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**THE INDUSTRY AND TRADE
OF JAPAN**

THE INDUSTRY AND TRADE OF JAPAN

BY
S. UYEHARA, M.Sc.

Second (Revised) Edition

*Review
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PREFACE TO THE SECOND EDITION

TEN years have elapsed since the first edition of this book was published, during which period a phenomenal development of industries has taken place in Japan, and the expansion of her foreign trade has been most remarkable, whilst other countries are still affected by economic disturbance. Her economic activities at home and abroad during these years have drawn the keen attention of the world. Japan is now highly industrialised in the true sense of the word, and regarded as a formidable competitor in the world's trade.

In view of the above, I have ventured to revise my book and to bring it up to date, for which purpose I have altered its construction to a certain extent.

S. UYEHARA.

Zushi,
Japan,
September, 1935.

PREFACE TO THE FIRST EDITION

THERE are many books on Japan. For a long time, however, the world knew her only as the land of artists and of the quaint people portrayed in stories such as "Madame Chrysantheme." It was not until recent years that Japan became recognisable to the outside world in political and economic affairs. Many books relating to these affairs have been published in English, and read with keen interest. Nevertheless, there is a lack of authoritative information regarding the economic development of present-day Japan, who is so much over-estimated by some and under-estimated by others owing to the lack of proper information.

Japan's future lies along commercial and industrial lines. The purposes of Japan are peaceful, and look to the development of markets and the employment of her ever-increasing population.

The object of this thesis is to provide an authoritative account of the industry and trade of Japan for the past half-century, during which period Japan has achieved remarkable progress. I have tried especially to lay stress on the industrialisation of Japan, and also to emphasise the present industrial stagnation.

The difficulty of collecting material for the work was not small. Fortunately, the official year books of the Departments of Finance and Commerce of the Japanese Government, which are kept in the library of the Imperial Japanese Consulate-General, London, and the *Oriental Economist*, one of the best economic journals in Japan, rendered me great service in compiling the thesis. All statistics, other than those which are otherwise referred to, are taken from the *Teikoku Tokei Nenkan* (Imperial Year Book of Statistics). It must be added that a great part of the section on "Representative Industries" was suggested by various articles in the *Oriental Economist*.

At best the thesis must be considered as a rough one, to be improved and enlarged later not only on the subjects which are principally dealt with, but also on such topics as labour and agricultural conditions in Japan. Nobody can be more aware of omissions and faults than myself. But as it stands, I venture to claim that this thesis provides an account of Japan's industrial and trade development during the last fifty-seven years which is not otherwise readily obtainable.

S. UYEHARA.

20, Basset Road,
North Kensington,
London, W.10.
July 5, 1925.

INTRODUCTION

By HIS EXCELLENCY BARON HAYASHI

(Japanese Ambassador to the Court of St. James)

IN his preface the author has set forth the motive which actuated him in preparing, for the benefit of British readers, this exhaustive account of the development of Japanese industry and trade since the Restoration of 1868. But he has modestly omitted to mention a further object which he might with good reason have claimed to have accomplished. He has said nothing of the good work he has performed in endeavouring to increase the mutual understanding and goodwill which have so long existed between the island nations of the East and the West. For, to my mind, this purpose is admirably served by the provision of information such as the author has here collected. To know a friend's difficulties and struggles is to appreciate his achievements or to commiserate his failures. It is for this reason that I particularly commend Mr. Uyehara's record of my country's economic development to the sympathetic perusal of the British public.

HAYASHI.

London,

July 22, 1925.

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PART I

INTRODUCTION

THE MEIJI RESTORATION AND THE HALF-CENTURY FOLLOWING

HAVING passed through the long period of isolation during which nation and people were barred from foreign intercourse, Japan began the most illustrious epoch in her development after the Meiji Restoration ¹ of 1868. Japan was successful not only in the stupendous task of reorganising her institutions on Western models and introducing many of the features of modern civilisation, but also in adopting Western economic and financial methods in every line of business, by which her national economy has been completely altered. It was a renaissance in the economic as well as in other spheres of national life. From the modern industrial point of view, the study of economic development since the Restoration is worth more than that of the whole of the rest of Japanese history.

DOWNFALL OF FEUDALISM

In England, feudalism came to an end in the 15th century and its influence was felt in France until the Revolution.

¹ The Meiji Restoration. Japan had been governed by the Shogun, in the name of the Emperor, for more than four centuries before 1868, when the Shogunate administration ended and power was again restored to the Emperor. The Restoration resulted in an epoch-making change in the political, social and economic development of Japan. We therefore call this notable period the Meiji Restoration, after the name of the Emperor Meiji.

The Shogun was the title of the militaristic ruler who administered Japan and who originated from the Minamoto Family in the fourteenth century. From about the middle of the fifteenth century a state of anarchy prevailed, and the Shogun completely lost his prestige. Tokugawa Iyeyasu, however, succeeded to the title again, and established the Tokugawa Shogunate at the beginning of the seventeenth century, which lasted over two centuries and a half, until the new Meiji era was established in 1868.

But in Japan it was the dominant social and political system up to the middle of the nineteenth century. In fact, Japan was the last country in the world that abolished feudalism.

In 1868 the Shogun, *de facto* sovereign, gave up his political and military power to the Mikado, *de jure* sovereign, and the feudal lords or daimyos returned their rights and privileges in their domains to the Emperor. Thus, the Emperor regained the old authority of his dynasty, and the new Imperial Government was promptly formed, with possibilities for rapid expansion and prospective growth. The country was opened up to foreign intercourse, and Western civilisation was introduced. Things were greatly and rapidly changed in the political, social and economic life of the nation.

Why had the Shogun to retire behind the scenes of the political stage? Why had the old mediæval institutions to come to an end? These questions provide the most interesting problems in Japanese history. It may be said that the main cause of the Great Restoration of 1868 was the fact that the decay of the Shogun's old prestige had become known to the people since the occasion when in the middle of the nineteenth century, an allied force of the Western Powers menaced Japan on the ground that she would not open her ports to foreign commerce and intercourse. The Shogun, who had kept the great suzerainty for centuries—who had never yielded to the pressure of public opinion—showed himself entirely powerless to control opinion as to whether the country should be opened up to foreigners. Some lords opposed the open-door policy against the Shogun, others supported it. Agitation against the Shogun was widely prevalent. The malcontents did not hesitate to take up arms. The Shogun's orders were thus entirely ignored, and grave disturbances followed. Internal affairs were at the height of confusion. The thirty years before the Meiji Restoration was an age of intrigue, uneasiness and terror. At this time of national peril, the Government of the Tokuwaga Shogun then in power concluded commercial treaties with the Western Powers

without the sanction of the Emperor. This provoked immediately a determined challenge on the part of the loyal feudal lords. The defeat of the Shogun in civil wars forced him to surrender his régime to the Emperor. Thus, Western influence and the powerlessness of the Shogun were apparently the combined causes of bringing the new era to Japan.

Nevertheless, what we must not overlook is the extremely distressed economic state in which Japan was placed at that time. The menace of Western Powers could not cause such a drastic change without internal economic disturbances. Feudalism would have continued much longer if the economic condition of the country had enabled the people to be better off than they were before. We can imagine no modern revolutions having occurred without relation to economic factors. As we open the pages of the history of Japan during the nineteenth century, we are forced to the conclusion that a great change in the national life of the country was bound to take place sooner or later, owing to the economic distress prevalent at that time. At the beginning of the century the deterioration of the nobles and the moral decay of the upper classes were at their height; farmers especially were reduced to absolute misery and poverty, owing to excessive taxation and their slavish position. There was then no equality and freedom, no complete safety of life and property. Great barriers divided the classes. Even an ordinary Samurai (professional warrior class) could not see his chief, and could never have audience with the Shogun. The common people had to kneel and bow so low as to touch the ground with their foreheads whenever they met a procession of feudal lords. The commoners had no right of appeal against the unlawfulness, inhumanity and tyranny of classes higher in the social scale. It was not an uncommon thing for them to be whipped if they failed to pay heavy taxes. In those days the revenue of the State was derived mostly from rice-fields and farm lands; therefore the farmers, who were taxed both by the Shogun's Government and by the feudal lords, were the main sufferers. Bad harvests occurred in succession,

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and plague often visited the country during the period of distress. In spite of this, the expenditure of the Government continued to increase owing to its vast waste of money and the general extravagance of the nobles. The debasing of coinage by the Government for the purpose of balancing the deficit in the revenue, and the depreciation of the paper currency issued by the feudal lords—there were 1694 kinds of local currency in circulation before the Restoration—eventually caused a rise in the price of commodities. At the same time, the feudal lords imposed more taxes in order to gratify their extravagance. As mentioned above, taxes were then chiefly levied on rice-fields, and were collected in rice.¹ Farmers who had to pay taxes of a fixed quantity of rice were greatly distressed by the rise in prices. They had nothing left after paying the taxes, and were unable to buy even the necessities of life.

Those who received the taxes in the form of rice increased their incomes owing to the rise in prices, and immorality and decadence became rife. Thousands of farmers discarded the spade and plough and came to the towns in order to be free from the fetters of heavy taxation. During the first decade of the nineteenth century the number of farmers decreased by 1,400,000, owing to deaths from misery and poverty, and also to this removal to the towns, which were full of undesirable and unemployed Samurai. The towns were congested with thousands of workless people, and great uneasiness was prevalent in the country. Riots occurred in various districts. In the meanwhile Western ideas had been gradually introduced through Dutch traders. The Government could not display its old despotic dignity. Feudalism was everywhere in decay, and the downfall of the Tokugawas was rapidly approaching after the three hundred years of isolation, which had been imposed for their safety.

The revolutionary atmosphere was very marked. No reforms could be attained without the abolition of feudalism. There was no reason why the majority of the people

¹ The unit of measurement for purposes of taxation was then a koku of rice, one koku being equivalent to five bushels.

should suffer in order to keep a few of the higher class in extravagant diversion. There was no reason why high administrative positions should be hereditary. The ideas of liberty and equality were spreading. It was obvious that the orders of the Tokugawa Government had no effect on the people. A despotic policy based on feudalism was seen to be absolutely inapplicable for the national welfare from the economic point of view; the time was ripe for a great national change. At this grave period "the people were awakened by the sound of cannon-balls fired from the American flagship in the bay of Uraga."¹ The country was at once thrown into confusion, and the downfall of feudalism was brought about. It was not merely a restoration of the Imperial régime, it was also the inauguration of modern capitalism.

DAWN OF THE NEW ERA

The outworn institutions of the feudal régime, no longer capable of maintaining the welfare of the people, had necessarily to be replaced by others in accordance with modern ideas. As soon as the Imperial régime was restored, many reforms and changes were successfully undertaken in the political, social and economic spheres. There was no more absolute rule; the new Government consisted of three departments under one supreme Sovereign, namely, the legislature, the executive and the judiciary. The army was reorganised on the German system of universal military service. The country was divided into more than forty administrative prefectures, and the old feudal domains were abolished. The feudal lords received compensation from the Government in the form of national bonds in proportion to their feudal incomes. To the Samurai the Government also gave an annuity in money and bonds. These amounted to about yen 35,000,000. The new financial system was inaugurated at the same time, though it remained in difficulties for the first decade of the Meiji era. Modern institutions replaced those of feudalism.

¹ From Prof. Sato's *Some Historical Phases of Modern Japan*.

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Apart from these definite constitutional changes, we have to notice the psychological changes of the new era.

The spirit of the Restoration can be clearly observed in the Oath sworn by the Emperor Meiji, which is well known in Japan as the "Gojo-no-Goseibun." The Oath was pronounced on the 14th March, 1868, and was an indication of the way in which the new Japan was developing.

The Gojo-no-Goseibun :

(1) Public meetings shall be allowed. National affairs shall be administered for the benefit of the nation.

(2) Rulers and ruled alike shall devote themselves to the good of the nation.

(3) All the civil or military officials shall endeavour to encourage individual industries of all kinds, and to promote the activities of the people according to individual ability.

(4) Moral and social defects in the nation shall be remedied.

(5) Useful knowledge shall be introduced from the outside world, and thus the foundations of the Empire shall be strengthened.

Following this, new laws were introduced, the old feudal system of privileges was abolished and all people were considered of equal standing—there was no discrimination between classes. Individuals were freed from all the restraints which had formerly existed. The most significant thing which occurred after the Restoration was, however, the progress which was made in the economic sphere. One after another industrial methods employed in Europe were introduced into Japan. In the interval between the feudal and the modern era Japan had to go through a period of economic confusion in order to reform the old system, and to adopt at the same time new Western methods. Economic results following directly on the Restoration were : (1) free competition and the entry of the Samurai class into commerce; (2) freer use of capital and a more economic distribution of industries in consequence of the opening up of foreign trade.

The abolition of feudal privileges and the establishment of equality brought about the fundamental reorganisation of the economic system. Before the new era was begun, trade and industries could only be engaged in by those who

belonged to the guild or "ZA." The number of the "ZA" and the number of members in them were limited by the feudal lords. The purchase or transfer of land was strictly prohibited or restricted, consequently utilisation of land as capital was at that time totally impracticable. The right to select an occupation according to individual ability and the right to freedom of movement were not often allowed. Both the Shogunate Government and local feudal Governments had not only the exclusive power to take whatever products in their domains might be necessary, but they also continually interfered with individual enterprises. It can therefore be understood that in those days free competition did not exist and progress was impossible.

After the Restoration, however, these restrictions were removed and replaced by freedom of occupation, and the complete recognition of private property (including property in land), which enabled individuals to sell, transfer and purchase at their discretion without interference. Trade and industries formerly kept only for privileged persons were now freed from restrictions. As a consequence there was great confusion. Many wealthy and well-known families, which had depended upon their older privileges, collapsed amidst the sudden social change, while, on the other hand, men rose from practically nothing to be the possessors of great wealth. A noticeable thing during this chaotic period was the position of the Samurai class, which at that time numbered half a million (or two million, including dependants and families). They were soldiers, belonging to their respective lords, and living on an hereditary pension. They were kept as fighting soldiers for unforeseen emergencies, and had practically nothing to do with actual business. Therefore, they were very ignorant of business affairs, and were rather proud of this, as they regarded trade as a very humble occupation and as being something entirely beneath them. The "Hyakusho" (farmers) and the "Chonin" (merchants) had to deal with these matters for the Samurai. So long as the Samurai could live on their feudal pension, they could afford to retain this peculiar idea. But after the Restoration, when the feudal pension

was stopped altogether, they suffered great hardships, as they had no experience of business. However although the system of pensions was abolished, loans were granted to the Samurai, varying according to their rank, and for a long time they were a great burden to the nation. The loans granted were not sufficient to enable them to live as before, and the majority of the Samurai had to make a living under conditions of free competition. Some used the loans as capital to start a new business career. Unfortunately they were not experienced enough in their new enterprises, and mostly failed. The saying "business of Samurai," which meant "a business which is expected to fail through inexperienced management," was very common at this time. Thus the Samurai, numbering, as already stated, with their dependants, some two million people, were suddenly plunged from a position of security into the depths of poverty. Their training had unfitted them for the new conditions, and their misery was one of the chief causes of the economic unrest that marked the beginning of the new era. It must not, however, be forgotten that men of culture and wider knowledge belonged mostly to the Samurai class, and the leading men in Japan in those days, such as Okubo, Kido, Saigo, Itagaki, Soejima, Ito and Yamagata, who carried through the splendid work of the Restoration, came mostly from this class. The task which these young leaders undertook was really Herculean.

Although the Chonin had great opportunities open to them their experience and knowledge were limited to either the town or the surrounding district, and rarely extended to foreign countries. However, things eventually changed, international markets expanded, modern machinery was introduced rapidly on the opening up of foreign intercourse. Natural obstacles to the improvement of the system of communications were gradually overcome; long-distance journeys under the old methods were entirely done away with. Mass-production methods were developed by the use of machinery.

Thus, business methods under the new conditions were totally different from the old-fashioned ways, beyond which

the Chonin could not go. At this time the young leaders of the Samurai lost no opportunities of introducing to the nation modern economic methods, which they considered in accordance with the demands of the new age, and they put their countrymen in touch with economic developments in the international field. In fact, it was the Samurai, and not the Chonin, who first engaged in foreign trade. Similarly, it was the Samurai also who gallantly started enterprises on a capitalistic basis under the joint-stock system. It may be said that the industrial reformation which followed the Restoration was made possible by the new commercial class of the Samurai.

We next notice a change in the industries of Japan owing to the opening up of foreign trade. Conditions in trade and industry which had existed during the period of Japan's isolation were totally altered after the beginning of the growth of foreign intercourse. Cheap but good-quality foreign goods, such as cotton and woollen articles, were rapidly imported, while, on the other hand, the special products of Japan, such as silk, tea and hand-made articles, were in great demand by foreign countries. As a consequence, home consumers of such imported goods enjoyed many advantages in respect of low prices and good quality, although home suppliers of the same lines suffered from the severe foreign competition. However, the home industries which were encouraged by the great foreign demand provided a favourable opportunity for producers, and the result was more employment. Many of those who suffered from foreign competition were compelled to start other industries which were more profitable; and there was a general movement of capital and labour into the most favourably situated industries. The more economic distribution of capital and labour thus came about naturally. In the meantime, the surplus capital and labour accumulated as the result of the introduction of machinery and the better distribution of capital was employed in the various new industries. Much of the new land which had been used for cotton-growing was given over to tea and mulberry cultivation, and the other industries producing what are

now generally classed as "miscellaneous goods," such as matting, mats, lacquers, braids, toys, china and porcelain, were started at this period. The seed of the present development of industries was sown in these early days. The increase of production and capital was followed by prosperity; people enjoyed a higher standard of living and accumulated wealth, the result of which was clearly reflected in the rapid increase of population. Japan's population, which was less than 30,000,000 before the Restoration, increased to 33,000,000 in 1873, and to 40,000,000 in 1889.

DEVELOPMENT OF INDUSTRY AND TRADE PRIOR TO THE GREAT WAR

Thus the Meiji Restoration inaugurated the new industrial era, following on the abolition of class privileges during the period of social and economic unrest, and also originated the new capitalistic movement and the modern factory system.

It was not, however, until 1870 that the first commercial company, called "Tsusho Kaisha" (General Trading Co., Ltd.), modelled on the modern system, was established. Soon after this a Banking Corporation was formed, which is now considered to be the first financial company in Japan. These establishments promptly familiarised the Japanese with methods of modern enterprise. It must not be forgotten, however, that the Japanese industrial and commercial enterprises were, roughly speaking, undertaken by the State from 1870 to 1883. During this period the Government owned the main factories in Japan and worked them, owing to the lack of experience of the people in modern methods of business management. In order to educate the people in technical and other knowledge, the Government had to establish and supervise these factories. For instance, the Government owned railways, coal and other mines, shipbuilding yards, textile factories, including silk, cotton, wool-spinning and weaving mills, and also factories for the manufacture of paper and glass.

During the thirteen years following the Meiji Restoration—that is, the first half of the period (1868-93)—the

industries of Japan may be said to have been in their infancy under State management. About 1883 the industries under State management were one by one handed over to private enterprise, which was at the same time subsidised by the State for the purpose of encouraging staple industries; thus the policy of State management was replaced by private enterprise.

This new policy of the Government was very successful. A knowledge of modern industrial methods was rapidly acquired, and consequently industry made wonderful progress for a short period. In March 1890 the new Commercial Law was promulgated, in accordance with commercial and industrial development. Then the Bank Act came into force in July 1893, and this began a new epoch for banking, while the Stock Exchange Act was also passed in the same year.

The period of State-controlled industries ends with the Japanese-Chinese War of 1894, which was followed by preparations for future industrial development. If we compare the capital of various companies at the beginning and end of this period (1868-93), we can clearly see the great industrial and commercial strides made in such a short time. The authorised capital of various companies at the end of 1893 was yen 297,000,000, being almost twelve times more than it was in the early part of the period.

During the war with China, special industries connected with war supplies enjoyed a great boom, in spite of the depression prevailing generally in other industries. This depression was due to financial difficulties and scarcity of labour, also to the disorganisation of transport caused by military necessities on land as well as on the sea. The war which broke out in the early part of 1894 continued for about a year. In the spring of the following year Japan gained a great and glorious victory, which was followed by the signing of the Shimonoseki Treaty,¹ the main terms of

¹ Shimonoseki is a port (population 100,000) on the extreme south-west point of the main island of Japan, "Honsu." The Treaty Conference between the countries was held there, and the famous Shimonoseki Treaty was signed in April 1895. The Treaty contains the following clauses:

(1) Complete independence of Korea.

which were 200 million taels indemnity and the cession of Formosa and the Pescadores off the coast of South China. After the victory and the indemnity payment all industries flourished and many new ones were promoted. The boom reached its height in 1897, when gold-coinage was introduced. In fact, the most important direct causes of the post-war industrial prosperity were the establishment of the gold-coinage system and the revision of the one-sided treaties concluded by the Tokugawa Government in 1858. The former, needless to say, fostered Japan's industry and trade tremendously in international markets. The treaties of 1858 contained the humiliating clauses of extra-territoriality and restriction of customs duty to the very low level of 5 per cent. Before the war with China the revision of the one-sided treaties had been early demanded by both Government and people, and strenuous efforts had been made to secure this end.

However, it was not until 1894 that a revised treaty was signed in London, when it was seen that Japan's movement against China would be successful. It was much easier to revise the treaties after the victory, and the example set by Britain was soon followed by the other Powers. It was obvious that the revised treaties offered great encouragement to the improvement of Japan's industry and trade in both the international and home markets. Japan's international status also changed fundamentally after the war with China.

The war boom, which developed to an excessive degree, was followed by a slump in 1898. Industries again rallied at intervals during the two following years, but panic occurred in 1901. Although it was a terrible blow to the

-
- (2) Cession of the Liaotung peninsula and Formosa and the Pescadores.
 - (3) An indemnity of 200 million taels.
 - (4) Four inland ports must be open to commerce and the Yangtze River to navigation.

Soon after the Treaty was signed, however, Japan was forced to waive the cession of the Liaotung peninsula, owing to the military threats of Russia, Germany and France, made on the pretext of preserving the peace of the Far East, and she had to console herself with an additional 30 million taels.

newly-established industries in Japan, they soon recovered, foreign trade rapidly increased and normal prosperity was regained.

If the decades preceding and following the Japanese-Chinese War are compared, it will be seen that good progress was made in industry and trade. The import trade of 1894-1903 increased more than six times in value and four times in volume, the export increased five times in value and three times in volume, as compared with those of 1884-88. The paid-up capital of all companies amounted to yen 232,000,000 at the end of 1893, which increased to yen 887,000,000 ten years later. As to the classification of capital investment, banking held the largest percentage, and railways came next; other industries, such as engineering, chemicals, electric power supply, textile, shipping and mining industries, were very insignificant as compared with the former two.

Just ten years after the war with China it was necessary for Japan to draw her sword against Russia, in order to defend her existence and keep the peace of the Far East. To ascertain the reasons for hostilities we must go back to the time when the three Powers, Russia, Germany and France, demanded from Japan the renunciation of the Liaotung peninsula. True to the plan for the occupation of China and surrounding lands made by these three Powers, Russia established herself in Manchuria, and eventually controlled the peninsula of Liaotung, thereby gaining influence in Korea; she ignored the special interests of Japan in the Korean peninsula, and treated her with contempt. In spite of Japan's conciliatory offer and the conventions and memoranda exchanged between the two countries, the Russian attitude towards Japan became more and more arrogant and insolent. The relations between them suddenly became critical when Russia showed signs of preparations for war and marched her armies right into Korean territory, thereby ignoring the first clause of the Shimonoseki Treaty. In fact, the Russian invasion of Manchuria and Korea was a direct menace to Japan. The war broke out at last in 1904, and it was known as the

greatest war in history, both financially and in the number of troops engaged, until the European struggle of 1914-18.

On the outbreak of the war the financial situation in Japan became critical, owing to heavy taxation and the enormous increase in military expenditure. An economic depression was threatened, and all industries, with the exception of those connected with war necessities, were badly hit, especially textile firms. At this most critical time, financial help was afforded by the importation of foreign capital raised by the Government as well as by private firms. The amount raised reached approximately yen 1,120,000,000 by the end of 1906.

In the meantime, the war ended in a glorious victory, surpassing all previous ones. The Portsmouth Treaty was signed by the representatives of the two hostile countries on the 5th September, 1905, through the mediation of President Roosevelt of the United States of America. Although Russia refused to pay an indemnity, she agreed to hand over to Japan the lease of the Liaotung peninsula and the South Manchurian Railway, with mining and other rights, and to cede her the southern half of Saghalien. The recognition of Japan's supremacy in Korea was, of course, included in the treaty.

From an economic point of view the result of the war was a landmark in Japan's external as well as internal development. Japan expanded her trade rapidly, and the volume of capital increased a great deal. This expansion was aided by financial and industrial progress during the post-war boom, but the usual reaction set in, and industry had to suffer. This situation was made worse by the American panic of 1908, which did much harm to Japanese industries, as Japan had been in close economic relationship with America. However, the loan-raising policy of the Government appeared very successful in helping those industries which were in trouble, and the Government lost no opportunity of assisting them back to prosperity. Those regarded as the key industries in the future national development were especially protected from

foreign competition by means of high tariffs and Government subsidies. The most significant feature of economic progress during the period of the ten years following the war with Russia was the rapid development of manufacturing industries, machinery, electric enterprise and shipping, which caused a remarkable increase in the volume of the foreign trade of Japan. It must also be remembered that the direction of economic development during this period was totally different from that of the development of industry in the previous years. Japan now took the first steps towards industrialism, and began to change from an agricultural to an industrial country.

Thus, the period (1904-13) between the Japanese-Russian War and the outbreak of the Great War may be said to have been the record stage of industrial development up to that time. It was, however, totally surpassed by the unprecedented development which followed directly after the Great War.

After the two previous victorious wars the status of Japan was immensely raised, and she ranked nominally as one of the "first-class" Powers. However, from the financial and economic points of view, her position, internationally speaking, did not justify such a classification. Although the development achieved up to the year preceding the Great War was a wonderful record for her, the industrial progress of Japan did not keep pace with her military expansion, which was so great and successful that other Powers now began to watch her movements with jealous and suspicious eyes.

DURING THE GREAT WAR

Prior to the Great War, Japan's foreign trade was still mainly limited to Asiatic countries and North America. Items of exports were still mainly those of Japanese special products which were worked by hand. The factory system was not in full operation. Common goods which are internationally demanded were not satisfactorily manufactured so as to make other countries look upon Japan as a future competitor. Had not the Great War come

about, Japan would still have been in the position she was before so far as her economic development was concerned.

The advent of the Great War was, to Japan as she then was, a real stimulus, and a golden opportunity for her to equip factories thoroughly with modern machinery and to establish industrial methods in accordance with up-to-date requirements. Industries flourished greatly, and the volume of foreign trade increased to a most remarkable degree. Japan, who had the great advantage of being far away from the field of action in Europe, rapidly made herself one of the leading countries for supplying goods to all parts of the world while the countries in Europe were engaged in the struggle. Consequently, Japan's foreign trade rose in value to an unprecedented extent, totalling over yen 708,307,000 for exports and yen 532,450,000 for imports in 1915, and yen 1,962,100,000 for exports and yen 1,668,144,000 for imports in 1918, although exports in the latter year showed an increase of 27 per cent. in volume as compared with those of the former year, and imports a 42 per cent. increase. The most remarkable thing was the vast excess of exports during the War. After the war with China there had been a continuous "adverse" trade balance, with the exception of 1895, 1906 and 1909, but now Japan's foreign trade balance changed completely, and from 1915 to 1918 exports exceeded imports. The total excess of exports during this period reached yen 1,408,000,000.

VALUE OF THE FOREIGN TRADE OF JAPAN (1915-1918)

Year.	Index number. (1914 = 100.)	Exports (yen 1000).		Imports (yen 1000).	
		Actual Value.	Revaluation.	Actual Value.	Revaluation.
1915	103	708,307	688,065	532,450	516,947
1916	144	1,127,468	782,963	756,428	525,298
1917	179	1,603,005	895,533	1,035,811	578,665
1918	230	1,962,101	853,087	1,668,144	725,280

In addition to the excess of exports, we must note that the "invisible" exports were increased in a similarly favourable way. The amount of the excess of such exports

reached the colossal figure of yen 1,400,000,000 during the same period; therefore, Japan's credit with foreign countries amounted to yen 2,800,000,000 during the above four years.

As a consequence, inflation of currency followed, causing a rise in the prices of commodities and stocks, rapid increases of profits and a considerable expansion of industries, especially of manufacturing. The total issue of bank-notes increased considerably after 1916, and by 1918 reached three times the amount of the pre-War issue, making the amount the highest ever known in the history of Japanese currency. This great inflation was, no doubt, the result of the colossal excess of exports, the considerable income from invisible trade and the accumulation of gold specie abroad. As a result of the inflation and the war-time abnormal financial and industrial conditions, the prices of commodities rose rapidly. At the same time, the prices of stocks and shares and dividends of various industrial companies rose to a corresponding degree. The amount of capital invested during the five years 1914-18 for the establishment of various companies and the expansion of businesses already existing, and for the raising of debentures, reached yen 5,440,809,000 and 2,124,406,000 respectively.

It is interesting to observe the striking economic development of Japan during the War, and to compare it with the figures recorded directly after the Japanese-Russian War. The boom of 1906-7 which followed the war with Russia was said to be the biggest, with the exception of the one experienced during the Great War.

	The Boom of 1906-7.	The Boom of 1914-18.
Highest index number of prices	120 (1905 = 100)	230 (1914 = 100).
Highest figure of new capital issues in one year	Yen 1,000,000,000 (1906)	Yen 2,667,000,000 (1918)
Average rate of dividends. (Cotton Industry)	24.4% (1906-07)	52.7% (1914-18)

From the industrial and commercial points of view, it is obvious that Japan, economically, developed greatly during the Great War. The most significant feature of all during

this period was the striking tendency towards industrialisation; exports of finished goods increased, whilst those of unfinished goods decreased; the factory system was replacing the domestic system; labour was becoming more skilled.

As Japan became rapidly industrialised, however, she experienced many disadvantages which had not been foreseen. The advance of the industries and trade of Japan was due to her strenuous efforts to adopt Western methods and to reorganise her industries and commercial institutions; also to two victorious wars and to the fact that the Great War offered Japan great opportunities to expand her industries and trade; but what contributed mostly to her economic progress was the fact that she possessed abundant cheap labour. Low wages and long working-hours compensate to a certain extent for the high cost of raw material and other expenses of production. Nevertheless, the rapid increase of wages and cost of living during and since the War tended not only to diminish this advantage, but also brought her natural disadvantages—such as scarcity of important raw materials—to the surface. Moreover, the high price of fuel, low efficiency of production and the high rate of interest helped to handicap Japanese industries in international competition, which was greatly felt when the post-War depression came and keen American and European competition was renewed.

THE POST-WAR DEPRESSION

As soon as the War was over, economic confusion reigned all over the world. It was obvious, however, that the countries most benefited by the War were the ones to feel most severely the post-War depression. Japan's position and prosperity, newly established in trade and industry, which had undoubtedly developed more rapidly than was desirable, suffered a great set-back. This resulted, in 1921-22, in the liquidation or reduction of capital of the newly-established firms. The total reduction amounted to about yen 980,000,000 up to September 1922. Not only had exports begun to decline in 1919, but also the adverse

trade balance again came into existence. The excess of imports during 1919-24 amounted to yen 2,256,015,000, which exceeded by more than yen 850,000,000 the excess of exports recorded during the previous five years.

Despite the slump in industries, the rapid decline of exports and the continued adverse trade balance, the inflation of currency continued, prices of commodities, especially food prices, kept soaring, and the unemployment and labour disputes presented difficulties such as had never before been experienced in Japan. In fact, the period of 1921-22 was the most critical in Japan's trade and industrial history. However, since the latter part of 1922, economic conditions in Japan seemed to be in a more settled state. Then came the disastrous earthquake of September 1923, which wiped out instantaneously hundreds of thousands of yen of material wealth. The loss of life was appalling, reaching 156,693, and the direct and indirect material damage caused by the earthquake and subsequent fire was estimated at about yen 5,506,386,000, which left Japan literally as poor as if she had suffered from a first-class war.

The disaster which mercilessly destroyed life and property, as well as dislocated, to such a large extent, domestic and foreign trade, also prolonged financial reorganisation and industrial readjustment. It was generally feared that an economic panic might occur sooner or later. Earlier than had been anticipated, there was a sudden financial disturbance in the spring of 1927, which seriously affected industrial and commercial communities throughout the nation. Several State-controlled colonial banks were on the verge of bankruptcy, a great number of private banks had to be closed down and numerous industrial concerns liquidated. Foreign trade suffered severely through the great fluctuation of the exchange rate against the yen, which was then under the gold embargo.

A new Government was promptly formed for the special purpose of coping with the serious situation, but it was succeeded by another after two years' unsuccessful struggle. The Hamaguchi Government, which was formed in July 1929, announced that a radical curtailment of national

expenditure and the return to the gold standard were inevitable under the circumstances, in order to cope with the internal situation and to improve foreign trade.

In January 1930 the gold embargo was lifted as promised, and this, although it stabilised the value of the yen, soon caused a rapid outflow of gold specie, deflation of currency and fall in prices of commodities.

Instead of beneficial economic results being realised, as was so eagerly expected, the financial and industrial measures adopted by the Government proved to be far from satisfactory. Business became very inactive in all ways, small manufacturers and traders especially had to suffer most, and those engaging in agriculture were placed in very precarious circumstances. Large industrial concerns had to curtail production, throwing a great number of workmen out of employment, which caused a grave social problem.

Confronted with these unexpected difficulties, the Government realised that free export of gold could be no longer maintained and that its negative financial policy could not be pursued. It was not, however, until December 1931 that the reimposition of the gold embargo was insisted on by the succeeding Government, which was formed under the pledge of expansionist policy. Prior to this, the gold standard of Europe had already begun to collapse: in Austria in the summer of that year; and Germany was also involved in the same trouble. Great Britain, who was thought to be the last country to surrender, suddenly decided to ban the export of gold in September 1931, following which the Scandinavian countries also imposed the embargo. By this time, the general slump the world over went from bad to worse, and financial and industrial commotion seemed to spread far and wide. It was in May 1933 that the United States of America was eventually brought to a nation-wide financial panic, which resulted in the imposition of the gold embargo a month later. The financial chaos of the world was greatly accentuated by the American collapse, and reached its peak, jeopardising international economic stability. Under these circumstances, the World Trade Conference was held in London in June 1933 under the

auspices of the British Government, in order to establish an international agreement to safeguard mutual trade interests and stabilise the monetary system. However, the Conference closed having accomplished nothing owing to each member's expression of and stubborn insistence on his own interests, in spite of the fact that there was a frank recognition of the many ills from which each country was suffering and also unanimity regarding the desirability for stabilisation. On the unsuccessful ending of the Conference, America decided to adopt the drastic devaluation of the dollar, and pursued the silver-buying policy which accelerated the monetary derangements and trade depression of the world.

RECENT INDUSTRIAL STRIDES AND EFFECTS

Economic unrest was rife in Japan for two years ending December 1931, during which period, however, financial reorganisation and industrial readjustments were undertaken to the fullest extent. Technical improvements in manufacturing processes were closely studied and made in order not only to deal with the depressed situation, but also to achieve further advancement in the sphere of foreign trade. The rationalisation of industry was successfully undertaken, co-operation between manufacturers and research in buying and selling were also efficiently carried out. Foreign trade regained its activity after 1931, after suffering from the effects of the world-wide depression of 1929-30. Industrial production showed a steady increase, particularly in the case of cotton and rayon, and various light and heavy industries advanced remarkably. Employment in industrial towns showed a satisfactory return, recording not only an increase of workers, but also a decreased percentage of unemployed.

Then came the outbreaks in Manchuria and Shanghai in September 1931 and January 1932 respectively. The world readily put the whole blame on Japan, severely censuring her course of action without thorough investigation, which eventually caused great dissatisfaction in the minds of the Japanese. Japan's withdrawal from the League

of Nations was the inevitable outcome of the then prevailing circumstances. Confronted with accusations on all sides, Japan decided to carry out her China policy with the firm determination that no interference would be allowed as far as North-Eastern Chinese affairs were concerned. Stung in fact by baseless criticism against Japan, the whole nation was impelled to unite together, regardless of occupation, trade and class, in order to achieve her great aim and destiny in East Asia. The Manchurian incident marked the beginning of the present Japanese national emergency, and the turning-point in her international relations.

I do not propose to go into this incident fully. Prior to its outbreak, China had openly and repeatedly violated Japan's treaty rights and intentionally ignored her special interests in Manchuria, which had been established since the Japanese-Russian War. China went so far as to call for the severance of economic relations with Japan and the retrocession of the South Manchurian Railway and the Kwantung leased territory to China. The outbreak in Manchuria was the inevitable outcome of such an intolerable policy. For the benefit of the people of Manchuria, who had been under the tyranny of the Chang régime, Japan voluntarily assisted them, and took the great rôle of being the founder of the new State. She determined to support the independence of Manchukuo, desiring her healthy development with a view to removing many evils which would have had disastrous consequences to the peace of the Far East.

The emergency spirit manifested itself in the industrial sphere by co-operation between employers and workers, and a marked fall in the number of labour disputes was noticeable. On account of the aforementioned, coupled with lower exchange of the yen caused by an inflationary financial policy after the abandonment of the gold standard, the foreign trade of Japan has made a remarkable advance in both volume and value, exceeding the pre-slump figures. So noticeable is the progress Japan has attained in her exports that it is widely predicted abroad that she will soon acquire control of world markets. Whilst Japan

enjoyed recovery of foreign trade, the rest of the world was still under the influence of the economic disturbances, and the grave question of unemployment was left unsolved.

The most striking movements which took place during these years were nationalism and radical conservatism. In the sphere of foreign trade very discriminatory measures were adopted against foreign imports. Nearly every country turned towards the anti-foreign goods policy. One country after another abandoned the *laissez-faire* outlook, in an endeavour to arrest the inroads of depression. International trade languished, and the free circulation of goods was an extremely difficult problem.

The tariff agreements of the Ottawa Conference in 1932 were an outstanding example of the reactionary trade policy, under which only British products can enjoy special preferences in the British Dominions and her colonies. The National Industrial Recovery Act of the United States of America was later promulgated for the same purpose. The recent increase in the American tariff on Japanese cotton goods has caused the whole question of the trade between the two countries to attract widespread attention in Japan. Japanese goods, which are recognised as being cheaper, though they can compete on terms of quality, and which are believed to be invading the world's markets, have become the target of discriminatory treatment. They have been rigidly restricted in various British colonies because of their cheapness and popularity there. In spite of the fact that Japan has been one of the biggest customers of Indian raw cotton, the British Government notified Japan of the abrogation of the Indo-Japanese Trade Treaty in the spring of 1933, in the interests of the Lancashire industrialist, not of the Indian people. The Indo-Japanese Trade Conference was opened in Simla soon after the formal notification of the abrogation, but the result amounted to nothing but an acceptance of unfavourable conditions on Japan's side. A year afterwards the Netherlands Government proclaimed an import restriction law against Japanese cotton, artificial silk and miscellaneous goods into the Dutch East Indies. The Japanese Government made a protest to

the Netherlands, following which a conference was held between the two countries at Batavia. It lasted for several months, but eventually closed without any outcome. Then, again, came a threat from the Canadian Government against the importation of Japanese goods, which seemed almost to aim at the cessation of imports from Japan, despite the fact that Japan's trade with Canada is distinctly unfavourable to the Island Empire. Last year witnessed an excess of imports over exports of yen 45,000,000, or, in other words, Japan's purchases from Canada are almost eight times more than the latter's purchases from the former. The Canadian Government, intentionally or unintentionally, failed to take account of the ruling exchange rate as the basis of calculation. The result was unnecessarily high prices of Japanese commodities and undue heavy tariff burdens on imports from Japan. In addition to this, Canada imposed what is known as "an exchange dumping duty" on Japanese goods, which is an imposition of an unduly high duty by the manipulation of her existing tariff. With regard to the unjustifiable action taken by the Canadian Government, Japan intends to enforce the Trade Safeguarding Law against Canadian goods in retaliation for Canada's discriminatory high tariff policy. The law was made in 1933 for the purpose of protecting Japanese exports against countries which adopt prohibitive steps against her goods. A strong protest is said to have been sent to the Canadian Government from Japan, and the outcome of negotiations between the two countries is eagerly awaited.

On account of the poverty of her natural resources and the rapid increase of her population, Japan has to purchase raw material and foodstuffs abroad. An adverse balance in trade has been recorded yearly, with the exception of a few years during the Great War. It exceeded yen 110,000,000 in 1934, in which year the export figures of Japan were the highest since the slump year of 1930. It is urgent, therefore, that the industries and export trade of Japan should be encouraged to the fullest extent, in order to maintain her increasing population and to combat the adverse trade balance. Thus, the existence all over the world of quotas,

prohibitions and other restrictions on international trade, which will not only fail to regain prosperity, but will eventually also bring the world to a chaotic state of economic stagnation, is a serious blow to Japan's foreign trade, on which the foundations of her commerce were built.

Furthermore, one of the most difficult problems with which Japan has been confronted is a vast increase of national expenditure during the last few years. Each year since the onset of the depression there has been a considerable deficit in the budget, rising from yen 105,000,000 in 1931-32 to 932,000,000 in 1933-34, although it fell to 785,000,000 in 1934-35. The deficit has been mainly due to the cost of national defence,¹ under which heading the expenditure rose from yen 454,000,000 in 1931-32, to yen 1,022,000,000 in 1935-36. The vast deficits have been balanced by "red figure bonds," which amounted to yen 2,300,000,000 for the last four years. During the present fiscal year about yen 850,000,000 worth of new bonds are to be issued for the purpose of balancing the budget deficits of 1935-36. Enormous issues of the national bonds have been fortunately absorbed by the market up to now, but the future digestion of bond issues cannot be expected indefinitely. Particularly in view of the fact that the fund raised by the bonds has been mainly expended on items of an unproductive nature, the present state of national finance can by no means be regarded as sound, and the longer it continues the worse the situation will be. This unsound financial state will not end as long as the present precarious international situation

¹ EXPENDITURE ON NATIONAL DEFENCE
(10,000 yen.)

Year.	Army.	Navy.	Total.	Percentage of total expenditure.
1931-32	22,748	22,712	45,460	30.9
1932-33	31,163	29,759	60,922	31.2
1933-34	44,768	40,377	85,145	37.7
1934-35	45,332	48,850	94,182	42.9
1935-36	49,295	52,968	102,263	46.2

needs military requirements, and there does not yet seem to be any near prospect of peace in the Far East.

Being encouraged by the Government's policy of raising funds, certain industries and trades have shown a noticeable progress. However, this favourable state of affairs cannot continue without some reaction. The rapid growth made during recent years under the Government's inflationary policy has now begun to show signs of being checked by restrictions imposed on Japan's articles and by the expectation of a possibility of an alteration in the Government's financial policy. Over-production and a downward tendency in prices are now evident, particularly in those trades which were so greatly assisted by the Government's help, as the demand has declined as compared with the expanded capacity of production.

Thus Japan is confronted with new industrial and commercial difficulties, brought about as a result of the recent economic progress. Unless adequate measures are taken at once so as to maintain the present developed state of industries, a financial and economic setback is bound to come, the result of which would be disastrous to all, especially to those engaging in agriculture, and to small manufacturers and traders, who, in distressed circumstances for years, have not shared the good times enjoyed by urban industrialists and exporters. In fact, Japan is now confronted with various obstacles at home and abroad, against which she has to battle for the future development of her industry and trade.

PART II

INVESTIGATIONS INTO INDUSTRIAL TRENDS

BRIEF SURVEY OF CAPITAL INVESTMENT

THE degree and direction of industrial development during a certain period and the change in the position of each industry in the national economy can be adequately observed by investigating how or in what direction capital has been invested.

Japanese industries for the last half-century, as already mentioned, have developed through three wars, which, curiously enough, took place every ten years, and the amount of capital invested in industries was increased after each of these wars.

After waking from a long feudal sleep, Japan entered on her commercial career in earnest after the Meiji Restoration in 1868. Commercial firms and transport companies were established on the Western model, banking corporations were formed, railways were built, and mining, shipbuilding, spinning, weaving and other modern industries were promoted successively under Government control, and then gradually taken over by private concerns. The total amount of the authorised capital of all limited companies was nearly yen 300,000,000 at the end of 1893, the year before the Japanese-Chinese War. Of this total amount, about yen 169,000,000 was subscribed during the ten years ending 1893, and the remainder during the previous sixteen years from the Meiji Restoration to 1883.¹

¹ AUTHORISED CAPITAL OF ALL LIMITED COMPANIES UP TO THE JAPANESE-CHINESE WAR

	End of 1877. (Yen 1000.)	End of 1877. (Yen 1000.)	End of 1893. (Yen 1000.)
Companies engaged in :			
Agriculture . . .	—	1,053	2,542
Trading . . .	454	35,904	57,616
Manufacturing . . .	—	14,725	68,259
Railways . . .	—	12,080	57,945
Banking . . .	24,981	75,375	111,635
Total . . .	25,435	139,137	297,997

✓ The modern form of company organisation was introduced in 1868. But industries which needed technical knowledge and railways could not be established quickly; and agriculture, which was still organised on a basis of small-scale production, did not seem in a hurry to utilise the new ideas. The only business concerns carried on under the new system were trading and banking concerns, especially the latter, which were promptly formed into limited companies, and their authorised capital rose to yen 25,000,000 by the end of 1877. Therefore, we may take it that before 1877 the most progressive business was banking, which was, however, mainly limited in its activities to the financing of trade and industry at home.

✓ Reviewing the next two periods, *i.e.* 1878-87 and 1888-93 respectively, it is seen that manufacturing industries and railways made great strides, which caused commerce to flourish still more. As a consequence, the total amount of capital at the end of 1893 was more than double that of 1887 and ten times larger than that of 1877. For a more detailed investigation of the direction of industrial expansion, we must take the proportion of capital invested in each industry. According to the Table on page 32, at the end of 1893 the total amount of paid-up capital of limited companies reached yen 232,000,000; yen 110,000,000, or 47·68 per cent., being held by trading and banking concerns, 29·14 per cent. by transport and 22·31 per cent. by manufacturing industries. At that time commerce was, however, not of much importance, and the investment of capital in foreign trade was not taken up like banking, which had a large amount of capital invested in it. The amount of capital invested in banking reached yen 94,000,000 in 1893, or 40·7 per cent. of the whole. Next came transport, with 29 per cent. of the total amount of capital, chiefly invested in railway companies, which accounted for 22·6 per cent. of the total. Therefore, banking and railways together made up about 63·3 per cent. of the total capital, which shows that manufacturing and mining industries were still in a very undeveloped state at that time. The percentages

of capital in manufacturing and mining were 17.3 and 5 per cent. respectively. The branch of manufacture most invested in was the textile industry; the electric and machinery industries, which have developed greatly in recent years, were then in their first stages of growth. In short, the tendency of industrial development in Japan in these twenty-six years was towards the building up of fundamental enterprises such as banking, railways and other transport; and these cleared the way for the future development of manufacturing industries.

After the Japanese-Chinese War (1894-95), the industrial world of Japan made unprecedented progress with the aid of an indemnity of about yen 400,000,000 and the introduction of about yen 100,000,000 of foreign capital. The gold-currency system was established in 1897. The amount of industrial capital was increased yearly without exception after that war, in spite of the fact that financial conditions were greatly disturbed, owing to the depressions of 1897-1901. After that war the annual issue of new capital was yen 50,000,000 to yen 100,000,000. The total amount of capital issued reached yen 887,000,000 in 1903, or 282.3 per cent. increase, as compared with yen 232,000,000 in 1893.

Regarding the position which the various industries held at the end of 1903, the general tendency was still in the direction of the development of banking and railways, as before 1893. Yen 450,000,000, or 50.9 per cent. of the total paid-up capital, was invested in general trading and banking, of which yen 364,000,000, or 41.1 per cent., was in banking. Therefore, that invested in commerce, excluding banking, was only yen 96,000,000, or 9.8 per cent. Transport took 29.6 per cent. of the total amount, but railways accounted for the greater part of this percentage; shipping, which was still in the early stages of development, accounted for only 4.4 per cent. Putting railways and banking together, they make 66 per cent. of the total, and showed, therefore, a further increase on their capital at the end of 1893. Compared with this, the development of trade (excluding banking) and of the

manufacturing and mining industries was remarkably slow, and their position was greatly behind that of finance and transport.

We may therefore observe that the period 1894-1903 showed an extension of the tendency which had continued through the former period, *i.e.* the tendency to establish fundamental enterprises such as finance and transport.

After the Japanese-Russian War (1904-5) a new era of industrial development was entered upon following the victory and the importation of foreign capital, and although it was succeeded by the usual reaction and depression in 1907, the progress made helped considerably in future development. The total paid-up capital of various companies, which amounted to about yen 1,215,000,000 at the end of 1908, increased each year by yen 150,000,000 to yen 200,000,000, reaching the total of yen 1,983,232,000 in 1913. Of this vast amount, the yen 931,000,000 invested in commerce and banking occupied first place as before, representing 47 per cent. of the total. The greater portion of this amount represented investment in banking, as was the case in earlier years. However, it is noteworthy that the relative importance of banking declined rather suddenly as compared with the two former periods, *viz.* 40.70 per cent. before the Japanese-Chinese War; 40.1 per cent. before the Japanese-Russian War, and 31.1 per cent. in 1913. We have to notice also the great fall in the transport percentage, which was 10.6 in 1913 and 33.2 in 1903; this was mainly due to railway nationalisation, through which seventeen railway companies were purchased by the State. On the other hand, manufacturing and some mining industries made much progress, the total capital of the former being yen 656,000,000, or 33.1 per cent. of the total, in 1913, and that of the latter yen 157,000,000, or 7.9 per cent. This shows the progress made. Of manufacturing industries, the machinery, shipbuilding, chemical, electrical and gas industries were the ones which developed most. For instance, electrical enterprises held about yen 199,000,000, or 10 per cent. of the total amount

of capital, which exceeded that of mining and nearly reached that of transport.

In short, it is obvious that the economic development of Japan during this period indicated the commencement of modern industrial activity. Having passed through these periods, industries in Japan enjoyed an unprecedented boom during and after the Great War (1914-18). As a consequence, the new investment of capital increased rapidly every year, ranging from yen 100,000,000 to yen 150,000,000. So far as capital is concerned, a tendency for the increase of new investments has never ceased; it has continued since the War ended, although the post-War depression was a terrible set-back to the then increasing progress of industries in Japan.

As to the positions which the various industries held at the end of 1923, commerce and banking came first, as they did before, holding a capital of yen 4,484,500,000, or 44.07 per cent. of the total amount. It must be understood, however, that a great alteration had taken place in the nature of the concerns included under the term "trading and banking" during this period. The capital invested in banking, which used to be the highest item under this head, was less than half the total investment in trading banking concerns in 1923. On the contrary, the activity of home and foreign trade had considerably developed, and a remarkable improvement had taken place in manufacturing industries, the capital of which amounted to yen 3,936,000,000, or 38.68 per cent. of the total. Especially notable was the development of the engineering industry compared with other industries. In the meantime, mining and transport, which had greatly boomed during the War, showed a downward tendency so far as their percentage of the total capital was concerned.

A slackening down, during the post-War depression, of the feverish pace of business and industrial development in Japan could not check economic expansion, which recorded a yearly increase of investment. The trend of industrialism marked its rapidity. The most phenomenal change in

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investments¹ which has taken place since 1930 is that capital invested in "manufacturing" surpassed that of "trading and banking," the former representing 37·41 per cent., the latter 35·57 per cent. of the total amount of paid-up capital in 1930. The difference between the two has increased yearly. The value of industrial production, which was registered at 5962 million yen in 1930, leaped to 7871 million yen in 1933. The increase is not common to all branches of industries. It is, however, attributable for the most part to the striking advance made in heavy industries, more particularly to the gains in metal, machinery and chemical industries, which is characteristic of the new trend of Japanese industrial advance during the thirties.

THE INDUSTRIAL POPULATION OF JAPAN

The present internal and external difficulties with which Japan is confronted are, directly or indirectly, based on the fact that she has no outlets for her ever-increasing population. All scantily populated parts of the world have been occupied by the Western Powers, and high barriers are erected against

¹ THE PERCENTAGE OF PAID-UP CAPITAL IN VARIOUS COMPANIES

Years.	Agriculture.	Fishing.	Trade and Banking.	Manufacturing.	Mining.	Transport.	Total Capital. (Yen (100,000.))
1893	0·87	—	47·68	22·31	—	29·14	232
1898	0·37	—	48·27	19·64	—	31·72	622
1903	0·36	—	50·89	19·19	—	29·56	888
1908	1·08	—	49·09	36·27	—	13·56	1,215
1913	1·40	—	46·95	41·06	—	10·59	1,983
1918	0·97	—	41·23	36·08	9·94	11·78	4,707
1923	0·86	0·55	44·07	38·68	6·98	9·03	10,194
1928	0·86	0·68	43·05	39·45	5·40	10·50	13,161
1929	0·88	0·76	42·84	39·14	5·66	10·71	13,790
1930	0·89	0·54	35·57	37·41	5·30	10·68	13,761
1931	0·77	0·57	32·68	38·15	6·00	10·76	13,966
1932	0·78	0·77	34·76	38·38	4·24	10·69	14,075
1933	0·79	0·69	33·76	38·77	4·60	10·83	14,389

Note.—The figures for fishing before 1918 are contained in agriculture, those for mining before 1913 in manufacturing industries.

foreigners, especially Asiatics. The Japanese have been forced to stay in a small untillable region for years. Japan's population, which was 33,000,000 in 1873, has increased by approximately 37,000,000 during the last sixty years. The figures given in 1933 were 69,881,759, which of course represent only those of Japan proper. If the population of Korea and Formosa are added, they rise to more than 95,000,000. The density of the Japanese population ranks fourth in the world next to Belgium, the Netherlands and Great Britain, being 266, 243, 183 and 169 per square kilometre respectively. In view of this rapid increase, at the rate of approximately 80,000 a year, the Japanese density promises to be higher than that of any other country in the near future. Furthermore, considering her small area of arable land—only 15 per cent. of the whole area—the density of her population on arable land is already the highest in the world.¹ Having no outlets for her ever-increasing numbers, Japan is obliged to till every possible foot of land, even on hillsides and in valleys. A visitor to Japan may observe that there are scarcely any uncultivated spots along the railway lines and near towns; even in the remote hilly country, where transport is apparently very difficult, every square inch is used and every piece of land ploughed with the utmost care. Because of the limited area of cultivated land, dense population and the lack of outlets for her surplus people, the land has to be utilised to its fullest extent. It may be said that as regards population the land has almost reached saturation point. Although the distribution of a large number of the population is dictated by industrial needs, Japan is still an agricultural country, as more than half the people live by farming. Agricultural production is yearly becoming more insufficient for the vast demand of the ever-increasing population, and

¹ POPULATION ON ARABLE LAND PER SQUARE MILE IN VARIOUS COUNTRIES

Japan	2774	Germany	806
Great Britain	2170	France	467
Belgium	1709	U.S.A.	229
Italy	819		

necessary foodstuffs have been substantially supplied by foreign countries, and form a large proportion of Japan's imports. Japanese farms are generally so small in area, and rice (which is the principal product) is cultivated in such a way, that modern agricultural machinery cannot be used. Owing to the farmer's poverty, the land is cultivated mostly by labourers working for very low wages. With regard to the possibility of increasing agricultural production, there seems little hope of bringing this about, unless further land readjustment, greater use of fertilisers and the adoption of scientific methods of cultivation are undertaken. It is hardly possible, however, that the future increase of production will be sufficient for national consumption; the volume of imported foreign foodstuffs will have to be increased more and more.

According to statistics, Japanese farmers are divided into three groups, as follows: (1) actual landowners, (2) small tenant farmers, and (3) those who are landowners working their land themselves. The first-named rent land to tenants and own larger areas of land than the last-named. An interesting feature of recent years is a change in these three groups, the number of landowners decreasing, while the other two are increasing. This tendency shows that the labourer is acquiring a more direct interest in the land by becoming a tenant farmer. Also it seems that land is being more evenly distributed. But the increase of tenant farmers, on the other hand, is one of the causes of the "tenant troubles,"¹ which have been the central features of the recent agricultural disputes. As the number of these farmers increases, the more frequently do the tenant troubles occur. The present unremunerative state of agriculture, resulting from bad crops owing to various disasters, such as drought, flood and unseasonable weather, fall in price of

¹ CASES OF TENANT TROUBLES

1917	85	1923	1917
1918	256	1929	2434
1919	326	1930	2478
1920	408	1931	3419
1921	1680	1932	3414
1922	1578	1933	4000

INVESTIGATIONS INTO INDUSTRIAL TRENDS 35

products—not only of rice, but also of raw silk, which is the most important subsidiary work—and low standard of living, gives rise to feelings of hostility towards landlords, and causes further trouble. Such cases have been rapidly increasing during recent years, which shows the distressed condition of these people. In view of the fact that the farmers and their families still constitute a large part of the population, social stability greatly depends on the satisfactory condition of agriculture, and the present depressed state of arable land creates a serious national problem. However, owing to the unpromising state of agriculture, there is a constant drift of population from the country to the town. This flow is especially noticeable among the younger members of the tenant farming class. According to the last census,¹ the number of agricultural workers was nearly half that of the total occupied population, which shows that Japan is still predominantly an agricultural country. The numbers engaged in farming have remained almost stationary since 1920, the figures for 1930 showing an increase of only 28,000 over those for 1920. This means that in its present state agriculture in Japan cannot absorb the increasing population; in other words, the proportion of farm labourers to the total population is declining. It is therefore obvious that larger numbers of people are

¹ NUMBER OF WORKERS IN EACH OCCUPATION

(In thousands.)

	1920.	1930.	Increase (+) or Decrease (-).
1. Agriculture . . .	14,128	14,156	+ 28
2. Fishing . . .	534	568	+ 34
3. Mining . . .	425	236	- 189
4. Manufacturing . . .	5,317	5,291	- 26
5. Trade . . .	3,188	4,463	+ 1,275
6. Transport . . .	1,019	1,108	+ 89
7. Public and Profes- sional Service . . .	1,450	2,031	+ 581
8. Domestic Service . . .	655	806	+ 151
9. Other . . .	545	561	+ 16
Total . . .	27,261	29,220	+ 1,959

being employed in urban districts. According to the table given below,¹ it is clear that the population of Japan is quickly becoming urbanised. For instance, the population² of seven prefectures which are all either industrial or commercial regions shows an increase of 2,418,000, or 13.86 per cent., during the last five years, while the increase of the total population was 7.89 per cent. for the same period. The abnormal expansion of industrial towns is a most striking phenomenon. Tokyo, the capital, has increased its population from 900,000 in 1900 to 2,070,000 in 1930, and Osaka, the greatest industrial city in the Empire, from 450,000 to 2,453,000. The above two, together with Kyoto, Nagoya, Kobe and Yokohama, are the largest cities in Japan. Except Kyoto, which is the old capital of Japan, the others are all either industrial or commercial centres. The growth of these

¹ DISTRIBUTION OF JAPANESE POPULATION

	Villages (less than 10,000).		Small Towns (less than 100,000).		Large Towns (more than 100,000).	
	No.	Population.	No.	Population.	No.	Population.
1913	11,887	39,907,000	458	9,276,000	11	5,937,700
1925	11,410	37,883,000	588	13,112,000	21	8,741,200
1930	11,184	38,157,000	649	14,809,000	32	11,481,200

² POPULATION OF THE SEVEN LARGEST PREFECTURES AND THEIR CAPITALS

	1925.	1930.
Tokyo-Fu	4,485,144	5,408,678
City of Tokyo	1,995,567	2,070,913
Osaka-Fu	3,059,502	3,540,017
City of Osaka	2,114,804	2,453,573
Kyoto-Fu	1,406,382	1,552,832
City of Kyoto	679,963	765,142
Aichi-Ken	2,319,494	2,567,413
City of Nagoya	768,558	907,404
Hyogo-Ken	2,454,679	2,646,301
City of Kobe	704,375	787,616
Kanagawa-Ken	1,416,792	1,619,606
City of Yokohama	515,077	620,306
Fukuoka-Ken	2,301,668	2,527,119
City of Fukuoka	191,094	228,289

Note.—According to the report published by the Tokyo Metropolitan Police, the population of Tokyo was 5,729,353 in June 1935. It should be noted that the area of Tokyo was widened in 1932.

densely populated cities is the dominant characteristic of the new industrialism.

As the industries developed, they caused new labour problems to arise, such as Japan had not previously experienced. It is well known that before the Great War conditions of labour in Japan were peculiar. Before the introduction of the factory system, with the exception of native skilled workers who were employed by small firms, practically all Japanese labour was engaged in agriculture. Labourers on farms were also employed in the cottage industries between the harvest and sowing seasons, and were assisted by their wives and children. Their wages remained very low, and the capitalists were at a great advantage owing to the lack of organisation among the workers; also their standard of living was very low. The employers were, therefore, very favourably situated, especially the manufacturers of cotton and silk. Cheap labour was a great asset to them, and labourers were compelled to work long hours for low wages, regardless of the bad conditions.

Before the War, any movement connected with "labour" was absolutely forbidden by the authorities, and was held to be most undesirable and dangerous. By the well-known Section Seventeen of the Police Regulations, labour organisations which banded together working-class people for the purpose of mutual aid were strictly prohibited. It was a severely punishable offence for workpeople to take any action or to stop work in order to enforce a demand which had been refused by their employers, as such action was held to cause a public disturbance. At this time only capitalists were favoured by the Government, and workers were absolutely compelled to accept whatever wages and treatment were offered. Workers, mainly women and children, especially in the cotton and silk factories, were working under the most miserable conditions, morally and physically, being completely under the control of their employers, who usually paid them wages in advance; also they were compelled to live in factories just the same as contract labourers.

However, as industries developed and the education of the people improved, labour conditions in Japan also improved.

Labour organisations were gradually formed, and strikes, which were formerly practically unknown, often took place, in spite of severe official warnings and interference. The Factory Act, which improved working conditions in factories, was drafted in 1911, and came into force in 1916. Labour in general was waking up, but the whole course of events was changed by the advent of the Great War.

During the War, as described elsewhere, industry made great strides, as an unprecedented demand for Japanese products arose in the world's markets. As a consequence, labour was very much in demand, higher wages were paid, and the workers had a share in the general prosperity, which led the working class to demand a higher standard of living and emancipation from the restrictions which had long been imposed on labour movements. Moreover, since the War, Western ideas regarding labour, both radical and moderate, have been introduced into Japan in abundance. This tendency has been stimulated by the success of the Russian Revolution and the collapse of the German monarchy. The labour problem has since been the most important and difficult national problem in Japan. In fact, the Police Regulations had to be relaxed, working people were allowed to organise labour unions and the right to strike was unofficially recognised.

It is apparent that the recent labour movement in Japan has achieved great successes. The reasons for this sudden development may be summarised thus : (1) the development of manufacturing industries under the factory system ; (2) the increase of factory employees, especially of the number of men ; (3) the rise in the standard of living and the increased wages of labourers ; (4) the unofficial recognition of the labour movement ; and (5) the introduction of Western ideas regarding labour.

As the labour movement develops, the industrial disputes, which have hitherto been not too well conducted, are systematically conducted, and the workers' demands are carefully studied by the employers. During the economic unrest after the Great War, the radical element in the movement, who were greatly under the communistic influence

through the Soviet secret agency, threatened its healthy progress. However, adequate and timely steps taken by the authorities against the radicals have brought the movement to a satisfactory state. At present there are 942 trades unions, with a membership of more than 384,000, sending three members of Parliament to represent the interests of the working class.

It is significant to note that relations between employers and employees during the last few years have been very satisfactory, nationalist sentiment amongst organised workers especially having developed since the Manchurian incident. Co-operation between labour and capital, and the suppression of class war, are enthusiastically hoped for by the workers, inspired by patriotic feeling. Not only has the number ¹ of labour disputes decreased, but they have also been satisfactorily settled through mutual understanding between masters and men. Thus, the industrial peace movement has prevailed throughout the nation, according further opportunity of advance to the prosperity of industry.

Besides the relations between capital and labour, we have to study the position held by industrial workers. According to the table shown on page 35, relating to the number of workers in each occupation, those engaging in trade, transport, the public and professional services and domestic service show a striking increase, while the number of industrial workers registers, on the contrary, a slight decrease. As to the increase of the former, we may observe that the increase in the number of traders in relation to the total

¹ NUMBER OF LABOUR DISPUTES AND MEN INVOLVED

Year.	No. of Disputes.	No. of men involved.
1924	333	54,526
1925	293	46,742
1926	495	67,234
1927	383	46,672
1928	393	43,337
1929	571	77,281
1930	900	79,791
1931	984	63,305
1932	870	53,338
1933	598	46,787

population has been general all over the world in recent years. This we can trace to the fact that the manufacturing industries, as also mining and transport, are easier to rationalise than trades which need more men as business develops. However, Japan's increase in this respect is so great that we must certainly look elsewhere for additional reasons. One is that young people finding rural life very dull and poor compared with that in the big towns and cities, to which they flock, take the first available occupation there. Also there are many people, well past the prime of life, already dismissed from their former positions in other occupations, who, on account of very hard times, are trying to earn a living to eke out their small savings.

The number of persons engaged in trade may have increased, not because trade was more profitable than other industries, but because only a small capital was needed and practically no skill, therefore a living could be more easily made. In trade to-day competition is much keener than in other urban occupations, and the economic circumstances of shopkeepers and their employees are almost as distressed as those of agricultural workers.

As towns grow, more domestic and professional workers are required. In contrast to a decade or so ago, when personal mobility was not so easy as at present, transport facilities have offered country-folk easy journeys. In fact, the extension and improvement on a large scale of the Government and private railways, and a remarkable progress in the motor-omnibus service penetrating right into remote country parts, have produced a striking change in rural life. Country people have been greatly influenced by the attraction of town life and the excitement of living crowded together. The rural population flock into the towns, in the expectation of getting a living, not only because of the unremunerative conditions of farming, but also on account of their desire for enjoyment in modernised gay cities. Professor Knowles stated in her book,¹ *The Industrial and Commercial Revolution in Great Britain during the*

¹ Professor Knowles, *The Industrial and Commercial Revolution in Great Britain during the Nineteenth Century*, p. 219.

Nineteenth Century, that "the new transport facilities enabled them to find out in many cases how much they preferred town to country life, by the trips and excursions which familiarised the rural population with urban conditions. As women were ousted from work on the land by agricultural machinery, they went into domestic service and left the villages. The young men followed them. A woman once used to town life does not care to marry and settle down in the country."

The conditions which prevailed in Great Britain half a century ago are being repeated in Japan. As stated elsewhere, the continuous influx of young country men and girls to towns has drawn the attention of the people concerned to the fact that difficulty may arise in respect of a necessary supply of farm labour, unless the migration of workers from country to town can be checked.

Thus a great part of the population's increase has been absorbed by public or professional, and domestic service, while the number of industrial workers has shown a decrease of 20 per cent. during the five years ending 1930, in which year the figure was 5,290,000. To discover the reasons for this decrease, the quality of the industrial population must be investigated on the basis of sex and age. Of the total number of industrial workers¹ in the years 1920 and 1930, female hands numbered 1,588,000 and 1,004,000 respectively, the rest being male workers, *i.e.* a decrease of 584,000 in the number of females and an increase of 553 in that of males were shown during these ten years.

Generally speaking, female workers in Japan are con-

¹ DIVISIONS OF INDUSTRIAL WORKERS ACCORDING TO SEX AND AGE
(In thousands.)

Age.	Males.		Increase (+) or Decrease (-).	Females.		Increase (+) or Decrease (-).
	1920.	1930.		1920.	1930.	
0-14	192	135	- 57	222	100	- 122
15-59	3366	4025	+ 659	1300	878	- 422
60 and up	171	127	- 44	66	26	- 40
Total	3729	4287	+ 558	1588	1004	- 584

sidered as unskilled labourers, although they are employed mostly in the textile industries, matches and braid works. Male workers are, on the contrary, recognised as skilled labourers. As mentioned elsewhere, Japanese industries started chiefly with the employment of women and children on a basis of sweated labour. But, as industries developed, it became more necessary to have skilled and experienced hands. The employment of men was encouraged not only because women's wages had risen with the increasing cost of living, but also because employers needed more skilled and experienced workers to keep pace with the general progress of industry. Again, factories are now unable to obtain an ample supply of female labour, as they could do in the early stages of industry, because of the various opportunities offered to women in towns outside factory work, and also because of their broader outlook on life and higher culture and education, which make them aspire to work other than manual.

In addition to the above important change in the industrial population, it must be pointed out that a decrease of 179,000 children and 88,000 elderly workers, males as well as females, was registered, whilst the number of men of working age, fifteen to fifty-nine, shows an increase of 659,000 during the same period. On the other hand, the number of female labourers of fifteen to fifty-nine decreased from 1,300,000 to 878,000. The decrease in the number of children, female and elderly workers employed means on the whole a substitution of the less efficient by the more efficient, and shows a general advance of industrial skilled labour in Japan. As regards the quality and efficiency of labour power, the decrease in the number of the less capable workers not only represents an increase in the number of more efficient workers, but also indicates a general progress in industry. During the ten years above-mentioned the number of dependants of industrial workers increased from 9,500,000 to 11,020,000, which shows that industry has absorbed nearly 1,520,000 more people from the country.

In spite of the decrease in the number of industrial workers, the quantity of production grew by 67.53 per cent. during these

ten years. Compared with 1913, the increase of production in 1934 was five times more than the pre-War figure.¹

From the above statistical survey, it may be deduced that productive efficiency has been greatly improved by the superior quality of labour power and the rationalisation of work and mechanisation of industrial processes, which do not require a proportionately large number of labourers. Owing to the recent development of industry, a greater number of persons would have been absorbed if there had been a larger market for their goods. As mentioned elsewhere, the present world demand does not meet the expanding productive power of Japanese manufacturing industries, because of the high barrier of foreign markets against Japanese articles.

RECENT INDUSTRIAL TRENDS

Judging from the facts analysed in the foregoing investigations, Japan has set her foot very firmly in the industrial sphere. A country's industrial progress is clearly reflected in the volume of its foreign trade. Owing to the impossibility of importing industrial products during the Great War, a rapid increase in chemical and heavy industries was greatly encouraged, and a further development of textile industries—especially cotton and woollen—was noticeably attained, which has considerably altered the type of Japan's export trade. As mentioned in the *Foreign Trade*, the percentage of imports of raw material and unfinished goods rose from 68.5 in 1912-14 to 79.6 in 1934, while the percentage of manufactured goods in exports was 62.0 in 1934 instead of 29.1 as in 1912-14. In the narrowest sense, Japan has become an industrial country, evolving from the manufacture of unfinished to finished goods, and from light to heavy industries.

¹ INDEX-NUMBER OF QUANTITY OF INDUSTRIAL PRODUCTION
(*The Oriental Economist*.)

1913	100
1930	322
1931	275
1932	346
1933	422
1934	554

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As mentioned elsewhere, the industrial output showed a striking increase during the last few years, with the index-number of 554 in 1934, being far ahead of the pre-slump year, on the basis of 1931. Not only the quantity, but also the value of industrial products indicates the growth of Japan's industry, although wholesale prices had fallen. According to the statistics¹ compiled by the Ministry of Commerce and Industry, the value of the output of all factories employing more than five hands was registered as yen 7,871,364,000 in 1933, which is the highest during the last few years. However, this expansion and development is not a common trend, and not equal in all branches of industry, for an unequal growth in industry has been a striking phenomenon of the past years. The output in 1933 exceeded that of 1931 by yen 2,697,000,000. We must notice to which class of industry most of the increase of output can be attributed.² A remarkable development was achieved

¹ OUTPUT OF INDUSTRIES

Year.	Volume. (1913 = 100.)	Value. (Yen 1000.)
1930	322	5,962,810
1931	275	5,174,579
1932	346	5,982,469
1933	422	7,871,361
1934	554	—

² VALUE OF INDUSTRIAL OUTPUT (YEN 1,000,000)
(1930-33)

	1930.	1931.	1932.	1933.	Percentage increase of 1933 over 1931.
Textile	2027	1803	2028	2914	61.6
Metal Products	526	434	591	878	102.3
Machinery and Tools	615	443	543	888	100.4
Ceramic Products	158	142	159	226	59.1
Chemicals	924	825	957	1288	48.9
Lumber and Wood Pro- ducts	157	143	152	189	32.8
Printing and Binding	179	167	168	181	7.9
Foodstuffs	950	845	886	1017	20.3
All Others	426	372	498	290	—
Total	5962	5174	5982	7871	52.1

in what are called heavy industries, such as metal products, machinery making and tool industries, the value of their combined output being yen 1,766,000,000 in 1933. As compared with the figures for 1931, which was the worst year of the recent economic depression, only the heavy industries showed an increase of more than 100 per cent., and the textile and ceramic industries an increase of more than 50 per cent.; other industries showed an increase of less than 50 per cent. Thus the heavy industries have attained a greater progress than other industries, and so added to their importance as compared with others, because of the rapid increase of their output. This fact can be more fully appreciated when a further investigation is made in connection with the number of factories and men employed, and the volume of power consumed in various industries. In comparison with 1931, the heavy industries show a noticeable increase in these important factors, while almost all other industries were more or less on a decline, although it must be taken into consideration that a large-scale rationalisation which was undertaken throughout industry during the past years is partly responsible for this.

Under these circumstances, the profits obtained by the heavy-industry companies reached a large sum, with which they very easily made a dividend of 8 to 15 per cent. per half-year. Wages of workmen were raised accordingly, and are recognised as being the highest of any given to industrial employees. It may be said that this remarkable development is, directly or indirectly, due to the boom brought about by the military requirements, which, however, will not last for ever. Nevertheless, we could not expect such a rise without a sound foundation which had been technically and scientifically built up for the present requirements. In fact, the heavy industries in Japan have now raised their importance to the level of other leading enterprises.

Remarkable as has been the development of the heavy industries in Japan during the last few years, silk and cotton industries and shipping have a greater importance from a national point of view. We will therefore, in the following chapters, study the representative industries on this basis.

PART III

TEXTILE INDUSTRIES

CHAPTER I

SILK INDUSTRIES

I. RAW SILK

THE silk industry in Japan has been, and will continue to be, one of the most important and fundamental industries of the nation, not only because silk is one of the biggest items of export, but also because the industry is an old established one. Although the cotton industry has shown such rapid progress, and now occupies the most important position amongst industries, its existence depends wholly upon the import of raw cotton, and its products are subject to keen competition in foreign markets, whereas the silk industry is able to obtain ample supplies of raw material at home, and so far has been a serious competitor in foreign markets; thus it is in a much easier and safer position.

However, the present state of the raw-silk industry by no means gives cause for optimism. The price of silk has fallen considerably since the post-War depression, production has decreased yearly, and exports of raw silk show smaller figures. During 1922 they amounted to yen 671,365,000, and to yen 568,370,000 in 1923, and these values represent 41 and 39.2 per cent. respectively of the total values of the entire exports of these years. But during the next ten years they decreased by almost 40 per cent., showing yen 390,901,000 in 1933 and yen 286,798,000 in 1934, representing 20.9 and 13.1 per cent. respectively of the total values of the entire exports. This downward

tendency was due, firstly, to the rapid progress of the artificial silk industry having diminished the demand for natural silk, and secondly, to the slow recovery of the American market, which is the chief customer for Japanese raw silk, since it purchases more than 90 per cent. of the total exported. Although this industry has greatly declined from the important position which it used to hold amongst the exports of Japan, its ebb and flow still have a great bearing on the national economy.

General History of the Silk Industry

The silk industry of Japan started as early as 480 B.C., but whether it was on a commercial basis at that time is not certain. The first stage of development was during the reign of the Emperor Chu-Ai, about A.D. 200, and the warm encouragement given by subsequent Emperors and Empresses had a great deal to do with the rapid progress realised after that period.

The first silkworms introduced into Japan came from China, and a Chinese subject, by name Tsudzuki-no-Kimi, came to Japan about A.D. 280, bringing with him some of his countrymen, who were well trained in the industry. These men were distributed among the various districts of Japan, and were asked by the then Emperor, O-Jin, to develop silkworm-rearing and silk-spinning. This was some 1640 years ago, and the industry may be said really to date from that period.

It must be remembered that the improvement and progress of the industry have been due to the aid and encouragement of the Government, which has been its sole support right from its origin up to the present time.

After the introduction of silkworms from China, the whole country took a great interest in sericulture, and from time to time decrees and regulations regarding the industry were made. An Imperial decree was issued in the reign of the twenty-first Emperor, Yu-Ryaku (A.D. 457-480), encouraging the cultivation of mulberry trees in all places suitable for such plantation. By the celebrated Constitution of Prince Sho-Toku, mulberry trees were planted according

to the class of land, viz. 300 trees in the first class, 200 and 100 in the second and third classes, respectively.

Up to this period the silk industry had been confined to the central and south-western districts of Japan; but during the reign of the forty-third Empress, Gem-Myo, most of the rich families in the central part of Japan removed to the north-eastern parts, and in consequence the industry moved with them. It can therefore be said that the silk industry in the north, which is now its most important centre, dates from that time.

In the reign of the sixtieth Emperor, Daigo, some 1000 years ago, the districts producing silks of a superior quality were in the central and south-western regions rather than in the north-east; thus it will be noted that the geographical distribution of the industry at that period was quite different from its distribution to-day. The reason why the central and south-western districts flourished was mainly because they are nearer to China. Furthermore, the growth of the industry in Central Japan was also encouraged by the fact that the capital was not removed from either Kyoto or Nara until Tokio was made the capital.

It is undeniable that the success of any industry depends largely upon the political vicissitudes of a country. The central and south-western districts offered favourable conditions for the general development of the industry, and the system of paying taxes in silk fabrics induced the people to make great efforts to produce silk. But from the end of the twelfth century until the end of the sixteenth century the country was disturbed by civil discord, and wars were frequent, whilst farmers were overburdened with heavy taxes and their men called up for military service.

In this state of affairs it was but natural that no attention should be paid to such a delicate industry as silk. Another drawback was the prevalent use of cotton clothing, which had superseded the use of silk fabrics.

Towards the close of the sixteenth century, however, peace began to prevail in the country, and was finally brought about by the establishment of the Tokugawa Shogunate. Industries of every description received fresh

encouragement. The silk industry once again resumed its long-retarded development, but as the result of the frugality which was the fundamental principle in all State affairs of the successive Shogun, the use of silk for clothing was permitted only to Samurai, and common folks were prohibited from using it. This naturally lessened the demand for silk. By this time the centre of the silk industry had moved somewhat in a north-easterly direction.

At the end of the Tokugawa Shogunate, and upon the opening of the Yokohama port for foreign trade at the beginning of the Meiji era, the silk industry of Japan began a new period of development. Wide markets were now opened, and the ever-increasing demand for Japanese silk gave a fresh stimulus to the development of the industry. The amount of silk exported yearly has increased enormously, until at present it holds the foremost place among exports from Japan, and both the Government and the people are doing their utmost to encourage and improve the industry.

The silk of fifty years ago was inferior to that of the present day. At that time most of it was reeled from yellowish cocoons, and consequently assumed a yellowish tint, which, however, not being greatly admired by the dealers concerned, gradually gave place to white silk, so that at present the latter enjoys a unique importance in the industry.

The Government has frequently sent abroad experts in order to make investigations into the silk industry in Europe and America, and foreigners have often been employed for the further improvement of the industry. Thus, governmental encouragement and aid, combined with energetic endeavours on the part of silk industrialists at large, have brought about the present prosperity and state of development. But it must be remembered that there are still plenty of reforms and improvements required.

Methods of Reeling

There are three methods of reeling cocoons at present in operation in Japan: hand-reeling (the most ancient), foot-reeling and machine-reeling. The last-named was intro-

duced from France and Italy about fifty years ago. Hand-reeling can be divided into two classes: "Te-Guri," the most primitive method which now exists, used in remote districts; and "Za-Guri," a more advanced method, now in use in some parts of Japan. Although we do not intend to describe in detail these reeling methods, in order to make it possible to understand the development of the industry we will make a short study of the three methods.

(a) In the "Te-Guri" there is a reel which is revolved by means of a rod manipulated by the right hand of the reeler. One pan is used for both the boiling and reeling of cocoons. The index and middle fingers of the left hand serve for twisting the silk threads, but in this method the reeler has to stop the work as soon as the filaments are broken, because he can reel only one thread at a time. The raw silk produced by this method is coarse, and does not have a uniform denier.

(b) With the method of "Za-Guri" the reeler with his left hand turns the reel by a handle which is fixed to a large wheel, and uses his right hand to adjust the filaments, so as to maintain the even denier of the raw silk. This process is better than that of (a), and is still used in many parts of Japan as an important instrument of house industry.

(c) The foot-reeling instrument is that in which the reeling machine (d) and the "Za-Guri" are combined and worked by the use of a treadle. It consists of a reeling table and a reeling holder, which are connected, and several utensils for reeling silk. By using this instrument, both hands of the worker are at full liberty to throw up the cocoon filaments, which is not possible with methods (a) and (b). By this method more silk is produced than by the above two methods and the quality is better, but it is far inferior to the varieties produced by (d).

(d) The machine-reeling method is quite different from the above three. There are two pans prepared, one for the boiling of the cocoons and the other for the reeling, and the reels are revolved mechanically. By this method a superior grade of raw silk can be produced, as the cocoon filaments are well united by complete twisting. Both hands

of the reeler can be devoted to the throwing of filaments, and so it is possible to maintain a uniform denier.

The power used is of different kinds—human labour, water, steam and electricity. The first two are used only in rare cases, and are gradually disappearing. At the present time most filature works use steam power; electric power will, however, become more general in future owing to its cheapness.

Before Western reeling machines were introduced into Japan, silk reeling had been done by means of the simple hand-wheels under the family system, and there was no division between cocoon producers and silk reelers. The reeler sold his raw silk, reeled from the cocoons which he himself had produced. In fact, in those times silk reeling was the most suitable and profitable subsidiary industry for the farmers, as they could engage in cocoon feeding and reeling the raw silk between harvest and seed-time. Therefore, the men engaged in agriculture and silk reeling in those days were generally farmers. This system of production continued right up to the Japanese-Chinese War of 1894. In the meantime, the production of raw silk had rapidly increased, owing not only to the increase of home consumption, but also to the great demand from foreign countries. If we compare the production of raw silk in 1868, about which time intercourse with the Western countries began, with that of 1893, when it reached roughly 1,234,000 kan,¹ we can easily observe the rapid

¹ PRODUCTION AND EXPORT OF RAW SILK BEFORE THE JAPANESE-CHINESE WAR

Year.	Production (kan).	Export.	
		Quantities (kin).	Value (yen).
1868	278,270	1,095,000	6,081,000
1877	—	1,661,000	9,627,000
1883	456,500	2,284,000	16,232,000
1889	966,600	3,103,000	19,278,000
1892	1,096,000	5,407,000	36,270,000
1893	1,234,000	3,712,000	28,167,000

Note.—Kan = 8.28 lbs.; kin = 1.3228 lbs.

development of the industry. During the same period raw-silk exports trebled in quantity, and increased more than four times in value. If the Coinage Act of 1885 had been passed earlier, the industry might have been developed much sooner and on a greater scale, as this Act offered great facilities for the foreign trade of Japan. It must be remembered that of the total production in 1893, about 78,976 kan, or 64 per cent., was reeled by hand, and the other 36 per cent. by machines. But by the end of the year the tendency to introduce reeling machines was already noticeable, and more than 2600 factories were equipped with machines.¹

The Change from Hand- to Machine-Reeling

As stated above, the tendency to develop machine-reeling in preference to hand-reeling had already started before the Japanese-Chinese War, but its progress was especially noticeable afterwards. War has far-reaching effects on national economy; the Japanese-Chinese War, which was one of the most important events in the history of Japan, was no exception to the rule. The cost of producing silk rose, but the more efficient machine-reeling suffered less than hand-reeling from this increase in costs; in other words, it meant that factory work showed more profits than the small-scale family work. Western reeling machines replaced hand-reelers, in order to meet the increased demand for silk and to secure more economical production. Machine-reeling showed a 40 per cent. increase in cost of production

¹ MACHINE-REELING AND HAND-REELING IN 1893

	Machine-Reeling Factories.	Hand-Reeling Factories.	Total.
Factories employing more than 500 men	3	3	6
Factories employing between 500 and 100 men	121	17	138
Factories employing between 100 and 50 men	349	39	388
Factories employing between 50 and 10 men	2129	542	2671
Total	2602	601	3203

during the eight years ending 1900, whilst hand-reeling showed 57 per cent. increase during the same period.¹

Machine-work in factories increased correspondingly, and the total number of kamas² was recorded as 183,255 in 1911, although factories seem to have been decreasing in number. This goes to show that the industry was on a greater scale than before the war.³ Thus the tendency to adopt reeling machines brought an increase of the total production: the yearly average increase in 1889 and the following four years was 452,000 kan, whilst the period 1899 and the following four years showed an increase of 1,038,600 kan. In the first period the volume of production by hand was greater than that by machines; in the last period the proportions were about reversed.⁴

¹ INCREASE IN COST OF PRODUCTION OF RAW SILK
(Per 100 kin.)

	1893. (Yen.)	1896. (Yen.)	1900. (Yen.)	Increase in 1900 over 1893. (Yen.)	Percentage Increase. (Yen.)
Machine-reeling . . .	111	126	156	45	40
Hand-reeling . . .	82	106	129	47	57
Average . . .	96	116	143	46	49

(This table relates to all factories employing more than ten persons.)

² Kama is similar to a basin in which cocoons are boiled.

³ FACTORIES ACCORDING TO NUMBER OF KAMAS

Year.	10-50 kamas.	51-100 kamas.	101-500 kamas.	Over 500 kamas.
1893	2129	349	121	3
1896	1480	509	273	21
1900	1269	523	262	18
1905	1423	586	304	7
1908	1339	631	408	15
1911	1422	615	423	20
1913		1983		546

⁴

Years.	Average Production by Machine. (Kan.)	Average Production by Hand. (Kan.)	Percentage.	
			Machine.	Hand.
1889-1893	452,013	587,479	43	57
1894-1898	814,634	657,390	55	45
1899-1903	1,038,568	739,501	58	42

A rapid increase and development of machine-reeling was especially noticed during and after the Great War. Among changes in this industry the most outstanding were: (1) expansion of factories, (2) considerable increase of production, and (3) greater efficiency of work and workmen.

Owing to the demand from home and foreign markets during and after the War, there were increased investments of capital, larger undertakings were established, and methods of management were improved both in hand- and machine-reeling. During this period, however, the number of factories where hand-work was mainly performed decreased from 284,869 in 1913 to 190,785 in 1920, making a decrease of 94,084. It must be remembered, though, that this decrease was in the small factories which were working with less than ten kamas, as those working with more than ten kamas increased in number to 600.

In machine-reeling there was a more significant change, both in the number of small factories (with less than ten kamas) and the larger (with more than ten kamas). The former decreased by 527, or 25 per cent., from 1913 to 1920, and the latter increased by 290, or 53 per cent., during the same period.¹ Thus the decrease in the total number of factories was due mainly to that of the smaller reeling factories. Moreover, it must be noted that the total number of kamas in hand-reeling decreased by 83,700 during the six years following 1915, in spite of the increase of 40 per cent.,

¹ NUMBER OF SILK-REELING FACTORIES

Year.	Machine-Reeling Factories.				Hand-Reeling Factories.			
	Under 10 kamas.	10-100 kamas.	Over 100 kamas.	Total.	Under 10 kamas.	10-100 kamas.	Over 100 kamas.	Total.
1913	2172	1983	546	4701	283,617	1243	9	284,869
1914	1857	1900	567	4324	255,302	792	11	256,105
1915	1911	1823	565	4309	246,446	981	18	247,445
1916	1588	1985	621	4194	238,383	917	4	239,304
1917	1568	2094	747	4409	219,394	1358	3	220,755
1918	1781	2069	789	4639	205,394	854	9	206,267
1919	1477	2017	817	4311	189,851	1192	25	190,668
1920	1645	1990	836	4471	188,894	1886	5	190,785

or 80,000, in the number of machines during the same period.¹

Secondly, in regard to the production of silk,² we must not overlook the considerable increase in output from 3,487,000 kan in 1913 to 5,390,000 kan in 1920, which was due entirely to the increasing output of the machines, as the output by hand in the same period decreased by 115,000 kan.

Thirdly, from the point of view of efficiency, it is particularly noticeable that a rapid technical improvement has been made since 1914 in management as well as workmen's skill. As a result the volume of output grew rapidly, despite the decrease in the number of kamas and in working hours. This was undoubtedly caused by the increased production per kama and the greater skill of the workers. Again, according to the last two tables, the total decrease of kamas in work was 4164, or 7 per cent., comparing the number in 1915 with that in 1920; the increase in total output, on the

¹ TOTAL NUMBER OF KAMAS

Year.	Kamas in Machine-Reeling.	Kamas in Hand-Reeling.	Total.
1915	205,588	333,697	539,285
1916	224,569	328,384	552,953
1917	262,864	300,708	562,572
1918	275,760	281,977	537,737
1919	277,427	257,879	535,306
1920	285,147	249,974	535,121

² OUTPUT OF RAW SILK

Year.	Machine.		Hand.		Total.	
	Quantity. (1000 kan.)	Value. (1000 yen.)	Quantity. (1000 kan.)	Value. (1000 yen.)	Quantity. (1000 kan.)	Value. (1000 yen.)
1913	2851	161,501	636	31,373	3487	192,874
1914	2892	143,810	618	26,325	3510	170,135
1915	3182	176,131	575	27,427	3757	203,558
1916	3539	261,891	636	40,167	4175	257,058
1917	4279	345,739	606	44,092	4885	389,831
1918	4738	449,876	590	50,724	5328	500,600
1919	5168	790,135	563	80,170	5731	870,305
1920	4869	504,229	521	40,604	5390	544,833

contrary, in the latter year was 1,906,000 kan, 37 per cent. more than the output in 1915. If we again make a comparison, regarding the improvement of the industry, taking both machine- and hand-reeling, it is most interesting to observe that factory efficiency in machine-reeling was considerably more marked than in hand-reeling, as is shown in the following table :

PERCENTAGE CHANGE IN 1920 COMPARED WITH 1915

	Number of kamas.	Output.
Machine-reeling	+ 28	+ 60
Hand-reeling	- 37	+ 30
Total	- 9	+ 45

+ = Increase.

- = Decrease.

Thus the output in the case of machines was 60 per cent. greater in 1920 than in 1915, in spite of the fact that kamas increased in number by only 28 per cent. At the same time, hand-reeling showed a decrease of 37 per cent. in its number of kamas, but its output increased by 30 per cent. Output per kama in machine-reeling, which had been only 6.16 kan in 1893, rose to 15.33 kan in 1915, and reached 17.08 kan in 1920, which was almost treble that of 1893. In hand-reeling it increased from 1.72 kan in 1915 to 2.10 kan in 1920. The total increase in 1920 over 1915 was 1.07 kan per kama.

Causes of Development of the Japanese Raw-Silk Industry

Having dealt statistically with the development of this industry in Japan, we have now to consider the causes of this development. The progress of the industry was due to : (1) the development of sericulture; (2) improvement in methods of reeling; (3) progress of industrial management; (4) increased home consumption and foreign demand.

1. *The Development of Sericulture.*—This is, needless to say, the most important cause of the growth of the silk industry. As in all industries, cheap and abundant supplies of raw material of fine quality are most essential for the

silk industry. So far the reeling industry in Japan has been very flourishing, as sericulture is, as mentioned above, one of the country's oldest enterprises, and, incidentally, one of the best suited to the Japanese climate and people. It is therefore quite natural that the more sericulture improves the more the reeling industry develops, and it is necessary to observe the development of sericulture in order to study the causes of the progress of the reeling industry.

In the first place, we will take the output of cocoons, which reached 7,222,000 koku in 1920, an increase of 2,700,000 koku on pre-War figures, and about four times as much as the output before the Japanese-Chinese War. Although the output has fallen since 1921, owing to the depression after the Great War, the output of 1923 still kept its high record of 6,953,000 koku.¹

It is noteworthy that, in spite of a large increase in cocoon output, as shown above, the percentage increase did not exceed that of the raw-silk output, comparing pre-War with post-War figures :

Increase of cocoon output, 1913-20, 38 per cent.

Increase of raw-silk output, 1913-20, 55 per cent.

This increased yield of silk per cocoon is mainly the result of the better feeding of silkworms, which produces undoubtedly superior-quality cocoons, which means also that the reeler can reel more raw silk out of each cocoon than he could before. For instance, before the War it was usual for 1 kan of cocoons to produce 100 momme² of raw silk, but to-day it has been raised to 113-114 momme from the same amount of cocoons, an increase of 13-14 per cent.

It can easily be seen, then, that the improvement of sericulture, both in the quantity and the quality of the output, has caused the increase in the efficiency of reeling during this period.

2. *Improvement of Methods of Reeling.*—In the early days of the industry the product was limited to rough, uneven and unfinished silk. Even after the introduction of reeling

¹ Koku = 4.9629 bushels.

² 1 momme = 0.1325 ounce.

machines, the products could not be compared with the finer and superior French and Italian goods. This was due not only to the difficulty of obtaining good cocoons owing to sericulture being in its infancy, but also to the primitive state of the methods of reeling. However, after the Japanese-Russian War (1904-5) the industry made good progress, and its methods of reeling are no longer considered inferior to those employed in France and Italy.

3. *Progress of Industrial Management.*—Together with the improvement in methods of production, factories continued to improve in methods of management. The modern reeling machines under the factory system induced great changes in organisation, such as the reduction of working hours and the establishment of recreation and other facilities for workmen. As a result of this, the quality of raw silk has been vastly improved, the industrial efficiency and productive power of factories have increased, and the cost of production has been lowered and wages raised.

4. *Increased Home Consumption and Demand from Foreign Markets.*—Although silk is one of the chief products of Japan, and the industry the most widespread in the country, silk is regarded as an expensive article for the middle and working classes, who look upon it as being too luxurious for ordinary use and fit only for special occasions. In accordance, however, with the increase of wealth and higher standard of living, silk goods have been in great demand by all classes in recent years, and as a consequence the figures for home consumption of raw silk rose to 11,878,000 kin in 1918, although in 1919 they decreased to 7,053,000 kin, owing to the economic depression after the European War; this was, however, 2,059,000 kin greater than in 1909, when the consumption was 4,994,000 kin.

As to the export of raw silk, which has been referred to as one of the causes of the industry's progress, the demand for Japanese raw silk in foreign markets has caused that industry to prosper and production to increase. Before the Japanese-Chinese War the export was only 3,712,000 kin; but it has increased rapidly since, reaching 13,487,000 kin in 1900, and then jumping to 20,228,600 kin in 1913. The

most significant figures ¹ were those during and after the Great War.

It is an interesting fact, which we must not overlook, that the production of raw silk in the main silk-producing countries, such as France and Italy, ² has, on the contrary, shown a distinct downward tendency during recent years.

The fact that the world's increasing demand for silk has been met, in spite of the low production of these countries, can only be explained by the great progress of the Japanese reeling industry, which has grown to such an extent as to be able to meet the greater part of the increased demand of the world's market. To illustrate the point, we will cite the total figures of the world's silk consumption and production, ³ excluding Japan. The world's consumption of

¹ EXPORT OF RAW SILK

Year.	Quantity. (1000 kin.)	Year.	Quantity. (1000 kin.)
1893	3,712	1920	17,118
1903	12,756	1921	26,202
1913	20,228	1922	34,419
1918	24,344	1923	26,328
1919	28,622		

² PRODUCTION OF NEW SILK

Year.	Italy.	France.	Year.	Italy.	France.
1893	10,625	2272	1927	7111	491
1903	9,403	1164	1928	7060	341
1913	9,441	833	1929	8043	325
1923	8,166	425	1930	8136	233
1924	8,758	558	1931	5475	133
1925	7,300	425	1932	5866	133
1926	6,425	400	1933	5677	132

³ WORLD PRODUCTION AND CONSUMPTION OF RAW SILK
(Excluding Japan)

Year.	Production. (Kin.)	Consumption. (Kin.)	Deficit. (Kin.)
1910	25,986,000	36,516,000	10,530,000
1913	25,542,000	39,727,000	14,185,000
1919	16,872,000	44,856,000	27,984,000
1925	24,716,000	67,791,000	43,075,000
1930	24,081,000	80,075,000	55,990,000
1931	13,233,000	67,266,000	54,033,000
1932	14,366,000	66,220,000	51,854,000
1933	13,936,000	63,837,000	49,901,000

silk (excluding Japan) increased by 29,321,000 kin, or 1·80 per cent., from 1910 to 1933. On the other hand, the world's production (excluding Japan) decreased by 12,050,000 kin, or 1·87 per cent., during the same period. As a consequence, the excess of demand over production was 49,901,000 kin in 1935 against 10,530,000 kin in 1910. This difference, most of which was made up by Japanese raw silk, has undoubtedly been the main cause of progress in the Japanese silk industry, which is now in a prominent position as a supplier, as it provided 18 per cent. of the world's total supply in 1895 and 78 per cent. in 1933.

Inferiority of the Japanese Raw-Silk Industry

As mentioned above, Japan seems to have gained the position of being able to supply the largest amount of raw silk in the world. Judging from the present state of the industry, however, it cannot be regarded as having reached the fully developed stage of its progress, as there are still many defects in its organisation and management which greatly need remedying.

1. Speculative Fluctuation of Prices.

The lack of a steady and safe market for silk is the chief defect in this industry. Owing to the continual and artificial fluctuation of prices, the industry has been run more or less on speculative lines. This has undoubtedly been the main check to steady progress. Those engaged in the industry have to be on the look-out all the time for opportunities of better marketing. The principal item of cost which has to be considered is the market price of raw silk, which has an undesirable tendency to fluctuate, largely because of artificial influences, and not through changes in supply or demand. Those in the industry are inclined to give the whole of their attention to possible price fluctuations in order to increase profits. Therefore, the people concerned naturally neglect the more important sides of the industry, such as improvement of management, of

industrial organisation and of methods of production and necessary scientific investigations. If attention were paid to these things it would go far to help reduce the cost of production and to raise the efficiency of factories.

It is necessary to know how and when the industry began to indulge in speculation. It did so from the very time the Tokugawa Shogunate opened the ports to foreign countries and silk became one of the important goods for export. From the commencement, the United States of America has been Japan's largest customer for silk, and it is only natural that prices should fluctuate owing to the exchange movements between the two countries. The industry, however, was so vast and unstable that no business man could rely on being able to deal in a steady market. Price fluctuations were due also to the unhealthy state of Japanese finance and the coinage system at that time, and, further, to the unsatisfactory system of silk-marketing in Japan, which was made worse by the activities of a few speculators. After the Coinage Act of 1885 was brought into force, though foreign exchange fluctuated less than before, price fluctuation in the industry still continued. The old speculative conditions which had been doing a great deal of harm to it could not be got rid of all at once, and still remained as an obstacle to the establishment of large-scale silk-reeling factories, as the industry was not a safe field for big investment so long as such vast fluctuations continued. Curious as it may seem, the industry was in those days in the hands of many small men, who appeared to be persons mostly unable financially to face such dangerous fluctuations in prices. In time, however, this state of affairs gradually improved, and the modern capitalistic establishments were set up, but fluctuations never ceased and speculative conditions still continued. The reasons for continued instability are as follows :—

- (a) The misconception still existing in the minds of many people that the silk business is a mere speculative transaction.
- (b) The unsatisfactory methods of marketing cocoons.

- (c) The ignorance of raw-silk producers in regard to the demand for silk.
- (d) The lack of elasticity in demand for silk.

Unless these causes can be done away with, the silk business in Japan cannot be anything but speculative. The following are a few instances of price fluctuations. In 1906 and the following year, or just after the Japanese-Russian War, a huge rise and fall in prices was experienced, the highest quotation being yen 1450 per 100 kin and the lowest yen 930; they rose 35 per cent. in the former year, and fell suddenly by the same percentage in the following year. It is needless to add that many firms and people concerned were seriously affected by this tremendous fluctuation in such a short period. Furthermore, the fluctuation in prices in 1919 and 1920 was considered to be the most remarkable ever recorded: the highest, yen 4360 per 100 kin; the lowest, yen 1100. These years were, of course, a transitional stage from the post-War boom to the slump. During 1919 prices still kept rising to such an extent that between the highest and the lowest there was a difference of 60 per cent. But this rising tendency was suddenly checked by the world-wide depression after the Great War, and the price at the end of 1920 was nearly 75 per cent. lower than the highest price at the beginning of the year. Owing to this heavy fall, hundreds of firms in the industry found themselves in terrible difficulties, being on the verge of bankruptcy and unable to carry on without help. At this critical moment a firm, called Teikoku Sanshi Kabushiki Kaisha (The Imperial Silk Co., Ltd.), was established especially for the purpose of remedying the disturbed state of the industry, on condition that the Government would help them financially, if necessary, to the amount of yen 50,000,000. Thus the critical time of 1920-21 passed without inflicting the damage to the silk industry that was expected. The unsettled movement of prices instantly affects the Japanese foreign silk market, checking the export of silk and manufactured goods.

2. Lack of Efficiency and Skill.

The next things to be noted are the inefficiency of factories and the lack of technically skilled workmen. As already described, the industry has been considerably improved and developed during the last few years, but it is still far from being as efficient and as well equipped as those of France and Italy. For instance, in the most modern Italian reeling factories there are eight reels to each kama, whilst in Japan there are only three reels to each kama, or in some, four. The result is, of course, a great difference in production per kama; this greater production is due also to Italian cocoons being superior to Japanese, and to the lack of skill of Japanese workmen. It must also be noticed that the application of machinery has not been widespread in connection with the boiling of cocoons, reeling and other necessary processes, as is the case in France and Italy. In those countries even fresh hands are able easily to learn how to reel silk in the course of not more than three months. It is quite obvious that lack of efficiency and skill will prove a strong obstacle in the way of development and progress, and will be the cause of a rather higher cost of production. It is thus absolutely necessary that the elaborate modern machines should be introduced and also that workmen should be trained.

3. Defects in Industrial Organisation.

As many matters come under this heading, it will be possible to point out only the more significant defects of organisation. They are: (a) the existence of so many small factories, and (b) the inefficient methods of marketing cocoons.

In regard to (a), although, as we have seen in the above sections, there is a tendency for small establishments on the family system to disappear, and for small factories to be replaced by larger ones, there is still plenty of room for industrialising the industry according to modern practices. In other words, it should be developed by the investment of capital on a large scale, so that the size of factories may be

increased. According to the figures at the end of 1933, there were altogether 54,397 factories,¹ including family establishments, which were carrying on silk reeling as a subsidiary business. As mentioned elsewhere, silk reeling is the most important occupation of the Japanese farmers, and forms the main source of their income.

Although a great number of small reeling places were closed down on account of low prices of raw silk, the number of small family concerns having less than 10 kamas was 200,326 in 1923 and 51,221 in 1933—they comprised 94.2 per cent. of the whole number of reeling concerns, and those having more than 100 kamas only 1.5 per cent., the remaining 4.3 per cent. having 10 to 100 kamas. Dividing the total number of kamas in use by the number of factories, each factory had on an average only 6.3 kamas. This shows that the industry is still on a very small scale and is not fully developed. The predominant number of small concerns does not encourage the improvement of the industry and not only brings lack of uniformity in the quality of raw silk, but also causes higher cost of production. The industry

¹ NUMBER OF SILK-REELING FACTORIES

Year.	Under 10 kamas.	10-100 kamas.	Over 100 kamas.	Total Factories.	Total No. of kamas.
1923	200,326	2502	844	203,672	—
1924	193,608	2497	815	196,920	—
1925	181,841	2497	821	185,149	—
1926	88,311	2585	855	91,751	—
1927	79,935	2609	925	83,469	—
1928	72,299	2839	952	76,090	—
1929	65,431	2982	994	69,407	437,738
1930	66,790	2949	939	70,728	433,037
1931	62,663	2701	1036	66,400	418,402
1932	57,070	2502	871	60,461	365,417
1933	51,221	2338	838	54,397	343,579

Silk-Reeling Factories having more than 100 kamas :

Year.	100-300	Under 500	Under 1000	Over 1000
1930	769	138	77	5
1931	817	138	79	2
1932	687	120	64	2
1933	667	120	49	2

will not be efficiently organised until more capital is invested in larger concerns, which are able to hold out longer against unsettled and weak market conditions and a big fluctuation in prices; in which case, owing to their firmer financial standing, they would not be forced to sell their stock at unreasonably low prices. Smaller firms, especially individual family concerns, are not able to wait long enough for the future revival of the market; as soon as prices fall they are obliged to dispose of their stock; at present this usually happens, and the market is quickly overstocked and prices fall. Generally speaking, the majority of businesses lack enough credit to tide them over the unfavourable period. Bankers are very wary of offering financial facilities to them, and they therefore have to resort to borrowing money through silk merchants, who charge unreasonably high interest. So long as these circumstances continue, we can hardly expect to establish healthy business conditions and a modern form of organisation. If the industry could be unified, or companies amalgamated, the disadvantages arising from small-scale enterprise would be reduced. The larger the capital the more financial facilities would be afforded, and the industry would work on a far more satisfactory basis.

With regard to (b), a lengthy description is needed, in order to explain the present situation and possible future reforms.

In the early stages of the industry, sericulturists themselves frequently reeled the silk, so that very little inconvenience was experienced in cocoon marketing. But the more the industry developed, the wider became the gap between the two sides, and dealing in the raw material passed into the hands of middlemen. Purchasers and factories having to pay the middlemen's commission, prices were higher than if the material had been supplied directly by the producers. If a factory now wishes to purchase cocoons without the middleman, it must employ its own cocoon collectors to go round the various districts. Whichever method be adopted, the cocoons cost more than they did in the early stages of the industry before competition for the raw material had developed to its present extent.

Furthermore, a fact to which we must pay attention is that, apart from the middleman, the method by which fresh cocoons are purchased causes great inconvenience and risk to both purchaser and supplier. It is common at present for the supplier to sell fresh cocoons as quickly as possible, owing to the lack of drying equipment, and the purchaser also wishes to buy the cocoons in large quantities, owing to other keen competitors. As a consequence, a proper estimate of the real weight of cocoons (*i.e.* their weight when dry) cannot be taken. Further, owing to such large stocks being purchased, in the event of a big fluctuation in price coming after a transaction, one or other is bound to suffer a loss. If the supplier be fortunate enough to sell raw material just before a fall in prices, the purchaser will incur loss through his miscalculation, and so there will always be unrest.

There are many ways of improving present conditions, one of them being to bring both sides closer together, and to let them transact business direct without the middleman's intervention, and to make long-term contracts at fixed prices and arrange for the allotment of profits realised by unforeseen fluctuations in price.

In order to fix a price, it will be necessary to calculate the average price a few years hence, the standard price at the moment of transaction and future prospects. Should the market price rise above the fixed price, the profit thus gained by factories through early buying must be divided according to agreement between the two. If this method be practicable, the present unrest caused by fluctuation will be greatly reduced. This method, however, may not be easy to realise in some districts on account of the different interests of seller and purchaser. Another method is the establishment of public cocoon markets in various centres of the silk industry, from which the following advantages would arise :

1. Purchasers would be able to buy any amount of cocoons to suit their requirements without despatching their cocoon collectors to various places, thereby saving much expense.

2. Producers could at the same time sell cocoons easily and satisfactorily at a reasonable price without risking fluctuation in prices.

3. By these means the two could make their transactions without the middleman and the collector.

4. Less fluctuation in cocoon prices and less risk to the industry would be expected, as the people concerned would be more closely connected and more familiar with the tendency of business.

There is another important thing to be done, and that is to put an end to the prevailing system of buying and selling cocoons when they are fresh. At present, producers have to sell fresh cocoons in order to get quick returns, owing to lack of financial resources, and also because of the lack of establishments for drying cocoons. At the same time, purchasers buy fresh cocoons in spite of having no storing-house for them. In such cases the producer sells them at too low a price, and the purchaser has to face the risk of keeping them in a fresh state. In order to avoid such inconveniences and risks, dealings in dry cocoons should be introduced.

It is hardly necessary to add that the utmost care must be taken in drying cocoons. The object of drying is to drive all the moisture from the body of the pupa and to keep the characteristic state of the cocoons for an unlimited period. After being dried, the cocoons must be carefully attended to, to prevent them from becoming wet again and to avoid attacks by rats, mice, insects, bacteria and vegetable mould.

Owing to the expense, it is practically impossible for everyone to have a drying-house for these purposes; therefore, if each centre of the silk districts erected a drying-house together with a store in the market-place, greater conveniences and facilities would be available to both producer and purchaser.

It must be remembered that cocoons are more or less moist at all times, as they absorb moisture easily. They must always be dried before being brought into store; until they reach the weight which perfectly dried cocoons should

attain, they can hardly be considered as being of the proper weight. The more moist they are, the worse will be the quality of the silk. Therefore it is most important to classify them according to whether they are properly dried or not. Because of this, the so-called net weight transactions are very important, as this is a method of dealing in cocoons by weight according to dryness. If they are more than the net weight, then the surplus is absorbed moisture, which reduces their value accordingly. This kind of transaction has been in operation in Italy and France for the last eighty years, and has proved very successful. Should this method be adopted by the Japanese silk industry, together with the establishment of cocoon markets, the risks and inconveniences attending the present state of cocoon marketing will be greatly reduced, and the result will be an improvement in the industry.

The Future of the Raw-Silk Industry.

Although, at present, the industry needs much improvement in various respects, a slow progress has been attained generally, and a steady increase in the production ¹ of raw silk has been achieved during the ten years ending 1932, in which year it was 71,676,600 kin, against 42,225,000 kin recorded in 1923, in spite of the fact that the number of silk-reeling factories and kamas has greatly decreased. Thus, the rapid decrease in the number of female workers, who form more than 90 per cent. of the total, is attributable to

¹ PRODUCTION OF RAW SILK

Year.	Quantity. (kin 100.)	Value. (yen 1000.)	Average Price. (kin 100.)
1923	422,250	795,945	Yen 1885
1924	473,566	837,231	.. 1767
1925	517,766	956,052	.. 1856
1926	568,833	850,752	.. 1495
1927	617,516	798,798	.. 1293
1928	661,516	835,468	.. 1263
1929	705,766	857,578	.. 1215
1930	710,316	536,664	.. 755
1931	730,183	427,691	.. 586
1932	716,766	469,474	.. 655

the decrease of the total reeling hands.¹ Against this, the number of male workers has been steadily increasing. The above facts show that the factories have been improved and the workers' efficiency has been raised; an average production of raw silk per worker was 76.6 kin a year in 1923, while it was 167.1 kin in 1932.

Raw silk used to be the biggest item in Japanese exports, coming first of all industrial products as well as exported commodities. However, its value² as an export has recently declined in comparison with that recorded ten years ago, although the quantity exported shows, on the contrary, an increase of from 60 to 90 per cent. during the same period. As far as the export value of raw silk is concerned, it had, on the whole, amounted to between 25 and 41 per cent. of the total during the fourteen years ending 1923. But it fell as low as 13 per cent. in 1934, and the important position which raw silk held in Japan's foreign

¹ NUMBER OF WORKERS IN SILK-REELING FACTORIES

Year.	Male.	Female.	Total.
1923	27,849	523,412	551,261
1924	28,425	518,388	546,813
1925	29,785	517,417	547,202
1926	33,062	450,280	483,342
1927	33,735	462,495	496,230
1928	36,731	478,773	515,504
1929	38,346	486,961	525,307
1930	36,830	472,294	509,124
1931	36,185	459,264	495,449
1932	30,120	398,643	428,763

² EXPORT OF RAW SILK

Year.	Quantity. (kin 1000.)	Value. (yen 1000.)	Percentage of Total Export.
1919	28,622	623,618	29.71
1920	17,118	382,715	19.64
1921	26,202	417,123	33.19
1922	34,419	671,365	41.00
1923	26,328	568,370	39.20
1930	46,990	416,647	28.34
1931	55,593	355,394	30.98
1932	54,658	382,366	27.11
1933	48,328	390,901	20.90
1934	50,599	286,793	13.10

exports has declined in recent years. This is due not only to the fall in silk prices, but also to the striking increase in the exports of cotton goods.

The chief customer for Japanese raw silk is the United States of America, which buys over 90 per cent. of the total raw silk exported, the balance being distributed between France and England, to which countries exports have decreased markedly since the Great War. The same applies to Italy, which, previous to the War, took more than 10 per cent. of the total exports; in fact, in 1913 she imported as much as 13 per cent.

America is not only Japan's biggest customer, but the most important country for Japanese raw-silk exports. If America buys less silk, the raw-silk industry will be seriously affected. As it is, the slow recovery from the present economic depression in America has caused a great setback in the industry. The prices of raw silk have fallen to such an extent that, as previously stated, a great number of small silk-reeling concerns have had to close down, and farmers have had to change their old-established subsidiary business of making cocoons for more profitable occupations, on account of the low price of silk cocoons. In addition, the appearance of artificial silk and its rapid progress have greatly affected the demand for Japanese raw silk. We have heard optimistic opinions expressed that artificial silk is, after all, inferior to natural silk in respect of its fineness, specific gravity, strength and elasticity, and on account of its weakness in water and its inflammability, and for these reasons natural silk will not only maintain its present level of production, but will be used on a still larger scale. Artificial silk will be used in limited cases as an auxiliary to, and not in the place of, natural silk. These optimistic ideas have been proved to be wrong; rather the opposite tendencies seem to show themselves in many directions. Should the inferiority of artificial silk as compared with natural be remedied sufficiently, then natural silk will, without a doubt, be affected by it, as the price of the latter is far higher than that of the former. The present position is that the more artificial silk is improved, the larger will be the demand for

it, and its use, which was formerly practically limited to making piece-goods, such as ties, gas-mantles, thread and knitted wear, etc., has widened in almost every direction. Before the Great War the world's total output of artificial silk was only about 12,000,000 lbs. Remarkable progress has, however, been made in its output, and also in the number of factories engaged in the industry. The output in 1934 exceeded 790,000,000 lbs., of which 210,000,000 lbs. was produced by America and 148,000,000 lbs. by Japan. Thus it is obvious that the demand for raw silk has been greatly affected owing to the fact that both America, the chief consumer of Japanese silk, and Japan have become the two biggest artificial-silk-producing countries. Raw-silk stock accumulates and prices are unreasonably cut down, this resulting in a serious stagnation in the industry and general financial difficulties in rural districts. Since the world economic crisis occurred in 1929, the industry has been suffering from a severe depression, and the Government has been endeavouring to establish some means by which it may bring about its recovery. The authorities are doing their utmost to improve silk and to develop its field of utilisation. There is a bureau in the Department of Agriculture and Forestry established to supervise and control the industry. Each Prefectural Government also has special facilities for the purpose of encouraging the industry. There are several Government experimental stations, and schools to investigate scientific methods and general improvement, and to train men specialising in sericulture and silk filature.

There are National Silk-Conditioning Houses at Yokohama and Kobe, the two main raw-silk-exporting ports, where strict inspection is made as to the quality and weight of raw silk shipped out of the country. Furthermore, there are local conditioning houses in each district to examine and approve raw silk for domestic consumption. Silk-cocoon raisers, breeders of silkworm eggs, raw-silk reelers, raw-silk merchants and silk exporters have their respective associations for the purpose of promoting the interests of the people concerned and fostering the general

improvement of the industry. Thus the Government and private institutions have been endeavouring to make improvements so as to meet the requirements at home and abroad.

In addition, the Government is said to have decided to adopt the following lines of policy in order to cope with the present situation :

(1) To encourage the industry to be self-supporting in labour and mulberry culture, and to restrain farmers from over-production, so that cash disbursements may be minimised in connection with silk-raising.

(2) To readjust and replant the mulberry plantations in order to increase crops, and to advocate diversification of farm crops utilising surplus mulberry plantations.

(3) To encourage self-support in the matter of fertilisers for mulberry trees.

(4) To help sericultural associations to act more aggressively in order to develop further the co-operative management of silk-raising enterprises.

(5) To set up a system under which cocoon trading shall be conducted in accordance with official inspection of the quality.

(6) To remedy the evil effect of trading under the so-called special contracts between raisers and reelers.

(7) To set up an institution in each prefecture through which agreements may be reached with regard to the standard weight of silk cocoons.

(8) The Government shall make arrangements for liberal and prompt accommodations for low interest-rate loans to silk-raisers and reelers.

(9) The Government shall make necessary arrangements for the encouragement of the co-operative storage of silk cocoons.

The silk industry may be improved by the efforts made by the Government as well as by private institutions. But it is obvious that serious competition from artificial silk will

continue as the latter industry develops, unless the cost of natural silk production is lowered and the quality raised.

2. SILK MANUFACTURES

General Development up to 1913

It is unnecessary to repeat the details regarding the development of the silk-manufacturing industry, as it was introduced together with silk reeling and underwent the same process of development. In short, silk manufacturing was introduced from China some 1640 years ago, and by the aid and encouragement of the then Emperor O-Jin it was established as an industry, although only in a primitive way, for domestic uses. It may be said that, excepting China, Japan is the oldest silk-producing country. In Europe the commencement of the industry in the principal countries, with the exception of Greece, was far later than that in Japan. In both France and Italy it had its origin not earlier than the thirteenth century, and in England it began at the end of the fifteenth century.

However, in spite of the fact that Japan was practically the first country to manufacture silk, the industry had not greatly developed, and up to the Meiji Restoration it had been more or less at a standstill, while other countries had been progressing rapidly. But once a wider market was found in foreign countries some fifty years ago, the Japanese silk industry made striking progress, especially in producing habutae and silk handkerchiefs, which were the first manufactured goods demanded by foreigners. These were exported, mainly to America, in huge quantities, because they were suited to the people's taste. The first place engaged in this line of industry for the purpose of export was a town called Kiryu in Joshu. Fukui, Kanazawa, Toyama and Kawamata then took to producing for export. They are at the moment the principal towns of the silk-manufacturing industry.

Since 1884 the industry has made rapid progress, and the total value of silk products of 1893, just before the Japanese-

Chinese War, reached yen 23,700,000, being an increase of 130 per cent. as compared with the average amount of the five years ending 1890. The reason for this was the rapid increase in silk exports, which corresponded to one-third of the total value of silk produced, instead of being one-fifth of them as in the latter period. In those days the most important items of exported silk goods were habutae and handkerchiefs.

After the war with China the industry again made great progress, availing itself of the post-war boom. The total value of the output ¹ in 1898 increased by 260 per cent. as compared with the output before the war, 1893. Although this increase was partly due to the advanced price of silk goods, the actual quantity of output also increased more than twice. It is interesting to note that the rapid increase in the post-war period showed a greater home than foreign demand. Therefore, the export value compared with the total value of output decreased from 40 per cent. in 1894 to 22 per cent. in 1897, although it increased slightly in 1898.

The period between 1899 and 1913 may, generally speaking, be described as a time of inactivity in the industry, although there was an ebb and flow of business before and after the Japanese-Russian War. Reacting from the financial depression of 1898, the industry languished owing to the slump in both the home and foreign demand. Its

¹ OUTPUT OF SILK GOODS AND EXPORTS
(Yen 1000)

Years.	Output.	Per cent.	Exports.	Per cent.	Percentage of Exports to Output.
1886-90 average	10,524	100	2,142	100	20
1891	15,125	144	4,790	224	31
1892	19,348	184	8,277	385	42
1893	23,775	226	8,501	705	36
1894	32,530	309	13,043	609	40
1895	46,361	441	15,338	716	35
1896	54,019	513	12,034	562	22
1897	62,663	596	13,936	651	22
1898	84,147	800	30,894	975	29

(The output figures are those for silk piece-goods and cloth for Japanese obibelts.)

output ¹ in 1900 and onwards decreased gradually in spite of the rise in prices, and it reached its lowest figure in 1903. Although the output tended to increase gradually after 1904, it was only a 20 per cent. increase in 1913 as compared with that of fifteen years before. On the other hand, the exports of silk goods, such as habutae and silk handkerchiefs, figured at about yen 20,100,000 in 1898. However, they did not show much improvement during the following two years, owing to the increase of from 45 per cent. to 60 per cent. on duties on foreign textile goods, which the United States imposed in 1898. Soon after America's new custom duties came into force, she made an agreement with France by which the former exported agricultural products to France and imported silk manufactured goods at special reduced rates. The result was that Japanese habutae were in great demand in France, and at the same time Japanese silk met a new demand in India and other foreign markets. In consequence, exports ² gradually in-

¹ VALUE OF OUTPUT OF SILK GOODS
(Yen 1000)

Year.	Piece-goods.	Cloth for Obi.	Others.	Total.
1898	73,932	10,215	20,894	105,041
1900	65,092	9,484	22,922	97,501
1901	62,109	7,953	29,579	99,641
1902	54,922	6,882	31,032	91,936
1903	32,225	4,485	31,873	68,583
1904	43,020	2,484	43,723	89,225
1905	53,506	3,018	35,384	91,908
1906	70,582	9,611	41,691	116,890
1907	73,022	3,862	37,152	114,036
1908	79,172	4,756	34,429	118,357
1913	69,605	8,100	42,625	120,326

² EXPORTS OF SILK GOODS BEFORE THE GREAT WAR
(Yen 1000)

Year.	Habutae.	Silk Handkerchiefs.	Others.	Total.
1898	12,056	3555	5283	20,894
1899	15,799	3462	1452	20,713
1900	17,436	4319	1141	23,396
1901	23,912	3951	1696	29,559
1903	27,510	2938	1425	31,873
1905	28,058	8980	7326	44,364
1907	29,249	8685	7903	45,837
1909	25,797	3816	3126	32,739
1913	21,337	5001	3026	29,364

creased again after 1901, and reached their highest figure of yen 49,300,000 in 1906. From 1907 to 1913 foreign demand again showed a downward tendency, decreasing to yen 29,364,000 in 1913. The main cause of the decrease was the raising of the import duties on silk goods in America and France.

Silk Manufactures after the War

The long depression in the silk-manufacturing industry in Japan disappeared as soon as the European War broke out, owing not only to the great increase of home consumption and the growth of foreign demand, but also to the rapid rise in prices in silk goods. In 1913 the value of the exports of silk manufactures was yen 29,364,000; in 1920 it had increased to yen 167,101,000, this increase being caused by the rise in prices and also by the increased quantity of exports. It must not be overlooked that the increase in exports¹ represents a net increase of 469 per cent., whereas the increase in the total output is only 289 per cent., or, stating their relative increase, exports were 25 per cent. of total output in 1913, while in 1920 they were 36 per cent. We can therefore conclude that in these years increasing attention was paid to export, and foreign markets were regarded as of more importance for Japanese goods than home markets. But this analysis cannot apply to the recent state of the industry. The output shows a steady decline, and the exports also decreased rapidly after they reached the peak of 1920, although the prices of silk goods fell as compared with 1920.

¹ OUTPUT AND EXPORTS OF SILK GOODS

Year.	Output. (Yen 1000.)	Exports. (Yen 1000.)
1913	120,326	29,364
1920	467,392	167,101
1932	439,020	50,287
1933	344,851	63,544
1934	365,556	77,488

Three Factors of Development

Owing to the increasing demand and the rise in prices, the silk-manufacturing industry has made rapid strides in respect of its number of weaving machines and productive capacity since the Great War. In connection with this the most noticeable things are as follows: (1) the increase of workers; (2) the increase of modern machinery; (3) production of double-width cloth.

1. *The Increase of Workers.*—The number of workers employed in this industry is said to be the best indication of its expansion and prosperity, and also shows the great progress which silk weaving has made during and after the Great War. The total number¹ of men employed in the work in 1913 was 1797, while the women numbered 5660; these figures increased yearly until they reached respectively 6194 and 15,592 in 1921, despite the post-War depression.

2. *Increase of Modern Weaving Machines.*—The kinds of machines in use in the industry can be roughly divided into three, viz. hand- and treadle-weaving instruments and power machines. The first two are naturally the more simple machines used in rather remote districts, and are now decreasing in number, as was the case with hand- and foot-reeling methods of the raw-silk industry.

¹ FIGURES SHOWING YEARLY INCREASE OF WORKERS IN SILK MANUFACTORIES

Year.	Male.	Female.	Total.
1913	1,797	5,660	7,457
1915	2,201	7,183	9,384
1916	2,858	8,735	11,593
1917	4,100	9,466	13,566
1918	3,806	9,770	13,576
1919	4,642	12,598	17,220
1920	5,066	12,943	18,003
1921	6,194	15,592	21,786
1928	35,965	181,666	217,631
1929	34,212	181,713	215,925
1930	32,737	173,805	205,542
1931	35,942	117,343	152,285
1932	38,454	186,107	224,561
1933	41,110	196,887	237,997

Note.—Figures for 1928–33 include the number of men working in silk-mixture factories.

3. *Increased Production of Double-width Cloth.*—The value and quantity of silk goods increased rapidly after the War. What we have to draw attention to more especially is the increase in output of double-width materials, which are produced mostly for foreign demand, as the single width is only for kimono-material size. In other words, the former is mainly for the foreign markets and the latter for home consumption; therefore, the increased output in the former means the increase in foreign demand for Japanese silk. Together with the increased output of double-width cloth, we must note also that before the War, habutae, which can hardly be called finished goods, accounted for 85 per cent. of the total value of silk exports. Although it reached a high record in 1918, habutae for export showed no tendency whatever to increase, and the percentage gradually diminished, remaining at 40 per cent. in 1923 and 10 per cent. in 1934. On the other hand, exports of silk manufactures other than habutae increased their percentage from 15 to 90 during the period 1914-23. In other words, semi-finished silks like habutae have now been replaced by the wholly manufactured ones, such as satins, taffetas and poplins, chiffon, Fuji silk and crêpes. The latter two especially have shown a remarkable increase, their percentage in 1934 being 24 and 46 respectively.

The Present and Future of the Silk Industry.

The fluctuation in prices, the temporary decrease in home and foreign demand and the appearance of substitutes such as artificial silk goods, caused a setback after the War. But these difficulties are being overcome, and there is every reason to believe that silk manufacturing will regain and hold its place of importance among the industries of Japan.

At the present time the industry is in the transition stage, passing from the domestic to the factory system. Large-scale factories have not yet been built. Of the existing ones most are under private management, and the limited liability company is not very frequently met with in the industry.

Considering that silk manufacturing was first established

in Japan about 1600 years ago and that silk goods were first exported about fifty years ago, the actual industrial progress seems rather slow. This is to be accounted for by the fact that the industry is peculiarly a conservative one, having special characteristics which hinder it from developing on modern lines. Silk goods are chiefly used as high-class dress material, and are regarded as articles of luxury. The producer of them is, therefore, at the mercy of fashion. He must be prepared for constant change in his methods and be ready to supply the hectic demand for novelty. His reserve must therefore be very great, and he must produce cautiously. Manufacturers obviously cannot undertake to enlarge their factories and enter into large-scale production in such circumstances. Consequently it is not surprising that the industry is but slowly emerging from the domestic system, and that it cannot quickly expand on the latest industrial lines.

But the industry may be regarded as certain to develop should the under-mentioned conditions be fulfilled, because there are possibilities of an ample supply of raw silk and a likely increase in demand in the future.

(a) Technical improvement in weaving and dyeing methods, and study of fashionable devices and designs.

(b) Adoption of double-width weaving system.

(c) Direct connection with silk reelers. It is necessary to encourage silk reelers to produce superior raw silk, in order to manufacture more refined and better-quality goods to compare favourably with European and American silk goods.

(d) Encouragement of production of finished goods. Although the tendency has been to export finished silk goods to an increasing extent, the silk exports still consist largely of raw-silk and semi-finished goods, the largest item of which is habutae, which cannot be said by any means to be wholly finished goods. Furthermore, from the point of view of employment, to encourage the production of finished goods is the most essential and salutary policy for a country like Japan, as it not

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only improves the industry, but also provides additional employment for the people.

(e) Improvement of organisation. The present state of the industry, as mentioned before, is rather an unsatisfactory one, owing to the transition from the domestic to the factory system. Progress should be a gradual process, and in order to facilitate large-scale production and promote the export of silk goods, factories should be constructed on larger lines.

CHAPTER II
THE COTTON INDUSTRY

DEVELOPMENT OF THE COTTON INDUSTRY

A FEW years before the Meiji Restoration the cotton industry was first established under modern methods and organisation by Lord Shimadzu of Satsuma, who was the pioneer in the adoption of Western cotton machinery. Although the cotton-spinning and weaving industry had been in existence for hundreds of years in Japan, it was always in a primitive state until Western machinery was introduced. After the Restoration the industry rapidly developed, and its progress is one of the most remarkable evidences of Japan's industrial development.

It is needless to remark that the position of the cotton industry in Japan is of great importance, seeing to what an extent her foreign trade depends on it. In 1934 approximately 23·7 per cent. of the total value of exports was represented by cotton goods.¹ The most important items are cotton fabrics, the exports of which have been steadily increasing of late years. Not only have they become the most important export commodity of Japan, but they have even surpassed those of raw silk, which was for a long time the biggest item of Japan's exports.

Judging from increased output, the number of mills and

¹ EXPORTS OF COTTON YARNS AND CLOTH

Year.	Cotton Yarns.		Cotton Cloth.		Total. (Yen 1000.)	Per- centage of Total.
	Quantity. (Bales 1000.)	Value. (Yen 1000.)	Quantity. (Yards 1000.)	Value. (Yen 1000.)		
1913	596	70,997	—	33,605	104,602	16·5
1923	248	78,551	763,000	234,754	313,308	19·1
1930	59	15,032	1,790,000	272,116	287,148	19·4
1931	31	8,510	1,570,000	198,731	207,241	18·6
1932	89	21,546	2,031,722	288,712	310,258	22·0
1933	46	15,712	2,090,228	383,215	398,927	21·4
1934	65	23,484	2,577,233	492,351	515,835	23·7

the amount of capital invested,¹ the development which the cotton industry has achieved up to the present may be analysed according to the following periods.

1. *The Beginning of the Industry from 1868 to 1885.*

During this period the mills were mostly run by the Government and ex-feudal lords, or by a few private firms aided by the Government. The size of the mills at this time was very small, and home cotton goods were often threatened, even by those of Indian manufacture.

2. *The Beginning of the Development of the Industry from 1886 to 1893.*

At an early stage of this period the currency system was stabilised, and, like all other industries during this period, the cotton industry developed rapidly. Exports of cotton tissues first took place, and the number of mills and spindles in 1893 was twice as many as in 1885. However, the cotton output was not yet sufficient to satisfy home consumption.

3. *Remarkable Strides during the Period between 1894 and 1913.*

Two great wars broke out, *i.e.* the Japanese-Chinese War and the Japanese-Russian War, which gave great opportunities for developing the industry. The remission of duty on imported raw cotton and the withdrawal of export duty on cotton yarn assisted the industry and encouraged export. Direct importation of cheap Indian raw material replaced Chinese raw cotton. Up to that time China had been the chief source of raw material for the Japanese cotton industry. The firms benefiting by the post-war boom which followed immediately after the war with China were again favoured by the victorious end of the Japanese-Russian War. Encouraged by the vast amount of importation of

¹ CAPITAL AND PROFITS OF THE COTTON COMPANIES
(Leading Ten Cotton Companies)
(Yen 1000)

	1913.	1923.	1933.	1934.
Paid-up capital	162,359	319,087	237,506	256,759
Reserve fund	139,073	217,207	218,772	229,121
Net profits	128,619	60,274	70,923	82,235
Amount of dividends . .	76,889	59,404	43,850	41,572
Average rate of dividends .	51%	19%	48%	50.7%

foreign capital, the industry rapidly expanded. Statistics show how remarkable was the progress made during this period compared with that of the previous one.

4. *The Recent Development of the Industry in the Period after the Great War.*

An unprecedented progress was experienced during the period 1914-19 on account of the War boom. Old companies increased their capital and new ones were established; mills and spindles multiplied in number; output and exports increased by leaps and bounds. In fact, the development of the cotton industry which was then remarkable, is generally regarded as one of Japan's most successful industrial achievements. It was, however, one of the first to be affected by the post-War depression, for the newly established companies, formed during the abnormally profitable period, found themselves in great financial difficulties as soon as the war-time boom was over. Consequently they had to be reorganised, and wholesale amalgamation and reduction of capital took place during 1920-22. Adjustment of the industry, which meant adapting its unnaturally inflated state to normal and healthy conditions again, was one of the vital post-War problems.

Of the increase of spindles during the War, about 66 per cent. was stock the old companies had already acquired, and the remaining 34 per cent. was the new stock purchased after the War began. It was generally understood that the nine old companies, which were then known as "The Big Nine," had sound financial basis, ample experience and capable management. The percentage of the total number of spindles and output of cotton yarn held by the new companies was roughly 15 and 11.7 respectively, the remaining 85 per cent. and 88.3 per cent. being held by "The Big Nine." Therefore the effects of the post-War economic depression, which was felt most by the new companies, were not of so serious a nature to the general state of the industry, because the old companies managed to adjust themselves by drawing on their financial resources and improving their management. In short, the inflated state of the industry was remedied mainly by the reorganisation of the old companies.

Before the necessary adjustment of the industry after the post-War slump could be completed, the great earthquake and subsequent fire took place in September 1923, and this seriously impaired the cotton-spinning and weaving mills in the Kwanto district. However, the industry is more or less concentrated in the central part of Japan: Osaka, Nagoya and Okayama being the three chief cotton districts. The reasons for it being centred in these districts are: (1) There is greater shipping convenience to foreign markets, especially to China, India and the South Sea Islands, than from the Kwanto district; (2) these districts are the industrial and commercial parts of Japan. Moreover, the importance which these districts hold in the industry has been increased since the earthquake, because they suffered less than the Kwanto district.

Reconstruction work was, however, speedily planned, and by the end of 1923 the manufacturing capacity was largely restored. It had again set its feet on the way to an amazing recovery, recording a rapid increase of output and remarkable expansion of markets for the products each year.

When the world economic and financial crisis of 1929-30 occurred, the industry suffered to the same extent as all others, and its exports temporarily diminished. However, its readjustment and reorganisation were successfully undertaken together with rationalisation, bringing about a reduction of cost of production and improvement of quality. Since 1932, Japanese cotton products¹ have begun to

¹ NUMBER OF MILLS, SPINDLES AND OUTPUT

Year.	Number of Spinning and Weaving Mills.	Number of Spindles. (1000.)	Number of Looms. (1000.)	Output of Yarns. (Bales.)	Cotton Cloth. (1000 yards.)
1885	20	654	—	—	—
1893	40	414	—	—	—
1908	51	1381	11	801,738	147,443
1913	152	2414	26	1,517,982	416,725
1923	241	4436	61	2,171,153	1,000,079
1930	263	7214	79	2,525,000	1,388,425
1931	263	7535	78	2,807,000	1,404,668
1932	265	7965	79	2,810,000	1,532,850
1933	268	8644	86	2,890,000	1,673,881
1934	275	9530	91	3,472,000	1,793,845

extend their markets all over the world, availing themselves of the depreciation of the yen. The low price and fine quality of Japanese cotton goods have caused a sensation in all markets to which they are exported.

The most striking feature in the returns of the cotton exports is the tremendous increase¹ in finished and high-grade articles, for unfinished and low-grade ones used to be the main exported goods. These goods, such as shirtings and sheetings, crêpes, flannelette, sateen, poplins and duck, have usurped the position which unfinished goods, mainly cotton yarns, formerly held in the exports. As the exports have developed, the imports of cotton goods of all kinds have rapidly dwindled. Thus, having passed through various stages of development, the industry of Japan has reached a final stage, being now inferior to none of those of the leading cotton-manufacturing countries. In fact, the progress attained by the industry in recent years is an epoch-making achievement.

PRESENT STATE OF THE JAPANESE COTTON INDUSTRY

In spite of the fact that Japan has many disadvantages, that keen competition from England and America has always confronted her, and that she is entirely dependent on the importation of foreign raw cotton, her industry has neverthe-

¹ EXPORTS OF MAIN COTTON GOODS

Articles.	1913.	1925.	1933.
Yarn up to No. 20 (kin 1000)	117,026	34,315	5,138
Yarn over No. 20	19,024	34,182	5,115
Towels (doz. 1000)	3,013	495	3,038
Striped Tissue (yard 1000)	3,060	20,085	145,577
Drills	70,070	64,881	11,731
Twilled Shirting	—	115,669	177,523
Crêpes	12,810	22,513	27,917
Flannelette	12,807	28,496	42,120
Gray Shirtings and Sheetings (yard 1000)	95,056	332,478	431,444
White Shirtings and Sheetings (yard 1000)	4,783	22,149	343,670
Dyed Shirtings (yard 1000)	2,295	16,488	42,796
Cotton Prints	—	35,753	102,386
Tea-cloths	12,874	43,289	41,554
Sateens	99	24,770	100,772
Poplins	—	5,360	49,573
Ducks	806	2,159	16,677

less shown remarkable progress, and Japanese cotton goods have penetrated into every part of the world, thus becoming a formidable competitor to those of the world's cotton-manufacturing countries. The reason for this we must study carefully. From an industrial point of view, strategic advantage in international competition is gained by an industry which has a favourable difference in cost of production, marketing facilities and technical skill. Taking the cost of production into consideration first, in the cotton industry it consists roughly of (a) cost of labour, (b) raw cotton, (c) fuel and (d) other running expenses. The Japanese industry is at a disadvantage in regard to (b) and (c) in comparison with American and English industries, especially in connection with (b), as the raw cotton used in Japan is almost entirely derived from foreign sources,¹ mainly from British India, the United States of America and China. Imports² of raw

¹ IMPORT OF RAW COTTON FROM VARIOUS COUNTRIES

	1923.		1933.		1934.	
	Quantity. (Kin 1000.)	Value. (Yen 1000.)	Quantity. (Kin 1000.)	Value. (Yen 1000.)	Quantity. (Kin 1000.)	Value. (Yen 1000.)
British India	—	263,026	397,728	168,796	579,238	252,434
United States of America	—	177,550	743,488	381,655	648,673	400,918
China	—	39,221	56,907	24,347	33,064	15,693
Africa	—	19,541	28,045	19,084	54,955	39,787
Dutch East Indies	—	209	1,722	269	2,173	578
Total (including others)	764,776	513,171	1,248,920	604,847	1,355,485	731,424

² IMPORT OF RAW COTTON INTO JAPAN

Year.	Quantity. (Kin 1000.)	Value. (Yen 1000.)
1900	257,900	61,501
1913	673,500	234,462
1923	764,776	513,171
1930	957,300	462,046
1931	1,115,600	296,273
1932	1,274,000	447,401
1933	1,248,920	604,847
1934	1,355,485	731,424

cotton in 1934 were 1355 million kin in volume and 731 million yen in value, which represents 32.1 per cent. of the total value of imports of the year. At present Japan is the second largest consumer ¹ of raw cotton in the world, America being the largest.

In spite of the fact that Japan has the disadvantages of (b) and (c), the reason why her cotton industry has made such wonderful progress is simply because of (a) and (d), which easily counterbalance the disadvantages; especially the lower cost of labour, which is a great asset. The large supply of cheap labour has contributed in a great part to the development of the industry. The number of workers ² reached 280,000 in 1928, which is more than three times that of 1910, but has decreased yearly since then, being slightly above 200,000 in 1934, owing mainly to the rationalisation undertaken by the companies during recent years. It may be noticed that female hands predominate among the cotton workers, which means that the Japanese cotton industry can

¹ CONSUMPTION OF RAW COTTON IN VARIOUS COUNTRIES
(1000 Bales)

	1927.	1933.
United States of America	6770	5670
Japan	2541	3252
British India	2034	2514
Great Britain	2940	2470
China	2016	2383
Soviet Russia	1864	1885
Germany	1585	1524
France	1134	1180
Italy	874	954

² NUMBER OF COTTON WORKERS

Year.	Male.	Female.	Total.
1910	17,698	73,821	88,549
1913	21,264	93,724	114,988
1923	36,724	114,911	151,635
1928	38,140	243,223	281,363
1929	35,610	221,330	256,940
1930	31,019	190,736	221,755
1931	27,636	182,919	210,555
1932	27,928	186,085	214,013
1933	28,940	187,385	216,325

still rely upon a supply of cheap labour. The average wage¹ paid to male and female operatives in the spinning industry was only yen 0.265 and yen 0.163 per day respectively in 1899, since which year wages rose steadily, and reached yen 1.479 per day for male and yen 1.185 for female labour in 1923. However, wages have tended to decrease since the post-War slump, coming down as low as yen 0.75 per day for a female worker, while those for male hands remained almost stationary. It is interesting to note that in spite of the gold embargo of 1931 and the Government's inflation policy, which caused the depreciation of the value of the yen to somewhere about 50 per cent. at the rate of foreign exchange as compared with 1930, the general rate of domestic wholesale² and retail prices³ of commodities

¹ WAGES FOR JAPANESE COTTON WORKERS

Year.	Men. (Yen, per Day.)	Women. (Yen, per Day.)
1899	0.265	0.163
1913	0.439	0.301
1923	1.479	1.185
1930	1.600	1.060
1931	1.490	0.890
1932	1.450	0.790
1933	1.450	0.750

² INDEX-NUMBER OF THE WHOLESALE PRICES
(1923 = 100)

Year.		Year.	
1924	103.0	1930	70.2
1925	103.7	1931	59.1
1926	93.2	1932	64.6
1927	88.1	1933	76.1
1928	88.2	1934	76.8
1929	85.5		

³ INDEX-NUMBER OF THE RETAIL PRICES
(1929 = 100)

	1933.	1934.
Foodstuffs	86.8	87.4
Clothing	83.7	87.2
Fuel	88.1	90.6
Building Material	100.3	105.2
Miscellaneous	85.1	84.3
Average	86.9	88.6

have surprisingly been maintained at a lower level than those of the year previous to the gold embargo, owing firstly to the so-called open-market operation policy relating to raising loans, and secondly to the fact that a number of commodities which are staple articles of life for Japanese people, having no international significance, are free from foreign competition. The cost of living does not, therefore, increase, and no hardship is caused to the wage-earners. Thus the manufacturing industries in Japan availed themselves of the lower rate of wages, which is one of the important factors of production, and endeavoured to increase the export of their goods whilst other countries were still suffering from economic difficulties. So remarkable has the export expansion of cotton goods been during recent years that the Governments of the various countries have made many complaints against the unreasonably low price of Japanese goods, saying that it is due to the ill-treatment of the workers. If what they call "social dumping" means that Japanese cotton-workers are obliged to live below the Japanese standard of life, their assumptions are entirely groundless. Wages for cotton-workers are, generally speaking, higher than those for men working in industries supplying home demand, and their standard of living is no worse than that of any other employees. As a matter of fact, labour conditions in the cotton industry in Japan have been greatly improved in every respect: matters such as shorter hours of work, health, free medical treatment, supply of goods at cost price, free education, special arrangements for recreation and amusement, clean living-quarters and dormitories for female workers, establishment of welfare funds for employees, and special allowances for workers: all these things receive careful attention. The companies have in all this defrayed a large part of the expense, for the sake of the well-being of the workers and the improvement of their efficiency. As a result, their general state has been much improved, as is seen from the figures given in connection with the number of men per 10,000 spindles, viz., in 1929, 61 male and 219 female operatives were necessary in order to work 10,000 spindles, whilst 26 male and 164 female operatives

were enough to attend the same number of spindles in 1934, although the adoption of modern machinery and the rationalisation undertaken throughout the industry have to be taken into consideration in respect of the improved efficiency.

It is true that, from an industrial point of view, low wages do not accompany high efficiency, and increased cost of labour is inevitable in order to produce high-grade goods. However, in respect of the cotton industry in Japan, its present highly organised state, its scientific experts, and its suitability for Japanese workers on account of its working processes, make it possible to manufacture higher-grade goods with lower cost of labour.

In addition, Japan's yearly increasing population provides an ample supply of cheap labour, and the slow growth of labour unions keeps wages at a low rate.

In regard to the marketing organisation of the Japanese cotton trade, I stated in the first edition of this book that "the Japanese cotton industry is not at present well organised in this respect, owing to the existence of many small firms and the lack of knowledge on the part of manufacturers, shipping merchants and others connected with foreign markets." This followed my reference to the statement of "Merchant Critic of the Cotton Trade" of the *Manchester Guardian Commercial*, which read: "In England there is a large and well-organised body of shipping merchants who contribute essential services in the way of helping to get British cotton goods to consumers abroad in the exact style, quality and price required by the latter. The shipping merchant finances the goods during the final stages of production, finances the sale of goods and contributes a knowledge of the infinite varieties of goods and the many different characteristics of foreign markets." Thus we see that in order to foster the cotton trade, English people concerned combine together, and manufacturers, shipping companies and financiers are in close touch in the interests of their foreign trade.

The strides which the Japanese cotton industry has made during the ten years since the first edition of this book was

published are epoch-making. It is generally recognised that no other industry has ever made such remarkable progress, not only in Japan, but also in other parts of the world. Its inferiority, which I pointed out in my first book, is a thing of the past ; it is now superior to that of other countries, and the obstacles which lay in front of its future development have been removed. At present there are seventy-one cotton-spinning and -weaving concerns in Japan, the average capital of which is over seven and a half million yen, this being three times more than that of British establishments. These concerns form the Japan Cotton-Spinners' Association, under which control they unite together in order to promote mutual interests at home and abroad, whilst the Master Cotton-Spinners' Federation of Great Britain has very little influence on its members. Too many small concerns, with insufficient capital, conflict of interests amongst themselves, divergence of opinion between old and new establishments and lack of combination among spinning, weaving, printing and finishing works in England, are the causes of their inability to present a united front against foreign competition. A vertical combination is successfully undertaken in Japan ; most of the concerns are composed of spinners, weavers, printers as well as finishers, and some have extended their undertakings to the silk, rayon and even the wool industries. No middlemen are allowed to exist in the industry. All the processes of work, from buying raw cotton to finishing the goods, are carefully supervised by one establishment. Japanese manufacturers are favoured in having a close control over different branches of their trade. The big combined organisations have been acting as important factors in the development of the Japanese cotton exports. Before sending out, all goods are strictly examined by the Cotton Exporters' Associations, which are formed in accordance with the regulations. Bankers accord financial facilities to the exporters and the shipping companies provide special conveniences for them. The style, quality and price of the goods required by consumers are carefully studied by experts who are specially despatched by the Government to various parts of the world.

Finally, in regard to technical skill we have to survey the matter both as regards the use of machinery and efficiency of labour, although both are of an inseparable nature. One of the most important items on which the people concerned have laid stress is the replacement of inefficient machines and the general improvement of equipment. Several new processes were employed for the mixing, blowing and roving sections of spinning; a new machine was introduced for warping purposes and new automatic looms were used to a great extent in place of old ones. Several new inventions of machines were successfully originated by the Japanese, by which simplification of equipment and curtailment of labour were attained with a general increase in efficiency. As a consequence, the productive power of spindles is highly utilised, and the consumption of raw cotton per spindle reached 178.4 lbs. in 1933, whereas 26.9 lbs. were consumed in England in the same year.¹ The figures show a wide difference between the two, as regards productive power, although the total number of working hours and the spindles out of employment must be taken into consideration. It is clearly evident that the old-established position which Great Britain enjoyed for centuries has now been usurped by Japan, as far as the spinning industry is concerned.

As described elsewhere, the industry is suited to Japanese workers because of their dexterity. Although the female workers, who form 85 per cent. of the total mill-hands, are seldom employed for more than five years, they are able to be trained within a short period to work efficiently, because of their adaptability on the one hand and of

¹ JAPAN AND GREAT BRITAIN'S CONSUMPTION OF RAW COTTON PER SPINDLE IN 1933

	Consumption of Raw Cotton. (Bales 1000.)	Number of Spindles. (1000.)	Per Spindle. (lbs.)
Japan	3252	8,644	178.4
Great Britain	2470	49,001	26.9

simplification of machinery on the other. Nearly all cotton factories have in their compound living-quarters for operatives, which are well fitted up according to modern ideas, thus being far better than their own homes. The companies provide free medical treatment, certain arrangements are made for providing daily necessaries at low prices, and expenses connected with recreation and amusements for workers are defrayed. Special facilities are given for saving money, and the management frequently organise lecture classes in various subjects, those for female workers being in cooking, sewing, and flower arrangement, etc. The above have been undertaken in such a way that the efficiency of labour has been remarkably improved. Before the Great War it was generally believed that the cotton factories were the most undesirable and unhealthy places for young people; but they are now better arranged and equipped than any other similar places in Japan. Night-work was abolished in 1929, and working hours are, as a rule, eight and a half per day, with one half-holiday per week. The general health of the workers is stated to be satisfactory.

THE FUTURE PROBLEMS OF THE INDUSTRY

Judging by the description of the development of the Japanese cotton industry and its present state, things seem to indicate a prosperous future. According to the latest report, in spite of the high barrier erected by many countries against imports of Japanese cotton goods, the number of spindles, which was 9,530,000 in 1934, exceeded 10,000,000 at the end of July 1935. It is, moreover, expected that the number will be more than 12,000,000 within a year or two.

However, there are many important and difficult problems left unsolved as regards the future of the industry, such as (1) foreign restrictions against Japanese goods, (2) an alternative policy concerning the future development of Indian and Chinese cotton industry, (3) the question

of supply of raw cotton, and (4) the curtailment of production.

Owing to the restrictions placed by many countries on the importation of Japanese cotton fabrics, the Government, together with the representatives of the various cotton institutions, have been trying to arrive at a satisfactory solution through diplomatic negotiation, and to find new markets for the goods, so as to maintain the exports which have lost their former markets. The attempt has not so far been satisfactory, and the outcome of the negotiations cannot be called successful so far as Japan is concerned. For instance, under the new trade agreement concluded between Japan and British India, an annual maximum quota has been fixed for Japanese cotton fabric exports to the latter. Owing to the fact that unusually large shipments were made prior to March 1934 in fear of the new agreement being made, and that enormous quantities of the goods were shipped during the first quarter of 1935, when the first year under the agreement ended, new orders from India since April 1935 have been exceptionally small. Thus, coupled with these irregular and hasty shipments, regardless of the consumption of the country of destination, the industry has been vastly disturbed, the smaller factories especially being in difficulties owing to the fall of prices of late and the accumulation of stock.

In regard to the acquisition of new markets, Japan has so far succeeded in selling her goods to places such as the South American countries, various European colonies in Africa, Haiti and the Near Eastern countries. But as their purchasing power is not large and the distance from Japan is great, she suffers keen competition from Europe and America in these markets. In fact, it is reported that new orders forwarded by the customers in these countries have been few since the beginning of 1935. As regards the difficulties created by the restriction, the Government authorities, as well as the people concerned, are requested to exert themselves in order to come to a satisfactory solution.

Needless to say, China and India have been the two biggest markets ¹ for Japanese cotton goods, and without them the industry could not have attained its present stage of development. But owing to the recent chaotic financial conditions in China, coupled with the prolonged anti-Japanese movement, the Chinese demand for Japanese cotton goods has greatly decreased. This, combined with a condition of over-supply in the Indian market and the reduced purchasing power of the Indian people, renders the general situation of the industry in Japan far from encouraging. Furthermore, a fundamental factor affecting the cotton industry is the steady development of the industry in those countries which have been customers for Japanese goods. According to statistics, the productive capacity in both China and India has been greatly increased of late, owing to the ample supply of cheap labour and raw material. As a consequence, the import of Japanese low-grade and unfinished goods to the two countries has shown a tendency to decrease steadily. The above is partly revealed by the fact that the principal Japanese cotton companies have

¹ EXPORTS OF COTTON PIECE-GOODS
(Yen 1000)

	1930.	1931.	1932.	1933.
Manchukuo	—	3,544	3,263	21,626
China	86,914	6,173	7,159	25,605
Kwantung Province	9,187	39,530	16,108	18,822
Hong Kong	18,252	9,765	3,755	5,675
British India	61,216	49,866	80,654	71,163
Straits Settlements	6,284	5,213	11,229	17,608
Dutch East Indies	28,284	28,279	50,229	78,273
Philippines	5,438	4,162	2,769	5,780
Siam	2,581	796	3,339	6,778
Turkey	3,726	3,507	5,574	2,024
U.S.A.	1,299	264	64	64
Argentina	1,442	1,408	3,300	6,616
Chili	1,495	372	193	1,224
Egypt	20,526	14,956	27,069	38,551
Union of South Africa	3,754	5,541	5,339	5,912
Australia	2,442	2,857	4,875	10,030
New Zealand	141	94	181	562
Hawai	165	143	169	172
Others	20,205	22,554	33,245	65,696
Total	272,117	198,732	288,713	383,215

established mills in China, in order to manufacture cheap goods with cheap Chinese labour. This attempt has hitherto proved successful as far as the counter-policy against the Chinese competition is concerned; but there is no satisfactory measure to cope with the future probability of keen Indian competition in lines of coarse and unfinished cheap goods. The supremacy which Great Britain held for a century in every line of cotton products has been threatened by the competition of America and Germany since the end of the nineteenth century and by Japan after the Great War. In the first place, coarse yarns made by English spinners were ousted from the continental markets by cheap foreign yarns, and then keen competition arose in international markets. As a consequence, the British cotton industry has been compelled to manufacture superior goods, and has thus kept itself ahead of other nations. Now the time has come when Japan has to suffer a similar experience in the East.

With advantages in an abundant supply of cheaper labour and raw cotton, both China and India are placed in a more favourable position than Japan, should other factors of production be ignored. In regard to the supply of raw material, this has been a serious problem for Japan, as her cotton industry developed. The amount of consumption of raw cotton in Japan is at present between 250,000,000 and 330,000,000 bales per annum, which is worth between yen 600,000,000 and 750,000,000; and the amount is increasing by about 50,000,000 bales yearly. If this rate of increase continues, ten years hence Japan will need far more than 1,000,000,000 bales of raw cotton annually. It is a grave national problem. Unfortunately, Japan produces little cotton, and she depends almost entirely upon America, India and Egypt for its supply. Notwithstanding the large purchases made by Japan, the first-named country is trying to restrict the Japanese import of cotton goods, and the two last-named have already erected barriers, in spite of the fact that Japan is a big purchaser of their products. How to become independent as regards the supply of raw material has been discussed and investiga-

for some time, and has become a question of national importance. Since the State of Manchukuo was formed, a scheme has been set on foot to cultivate cotton in order to meet the future demand in Japan. Together with the new undertaking in Manchukuo, the Government has promoted and encouraged the cotton cultivation in Korea and pushed the scheme as far as North China, where the soil and climatic conditions are stated to be well suited for cotton, so as to create an economic bloc between North China on the one side and Japan-Manchukuo on the other. Although the scheme may prove successful in the long run, the important question of the supply of raw material for Japan will remain unsolved in the meantime, and she will have to suffer many difficulties for some time.

Apart from the above matters, the most important problem which forms the topic of serious discussion at present amongst the companies concerned is the question of the curtailment of production. Owing to the increased productive capacity of cotton mills on the one hand and the restrictions on imports of Japanese cotton goods on the other, a condition of over-production has been created since the beginning of 1935, and the cotton market in Japan has been falling sharply in recent months. In order to cope with this unfavourable situation, the Japan Spinners' Association decided to reduce cotton textile production by 3·8 to 6 per cent. below the then existing levels for four months beginning July 1, 1935. The reasons given for this action were the rapid decrease of raw-cotton stocks, sluggish markets, poor prospects of exports and general low consumption. Notwithstanding the efforts of the Association, no improvement is indicated, and the situation is becoming less hopeful. The Association therefore has formed a national committee, representative not only of the Association, but also of all other cotton institutions—including the All-Japan Federation of Export Tissue Industry Associations, the Raw-Cotton Dealers' Association, the Cotton Goods Export Association—for the purpose of organising the whole field of cotton industry on a national basis. The committee was formed, and the question of "output reduc-

tion and its ratio for November and the subsequent months " was put before them. However, no definite decision was reached as to the ratio, on account of the divergence of opinion between the representatives of minor companies and those of major ones with regard to restricting the operation of the newly installed spindles. It is further reported that there is a difference of opinion between the Japan Spinners' Association and the other Associations in respect of the curtailment of production.

As a result, the cotton industry of Japan has gradually been falling into a difficult position, confronted with various problems still left unsolved. The progress made by the industry up to now cannot be expected to go on indefinitely. The people concerned have begun to experience difficulties arising from over-production and fall of prices. The industry may suffer severely when a reactionary slump occurs, unless necessary measures are taken without delay.

CHAPTER III
OTHER TEXTILE INDUSTRIES

I. THE WOOLLEN INDUSTRY

General Woollen Fabrics

Before and during the Great War.

Historically speaking, the woollen industry in Japan began before the Meiji era, but until then its importance was inconsiderable. Since the new era started, and up to the present, the demand for woollen fabrics has increased rapidly in accordance with the change in the mode of life. The consumption is extending to all classes. The first woollen factory was established on the site of the former establishment of the present Senju Seijusho (Senju Woollen Mills), under the guidance and supervision of the Government in Tokio in 1876, in order to supply the army cloth. In 1878 a private company, called Goto Keori Company, was formed, but for the following ten years this new enterprise made no progress, the reasons for which were as follows :

- (a) Insufficient technical knowledge and experience, which caused unsatisfactory returns.
- (b) Lack of capital due to capitalists preferring not to speculate in such a new industry.
- (c) In its infant state the industry was too weak to compete against foreign goods, and it was also found very difficult to carry on business under private management.

We can readily understand that the reason the home industry could not be developed, in spite of the Government's aid, was because the home-made goods were altogether inferior to the imported ones in quality, fineness and dyeing.

After an interval of ten years, a woollen company called the

Tokio Seiju Co., Ltd., was promoted, with a capital of yen 300,000; but three years elapsed before the company could produce woollen and flannel clothing. This company, however, continued working at a loss until 1892, which indicates how difficult was the management of the industry at this period. Besides this company, another, called the Japanese Flannel Co., Ltd., was also established in 1887; the Tokio Seishoku Co., the Osaka Keori Co. in 1891; the Nippon Keori Co. in 1896; and the Tokio Keori in 1906; but they were not successful from a business point of view, and could only carry on by getting special orders and assistance from the military and other Government offices. Needless to say, the industry at this stage could hardly be expected to compete against foreign goods, as the producers' inferior products were not able to suit the buyers' requirements.

Between 1894 and 1905 the industry gradually acquired a sound foundation. It benefited by the general industrial revival after the Japanese-Chinese War and by twenty years' experience. New weaving plants were installed for manufacturing cloth from imported yarns; and later, spinning machinery was imported for use on imported tops. To make it clear how the industry stood during these years, we cite the financial position of the Tokio Seiju Co., which was one of the largest companies in this industry at that time.

FINANCIAL POSITION OF THE TOKIO SEIJU CO.
(1896-1904)

Year.	Authorised Capital. (Yen.)	Paid-up Capital. (Yen.)	Receipts. (Yen.)	Payments. (Yen.)	Profits. (Yen.)
1896	350,000	350,000	209,000	176,000	33,000
1897	1,000,000	740,000	444,000	396,000	48,000
1898	1,000,000	831,000	496,000	443,000	53,000
1899	1,000,000	896,000	521,000	482,000	39,000
1900	1,000,000	935,000	635,000	689,000	46,000
1901	1,000,000	935,000	713,000	768,000	45,000
1902	1,000,000	935,000	880,000	828,000	52,000
1903	1,000,000	1,000,000	1,005,000	971,000	34,000
1904	1,000,000	1,000,000	1,454,000	1,312,000	142,000

Although the table shows the increased yearly income

and the gradual expansion of the company's business, the industrial development during the last fifteen years, noticeable in the case of such a representative company, was rather limited. The chief reason why the development of the industry was not undertaken, in spite of the increased demand for woollen products after the Japanese-Chinese War, was that people preferred imported goods, which were still far superior to home goods. In other words, the Japanese woollen-manufacturing industry was not yet ready to meet purchasers' demands. It is therefore to be expected that the quantity of imported goods¹ rapidly increased during these years. Thus, owing to foreign competition, the industry made slow progress, and remained in the same condition up to 1904. But on the outbreak of the Japanese-Russian War (1904-5), the companies enjoyed a war-time boom, taking full advantage of the rapid rise of prices and the increased demand for goods, especially for military purposes. This, however, did not continue long, for the slump came about soon after the war ended. Moreover, a bitter reaction set in in 1908, caused by the sudden fall in prices, which was due not only to the abundant supply of home stocks, but also to those accumulated by speculative importation during the war. At this time the Tokio Seiju Co., the Tokio Keori Co., and other leading companies, such as the Nippon Keori Co. and Goto Keori Co., were all in a difficult financial position, and worked at a great loss.

Thus the woollen industry in Japan, unlike the other new

¹ IMPORTS OF WOOLLEN GOODS DURING 1894-1912
(Quantity = yards 10,000; value = yen 10,000)

Years.	Serges.		Other Woollen Cloths.		(Mixed) Other Cotton.		Total Value.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
1894-1898	13.0	11.2	215.0	234.4	68.6	35.8	605.0
1899-1903	70.4	60.2	203.0	218.0	230.4	125.0	639.0
1904-1908	179.6	146.4	446.8	558.8	388.4	232.0	1125.6
1909-1912	298.5	235.0	184.2	214.0	527.7	377.0	961.5

industries, was in a very unsatisfactory position up to the time of the Great War. It had always been subjected to keen competition from foreign goods. There were also the disadvantages that the industry had to depend entirely upon imported raw material, that it had to import the necessary machinery, and that it had to pay comparatively high wages to workmen, since the industry needed more skilled labour than did others. Owing to these difficulties the companies could not produce goods to compare with imported goods at competitive prices.

After the Great War.

However, the Great War gave an epoch-making opportunity to the industry. It rendered it quite free from foreign competition, and gave a monopoly of the whole home demand to the Japanese woollen manufacturers. Exceptional developments have been the result. Not only did the afore-mentioned companies increase their capital from yen 5,000,000 to yen 10,000,000, but many also amalgamated. In addition, many new woollen companies were successfully established. As to the output of woollen goods, such as delaine, flannel, serges and woollen blankets, which are the chief items, they showed an increase in production after the War, the total value rising from yen 40,527,000 in 1914 to yen 161,238,000 in 1920—that is, a fourfold increase on pre-War figures. Although the rapid rise in value was partly due to higher prices, the output also showed a striking increase.

As the result of this development, the import of raw wool (except tops) increased proportionately, in spite of the war-time embargo on raw wool in some countries. The quantity imported was only 8,707,000 kin in 1913, but it jumped all at once to 39,401,000 kin in 1915, and then gradually decreased till 1918, regaining an upward tendency in 1919. Japan purchases raw wool from China, South America, South Africa and Australia. Australian wool is used for the most part for making fine yarns for mousseline de laine. Cross-bred wool, which is used for woollen cloth, is also largely supplied from Australia. Chinese

wool, mainly mixed with cotton, goes to the manufacture of blankets and good-quality South African wool is used for the weft of mousseline de laine. The imports of tops, on the contrary, showed a decrease yearly from 1913 to 1922, which meant progress in combing methods. In fact, Japanese manufacturers established combing machines, owing to the difficulty of importing tops during the War, and began to produce tops and yarns directly from raw wool, instead of depending wholly on foreign material as they did before the War. At present there are several companies which carry on all the processes of woollen manufacture, from spinning to finishing. Prior to the Great War the Nippon Keito Boshoku Kaisha was concerned only in yarn-spinning, and this branch of industry developed rapidly after the War, on account of the sudden demand for woollen yarns. As a consequence, other companies began to undertake this line of production. The number of spindles increased from 128,000 in 1912 to 315,000 at the end of 1920. The quantity of yarns produced in 1921 was, roughly, 21,462,000 lbs., the value being yen 82,500,000.

Furthermore, the development of the industry since pre-War days caused a decrease in the import of woollen goods and encouraged the export of home-made goods to foreign countries, such as China, India, the Straits Settlements and Philippines. However, as soon as the War ended, the state of the woollen trade was entirely changed; the exports rapidly decreased and, contrarily, the imports increased to more than the pre-War figures.¹

Thus the boom which the industry had enjoyed during the

¹ EXPORTS AND IMPORTS OF WOOLLEN FABRICS
(Excluding mousseline de laine)

Year.	Exports.		Imports.	
	Quantity. (kin 1000.)	Value. (yen 1000.)	Quantity. (kin 1000.)	Value. (yen 1000.)
1920	927	4592	8,857	31,270
1921	338	1697	10,336	31,083
1922	129	1070	24,046	49,953
1923	170	1299	26,320	46,600

War came to an end, and the position was entirely reversed. During the latter half of 1921, the worst time of the economic depression, the woollen companies, both old and new, were in a chaotic condition owing to a fall in prices and an absolutely dull demand. What they should have done in order to cope with such a depression was to regulate their production, which was expanded to its utmost capacity. As a matter of fact, the leading companies which belong to the Japanese Woollen Manufacturers' Association of Tokio assembled at this time, and made an agreement for the purpose of reducing their war-time production by 50 per cent., according to their respective capacity. In spite of the cut in production, prices were kept down, and the companies remained in a depressed state. Those whose capital had been increased during the War from three to five times and in some cases nearly ten times the pre-War figures, were in a very precarious state. They had not only to reduce their high war-time dividends, but they found it very difficult even to carry on business. It should be noted that the reduced rate of dividends does not give a true indication of the state of the companies, as the actual profit during and after the depression was far less than the declared dividend would lead one to believe. In order to appear prosperous, the companies kept the dividends high by adding to them from the enormous reserve accumulated during the boom years. After a few bankruptcies, amalgamations took place, and a more normal state of affairs began to appear about the beginning of 1922. In spite of the fact that the amount of capital invested in the industry decreased during the period of depression, the output of woollen goods steadily increased. However, the manufacture of woollen goods was still in such a state as to make it not only impossible to supply higher quality goods, but even to meet the whole home demand for lower-class goods.

The Present Position.

From the point of view of technical organisation, use of machinery and further adoption of new appliances, the industry has improved tremendously since 1930. The total

number of factories¹ engaging in woollen manufacture was 1178 in 1933, including small-scale ones working under the hand system, and the workers numbered 8513 male and 32,798 female in the same year. It should be mentioned that, though the industry has been greatly mechanised of late, the small factories using hand machines occupy a prominent place in the industry by producing serges and other woollen fabrics, whereas woollen yarn, tops and mousseline manufacture is undertaken chiefly by the large factories with a big capital.

Owing to the fact that the growing popularity of Western clothes is evident in Japan, and that small-scale factories are able to follow the changes of fashion and to adapt themselves to the requirements of customers, the small enterprises are greatly encouraged. Besides, easier use of electricity, development of motor-car transport and progress in technical knowledge among the people concerned have furthered the development of the small-scale works.

As the industry developed, the import of raw wool increased considerably year by year, for Japan has no home supply of wool, and depends entirely upon foreign raw material. The amount of its import² was 1,805,842,000 kin

¹ NUMBER OF WOOLLEN FACTORIES AND THEIR WORKERS

Year.	No. of Factories.		No. of Machines in use.		No. of Workers.	
	Total.	Those using more than fifty Machines.	Power.	Hand.	Male.	Female.
1928	852	64	341	1373	7676	32,666
1929	924	53	605	704	8403	30,617
1930	960	60	823	694	7559	27,003
1931	1039	65	812	693	8010	29,945
1932	1138	67	428	1151	8487	33,119
1933	1178	74	956	992	8513	32,798

² IMPORT OF RAW WOOL

Year.	Value. (Yen 1000.)	Quantity. (Kin 1000.)	
		Total.	From Australia.
1923	80,012	517,826	425,260
1930	73,610	867,162	848,309
1931	86,146	1,430,405	1,372,921
1932	87,559	1,543,992	1,488,198
1933	164,192	1,805,842	1,705,653
1934	186,455	1,372,860	1,165,320

in 1933. Although the figures in 1934 were slightly less than those of the previous year, they were twice as great as those of ten years before. Japan purchases wool from Australia, which supplies over 90 per cent. of her total import. In fact, Japan is the second largest purchaser of Australian wool. As to the output ¹ of woollen goods, the industry has made a great stride, and it is now able not only to supply almost the whole of the home demand, with the exception of a certain kind of high-grade goods, but also to export ² to China, India and various Oriental countries at an increasing rate. From the recent trade returns, it is obvious that the state of the industry has been totally altered—that is to say, Japan has become an exporter of woollen goods instead of an importer, as she was a few years ago.

Regarding the future of the industry, we are not quite certain whether it can keep pace with the rate of progress which it has made up to now. The causes of the present

¹ OUTPUT OF WOOLLEN GOODS

(Production of the member companies of the Japanese Woollen Manufacturers' Association)

Year.	Yarns. (lbs. 1000.)	Serge. (Yards 1000.)	Other Woollen Cloth. (Yards 1000.)
1921	21,462	1905	5312
1923	37,455	2776	7302
1925	42,527	3156	6873
1927	49,637	2353	6046
1929	65,101	3463	8275
1931	77,586	2374	5856
1933	101,359	3254	6900
1934	103,245	3912	7933

² EXPORTS AND IMPORTS OF WOOLLEN GOODS (Yen 1000)

Year.	Exports.		Imports.	
	Yarns.	Woollen Cloth.	Yarns.	Woollen Cloth.
1924	—	6,168	73,894	63,596
1930	803	2,758	14,149	11,434
1931	861	1,396	12,429	9,993
1932	1,697	4,481	5,113	10,488
1933	5,292	12,377	3,021	7,213
1934	12,184	29,848	1,524	5,081

development are mainly the Government's protective policy against imports of foreign goods, and low cost of labour. Although the industry has made a wonderful progress, Japan still needs to import high-grade woollen fabrics, and the export of her own manufactured goods is, as mentioned above, limited to Oriental countries. It is therefore obvious that the industry still needs much improvement before it can be on a level with those of the leading countries, such as Great Britain and the United States.

Mousseline de Laine

The most important product of the woollen industry in Japan is mousseline de laine, the manufacture of which has developed almost independently, owing to the fact that this fabric is particularly suited to the Japanese taste and climate. It is necessary to outline the course of its development apart from the Japanese woollen industry in general.

Mousseline began to be used extensively as soon as it was imported from Western countries about fifty years ago. The import,¹ which was only 347,000 yards in 1868, jumped to 5,054,000 in the year 1873. Since then the demand for the fabric has increased year by year, imports reaching the record figure of 37,635,000 yards in 1896. In spite of the marked increase in its use, Japan had at first to depend entirely upon foreign goods, as no Japanese factories could manufacture the popular fabric, the reason being that the Japanese did not know how to manufacture woollen goods at that time. Thus, since the appearance of the fabric, nearly thirty years elapsed during which the market of this particular commodity in Japan was entirely monopolised

¹ IMPORT OF MOUSSELINE DURING THE EARLY YEARS

Year.	Quantity (yards).	Value (yen).
1868	347,000	73,000
1873	5,054,000	1,076,000
1878	13,626,000	2,693,000
1883	11,297,000	1,618,000
1888	16,047,000	2,364,000
1893	15,424,000	2,305,000
1896	37,635,000	6,498,000

by foreign goods. However, during the boom directly after the Japanese-Chinese War, two firms were established solely for the purpose of manufacturing mousseline; and this was, needless to say, the first attempt of Japanese firms in this line. They were the Tokio Mousseline Co. and the Osaka Mousseline Co., both of which were formed in 1896. A year later two more firms were successively established; one was the Nippon Keori Co., which produced general woollen goods, including mousseline, the other the Matsui Mousseline Co., which was under private management at the start, but became a limited company in 1907.

It must be noted, however, that at first they were not successful; as they could not compete with European goods, they were in a sorry plight, and no dividends were declared for a long period. But although the industry was so unpromising at first, it had an advantage over other woollen manufacturing branches, in that the fabric was much more in demand than any other, owing to its suiting people's taste and the native style of garments.

It was not until the outbreak of the war with Russia that the industry developed to the extent that home consumption was almost entirely supplied by home production. After the war the demand for mousseline rapidly increased, and, moreover, its price rose, yielding the handsome returns so long expected. The years between 1906 and 1908 were the first prosperous ones the industry ever had. Encouraged by increased profits and a rising demand, not only did the old-established firms extend their business, but new companies were successively promoted, and other woollen factories began to engage in this line of production. As the industry progressed, the output of mousseline showed a great increase, and the import of it diminished year by year. In fact, after the Japanese-Russian War the output of mousseline production showed the remarkable figure of 16,796,000 yards in 1905, with a jump to 54,756,000 yards in 1912. Moreover, mousseline began to be exported in 1905, and since then this export has steadily grown in volume.

In the history of this industry, the year 1905 can be called an epoch-making one. At a time when other woollen goods

could not approach the high standard of foreign makes, Japanese mousseline gained a footing in foreign countries, thereby proving the ability of that industry to produce a quality of mousseline equal to any produced elsewhere. However, from 1908 up to 1913 the industry was affected by the post-war depression (the Japanese-Russian War), and was in the same financial difficulties as all other industries, owing to over-production and the fall in prices, which was more or less to be expected after a war boom.

On the outbreak of the Great War, business revived and activity increased; exports ¹ especially were considerably increased—to a degree never before experienced. But the gross output ² of the mousseline industry did not show an increase in proportion to war-time briskness, for the reasons that the importation of machinery was difficult, and that the supply of raw material to meet the great demand was insufficient, owing to the embargo on wool tops in England, the chief source of the Japanese raw material. Despite the

¹ IMPORT AND EXPORT OF MOUSSELINE

Years.	Import.		Export.	
	Quantity. (Yards 1000.)	Value. (Yen 1000.)	Quantity. (Yards 1000.)	Value. (Yen 1000.)
1899-1903 (average)	16,421	4599	—	—
1905	11,363	3066	97	39
1910	3,365	890	668	220
1915	123	34	4607	1349
1920	—	—	2121	2840
1932	—	—	1516	569
1933	—	—	2559	1199
1934	—	—	4102	2185

² OUTPUT OF MOUSSELINE

Year.	Quantity. (Yards 1000.)	Year.	Quantity. (Yards 1000.)	Year.	Quantity. (Yards 1000.)
1905	16,796	1918	45,830	1930	165,858
1909	37,878	1919	41,563	1931	154,455
1910	43,953	1920	53,265	1932	158,000
1911	49,382	1921	72,427	1933	141,336
1912	54,756	1922	89,102	1934	120,945
1913	69,585				

check to the output during the War, the demand kept increasing at home as well as in foreign markets; consequently the price of mousseline continued its upward tendency throughout the whole of the War, giving, needless to say, a most profitable opportunity to the manufacturers.

After the Great War the mousseline industry, like all other industries, was in a depressed state. Prices were lowered and stocks were overflowing. However, as soon as the intermediate boom of 1921 came, the industry was set on its feet again without having experienced the severe depression which gave all other branches of the woollen industry an entire setback. The reason the mousseline industry recovered sooner was because it was on a sounder basis than the others, and because it was free from foreign competition. Also in its favour was the fact that the demand for mousseline was steadier and greater than for any other kind of woollen goods, owing to its suitability for dress in the Japanese climate.

2. THE HEMP AND FLAX INDUSTRY

General Description

The hemp industry had its origin in Japan as far back as the silk industry, and was carried on in practically all parts of the country. Even in olden times the use of hemp goods prevailed among rich and poor. It should be noted that fabrics known as "Johu" were made originally of Chinese hemp, the fibres of which, compared with hemp, are soft and rich in lustre. Those produced in the Niigata-ken and Okinawa-ken have a high reputation at the present time. In olden times, however, the methods in this industry, either in hemp cultivation or in the weaving process, could not be described as other than primitive, the general system of manufacturing being domestic until about thirty-eight years ago. Even after the Meiji Restoration, the industry was still working under the old cottage system, whilst other industries began to use machinery and modern methods.

The change from the domestic to the factory system was

first begun in 1886, by the establishment of a hemp company named the Omi Asaito Kaisha (the Omi Hemp Yarn Co.), with a capital of yen 200,000. This company borrowed from the Government yen 85,000, with which it established the first hemp-spinning mill, equipped it with French machines, and commenced work at the end of that year. After a short period, it was found useless to carry on the work unless some alteration took place in the processes of manufacture, as the machines were not made for the use of hemp, but of flax; and the company was prepared to manufacture only from hemp yarns, canvas, mosquito nets and codes.

The same thing was experienced by the Shimotuke Seima Kaisha (the Shimotuke Hemp Manufacturing Co.), which was established one year later than the former. These two companies, however, continued the work of importing jute from China and India. In the meantime, another company, called the Hokkai Seima Kaisha (the Hokkai Hemp Manufacturing Co.), was formed in 1889, with a capital of yen 800,000. On the formation of this company the Hokkaido Local Government provided great assistance, and guaranteed a 5 per cent. dividend for six years. Fortunately, unlike the other two attempts, this company's scheme for flax cultivation proved very successful. The plantations were yearly increased in area, and later were able to supply raw material to the other companies. In fact, the Hokkai Seima Kaisha can be looked upon as the first establishment of Japanese flax cultivation and manufacture.

But although these firms were at first in a more or less unsatisfactory condition, on the outbreak of the Japanese-Chinese War, a great demand for the manufactures of this industry having arisen for military purposes, their difficulties were temporarily removed. Moreover, each company increased its capital to cope with the war-time boom: the Omi Asaito Kaisha raised its original capital of yen 200,000 to yen 600,000, the Hokkai Seima Kaisha from yen 800,000 to yen 1,600,000, and the Shimotuke Seima Kaisha from yen 200,000 to yen 1,000,000. At the same time a new company, the Osaka Asaito Kaisha (the Osaka Hemp

Manufacturing Co.), was established, with a capital of yen 2,000,000. As a result of the increase of capital and the increased production, there followed a set-back in business, a fall in prices and keen competition from foreign goods, together with reduced military demands, when the usual post-war depression came. In order to dispose of their surplus of goods the companies had to under-cut one another, and the desperate competition which ensued well-nigh brought them to the verge of bankruptcy. It was eventually found very unwise to keep up this cut-throat competition among home producers in such critical circumstances; and in order to save themselves from the depression, three companies came to a mutual understanding, and agreed to establish a co-operative sale system, which was carried into practice in 1902. The main purposes of the system were to provide financial facilities, to regulate output to a certain limit according to each company's productive power, and also to dispose of old stocks and new products at regulated prices. This system was so successful that these three companies held a conference regarding a future amalgamation, which was most satisfactorily carried out in July of 1903, when a new company, the Nippon Seima Kaisha, was formed combining the three, with a capital of yen 2,000,000.

The amalgamation of the three companies stopped undesirable competition and brought unity to the industry, and a prosperous time seemed assured at last. Shortly after this a second opportunity was given to the industry by the outbreak of the Japanese-Russian War, during which the one remaining company, the Hokkai Seima Kaisha, and the new combine experienced a boom, as had been the case in the former war. However, during the usual post-war depression they were so badly hit that they had to agree to an amalgamation. Without any difficulty an agreement was arrived at and signed by the companies, by which the Teikoku Seima Kaisha (Imperial Hemp Manufacturing Co.) was established in 1907. It then became the only hemp company in Japan. After this the industry was practically controlled by this one concern. But no great improvement in production, either in

regard to amount or in regard to the variety and quality of goods, was noticeable. The home market only was supplied by it, and even then there was always foreign competition to be reckoned with.

Before the Great War broke out two new companies were formed; one was the Nippon Seima Kaisha, and the other the Nippon Asaito Kaisha, making three in all, counting the Teikoku Seima Kaisha. These three began to compete keenly: but fortunately, being favoured by the unprecedented boom which the Great War created, they enjoyed long profitable years, extending their markets not only at home, but also to foreign countries which had never before been customers for Japanese goods. Throughout Europe a great change in the industry occurred soon after the War, owing to a shortage of raw material caused mainly by the collapse of European Russian flax cultivation,¹ which had been the source of raw material to European hemp-manufacturing countries, such as France, Belgium, Germany and England. It is fairly obvious that the industry in these countries was terribly affected by the lack of Russian material. Consequently, the production of flax manufactures at this time was much reduced, thereby greatly benefiting the industry in Japan.

Since 1914 the industry in Japan has made rapid development in all lines of hemp and flax manufacture, as can be seen from the table on p. 114.

As seen there, the output of hemp and flax yarns was increasing rapidly, especially after 1914. But we must also emphasise the fact that the yarns used for military goods and unrefined stuffs for mosquito nets and matting and all common hemp and flax fabrics were gradually improved, and were used for the manufacture of a refined grade of goods, such as handkerchiefs napkins, sheetings, linens, etc. The result obtained through technical improvement of the industry was that markets were found not only at home, but

¹ Russia was, and still is, a great flax-producing country. The area under cultivation was about 3,887,260 acres before the War, but decreased since the War right down to 777,450 acres in 1919 and 780,000 in 1920. Russia still holds, however, 50 per cent. of the total flax-producing land in the world.

also in foreign countries. Exports of the manufactured goods showed a remarkable increase as compared with pre-War figures, although a slight decrease was shown after the post-War depression. The most important thing is that the industry, which used to be a subordinate one, at the mercy of foreign competition before 1913, has now so matured that it has not only driven out foreign goods, but has been exporting its produce to foreign countries. In consequence of this, and being further encouraged by the prospective state of the industry, many new companies have been established, the principal ones being the Hokkaido Ama Kogyo Kaisha (the Hokkaido Flax Industrial Co.), with a capital of yen 2,000,000, and the Toyo Seisen Kaisha (the Eastern Hemp Manufacturing Co.), the capital of which was yen 1,000,000.

OUTPUT AND EXPORTS OF HEMP, FLAX AND JUTE GOODS

Year.	Output of Hemp, Flax and Jute Yarns. (kin. 1000.)	Exports.			Gunny Bags (piece).	Tissue of Flax and Hemp (including cotton mixture). (yen 1000.)
		Linen Yarns (kin. 1000.)	Thread and Twines of Hemp, Jute and Flax. (kin. 1000.)	Cordages and Ropes of Hemp and Jute. (kin. 1000.)		
1905	812	—	—	554	—	—
1908	905	—	—	586	—	—
1912	913	—	—	315	1,737	—
1913	1211	—	—	266	3,385	—
1914	1559	—	—	349	2,708	—
1915	1880	—	—	792	2,018	—
1916	2053	—	—	1355	1,170	—
1917	4216	262	1274	1205	863	1769
1918	4381	818	1631	2067	4,066	3554
1919	3834	1234	3974	1216	10,967	4290
1920	2680	1322	1612	1010	4,402	1746

Raw Material

Amongst fibre industries, the cotton and woollen manufactures have to depend entirely upon foreign supply for raw materials. The hemp and flax industries, on the contrary, are quite independent, being sufficiently supplied by home-grown

material, just as is the silk industry. This is a good and sufficient reason for the recent progress of the industry. Flax cultivation ¹ in Japan was first tried in 1889 in Hokkaido, and was so successful that the area under cultivation increased yearly from 25 cho in 1889 to 37,929 cho in 1919, and output increased accordingly from 7,700,000 kan in 1913 to 17,550,000 kan in 1919. However, after the War this area decreased yearly on account of a diminished demand for flax goods. In 1929 the area was 11,308 cho, but output of flax greatly increased because of the improvement in cultivation made during the ten years after the War.

The Present State of the Industry

The plentiful supply of home-grown raw material, the high tariff on foreign goods and the outbreak of the Great War were the chief causes of the advance made by the industry. The usual depression set in soon after the War. Although it did not suffer quite so much as other industries, the companies were compelled to reduce output by 50 per cent., owing to lessened demands at home and abroad, and they again agreed to work on the co-operative sale system, with a view to carrying on in depressed circumstances.

This state, created after the post-War slump, has been more or less prolonged up till now, and the present situation is not very promising. The export of hemp and flax manufactures in recent years shows a steady tendency to decrease,

¹ AREA AND OUTPUT OF FLAX IN JAPAN

Years.	Area under Cultivation. (Cho.)	Output. (Kan 10,000.)
1903-07 (average)	5,503	366
1908-12 "	5,132	355
1913	7,592	770
1919	37,929	1755
1929	11,308	5145
1930	10,010	4759
1931	11,200	5207
1932	9,957	4812
1933	12,900	6232

as is also the case in respect of the number ¹ of factories and workers employed. It is very important and necessary, in order to maintain progress in the industry, for the companies to hold further research into the making of more refined goods, especially those which were supplied by foreign competitors, and furthermore to extend their use so as to supply the needs now supplied by cotton goods.

3. THE ARTIFICIAL-SILK INDUSTRY

General Development of the Artificial-Silk Industry all over the World

Much attention has lately been focused on the rapid expansion of the artificial-silk industry. Although barely a quarter of a century has elapsed since the industry was established, and it was not until two or three years before the Great War that it attained commercial success, the world's annual production ² of the new fibre has increased from

¹ NUMBER OF FACTORIES AND WORKERS

Year.	No. of Factories.		No. of Machines in use.		No. of Workers.	
	Total.	Those using more than ten machines.	Power.	Hand.	Male.	Female.
1928	17,468	29	3938	20,059	1272	23,502
1929	15,316	29	4235	17,636	1133	20,807
1930	14,222	32	4055	16,653	1193	20,068
1931	14,375	30	4122	16,292	1160	19,359
1932	13,821	26	3585	15,607	1093	18,500
1933	12,775	27	3754	14,385	1053	17,626

² THE PRODUCTION OF THE WORLD'S ARTIFICIAL SILK
(lbs. 1000)

	1929.	1930.	1931.	1932.	1933.	1934.
United States of America . . .	123,130	130,369	144,350	119,388	207,600	210,000
Japan	26,368	35,959	46,684	61,699	80,165	148,000
Italy	59,000	66,000	74,000	77,200	80,990	101,000
Great Britain . . .	53,100	50,600	54,165	74,700	84,300	92,000
Germany	45,000	44,000	52,000	51,161	76,000	90,000
France	37,000	40,810	38,320	36,993	53,000	73,500
Total (including others)	404,155	419,911	470,790	518,575	660,155	791,000

25,000,000 lbs. in 1912 to 791,000,000 lbs. in 1934, and an estimate of the world's output in 1935 is quoted as 850,000,000 lbs. A thirty-four-fold increase of production in a period of slightly over twenty years—which is not a long period from an industrial development point of view—is an occurrence that has never previously happened in any industry in the world.

The use of the new fibre is spreading fast all over the world, and it is becoming more popular than ever, as a result of the remarkable improvements in respect of fineness of appearance, strength in water, tension and durability which have been attained of late. Consequently, artificial silk is now used not only as a substitute for natural silk and as weft or filling on warps of cotton and wool, such as socks, stockings, shirts, ties and women's underwear, but more especially for knitted fabrics. The use in the weaving industry was formerly not as satisfactory as in the knitting section, but owing to the successful results attained by scientists and research workers, the new fibre has been so greatly improved that it is widely used in the manufacture of woven cloth. Moreover, should the new fibre be brought to an entirely satisfactory state, the demand for natural silk will be greatly lessened, and the term "artificial silk," denoting the fibre, which was originally invented as a substitute for natural silk, will no longer be suitable. Again, the large output of artificial silk and the improved methods of production give it a wider adaptability as an article unique in itself and distinct from any of the older textiles. Its low cost and its improved appearance and strength enable it to compete successfully not only with raw silk, but also with cotton and wool. It is therefore generally believed that artificial silk will doubtless become a staple article, just as have the older textiles.

Experimental Stage of the Industry in Japan

The first company in Japan to produce artificial silk was the Tiko Kabushiki Kaisha (The Eastern Industrial Co., Ltd.), and it was established in 1914 under the Viscose system.

Subsequently several new companies were promoted during the high tide of the War boom.

However, the new enterprises did not prove successful, and most of them, with the exception of the Imperial Artificial Silk Co. and Kawagoe Artificial Silk Co., were closed during the post-War financial depression. Their failure was due not only to the rapid fall in price owing to panic, but mainly to their technical inferiority and unsatisfactory products.

In spite of such depressing circumstances, the Imperial Artificial Silk Co. set to work on the improvement of the industry, made great extensions to its factories, and also amalgamated with the Eastern Industrial Co., which was one of the oldest concerns in this industry—in fact, the production of that company was roughly 90 per cent. of the whole output of the new fibre in Japan. The total output was 580,000 lbs. in 1923; or more than twice the amount produced in 1922—that is, 238,000 lbs., which was, however, only 40 per cent. of the total consumption in Japan. Naturally, the value of the consumption of the new fibre increased *pari passu*, reaching yen 1,800,000 in 1922 and yen 5,500,000 in 1923.

The use of the fibre thus increased, and it gained great popularity in Japan. Although the industry attained such satisfactory progress, its output was not yet able to satisfy the great demand. Therefore, the import of foreign artificial silk greatly increased, despite the high tariff, which was yen 87·90 per 100 kin.

As to the quality of the artificial silk made in Japan, it so improved that it was no longer inferior to that of English make, whilst in respect of lustre and tensile strength it was superior to that of Italian make. The most important and noticeable thing is the comparatively cheap cost of labour. That and the fact that cost of material is a relatively low percentage of the total cost in Japan are considered to be advantages which assure the future development of the industry.

In order to describe the state of the industry at that time, it is as well to survey the financial position of the Imperial

Artificial Silk Co., as this company was then not only the strongest concern in the industry, but also the biggest producer (90 per cent. of the total output) in Japan. For the seven years following the company's establishment in 1918, the business was a success, in spite of the fact that artificial-silk making was a new industry, needing specially elaborate technical knowledge, and that nearly all the other companies engaged in the industry have failed. Encouraged by this success, the company decided to extend its business and increase its capital. It was said that the company's productive capacity was about 5000 lbs. a day and its products were no longer inferior to foreign artificial silk. The company's profits increased yearly, and it was able to show a dividend of 12 per cent.

Thus the industry in Japan developed from the experimental stage to the profitable, and its future progress was believed to be assured. Nevertheless, the output of artificial silk was insufficient to meet the home demand, and therefore the industry was not yet recognised as a very strong potential competitor in international trade.

Recent Development of the Industry

Amidst the financial and economic commotion caused by the post-War depression and the subsequent great earthquake, the new industry greatly attracted industrialists who were seeking prospective undertakings into which they wished to invest capital. Several artificial-silk manufacturing companies were established one after another during the period 1924-26, old-established ones increased their capital, and leading cotton companies started the new work as a subsidiary enterprise. As a consequence, the production of rayon rapidly increased and the method of manufacturing and the quality of products were greatly improved. Being aided by a high protective tariff and the depreciation of the yen at foreign rate of exchange, the industry firmly established itself as one of the most important in Japan. In spite of the fact that other industries were badly hit by the world depression of 1929 and the general

slump which prevailed after the lifting of the gold embargo, this one was able to continue its activity with but a slight reduction of production, making a comfortable dividend—10–13 per cent.—whilst the others suffered a loss. It was during these years that the productive capacity of this industry vastly increased, from 11,100,000 lbs. in 1927 to 48,600,000 lbs. in 1931, exceeding the output of Great Britain, and ranking together with other European countries, such as Italy, Germany and France, in respect of production. It is noteworthy that Japanese firms were successful not only in improving the quality of their products, but also in reducing the cost of production through reorganisation of management, technical and scientific research, adoption of up-to-date machinery and the general rationalisation scheme.

Then, as soon as the second gold embargo came into force at the end of 1931, a great opportunity was offered for the industry's future progress, not only in home markets, but also abroad, due to the rapid depreciation of the exchange value of the yen. The companies were able to sell their products at exorbitant profits in foreign markets. Being stimulated by the profitable transaction, large-scale extension of factories and establishment of new firms were successively taking place without any consideration of the world's consumption. Therefore, the production seemed to continue rising endlessly, reaching 89,000,000 lbs. in 1933 and 148,000,000 lbs. in 1934. The rapid increase of artificial-silk production in Japan during the last few years is really wonderful. In this respect she ranks next to the United States, being far ahead of all European countries. It is further expected that she will surpass the American production in two or three years, should the present rate of increase continue. In fact, it is an epoch-making phenomenon that Japan should have achieved the development of the industry in such a short period, for European countries have taken more than half a century in order to arrive at their present state.

Exports of Artificial-Silk Goods

Owing to low cost of production and Japan's advantageous position, near Chinese and Indian markets, exports¹ of artificial silk have been greatly encouraged, and as the products are improved, they are demanded not only by the countries² in Asia, but also by Australia, New Zealand, South Africa, and even by America, England and other European countries, which are senior to Japan as far as the industry is concerned. The value of the exports has increased yearly,

¹ EXPORTS OF ARTIFICIAL SILK

		1932.	1933.	1934.
Yarns	Quantity (kin 1000)	5,558	6,698	16,792
	Value (yen 1000)	5,910	9,483	22,399
Fabrics :				
Habutae	Quantity (kin 1000)	11,103	8,543	6,327
	Value (yen 1000)	19,313	16,341	12,778
Poplin	Quantity (yards 1000)	23,574	10,649	6,327
	Value (yen 1000)	5,759	5,856	1,696
Satin	Quantity (yards 1000)	31,638	19,649	6,223
	Value (yen 1000)	8,711	5,856	1,696
Crêpe	Quantity (yards 1000)	10,247	36,728	90,568
	Value (yen 1000)	4,361	18,494	41,610
Total (including others), Value (yen 1000)		60,536	77,381	113,484
Gross total, Value (yen 1000)		66,446	86,864	135,883

² DESTINATION OF JAPAN'S EXPORTS OF ARTIFICIAL-SILK FABRICS
(Yen 1000)

Countries.	1933.	1934.
Manchukuo	553	736
Kwantung Province	2,372	7,532
Hong Kong	440	929
British India	17,653	22,422
Straits Settlements	3,294	3,542
Dutch East Indies	14,972	13,067
Philippines	970	1,956
Great Britain	1,106	961
France	248	367
United States of America	472	281
Uruguay	916	3,688
Egypt	4,328	8,076
Union of South Africa	3,873	6,249
Australia	9,135	16,936
New Zealand	808	1,430
Total (including others)	77,381	113,484

being now third in Japan's exports, next to cotton piece-goods and raw silk. Thus it has become one of the most important staple industries of Japan.

Reduction of Production

Encouraged by the briskness of the rayon business in recent years, plans were made to enlarge old mills and the new rayon factories under construction. These were completed in 1935, affording the industry greater productive capacity. But since the beginning of 1935 the general business situation has become inactive owing to the downward trend of the inflationary boom at home and slackness of overseas orders. According to the latest report, the total exports of rayon fabrics from Japan during the first half of 1935 show a slight increase, but the rate of the increase has markedly declined as compared with the previous year, during which a striking increase of 40 to 50 per cent. was registered. The downward trend of home consumption and fewer orders from overseas on the one hand, and an increase of productive power on the other, have inevitably caused a growing fear of over-supply in the rayon trade, and the price of rayon yarns became unstable, with a tendency to decline. In view of this situation, the Japan Rayon Federation, which is the only associated body of the leading rayon companies in Japan, adopted a 20 per cent. production curtailment scheme from July 1, 1935, on the following basis :

1. To adopt a mill operation curtailment plan, and to make, at the same time, compulsory arrangements under which each company affiliated with the Japan Rayon Federation will be required to export a certain amount of rayon each month.

2. The production curtailment ratio will be 20 per cent. for capacity.

3. Small companies whose daily productive capacity is rated below 5 tons will be exempt from the scheme.

The result of this scheme was not satisfactory, and the price continued to fall. Whereupon the Federation again

decided to adopt a new 30 per cent. output reduction scheme in August 1935, in order to stabilise prices at a reasonable rate, fearing that there would be a serious fall in price within a year if the surplus rayon supply were not checked immediately. It may be recalled that the Federation adopted the same scheme for raising price levels for the first time in December 1929. This was kept in force until the end of 1932, when it was abolished, owing to the sudden business revival caused by Japan's departure from the gold basis and the low yen exchange. However, after the two years' boom the industry again felt the present reactionary dullness, and prices have fallen more than 10 yen per 100 lbs., as compared with the lowest quotation, 70 yen per 100 lbs., recorded during the period 1929-32. Although it is said that the industry has been improved during the last two years, and that the resulting lower cost of production and better quality of goods has enabled the manufacturers to do business on a profitable basis at the price of yen 60 or even yen 50, the persistent fall in price has given rise to pessimism amongst the people concerned. This is greatly increased by unfavourable factors, such as growing trade barriers against Japanese goods, the uncertainty of gold currency in Europe and the present precarious political situation all over the world, especially in Europe.

Thus the future of this industry is not regarded too hopefully. However, attention should be directed to the question as to whether the feeling of uneasiness and fear may be justified in respect of the future prospect for the Japanese rayon industry. Because of the lower prices and the rapid progress of technical processes on the one hand, and a great possibility of further advance in foreign markets and wider use of rayon as a stable necessity, not as a substitute, on the other, it is certain that the future of the industry in Japan is bright, if one takes a long view of it.

PART IV

MINING AND HEAVY INDUSTRIES

CHAPTER I

MINING INDUSTRIES

MINERAL resources in Japan are very poor. Copper and coal, which are the chief ones, do not, in the opinion of most people, promise well for the future. In this Part we will describe these main products. In addition to them, iron, steel and mineral oil are the most important amongst the present mineral industries.

I. COPPER MINING

Decline of Copper Mines

Up to 1877 the copper industry held the most important position amongst the mining industries of Japan, but since then coal-mining has gradually taken the lead and superseded the former in importance, though the copper industry developed remarkably well in producing raw copper before the Great War, and experienced brisk business during that time as all other industries did. At the close of the War the situation with regard to the industry totally altered. Japan, who had been the second largest copper-exporting country before the War, suddenly became an importing one. Another change equally striking was that at the same time Japan began to manufacture finished goods, whereas raw copper had been her only line of production up till then. After the War the

import¹ of copper showed a steadily increasing figure and the export showed a contrary tendency.

The reasons for the above adverse tendencies are as follow : (1) Almost all copper mines in Japan have reached the stage beyond the line of economic value, and the quality of copper ore has been greatly lowered; (2) the Japanese ore is not suited to modern refining methods; and (3) foreign products made by the modern method are superior in quality and cheaper in price, thereby making competition against foreign goods impossible. It can be easily understood that the existence of the industry in Japan could hardly be maintained if there were no protective tariffs on imported goods.

The Big Mine-Owners and High Tariffs

Hitherto, the copper industry in Japan has been in the hands of several big industrialists, who, having a number of important copper mines in their possession, practically controlled the other smaller mines.

The decline in the copper output in Japan during the last decade is due mainly to the falling off in production in the smaller mines, rather than in the representative ones, although the downward tendency is general. The decrease in output in the smaller mines is due not only to the fact that the increased cost of production has put the smaller mines in a more difficult position than the larger ones, but also to the fact that these smaller ones enlarged their works without solid financial foundation during the Great War, owing to the rapid rise in the price of copper. There-

¹ IMPORTS, EXPORTS, PRODUCTION AND CONSUMPTION OF COPPER
(Kilogrammes)

Year.	Imports.	Exports.	Production.	Consumption.
1913	—	43,998	79,959	32,558
1919	28,011	19,438	83,175	74,826
1923	6,800	362	53,808	72,635
1929	4,936	2,135	74,608	70,382
1930	1,181	20,568	79,762	69,017
1931	209	3,263	76,438	70,421
1932	296	2,767	70,646	72,171
1933	13,326	153	69,120	82,514
1934	46,991	1,090	66,490	113,428

fore, on the setting in of the post-War depression, they could not continue their work at the same pace. Besides these two reasons, it must not be overlooked that in recent years the tendency has been for bigger mines and copper-refining works to purchase the smaller mines' copper ore in order to manufacture raw copper on a larger scale. For instance, the recent increase of Sagaseki copper was due to the fact that it manufactured copper ore purchased from smaller mines, as the Sagaseki mine has not sufficient ore of its own.

Thus the smaller mines are considerably handicapped; but even the larger ones are not flourishing, owing to the losses incurred during the post-War depression and to the fact that the vast capital newly invested during the War for the purpose of dealing with the war-time demand has not been sufficiently remunerative in the present state of the industry.

In these difficult circumstances the copper-mining firms, in order to protect the home industry, urged the Government to raise the tariff on imported copper. In 1922 Parliament passed the new tariff which increased the copper duty from yen 1.20 to yen 7.00 per 100 kin.

The benefit of this was, needless to say, of temporary assistance to the firms concerned; but, on the other hand, it tended to keep the prices of copper high and the cost of production in Japan increased, as the industry had no keen competition from abroad. In consequence of this, Japan was bound to lose her prestige as a copper-exporting country. The fact appeared clearly in the returns of foreign trade, showing that export of copper had greatly decreased of late.

Apart from the copper export, in order to adjust the present unfavourable state of the industry, amalgamation of the mines and firms concerned must first be considered, since this is one of the most obvious ways of reducing the cost of production. However, this proposal is not favourably looked upon by the big industrialists who own the main copper mines. They remain aloof because they regard their own mines as inalienable family property, and cling to the belief that as landlords they should

hold tight to their estates in spite of all business considerations. As a consequence, instead of finding a way to reduce the cost of production, their protective policy was formed, and they successfully urged the Government to raise the tariff, which not only enables them to sell their products at high prices, but also secures them in possession of their mines. In other words, for the sake of these industrialists the people have to pay higher prices for copper manufactures, and the copper industry thus remains in this very unsatisfactory condition.

Although the copper industry has declined in this direction, there has been a tendency towards progress in copper manufacturing. The firms concerned have had to undertake the business of manufacturing copper goods. The chief mining firms have started this line in the names of new companies, control of which they hold fully or partly; they are nearly all successful in manufacturing copper goods, such as wires, plate and sheet, bar, pipes and electric necessities.

Besides these larger firms, several minor ones have been established, owing to the recent increase in the home demand for finished copper goods. As to copper consumption in Japan, as shown already, it advanced rapidly from 32,558 kilogrammes in 1913 to 113,428 kilogrammes in 1934, of which copper wire, plate and sheet, bars and pipes in general use comprise more than 80 per cent. of the whole manufactures.

The Future of the Copper Industry

Thus the present state of the Japanese copper industry indicates retrogression from the pre-War condition in respect both of output and of export. The total amount of copper exported fell from 43,998 kilogrammes in 1913 to 1090 kilogrammes in 1934; on the other hand, the import increased from *nil* in 1913 to 46,991 kilogrammes in 1934. It is clear that in the future the export of Japanese copper cannot be expected to recover its pre-War volume, but the import of foreign copper will probably increase if the present state of the industry continues.

The present high copper prices in Japan are the result of the big protective duty and the monopoly of a few copper industrialists added to the already high cost of production. Besides, as the consumption increases, these few mine-owners tend to raise the price, as the recent output of copper in Japan cannot supply the whole demand. Consequently more foreign goods will be imported, jumping over the high wall of the duty. It is impossible at present that the current high prices of Japanese copper will be lowered sufficiently to enable copper to be exported against foreign competition. Therefore it can be said, in conclusion, that not only has Japan lost her position as a copper-exporting country since the War, owing to the high cost of copper production and an unsound policy of protection, but she is also now faced with foreign competition even in the home market.

2. THE IRON AND STEEL INDUSTRY

Amongst the industries affected by the post-War depression, the iron and steel industry in Japan was obviously the one which suffered most. This industry was expanded on a large scale, and more than yen 400,000,000 of new capital was invested in it during the War. Afterwards, although aided by the encouragement and protection of the Government, the industry suffered very severely from post-War contraction.

Conditions Prior to the Great War

Before the introduction of Western iron-smelting methods, iron and steel materials in Japan were supplied mainly by sand-iron in the district of San-in. On the importation of foreign material after the Meiji Restoration, home products were gradually forced down by the strong competition from outside, but the method of manufacturing iron greatly improved from time to time, till at last Japan's products were comparable to those imported.

In the meantime, the first ironworks run on European lines was established under State management in 1900, five years after the scheme had been proposed. Although

the works did not at first show the results expected, its yearly output increased, and began to show a slight profit within a few years of its establishment. Encouraged by the success of the Government ironworks and the increased demand for the material, several private ironworks, such as the Kamanishi, Wanishi, and Senjinzan works, were formed in succession, with the result that in 1913 the output ¹ of pig-iron reached 242,000 tons and of steel 255,000 tons.

This output did not, of course, suffice for the entire consumption ² of home industries, which, in 1913, was about 515,600 tons of pig-iron and about 755,300 tons of steel. Thus Japan's capacity at that time for supplying iron was 47 per cent. of the total demand for pig-iron and 34 per cent. of the demand for steel. Moreover, so far as the private ironworks were concerned, their supply capacity was only 16 per cent. of pig-iron and 5 per cent. of steel, which shows the insignificant position they held before the War.

¹ OUTPUT OF IRON AND STEEL IN JAPAN (1913)

Names of Works.	Pig-iron (tons).	Steel (tons).
Government Works	159,524	216,222
Kamanishi Ironworks	73,189	13,476
Senjinzan	2,194	—
Kuriki	2,192	—
Others (including sand-iron)	5,595	25,354
Total	242,694	255,052

² CONSUMPTION OF IRON BEFORE THE WAR (1913)

	Pig-iron (tons).	Steel (tons).
Home Production	242,694	255,052
Importation	273,310	529,285
Total	516,004	784,337
Re-exportation	358	29,000
Net Consumption:		
Percentage of home production towards net consumption	47	34
Percentage of production of private ironworks towards net consumption	16	5

Rapid Development of Private Ironworks after 1914

After the outbreak of the War, prices of iron rose so high that iron firms were established in rapid succession, and at the end of 1918 numbered more than 250. As a result of this unprecedented development, the output of iron in Japan in 1919 increased by 330 per cent. in regard to pig-iron, and 220 per cent. in regard to steel, compared with the figures for 1913. It will be noted that the relative importance of the Government and private ironworks before the War was reversed after 1918, seeing that the percentage of the total production of iron in Japan which the former held has now been acquired by the latter.

OUTPUT OF IRON DURING THE WAR
(Tons)

Year.	Pig-iron				Steel			
	Government.	Per cent.	Private.	Per cent.	Government.	Per cent.	Private.	Per cent.
1913	150,542	66	83,152	34	216,222	85	38,830	15
1918	271,678	39	423,260	61	308,829	57	230,808	43
1919	281,135	35	515,940	65	240,387	45	306,798	55

During this period almost all private firms concerned in the iron industry made enormous profits. The most striking instance was that of the Nippon Kokan Kaisha (Japanese Steel Tube Co.), which before the War showed a yearly deficit, and now managed easily to obtain more than 72 per cent. net profits for paid-up capital, while nearly all the other firms declared a dividend of 25 to 50 per cent. before the Armistice, despite the fact that they were mostly established during the War and had only small experience of the trade.

However, this boom did not favour them long, and as soon as the post-War depression set in they came to a complete standstill. The industry would not have received such a sudden and severe check if the enormous profits gained by firms during the War had not been recklessly used for the enlargement of works. Had they been used for research work for the further improvement of the industry, and

for the purpose of providing a reserve for the inevitable depression which follows after such abnormal briskness, the industry would not be so badly off. As a matter of fact, the majority of the new firms were war-time "mushroom" ones, and therefore were not, owing to the short period of establishment, in very satisfactory financial circumstances. The management of these firms naturally became upset by the sudden change of affairs, and they found that they could not win through this critical period without resorting to amalgamation and reduction of capital. Having passed through such feverish times, the full capacity of production was reduced to a considerable degree, yet it was estimated in 1921 that the annual production of pig-iron furnaces was about 1,412,000 tons and of steel furnaces 1,482,600 tons, the capacity of the private ironworks being 72 per cent. of the former and 58 per cent. of the latter.

But the actual output of these establishments was far below their estimated productive power, as they showed only 566,500 tons of pig-iron, or 41 per cent. of the estimate, and 557,800 tons of steel, or 37 per cent. in 1921. It is therefore obvious that the pig-iron furnaces were 59 per cent. short of their potential output, and that likewise the steel furnaces were 63 per cent. short. Private works have operated only up to 20 or 30 per cent. of their capacity since the post-War depression, when the Government ironworks were supplying about 60 per cent. of the whole iron production in Japan. At that time many works were lying idle, as their machines and other equipment, which had been carelessly set up during the War, were not workable under the post-War conditions, owing to the competition of superior foreign products. In similar circumstances, the private iron concerns suffered from inactivity of business up to 1930, because of the fall in price of their products and the general depression. As a matter of fact, very few concerns were running under profitable conditions for the ten years following the Great War. However, on the outbreak of the Manchurian incident in 1931, a sudden military boom took place, which was the cause of the firms having to work day and night. They have, in fact, revived,

after ten years' suffering, and have been working under very comfortable conditions, being aided by the lower rate of the yen exchange. As the present military requirements seem likely to continue for some time to come, owing to the existing precarious state of international relations, the industry expects to go on enjoying the unforeseen business activity which roused it out of its depressed state.

The Future of the Industry

Before we investigate the future of the Japanese iron and steel industry, we must observe its disadvantages, which are, firstly, lack of iron ore, and, secondly, insufficient supply of fuel, especially of coal. Take the question of iron ore first. The available amount of 50 per cent. ore in Japan is estimated at only about 100,000,000 tons, and that includes 50,000,000 tons of Chosen and Formosa ore. Not only is two tons of 50 per cent. ore necessary to produce one ton of pig-iron, but it is doubtful whether the above estimate will be available to be mined on a commercial scale. Japan is naturally greatly handicapped in the iron industry in respect of raw material: it cannot carry on without a supply of foreign ore.¹ As a matter of fact, the output of home ore was estimated at about 320,000 kilogrammes in 1934, whereas the total consumption of the ore was about 2.5 million kilogrammes, the balance being supplied by foreign countries, of which China and the Straits Settlements each supplied 35 per cent. It is obvious that the industry in Japan has to rely greatly on the supply of Chinese iron ores, which on an investigated

¹ IMPORT OF IRON ORE

Year.	Quantity. (Kilogrammes.)	Value. (Yen 1000.)
1930	1,974,000	18,956
1931	1,550,000	12,780
1932	1,482,000	11,878
1933	1,524,000	12,839
1934	2,131,900	19,420

estimate not only reaches an enormous amount,¹ but also shows the quality to be infinitely better than that of Japan.

If Japan could rely on getting a Chinese supply easily, the future of the industry would be assured to a certain extent, although there will always be some disadvantages in relying on the importation of foreign raw materials. The ore supplied by China is also cheaper and better than American ore. However, the acquisition of Chinese ore is not easy, and the industry in Japan will not be able to depend entirely upon it, as the Chinese Mining Law of the fourth year of the Republic prohibits mining undertaken by aliens other than mining engineers. The Chinese Government has exclusive rights of buying ore, and foreigners must get a Government permit in order to purchase Chinese iron ore. Therefore it is not to be expected that Japanese ironworks will always be able to obtain a constant and sufficient supply of ore from China. Secondly, coal, which is the most important and indispensable fuel for industry, has not up to the present been obtained cheaply enough or in sufficiently large quantities in Japan for use in iron-smelting, the present output of coal being, as is shown in the following section, by no means large, while prospects of a future increase of output are poor. Comparing the price of American coal used in the iron industry with the price of Japanese coal, we find the latter to be about 30 per cent. dearer than the former. Moreover, Japanese ironworks consume on an average two tons of coal to produce one ton of pig-iron, and about the same quantity for steel, whilst in America one and a half tons suffices in each case. It is clear that Japanese works burn more and dearer coal than American works; with the result that the former suffers from an obvious disadvantage in respect of cost of production.

Unless these two fundamental deficiencies of raw materials and fuel are remedied, a prosperous future for the industry will never materialise. It is feared that iron material

¹ It is estimated that 360,000,000 tons of iron ore can be easily mined out of the three mines Taiya, Kinreiten and Dakanzan in China, and if added to by those of Anhwei, Kiang and Hupeh districts, the total estimate amounts to more than 1,100,000,000 tons.

produced by Japanese works will sooner or later be faced with competition from those of China and India, which are more favourably situated with regard to raw material and low wages. This will not be for some years, as it will take time for them to become efficient steel-exporting countries, since their labour is not fully skilled and they lack advanced technical knowledge. However, Indian pig-iron has been invading the Japanese market at a price lower than the cost of production of Japanese iron, and the industry in China, which has been progressing recently, is expected, with its favourable productive conditions, to extend its markets right into Japan.

The prospects of the industry's development and of its ability to overcome the above-mentioned disadvantages will depend on whether Japanese firms concerned will be able to improve organisation and achieve further improvement by technical research work. Management and organisation can be improved by the exercise of care and ability, and under efficient management there is no doubt that the industry would be more effective and could be worked at less cost.

Fortunately, aided by the Government encouragement policy and the high tariff on imported goods, coupled with the heavy requirements of the Army and Navy during recent years, the production of pig-iron has been greatly increased of late, showing a very high record of 1,728,000¹ kilogrammes in 1934, whereas the productive capacity is estimated at 2,100,000 kilogrammes a year, that of Korea being included. But the increased production cannot yet keep pace with the increased consumption, which was more than 2.5 million kilogrammes in the same year; therefore Japan

¹ STATE OF PIG-IRON IN JAPAN
(Kilogrammes 1000)

Year.	Production.	Import.	Export.	Consumption.
1930	1161	515	5	1671
1931	917	494	2	1409
1932	1010	650	—	1660
1933	1423	801	—	2244
1934	1728	814	—	2542

has still to rely on imported foreign goods, for she has not yet reached the stage where she is self-supporting, as far as pig-iron is concerned.

Together with the development of the pig-iron branch of the industry, steel has also shown great strides of late; Japan is not only becoming self-supporting, but also showing a tendency to become a steel-exporting country.¹ But steel manufacture has, as in the case of pig-iron, still to depend on the raw materials imported from foreign countries, for which purpose Japan bought more than 1.4 million kilogrammes, value yen 65 million, of iron scraps from America in 1934.

The most striking achievement of the industry in Japan is the appearance of the Japan Iron Manufacturing Co., the result of a vast amalgamation of iron and steel concerns, which was successfully undertaken with the aid of the Government in February 1934. By this, the Yawata Ironworks, which was the oldest and largest establishment under the Government management, and six leading private concerns were merged, on an industrial and mainly military basis. The financial position of the Company is stated to be very sound, and the success of the amalgamation is hopefully expected. According to Government estimates,²

¹ STATE OF STEEL IN JAPAN
(Kilogrammes 1000)

Year.	Production.	Imports.	Export.	Consumption.
1930	1921	437	233	2124
1931	1662	265	203	1724
1932	2112	235	99	2047
1933	2863	409	435	2837
1934	3218	382	575	3027

² ESTIMATES OF IRON AND STEEL PRODUCTION OF JAPAN
(Kilogrammes 1000)

Year.	Iron.	Steel.
1935	2150	3450
1936	2250	3450
1937	2570	3650

the production of iron and steel in Japan in the coming years will be steadily increased.

This review of the Japanese iron and steel industry shows that Japan has made great progress in this direction of late. However, what we must not overlook is, firstly, that the recent development is mainly due to the Government aid and the vast military requirements, which are not expected to last for ever; and secondly, that the industry has to depend on foreign supply of raw material, although the self-supporting stage has been partly attained.

THE COAL INDUSTRY

General Description

Japanese coal is mostly of a brown bituminous kind. Of all the minerals it is the most important, but large deposits are very few. The coal-fields, apart from the well-known ones in Iwaki and Hitachi, are mostly located in Kyushu and Hokkaido. The most important mines are Miike and Chikuho in Kyushu and Ishikari in Hokkaido. The products of these two districts are superior in quality to those of the other districts. Anthracite coal is found in the provinces of Higo, Nagato and Kii, but not in very large quantities. A fairly rough estimate of the total deposits of coal gives the figure of 3,762,000,000 tons. But the estimate of the Mining Bureau of the Department of Agriculture and Commerce is 1,738,000,000 tons, of which about 1,000,000,000 tons are in Kyushu, 568,000,000 in Hokkaido, and 170,000,000 in the district of Honshu. Therefore, Kyushu, Hokkaido and Honshu respectively contain about 75 per cent., 15 per cent., and 10 per cent. of the total coal deposits in Japan. Coal deposits in Japan had not been worked for industrial purposes before the Restoration. But after that, with the introduction of Western industry, they were opened up. The total output of coal in 1875, before which statistics are not obtainable, was only 567,000 tons; then it rose rapidly to 3,317,000 tons just before the Japanese-Chinese War (1894-5), and again increased to 10,000,000 tons during the next ten years. As time

went on the output¹ showed greater returns, and reached 21,300,000 tons before the Great War. At the beginning of the Great War and for a year after, the coal market in Japan experienced an unprecedented slackness, owing to the over-production caused by decreased home demand and decreased export. The export of coal in 1915 was nearly one million tons less than that of 1913. Being stimulated by the financial boom after 1916, the demand for coal in Japan was all at once resumed, its briskness again resulting in increase of output and, on the other hand, decrease of coal in store. But the post-War depression caused the closing down and cessation of work in several small mines, and in general the coal industry in Japan at this time had to meet a great setback, owing to the fall of prices and the collapse of demand. This compelled the National Coal-Mining Association to make an agreement which reduced output by 12.5 to 17 per cent. in the various coal districts. This proved very successful, and the industry seemed to be recovering, partly because of the general economic readjustment.

During the War increasing figures were recorded every year with the exception of 1915, and the output reached the maximum of 31,271,000 tons in 1919. Thereafter, however, output showed a downward tendency, owing to the post-War depression and to the increased use of electricity, but since 1922 it has again been increasing, and in 1934 it reached 33,061,900 tons. At the same time the coal

¹ OUTPUT OF COAL IN JAPAN

Periods.	Average Output. (Tons.)	Percentage Increase on the Preceding Periods.
1877-1884 (average)	802,000	—
1885-1894 "	2,562,000	318
1895-1904 "	8,031,000	313
1905-1914 "	16,826,000	209
1915-1924 "	26,230,000	161
1928	31,804,500	—
1929	31,956,600	—
1930	29,374,700	—
1931	25,795,400	—
1932	26,081,700	—
1933	30,049,400	—
1934	33,061,900	—

industry shows considerable development, judging from the increase of capital invested and the number of miners. The authorised capital, which was only yen 28,000,000 in 1905, increased every succeeding year, more especially after 1917. In 1921 it reached yen 414,000,000, which is almost fifteen times as much as that in 1905, and the highest ever recorded in the industry. The number of miners increased correspondingly till 1919, when it was registered at 348,840, but it has tended to decrease since. When the post-War depression came, coal-mining, the same as all other mining industries, suffered a severe setback, and those companies which were established during the boom upon an unsound financial basis were either closed down or amalgamated with larger ones. The number of coal-mining companies and their authorised capital were reduced by a considerable figure, the latter being yen 364,000,000 in 1933. The total number of workers, which was 348,840 in 1919, declined to 143,600 in 1933; of this number some 16,000 were women.

Despite the decrease in the number of coal concerns and their capital and workers, the output of coal shown in 1934 was the highest ever recorded in the industry—in other words, the output per head increased from 123 tons in 1913 to 202 tons in 1934. This was due not only to the readjustment and technical improvement of the industry through the companies' amalgamation, but also to the workers' improved efficiency. It was not until 1930 that legal restrictions on the mine working-hours came into force. These fixed ten hours per day as the maximum in the pit. The number of hours varies, of course, according to the mines, from nine to eight hours, but in any case they are considerably less than those worked prior to 1930.

✓ In spite of the increase of coal output, Japan has, more and more, to depend upon import¹ of foreign coal, owing

¹ IMPORT OF COAL

Year.	Tons 1000.	Year.	Tons 1000.
1893	7	1930	2650
1903	617	1931	2650
1913	572	1932	2673
1923	1685	1933	3441
1924	1977	1934	3996

to the rapid increase of her coal consumption. One of the important industrial and national problems is insufficiency of fuel, which Japan feels more and more as her industries develop.

Consumption of Coal

In order to obtain the total consumption¹ figure, coal export must be excluded from the total of coal output and import, and the figures obtained must be further reduced by the amount of coal in store at the end of the year. Calculating in this way, the demand for coal shows a rapid increase—from 18,000,000 tons in 1913 to 35,000,000 tons in 1934.

Together with the increase of consumption, what must not be overlooked is the rapid decrease of coal export,² or, more precisely, its decreasing percentage. The percentage of coal export to the total output was 32 per cent. in 1893, which shows the relatively important position which coal export held in the mining industry. From then onwards the percentage as well as the actual amount of coal exported (particularly after 1913) has shown a downward tendency,

¹ CONSUMPTION OF COAL

Year.	Tons 1000.
1893 (before the Japanese-Chinese War)	1,700
1904 " " -Russian War)	6,900
1913 " Great War)	18,000
1920 (post-War boom)	28,000
1921 " depression)	25,000
1922 " "	27,000
1923 " "	29,000
1930	26,600
1931	24,600
1932	25,400
1933	30,000
1934	35,200

² EXPORT OF COAL

Year.	Tons 1000.	Year.	Tons 1000.
1893	1,094	1930	2097
1903	11,542	1931	1515
1913	21,316	1932	1365
1923	1,574	1933	1536
1924	1,711	1934	1070

despite the increase in coal output. This means that the demand for coal in Japan is increasing, and steadily absorbing a greater percentage of the output—obviously a very healthy sign of industrial expansion:

Apart from the temporary setbacks which occurred from time to time, the coal consumption of Japan has, as mentioned above, grown rapidly in recent years. Analysing the increase of consumption according to the sources and causes of the increased demand, we can observe the trend of Japanese industrial development.

1. At first coal was used almost solely for the manufacture of salt and as fuel for ships.

2. Then factories sprang up which monopolised a greater part of the coal output.

3. The combined demand of factories and ships soon exceeded the demand for all other uses.

4. And, lastly, comes the present time, in which the demand for coal is mainly for manufacturing industries.

The first period is between 1868 and 1890, in which more than half the demand for coal came from salt manufacturers and shipowners. Thus, the coal consumed in 1890 is roughly classified as follows :

Use.	Quantity.	Percentage of Total Output of Coal.
For ships	461,000	20·8
„ salt manufacturing	477,000	21·5
„ factories	425,000	19·1
„ railways	69,000	3·1

The second stage may be said to have begun a few years before the Japanese-Chinese War, lasting until the war with Russia. During this period a great industrial awakening took place, resulting in a large increase of coal consumption. Between the years 1893 and 1903 coal consumption by railways increased five and a half times. The most significant thing is that coal consumed for factory use jumped from 425,000 tons in 1890 to 3,617,000 tons in 1903. But the total consumption of coal for ships

and salt-manufacturing was 2,526,000 tons in 1903, or 34 per cent. of the total output, which, as compared with 42·3 per cent. in 1890, shows a marked decrease.

The third stage was between 1904 and 1913. The beginning of the period was marked by the rapid progress of shipping and navigation, which necessitated huge quantities of coal. Coal for shipping amounted to 6,544,000 tons in 1913, being nearly four times that of 1903. Yet, although the amount of coal for railways increased twofold in this period, the percentage it held of the total output was almost unchanged, and salt-manufacturing showed a significant decrease, not only of percentage, but of actual quantity. On the other hand, the demand for coal for manufacturing industries had been steadily increasing before 1903. In 1913 it reached 7,614,000 tons. Therefore it may be said that the main sources of demand for coal during this period were shipping and factories, as they accounted for about 78·6 per cent. of the total output in the year 1913.

On the outbreak of the Great War the demand for coal increased prodigiously, owing to the establishment of new factories and the enormous expansion of various industries. As a consequence, the consumption of factory coal amounted to 12,700,000 tons and shipping coal reached 6,072,000 tons, a total of nearly 18,700,000 tons, or 71·8 per cent. of the total consumption of that year. With the post-War slump, coal consumption declined about 10 per cent. in 1921 as compared with that of 1920, but factory coal still held the highest percentage. But the most striking advance in the main uses of coal during recent years is a rapid increase in the amount used by factories, it being 17·8 million ¹ tons

¹ MAIN USES FOR COAL
(Tons 1000)

Year.	For Ships.	For Railways.	For Factories.	For Salt-making and Salt for Foodstuffs.
1893	438	130	729	458
1903	1717	721	3,617	809
1913	6544	1786	7,614	798
1920	6972	3220	14,695	778
1933	4935	3407	17,833	1891
1934	4241	3624	20,282	1797

in both 1933 and 1934—about 58 per cent. of the total consumption of coal in Japan. This, needless to say, reflects the recent rapid expansion of industries in Japan.

Japan's Position as a Coal-mining Country

The coal-fields in Japan are officially estimated to contain about 1.7 milliard tons in Japan proper, and 2 milliard tons if those of Korea, Formosa and Japanese Saghalien be included. These are exceedingly small figures compared with those of other coal-producing countries.¹ Moreover, it is doubtful whether the coal resources can be mined profitably on a large scale. At present Japan ranks fifth amongst the coal-producing countries of the world, but she is not able to supply sufficient coal for her own use.

The industry in Japan is well managed by the National Association of Coal-Mining Companies on the one hand, and the Showa Coal Co. on the other. The former, consisting of the Coal-Mining Associations in the districts, regulates the output of each district; and the latter, which was formed by the leading coal-mine owners, controls the sale, distribution and price of coal. They are closely connected financially, therefore the industry in Japan is practically under the sole control of these two bodies. As a result, the price of coal is apt to be kept high, which makes a great difference to the cost of production in other industries in general. The reasons for the high prices are chiefly as follows: firstly, coal-mines in Japan are generally located

¹ ESTIMATES OF COAL OF THE WORLD

Country.	Tons milliard.
The United States of America	3838.7
Canada	1234.3
Great Britain	189.5
Australia	165.6
Russia	60.1
Austria	59.3
Germany	423.4 (before the War)
France	17.6
Belgium	11.0
China	593.3
Japan	1.7

far from the industrial districts, therefore the cost of transport adds considerably to the selling price, and the inadequate appliances for coal loading and unloading further aggravate this difficulty; secondly, the lower efficiency of miners is largely responsible, although this has improved to a certain extent of late. The results of recent investigation have proved that a Japanese miner produces, on an average, 0·64 ton a day, as compared with the 0·8 ton of an English miner and the 3·4 tons of an American, which, of course, means that the working efficiency of a Japanese miner is respectively two-thirds and one-sixth of the latter two. We must not, however, overlook the fact that inefficiency is due not so much to their lack of ability, as to the geographical features, viz. thin seams of coal which do not lend themselves naturally to modern appliances. Thirdly, the reason why Japanese coal had an opportunity before the War of competing with foreign coal, mainly in China and the ports of the South Seas, despite being so handicapped, was principally because the cost of labour was low, this advantage outweighing the other disadvantages. During and after the War, however, the miners' wages rose considerably, so that owners now have not the one advantage of low wages, whilst all the other disadvantages remain unremedied.

In these circumstances, the prospects of the future development of the industry are far from rosy. It seems inevitable for Japan to look to foreign sources, especially to China and Manchukuo, on account of their proximity, for coal to supplement her own insufficient supply. This is especially true in the case of fuel for iron- and coke-works, for which Japanese coal is unsuitable on account of its large constituent of sulphur and its volatile nature. It may be recalled that one of the indirect causes of the Manchurian incident was the fact that Japan desired safe and sufficient sources of coal in China. The insufficiency of output, the inferior quality of her coal and the rising cost of production show clearly that the fuel problems are becoming of urgent national importance, and the solution of these is vital to Japan's industry and to her military prestige.

4. THE PETROLEUM INDUSTRY

Mineral oil, which was called one of the seven mysteries of the Echigo district in Japan, was at one time regarded as a sacred inflammable water. However, since the Restoration this oil has been used for engines, machinery and for various surgical purposes, but more especially as fuel, so that its importance has grown tremendously of late years. In fact, the aim of all progressive countries is to secure an abundant supply of oil, because it is of such vital importance in modern times. The present "Oil Age" is so called because oil is more and more usurping the economic and strategic position which coal formerly held and still partially holds. It is, therefore, very interesting to investigate the prospects for Japan with regard to such a vital resource as mineral oil.

Oil in the Past

The first oil enterprise was entered upon about three hundred years ago in the Echigo district, where the oilfields of Kurogawa, Nütsu, Myohoji and Yoshimidzu were well known. At that period oil was obtained by primitive methods, and the first oil company (the Nagano Oil Co.) to work on Western lines was established in 1868. Even then Western methods were very simple when compared with the most modern ones. From 1874 to 1879 several oil companies were formed, and crude-oil output accordingly increased from 3310 barrels in 1874 to 26,690 in 1879. Unfortunately the development of the industry was checked after 1880 for about seven years, owing to internal difficulties which retarded industrial progress to a considerable extent. However, a fresh start was made in 1888. New companies were successively promoted, and the industry soon made rapid strides. The Nippon Sekiyu Kaisha (Japan Oil Co.), which is the largest concern in this country at the present time, was established in 1888, with a capital of yen 130,000. Soon after its establishment, an American drill machine was introduced which created an entirely beneficial effect on the output, and considerably enhanced the prospects of the industry. During the

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Japan

short period between 1890 and 1894 the number of companies established reached about two hundred, some of which were merely what are called "bubble" companies, formed for dealing in oil stocks and shares, and not carrying on actual oil production.

The increase in the number of companies, together with the introduction of Western methods and the increased demand for oil, brought about a rapid growth in Japan's oil-producing industry during these years. The output, which was about 32,585 barrels in 1887, increased to 74,200 in the following year, and in 1893 it reached 101,182, which amounted to an increase of 26.7 per cent. over the output of the preceding year.

Before and after the Japanese-Chinese War (1894-5), this industry showed further activity, and its output in 1896 was double that of 1893.¹ When the financial depression of 1897 set in, many weak and unsound companies failed, thereby increasing the business of the remaining companies. By the adoption of the protective policy of 1899, which imposed an import duty on foreign oil, Japanese oil companies were given a great opportunity of putting the industry on a firm footing. The Nippon Sekiyu Kaisha (Japan Oil Co.) established oil-refining works specially equipped with the latest American machinery and worked on the most up-to-date methods. But in 1900 great competition arose with the International Oil Co. This company was founded in Japan, with a capital of yen 10,000,000, by foreign investors who had close connection with the American Standard Oil Co. Thus Japanese oil

¹ OUTPUT OF CRUDE OIL

Year.	Barrels 1000.	Year.	Hectolitres 1000.
1893	101.2	1926	2615.8
1896	224.0	1927	2537.4
1903	1276.5	1928	2831.7
1908	1964.5	1929	3077.0
1913	1821.0	1930	3028.0
1916	2787.8	1931	2996.0
1923	1708.2	1932	2946.7
		1933	2183.6
		1934	2318.2

companies had to meet with keen competition both from inside as well as outside—from imported oil and from the company established under foreign management. However, demand was rapidly increasing, and output reached more than 1,000,000 barrels during 1902-3.

The output after 1904 kept at this high level; in fact, it grew larger, owing to the working of powerful springs in several oil-wells in Echigo and Akita districts, which recorded an output of 1,964,500 barrels in 1908. But output gradually decreased from 1908 up to the outbreak of the Great War, owing to the impossibility of drilling oil-wells. At this time it was absolutely impossible to dig wells more than four hundred feet below ground-level, and then it took over a year to drill them. Nearly all wells were in a condition which rendered further drilling impossible, as they had already reached a depth of four hundred feet or more.

In 1912 the American rotary drill was introduced by the Nippon Sekiyu Kaisha, which enabled deeper sands to be reached, and it was first tried in the Nishiyama oil-well. The result was so successful that deeper wells were drilled in much shorter time, and it was realised that wells of three thousand feet could be explored without difficulty by the more effective drilling method.

Thus the introduction of the new method revived the industry, which was then practically at a standstill, and caused a marked increase in the oil output from 1913 to 1916, when the record figure of 2,787,849 barrels was reached. Since that year the gradual decrease which has taken place is attributed to (a) the difficulty in discovering new oilfields, (b) the exhaustion of the present fields, and (c) competition from cheap imported refined oils, owing to greatly increased cost of labour and overhead expenses involved in field operation in Japan.

In regard to the present state of the important fields, the output of the Kurokawa in the Akita district showed more than 1,000,000 barrels in 1915, and it was looked upon as the biggest and most important field in Japan at that time. It now, however, yields only about 300,000 barrels a year,

and it is believed that the oil which was contained in the main has been entirely exhausted, the present operations being merely carried on in odd wells. The Toyokawa field in the same district showed a gradual increase of output since 1917, until a peak of about 400,000 barrels a year was attained in 1921, but it is not expected that this field will yield an increasing output, although there are still a few oil-wells untouched. The Michikawa field, opened in 1917, had a very promising start, and big springs of oil were obtained yielding about three times the present yearly output, but they declined very rapidly soon after 1919, and the field is now producing only about 80,000 barrels a year. The Niitsu field in the Echigo district, which was regarded as one of the most promising, has shown a decided fall in output since production reached the record figure of 1,000,000 barrels in 1907. It now yields only about 500,000 barrels a year. The other two fields in the same district, the Nishiyama and Higashiyama, which are both important ones, produced 850,000 and 400,000 barrels respectively at the beginning, but are now in the same exhausted state as the others.

On the other hand, it is noteworthy that the firms concerned have been employing the greatest possible efforts to increase output, as will be seen by the increase in the number of oil-wells. All the important fields, with the exception of the Higashiyama, have increased the number of their oil-wells by 32 per cent. during the seven years up to 1921. However, the decrease of output has continued since 1916. Moreover, as was inevitable, there was a decrease of output of refined oil brought about by the fall in crude-oil output. For instance, the output of 2,259,000 barrels of refined oils in 1917, such as benzene, naphtha, lamp- and engine-oil, declined to 1,628,000 barrels in 1921, 28 per cent. less than in the former year. Despite the decrease of output, consumption has increased rapidly, and it is a fact that the output of 1921 was about 1,100,000 barrels short of the total quantity of oil consumed in that year, the shortage being supplied by foreign production.

Oil Regions in Japan

At present practically all of Japan's yield of oil comes from the petroliferous regions along the northern coast of Honshu, especially in the Echigo and Akita districts.¹ The minor districts of Nagano, Shidzuoka, Hokkaido and Formosa are, however, not so important as the two former districts. The oil regions² of Japan are estimated at approximately 1,000,000 acres, of which only 80,000 acres have been prospected. More than 3000 oilfields or deposits of oil have been located in the whole of Japan's territory, but not more than thirty of these have been actually exploited.

The Japanese Government has been energetically surveying likely territory, especially in the northern part of Honshu and in Japanese Saghalien, but it appears that the results have been rather disappointing, as the deposits have

¹ THE MAIN OILFIELDS OF THE TWO DISTRICTS, ECHIGO AND AKITA

Echigo Districts.		Akita Districts.	
Niitsu. Asahi. Higashiyama. Nishiyama.	Kanatsu. Nagamine. Nanokaichi. Omo.	Toyokawa. Kurokawa. Michikawa.	Iwase. Oguratoyokawa. Yuri.

² OIL-PROSPECTING AND CONCESSION REGIONS IN JAPAN

Year.	Prospective Lots.		Concessions.			
			Productive.		Unproductive.	
	No.	Acreage.	No.	Acreage.	No.	Acreage.
1911	635	183,042	139	17,968	383	29,057
1912	587	176,902	161	20,758	358	26,561
1913	911	316,761	162	22,184	363	27,365
1914	1174	426,791	162	22,674	364	27,506
1915	1137	442,701	164	22,559	361	26,578
1916	1336	546,263	174	25,181	351	24,958
1917	1662	710,701	186	26,208	333	24,885
1918	1947	856,248	176	25,090	353	28,051
1919	1916	856,605	206	26,780	330	27,432
1920	1952	875,011	212	28,518	342	29,740
1921	2416	1,076,985	210	29,018	352	29,598

(From *Oil Engineering and Finance*.)

proved too poor for commercial exploitation. Therefore Japan's domestic supply of oil will most likely be procured, as it has hitherto been, from the present oil regions, such as Echigo and Akita and their immediate vicinity. The struggle to increase output in these districts shows that the extensive use of modern drilling methods is absolutely necessary in order to work effectively. Deeper deposits can be drilled on a larger scale than has been the practice of Japanese companies in the past, and also extensive surveys by experienced geologists will, no doubt, be of great assistance.

Importation and Japanese Companies

The import of petroleum commenced before the Meiji Restoration. Since 1868, when about 650 barrels were imported, it increased yearly, reaching 1,000,000 barrels in 1893. Up to this time the supply of petroleum in Japan had been entirely provided from abroad, as the industry could not cope with home consumption, although Japanese oil output recorded about 100,000 barrels in that year. However, during the next ten years the oil industry in Japan commenced to show signs of progress, and, as already described, the output increased from 100,000 barrels in 1893 to 1,276,000 in 1903. As a consequence, there was keen competition between home-produced petroleum and foreign oil; and the competition became more acute in 1908, when the Nippon Sekiyu Kaisha had a great flow of crude oil, which raised high hopes that the industry in Japan would extend its market, despite the fact that foreign oil held the premier position in the home market. In the meantime, the Rising Sun Oil Co. and the Standard Oil Co., which were the two most important companies in Japan, started new schemes, and both set up works for refining imported crude oil, in order to cope with the commercial challenge of home companies. The competition between home and foreign oil companies came to a head at the end of 1910. Those who could not keep up the conflict so long, and who realised that it was by no means a wise policy to do so, eventually came to an agreement with these three companies and the Hoden Sekiyu Kaisha, by which

they regulated the sale price and the percentage which the respective companies could supply of the total oil consumption of Japan. The percentage was fixed at a rate that enabled foreign oil companies to supply 65 per cent. of the yearly total consumption, the remainder being supplied by home companies. But this agreement was frequently broken by both sides, owing chiefly to friction between foreign companies and partly to the inadequate outlet for Japanese oil when home production increased. True, the rapid increase of oil production in Japan from 1914 to 1917 resulted in an immense decrease in the import of oil. But as soon as the oil production slowed down in 1918, foreign ¹ oil regained its previous position, supplying two-thirds of the whole consumption of oil. The smaller the home production the more foreign oil was imported, and this tendency has been going on ever since 1918.

From the beginning the home supply was not sufficient for the consumption of Japan. And as the duty on foreign oil for the purpose of protecting the home industry undoubtedly raised the price of oil, it was quite natural that an attempt should be made to manufacture refined oil from imported crude oil, which was at one time exempted from duty. As a matter of fact, the attempt was made once or twice before the Great War, but resulted in failure, owing to mismanagement and in-

¹ IMPORT OF FOREIGN OIL
(Gallons 1000)

Year.	Crude Oil.	Petroleum Benzene.	Kerosene.	Engine Oil.
1918	1,271	2,757	9,667	13,609
1919	2,511	2,663	8,630	28,728
1920	4,157	6,105	8,431	25,480
1921	11,234	5,813	10,386	16,687
1922	23,665	11,836	12,334	21,325
1923	47,180	12,844	13,652	17,612
1932	568,665	1,424	18,509	31,392
1933	613,009	73	15,233	17,737
1934	743,985	1,279	23,188	28,611

(This table does not include import figures of the Navy.)

sufficient equipment, and also to the imposition of duty on crude oil. But after the War, especially since 1921, being encouraged by its ability to purchase foreign crude oil cheaper than before, and by the fact that the home price of refined oil was raised, the oil-refining industry once more tried the experiment. This time success seems assured, as the import figures of crude oil for manufacturing purposes have been increasing steadily, those of recent years especially being overwhelming, as shown in the foregoing table. What must not be overlooked in estimating the future prospects of this attempt is that its success is wholly dependent on the difference between the market price of refined and crude oils. The greater the difference, the more advantages will be gained. Nevertheless, the oil-refining industry is in many ways in a very unsettled state, as it is realised that the import duty on crude oil will not always be stable. It is likely to be raised at any time for the purpose of protecting the home industry. Moreover, the contract for importing crude oil agreed upon as a favourable way out cannot be expected to be carried out in the future as it is now. On the whole, it is questionable whether the oil-refining industry in Japan has sufficient commercial advantages to combat competition of imported refined oil. Therefore, although the recent increase of imported crude oil is a good omen for the latest attempt, its future activity is bound to be menaced by these uncertain circumstances.

Future of the Japanese Oil Industry

Generally speaking, during the last decade the oil industry of Japan has, as mentioned elsewhere, developed rapidly. But the future of the industry rests entirely upon the possibility of oil production. It is said that the prospecting oilfields throughout the Empire now number about eighty, excluding the number of the present fields in operation. Of these eighty, however, only twenty give promise of having a good supply of oil. According to the investigation made by Professor Iki, the total oil production of Japan will never exceed 3,000,000 barrels a year, even when the expectation regarding the probable oilfields

is fully realised. If this is so, the limit of future production will be an increase of only 200 to 300 barrels over that of 1916, and only 0.2 per cent. of the world output¹ of oil in 1934. On the other hand, what must not be overlooked is that, in order to foster the production, it is necessary first to encourage further investment, which, however, appears to be very difficult, owing to the present industrial and financial situation. Therefore, it seems a hard enough task to check the decreasing tendency to increase the output. At the same time it can hardly be hoped that home oil will be able to compete easily with foreign oil in respect of the cost of production. On the other hand, home oil-consumption has been rapidly increasing from 1,720,000 barrels in 1898 to 2,650,000 in 1921, and 15,500,000 in 1934. If the Navy consumption be added, the figure for 1934 reaches more than 20,000,000 barrels. In spite of this, home output has shown a yearly decrease since 1916, which was undoubtedly the cause of the larger import of foreign oil, especially from America, whose output showed a greater increase than that of any other oil-producing country.

It is needless to say that insufficient oil resources cause great disadvantages to any country in every respect, as oil is absolutely indispensable at the present time, from an industrial as well as from a military point of view. The uses of oil have been widened to such an extent that the destiny

¹ MINERAL OIL OUTPUT OF THE PRINCIPAL COUNTRIES
(Barrels 1000)

Country.	1913.		1923.		1934.	
	Quantity.	Per cent.	Quantity.	Per cent.	Quantity.	Per cent.
America . . .	248,446	64.48	735,000	72.70	908,000	60.94
Russia . . .	62,834	16.31	38,167	3.78	166,000	11.14
Persia . . .	1,857	0.48	25,000	2.47	52,000	3.56
Mexico . . .	25,696	6.67	149,472	14.79	37,000	2.55
Dutch East Indies	11,172	2.90	15,000	1.48	41,800	2.80
Rumania . . .	13,555	3.52	10,850	1.07	60,000	4.02
Venezuela . . .	—	—	—	—	139,000	9.33
Total (including others) . . .	385,347	100	1,010,995	100	1,489,990	100

of a nation may depend on it. In fact, we are in what is called an "Oil Age." Owing to the present state of this industry and the unpromising omens for its future, also to the fact that oil is the most indispensable commodity in national life, the Government promulgated the Oil Industry Act in 1934, by which it holds the sole control of oil in Japan, regardless of its origin, for the purpose not only of regulating supply, demand and price, but also of maintaining a fixed quantity of oil, in the possession of the licensed companies, as a preparation against emergency. For it is certain that the lack of oil resources will embarrass Japan more and more in future, as its value is raised and its uses are further extended.

CHAPTER II

HEAVY INDUSTRIES

I. SHIPBUILDING

Brief History

ONE of the most remarkable successes achieved by Japanese engineering enterprises is the progress of shipbuilding. Some fifty years ago junks and sailing-vessels were the only product of Japanese shipyards, in which at the present time dreadnoughts and first-class ocean-boats are built.

The original ships of Japan were known by the name of junks, and both in construction and size they were utterly unsuited for ocean service. With the opening up of the country, the first step taken by the Government was to encourage the building and ownership of vessels of the Western type. Before describing its history it would be well to state the reason why the industry had remained absolutely undeveloped for so long a time in spite of the fact that Japan is an island and had frequent intercourse with various European countries. This was mainly the fact that for more than three hundred years, from a policy of national isolation, stringent restrictions had been imposed by the Shogunate Government upon shipbuilding and travelling. The Japanese were then forbidden to leave their own country, and no boats above 500 koku (about 50 tons) in capacity were permitted to be built. This absurd policy entirely discouraged the progress of shipbuilding as well as of navigation.

In 1854, a year after the visit of the American Fleet to the Bay of Uraga, the Shogunate, recognising the necessity of a navy, decided to relax the restrictions in regard to the building of the larger-sized vessels, and later encouraged the building of models after the design of Western schooners. Before the Meiji Restoration—as already mentioned—ship-

building had been confined to junks and sailing-boats of small size, but with the advent of the new era a rapid development took place. Early in 1870 the Government promulgated regulations for shipping, and instructed the people in the building of Western models. At this time, however, Japanese shipbuilding works were naturally unable to meet the constantly increasing requirements due to the sudden expansion of the country's maritime business, so that all the larger craft were bought from foreign shipyards. Although the number of foreign-built steamers fell below that of home-built vessels after 1876, their tonnage continued to be much larger until 1878. Meantime, the Government issued a decree in 1875 prohibiting the building of ships of the Japanese type of a capacity of 500 koku and upwards, so as to encourage the building of the larger Western-type steamers. Few private concerns were established, and the work was actually carried on by the Government up to 1880. During this period the number¹ of home-built vessels gradually increased, but the average tonnage of steam vessels in 1880 hardly exceeded 80 tons.

As the maritime business gradually developed, shipyards under private ownership were successively established. For instance, the Osaka Tekkosho Co. (Osaka Ironworks Co.) was formed in 1881, and the Ono Zosensho Co. (Ono Shipyard Co.) in 1883. In 1884 and 1885, the Government handed over the management of the Nagasaki Shipyard and that of the Kobe Shipyard, both of which had been

¹ NUMBER AND GROSS TONNAGE OF SHIPS BUILT IN JAPAN
(1873-80)

Year.	Steamships.		Sailing-ships.	
	Number.	Tonnage.	Number.	Tonnage.
1873	2	32	2	91
1874	3	64	—	—
1875	14	462	4	83
1876	8	146	11	639
1877	16	474	16	1,649
1878	25	912	51	5,204
1879	19	839	50	5,781
1880	40	3186	146	10,886

under Government control since their establishment, to the Mitsubishi Co. and the Kawasaki Co. respectively. At the same time the other two Government shipyards, viz. Uraga and Ishikawa, changed hands, and shipbuilding in Japan, which had been entirely under State management before 1880, was undertaken by private enterprise from that year. Iron and steel ships, however, were not built in large numbers, the majority built during those years being of wood and iron mixed. The first and most significant work that both the Nagasaki and Kawasaki shipyards turned out were the four steel vessels of large displacement, about 600 tons, in 1890. By this time the technical progress and business development of shipbuilding in Japan showed remarkable strides, it being possible to provide for any type of Western models for coastwise service; but the larger ocean-vessels still had to be obtained from European countries.

In 1894 the Japanese-Chinese War broke out, and larger vessels were urgently needed for military purposes; but the conditions and circumstances in the Japanese shipyards were not then sufficiently developed to cope with the rush, and they were only able to meet the demand for repairs to the larger ships. The Mitsubishi's Nagasaki shipyard was the only one at that time able to construct large boats over 1000 tons, and it succeeded in building the *Suma Maru* (1160 tons), *Mayajima Maru* (1592 tons) and the *Ryujin Maru* (2691 tons). Meanwhile, business people connected with the industry made an appeal to the Government to formulate an adequate policy for the encouragement and protection of the shipbuilding industry after the war. In response to the united and earnest efforts of the shipbuilding companies, the Government introduced the Shipbuilding Encouragement Act¹ in Parliament in 1896, which was passed, and came into force in October of that year.

Greatly encouraged by this Act, several new shipbuilding companies were established. The Hakodate Dockyard Co.,

¹ The main points of the above Act were that the Government subsidised the shipyards yen 11 to 22 per ton, also yen 5 per horse-power of the engines constructed by the same shipyard.

the Inoshima Dockyard Co., and the Toda Shipbuilding Co. were formed, and the Ishikawajima Shipbuilding Co. extended their works a few years later. Apparently this Act was unsuccessful, as the number of ships built during 1896-99¹ was fewer than expected, and companies showed a big deficit yearly, despite the Government subsidies, while the majority of ocean-boats required by Japan were still supplied by foreign shipyards.

Faced with this unexpected and unsuccessful result, the Government decided to amend the Shipbuilding Encouragement Act,² promulgated in March 1896 to foster home shipbuilding, to allow for the taking of shipping companies' orders in home docks, instead of handing them over to foreign shipyards. The main amendment was that a full navigation subsidy was to be granted to home-built ships and only a half to foreign-built ones.

Soon after the amendment came into force, in October 1899, the industry took a prosperous turn, and the number and tonnage of home-built ships³ increased rapidly, due, of

¹ The principal boats built during this period were: *Iyo Maru* (727 tons); *Tsukijima Maru* (1592 tons); *Hitachi Maru* (6172 tons); *Daigen Maru* (1694 tons); *Awa Maru* (6135 tons).

² According to this Act, any Japanese person or persons or trading companies whose partners were all Japanese subjects, owning registered steamships of iron or steel with a gross tonnage of 1000 tons or upwards, a minimum speed of 10 knots or upwards per hour, and carrying on a regular service between Japan and foreign ports, could be granted a navigation subsidy depending upon the distance run by the vessels and their tonnage.

³ NUMBER AND GROSS TONNAGE OF SHIPS BUILT IN JAPAN
(1881-1903)

Year.	Steamships.		Sailing-ships.	
	Number.	Tonnage.	Number.	Tonnage.
1881	33	2,097	107	9,477
1884	11	1,338	19	2,889
1887	18	1,440	23	1,633
1890	30	4,291	13	1,142
1893	26	2,349	4	432
1896	36	3,597	11	997
1899	53	18,157	216	20,342
1900	53	15,308	193	17,873
1901	71	31,829	202	20,259
1902	67	16,328	137	13,035
1903	65	33,612	124	9,925

course, to the adequate assistance given by the amendment of the Act. We must not, however, overlook the fact that the period between 1900 and 1904 was the turning-point in the industrial progress and development of transport in Japan.

It is noteworthy that the shipbuilding industry during this period showed remarkable progress in skill and from a technical point of view. For instance, the *Hitachi Maru*, which was built in 1898 by the Mitsubishi Nagasaki Co., was considered at that time an epoch-making product of the Japanese industry, not only in respect of her tonnage, which was 6172 tons—the largest displacement ever constructed in Japan—but also of her first-class workmanship, which was readily recognised to be equal to that of boats of any other shipbuilding country. The boat was put in the regular European service of the Nippon Yusen Kaisha (Japan Mail Steamship Co.), and introduced Japanese skill and progress in shipbuilding to other countries.

The *Awa Maru* was built in 1899 and the *Nikko Maru* in 1903. The latter was considered to be the best and fastest passenger-boat afloat—of 17.7 knots per hour—that Japan had ever built, although her tonnage was 5538 tons—a trifle less than that of the two former. The *Ceylon Maru* (5068 tons) was the largest cargo-boat; but again, the two river-boats built by the Osaka Ironworks were very successful for river navigation. The training-boat *Taisei Maru* (2287 tons), of the Mercantile Marine College, was a remarkable product, especially in respect of accommodation for training purposes.

With the passing of a few years, the Japanese-Russian War (1904-5) broke out. During the war all ocean-vessels were commandeered by the Government for military transport, and a successive purchase of big boats from abroad was made; a further shortage of ships was met by chartering foreign vessels. Thus shipping in Japan at the emergency period was an urgent necessity for the national welfare. Shipbuilding also showed steady progress, the total tonnage being 37,500 tons in 1904 as compared with 33,612 tons in the previous year. The figure for the former

year would have been much larger if the industry had not been hampered by having to repair so many damaged ships which were engaged in actual service. In any case, the demand for ships encouraged shipbuilding companies to extend their works and increase their capital, which naturally brought about considerable development, this development ¹ being most marked from 1908 onwards. Of the many things which the war brought out in the industry, the most noticeable was the remarkable work turned out by private companies who had never before been engaged in the construction of any warships except torpedo boats. They built destroyers, gunboats and cruisers of great speed and size. As to mercantile vessels, the *Tamba Maru* (7460 tons), which had the highest tonnage recorded, and the *Nikko Maru*, of 17.7 knots, were representative of those built before the war. After 1908, however, the construction of big ships was rapidly taking place, and the *Tenyo Maru* and *Chiyo Maru* were representative of the post-war production, both being 13,500 tons and running 20 knots, with complete structure and up-to-date accommodation which compared quite favourably with the productions of European countries. In 1909 the Navigation Encouragement Act was replaced by the Ocean Service Subvention Act, under which ships subsidised were limited to steel steamships with a gross tonnage of not less than 3000 tons and a speed of not less than 12 knots, which aimed undoubtedly

1

Year.	Steamships.		Sailing-ships.	
	Number.	Tonnage.	Number.	Tonnage.
1904	114	37,500	119	11,257
1905	103	30,089	279	16,760
1906	90	35,151	411	26,444
1907	79	29,898	248	19,949
1908	93	72,757	197	14,958
1909	58	63,475	205	15,616
1910	77	24,479	147	11,097
1911	142	41,229	216	13,132
1912	168	48,155	372	23,899
1913	115	51,525	659	43,598

at the encouragement of the construction of large vessels with higher speed.

The Great War and the Industry

With the advent of the Great War the industry experienced an unprecedented boom, as was the case with many industries, and with the mushroom growth of new companies shipbuilding in Japan showed a sudden development.¹

Before the War the number of shipbuilding works equipped for the construction of ships of not less than 1000 tons was no more than six, with 26,000 workers. But during the period of the War the number of works was multiplied by nine and the number of workers by four, and all other parts of the industry made correspondingly rapid strides.

As a consequence the total tonnage of ships built during the War reached surprisingly high figures² every year,

¹ SHIPBUILDING BEFORE AND AFTER THE WAR

	1913. (End of the Year.)	1918. (Directly after the Armistice.)
Companies	5	52
Capital—Authorised (yen 1000)	25,550	163,050
" Paid-up "	23,150	109,554
Debentures "	3,600	22,050
Shipbuilding factories	6	57
Shipbuilding docks	17	157
Workmen	26,139	107,250

Note.—The above table includes only those able to build ships of not less than 1000 tons, and workers are only those in the workers' name list; therefore there is a slight difference between the figures given and those for the whole industry.

² SHIPBUILDING DURING THE WAR

Year.	Steamships.		Sailing-boats.	
	Number.	Tonnage.	Number.	Tonnage.
1914	79	82,873	557	34,528
1915	63	51,431	411	26,024
1916	94	144,240	519	45,831
1917	196	403,016	526	83,092
1918	377	626,695	413	70,372

rising from 190,000 tons in 1916, to 697,000 tons in 1918. It is also noteworthy that the percentage of steamships and sailing-boats showed a remarkable change, that of the former jumping to 90 per cent. in 1918, as against only 54 per cent. before the War. Thus it is obvious that the average tonnage of ships built during the War was much higher than the pre-War figure, the main reason for this being undoubtedly the development and expansion of Japanese shipping and navigation, which extended not only to the Eastern seas but to every port of the world.

The sudden increase during the last two years was largely due to the war-time orders from America under the agreement by which America supplied the material and Japan built the ships. During these years forty-five ships (tonnage 394,100) were exported to America at a cost of yen 150,105,000. This alone shows that the shipbuilding industry in Japan has rapidly progressed and has reached the standard of other shipbuilding countries.

After the War

The unprecedented boom during the War was, of course, brought about by the abnormal state of world economic activities, and a reactionary depression in this industry, as in others, was completely unavoidable and only to be expected. As will be seen from the following table, the number of shipbuilding companies in June 1921 was twenty-one, showing a decrease of thirty-one, or 61.5 per cent., as compared with the number just after the Armistice; the

	1918. (Directly after the Armistice.)	1921. (June.)	Increase (+) or De- crease (-).
Companies	52	21	- 31
Capital—Authorised (yen 1000)	163,050	204,000	+ 40,950
„ Paid-up „	109,554	127,880	+ 18,326
Debentures	22,050	28,470	+ 6,420
Factories	57	27	- 30
Docks	157	94	- 63
Workmen	107,250	72,893	- 34,357

numbers of factories, docks and workmen also show a tremendous decrease, corresponding to that in the number of companies.

The industry, being in such a depressed state, was aided by construction orders from the Navy, which was now working on the new plan of the naval fleet. However, expectations were not realised, and orders had to be cut down in accordance with the Washington Disarmament Treaty. Thus, the tonnage of newly built ships after the War rapidly decreased year by year, falling from 674,500 tons in 1919 to 460,000 tons in 1920 and 203,000 tons in 1921. It is quite obvious that the reason why the year 1921 still showed large figures in spite of the chaotic state of the industry was mainly that shipbuilding orders placed during the boom were held over, and companies had to proceed with the work in order to prevent unemployment. Apart from this consideration the actual figures might have been much less than those given above.

As a consequence, companies established during the War closed down in succession, and those able to hold on during this hopeless period were the older-established and well-founded companies, such as the Kawasaki Shipbuilding Co., Mitsubishi Shipbuilding Co., Osaka Ironworks, Uruga Dock Co., Yokohama Dock Co., and the Ishikawajima Shipbuilding Co., which are the leading establishments in Japan. In regard to the present shipbuilding capacity of Japan the *Oriental Economist* gives an estimate of about 560,000 tons a year, which is five times the pre-War figure. Against this advanced capacity the present yearly demand for new ships, taken together with casualties and worn-out ships, can hardly be calculated at more than 300,000 tons when normal conditions in Japanese navigation are restored. Therefore, if we take home production and demand apart from foreign competition and orders, the state of the industry undoubtedly reveals considerable over-expansion, and the conclusion we must come to is that the industry will remain in the present depressed state so long as it is dependent solely upon home demands.

Fortunately, however, under the present Shipping Subsidy

Act, with a view to improving the speed and other seaworthy characteristics of Japan's maritime fleet, ships of 100,000 tons of old tonnage were to be scrapped and some 200,000 tons of new vessels to be constructed in order to replace them, within the three years ending March 1935, if the shipping companies desire to obtain the subsidy. Therefore they placed orders in accordance with the provisions of the law. In 1933 seven vessels totalling 40,000 tons were launched and thirteen totalling 96,000 tons were also completed during 1934. The remaining tonnage of 66,000 had to be completed prior to March 1935. In addition, the Japanese Navy is expected to award building contracts for its replenishment programme estimates for the 1935-6 fiscal year. On account of this, the shipbuilding industry of Japan has had, and will continue to have, a busy time, busier than any since the boom following the outbreak of the Great War.

The State of the Japanese Shipbuilding Industry

In regard to the supply of shipbuilding material—especially steel manufactures—the industry has continued to depend upon imports, which account for between 50 and 70 per cent. of the total yearly amount of material used in Japan. This means that home manufacturers can provide for from only 30 to 50 per cent., because, owing to the scanty output of iron in Japan, iron and steel are not obtainable in large quantities. The greater part of the material required was imported from England, Belgium and Germany before the War, and since then America has been the chief supplier. Therefore, although shipbuilding material has been exempt from the payment of customs duties, the industry has to make use of goods which are expensive on account of the cost of freight, insurance and other transport charges. Again, it has to lose interest on capital spent on material to be stored, which is necessary, owing to the impossibility of obtaining stocks instantly; expenses of storing must also be taken into account, as well as the element of risk which enters into the buying of large quantities of goods for use at some future date. For these reasons, the costs of ship-

building¹ in Japan are naturally higher than in any other country.

This is not all that has to be contended with in Japanese shipbuilding. It is not only the comparative expensiveness of machinery and other instruments necessary to the industry, but also the high rate of interest on capital invested, which contribute to the high cost of production. In spite of these disadvantages, those responsible for the conduct of the industry used the vast profits which had been accumulated during the War on reckless extension of establishments, investing money in property and buildings, instead of trying to remove these handicaps by definite and systematic research for the improvement of the industry. This undoubtedly caused the post-War depression to be more unfavourable than it might otherwise have been.

In spite of the disadvantages mentioned above, it is most noteworthy that the skill of shipbuilders has been improved to such an extent that their efficiency is no longer inferior to that of the workers of other countries. As far as this industry is concerned, Japan is not only an entirely self-supporting country, but is also able to build for other countries, mercantile as well as naval vessels. In this connection, what we must not overlook are the successful effects of the subsidising policy of the Japanese Government in favour of shipbuilding. We have mentioned elsewhere the Shipbuilding Encouragement Act of 1896 and the Navigation Encouragement Amendment Act of 1899, which expired in

¹ COSTS OF SHIPBUILDING (per ton
(7000-ton vessels upwards),

Year.	Japan.		England.	
	Highest.	Lowest.	Highest.	Lowest.
	Yen.	Yen.	£ s. d.	£ s. d.
1930	172	152	8 5 4	7 14 8
1931	190	110	7 9 4	6 10 0
1932	110	100	5 10 0	5 0 0
1933	—	—	4 5 4	4 5 4
1934	—	—	4 18 8	4 5 4
			6 18 8	6 3 4

1918. In the place of this Amendment Act, the Government decided, in 1921, to rescind the duties¹ on imported shipbuilding material, but heavy duties have been imposed on the importation of ships of foreign manufacture. From the date when the latter Act came into force until just before the Great War the total tonnage of Japanese ships increased by 1,300,000 tons, an increase of 57·3 per cent. as compared with the year when the Act was passed, and ships which received allowance in accordance with the Act since the War registered more than 1,500,000 tons. Although it is true that under these Acts from 1896 to 1918 the cost to the nation of bringing the industries to their present state was great, amounting to yen 22,757,000, if the period of 1919-34 be taken into account, the total would be enormous; and it may be argued that the development of the industry could have been established without the shipbuilding subsidy if the huge profits earned by the companies during the War had been used in a proper way, instead of being used to pay exorbitant dividends ranging from 100 to 200 per cent. But the present developed state of the industry could not have been attained without the Government subsidy policy and the protective policy for the home industry against the importation of foreign ships. It is due to these that Japan has now become one of the leading shipbuilding countries in the world.

2. OTHER HEAVY INDUSTRIES

General Machinery

Almost all the important industries in Japan were under State control in their early stages, and the machine industry was no exception. This made great progress during and after the Great War which has continued during the past years, and it stands out amongst all other branches of the industry by reason of its present prosperity and its future promise.

The first engineering enterprise, outside the shipbuilding

¹ Fifteen yen per ton for ships aged less than ten years, and ten for ships more than ten years old.

industry, was attempted by the Mita Seisakusho (Mita Works), Mita, Tokyo, established in 1879 and controlled by the Government, which employed at the beginning foreign experts for the purpose of educating native workmen. At the same time, the Government took all the necessary steps to encourage private enterprise in this line.

The Government's aid and encouragement, together with the general development of communication, transport and other industries, caused a rapid progress of this industry. The progress of the machine-manufacturing industry dates from the 'eighties. In 1887 the Sibaura Seisakusho (the Sibaura Works) was established, that being the first private engineering machine factory in Japan. Three years later a vehicle-manufacturing firm was formed under a Mr. Hiraoka's private management. Both were successful, in spite of insufficient experience in this new line of production, and constant extension of their works took place under Government protection.

Stimulated by these successes, various machine-manufacturing firms were formed within the short period of two or three years, and before the Japanese-Chinese War, 1894, the number was 170, of which thirty ran their own power establishments, while the number of workers employed reached 7850.

After the Japanese-Chinese War and up to the Japanese-Russian War, the industry showed a gradual progressive tendency, its factories numbering 255 in 1906, thereby showing an increase of 50 per cent. compared with 1894, with a threefold increase of workers, viz. 24,540 in 1906. Moreover, a striking development of the industry took place after the latter war. The number of factories increased in 1909 to 687, or more than four times the number before the war, and that of men employed increased to 49,560, or more than double the number in 1906.

But after the financial panic of 1908 in America, the engineering industry in Japan was financially affected, and this not only resulted in a decrease in the number of factories and men engaged therein, but also forced firms to liquidate and amalgamate. From this time, however, the

organisation of the industry was greatly improved. Although the factories declined in number, the horse-power of engines in use was greatly increased, which shows that the scale of work was, on an average, much larger.

On the outbreak of the Great War an unprecedented prosperity favoured the industry, and consequently gave a good opportunity to *entrepreneurs* as well as to workers to obtain experience and technical knowledge which otherwise could not have been gained so quickly. At the beginning of the War, several new factories were constructed to meet the demands of Russian orders for ammunition. Then the development of shipbuilding, described in the following chapter, created a boom in the engineering industry because of the demand for engines, boilers and machinery, while general demand increased the country's need for industrial machinery. Owing to the rapid development of textile industries and also to the difficulty of importing machinery, great scope was given to the engineering industry for rapid expansion. Furthermore, electric, gas and mine machinery, railway tracks and carriages, bicycles, motor-cars and also aeroplanes were successfully constructed during the War, owing to the lack of foreign goods and to the large home as well as foreign demand for these goods. However, when the War came to an end, and was succeeded by a world-wide depression, the industry was at once plunged into terrible financial confusion. Those firms which supplied war-time necessities such as arms and ammunition, and the shipbuilding industry with its complementary engineering industries, were directly affected. On the other hand, those concerned in manufacturing electric machines, tracks, vehicles and engines for fishing-boats and aeroplanes were hardly affected, and have been actively engaged ever since the War. The most striking fact, which we must not overlook, is the continuous activity of those engaged in manufacturing hydro-electric machines and their accessories, which shows the recent development of electric enterprise in Japan.

Electric Machines

In Japan the first attempt in this line of production was made just before the Japanese-Chinese War. In 1892 the Sibaura Works, Ltd., the pioneer of the Japanese engineering works, began to manufacture electric machines. The Tokyo Electric Co., Ltd., which is considered to have been the first firm to manufacture electric bulbs and their accessories, was established in 1896. Four years later a firm named the Nippon Electric Co., Ltd., was formed, being first in the field for the production of electric communication instruments.

After the Japanese-Russian War the industry entered on its first progressive period with the rapid rise of electric supply enterprise to provide light, heat and fuel to all modern establishments. Thus, at the end of July 1914, when the Great War broke out, the number of factories engaged in this industry was twenty-six, with an authorised capital of yen 14,500,000, of which the paid-up capital was yen 9,260,000, while the 5300 workmen employed produced goods worth yen 8,500,000 a year. This showed the striking progress made in the short period from the commencement of the industry. But, judging from the fact that production at that time was limited to low-grade goods, 2300 kilovolt in dynamos and 100 h.p. in electric motors being the utmost capacity, the manufacturing ability of the industry was still far behind what it is at present.

After the Great War the industry renewed its development, owing to the increasing demand for electric machines arising from the great expansion of electric-power supply. As a result of the progress of the home industry, the imports of these goods rapidly decreased. For instance, the imports of electric motors and dynamos were reduced to only yen 391,000 in 1916, as compared with yen 3,659,000 in 1913; and in 1917, although the value increased considerably, it still remained at yen 1,129,000, which is less than one-third of that of 1913. The same decline occurred in the imports of telegraph and telephone machines. As a consequence, the industry in Japan enjoyed great briskness,

and encouraged the promotion of electric machine-making companies.

The above industrial expansion resulted directly in the increase in output of electric machines, *i.e.* yen 57,000,000 in 1918, yen 75,000,000 in 1919, yen 85,000,000 in 1920 and yen 80,000,000 in 1921, which corresponds roughly to ten times more than that of pre-War figures. At the end of 1921 the number of factories figured at 120, which was about five times more than that in 1914.

As to the kind of products turned out, a great change has been witnessed. The higher-class electric machines which it was at first absolutely impossible to manufacture, such as electric motors for weaving and spinning purposes, direct-current motors for chemical use, those for electric tramways and cranes, electric furnaces, have now been successfully manufactured in great quantities. Electric dynamos of more than 2300 kilovolt had never been manufactured before the War, but now the industry has developed enough to make them up to 20,000 volts. Electric fans and bulbs, telephonic and telegraphic machines manufactured by home factories are meeting the entire home demand, to the great satisfaction of consumers. Besides, with the aid of the Government, the manufacturing of large electric condensers for the use mainly of submarines and railway engines has made great strides, and these products are not inferior, from a technical point of view, to those of American and European manufacture.

As a result of the development, Japan has suddenly become an exporting country of electric goods: China, Kwantung Province, India, Australia, and Asiatic Russia being her principal customers.

However, it cannot be said that the industry has reached the stage of being self-supporting in the case of electric motors, dynamos and heaters, which are still provided by foreign labour, and even for other general electric fixtures and apparatus of good quality Japan is still dependent on imports, although the goods of common class are practically provided by home manufacture. It can be seen, therefore, that the imports of electric goods, despite the recent

progress of the industry, have shown a steady increase, especially in electric motors and dynamos.

Engines and Boilers

That branch of the engineering industry of Japan which manufactures engines and boilers is of comparatively recent growth. On the occasion of the Industrial Exhibition in 1877, the first attempt was made by a few firms in Japan to exhibit engines of their own make. A steamship engine, exhibited by the Ishikawajima Shipbuilding Co., and an electric motor by the Tokyo Electric Co., drew people's attention to the industry. After the Japanese-Chinese War the Government passed the Shipbuilding Encouragement Act. It aimed at fostering the industry directly. That clause which authorised a subsidy of 5 yen per ton on home-built ships equipped with home-built engines was especially helpful, and resulted in great efforts being made by ship-builders in Japan to manufacture engines instead of importing them from European countries.

The period of the industry's greatest development was that after the Japanese-Russian War. Besides the Nagasaki and the Kobe dockyards of the Kawasaki Shipbuilding Co., which had been engaged in the engineering industry for a long time, several firms were established after 1908 for the sole purpose of manufacturing engines.

At this time, however, the industry was in the first stage of development, and the firms' capacity for manufacturing engines was very limited, their highest records being 1000-h.p. steam-engines and 300-h.p. gas-engines.

On the advent of the Great War, manufacturers built new factories and extended old ones, owing to the great increase in home demand created by the difficulty of importing foreign engines. In 1918 the number of workmen employed was 50,000, a striking figure compared with 988 in 1913. After the War the number of workmen was 13,000 in 1919 and 10,000 in 1920, and the number of factories in 1922 was 124. Thus, together with the increase of firms scientifically managed and equipped with up-to-date

machinery, there has been great progress in technical knowledge, and the manufacture of all kinds of engines and their accessories has increased in a most remarkable way since the War. It must, however, be remembered that although the industry has shown such striking progress, and has been able to supply medium low-class engines for home demand, it has not yet developed sufficiently to be able to supply the more powerful high-class ones, which are still being imported from foreign countries to meet the progressive demand of home industries. However, as a result of the present development, boilers, pumps and cranes, which were never exported from Japan before the War, are now being exported, although still on a small scale, and the industry has become the principal supplier of various kinds of engines and boilers, and of many other engineering products to various home factories. The firms have begun to produce the higher-class engines, which are quite comparable to those of other countries in their quality and good workmanship.

Having completed our brief survey of machinery making, boilers and engines, we must study the industry as a whole with regard to the position it now holds in home industries and foreign trade.

As described in Part II, the development the industry has attained during the past few years is one of the most remarkable phenomena which any industry has ever shown. The total value ¹ of the output of the industry has increased from yen 392,000,000 in 1913 to yen 1,766,000,000 yen in 1933, or from 6.67 to 22.43 per cent. of the total value of

¹ OUTPUT OF INDUSTRIES
(Yen 1000)

Year.	Total.	Machinery and other Heavy Industries.	Percentage.
1913	5,880,678	392,065	6.67
1930	5,962,810	1,142,136	19.15
1931	5,174,578	878,212	16.91
1932	5,982,469	1,134,970	18.90
1933	7,871,319	1,766,000	22.43

the output of all industries. Furthermore, the number of factories¹ and workmen² engaged in the industry has correspondingly increased in a way as to be striking as compared with that of other industries.

The development is of great importance, not only from an industrial, but also from a national point of view. The reasons why the industry has been able to attain its present stage of progress are: (1) The Government's aid and encouragement; (2) successful technical research; (3) satisfactory undertaking of rationalisation; (4) good workmanship; and (5) great military requirements.

Japan has for many years been mainly dependent upon the supply of foreign goods, because of the insufficiency of her own production, but she has now reached the stage of being

¹ NUMBER OF FACTORIES

	1929.	1933.	Percentage Increase.
Textile	19,706	22,181	12.56
Metal Products and Machinery and Tools	9,078	13,391	47.38
Ceramic Products	3,253	3,355	3.14
Chemicals	3,197	4,013	28.34
Lumber and Wood Products	4,730	5,974	26.30
Printing and Binding	2,586	3,053	18.06
Foodstuffs	11,894	12,868	8.11
All Others	4,984	6,558	31.58
Total	59,428	71,391	20.13

² NUMBER OF WORKMEN

	1929.	1933.	Percentage.*
Textile	997,670	907,632	- 9.03
Metal Products and Machinery and Tools	281,083	374,880	+ 35.27
Ceramic Products	70,117	71,195	+ 1.54
Chemicals	122,250	163,706	+ 33.90
Lumber and Wood Products	58,996	66,439	+ 12.62
Printing and Binding	52,015	53,756	+ 3.35
Foodstuffs	142,998	142,235	+ 0.54
All Others	91,825	113,036	+ 23.09
Total	1,716,984	1,892,876	+ 10.24

* + = Increase; - = Decrease.

not only self-sufficing, but also able to export. Her exports¹ of goods were yen 19,000,000 in 1923, but they have increased by leaps and bounds, reaching yen 133,000,000 in 1934, representing 6.1 per cent. of her total exports. However, although the industry has made great strides in every direction, and exports its goods in an increasing volume, it has not yet become totally independent of foreign supply,² especially motor-cars and gas- and oil-engines, which Japan is not able to manufacture satisfactorily in spite of the Government's aid and protection.

Regarding the further development of the industry, that

¹ EXPORTS OF MAIN PRODUCTS OF MACHINERY

	1923. (Yen 1000.)	1933. (Yen 1000.)	1934. (Yen 1000.)
Clocks and Watches	1,295	2,091	3,221
Surgical and Research Instruments	268	6,337	7,311
Electric Machines and Accessories	1,851	2,724	10,055
Telephone Machines and Accessories	156	2,834	5,241
Textile Machines and Accessories	3,801	4,878	8,377
Other Machines and Accessories	—	25,857	57,777
Vehicles and Accessories	—	28,341	46,589
Bicycles " "	—	6,028	12,115
Electric Bulbs " "	—	10,167	8,942
Total (including others)	19,909	77,789	133,924

² MAIN IMPORTS OF MACHINERY, BOILERS AND ENGINES

	1933. (Yen 1000.)	1934. (Yen 1000.)
Clocks and Watches	2,244	2,795
Surgical and Research Instruments	4,068	3,545
Telephone Machinery and Accessories	337	355
Textile " " " "	3,520	6,394
Motor Car " " " "	13,871	32,302
Steam Boilers, Parts and " " " "	1,790	4,090
Locomotives " " " "	156	5
Steam-turbines " " " "	58	430
Steam-engines " " " "	—	—
Gas- and Oil-engines " " " "	16,147	20,777
Dynamos, Electric Motors " " " "	1,734	1,223
Total	106,574	143,590

depends; firstly, upon how far technical skill and scientific knowledge are improved in the future—although there has been much improvement, for the industry needs highly advanced skill more than anything else; secondly, upon how long the present military requirements continue, for these are largely responsible for the industry's recent strides. As long as the existing precarious international situation lasts, the expenditures of the spending Departments will remain at their present high figure, which maintains the industry in prosperity. It is expected, however, that the future progress of the industry will be retarded if the military requirements decline. It is generally expected that a large number of factory workers will be discharged sooner or later when a decline in the war-industry boom sets in. The authorities concerned are now planning necessary measures in order to protect men when this does occur.

The progress from light industry to heavy industry is a natural process of industrialisation. In order to maintain and further promote the present position without military favour, enlarged establishments should be utilised so as to increase exports. Fortunately there are wide markets near Japan, such as China and Manchukuo, where ample scope can be found for trade extension.

PART V

TRANSPORT

THE introduction of railways and steamships into Japan revolutionised not only the old methods of transport, but also her national and economic life, and were direct causes of the present-day development of industry and trade under the capitalistic system in Japan. The distance of 345 miles between Tokyo and Kyoto is now covered by an express train in less than eight hours, whereas just seventy years ago more than one hundred days were needed to travel the same distance. It was an impossibility to cross the water from Japan to China in the feudal time; now, up-to-date liners run between Nagasaki and Shanghai, and the Continent of Asia can be reached within twenty-four hours. The distance has thus been greatly shortened by modern methods of transport, the result of which is a characteristic growth of industrial towns owing to easy supply of labour and foodstuffs and better transport of industrial goods. It is needless to say that the present development of the industry and trade of Japan would never have been achieved without her highly improved land and sea transport.

CHAPTER I

SHIPPING

Outline of Shipping Development up to the End of the Great War

ENCOURAGED by the geographical position and formation of the country, together with the general industrial development, Japan has achieved great progress in her maritime industry in a comparatively short period since the Meiji Restoration (1868). However, apart from quality and construction of ships and their displacement, the total tonnage which Japan possesses at present is only 6.2 per cent. of the world's total in 1934, although she ranks third among shipping countries, coming, merely from the tonnage point of view, next after England and America, and before France, Germany, Norway and other maritime countries.

If we go back several centuries, before the isolation policy of the Tokugawa Shogun Government, who put a stop after 1637 to all overseas attempts of the Japanese navigators, Japanese seamen were to be found all along the coast of China, Siam, the Philippines, the South Sea Islands, and even as far as India and Australia. At this time they were known, by the name of "Wakoo," and were rivals to the Spanish and Dutch navigators, who at that period were having a glorious time in the West. The isolation policy which was strictly adhered to by the Shoguns for more than 200 years after 1637 stopped the development of ocean intercourse altogether, and isolated Japan. Soon after a visit by the American Commander Perry, however, the ban was removed, and the country was opened up to foreign intercourse in 1858. Since then Japanese shipping has made steady progress, and while securing predominance in Oriental waters, her mercantile vessels are found on all the ocean routes of the world.

The first modern shipping company established was the "Kaiso Kaisha" (Transport Co., Ltd.), which was formed in 1870, under combined Government and private management. One of the articles of the company's regulations points out that ". . . irrespective of the Samurai (professional fighting class,) Hyakusho (farmers), Chonin (merchants) and women, any persons are permitted to be given facilities at their request for freights and passages, provided that they apply to the agents for same." This article shows the general idea in the 'seventies, which was still in the transition stage from the old Japanese feudal to modern ideas, although social privileges conferred on the Samurai class had been removed and equality had been established socially and officially, irrespective of class or sex.

Two years later the Government allowed the company special subsidies and increased the number of chartered boats. The company then altered its name to the Imperial Japanese Mail Steamship Co., Ltd. However, as this company could not cope with the military transport on the occasion of the Formosan War in 1874, the Government ordered the Mitsubishi Steamship Co., which had been formed soon after the former company, to take over the service of military transport, and lent it vessels bought from abroad. After the War the latter extended its business greatly by amalgamating with the former and by getting a grant which enabled it to use another ten Government vessels. Thus, Japanese sea transport made great headway after the Formosan War.¹

A few years after the Civil War (Satsuma Rebellion) of 1877, shipping business again showed a gradual rise and pro-

¹ NUMBER AND TONNAGE OF SHIPS BEFORE AND AFTER THE FORMOSAN WAR (1874)

Year.	Steamships.		Sailing-ships.	
	Number.	Tonnage.	Number.	Tonnage.
1873	110	26,000	36	8000
1875	149	42,000	44	9000
Increase	39	16,000	8	1000

gress; with the aid of the Government new companies were formed in quick succession. In 1883 three companies—Hokkaido Unyu Kaisha, Echu Fuhansen Kaisha and Tokio Fuhansen Kaisha—all of which were already in existence, agreed to co-operate in order to form a new amalgamated company under the control of the Government. Kiado Unyu Kaisha (United Transport Co., Ltd.) was thus established with a capital of yen 6,000,000, of which yen 2,000,000. was invested by the Government. In the following year the Osaka Shosen Kaisha (Osaka Mercantile Steamship Co., Ltd.) was incorporated by several private shipowners in the Osaka district. The Nippon Yusen Kaisha (Japan Mail Steamship Co., Ltd.), which is not only the largest shipping company in Japan, but also one of the leading companies in the world at the present day, was formed in 1885, amalgamating with the Mitsubishi Steamship Co. and the United Transport Co., with a capital of yen 11,000,000, and with the Government guarantee of 8 per cent. dividend a year.

Though Japanese navigation showed gradual development, its actual activity was still limited to the coasts of Korea and China, and almost all Japanese foreign trade was borne by foreign vessels. It was not until November 1885 that Japan started ocean navigation, when the Nippon Yusen Kaisha opened up its first ocean route as far as Bombay.¹

On the outbreak of the war with China (1894-5), the Government commandeered all ships owned by private companies and individuals for the purpose of military transport. They were, however, insufficient for the urgent demand, and were consequently supplemented by a heavy purchase of foreign ships. As a result, the gross tonnage ¹

¹ NUMBER AND TONNAGE OF STEAMSHIPS BEFORE AND AFTER THE WAR WITH CHINA (1894-5)

Year.	Number.	Tonnage.
1894	65	96,504
1895	147	164,454
Increase	82	67,950

of ships after the war was greatly increased as compared with the pre-war figures.

It is needless to add that the development of Japanese shipping has been largely due to the subsidies and encouragement of the Government. After the war with China, the Government adopted an extensive shipping policy in order to cope with the post-war development of industries and foreign trade. The Navigation Law of March 1896 granted general subsidies to all owners of steamers engaged in service conforming with the provisions of the law, which was modelled on the French subsidy system. This law was designed both to protect and to encourage the shipbuilding industry at home. Soon after the law came into force, several new ocean lines were opened by various firms, the main routes of which were as follows :

European Line (Yokohama-London-Antwerp via Suez). By Nippon Yusen Kaisha.

South American Line. By Nippon Yusen Kaisha.

North American Line (Yokohama-Seattle). By Nippon Yusen Kaisha.

Australian Line (Yokohama-Sydney). By Nippon Yusen Kaisha.

San Francisco Line (Yokohama-San Francisco). By Toyo Kisen Kaisha. (Est. 1896).

Yangtse River Line (Osaka-various ports along the Yangtse river in China). By Osaka Shosen Kaisha.

Shanghai Hangchow Line. By Daito Kisen Kaisha.

Shanghai Soochow Line. By Daito Kisen Kaisha.

Thus, the principal lines to the Western and Eastern Continents were established with the aid of the Government; and shipping transport started its activity. On the advent of the war with Russia, as in the case of the previous war, great demands were made on sea transport, which resulted in a heavy importation of ships, and also stimulation of the home shipbuilding industry. Therefore, despite the loss of ships during the war, the

gross tonnage¹ was considerably increased. After the war several new lines were opened in addition to the principal ones already established.

The Nisshin Kisen Kaisha (China-Japan Steamship Co., Ltd.) was established in 1907, for the purpose of operating all lines along the Yangtse River and various ports in Central China.

The Japanese shipping circle was again greatly stimulated on the advent of the Great War, which caused a rapid rise in freightage, chartering cost, and price of ships. The gross tonnage of ships commandeered by the Allied Governments for military transport totalled approximately 23,000,000 tons. The German submarine attack and other causes connected with the War accounted for a loss of about 11,855,000 tons. For these reasons the tonnage and number of ships during the War available for commercial use were greatly decreased, and the pre-war shipping routes were seriously disorganised soon after the War commenced. It was therefore quite natural that freightage and charterage should rise to a great extent. As a consequence, an unprecedented boom occurred in Japanese shipping circles, and the ocean routes were rapidly extended to almost all parts of the world.

Meantime, the Government not only paid great attention to the development of Japanese shipping, but also strengthened the Navigation Encouragement Act, for the purpose of securing a solid foundation for future shipping competition. As a result several new fixed lines were established with the aid of the Government during the War. At the same time, shipping companies operated many lines on their own account without the Government subsidies.

This remarkable development was attained through the

¹ NUMBER AND TONNAGE OF STEAMSHIPS BEFORE AND AFTER THE WAR WITH RUSSIA (1904-5)

Year.	Number.	Tonnage.
1903	1570	662,986
1904	1815	797,953
1905	1988	939,462
1906	2103	1,116,945

Government's adequate policy of encouragement and the enormous activity of shipping companies, which was, of course, stimulated by war-time briskness. Thus, Japanese ships greatly increased in number as well as in gross tonnage,¹ which were registered respectively at 47,710 and 4,221,000 tons at the end of 1919.

After the War

At the end of the War there followed the world economic depression, and the shipping world in Japan suffered considerably, owing to the rapid fall of freightage, chartering cost and price of ships, the reasons for which may be enumerated as follows :

- (a) Completion of foreign ships which were under construction during the War.
- (b) Foreign countries' reorganisation of shipping transport which was disturbed during the War.
- (c) Release of ships on war service.

Thus, owing to the adverse state of shipping, which was made worse by the rapid decrease of freights, the shipowners found themselves in great financial difficulties, which caused many of them to go into liquidation. Take, for instance, the case of the Nippon Yusen Kaisha, which only managed to show a profit of yen 2,990,000 (27 per cent. of the total paid-up capital) on the balance sheet of 1913. This sum included a Government subsidy of yen 2,433,200. But at the height of the war boom at the end of 1918 an enormous profit was realised, corresponding roughly to 215 per cent.

¹ NUMBER AND TONNAGE OF SHIPS BEFORE AND AFTER THE GREAT WAR

Year.	Steamships.		Sailing-ships.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1913	3286	1,528,000	32,527	828,000	35,813	2,356,000
1918	4755	2,337,000	39,497	1,260,000	44,252	3,603,000
1919	5203	2,870,000	42,507	1,351,000	47,710	4,221,000

of the paid-up capital. Soon after the War, the business of the company underwent an unfavourable change, and the percentage of profit fell to 9 per cent., and even that could not have been attained if the Government subsidy, income from other sources and miscellaneous items and also from reserve fund had not been taken into account. It is therefore perfectly clear that without these extra incomes the direct revenue from shipping business would not have covered the expenses of the year during the post-war depression period. We may observe the same fact in the balance sheet of the Osaka Shosen Kaisha and the Toyo Kisen Kaisha. The above three are commonly regarded as the biggest subsidised companies in Japan.

The most noticeable thing in Japanese shipping after the War ended was that it had to face keen competition in the Pacific Ocean, owing to the phenomenal activity of the American fleet and the strong recovery of British navigation, as well as to the new establishment of Canadian luxury vessels in the Pacific. Consequently, the Toyo Kisen Kaisha suffered a great deal on its Pacific lines, and even the Nippon Yusen Kaisha had to remove its larger vessels from the Pacific service to European routes, and smaller ones were put on duty on Japan-American lines. It is obvious that other smaller companies and individual shipowners who were not members of the shipping freight league, and were without any material assistance from the Government, were experiencing a more difficult time. Before the War the tonnage owned by these unsubsidised smaller companies and private shipowners was about 1,647,000 tons (including sailing vessels), or 72 per cent. of the total tonnage at the end of 1913. They were mostly engaged in coast navigation, as foreign ships were barred from coasting in the interest of home ships. The advent of the Great War gave them opportunities to extend their operations to ocean trade, with the advantage of being more free than the subsidised companies, whose routes were generally regulated by the Government. But as soon as the War ended, the smaller companies were placed in a chaotic state, owing to the fact that, firstly, they had bought larger ships at the peak price

and had recklessly inflated business during the War; secondly, there was keen competition from both the subsidised companies and foreign ships; thirdly, the cost of ships owned by smaller companies was much higher than that of those owned by bigger ones. On this occasion an amalgamation movement was discussed by these smaller companies for the purpose of solving their problem. The movement, however, came to nothing, owing to the difficulties experienced in estimating the financial status of the various companies. Another move was then made to organise a league by which ships could be held up by mutual agreement to prevent freight charges going down. This was again unsuccessful, as the shipowners concerned could not agree as to their interests involved. The Government at this time urged them to carry on the negotiations with the object of amalgamating several of the unsubsidised companies operating at a loss. The Kokusai Kisen Kaisha and the Toyo Kisen Kaisha acted as the principal promoters in this matter, which came to nought, with the exception of the fact that five minor companies, viz. the Yasamhita, Kokusai, Katsuda, Kawasaki and Teikoku, formed a charter pool. However, the pool fell through, as many owners were not loyal to the agreement, but made secret rebates. At the end of 1923 about 90,000 tons under the Japanese flag were lying idle. Thus, both the subsidised and unsubsidised companies have been experiencing a very hard time since the War.

At present, the gross tonnage of the world mercantile marine is 66,000,000 tons, being a 30 per cent. increase as compared with that before the War. In spite of the bigger tonnage afloat, the trade of the world in general has not recovered its volume of 1913. According to the reports published by the League of Nations, it was 97 per cent. in 1933, as compared with that prior to the outbreak of the Great War. Moreover, as the vessels constructed in the post-War years are, generally speaking, more efficient than those of pre-War years in respect of speed, cargo-handling equipment, and cargo capacity, there is now a considerable surplus tonnage in international sea-borne transport, which

has caused an increase in the idle tonnage¹ in the world, although a slight improvement was witnessed at the end of 1934. Thus the world's shipping industry as a whole has shown inactivity for some time. Japanese shipping companies, however, have been enjoying better business conditions, owing to the brisk movements of cargo inspired by an increase in Japan's foreign trade in recent years. The idle tonnage, which was 182,000 tons in December of 1933, was reduced by more than 100,000 tons at the end of 1934, this representing only 2 per cent. of her total tonnage, whilst other leading shipping countries were suffering a much more severe depression of business.

Causes of Shipping Development

The present shipping capacity of Japan is still far below that of the leading countries, both in quantity and quality. However, as compared with what it was before the Japanese-Chinese War, it has made remarkable strides.

The progress is indirectly due to the fact that Japan has an advantageous geographical situation, being an island country. The change from an agricultural to an industrial country and the recent rapid development of foreign trade have encouraged Japanese shipping to a great extent. Nevertheless, (a) the Government's subsidies and encourage-

¹ FIGURES FOR IDLE TONNAGE
(Tons 1000)

Country.	December 1933.	December 1934.	Percentage to the total Tonnage.
Great Britain	2044	1367	7
United States	2845	2904	9
Japan	182	75	2
Norway	480	134	3
Germany	528	284	8
France	887	491	15
Italy	466	257	10
Holland	466	410	16
Spain	375	341	19
Others	1755	1000	—
Total	9685	7116	12

ment policy, (b) frequent outbreaks of war, (c) cheap labour, are regarded as the important direct causes.

(a) *Government Protective Policy*

It is needless to add that, of the three, the protective policy, which the Government undertook for the purpose of developing shipping in Japan, is of first importance. The Government's policy in regard to shipping encouragement has been partly described in "The Outline of Shipping Development" in this chapter and in the chapter on the shipbuilding industry, and to avoid repetition we will study here the principles of the protection afforded and its result.

The Government's navigation encouragement policy as regards protection falls into two divisions. The period from 1896 to 1909 was one of general protection, and from 1910 to the present time subsidies were granted to particular routes. The first Navigation Encouragement Act was promulgated in March 1896. This enacted that any Japanese person or persons or trading companies whose partners were all Japanese subjects owning registered steamships of iron or steel with a gross tonnage of 1000 tons or upwards and a maximum speed of 10 knots or upwards per hour, and carrying on a regular service between Japan and foreign ports, might be granted a navigation subsidy depending upon the distance run by vessels and their tonnage. In October 1899 the Amendment of this Act came into force, the main provision of it being that a full navigation subsidy was to be granted to home-built ships and a half subsidy to foreign-built ones.

In the Shipping Subsidy Act of 1910, which named the important routes and ordered companies to engage in transport according to the provisions of the Act, the Government adopted the new principle of protecting shipping. It has granted subsidies to the companies concerned ever since 1910 up to the present.

The amount of the subsidies paid since the Government commenced the protective policy had, by 1921, reached the

colossal figure of yen 176,800,000, of which yen 89,300,000 was granted to the Nippon Yusen Kaisha, yen 34,700,000 to the Osaka Shosen Kaisha, yen 35,300,000 to the Toyo Kisen Kaisha, yen 9,200,000 to the Nisshin Kisen Kaisha, yen 1,500,000 to the Nanyo Kisen Kaisha and yen 1,100,000 to the North Japan Steamship Co.

At the same time the Government paid great attention to the education of mariners. During the earlier part of the Meiji era almost all ships flying the Japanese flag were foreign built and manned by foreigners; nautical education was promptly improved, and the number of Japanese seamen and officers showed a striking increase. In 1874 licensed mariners numbered seventy-four, of whom only four were Japanese, the other seventy being foreigners; but they have now reached the figure of 92,000 licensed officers, while the number of foreigners employed is almost nil. The Nautical College in Tokio trains officers of higher rank in navigation and engineering, and there are several local Merchant Navigation Schools with a shorter course of instruction for training men and lower-grade officers.

(b) *The Outbreak of Wars*

It was not an easy task for the private companies to develop their business in the early days of shipping, even though they were encouraged by the Government with the most extensive subsidies; some of them, indeed, found at times that they could hardly carry on even with the subsidies. It was on these occasions that the outbreak of wars gave them opportunities of overcoming their difficulties. The wars in which Japan has participated up to now have developed her shipping in two ways. In the first place it was found on the outbreak of every war that the vessels which private companies possessed were not adequate, either in number or construction, to meet the national necessities. Consequently, the Government adopted the subsidy to encourage an industry of national importance. In the second place, the rise of freightage and charterage during the wars resulted in improved financial stability

and owing to the acquisition of abnormal profits and expansion of new routes, stimulated the enterprising activity of the companies. The most remarkable instance of this occurred during the Great War, the effects of which we have mentioned elsewhere.

(c) *Cheap Labour*

As in the case of all other industries, the development of shipping is partly due to low cost of labour. The wages of Japanese seamen are still much less than those of American and English seamen, although Japanese wages have been raised considerably. They were at their highest in 1921, since when gradual cuts have been made, owing to the depression, leaving the present rate of wages at a much lower level than that of 1921. It must not be overlooked, however, that wages cannot really be taken into consideration when comparing shippers' personal expenses, as the number of officers and crew differs according to the country of employment. Take the instance of a cargo-boat of 8800 tons as before: a Japanese boat, on an average, carries sixty-seven persons, owing to their small physique, while an American boat carries forty-eight, an English forty-five, and a Norwegian forty for boats of the same size. The average wages of Japanese seamen is only 44 per cent. of those of American and about 50 per cent. of those of English seamen, but Norwegian wages, on the contrary, are less than those of the Japanese. However, an adequate comparison can be made by comparing the average figures of wages per ton, by which it will be seen that Japan is yen 0.57 less than America, and only yen 0.17 less than England, but more than 50 per cent. that of Norway. Therefore, although Japanese wages per head still remain advanced, they are lower than American or English, and the actual cost of shipping in respect of wages has increased, so the advantage which was previously gained owing to the low rate of wages has consequently decreased.

Shipping Strength of Japan

The gross tonnage ¹ of steamships which Japan possessed in 1914 was 1,642,000 tons, but it increased year by year, reaching, in June 1933, 4,099,000 tons, which represents 6.2 per cent. of the world's total tonnage. So far as tonnage ² is concerned, Japan was the sixth before the Great War, following after Great Britain, Germany, Norway, France and the United States of America. However, in 1919 she advanced to the fourth place by passing France and Norway; and since 1920 she has been the largest shipping country in the world with the exception of England and America. Nevertheless, it must be remembered that there is a great difference in the figures of tonnage between the two

¹ INCREASE IN TONNAGE OF SHIPS IN JAPAN

Year.	Steamships.	Sailing-ships.	Total.
1873	26,000	8,000	34,000
1894 (Japanese-Chinese War)	96,500	45,000	141,500
1904 " Russian "	797,000	327,000	1,124,000
1913	1,528,000	828,000	2,356,000
1923	3,361,000	1,269,500	4,630,500
1930	3,968,000	1,355,100	5,323,700
1931	3,974,100	1,334,500	5,308,600
1932	3,938,300	1,309,600	5,247,900
1933	3,832,000	1,307,000	5,139,000

Notes.—The above figures do not include the ships registered in the colonies, which were 324,602 tons in 1934.

² TONNAGE OF SHIPS OF THE PRINCIPAL MARITIME COUNTRIES
(Tons 1000)

Country.	June 1914.	June 1922.	June 1933.
Great Britain	20,284	21,254	21,575
The United States	1,837	12,506	12,660
France	1,918	3,303	3,470
Germany	5,098	1,783	3,888
Netherlands	1,471	2,613	2,759
Norway	1,923	2,337	4,078
Japan	1,642	3,325	4,099
Total (including others)	42,514	56,802	66,247

last-named countries and Japan, and but a slight difference between Japan and those after her.

Together with the increase of the gross tonnage, we see that the total number of vessels decreased, whilst the average tonnage per ship increased. Prior to the Great War, ships of more than 2000 tons and under 5000 tons formed a predominant part of Japan's mercantile marine strength, but at present those of more than 5000 and under 10,000 tons take the former's position, representing 47¹ per cent. of the total tonnage.

However, the displacement of ships is not always an accurate indication of shipping strength, being only a superficial figure. Age and construction must be taken into consideration first when making the decisive judgment of a nation's shipping. It is generally known that ships which were built during the War are inferior in quality, owing to hasty construction or lack of modern equipment. Although some older ships still keep up their high rate of efficiency in spite of their age, generally the older a ship is, the less is its value. Apart from this, we notice that the recent remarkable progress in shipbuilding has generally diminished the value and efficiency of older ships. Therefore, in order to improve sea transport, the construction of modern class vessels and the scrapping of old ones are most necessary and essential.

We must consider now Japan's shipping position from the point of view of the standard age of ships—twenty-five

¹ PERCENTAGE ACCORDING TO DISPLACEMENT
(Steamships)

	1903.	1913.	1934.
Under 20 tons	0.8	0.8	0.1
20 tons and under 500 tons	15.1	11.4	5.2
500 " " 1,000 "	7.5	6.4	3.9
1,000 " " 2,000 "	19.0	12.7	7.3
2,000 " " 5,000 "	37.2	43.8	30.0
5,000 " " 10,000 "	20.1	21.1	47.0
Over 10,000	0.3	3.8	6.5
	100.0	100.0	100.0

years—which is generally recognised to be the maximum for commercial use. The number¹ of ships less than ten years old, which are the most effective and desirable in sea transport, was 53·6 per cent. of the total number of ships in 1923, and 33·6 per cent. in 1932. During the past ten years the percentage of newer ships decreased and that of older ones increased, which means that the Japanese commercial fleet declined in quality; the tonnage of the vessels less than ten years old was 645,000 tons at the end of 1934. This represents only about 15·7 per cent. of the total tonnage of Japan's ships, and is the lowest percentage² amongst the leading shipping countries of the world, with the exception of America, France and Norway.

In comparison with other countries, the strength of Japan's mercantile marine is by no means satisfactory as is shown by the gross tonnage of vessels. From a commercial as well as a national point of view, it is most desirable to keep the shipping strength as high as possible. For this reason the Japanese Government promulgated the

¹ PERCENTAGE OF THE NUMBER OF SHIPS ACCORDING TO AGE

	1923.	1924.	1931.	1932.
Under 5 years	31·7	16·9	17·6	18·0
5 years and under 10	21·9	38·8	17·3	15·6
10 " " 15	11·4	8·4	28·7	28·6
15 " " 20	8·2	8·6	9·1	9·4
20 " " 25	7·6	8·4	7·2	8·1
Over 25	18·9	18·9	19·9	19·1
	100·0	100·0	100·0	100·0

² TONNAGE OF VESSELS LESS THAN TEN YEARS OLD IN 1934
(Tons 1000)

Country.	Tonnage.	Percentage of the Total Tonnage.
Great Britain	5102·0	23·6
United States	438·7	3·4
Japan	644·2	15·7
Germany	965·7	24·8
France	495·8	14·3
Netherlands	634·1	23·0
Norway	629·6	15·4

Shipping Subsidy Act, in order to encourage shipping companies to replace old and inferior ships by new and up-to-date ones. During the three years, from April 1932 to March 1935, about 200,000 tons of ships of inferior quality have been scrapped and the same tonnage of new ones has been put into use, and the Act is expected to be extended for a further period. It is therefore obvious that Japanese shipping will be greatly improved in quality and strength in future.

Japan and the Present State of World Shipping

Since the post-War depression, shipping has been more or less inactive throughout the world, and Japanese shipping especially so during this period. Speculation was rife in Japan, business got into an unsatisfactory state, owing to bad management. Therefore the reaction came rapidly, and the slump was very severe. Some of the shipping companies were on the verge of bankruptcy at the zenith of the depression, and even the larger firms, which are usually financially solid, found themselves in an unfavourable position. This unhealthy state of affairs prevailed until 1932. But Japanese shipping has since regained its prosperity, owing to increased transport of cargo caused by the recovery of foreign trade and the cheaper freightage due to the low exchange of the yen, whilst the world's shipping business as a whole has continued to suffer from an acute depression, which is especially conspicuous in European shipping circles, whose tonnage and international trade account for approximately 70 per cent. of the world trade. In contrast to the general downward tendency which characterised the London shipping market for some time, the market in the Far East has shown a steady recovery, in which Japanese shipping companies have been fortunate enough to participate. As a result, most of them yielded enough profits to be able to make dividends, which they had been without for some long time.

In consequence, European bottoms have recently been concentrated in Oriental waters, where they expect to find business more profitable than in any other part of the

world. This tendency has been accelerated of late, and at present more than sixty vessels having a tonnage of half a million tons are operating in Far Eastern waters. Consequently, keen competition may occur amongst shipping countries if this goes on, and the industry in Japan will be seriously threatened. The causes of the European shipping encroachment in the Far East are: firstly, the depression in the business in Europe; secondly, the attraction of comparative briskness of business in the Orient; and, thirdly, the recent protective shipping policy adopted by various countries.

In regard to the last-mentioned cause, the United States, Italian, French and German governments recently introduced drastic protectionist policies. Even the British Government was moved to announce in 1935 that under the Transoceanic Shipping Subsidy Plan, the sum of £2,000,000 would be granted to freight vessels in service over one year, in addition to which the Trade Facilities Act grants low interest loans to shipowners in connection with replacement tonnage. In these circumstances, the Powers persist in maintaining and extending their own shipping interests, and keen competition will inevitably ensue.

In the meantime, the British Government announced that the protectionist policy could not be allowed to continue indefinitely, although it was necessary to deal with the present situation as an emergency measure in her own interests, though it could not remove the causes of the present shipping depression or bring about the recovery of international shipping. In this connection, British shipowners, being called upon by their Government, took the initiative in promoting an international shipping conference in 1934, at which the delegates of the leading shipping countries, representing 93 per cent. of the world's mercantile marine were present. After a series of negotiations at the preliminary conference, a formula was drafted, which the delegates referred to the shipowners of their respective countries for consideration, on the undertaking that it would not bind the parties concerned. The main points of the formula were: (1) the required total world tonnage should be 36,000,000 tons,

whereas that of the present world tonnage is about 64,000,000 tons. Even if 9,000,000 tons of oil tankers and 11,000,000 tons of ships more than twenty-five years old are subtracted from the total tonnage, a surplus of 8,000,000 tons is still left; (2) this surplus should be adjusted by means of tying up and scrapping those vessels unfit for navigation; (3) an indemnity should be paid of one pound per ton for tied-up vessels for the period of four years, the indemnity to be paid after one year has elapsed since the commencement of the actual tying-up.

The formulas are to be brought before the World Shipping Conference to be held this year. We cannot anticipate the outcome of the conference, but it is generally believed that the result will be satisfactory, owing to the fact that most of the shipping countries cannot bear an indefinite duration of the present depression and keen competition. At present not only the leading subsidised shipping companies, but also tramp companies, have been able to make comfortable dividends, which are generally expected to increase in the coming year. The shipping industry of Japan has been one of the most important items of invisible exports, receipts from which are approximately yen 150,000,000 a year. The London plan may have a direct bearing upon Japan's shipping receipts of much importance for the country. If the proposed shipping agreement is adopted and world freight rates are raised 10 per cent., it will mean that Japan's receipts will be increased by some yen 15,000,000. In fact, Japanese shipping is in such a position that it may be able to increase profits whether Japan participates in the international agreements or not.

CHAPTER II
RAILWAYS

THE railways of Japan may practically be said to have been under State control since 1906, when the railways were nationalised, as since then over 66 per cent. of the total mileage open to traffic has been managed by the Government. On the occasion of the nationalisation, the Imperial Railway Board was formed, which dealt with all matters appertaining to railways and tramways, both Government and private, and also supervised the South Manchurian Railways. The mileage of private railways at the time of nationalisation was 4090, of which the State took over 4453 miles, including 1631 miles which had previously been under State management. Since then great efforts have been made year by year to extend the national railway lines. Of the aggregate working mileage ¹ in 1932,

¹ LENGTH OF RAILWAYS IN JAPAN
(Kilometre)

State Railways

Year.	Japan Proper.	Korea.	Formosa.	Saghalien.
1927	11,341	2342	979	253
1928	11,565	2550	979	297
1929	11,977	2739	998	297
1930	12,305	2780	999	343
1931	12,732	2996	999	343
1932	13,134	3131	1004	343

Private Railways

Year.	Japan Proper.	Korea.	Formosa.
1927	4904	828	2136
1928	5276	753	2156
1929	5599	821	2185
1930	5952	1073	2237
1931	6083	1142	2226
1932	6113	1139	2282

(1 Kilometre = 0.62137 mile.)

8161 miles represented those in Japan proper, 623 in Formosa, 1945 in Korea, 213 in Japanese Saghalien and 686 under the South Manchurian Railway Co., making a total of 11,628 miles. Besides this, 5924 miles of private lines are open to traffic in accordance with the law regarding light railways.

Government Railways

(1) Before Nationalisation.

The pioneer railway of Japan was constructed by the Government during 1870-2 between Tokyo and Yokohama, a distance of some eighteen miles, after which other schemes for linking up the larger cities of importance were formed and worked in succession. At the very beginning one of the most important questions was that of the gauge, for the decision arrived at would decide the whole railway system of Japan in the future. The construction under the broad gauge of 4 ft. 6 in. was discussed at great length, but in view of the topographical, financial and other conditions of the country, the narrow gauge of 3 ft. 6 in. was adopted, and is now universal in Japan. In 1874 the Osaka-Kobe line of about twenty miles was opened to traffic. Two years later a line from Osaka to Kyoto of about twenty-seven miles was also completed. For a few years after 1876, owing to civil trouble and the Formosan expedition, which needed the urgent attention of the Government, railway construction was practically at a standstill.

However, it was not long before the Kyoto-Otsu line was completed, and by this time the Government had once more become active in the matter, and floated loans and appropriated the funds necessary for the work they projected. The Kyoto-Otsu line is worthy of note since it was the first line constructed by Japanese engineers without the aid of foreign experts; and, moreover, the work was comparatively difficult, as it involved the first tunnelling undertaken in Japan. In Hokkaido the Otaru-Horonai section was opened in 1882; but it was not until 1898 that a through main line between Tokyo and Kyoto was established, the distance being 328 miles. Meanwhile, a branch line was

opened, and an inland line between Takasaki and Naoyetsu was approached from both sides of the Usui Pass, and each section was opened to traffic in 1887. For the Pass it was decided to adopt the Abt system, and with the completion of this portion in 1893 direct communication from Tokyo to the Sea of Japan was established.

The programme of railway construction now took definite shape, and the law relating to it was passed in 1892. It divided up the routes into several construction sections, and those of more immediate importance were singled out and included in the first period construction programme. In pursuance of this programme, work was started at once on several sections. For Hokkaido a special law of railway construction was enacted in 1895, in order to facilitate colonisation and the working of collieries. Though the progress of all this work was more or less affected by the war with China, and then by the economic disturbance which ensued on the termination of the war, it was on the whole successfully carried out, so that by April 1st, 1905, the total length of the Government railways was no less than 1470 miles.¹

(2) *Railway Nationalisation.*

✓ Prior to 1906 the Government had made salt, tobacco and camphor State monopolies for the purpose of increasing the national revenue. The experiment was successful so far as the national revenue was concerned, and for the

¹ MILEAGE OF RAILWAYS IN JAPAN PROPER BEFORE AND AFTER NATIONALISATION
(Mile)

Year.	State.	Private.	Total.
1872	18	—	18
1892	557	1322	1879
1902	1226	3010	4236
1905	1470	3283	4753
1906	3116	1691	4807
1907	4453	445	4898
1910	4869	485	5353
1911	5043	562	5605

same reason the Government decided to nationalise all private railways. It was also considered advisable that railways should be constructed for public utility even in remote districts, where they could not be commercially remunerative and where private companies could not be expected to undertake their construction. The Railway Nationalisation Bill was laid before the Twenty-second Session (1905-6) of the Diet by the Government, and was passed with some modifications. It was the prime policy of the Government to place all the main lines under one control, so that, while granting charters to private concerns, the right of purchase was always reserved. Seventeen private railways were thus purchased by the Government in 1906-7, the purchase being made by domestic loan bonds issued for the purpose. The purchasing price was fixed at twenty times the average profit during the previous six half-year terms. But if in the case of those railways which had not been open for the six business terms, the purchasing price did not come up to the cost of construction, it was to be settled by mutual agreement, and was not to be less than the cost of construction.

The private railways thus nationalised were the Hokkaido Collieries, Kobe, Nippon, Sanyo, Kyushu, Hokuyetsu, Sobu, Kwansai, Sangu, Ganyetsu, Nishinari, Hokkaido, Kyoto, Hankaku, Boso, Nanao and Tokushima, seventeen in all, which constituted the trunk lines. The total price paid amounted to yen 481,981,000, of which some yen 2,658,000 was paid for subsidiary enterprises, such as shipping, warehousing, etc., and the traffic mileage was 2822 with capital invested amounting to yen 108,763,000. Thus, all the important railways constructed for public transport came under State control. At the end of 1911 the Imperial Railways possessed no less than 5043 miles under traffic.

After private railways were nationalised the traffic system was brought under uniform control. The service has been vastly improved, and the volume of traffic has shown a steady advance year by year, indicating how much this important service of transport has contributed

to the general prosperity of the country. The results of nationalisation may be pointed out as follows :

1. The improvement of the service.
2. The extension of railways to remote districts which private companies could hardly exploit.
3. The lowering of passenger and goods tariffs, in spite of advanced wages and other expenses.¹
4. Profits amounted on an average to 5·8 per cent. of the capital invested, in spite of the greater outlay, and the Railway Department is enabled to meet the colossal amount of interest on Railway Loans, subsidies to private railway companies and the reserve fund for construction and improvements.

At the completion of nationalisation the total income was yen 69,776,000 in 1907, of which yen 35,026,000 was passenger receipts and yen 25,085,000 goods receipts. One thing noticeable about Japanese railways is that whereas in most other countries the volume of goods traffic and the receipts therefrom constitute the chief item of revenue, in Japan the reverse is the case, as the volume and receipts of passenger traffic always surpass those of goods traffic. This is particularly true of the railways in the central and western parts of the main island. But in Kyushu and Hokkaido, traffic conditions are somewhat different: for the former contains the extensive coal-producing districts, whilst the latter is as yet sparsely populated in spite of its natural resources.

The accounts of the Government railways were set apart from the general State finance from the fiscal year period 1909-10 to 1921. During this period all the disbursements were to be met from revenue accruing from the capital, whilst expenses of construction and improvement were to be met from profits. In the event of any deficit, however, loans were to be raised, on the condition that the Government railways were required to transfer to the Government

¹ Passenger rate per mile was reduced by one sen (*1d.*) for third class, 25 per cent. for second and 50 per cent. for first, for distances over 50 miles.

Sinking Fund Account every year a sum sufficient to meet the interest on such loans and to repay the prescribed instalment of capital.

3. *The Present State of the Government Railways.*

Since the railways came under State control the total traffic mileage has increased from 4453 miles in 1907 to 8161 miles at the end of 1932, an extension of 3708 miles, or an addition of 148 miles a year during the last twenty-five years since nationalisation. At the same time, the number of passengers and volume of freight increased, and the income accruing from the railway traffic rose correspondingly from yen 69,776,000 in 1907 to yen 425,954,000 in 1932, making the profits yen 160,872,000 after the total expenditure of yen 265,082,000 had been deducted.

Private Railways

The first private railway in Japan was built by the Japan Railway Co. between Tokyo and Aomori with a branch line to Takasaki. The company was formed in November 1881, as a joint-stock concern, with a capital of yen 20,000,000. It was rather a rash undertaking at the time, for sufficient experience of the work had not then been acquired, and the length of the line, which extended over 500 miles, necessitated a large outlay. Moreover, there were no data available on which to make a reliable estimate of profit and loss, so that the Government guaranteed, in compliance with the request of the company, a fixed rate of dividend for a certain number of years, and gave every possible assistance for the furthering of the work. By the end of 1891 the whole of the projected work was finished.

In 1886 two large companies were formed under the name of the Sanyo Railway and the Kyushu Railway Co., the former with a capital of yen 13,000,000 to connect Kobe and Shimonoseki, and the latter with a capital of yen 11,000,000 to connect Moji, Nagasaki and Yatushiro. A subsidy was also granted by the Government to both companies. Other private companies were formed in 1888 in

the vicinity of Tokyo. In the districts adjoining Osaka the Hankai Railway Co. (now Nankai Railway Co.) was formed in 1884, the Kwansai Railway Co. in 1888 and the Sangu in 1890.

In Hokkaido there appeared in 1889 the Hokkaido Collieries Railway Co., which purchased the Government Otaru-Horonai line, and secured a charter for the construction of the Muroran and Yubari lines. In Shikoku there was established the Iyo Railway Co. in 1886, and the Sanuki in 1888, the latter being subsequently affiliated to the Sanyo Railway Co. With these there came into existence, in Kyushu, the Chikuho Railway Co. in 1889 and the Hoshu in 1890, both of which, however, were later amalgamated with the Kyushu Railway Co.

The years immediately before and after 1890 were a period characterised by numerous undertakings of this sort. In view of these circumstances, the Government gradually ceded to private railway companies the greater part of the projected lines left after selecting the so-called first-period construction programme. Naturally, the mileage under traffic of private railways went on increasing until the end of 1905, when it registered 3283 miles. But with the nationalisation of railways in the following year private activity in this field of enterprise was reduced to dealing with only local requirements. At the end of 1910 the number of private railway companies, including light railways, was fifty-nine and the total mileage only 484 miles. But after the nationalisation, the Government offered special facilities to private companies for the construction of branch lines, parallel with the construction of the State railways. The Railway Mortgage Law authorises a railway company to use its line as an object of mortgage. The Law of Light Railways makes the promotion of the enterprise much easier for the persons interested. Needless to say, the subsidy system on private railways encouraged their development. As a consequence, the recent progress of private railways shows striking figures, the number of companies being 357, the total amount of authorised capital yen 1,495,468,000 in 1933 and the total mileage 5924 in the same year.

Recent Economic State as shown by Railway Traffic

As described above, railways in Japan have been greatly extended and their services considerably improved in every respect. Railways are the principal method of land transport in Japan, as motor services are not yet fully developed, because of the unsatisfactory condition of the roads, although the use of the new vehicles has been greatly extended during the past few years. Thus the activities of the railways in Japan reflect to a great extent the economic state of the country.

According to the statistics, use¹ of railways for passenger as well as goods traffic during the recent period of depression 1930-2 showed a conspicuous decrease as compared with the pre-slump years, and the revenue decreased correspondingly. However, this decline seems to have stopped in 1933, and the figures show a tendency to recovery. In fact, the industry and trade of Japan have regained their activities since 1933, and it is expected that the figures for 1934 will exceed those of the pre-slump years.

¹ RAILWAY TRAFFIC (STATE RAILWAY)

Year.	Passengers. (1000.)	No. of Passengers per 1 Km. (1000.)	Goods. (Tons 1000.)	Volume of Goods per 1 Km. (Tons 1000.)	Receipts.	
					Passenger per 1 Km. (Yen 1000.)	Goods per 1 Km. (Yen 1000.)
1928	847,300	74	79,768	7.0	25.1	19.4
1929	862,939	74	77,230	6.6	24.1	18.8
1930	824,153	69	64,087	5.3	21.3	15.4
1931	787,222	63	60,591	4.9	19.5	14.3
1932	781,150	61	61,733	4.8	18.3	13.9
1933	841,315	64	71,971	5.4	19.3	15.0

(Km. = Kilometre.)

PART VI

ELECTRICITY IN JAPAN

ALTHOUGH the present day is the age of electricity, not so long ago the industry was practically unknown. Now it has grown so widely and effectively that not only the industrial and transport worlds, but also the ordinary life of the people are almost dependent upon electricity, which provides power for industrial plants and light and heat for the multitude. Some of the present highly advanced surgical treatments can only be carried out with the aid of electricity. Further improvement of railways is not possible unless they are electrified. Japan is indeed fortunate in having such immense possibilities for the future development of hydro-electricity, with which she will be able to supplement her poor fuel resources of coal and oil.

Fire Electricity

Though it is a comparatively new enterprise, the electrical industry in Japan has developed remarkably during recent years, and has attained the position of being one of the most promising in the Japanese industrial world. The start of this industry was as early as 1878, but from a commercial point of view the Tokio Dento Kabushiki Kaisha (Tokio Electric Light Co.), which was formed in 1883, is the first landmark in its history. Between 1883 and 1892 eleven companies were formed, with an aggregate capital of yen 2,477,000. After the war with China (1894-5) the industry made further progress, in spite of the financial depression which followed. At the end of the war the number of companies was as many as forty-seven. It is important to note that before the Japanese-Russian War (1904-5), the electricity generated in Japan was principally fire-power, as the water-

power was still being used only on a small scale. However, as the price of coal, which is the main fuel for generating electricity, soared, the industry had to face considerable difficulty, and companies' profits consequently fell. This was one of the main causes of the rapid growth of hydro-electrical undertakings. According to the reports of the Tokio Electric Light Co. on this point, the cost of coal became an enormous and ever-increasing charge on the revenue of the company.

Apart from this, an immense demand for electric light arose after the war with Russia. The number of lights used in 1908 showed a three-fold increase on the number used in 1903; the power of electric motors increased four-fold; and about 120 new companies were established in quick succession during that period of nearly six years. The development of this industry at that time was phenomenal. As to the capital invested in it, the paid-up capital in 1908 figured at more than four times that of 1903; the authorised capital was also five times more, and the amount of loans and borrowed money reached almost five times as much. Counting the capital of the companies being floated, the total figured at yen 227,542,000 in 1908, which with the exception of banking investments was the greatest sum invested in any industry. In consequence of this, big companies sprang up with a capital of over yen 15,000,000 each, and generating was undertaken on a large scale. In fact, there were three companies with a capital of over yen 10,000,000 each and another three with over yen 5,000,000 each.

Five to Hydro-Electricity

Owing to the rise in coal prices after the war with China, the electric supply industry in Japan, which mainly depended upon coal, very quickly took to utilising water, and this tendency was very significant before and after the Japanese-Russian War. If we examine the number of companies concerned and the total current-power of each during this period, it will be noticed that water-power

electricity showed a greater development than did fire electricity.

The start of hydro-electricity in Japan was much later than that of fire electricity, although the former was introduced before the Japanese-Chinese War, 1894. The first attempt of the electric supply industry was in 1892, when the Kyoto Municipality constructed a power station near the canal of Biwa Lake, making use of the canal water. This was merely a trial, but it proved so successful that the municipality went farther, and completed the construction of a 2000-horse-power system in 1898. Stimulated by this success, many hydro-electric enterprises were promoted. After the war with Russia, owing not only to the rise in price of coal, but also to the low cost of maintenance and to good management, water-power electricity tended to take the place of fire-power, in spite of the big outlay on construction necessary at the start. Electric light generated by water-power could be supplied between 30 and 40 per cent. cheaper than fire electricity, and yet it was pointed out that it was easy, on top of that, to make 20 to 25 per cent. profit a year. Thus, fire electricity was no longer a competitor with hydro-electricity from the business point of view. Directly after the war with Russia big hydro-electric companies were promoted in quick succession, and the present progress of hydro-electricity dates from that time.

Prior to this, the Electricity Supervision Rules were issued, and in 1910 the Government appointed an Investigation Committee on hydro-electricity, to inquire into the prospects of the development of that industry. The Committee issued an interim report after a three years' investigation all over Japan, according to which the available places for water-power generation were 850, from which a total horse-power of 2,295,000 could be obtained. It was, however, firmly believed at the time of this investigation that the total horse-power available from these sources was nearly 5,000,000, including the 2,339,300 horse-power from projected works which had been authorised. In 1921 a second investigation was made, according to which

the total horse-power could be 7,850,000. Thus, the possibilities of water-power electricity in Japan are colossal, owing to her special geographical features and her large rainfall, the average of which is 1700 millimetres a year, or twice as much as the world's average rainfall, which is 800-900 millimetres.

In addition the progress of technical and scientific knowledge in electricity was considered good. The Tokio Electric Light Co., whose plant was constructed near the River Katsura, was one of the largest power stations in those days. It was of 22,500 horse power, water volume 750 cubic feet and height of waterfall 345 feet at the time of its construction. The success of the work in connection with transmission of electricity from the power station to Tokio, a distance of fifty miles, was a noteworthy achievement at this early stage of the industry. Stimulated by the satisfactory result, other companies began to engage in the work on a larger scale. In 1914 the Inawashiro Hydro Electricity Co. was successful in transmitting high-pressure electricity of 115,000 volts from the lake of Inawashiro to Tokio, a distance of over 150 miles. This was the third largest transmission achievement in the world at that time.

The electricity supply industry continued to make rapid progress before the War, especially in water-power, and after the War the development was particularly striking. During the twenty years from 1914 to 1933 the total paid-up capital is estimated to have increased by yen 3,033,852,000, or 659 per cent., *i.e.* yen 460,355,000 in 1914 and yen 3,494,202,000 in 1933. Electric-power consumption jumped from 716,000 kilowatt in the former year to 5,080,000 kilowatt in the latter, an increase of 614 per cent.

In fact, during the past twenty years the generation of electricity by water-power has grown apace, and has outstripped fire generation. According to the following table, both fire- and water-power electricity were almost parallel before the War, but soon after, the latter went ahead, with the result that 62.3 per cent. of the total electricity power in Japan at the end of 1933 was generated by water-

power. Although fire-power has taken a secondary position, its necessity is increasingly recognised, as hydro-electricity develops, since climatic conditions in Japan cause drought in winter and summer, during which seasons the supply of water-power declines and fire-power has to be used to make up for the insufficiency of the former.

INCREASE OF ELECTRIC POWER
(Kilowatt 1000)

Year.	Water-power.	Fire-power.	Total.	Percentage.	
				Water.	Fire.
1912	233	229	462	50.4	49.6
1913	322	275	597	53.9	46.1
1914	449	267	716	62.7	37.3
1923	1307	755	2062	63.3	36.7
1930	2798	1602	4400	63.6	36.4
1931	3057	1600	4657	65.6	34.4
1932	3106	1827	4933	62.9	37.1
1933	3168	1912	5080	62.3	37.3

Note.—This table does not include the figures under construction. At the end of 1933 there were 180 water-power stations and thirteen fire-power stations, and on their completion the power of 1,504,000 kilowatts and 418,000 kilowatts could be supplied respectively.

The Present State of the Industry

As, owing to its nature, the industry requires a large fixed capital, the sum invested is enormous, the authorised amount being 4,511,000,000 yen at the end of 1933, and a further increase of investment is expected year by year. The companies engaged in this industry fall roughly into five classes: (1) companies supplying electricity for general purposes, (2) electric railway companies, (3) those supplying power to (1) and (2), (4) those engaging in both (1) and (2), and (5) those engaging in both (2) and (3). According to this classification, their financial and business condition is shown in the table on p. 207.

Judging from that table, the companies engaged in the electric power supply showed better results than electric railway companies. The former were reported to have had more satisfactory business in 1934, and the prospect

for coming years seems bright. On the other hand, the latter had to suffer from the depression during 1930-2, and have not yet regained their activity to the same extent. Besides, the railway companies are not authorised to alter their charges without the sanction of the Government; therefore, their business completely depends upon the amount of goods and number of passengers, which were greatly reduced during the depression.

FINANCIAL STATE OF THE ELECTRICAL INDUSTRY

	Authorised Capital.	Paid-up Capital.	Fixed Assets.	Debentures and Loans.	Net Profits.	
					(Yen 1000.)	Percentage of Paid-up Capital.
Class 1 .	1,543,130	1,116,845	1,856,542	877,306	72,020	6.4
.. 2 .	669,242	459,171	720,059	311,646	9,760	2.1
.. 3 .	197,425	122,952	221,187	86,291	6,501	5.3
.. 4 .	2,094,864	1,788,931	2,388,421	1,024,574	94,523	5.3
.. 5 .	7,000	6,300	8,441	1,450	293	4.7
Total	4,511,663	3,494,202	5,194,702	2,301,268	183,094	5.2

Note.—The above figures are those at the end of 1933.

In consequence of the wider use of electricity, such as railway electrification, an increase in the use of electric light and an increasing demand for electric power for various industries, the power-supply companies are in a better position. About forty years ago, at the rise of the industry, electric light was not generally used by rich and poor, because it was much more expensive than oil lamps. But as the industry improved and the construction of works was extensively undertaken, the convenience of electricity gradually became known, and was followed by a rapid increase of consumers. As the number of users increased, the companies consequently were able to make a reduction in the cost of lighting. At the same time, competition between electric and gas companies became very keen, so that prices were forced down still lower, and electricity then became popular. The number of consumers increased year by year. The average

number of electric lights ¹ per 100 head of the Japanese population was 54.9, and 3.2 per family in 1933. Further increase in demand is left to the industrial sphere, which will widen as industries develop. In 1933, the percentage of the total power supply was 11 for light, 56 for various industries and 19 for others. Out of the total supply for industries, the chemical industry ² consumes more than 560,000 kilowatts, representing 17 per cent. of the power consumption of industries.

The most significant thing devised during recent years is the movement towards combination by the companies concerned. Of those combined, the Tokyo Electric Light Co. (paid-up capital yen 429,500,800) in the Kwanto district, the Toho Electric Power Co. (yen 130,000,000) in the Kwansai and Kyushu district, the Japan Electric Power Co. (yen 106,600,000) in the Osaka district and the Daido Electric Power Co. in the Central district, are the representative ones.

It is undeniable that a cheap supply of water electricity

¹ INCREASE IN THE NUMBER OF ELECTRIC LIGHTS
(End of each year.)

Year.	Number.	Number per 100 Head.	Electric Power. (Kw.)
1910	1,946,047	3.8	68,000
1914	6,994,440	12.9	158,000
1923	21,690,000	35.9	433,800
1933	38,382,800	54.9	558,800

² POWER CONSUMPTION OF INDUSTRIES (1933)

	Kilowatt.	Percentage.
1. Chemicals	562,361	17
2. Textiles	516,188	16
3. Mining	366,278	11
4. Foodstuffs	291,247	9
5. Metal Products	258,718	8
6. Ceramic Products	170,478	5
7. Engineering	147,944	4
8. Lumber and Wood Products	135,497	4
9. Others	785,069	26
10. Total	3,255,735	100

is urgently needed at present, not only as a solution of the fuel question, but also for the modernisation of railways and simplification of life. As improved technical appliances are adopted and a scientific system of management is undertaken, new and greater demands for electricity may follow, not only for lighting and heating purposes, but also for manufacturing, mining, transport and all other industries. A cheap supply of electricity will play a large part in the future development of Japanese industries.

PART VII

FOREIGN TRADE

I. BRIEF DESCRIPTION

THE development of Japanese foreign trade¹ from the Meiji era to the present time may be divided into five periods, not only as regards increase of volume and value, but also character and distribution. The first embraces the years 1868-93, from the Meiji Restoration to the year before the Japanese-Chinese War, during which period the foundation of the new era was constructed by the introduction of Western civilisation. In the second period, 1894-1913, the development of industry was successfully achieved, and the expansion of trade was significant; investment of foreign capital was noteworthy, but caused

¹ EXPORTS AND IMPORTS OF JAPAN

Years.	Exports (yen).	Imports (yen).
1868-1872 (average)	15,799,600	22,661,400
1873-1877 "	22,124,400	26,585,400
1878-1882 "	30,267,000	32,618,000
1883-1887 "	42,113,600	32,768,800
1888-1893 "	77,118,000	72,466,000
1894-1898 "	139,200,000	223,040,000
1899-1903 "	243,880,000	270,406,000
1904-1908 "	377,040,800	441,879,200
1909-1913 "	495,683,000	544,132,800
1914-1916 "	808,895,000	628,203,700
1917-1919 "	1,887,992,300	1,625,904,300
1920 "	1,948,395,000	2,336,175,000
1921-1924 "	1,536,268,700	1,985,024,000
1925-1927 "	2,114,211,000	2,376,432,000
1928-1930 "	1,863,475,300	1,986,208,000
1931-1933 "	1,472,673,000	1,528,118,000
1934	2,171,924,600	2,232,530,600

adverse trade. In the third, during and after the Great War, trade expanded to an unprecedented extent, and a period of favourable trade was recorded. Industrialisation of enterprises began in all lines, founding the present industrial development. The fourth period is that of post-War depression from 1921 to 1927, during which financial reorganisation and industrial readjustment were successfully undertaken, and rationalisation was carried out to the fullest extent. The fifth covers the period from 1928 up to the present, and marks the striking development of industrialisation and remarkable expansion of the foreign trade of Japan!

The total value of Japan's foreign trade in 1868 was yen 15,553,000 in exports and yen 10,693,000 in imports. In the following fifteen years it more than doubled in value. During these years an excess of imports was shown, but in 1882 the "favourable" trade period commenced and continued up to 1893, or until just before the Japanese-Chinese War. The resumption of specie payments was effected in 1885, and the long-depreciated paper notes were brought to par with silver. The conditions of foreign intercourse were reorganised, and Japan obtained full control of her Customs. National economy was successfully reformed by the introduction of Western methods. This, together with restored confidence in the stability of the medium of exchange, gave new and vigorous life to commerce and industry in Japan. With 1885, the Japanese foreign trade not only entered upon a period of remarkable progress, but changed its character and geographical area. From 1888 the total value of foreign trade again increased rapidly year by year. Prior to 1890 exports had been merely the overflow of the surplus products of the country; but many new industries then came into existence owing to the increase of foreign demand, and the export of manufactured goods began to exceed that of raw materials, with the exception of raw silk.

During the second period there were several significant occurrences, the first being the Japanese-Chinese War (1894-5), which caused trade to increase by leaps and bounds. The average value of exports (1894-8) was yen 139,200,000

or an 80 per cent. increase compared with that of 1888-93; that of imports was yen 223,040,000, a 207 per cent. increase.

Through vital necessity, experienced during the war, the first protective tariff was put into force to foster home industry, especially the steel, machinery, shipbuilding and chemical industries, for the purpose of making Japan independent of foreign supplies, and, on the other hand, of developing her export trade.

The second significant event during this period was the Japanese-Russian War, two years after which the usual war boom was experienced, and the enormous figures of yen 432,412,000 of exports and yen 494,467,000 of imports were reached in 1907. In 1911 a higher tariff was imposed on foreign goods, as greater protection was thought absolutely necessary, in order to improve and develop further Japanese industries, which had now achieved an important position in the national economy. The average value of exports and imports during 1909-13 was yen 495,683,000 and yen 544,132,800 respectively, increases of 256 per cent. and 144 per cent. compared with 1894-8.

✓ The third period commenced soon after the Great War broke out, and an unprecedented demand was experienced for Japanese manufactured goods. During the greater part of the five years after 1915, Japan's foreign trade increased, owing to the absence of competition and also to keen demand from all over the world for Japanese goods, in spite of their inferiority. The value of exports in 1919 was yen 2,098,872,000, and that of imports in 1924 yen 2,453,390,000, the highest figures for each recorded since the Meiji Restoration.

According to the Report of the Department of Finance, the total value of trade was yen 75.95 in 1919 and yen 25.52 in 1913 per head of the whole population of Japan, while some twenty years ago the figure was only yen 4.30.

The fourth period commenced in 1921, when the world-wide financial depression came and war-time advantages disappeared and foreign competition revived. Then the mushroom industries of Japan had to meet reverses. As a consequence, not only have the figures of foreign trade since

1919 shown a decrease, but the "adverse" trade balance has continued ever since that year.¹

It is needless to explain that owing to the heavy rise of prices since the Great War, trade, despite its apparent increased value compared with pre-War figures, cannot be said to show an actual increase. In order to show this, the quantity of goods imported and exported must be revalued on the basis of pre-War figures, and then it will be seen whether the trade has increased or decreased. It is, however, hardly possible to furnish an accurate total revaluation in this way, as some items in the Japanese Trade Returns are not described in quantity. Therefore, we take the index number of prices as an alternative method of revaluation. Although not entirely satisfactory, it furnishes a rough method of estimating the actual value of trade.

The following table was made on the basis of the index number of the Bank of Japan, and shows the value of foreign trade in 1919-24 as compared with 1914:

REVALUED EXPORTS AND IMPORTS OF JAPAN

Year.	I.N.*	Exports. (Yen.)	Per- centage.	Imports. (Yen.)	Per- centage.
1914	126	632,460,000	100·0	729,431,000	100·0
1919	312	848,262,000	133·9	877,743,000	120·3
1920	343	713,653,000	112·8	858,157,000	117·6
1921	265	591,915,000	93·5	767,484,000	105·2
1922	259	696,606,000	110·1	966,679,000	132·5
1923	263	784,481,000	123·9	866,839,000	120·2
1924	273	804,804,000	127·2	1,132,301,000	155·2

* Index-number of wholesale prices, 1900 = 100.

1. EXPORTS AND IMPORTS OF JAPAN IN 1913 AND SINCE THE ARMISTICE

Year.	Exports. (Yen 1000.)	Imports. (Yen 1000.)	Excess of Imports over Exports. (Yen 1000.)
1913	632,460	729,431	96,971
1919	2,098,872	2,173,459	74,587
1920	1,948,394	2,336,174	387,780
1921	1,252,837	1,614,154	361,317
1922	1,447,749	1,987,063	539,314
1923	1,637,450	1,890,308	252,858
1924	1,809,233	2,453,390	646,157

According to the above table, the percentage of 1920, when the nominal figures of trade reached the highest total since the Restoration, showed only a 12.8 per cent. increase in exports and a 17.6 per cent. increase in imports, compared with those of 1914, in spite of the total nominal value being three times larger than the pre-War one. It is noticeable that 1921, the worst year of the depression, showed less exports than 1914. By 1922-4, economic Japan had not freed itself from post-War readjustments, and therefore could not be otherwise than dull and stagnant. However, during those years trade increased substantially compared with 1914, and the actual increase in 1924 was 27.2 per cent. in exports and 55.2 per cent. in imports, the latter of which was undoubtedly due to the purchase of reconstruction material for damage caused by the earthquake of September 1923. The suddenness of the earthquake in Tokio and Yokohama and the surrounding regions caused an overwhelming disturbance in every department of national economy. As a consequence, the staple exports in stock, such as raw silk and silk tissues, were destroyed by fire, while the capacity for producing cotton yarn and fabrics as well as other articles was impaired. So far as silk and cotton are concerned, the export of raw silk in 1923 showed a decrease of 15 per cent. and of cotton yarns 31 per cent. compared with those of the previous year. On the other hand, in addition to a great increase in the demand for wool and woollen yarns, the import of foodstuffs, building materials, etc., made necessary by the disaster also increased since the earthquake. Thus, throughout the year 1924 imports continued to exceed exports to the unprecedented amount of yen 646,157,000. This is the largest deficit on record for Japan. Thus, through the post-War world-wide depression, coupled with the great earthquake, Japan was plunged into grave economic disorder. But this state of affairs forced her to readjust and reorganise her industry and trade, which were recklessly expanded during the War boom. The worst time of the depression came at last in the spring of 1927, in which year a complete and efficient re-arrangement was carried out following the prolonged economic

troubles. Financial and commercial conditions were again brought back to a normal state through large-scale work of rationalisation. In fact, the period of 1921-7 was a most severe test, but Japan managed to pass through it, and she was also enabled to make thorough preparations for her future progress.

The fifth period covering the time from 1928 up to the present, marks the age of the most highly developed industrialisation ever attained in Japan's economic history, and the remarkable expansion of her foreign trade, now regarded as a world-wide menace, with which she has succeeded in building up the present industry and trade. Whilst the rest of the countries of the world are more or less suffering economic inactivity, Japan alone can maintain her prosperity at a higher ratio than that of any other country.

2. CHANGE IN COMMODITIES

The change in the economic position and the modern tendency towards industrialism in Japan have consequently brought about a great alteration in the character and distribution of foreign trade. Japan was never in any real sense a country of commerce and industry before the Great War. For a long time after the Restoration, the Japanese export trade consisted for the most part of raw material, and the manufactured articles exported were confined to a few special products of manual work; on the other hand, imports were exclusively manufactured goods. After a lapse of seventy years, however, the situation has completely changed. According to the figures for 1934, the export of raw material, foodstuffs and drink, unfinished goods (including raw silk) and wholly manufactured and miscellaneous goods was in proportion of 4.4, 9.3, 23.0 (13.1 for raw silk), 62.0 and 1.3 respectively, while the corresponding figures for imports were 61.3, 7.7, 18.8, 12.2 and 0.51.

Examining exports and imports in greater detail, we find that a notable change has taken place in the relative importance of different commodities. During the earlier

part of the Meiji era the principal exports consisted of raw silk, tea, bamboo manufactures, mattings, wax and some marine products. With the single exception of raw silk, which still heads the list, these commodities have lost much of their importance, and their place has been taken by cotton yarn, sheetings and shirtings, other cotton goods, silk tissues, hosiery and artificial silk goods, coal, porcelain and earthenware, matches, paper, sugar, the products of chemical and heavy industries, and a number of manufactured articles. Among imports, cotton and woollen goods, guns, raw cotton, and sugar were the main articles at the beginning of the Meiji era. At the present time, raw cotton stands highest, being followed by iron and steel manufactures. Foodstuffs such as rice, wheat, soya beans, oil cake, raw wool and woollen yarns have become large items.

Exports of Raw Silk and Manufactured Goods

Needless to say, raw silk is Japan's outstanding staple product. It came first among all Japanese exports, whether agricultural or manufactured, until exports of cotton goods exceeded the former in 1934. The highest recorded value of raw silk exported was yen 568,000,000 in 1922, that was about 41 per cent. of the total exports of the year, while ten years ago it stood at yen 189,000,000, and twenty years ago at yen 77,000,000. The increase in raw silk export was mainly due to a greater consumption in America. Without the American demand for Japanese silk, the increase would most probably not have proceeded at such a rate. In fact, the recent reduced demand in that country owing to the economic depression has affected the industry in Japan a great deal, resulting in the fall of prices and a decrease in silk output. Although the industry has lost its prestige owing to its temporary decline and the steady growth of the cotton industry, it will regain its old position when America recovers her normal economic state. Furthermore, Japan has held, and will probably still continue to hold, the position of chief supplier of raw silk to the international market.

For the purpose of making a clear analysis of the export

trade, raw silk should be separated from other unfinished articles, since the change in the value of raw silk exports is not a direct reflection of the internal progress of the industry in Japan, as the fluctuation in silk prices has been vast, and the industry has been holding a special position, which differs from the international competitive nature of other goods.

PERCENTAGE OF EXPORT TRADE

	1912-14. (Average.)	1915-18. (Average.)	1919-22. (Average.)	1923.	1934.
1. Food and drink . . .	10.3	10.5	6.8	6.3	9.3
2. Raw materials and un- finished articles . . .	30.8	28.2	18.4	14.8	14.3
3. Raw silk	28.6	21.6	30.9	39.2	13.1
4. Wholly finished articles	29.1	37.1	42.4	37.4	62.0
5. Miscellaneous	1.2	2.6	1.5	2.3	1.3

In looking over the foregoing table, we notice the remarkable change in character of the export trade which has taken place before and since the War. It is hardly possible to overlook the striking change which has occurred between (1)-(2) and (3)-(4) in the course of the past twenty-two years. Number (2), which held the highest percentage amongst all others before the War, not excluding raw silk, fell rapidly to less than half the pre-War percentage, and the same steady downward tendency will be seen in number (1). This undoubtedly shows that the increase of population in Japan and the check to agriculture caused by other industrial development in recent years have created a great demand for home-produced foodstuffs and have checked their exportation. Before the War, materials were exported in a raw and unfinished state and re-imported as finished goods, as the industries in Japan at that time were not developed sufficiently to turn out finished goods. But this state of affairs changed rapidly after the War, and half of what Japan used to export in an unfinished state she now retains for manufacturing purposes.

The matter can be seen more clearly if we look at the details of (1) and (2) above. The principal items in (1) are tea, marine products, beans, peas, sugar and beer,

the value of which amounts to almost 85 per cent. of the total export of (1) in 1934. Tea produced in Japan is mainly green tea, and differs greatly in flavour and bouquet from that of China and India, appealing more to American than to European taste. In spite of the strong rivalry of Indian, and Chinese tea, the market for Japanese tea has been quite favourable, especially in the Formosan tea trade. The total export of tea was yen 10,075,000 in 1913, yen 16,013,000 in 1923, and yen 9,557,000 in 1934, of which 50 per cent. was consigned to America. Although the value of this is not small, tea can hardly be said to be an indispensable article, but rather a luxury.

In contrast to the check experienced by agriculture, the fishing industry in Japan seems to have great future prospects, because of the vast improvement in the storing system of marine products and of the many fishing-grounds round Japan. Exports of fish are steadily increasing: returns show yen 11,935,000 in 1913, yen 19,894,000 in 1923 and yen 16,473,000 in 1934. If tinned fish, mainly salmon, trout and crab, are taken into account, the value would be yen 66,770,000 for 1934. As to the export of beans and peas, the value has been decidedly less than of the fish, both tinned and otherwise, but the greater part of this is due to the re-export of Chinese and Kwangtung beans and peas. The most striking figure in the group of foodstuffs is that of sugar export (refined sugar), amounting to yen 14,743,000 in 1923 and yen 13,531,000 in 1934, which has been declining during recent years. It should, however, be understood that the sugar industry is not merely an agricultural, but is rather a food-manufacturing industry which needs up-to-date machinery and vast investment of capital for large-scale production; also that the industry is not a Japanese enterprise at all, but quite peculiar to Formosa. Therefore, because of the rapid increase of population, the agricultural slump, and the development of other industries, the most important and indispensable foodstuffs, such as rice, wheat, eggs and vegetables, which have been the main products of Japanese agriculture, no longer hold an important position in export. It is obvious that the export of "food

and drink" is mainly dependent upon "finished foods," such as sugar, tinned foods and marine products and beer, these now taking the place of raw foods.¹

As regards raw materials and unfinished articles² (with the exception of raw silk), cotton yarns, coal, woods, camphor, waste silk and plaits for hats are the principal items, and account for nearly 87 per cent. of the whole value of exports in this group. Although coal is the chief mineral product which Japan exports, its export has been declining in volume and value. Camphor is an important product of Formosa, and is under State monopoly, but it has less importance than cotton yarn from the trade point of view. The decrease in the export of cotton yarns during the last few years is most significant. The reasons for the decline are roughly two—namely, (1) the recent development of the cotton industry in India and China, which have been the principal customers for Japanese yarns, and (2) the progress of the cotton-weaving industry in Japan, which creates a large home demand. The export of timber has increased during the last two years, but is now on the wane, owing to the growing home demand for it for building and

¹ EXPORTS OF "FOODS AND DRINKS"
(Yen 1000)

Articles.	1913.	1923.	1933.	1934.
Rice	4,372	1,162	2,123	8,420
Beans and peas	2,289	7,442	7,160	9,051
Marine products	11,935	19,894	10,301	16,473
Tea	10,075	16,013	8,449	9,557
Sugar (refined)	15,831	14,743	14,909	13,531
Beer	2,198	3,306	7,684	5,535
Tinned stuffs	—	6,127	46,984	50,304

² EXPORTS OF MAIN ITEMS OF "RAW MATERIALS AND UNFINISHED GOODS" (EXCEPTING RAW SILK)
(Yen 1000)

Articles.	1913.	1923.	1933.	1934.
Waste silk	8,031	10,461	1,303	1,822
Coal	23,628	21,541	14,158	10,375
Timber	8,451	12,258	18,037	23,915
Cotton yarns	70,997	78,511	15,712	23,484
Iron	399	4,408	34,665	53,029
Plaits for hats	15,091	9,981	7,204	8,125
Camphor	2,235	8,877	3,545	4,445

other purposes, and also to the subsequent rise of prices of all woods in Japan. On the other hand, the increase in the figures of timber imported is the most significant in the trade tables during the last few years. Plaits for hats are the typical product of Japanese family work. The decrease in the export of plaits is nothing more or less than a reflection of the recent decay of domestic industry in Japan. Exports, which were yen 20,000,000 in 1919-20, decreased rapidly to less than yen 8,125,000 in 1934. The increase in iron exports is noteworthy, for this indicates the rapid development of the iron and steel industry in Japan, while export of coal has declined considerably owing to a greater consumption at home.

What is the cause of the decrease in export of raw materials and unfinished goods? The answer is that it is no longer so profitable to export raw materials and unfinished goods, and that such exports have been checked by competition of cheap foreign-made goods of a similar kind, and also because manufacturing industries which need these goods have recently developed. It is therefore obvious that the percentage lost has been recovered on "wholly finished articles." The change in the position of manufactured goods in Japan's foreign trade is a silent witness to the direction of the recent development of Japanese industries.

Before going into details of manufactured goods, it is convenient to observe the position which the textile industries hold in Japan's export trade. Cotton yarns and raw silk are included in the category for the sake of discussion regarding the general development of the textile industries.

PERCENTAGE WHICH EXPORTS OF TEXTILE GOODS HOLD IN THE
TOTAL OF EXPORT VALUE

Articles.	1913.	1922.	1923.	1933.	1934.
Raw silk	29.87	41.00	39.20	20.90	13.10
Waste silk and silk fabrics	7.94	8.53	6.35	3.48	3.65
Cotton yarns	11.22	7.92	4.79	0.83	0.04
Cotton fabrics	5.35	15.34	14.33	20.57	23.66
Artificial silk goods	—	—	—	4.15	5.22
Other textile goods	2.62	1.86	1.78	0.68	1.43
Total	57.00	74.65	66.45	50.61	47.10

In the foregoing table the first thing to be noticed is that textile goods, headed by silk and cotton, had the greatest percentage of the total export value, especially after the Great War, when conspicuous progress was experienced, e.g. the percentage was 74.65 in 1922 and 66.45 in 1923, while it was 57.00 before the War. However, this state of affairs has been changed since 1933, when the percentage was reduced to 50.61, and to 47.10 in 1934. This means that the importance of textile goods has been relatively reduced, owing to the general export increase of other manufactured goods. Furthermore, if one notes the details of the textile goods exports, this decrease is seen to be due also to a considerable fall in the percentage of raw-silk exports, despite the fact that the ratio of cotton and artificial silk goods increased immensely, while the exports of waste silk and silk fabrics, cotton yarns and other textile goods, which include woollen and hemp goods, are also noticeably decreasing. This is an undoubted indication that recently the Japanese textile industry has shown a striking tendency to concentrate its activity on cotton and rayon weaving.

Apart from the textile goods, the chief lines of export are :

VALUE OF MAIN MANUFACTURED GOODS FOR EXPORT (INCLUDING
TEXTILE GOODS)
(Yen 1000)

Articles.	1913.	1923.	1933.	1934.
Iron manufactured goods	699	11,409	26,897	35,276
Machinery	—	9,202	25,857	57,777
Other metal and engineering products	1,244	2,905	57,470	92,983
Oil and wax	9,991	10,921	8,208	12,291
Hosiery	9,013	23,205	42,047	47,617
Paper	—	15,167	17,687	20,650
Cement	655	2,009	7,394	8,038
Glass and glass manufactures	3,318	10,118	15,326	19,454
Rubber tyres	—	3,899	8,839	9,994
Dyes and coating and filling matters	497	3,982	11,741	15,518
Matches	11,864	10,649	3,248	2,928
Hats	5,619	3,941	13,926	17,860
Buttons	3,311	7,268	7,748	9,648
China and porcelain	6,637	23,460	35,634	41,877
Toys	2,489	7,140	26,374	30,385

We have now divided the main items of manufactured goods for export into three groups. Group 1 represents mechanical and engineering industries which have been mostly developed with modern machinery during and since the Great War. Group 2 represents the industries which are dependent upon machines more than upon manual labour. Group 3 includes, besides those mentioned in the above table, special Japanese products classified as "miscellaneous articles" in the official trade reports. Needless to say, these goods are mainly produced by hand.

As shown in the following table, before the War the most important of these was Group 3. The other groups were far below it in value, especially exports of machinery, paper, and rubber tyres, which were then not quite developed. However, after the War the position of the groups was completely altered. Group 2 took the first place, Group 3 showing a gradual decrease in the value as well as the quantity of all items, with the exception of a few such as china, porcelain and toys. In 1934 an entire change took place, which indicates that the products of heavy industries under Group 1 have assumed a position of major importance in Japanese export trade. As mentioned elsewhere, the recent development of heavy industries is most remarkable, indicating that Japan has now reached the highest stage of industrialism. This is clearly reflected in trade returns. On the other hand, Group 3 completely lost its prestige, Group 2 coming second. Thus, the pre-War positions held by each Group have been reversed.

EXPORTS OF MANUFACTURED GOODS (EXCLUDING TEXTILES)

All goods which come under :	1913.		1923.		1934.	
	Value. (Yen 1000.)	Per Cent. of Total Export.	Value. (Yen 1000.)	Per Cent. of Total Export.	Value. (Yen 1000.)	Per Cent. of Total Export.
Group 1 .	10,032	1.69	34,930	2.13	201,554	9.25
Group 2 .	42,791	7.24	94,294	5.76	121,587	5.59
Group 3 .	63,021	10.66	80,905	4.93	102,700	4.73

Generally speaking, the industries represented in Group 3 come largely under the so-called sweating system, by which employers used to be able to engage workers at the lowest possible wage and exploit them mercilessly. However, owing to the keen competition of industries in this class in China and India, and also to the fact that employers are no longer able to obtain sufficient sweated labour in Japan, business conditions are not what they were. It is obvious that exports have changed from those that were produced mainly by hand to those produced by machinery.

It has now been made clear that the recent progress of manufacturing industries has taken place mainly in the textile and heavy industries, and that the old Japanese minor industries concerned with special native products have yielded the leading position to those included in Groups 1 and 2, which produce goods commonly demanded by international markets.

Imports of Foods and Raw Material

The import trade is chiefly confined to articles falling into the following three classes: (1) Food and drink, (2) Raw material and unfinished goods for further use in manufacturing and (3) Manufactured goods.

VALUE (YEN 1000) AND PERCENTAGE OF IMPORT TRADE

	1912-14.		1923.		1934.	
	Value.	Per Cent. of Total Imports.	Value.	Per Cent. of Total Imports.	Value.	Per Cent. of Total Imports.
1. Food and drink .	87,792	13.7	251,548	12.6	174,449	7.7
2. Raw material and unfinished goods .	442,531	68.5	1,256,368	67.7	1,816,051	79.6
3. Wholly finished goods .	110,816	17.1	262,961	17.7	276,219	12.2
Miscellaneous .	4,288	0.7	16,186	2.0	10,323	0.5

On comparing the above table with that given at the

beginning of the foregoing section, it is interesting to observe that the percentage which "raw material and unfinished goods" and "wholly finished goods" hold respectively in the total has entirely changed. Needless to say, the difference arises naturally from the fact that the recent development of manufacturing industries in Japan causes a great demand for raw material and those finished articles which Japan does not herself produce.

The importation of foodstuffs steadily increased from 1890 up to the Japanese-Russian War, after which a heavy duty was imposed on foreign food for the purpose of protecting home agriculture. Imports of sugar and foreign rice suddenly decreased on account of the protective policy. However, the import of other foodstuffs has slowly but steadily increased, in spite of the high tariff, as the sudden development of industrialism in Japan after the war with Russia caused the cost of food production to rise.

With the Great War, Japanese agriculture flourished, as did all other industries, and home production temporarily increased owing to the high price of food. As a consequence, the imports of food during 1915-16 decreased as compared with those of 1912-14, showing yen 67,935,000, or 6.3 per cent. of the total in the former period, and yen 87,792,000, or 13.7 per cent. in the latter. But the industrial and commercial development of Japan during the War was the most striking event recorded in the last half-century, and labour and capital were concentrated on industrial enterprises, even to the withdrawal of capital from agriculture, so that the food problem in Japan has become serious, owing to insufficiency of products and their high prices. What appears in the preceding table seems to contradict what has been said above. Imports of food-stuffs in 1934 were, indeed, much less than in 1923, in value as well as percentage, although greater in value than before the War. This was due mainly to a good crop of rice, sugar plants and the development of poultry farming, while meat and beans were largely supplied by foreign countries. We cannot expect this to be permanent, and records will again show an increasing ratio.

The principal items in this group are as follows :

VALUE (YEN 1000) OF IMPORTS OF PRINCIPAL FOODSTUFFS

Years.	Rice.	Wheat.	Beans and Peas.	Eggs.	Raw Sugar.	Fish and Meat Unsalted.
1909-13 (average)	23,723	7,041	11,112	1,400	17,847	8
1916-18 (average)	33,119	3,988	12,337	1,287	19,553	361
1923	30,718	47,433	51,163	17,111	51,632	11,099
1933	11,521	44,384	50,344	16	12,793	15,615
1934	660	40,748	51,968	1	9,678	18,862

Rice is chiefly imported from British India and French Indo-China, although the amount fluctuates greatly according to the quantity produced at home. Soya beans are almost exclusively imported from China, and this trade has expanded remarkably in recent years.

As to the imports of raw materials and unfinished goods, raw cotton is the most important, not only in this group, but also among all the imports of the country. With the growth of the cotton industry the importation of raw cotton has increased year by year. At present the United States occupies the premier position as a source of supply, followed by British India and China. Imports stood at yen 731,424,000 in 1934, or 32.0 per cent. of the total imports, and yen 513,172,000 in 1923, or 25.8 per cent., while they amounted to only yen 233,598,000 in 1913 and yen 2,221,000 in 1888.

In spite of the rapid increase in the supply of raw cotton, the imports of cotton yarns have decreased, owing to the recent progress of the cotton industry in Japan. On the other hand, raw wool and woollen yarns have been imported in great volume since the War, owing to the spread of Western fashions in Japan—Australia, South Africa and England being the main sources of supply. A striking increase is also shown in imports of various metal raw materials and unfinished goods, such as iron ore, pig-iron, aluminium, lead, zinc, copper, and tin, the total volume of which amounted to yen 128,000,000 in 1934, or 5.9 per cent. of the total imports.

This is, of course, due to lack of raw materials in Japan, coupled with the vast requirements of heavy industries, which have shown a marked development. The recent steady increase in coal and mineral-oil imports shows the dearth of fuel in Japan. Other important imports are oil cake, raw rubber, timber, China-grass, phosphorite and pulp.

Imported manufactured goods can be divided roughly into four classes: (1) textile goods, (2) machinery and metal manufactures, (3) chemical products, and (4) others.

Among textile goods the most important are woollen cloths and serges, which are imported from England. Although the recent development of the woollen industry in Japan is noteworthy, it is not yet able to meet the home demand for superior cloths, which have still to be imported. Imports of cotton shirtings and sheetings are decreasing, owing to the ample supply of home-made goods.

Among metal manufactures and machinery, the chief articles are material for railway construction and buildings, locomotives, engines and motors, electric spinning-machines and various other kinds of machinery, iron and steel pipes, tubes, plates and sheets, etc., other metals being of less importance. Taking those which come under the heading of heavy industries, their value was yen 95,000,000 in 1913, representing 11.6 per cent. of the total value, while in 1923 it was yen 233,000,000 or 12.4 per cent. But owing to the present state of her heavy industries, Japan does not now require so many foreign goods as heretofore, except in the case of motor-cars, oil-engines and certain machines. Therefore, imports under this heading have decreased considerably, showing yen 144,000,000 in 1934, or 6.6 per cent. of the total value of imports.

Besides these principal imports, there remain chemical products, imports of which increased from yen 39,603,000 in 1913 to yen 97,055,000 in 1923 and yen 87,455,000 in 1934. Glycerine, sulphate of ammonia, nitrate of soda, soda-ash, caustic soda, carbolic acid, and aniline dyes are the main items in this group. