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JAPANESE WAR PRODUCTION INDUSTRIES

Part IV

The Shipbuilding Industry

Description

Discussion of the Japanese shipbuilding industry; corporate structure and the history of governmental control receive the major emphasis. The capacity and technological aspects of this industry are also discussed.

31 October 1945

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By the middle of 1944, Japan's losses of merchant and naval vessels had so reduced the number of oceangoing ships that she was unable to find the transport required both to supply military forces committed in various areas and to move the volume of raw materials necessary to maintain 1943 levels of industrial output. In order to make ship construction equal losses, Japan would have had to build merchant vessels at the rate of at least 2,500,000 gross tons in 1944.

Latest figures as revealed by the Japanese Diet (5 September 1945) indicate that the nation had no more than 200,000 odd gross tons of operable

merchant tonnage (over 100 tons) left at the cessation of hostilities.[1/] Diet figures for wartime naval building and losses are given in Table 10.

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B. Organization of the Shipbuilding Industry

1. Brief History and Economic Considerations

a. Review to 1932. In addition to considering the specific questions of security and convertibility in the Japanese shipbuilding industry, it is necessary that we review historically and briefly the economic aspects of the shipbuilding industry in Japan with a view to determining to what extent the industry has been expanded along uneconomic lines.

Ever since the Restoration of 1868, the Japanese Government has paid close attention to shipping problems, and soon after the war of 1895 in China, it embarked on a program of subsidies governed by laws enacted in 1896. The abnormal boom conditions prevailing during World War I, when (in 1919) 612,000 gross tons of merchant ships were launched, diminished the need for subsidies, but soon afterwards the annual amount of operating subsidies tended to revert to dimensions of 1914.

During the 1920's the shipbuilding industry entered a long period of depression. Merchant ship construction dropped to a low of 42,000 gross tons in 1927, and operating subsidies amounted to about ten million yen a year. During this period, the Government did not give direct shipbuilding subsidies, but assisted shipbuilders by means of bounties on domestic steel production and certain exemptions from import duties. In 1929 the Government framed a program for the assistance of shipping in the form of loans on easy terms for shipbuilding. A loan fund of thirty million yen was made available,

1/ This figure may be a little on the low side to gain Allied sympathy and aid for their economic reconstruction. For example, their total does not include tonnage of ships in repair which exceeds operable tonnage.

but owing to the world economic depression which followed, little use was made of this facility. A slow increase then began; the rate of increase was greatly accelerated in the early 30's by a government subsidized program of merchant ship construction. Under government direction Japanese lines acquired fast cargo ships which were the equal of any in their class in the world.

b. Scrap and Build Schemes; Shipbuilding During the 1930's. In 1932, the Japanese Government made an important decision when, with a view to improving the unfavorable age distribution of the Japanese Merchant Marine and to reducing the frequency of marine casualties, it introduced the first of three "Scrap and Build" Schemes. The first scheme, which took effect as of 1 October 1932, provided for the construction of 200,000 gross tons of new shipping, on condition that two tons of vessels of twenty-five years and ov were scrapped for each ton of new vessels built under subsidy. Each new vessel had to be 4,000 gross tons or over, capable of at least thirteen and one-half knots speed, and built in a Japanese yard.

The scheme resulted in the scrapping of ninety-four vessels of about 400,000 gross tons and in the building of thirty-one new vessels of about 200,000 gross tons.

It was estimated that the expenditure involved in building the thirt one ships was a little less than 55,000,000 yen. The total government subsidy was nearly 11,000,000 yen.

The second and third schemes, which took effect in 1935 and 1936 respectively, were on a smaller scale than the first. Their combined result was the scrapping of 100,000 gross tons and the construction of seventeen vessels of about 100,000 gross tons, the rate of subsidy being little more than half that under the first scheme. The vessels built had a gross tonn of 4,000 tons or more and were capable of over fifteen knots speed.

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By the early part of 1927, the three Scrap and Build Schemes had resulted in the scrapping of some 500,000 gross tons of old tonnage and the construction of forty-eight new fast ships of some 300,000 tons gross. These forty-eight included more than four-fifths of the total number of Japanese vessels of over 4,000 gross tons and less than five years old. At that time Japan had more tonnage less than five years old in proportion to her total tonnage than any other country. The following table shows the ships constructed and scrapped in accordance with the three ship improvement plans.

