather than value; this table does not include certain principal items for which weight is not available.

Source: Annual Return of the Foreign Trade of Japan, 1938, vol. 2, for all commodities except imports of iron ore, scrap, zinc and lead which were obtained from official Australian statistics for fiscal year 1937-1938.

Note.- quantity data for certain export commodities were obtained by conversions as follows: potteries (largely tea sets) converted at 1½ pounds per set; cotton, artificial silk and staple fiber tissues at 1 pound per 4 sq. yds.; woollen tissues at 6 oz. per sq. yd. for all except worsteds for which 10 oz. per sq. yd. was used; silk tissues at 1 pound per 7 sq. yds.; and veneer at 2.7 sq. ft. per kin (1.32277 lbs.).

Japan-South and East Africa shipping

It appears the Japanese had little or no direct competition on the South and East African routes. Primarily, this was because the volume of traffic moving was insufficient to attract more vessel tonnage, secondarily, because nearly all the African territories served were dependent areas and had no national merchant marines under their own flags. ^{1/} Thus, Japan was the only country operating a direct line between Japan and the ports of South and East Africa before the war. (See table 32.)

Table 32.- Japan-South and East Africa shipping:
Advertised services, 1938

Flag of Carrier:	Name of line	Number of vessels	Gross tonnage	Frequency of sailings
Japanese	Osaka Shosen Kaisha	6	57,953	Monthly

Note.- This line also operated 5 ships of 11,000 gross tons in its round-the-world service which called at Durban and Capetown, South Africa. These are not included here because they are shown in the table covering Japan-United States services. The same line also operated a service to West African ports before the war but it was abandoned.

Source: Compiled by the United States Tariff Commission.

Prior to the inauguration of direct liner service from Japan to East Africa by the Osaka Shosen Kaisha in 1926 for the purpose of establishing Japanese export trade in East African markets, there was very little cargo moving over that route. Such traffic as existed was most likely transhipped at Capetown, which, to some extent, still retains the transshipping point character it established prior to the opening of the Suez Canal. Subsequently, some traffic for East Africa may also have been transhipped at Aden (located at the eastern entrance to the Red Sea) from ships in the Japan-Europe trades. Outbound shipments of raw materials from East Africa probably moved to markets other than Japanese in the period before the Osaka Shosen Kaisha established its direct line.

Japanese exports to South and East Africa consisted largely of textiles and yarns, cement, pottery, logs, lumber, veneer, and various miscellaneous items. Most important of the imports were salt from Italian Somaliland which comprised perhaps 75 percent of the total tonnage, tanning materials from the Union of South Africa and British East African

^{1/} The Union of South Africa Government owned a few ships but they were not operated on international trade routes, being used exclusively in the coastwise trade of the Union.

colonies, cotton from Kenya, Uganda, and Tanganyika, and asbestos from Rhodesia, shipped through Mozambique. (See table 33.) Wool shipments to Japan declined from 33,241 metric tons in 1937 to 2,380 metric tons in 1938, possibly as a result of the Japanese Government's desire to conserve its foreign exchange, inasmuch as wool is a rather high-valued commodity.

Table 33.- Japan: Import and export trade with South and East Africa, ^{1/} by principal commodities, ^{2/} 1938

Commodity	Imports		Commodity	Exports	
	Quantity	Value		Quantity	Value
	Metric tons	1,000 yen		Metric tons	1,000 yen
Salt	107,745	3,216	Cement	14,100	109
Tanning materials	15,179	2,724	Tissues, cotton	13,868	25,790
Cotton, ginned	5,757	5,218	Pottery (tea sets)	5,792	893
Asbestos and manufactures ^{3/}	3,285	1,662	Tissues, other than cotton	2,145	11,781
Sheep's wool	2,380	4,266	Wood, sawn	1,763	235
Soda ash, natural	2,039	154	Ironware, enameled	1,021	543
Cotton seed	455	24	Comestibles, in tins	983	430
			Veneer	888	272
			Cycles, parts, and accessories	650	604
			Window and plate glass	576	68
			Chemicals	533	217
			Yarns and threads	458	463
			Ores and metals	342	100
			Talc powder	307	6
			Hardened oil	230	79
			Artificial silk	203	329
			Gingers, dried	187	88
			Figured mats	101	100
Total, commodities listed	136,840	17,264	Total, commodities listed	44,150	42,226
Total imports	-	^{4/} 17,890	Total exports	-	68,253
Commodities listed, percent of total imports	-	96.5	Commodities listed, percent of total exports	-	69.8

^{1/} South and East Africa, except as shown in footnote 3, here comprises: Union of South Africa, Kenya, Uganda, Tanganyika, Mozambique, and Italian Somaliland.

^{2/} Commodities were chosen on the basis of their weight or apparent bulk rather than value; the list does not include certain principal items for which weight is not available.

^{3/} Includes 1,202 metric tons valued at 727,000 yen from Rhodesia.

^{4/} Includes value of imports of asbestos from Rhodesia.

Source: Annual Return of the Foreign Trade of Japan, 1938, vol. 2.

Note: Quantity data for certain export commodities were obtained by conversions as follows: Cotton, art, silk, and staple fiber tissues at 4 sq. yds. to 1 lb.; woolen tissues at 6 oz. per sq. yd.; silk tissues at 7 sq. yds. to 1 lb.; stockinette or knitted tissues at 3 sq. yds. to 1 lb.; woolen, worsteds, and woolen cloths at 10 oz. per sq. yd.; logs at 3,165 lbs. to 1 cu. meter; lumber at 1,266 lbs. to cu. meter; window glass at 3 lbs. to 1 sq. ft.; plate glass at 1.16 lbs. to 1 sq. ft.; cycles at 40 lbs. each; veneer at 2.7 sq. ft. to 1 kin (1.32277 lbs.); pottery (tea sets) at 1.5 lbs. per set; and figured mats at 30 lbs. to 1 roll and 0.5 lb. to 1 sheet.

International Credit Yield of Japan's Merchant Fleet ^{1/}Position of shipping in Japan's balance of payments

As indicated in the previous sections (see table 1), a large proportion of Japan's trade was carried in Japanese vessels. In addition to having rendered this service, the merchant marine of Japan received international credits for cargo carried between foreign nations.

The importance of shipping as a source of income and international credit to Japan can be indicated to some extent by reference to the balance of payments of that country (see table 34).

During the period 1914 to 1919 exports of merchandise exceeded imports on the average by 200 million yen a year; there was a credit balance of all service items amounting to 306 million yen annually, of which net freight receipts averaged 226 million yen. (See table 34.) This favorable situation was due to World War I, which opened to Japan markets formerly supplied by Europe, enabled Japan to profit by the shipping shortage, and caused a shipbuilding boom.

In general the next period, 1920-31, was marked by a return to pre-war conditions. There was a large excess of merchandise imports over exports (370 million yen a year on the average) which was not fully offset by the credit service balance of 176 million yen. A reduction in freight rates from the wartime highs and a weakening in the competitive position of Japanese shipping caused a decline in the net freight receipts from an average of 226 million yen in 1914-19 to 138 during this period. However, a higher proportion of Japanese trade was carried in Japanese ships than before World War I despite a substantial increase in traffic carried by foreign ships.

During the period 1932-36 imports remained in excess of exports, but only by 47 million yen a year. In contrast to the preceding period, however, the credit service balance was more than sufficient to cover the merchandise trade deficiency. The net freight receipts alone averaged 148 million yen (about 42 million dollars) a year.

The detail of this net freight receipts balance for 1932-36 is shown in table 35. Freight on imports, exports, and goods transported among foreign countries provided an average credit for the period of 218 million yen with passenger fares adding another 20 million. On the debit side tonnage dues and landing or loading charges required a payment of 63 million yen or over half the debit total of 112 million. Expenditures for necessities of Japanese ships abroad averaged 24 million yen a year.

^{1/} This section of the report was prepared by Edward Anderberg, Jr., of the Commission's staff.

Table 34.- Summary of balances of payments of Japan, ^{1/} annual averages for selected periods, 1914 to 1936

(In millions of yen)

Item	Annual average		
	1914-19	1920-31	1932-36
Balance of trade in merchandise and specie other than gold -----	200	- 376	- 47
Balance of ordinary invisible (service) items	306	176	163
Net interest and dividend payments -----	- 52	- 63	- 102
Net income on undertakings and services abroad -----	74	105	176
NET FREIGHT RECEIPTS ^{2/} -----	226	138	148
Net government payments abroad -----	28	- 32	- 123
Other service items -----	30	28	63
Balance of capital movements -----	- 405	166	- 189
Balance of gold movements -----	- 101	19	27
To balance (errors or omissions) -----		19	46

^{1/} Including Korea and Formosa.

^{2/} "Net freight receipts" as used in this table includes on the credit side: Freight on imported and exported goods, freight on goods transported among foreign countries, fare of foreign passengers, charterage, miscellaneous receipts by shipping companies, expenditures for necessities of foreign ships, tonnage dues and pilotage. On the debit side it includes: expenditures of branches abroad of Japanese shipping companies, charterage, expenditures for necessities of Japanese ships abroad, repairing expenses, tonnage dues and lading or loading charges, and miscellaneous expenditures by shipping companies.

Source: Adapted from E. B. Schumpeter, ed. The Industrialization of Japan and Manchoukuo, 1930-1940, 1940, tables 134, 135, I, II, and III.

Note.- A minus sign (-) indicates a debit balance or an excess of payments over receipts (excess of merchandise imports over exports); absence of a sign indicates a credit balance or an excess of receipts over payments (excess of merchandise exports over imports).

Table 35.- Freight and similar items in the balance of payments of Japan, average, 1932-36, and estimates based on Japan's elimination from postwar shipping 1/

Item	1932-36		Estimate, based on stated assumptions 1/
	Value	Percent of total	
	Million yen		Million yen
CREDIT			
Freight on imported goods -----	92	35.4	See "Debits"
Freight on exported goods -----	70	26.9	Eliminated
Freight on goods transported among foreign countries -----	56	21.5	do
Fare of foreign passengers -----	20	7.7	do
Charterage -----	1	.4	do
Miscellaneous receipts by shipping companies -----	3	1.2	do
Expenditures of foreign ships for necessities -----	11	4.2	30
Repairing expenses of foreign ships -----	2	.8	2
Tonnage dues and pilotage -----	5	1.9	20
Handling and loading charges -----	-	-	25
Expenditures of shipping company branch offices in Japan -----	-	-	3
Miscellaneous expenditures by shipping companies -----	-	-	5
Total credit items -----	260	100.0	85
DEBIT			
Expenditures of branches of Japanese shipping companies abroad -----	9	8.0	Eliminated
Charterage -----	7	6.3	do
Expenditures of Japanese ships abroad for necessities -----	24	21.4	do
Repairing expenditures -----	1	.9	do
Tonnage dues and handling or loading charges -----	60	53.6	do
Miscellaneous expenditures by shipping companies -----	11	9.8	do
Freight on imported goods -----	-	-	2/ 92
Fare of Japanese passengers traveling abroad -----	-	-	6
Total debit items -----	112	100.0	98
Net credit (+) or debit			
(-) balance (see Table 1):	+148		- 13

1/ Estimate of position of "freight and service" item in the international balance of payments of Japan had it been prohibited from rendering international shipping services in the period 1932-36, and assuming that its merchandise trade had been the same as in this period.

2/ In ordinary practice this would not be listed as a debit under this heading; if Japanese merchandise were carried in foreign ships the cost of the freight would be included in the value of merchandise imported into Japan.

Direct effects on Japan's balance of payments of its elimination from international shipping.--If Japan had been prevented from rendering international shipping services in the period 1932-36 the direct effects on the "freights and services" item in its balance of payments would, of course, have been considerable. Whereas "freight on imported goods" actually was a credit in its balance of payments, it would have been a debit item for at least the same amount, provided, of course, the same amount of merchandise had moved in the international trade of Japan. The other large credits in the balance of payments, while they would not have become debits, would have been eliminated--"freight on exported goods," and "freight on goods transported among foreign countries."

On the credit side, however, the amounts indicated (table 35) for tonnage dues, pilotage, handling and loading charges, and other expenditures incurred by shipping of foreign nationality in Japan would have increased considerably. All of the items indicated under the debit section of table 35 would have been eliminated as such. A summary estimated statement of the part shipping would have played in Japan's balance of payments had that country been prohibited from supplying international shipping services in the period 1932-36 is included, for purposes of comparison, in table 35.

If the freight and service items in Japan's balance of payments had been as outlined in table 35 there would have been a net yearly debit of 13 million yen compared to the net yearly credit of 148 million yen which is reported for the period 1932-36. It appears that while the elimination of the Japanese merchant marine from international shipping would have removed an important credit item from Japan's balance of payments, it would not have resulted in the accumulation of extensive debits on the part of Japan.

Relative importance of income from shipping in selected countries.

The foregoing paragraphs have attempted to show the importance of shipping as a source of income to Japan by a brief discussion of its position in the balance of payments. They do not indicate, however, how this position compares with that of other countries which have large merchant fleets.

In order to compare the importance of shipping in one country with that in another, regardless of the size of their trade, and without the necessity of converting all figures to a common unit of currency, use was made of ratios of net shipping income ^{1/} to total merchandise trade (imports plus exports). These ratios, based on averages for 1932-36, are shown in table 36 for 12 countries that derived a considerable return from shipping. Included in the table are 8 of the 9 countries having the world's largest merchant fleets, Italy alone being omitted because comparable data are not available.

^{1/} "Net shipping income" as used in table 36 is not the same as "net freight receipts" used in table 34. See footnotes to the respective tables for definitions.

The ratio of Japan (5) is exceeded by those of other countries, Norway, Sweden, Denmark, Netherlands, and the United Kingdom, but is considerably larger than the ratios of 1 for Canada and 2 for the United States. As respects the relation between the trade and service item balances (not shown in the table) the position of Japan resembles that of Norway, Sweden, and Denmark. In each of these four countries, using averages for 1932-36, there is (a) an excess of merchandise imports over exports (debit balance), (b) a credit service item balance more than large enough to offset the debit trade balance, and (c) net shipping income greater than the total credit service item balance of which it is a part. It appears, therefore, that shipping occupied a corresponding position in the international economy of each of these four countries, for without it, all other things being equal, each would have had a debit balance in addition to its debit trade balance and would have been obliged to rely on an outward capital movement to balance its accounts.

Table 36.- Relation of net shipping income to total merchandise trades, by selected countries, averages, 1932-36

Country	Ratio of net shipping income to total merchandise trade	Percent
Canada	1	
Denmark	7	
Finland	4	
France	5	
Germany	5	
Greece	5	
JAPAN	5 (1933-34)	
Netherlands	5	
Norway	11 (1935-36)	
Sweden	11	
United Kingdom	11	
United States	2	

1/ "Net shipping income" is the income on national shipping tonnage of all foreign traffic, less the payments to foreign shipping tonnage of traffic between domestic ports, both including, in both, freight, charter money, and passage money.

"Total merchandise trade" is the sum of actual merchandise exports, including silver bullion and coins other than gold, and assistance to arrive at the commercial value for exports, the commercial value for imports. Contraband exports and imports are also included.

Source: League of Nations, Geneva, "Balances of Payments," 1938, years 1934 to 1938. Ratios compiled by U. S. Tariff Commission.

Some additional effects of the elimination of
Japan's merchant marine

The preceding data (especially those in table 35) afford a basis for a general appraisal of the income which would have accrued to the account of shipping of nations other than Japan, assuming (1) that Japan had had no merchant marine in the prewar period 1932-36, and (2) that the merchandise trade of Japan had been, under these conditions, substantially the same as it was from 1932 to 1936. The following tabulation constitutes such an appraisal or estimate.

The estimates ^{1/} in the tabulation indicate, for nations which would have carried Japan's trade and also provided other shipping services, an international credit of only 72 million yen (about 20 million dollars). This sum is smaller by 76 million yen than the credit which Japan received in international balances in the period (1932-36). The smaller credit indicated for nations other than Japan, had they supplied fully the shipping services it formerly rendered, would have been due mainly to the increased debits which would have been incurred by such shipping nations, especially in Japan. This is necessarily so because a large portion of the merchandise which would have been carried under these assumptions was Japanese in origin or was destined for Japan, and if the overseas trade of Japan had been carried exclusively in foreign ships the charges were against these ships in Japanese waters, especially loading and handling charges, would have been considerable.

^{1/} The data presented in the tabulation, and the assumptions on which they were based are, as indicated in the "remarks" column of the tabulation, subject to serious exception and should be considered merely as estimates.

Estimate of debits and credits which would have accrued to countries other than Japan from elimination of Japan from merchant shipping services during the period 1932-36

(In millions of yen)

ITEM		REMARKS
CREDITS:		
Freight on goods imported into Japan -----	92)	(Figures used are the same as in the Japanese balance of payments owing to the impossibility of estimating effects of changed conditions on the merchandise trade of Japan, the effects of different freight rates charged by other nations, and of other intangible factors.
Freight on goods exported from Japan -----	70)	
Freight on goods transported among foreign countries --	56)	
Fare of foreign passengers -	20)	
Charterage -----	1	Assumes that some nation other than Japan would have increased its ship rentals.
Miscellaneous receipts by shipping companies -----	3	The coverage of this item is unknown.
Total (credit)	<u>242</u>	
DEBITS:		
Repairs of ships in Japan and elsewhere other than in national areas -----	8	
Expenses of ships in foreign countries for necessaries -	40	
Tonnage dues and landing and loading charges:		
Stevedoring charges:		(One of the greatest changes which would have been made in the international balance on this item would have resulted from the payment of considerably larger amounts to Japan for tonnage dues, pilotage, and especially landing and handling charges incurred by the nations carrying goods to and from Japan.
In Japan -----	25)	
In other foreign nations	40)	
Pilotage, tonnage dues, and other:		(Amounts involved in the international balance for this item in areas other than Japan would have varied considerably, however, depending on the nationality of the ship.
In Japan -----	20)	
In other foreign nations	15)	
Charterage -----	7	Assumes that some nation other than Japan would have rendered the service indicated and incurred the debit in its balance of payments.

Estimate of debits and credits which would have accrued to countries other than Japan from elimination of Japan from merchant shipping services during the period 1932-36-Continued

(In millions of yen)

ITEM	REMARKS
LIMITS: Continued.	
Expenditures of branches of shipping companies in foreign nations -----	5 This item has been estimated lower than it appears in table <u>35</u> because it is believed the elimination of duplication and the use of existing facilities would reduce the total required for such purposes.
Miscellaneous expenditures by shipping companies in foreign nations -----	The coverage of this item is unknown.
Total (debit) - 170	
Net credit -----	72

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No. 1

RETURN TO ROOM 361

日本の海運業

概要と結論

第一次世界大戦と第二次世界大戦の間に於て日本の商船は
 在りてより大商船隊に迄発展し其大きさに於て唯英國
 及合衆國の商船隊に及ばなかつたにありしに於て此商船隊
 は戦前日本が貿易した大部分の商品を送じ且又或限られた
 範囲で他諸國民間の貿易遂行上役に立ちました。國際的且
 國內海上に於て船舶と動かし居るに於て日本は重要な
 造船國民となりました。此等の諸活動は造船及海運共に戦前
 の日本の經濟では重要でありました。即ち多くの日本人に職を與へ
 日本は外國貿易を拡大する施設を改善し且國際收入の
 有力な源泉と供給したにありしに於てあります。

過去二十年に於て日本の造船業者は他諸國民の夫
 々に有るに比較せられ船と建造し日本人は商船運送船と同様
 に造船する技術的能力を有つてゐることを證明しました。大小
 各種の船型の建造せられ油槽船、貨物船及貨客混合船
 等の型と合入して居りました。

日本は低廉な労働力豊富にあり造船には必要とする材料
 は手許にあり且容易に手に入り得ました。造船原價は
 比較的は低く通常英國の造船所の戦前原價の約五五%
 独逸、英國原價の約六六%に匹敵しました。其故に經濟的
 観点からは日本は相對的に低廉價で能率的な造船國に
 あります。併し之から他諸國民と同様に於て其低廉を

地歩にも不拘日本は殆ど絶えず其商船建造計画に補助金を支出しました。之は新式船舶建造の率と高い政府の使用し得られた造船所の量と能力とを増加し日本の経済的の必要と同様軍事的の必要に従って造られる船の設計と形とを左右する機会と政府に与へる目的と以て為されたのであります。

日本の西洋流の汽船運営は一八五五年(明治十七年)日本の近海で始まりました。而して長距離貿易では一八九四年頃ボンベイ航路が開始せられた頃でした。支那との最初戦争は一八九四年(明治二十七年)に勃発しました。そして其時存在した商船隊は海外の日本軍と支持するに不適当でありましたので外國で建造せられた船が可なり購入せられました。斯くて戦争の用具としての商船隊の價値が知られたのであります。戦時中の商船隊の必要は日露戦争が始つた一九〇四年(明治三十七年)に再び実證せられました。此等戦争の間十年間日本海運の生長は漸次的でありました。併し第一次世界戦争が始つた時日本人は他の諸国民の商業海運より徹退と利用しました。そして其後進歩は非常な迅速さをなされたのであります。日本の船主は斯く獲得した足場を保持し戦争が終つた時迄には事實上世界一の總この部分に船と動かしつゝおりました。其の時の商船隊の噸数略三百万噸は世界で第四位でありました。

Page 2
 第一次世界大戦と第二次世界大戦との間に於ては日本人は既に適当に運行して居りました航路に追加の船を置くことに

より、老朽又は時代後れの船を新らし、近代船に代替することにより、又何處でも日本の輸出貿易の發展の可能性が有るのと見られる新貿易航路を開拓することにより、彼等の地位を固めました。日本人業者により、既成貿易航路への割込むに用ひられた一つの方法は、運賃切下の夫でありました。

之は航路間の汽船のプール會議、そして運賃協定への入會を獲得する可なり古くからの手段でありまして、日本人に発したものはないのであります。若し長くやつて居れば、其のやり方は並通成功裡に既成業者として多かれが、同等の條件で、其の新らしき航路に貿易への近接を許可せしめし居るのであります。亦二次世界大戰の勃發時には、日本は約五、六百万總噸、よく均敷な噸位の商船隊と有つて居ました。これは英國の略二百万噸及合衆國の約九百万噸に對照されます。

亦二次世界大戰に先き、数年間に於て日本人業者は、其の商船隊をせりりと取巻いて居る航路網に動かし居り、北大西洋の夫を除く總々の重要なる貿易航路を張合つて居ました。大西洋方面に於て、日本人口時には、既存航路と直接競争に發展せしめ、やうな不定期航路を作りまして、一九三八―一九三九年に於ける日本の商船運行的範圍は、地圖に示され居ります。其の地圖は地理的に日本の海外航路を示して居ります。一九三九年（昭和十四年）海外地域に就航して居る日本の船舶は、傳へる所によると、合計二、二百万總噸（二二重量噸）でありました。

日本のやうな島國々民から商船を完全に削除することは、日本の戰術的

海外貿易の大量性を考慮すれば其国の経済にあまり大きな
再調整を要するかし知れませんが日本の近海商業の割合は比較
的大きく其国内商業の全噸数の略四〇%でありました

日本の商業航路に許された運行地域の諸制限は数多くの他の
影響者を有つてありませう。戦前の期間に於て日本の国籍の船が行
はれた日本貿易(輸入及輸出)の大部分(六五%)は日本人に本質
的経済活動と与へ日本のためにかたがたの外国受取勘定を創造
しました。一九三二—三六年の期間に其海運の年平均純
受取高は約一五〇百万円に達しました。海外貿易に於ける日本商
業海運の割合は勿論日本の海運奉仕より得らるべき国際受取
勘定を甚しく減少するてありませう。戦後の期間に於ては近海
の日本の海運によりなされたる航海奉仕が若し許されませう
は其海外貿易と他の諸国民によりなされる貨物輸送のため日
本の受ける欠損に限られた範囲に於て相殺するてありませう。夫
は勿論日本が従事する近海及海外貿易の量に多少の依存す
るてありませう

戦争直前の期間に於て日本は概して海外貿易に二五百万噸の
船舶を動かして居たてありませう

Page 5

第一表 日本及外国船舶により運ばれた商品貿易の推定
地域別 一九二八—三二年及一九三二—三七年

地域	一九三一年		一九三二年		一九三三年	
	数量	全船噸率	数量	全船噸率	数量	全船噸率
日本船	一二四四四	九二九	一二四四四	九二九	一二四四四	九二九
外國船	九四九	七一	九四九	七一	九四九	七一
全船	一二三九三		一二三九三		一二三九三	
帝國	九三八七	一〇〇〇	九三八七	一〇〇〇	九三八七	一〇〇〇
其他	三〇五七	七六三	三〇五七	七六三	三〇五七	七六三
海外	一二一三八	六四五	一二一三八	六四五	一二一三八	六四五
合計	二四五六二	七六三	二四五六二	七六三	二四五六二	七六三
近海	一一八二二	九六二七	一一八二二	九六二七	一一八二二	九六二七
帝國	一五〇二九	一〇〇〇	一五〇二九	一〇〇〇	一五〇二九	一〇〇〇
其他	一一八三三	七五九	一一八三三	七五九	一一八三三	七五九
海外	一七〇三三	六二五	一七〇三三	六二五	一七〇三三	六二五
合計	三三八九五	七五九	三三八九五	七五九	三三八九五	七五九

(数量は千重量噸) * 一

* 一 重噸は二二四〇磅、且噸は四〇五方噸
 * 二 朝鮮、台湾、関東州及滿洲(一九三一年以後)を含む。
 * 三 亞細亞、露西亞領土、香港及支那(一九三一年以前の滿洲を含む)

出所 本一表は其の合衆國関稅委員會の推計及日本朝鮮及台湾の年報及月報
 備考 含まれた噸数を指示する資料が使用出来ないので

推計は金額に基き判つて居る噸數と金額との間に存
在して居る相関要素を使用した。斯くの如くしてなされ
た推計は金額噸數の略二〇%とありませう。

商船建造

序論

日本の造船業者は過去二五乃至三〇年の間最新式の海へ
の旅客及貨物船の幾つもの建造し商船建造に對す。

中要な知識を有つて居ることを證明して居る。日本産

業發展と膨脹の開始以來短期間の内に其國は名と

なき地位から甚思ひの海運國民中亦三位の地位に進みまし

一九二〇年(大正九年)のロイドの船舶登録は日本に一九四隻又

殆ど二百萬噸と奪へて居る。それは日本を海運國民として

英國及合衆國に次ぶ。ノールエー人スエーデン人及和蘭人

等海運民族に先立つて位置せしめて居るのであります。

此亦三位の地位は日本に依り亦二次世界大戰初期迄維

持せられました。(表七参照)

海運國民中斯くの如き地位を達成することは特に日本が最初の國內

建造の大型鋼鉄航洋船は八九八年(明治三二年)以前には完成せられ

なかつたことを事實より見て特に注目し價するのではありません。

又日本で建造せられた相互規模の最初の船は八九八年(明治三二年)

長崎で建造せられた二七二噸の「日立丸」でありました。これより先

一八九五年(明治二十年)に一五三噸の「復磨丸」が嘗て日本で造ら

れた最初の鋼鉄航洋船として完成し引渡されたのであります。

國際船舶國間に於て日本は島の島國的地位、數多の港、低廉労働力の利用、外國貿易の必要及びそれに附隨して日本産業の西洋化の爲に遂に完全に進んだの高地位に到達した。その様な顯著な成功が戰爭によつて特別の刺戟や政府からの經濟的援助なくしてその様な短時間に成就したかどうかは甚だ疑はしうなものであった。

歴史的背景

第一次世界大戰以前の開発
明治三年以前より日本の商業船舶は大部分上着のシンクから出来てゐた。

寛永十七年から嘉永六年迄、日本が世界の日本以外の國々から孤立してゐた間、一つの勅令が外國船が日本の港に入ることを禁止した。日本で百五十噸以上又は長さ七十五フィート以上の船を造ることを禁止した。さうしてその船尾を同じ船に、それ等が日本領海以外に出られぬ爲の更に一つの保証にした。

是等の予防策にも拘らず日本の海員達は若くは航海を行つた。さうして彼等の同じ船のシンクは太平洋を越えて進んだ。(造船及船舶記録。日本及日本船舶。英國ロンドン。一九四一年十月三十日発行。頁四百九)

明治維新に次いで明治元年に政府が再組織されて後交通改善の必要が再認識された。明治三年に

三井船舶会社が設立された。これに次いで二年後には日本郵船会社が出来た。かくして日本船舶産業が開始された。明治三年以後、日本は西洋型船舶を修得し始めた。さうして三十年に亘る日本の現代海洋史の初めの一十五年間は、日本国内の造船よりは寧ろ外國から大洋航海船を購入した事によって特徴付けられた。明治八年の台湾遠征及明治十年の國內動亂は日本政府に四十五隻の外國建造汽船購入を致さしめた。明治二十七年の第一次対支戦争は此の高船隊が海外へ軍隊を送るの不可欠であるとの事を悟らせた。それ以後政府は再び外國市場から船を購入した。ドイツの船舶記録に依れば明治二十八年、日本は百噸及以上の船舶が合計三百二十九隻、二十七年九千六百六十八噸ある旨登録した。明治二十七年日露戦争が勃発するや頼りの半は外國の船舶でなければならなかつた。此戦争中日本政府は百六十四隻、二十一萬噸の船を輸入した。

註 ショヤ・E. サウグスタンド著「船舶及造船補償」合衆國商業局、一九三二年発行、三二四頁、日本高船隊の發展を、軍事的な必要がどの程度迄、促進したかは見積る事が困難である。

註 日本の早稲田大学前教授伊藤重二郎博士は商業船舶及造船工業の記に於て「概して、戦

争は商業船舶隊の発展の爲には、その数の点に於て、最も有効な要素であつた。一方、商業船舶隊の品質の改良と言ふ点に關しては、商業船舶隊は主に政府の保護に負ふ所が多しと。何となれば日露戦争が終つた後は、日本の産業振張及、外國貿易の発展は下火であつた。此爲更に多くの船が要求された。明治三十七八年の日露戦争、前の平均年産は約三萬噸であつた。これが明治四十二年から大正二年にかけて、年産四萬五千噸に増加した。又同じ五年間に於て日本は一年に五萬六千噸の割合で外國船を購入了。更に此期間に於ける外國船は一隻が平均二千二百噸であつたのに対し、日本船は平均、五百噸を少し切れる位であつた。

Page 8
第一次歐洲大戰中の發展

第一次歐洲大戰中日本の造船所は大發展を遂げた。此戦争の勃発した頃日本の造船は歐洲の工業と競争出来る程度に迄は發展してゐなかつた。大正二年には一千噸の船を作り得る造船所は僅に六ヶ所であつた。ところが造船台は僅に十七ヶ、その労働者の統計は二萬六千名であつた。併し乍ら大正七年迄には、造船所五十七ヶ所、造船台百五十七個、造船労働者が九萬七千名となつた。戦時造船が日本の造船工業をいかに程効果的に刺戟した爲、日本はそれ以後、外國製の船の輸入の必要がなくなつた様であつた。

表、第一は第一次世界大戰中の日本の造船所に於

けり汽船の進水を示すものである。船は入る別に配別されてゐる。

表第一。自大正三年至大正七年日本の汽船進水表

年度	一千噸以下の船		一千噸以上の船		合計
	数	グロストン	数	グロストン	
大正三年	七三	八九三三	一一	四九九三	五八八四六
〃四年	六二	一一、三三七	一二	六、七、六五七	七八、九九四
〃五年	五七	一五、七六二	三七	二八、一、二八	一四三、八八〇
〃六年	四四	四、六、七	四〇	二九、〇、八七九	三三七、七一六
〃七年	三五	一七、〇、〇七一	八〇	五二、八、五八	六八八、六五九
合計	六七	二五、二、九四〇	三二	一、〇、五、一、五五	一、三〇、八、〇九五

(原本) 三三セ、イ、サウグス、ク、ツ、ト著

船舶及造船補償、三三三頁

合衆國海軍局発行

第一次世界大戦及第二次世界大戦間の発展
 戦争契約未完成の爲に日本は大正十年迄
 物産の造船を續行した。合衆國の造船所もその
 頃同様に従業しおた。合衆國船舶局年報は
 一九二二年―大正十一年―五月に戦争契約が完成
 したと報じてゐる。大正十一年から昭和三年に至る間、
 日本の造船は年産約七萬噸平均に低下した。比較す
 べし、此戦争前には一年に合計約十萬噸が建造並

に購入された。さうして、戦争中、五年間は一年に二十六万噸、建造された。昭和四年から昭和六年に至り、造船割合は年産十三万噸に増加した。さうして、船の大きさは、大体七十噸位に大きくなった。比較対照して見ると、一九二二年（大正十一年）中期の第一次世界大戦契約が終了してから一九三六年（昭和十一年）商業船舶法が通過する迄の十四年間に於ける合衆国の造船割合は年産四百九十萬噸に少し切れる位であつた。

日本の造船の増加傾向は昭和六、七年の滿洲占領によつて續行された。此処に顕著なことは増産された船舶の中に兵員輸送に適してゐる合計十三万三千七百九十噸から成る十一隻の貨客兼用船及び日本の油運送船の船腹を五割八分増加せしめた合計五万九千九百六十噸六隻から成る油運送船を合せてゐることである。才三表に示した通り昭和七年及昭和八年に於ける日本の新船建造は此の増加割合では繼續されなかつた。然して、此の製産産業は復興し、さうして昭和十二年迄には才一次世界大戦の平均場合と復駕した。後年建造された貨物船は、實質的に全部高速度と大蒸気輻射線を持つた最も近代的な型であつた。その頃現存してゐる最も速い貨物定期船の二隻は昭和十三年「ケイ」航路（川崎汽船株式会社）の爲に完成された。此二隻の船は積載量二万二千五百五十重量噸のモーター船で満載時、時速十八ノットである。

年 度	隻 數	ゲ ロ ス 噸	重 量 噸
大正 九年	七九	三八三・九四四	五七五・九一六
" 十年	三九	二一三・四〇四	三二〇・一〇六
" 十一年	一〇	五九・三八五	八九〇・七
" 十二年	九	四〇・三五八	六〇・五三七
" 十三年	一三	五一・六一八	六四・四二八
" 十四年	一一	四二・九五九	六三・六二七
" 十五年	一一	四九・〇八五	七三・六二七
昭和 二年	六	二七・二一六	四〇・八二四
" 三年	一一	五七・六〇四	八六・四〇六
" 四年	一七	九五・四五七	一四三・一八五
" 五年	二三	二〇一・二六三	三〇一・八九四
" 六年	一六	九四・六七一	一四一・〇〇六
" 七年	九	四〇・〇八二	六〇・一一三
" 八年	八	五八・九五四	八八・四二六
" 九年	一七	一一一・一五四	一八一・七二六
" 十年	二四	一三四・一八九	二〇一・二八三
" 十一年	三七	二〇六・九〇〇	三一一・三五〇
" 十二年	七三	四二〇・二二六	六三〇・一八九
" 十三年	六六	三九一・八〇六	五八七・七〇九
" 十四年	四四	二八三・一二九	四二四・六四三
五二四 註		二・九七三・三〇二	四・四五九・八八九

才三表 日本 商船隊 累年追加

自大正九年
至昭和十四年

④ 才四表後の備考才二参照

(原文) 海洋工業及船舶評論一九四三年五月号九八頁

造船に対する政府の補助

少く共才一次世界大戦以来日本の造船費用が低かつたことは、補助金、造船工業の発展等によつて、日本人が鼓舞せられた。必要がなかつた様に思はれる。然し乍ら外国貿易の需要と軍備充實の要求は明かに補助金の乏しい工業では満たされなかつた。それより日本は才二次世界大戦の初期造船船に保証金を支拂ふ事を續行した。明治三十九年日本帝国の内閣は造船保護法を制定した。さうして七百噸乃至一千噸の船には一噸に対して十二円、それより大きい船には一噸に対して二十円の補助金を出すことを規定した。明治四十三年此法律は一度修正された。その修正で補助金は少く共一千噸の鋼鉄船に制限することにした。さうして一噸に対して十一円乃至十二円の見積支拂を行ふ事にした。根本の法律も或は修正された法律も、是等の船舶に備付けられた日本製の總てのエンジンに関し一馬力に付五円の追加支拂をする様規定した。戦争中に於ける日本造船業者の利益が大きいので造船保護法は大正七年に廃止された。政府の此行動に加へて戦争直後の好景気の爲に起つた船舶不況は大正十一年から昭和三年にかけて造船暴落を招致した。(才三表参照) 大正九年の頃日本の造船工業は政

府から何等かの直接の経済的援助を受けなかった。併し各種の肉接的補助によつて利益を得てゐた。

昭和七年の船舶改造補助法は船齡二十五年以上の船四十万トロス噸の解体及新船二十万噸の建造を規定した。此新造船は一隻が四十噸以下でない事。さうして時速少く共十四ノットである事と言ふ事にまつた。是等の新造船は昭和十年の五月迄に完成せしむる様予定された。報告によれば三十九万九千二百四十トロス噸九十四隻の船が解体され二十万二千七百トロス噸三十一隻の船が新造された。政府の補助金は、七千五百万円の新造船一噸に付五十五万の割合で支拂はれた。又報告によれば新造船は悉く日本製鋼材料で作られ装備された。

①註 海洋工業及船舶評論一九四三年五月号 一〇三頁一

一品頁 同時に「日本に於ける造船材料の利用性の項参照

二つの追加建造案が一つは一九三五年(昭和十年)にもう一つは一九三六年(昭和十一年)に續いて作られた。一九三五年(昭和十年)案は五二七八英噸の十一隻の船の解体と同噸數の十一隻の新船の建造を計畫した。此の建造プロジェクトは造船者が一噸に付き三十万の割合で一五〇万円を貰つて実行された。併しなから船腹の不足の爲に實際には合計一六六七英噸の僅か二隻の船が解体されたのみであつた。一九三六年(昭和十一年)案は前の案に似て居つた。そして五〇八九一英噸の九隻の新らしい船が建造された。そして古い船は

解体されなかつた。』
 船の改善の爲の此等の三つの政府の計画は更に一九三七年(昭和十二年)の奨励金経費を加へて其の結果一九三四年(昭和九年)から一九三九年(昭和十四年)までの間に合計一五六七、〇〇〇英噸の二六一隻の船が建造された(表々参照)表々一九三四年(昭和九年)より一九三九年(昭和十四年)に至る間「船舶設備改良法」の下に日本に於て進水せられたる船の大畧。』

船の型	數	總噸數
貨物船	二〇三	一、〇六五、二六三
貨客船	三〇	一九五、七三五
油槽船 ²⁾	二八	三〇六、三〇六
合計	二六一	一、五六七、三〇四

1) 又表3を参照せよ

2) 此等の油槽船の外に各々の平均一八、〇〇〇英噸以上の五隻の鯨油製造船が南極地方捕鯨業用に完成された。此等の製造船は歐洲に於て鯨油を荷揚げした後常に石油を積んで日本へ歸つたと云ふのである。(合衆國貿易者外國向けニュース一九三八年(昭和十三年)四月二十九日版二頁)

據所一九四〇年(昭和十五年)十月日本東京発行の「東洋經濟通信」第六号一六頁 日本海軍産業

一九三七年(昭和十二年)の経費の中にも又各々/二六、〇〇〇英噸一時間四節以上の速力を有する二隻の超定期客船の建造用

の補助費が準備された。その等は一九四三年(昭和十七年)に完成せしめる様に予定表が作られ、その等の値段は各々二八八〇万円と評價された。

一九三九年(昭和十四年)の春帝國議會は次の二年間に標準型船を二〇万噸建造しようとして新造船建造奨励金法を認可した。一噸三〇円の割合でその奨励金経費は六百万円に上った。新に建造せしめる大洋航行船は總噸數四四七〇噸から六三〇〇噸迄の範圍内に限定せし、近海に於て使用せらるべき船は總噸數四九〇噸から二七五〇噸迄と改められた。ス

一 一九四〇年(昭和十五年)十月 日本東京発行の「東洋經濟通信篇」六号 一六頁 日本海運業

二 一九三九年(昭和十四年)——一九四〇年(昭和十五年) 日本年鑑 五九五頁

(次頁に続く)

造船所の雇備

一九三〇年(昭和五年)から一九三七年(昭和十二年)迄の間の八年間、日本の造船所のあらゆる艀時^{ハツトキ}に於ける従業員の一年当りの平均数は五八八九五人である。そしてその中一九三三年(昭和七年)には一少少して三九二〇〇人であり、一九三七年(昭和十二年)には一少少多して一〇一七二〇人である。その間の艀時^{ハツトキ}に於ける従業員の内には、表五に於ける一年毎の合計従業員数が記入されてある。

表五 一九三〇年(昭和五年)より一九三七年(昭和十二年)に至る間の日本の造船所の従業員

總計

年	造船所	職負	技術家	職工	其他	合計
(昭和五年) 一九三〇	—	二二二四	三〇〇二	三六〇三六	三六七五	四六九三七
(一九三一)	—	二〇五三	二八〇五	三三四三九	一一〇七	三九五〇四
(一九三二)	—	一八三二	二四九五	三三六一一	一一二六二	三九二〇〇
(一九三三)	三六〇	二〇六九	二六七七	三九〇六八	一八七八	四六〇五二
(一九三四)	三九四	二二六七	三〇二六	五〇一一六	一五二〇	五七三二三
(一九三五)	三九五	二三〇二	三四一六	五三九一八	一六九二	六七三三三
(一九三六)	四四四	二六三六	三五二〇	七〇〇五三	二〇四六	七八六九九
(一九三七)	五五九	三八七四	五〇一九	八九七三六	二五三二	一〇一七二〇

〃 五人以上を雇つてゐる造船所のみに於ける。

據所 一九四〇年(昭和十五年) - 一九四一年(昭和十六年)

商船の活躍

初期における発展

軍事的考察はさて置いて、

日本は殆ど必要に迫られて海国となった。

大きな面積の割合に農産物は不出産であるといふ結果を齎す

所、日本の島の荒瘠せる地勢及び土産物の不充分なるは

人口の緻密に加へて、こゝから日本は海に依つて生活する国とする。

国民の食糧要求量及び産業用原料の多くを輸入に

俟たなければならぬ事は輸入品に對して代價を支拂ふ爲に日本

勞力に依る産物を輸出せしめなければならぬと云ふ事と相俟つて、

日本の海への発展は貢獻した。一方日本の海運業は此の様な経済

状況の結果として多分自然的に発展したであらう。そしてその発

展の割合は貿易及び産業の急速なる膨脹軍事的上の出来

事及び政府からの財政的援助に依り促進された。

第一次世界大戦は過剰の船舶の不足を惹起した。そしてそれは

結局世界に亘る緊急に船腹を要求する結果となつた。

此の状況は日本の商船運業者の爲に二つの機会を作つた。

一つは彼等は向論上の機会に乘じた。彼等の合計噸数は

戦前中に百万噸以上に増大した。そして戦後の海運業が

世界にあらゆるところで開かれ、

大戦の終結直に日本は世界の海国の中で順位が六番目から三番目

に上つた。

第一次世界大戦後の発展

第一次世界大戦後の発展

に於ける日本の海運会社の進歩は健全に進展せしめられた。

戦前中に百万噸以上に増大した。そして戦後の海運業が

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世界にあらゆるところで開かれ、

大戦の終結直に日本は世界の海国の中で順位が六番目から三番目

表3は一九二〇年(大正九年)から一九三九年(昭和十四年)までの年々(合計)に至る二〇年間に日本の造船数は総計三百萬噸を僅かに少ない、二〇〇萬噸及びそれ以上の大洋航行の蒸気船及び発動機船を五五隻建造したといふ事を示す。一九三九年(昭和十四年)には日本高船隊の總噸数は約五百六十万噸に即ち世界の合計噸数の約八%である。

日本より多くの噸数を持つる居る二國は英帝國と合衆國である。英帝國は二千一百二十萬英噸合衆國は九百三十萬英噸持つるのみ。(表7を参照)

一九三九年(昭和十四年) - 一九四〇年(昭和十五年) 日本年鑑五六九頁

昭和十六年(昭和十五年) 日本年鑑五六九頁

名和ニ次と界大戦直前の年々に於ける日本高船隊の總噸数は據所が乏しく、種々要する量の報告され、一九三九年(昭和十四年)六月のロイドの船舶登録簿は合計四三〇、四八九英噸に於ける二〇〇萬噸及びそれ以上の船八六九隻の合計及び二一九〇三英噸に於ける一〇〇萬噸から二〇〇萬噸迄の船一三八隻の合計として以上の總計はその日付現在に於ける日本の登録に依れば二一八七隻及び五〇〇、〇六七二英噸と示す。此の總計は僅かに一年後の一九三九年(昭和十四年)に於ける高船隊の噸数として表7に示され、合計よりも約六〇〇、〇〇〇噸少ない。

此の題目に就いてのロイドの登録簿の論據と合衆國海軍委員の公式の論據の間に又是異がある。一九三八年(昭和十三年)六月三十日の一〇〇萬噸の報告の中は委員は合計三九八、七四英噸に於ける二〇〇萬噸及びそれ以上の日本の船七三隻の合計を示して、その論據を同じくしようと企てたけれども不成功に終つた。高船隊の大きさを別々の方法で記録するや幾分異つた日付で記録される二者の間には是異がある事を多少分説明するが、

此の題目に就いてのロイドの登録簿の論據と合衆國海軍委員の公式の論據の間に又是異がある。一九三八年(昭和十三年)六月三十日の一〇〇萬噸の報告の中は委員は合計三九八、七四英噸に於ける二〇〇萬噸及びそれ以上の日本の船七三隻の合計を示して、その論據を同じくしようと企てたけれども不成功に終つた。高船隊の大きさを別々の方法で記録するや幾分異つた日付で記録される二者の間には是異がある事を多少分説明するが、

據所 噸 及 噸 以上 噸 噸 噸	1939		1935		1930		1925		1920		國
	英噸	數	英噸	數	英噸	數	英噸	數	英噸	數	
噸	21,215,261	9,488	20,510,921	9,832	23,381,614	10,754	22,222,198	10,989	20,582,652	10,831	英帝國
噸	9,336,155	2,733	10,190,091	3,015	11,384,367	3,530	12,748,632	4,265	13,789,874	4,889	合衆國
噸	5,627,845	2,337	4,085,650	2,146	4,316,804	2,060	3,919,807	2,087	2,995,874	1,940	日本
噸	4,834,902	1,970	3,967,972	1,862	3,668,289	1,916	2,680,642	1,805	2,219,388	1,777	ノルウェー
噸	4,492,708	2,466	3,703,662	2,080	4,229,235	2,157	3,073,713	2,428	672,671	1,138	ドイツ
噸	3,448,453	1,335	2,884,406	1,231	3,331,226	1,380	3,028,661	1,353	2,242,393	1,115	イタリ
噸	2,952,975	1,282	3,025,136	1,479	3,530,879	1,651	3,511,984	1,828	3,245,194	1,758	フランス
噸	2,972,871	1,532	2,558,383	1,414	3,096,315	1,401	2,604,831	1,099	1,793,396	987	オランダ
噸	1,581,919	1,238	1,550,843	1,294	1,623,938	1,417	1,301,126	1,389	1,072,925	1,297	スウェーデン
	52,114,089	24,401	52,477,664	24,353	58,556,667	21,266	51,959,767	21,843	48,614,371	24,732	合計
	17,325,570	6,785	12,408,908	6,626	11,050,977	6,447	12,878,315	6,012	8,666,429	6,752	其他スベテ
	69,439,659	31,186	64,885,972	30,979	69,607,644	32,713	64,838,082	32,905	57,280,800	31,484	世界合計

表々、一九二〇年（一九一九年）より一九三九年（昭和十四年）までの間、特定年次
ニ於ケル主要海國ニ依ル世界ノ商船隊

商船隊に關する記述

正規商船隊は客船、貨客両用船、貨物船及び油輸送船の

如き種々の型の船舶より成り、之等はより従ふべき種々の貨物のために
 於ける條件に従ひ、型及び速さも一様でないわけである。一九四〇年
 には日本商船隊は約三五〇万噸の貨物船七〇隻以上
 八四万五千噸の貨客両用船一三二隻、約四六万噸の油輸送船四九
 隻を含むのである。乾燥貨物用船(貨物船)の中には六千噸から
 八千噸のもの一四五隻あり、總計約一〇〇万噸でこの級の船舶の中で
 同一型の船舶より成る大噸数を構成してゐる(表八〇参照)
 (NOT CLEAR) 約三〇〇隻の日本貨物船は平均十二ノット乃至それ以上である
 型のアメリカの戦前の貨物船の平均の時速十二ノットに比較される。
 (表八〇参照) 船齡に關しては約一五〇万噸の乾燥貨物用船
 二二六隻が一九三〇年以後建造されたものである。比較的新しい形式の
 両用型船舶の最大級は八千噸から一萬噸級のものを計三二隻、總計
 二〇万四千噸である。計一三二隻の貨客両用船の中四九隻
 即ち三七%は時速一五ノット乃至それ以上が可能である。二〇中
 三七隻即ち二八%は一九三二年より一九四〇年の間に建造された。新型の
 部類に入る。之等は大体最新式内燃機内船である。現在
 最高速船若干がこの中に含まれる。日本の油輸送船團の六五%
 以上は一九三〇年以後建造された。計九隻の中二〇隻は時速一六ノット
 及びそれ以上可能である(表八〇参照)

No. 21

表八二、八〇及び八〇に示してある一九四〇年十二月三十一日四九万四六九九
 總噸計八八八隻とは單に二千噸噸及びそれ以上の航洋船にのみ
 言及し、合衆國海軍委員会の公式統計に基く、ロイ船級協会

(全国の船舶登記の主要。公式出所)は一。總噸乃五五以上
 の船舶を言ひ、又日本のものとして、同時期の五六三万九八四五總噸
 の計ニ三三三隻を示す。(表七)之等の数字の差は八七万五二四六
 總噸、一四三九隻に上り、其爲平均噸数は共に六〇〇英噸を
 少く越え、るであらう。之等は内海のみを用ゐられる様な型のもを
 あるは疑ひない。

商船隊の所有権

日本の汽船隊所有者の完全な表は一若し使用出来るならば一
 近海及び島内経路等の全部を含め、數百に上るのであらう。

表九は一九三八年六月三十日の正なる船舶所有者を示し、八五五隻
 總計三三〇万總噸の所有権を表はす。

表中記載の三一の日本会社所有の計三三〇万總噸は
 一九三八年迄活動中の總日本航洋船團の約七五%に上るとい
 うは有りさうなるである。表にされ噸数の三分一以上は二つの主要
 海外船舶経路者即ち日本郵船会社及び大阪郵船会社は
 依り經營されてゐる。

表 8a — 日本商船隊 2000 總噸以上、航洋船

種類及處理 = 依此

1930年 / 1935年及 = 1940年

噸 (總噸)	1930年 10月 1日								1935年 12月 31日								1940年 12月 31日							
	貨物船		兩用船		油輪送船		計		貨物船		兩用船		油輪送船		計		貨物船		兩用船		油輪送船		計	
	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸
2,000 - 3,000	101	245,341	23	55,037	1	2,417	125	302,715	88	210,775	15	36,840	1	2,417	104	250,052	135	332,482	26	67,132	1	2,417	162	402,031
3,000 - 4,000	92	3,078,191	23	75,399	—	—	115	3,852,188	89	2,967,779	19	61,711	—	108	3,584,900	125	4,252,293	19	61,560	1	3,271	145	4,901,333	
4,000 - 5,000	88	3,964,551	9	38,090	—	—	97	4,344,546	79	3,564,551	10	42,403	—	89	3,189,954	122	5,485,562	12	57,148	—	—	134	5,999,710	
5,000 - 6,000	128	916,715	20	113,403	1	5,842	149	835,960	128	718,226	11	60,737	—	139	779,013	156	865,737	14	75,998	3	16,515	173	958,250	
6,000 - 8,000	68	466,481	20	136,108	10	70,854	98	673,449	86	588,499	15	103,355	12	86,201	113	778,055	145	986,474	20	138,939	13	93,547	178	1,210,960
8,000 - 10,000	5	41,280	20	185,962	2	17,723	27	244,965	12	100,264	21	194,366	4	39,639	39	332,264	34	291,607	27	204,216	12	110,897	68	606,720
10,000 - 15,000	—	—	16	185,417	—	—	16	185,417	—	—	13	147,444	3	30,256	16	179,900	—	—	14	160,437	14	141,775	28	302,212
15,000 - 20,000	—	—	3	51,408	—	—	3	51,408	—	—	3	51,443	—	3	51,448	—	—	5	85,767	5	90,916	10	176,683	
計	482	2,176,098	134	840,824	14	96,836	630	3,113,758	482	2,291,094	107	700,354	20	156,508	609	3,127,956	717	3,450,155	132	845,206	49	459,338	871	4,754,699

表 86-日本商船隊: 2000 噸以上, 航洋船

種類別速度一依ル 1930年 1935年 1940年

速力 (ノット)	1930年 10月 1日								1935年 12月 31日								1940年 12月 31日							
	貨物船		兩用船		油輸送船		計		貨物船		兩用船		油輸送船		計		貨物船		兩用船		油輸送船		計	
	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸	數	總噸
12ノット以下	385	1,544,191	27	80,433	9	18,734	421	1,738,358	330	1,358,649	20	13,849	10	66,800	360	1,487,498	423	1,734,677	23	73,015	14	42,136	460	1,900,128
12	66	406,134	16	78,900	5	38,102	87	523,136	34	267,537	10	53,254	2	14,509	78	439,762	96	522,746	19	73,242	3	17,852	118	613,740
13		1,071,49	32	153,362			27	2,172,005	28	146,503	22	98,248	3	25,746	27	470,309	55	293,010	20	80,936	6	112,713	83	682,711
14			24	187,737			24	1,877,737	27	159,996	13	95,521			40	355,517	34	184,318	21	155,214	2	17,185	57	356,712
15	4	47,626	17	23,795			21	16,241	11	62,444	16	138,517			27	201,002	11	245,047	22	169,614	2	18,141	68	434,265
16			10	116,687			10	110,687	10	65,847	13	121,977	1	8,577	24	189,341	33	238,187	9	76,768	7	65,830	47	380,785
17			4	50,970			4	50,973	14	110,176	6	66,873	3	27,954	23	237,003	26	197,017	9	93,183	14	97,555		389,250
18			2	33,910			2	33,910					1	10,152	1	10,152	6	55,051				9,994	7	65,025
19											3	51,448			3	51,448			4	60,510	3	20,701	6	91,315
20以上			2	10,527			2	10,527			2	10,527			2	10,527			5	52,618			5	57,118
計	682	2,176,082	134	840,824	14	96,826	830	3,112,952	487	2,221,074	107	700,354	20	156,509	609	3,127,956	719	3,450,153	132	845,206	49	459,338	878	4,754,679