Table 17

Ships Constructed and Scrapped in Accordance with the Three Ship Improvement Plans

	Ships Constructed		Ships Dismantled		
Plan	Number	Total Tonnage	Number	Total Tonnage	Fiscal Year
First	31	196,989	94	399,122	1931-34
Second	8	49,760	12	52,798	1935-36
Third	9	50,690	13	47,235	1936-37
Total	48	299,439	119	499,155	

Note: It was not possible to ascertain the number of vessels actually dismantled under the third plan.

The cost of the three ship improvement plans totalled ¥ 14,000,000 ($4,062,800), including ¥ 11,000,000 for the first plan and ¥ 1,500,000 for each of the next two plans.

A fourth scheme came into operation in April 1937 and provided for the subsidized construction of superior passenger and passenger-cargo liners of not less than 6,000 gross tons and nineteen knots speed, at rates of subsidy approximating in some cases half the building cost. In a supplement to the Official Gazette of July 1937, it was stated that the subsidies, though payable by installments spread over eighteen years, would be paid during the next four years for the construction of 150,000 gross tons of passenger vessels and 150,000 gross tons of passenger-cargo vessels. It was proposed to spend a total of over fifty million yen on this scheme during the eighteen years beginning with 1937-38.

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Table 18 gives the total launchings of vessels of 100 gross tons and upwards for selected years between 1913 and 1938:

Table 18

Total Launchings of Merchant Vessels (in tons)

Date	Number	Tonnage
1913	152	64,664
1920	140	456,642
1930	37	151,272
1932	44	54,422
1934	155	152,420
1936	180	294,861
1937	180	451,121
1938	146	441,720

Source: Shipbuilding in Japan, 1940 (Japan Economic Federation).

The trend in the middle thirties was towards the construction of luxury passenger liners for deep-sea service, but was reversed after the outbreak of the war with China. The shipbuilding industry directly reflected the change in shipping needs from large-sized vessels for deep-sea service to small and medium-sized bottoms for coastal trade. Of the total orders placed up to the end of May 1939, 165 cargo vessels accounted for 808,670 tons. Of those, thirty-four vessels larger than the 7,000-ton class amounted to 306,600 tons, while 133 under 6,000 tons totalled 502,070 tons. Compared with the figures for 30 November 1938 or six months earlier, the former class showed a decline of two in number and 27,930 in tonnage, but the latter class gained eighty-five in number and 325,420 in tonnage.

Table 19 shows the ships launched by 1,000 ton classes between 1932 and 1938. Little change in emphasis is visible here.

Table 19

Class in tons	No. of Ships 1932	tons	%	No. of Ships 1934	tons	%	No. of Ships 1936	tons	%	No. of Ships 1937	tons	%	No. of Ships 1938	tons	%
1,000	1	1,500)		1	1,800)		18	25,320)		24	36,355)		15	29,229)	
2,000	4	9,900)	60	2	5,300)	20	7	19,050)	31	13	35,000)	24	11	30,850)	41
3,000	1	3,500)		1	3,000)		9	31,510)		8	23,030)		7	24,100)	
4,000	-	---)		2	9,000)		9	38,930)		14	62,700)		10	44,250)	
5,000	-	---)	20	-	---)	25	4	21,500)	36	6	32,380)	36	3	15,950)	37
6,000	2	12,000)		3	20,100)		6	39,200)		9	58,580)		16	104,750)	
7,000	-	---		9	66,250)		3	22,150)		13	93,420)		5	35,500)	
8,000	2	16,300		-	---)	55	2	17,550)	20	1	8,900)	27	1	9,800)	9
9,000	-	---		2	19,730)		2	18,220)		1	9,000)		1	9,800)	
10,000	-	---		-	---		3	36,800)	13	4	55,100)	13	9	110,200)	13
Total	10	43,760		20	124,180		63	270,710		93	419,665		77	414,090	

Source: Far East Yearbook, 1941.

c. Naval Construction; Comparison with Merchant Vessel Construction.

Naval vessel construction was of course also stressed during this period, as shown by the following table (Table 20). Merchant ship launchings are also shown in this table and it will be noted that minor variations exist between these figures and those previously given in Table 19. These differences are not significant, but largely reflect different source material. The information below is carried over into 1940.

Table 20

Total Tonnage of Steel Merchant Ships and Naval Vessels Launched by Yards in Japan and Japanese-Controlled Territory 1934-1940

	Naval Ships (displ. tons)	Merchant Ships (gross tons)
1940	157,510	208,014
1939	118,790	342,880
1938	53,812	438,890
1937	52,258	487,357
1936	53,305	305,803
1935	39,762	145,901[a/]
1934	38,274	154,860[a/]

Source: Glasgow Herald, Annual Trade Review, 1936, 1937, 1938. Lloyd's Register of Shipping. London, Special tabulation supplied in March, 1943. Jane's Fighting Ships, 1941. Oriental Economist (Tokyo) April, 1936.

a/ Includes only the output in Japan proper.

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2. Government Encouragement and Supervision; Laws.

a. Shipbuilding Industry Law.[1] The China and European Wars necessitated a large increase in the military shipping of Japan. It was necessary to make up for war losses in shipping as well as for the decreases in neutral and world shipping. For the most part Japan had to rely upon her own power and ability for further shipbuilding.

To cope with this newly arisen situation, Japan enacted several important shipping acts including the Emergency Shipping Control Act, the Shipbuilding Industry Act, and the Shipbuilding Control Act. Of these laws, the most fundamental is the Shipbuilding Industry Act, whose nature and function it will be well to describe in detail. The law has been described by a semi-official Japanese source in this way:

(i) Purpose of the Law. "The purpose of the Law is to increase the supply of vessels at low costs and the maintenance of adequate shipbuilding capacity from the viewpoint of national defense. The Law as passed by the 74th session of the Diet in 1939 provides measures for Government protection and control of the shipbuilding industry."

(ii) Government Supervision. "By this Law, the shipbuilding industry is brought under strict Government supervision. The establishment of new enterprises, amalgamation, and cessation of work of shipbuilding companies are subject to permission from the Government."

(iii) Shipbuilders' Privileges. "Shipbuilders, however, are given the right of eminent domain and are allowed to issue debentures to an amount twice their paid-up capital. The Government may issue instructions as regards the building of hulls, engines, and equipment not yet made in this country, and may grant subsidies in such cases. It may also order shipbuilders to use domestic products in building hulls, engines, and equipment. The Government may set standards for quality and may disqualify products which do not conform to this standard."

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[1] Passed by the 74th session of the Diet in 1939.

(iv) Government Subsidy and Indemnity. "The Government may, if necessary for the promotion of the shipbuilding industry, grant subsidies to either shipbuilders or shipowners. The Government may, in the public interest, order shipbuilders to effect changes in prices for vessels, hulls, engines, and equipment, as well as in repair costs, etc. The Government may also, when deemed necessary in the public interest, demand the installation, enlargement, and improvement of equipment, the repair of vessels, hulls, engines, and equipment, and the establishment of facilities for research on specified subjects. The Government may indemnify shipbuilders for any losses incurred by shipbuilders in the execution of these orders.

(v) The Right to Organize Compulsory Cartels. "The law also contains provision for cooperative associations which may be organized by shipbuilders for collective purchasing, administration of materials, establishment of facilities for common use, control of business activities of members, and research work for the common benefit. The Government may order members of these associations to comply with regulations and may instruct outsiders to join the organizations. Finally, the Government may instruct such organizations to undertake certain activities for the healthful development of the industry."

b. Fundamental Shipbuilding Regulations. While thus strengthening the control over shipping and shipbuilding on the one hand, Japan adopted six measures in 1939 describing the standard for cargo vessels in order to encourage construction of these vessels on the other. Out of this a new national shipping policy grew up, under which a number of plans were put into execution.

But as an aftermath of 7 December 1941 a demand for more rapid increase in Japan's shipbuilding arose. To meet the situation, a set of fundamental systematic shipbuilding regulations were adopted and made public in May 1942. These regulations were drawn up on the assumption that shipbuilders were to build, according to government plan and with powerful government assistance, as many ships within a certain period of time as the demand warranted. For the realization of this program, the following technical qualifications were considered essential:

(i) For a determined standard-size ship, certain fixed specifications of the ship's hull, engine equipment, and other parts were to be furnished to the builder along with the necessary drawings. The idea was to help facilitate mass production of ships. It was, in short, to standardize the planning, so that complications would no longer arise as they had in the past when different shipbuilders presented individual ideas, plans, and drawings.

(ii) With regard to the order for a non-standard ship, construction work would not be accepted generally, except in such a special case as the building of a passenger boat.

(iii) In order to obtain the highest degree of efficiency from every individual shipyard, each yard would be assigned the building of a certain class of ship under the standardization plan, and would make the construction of such a type its speciality. There were nineteen classes, all told, running as follows: six classes or grades for cargo vessels, three for oil tankers, one for ore-carrying ships, five for wooden vessels, and four for wooden barges. The classes were divided as follows:

Freighters:

Type A	Total tonnage	6,300 tons
Type B	Total tonnage	4,400 tons
Type C	Total tonnage	2,700 tons
Type D	Total tonnage	1,900 tons
Type E	Total tonnage	830 tons
Type F	Total tonnage	495 tons

Tankers: Total tonnage of 10,000 tons, 5,000 tons and 1,000 tons.

Mineral ore freighters: Total tonnage of 5,500 tons.

The above vessels are made of steel. Vessels of smaller types, due to the lack of steel, are made of wood. They are called standard wartime wooden ships. They may be divided into two kinds:

Wooden freighters: Total tonnage of 2,[illegible] tons, 200 tons, 150 tons, 100 tons and 70 tons.

Light wooden ships: Loaded tonnage of 300 tons, 200 tons, 150 tons and 100 tons.

c. Other Rationalization Techniques

Aside from the point that individual builders were to come under the standardized shipbuilding scheme, the following points were also stressed: (i) Standardized specification for steel used in shipbuilding, (ii) development to the utmost of the scope within which substitute materials are used, (iii) simplification of the ship's hull, engine, and equipment, (iv) expansion of the scope within which electric welding is applied, and (v) general saving of materials by improving shipbuilding technique.

3. Administration

a. The Navy Ministry (Kaigun-sho). On 5 February 1942, the Government promulgated the Imperial Ordinance relating to the special wartime case of jurisdiction with regard to the business of shipbuilding. This (a) limited the authority of the shipbuilding industry to regulate the supply and demand of important materials used for ships (i.e., set up a priority system); and (b) transferred to the jurisdiction of the Ministry of the Navy, for the duration of the war only, jurisdiction (hitherto in the hands of the Minister of Communications (Tsushin-sho)) over construction and repair of merchant vessels.

Besides insuring elasticity between materials for naval construction and materials for merchant ship construction this change made a single system out of the two construction plans, and in general contrived to regulate both. This put the construction of naval and merchant vessels fundamentally on the same footing. For it was desirable that the question of the relative percentage of naval and merchant craft to be constructed should be governed by a unified plan, in accordance with the availability of materials, building facilities, and current requirement.

Only general schedules, however, were to be set by the Navy Ministry, while the allocation of orders and raw materials for specific yards were to be handled by the Industrial Equipment Management Corporation on the one hand, and by the Shipbuilding Control Association (Zosen Tosekikai), on the other.

b. Industrial Equipment Management Corporation. Under the system of standard production and unified design which we have already described, ordering of ships by a single authority was inescapable, and the machinery that was set up to play the part of the single ordering authority was the Industrial Equipment Management Corporation. This National Policy Company took over the wartime standard-pattern ship program, on the basis of the government ship construction plans, and gave contracts to all the shipyards.

Aside from these activities, the corporation became the main instrument for financing Japanese shipbuilders and guaranteeing them against loss. In effect, it was at the same time a device for subsidizing the industry and for providing it with compensation in the case of loss, all at public expense.

According to the charter of this corporation, the necessary number of ships are to be assured as long as the country needs them. This the Government accomplishes, on the one hand, by making part of the cost of building new ships a direct national burden, and, on the other hand, by supplying floating capital for shipbuilding. By revising the ordinance concerning compensation of losses, the Government raised the limit of the floating capital it would supply from two-thirds to four-fifths of the capital value of any one shipyard. By lowering the sphere of application of these provisions it extends them to all ships classified as small wartime standard-pattern ships. It has also equalized compensation for loss of capital through its monetary organ, the Industrial Bank of Japan. (In connection with shipbuilding finances it is interesting to note that the Bank of Japan allegedly supplied ¥ 192,000,000 in 1942, in addition to the capital coming from other government agencies).

In the event that there ceases to be a national need for the finished ships and the corporation shall have occasion to sell them for private use, it has been decided that the Government shall pay compensation for losses incurred by the corporation and that the standard prices for constructing ships and for transferring them shall be decided by the Government.

The foregoing practices, besides establishing a financial policy, made the IEMC responsible for the positive expansion of shipbuilding through the application of two pivotal principles, namely, simplification of pattern and unitary construction -- one yard, one type. (See Appendix IVc for additional details).

c. Shipbuilding Control Society. The Shipbuilding Control Society is the central body directing the control associations in this industry. (To the Society is appended a consultative association which includes the related industrial control associations). The Shipbuilding Control Society assists in handling the supply of materials under a priority system. Affiliated with the central Shipbuilding Control Society are five regional shipbuilding consultative associations made up of the medium and small scale manufacturers. The president of the society, which was established in 1942, is SHIBA Koshiro (formerly head of Mitsubishi Jukogyo), and the Managing Director is Vice Admiral (Reserve) KUWAHARA Shigeharu.

According to a semi-official Japanese source, the Shipbuilding Control Society has been described as one of the planning agencies for general advancement of national power which has been established in Tokyo in accordance with the Major Industries Association Ordinance of September 1941. Member organizations of the society are designated by the Navy Ministry (formerly by the Ministry of Communications) on the basis of the following requirements:

(i) Any shipbuilding association which builds ships over 100 meters long or constructs engines for ships, or both, may be admitted as a member organization.

(ii) Any shipbuilding proprietor who cannot meet the foregoing requirements is not to be admitted.

(iii) Any proprietor who manufactures or repairs parts for ships of the required length as mentioned above may become a member.

(iv) Exceptions to the above regulations may be made upon the approval of the Navy Ministry (formerly upon approval of Communications Ministry).

The principal aim of the control society is to construct and repair ships within the framework of national planning of the Japanese Government. In order to carry this program into effect the society has also to secure the necessary raw materials and apply expert technique. The leading personnel members of the Shipbuilding Control Society include the President of the Society, the Chairmen of the Board of Directors, several Directors, several Supervisors, and several Advisers. The President of the Society is appointed by the Navy Minister (formerly by the Communications Minister). The Chairman and Members of the Board of Directors are appointed by the President of the Society, but with the approval of the same Minister, who, if he sees fit, may order the dissolution of the Shipbuilding Control Society. The Society holds an annual meeting at its General Headquarters within two months following the end of each year. Provisional meetings may be called upon the suggestion of the President.

Each member organization is required to make reports to General Headquarters concerning its construction progress, the condition of ships which it is repairing, the nature of the furnishings of its ships, establishment of new branches or various changes, relating to the ships themselves, labor, capital, and planning. (See Appendix IVf for list of members of the Shipbuilding Control Society).

d. Local Associations (Kumiai) in Wooden Shipbuilding. At the outbreak of war, Japan's wooden shipbuilding industry consisted of over 3,000 yards, most of them employing less than ten workers and building small vessels by traditional handicraft methods. To unify and expand them to an industry capable of building a cargo fleet of significant dimensions has meant a drastic reorganization of the industry.

The first step was the forced consolidation of these yards under centralized government control. The 3,000 yards were reduced by merger to 600 and these in turn organized into 41 local associations, or Kumiai (in all urban and rural prefectures). These wooden shipbuilding associations were further organized into one unit, the Japanese Federation of Wooden Shipbuilding Associations.

Quotas of wooden vessels designed according to standard specifications were then allotted to each firm by the Japanese Federation of Wooden Shipbuilding Associations (later merged in or affiliated with the Shipbuilding Control Society under the "New Economic Structure"), under the direct control of the Ministry of Communications (later probably under the Navy Ministry.) The Navy, which controls steel ship construction, was given supervisory power over the building of vessels under fifty meters, as well as the control over the supply of engines and fittings. Quotas of materials, machinery, tools, etc., were allocated under the national economic mobilization plans. Low-cost financing and bonuses for production afforded financial incentives.

Excerpts, pages IV-239; IV-252 - IV-257; IV-259 - IV-269.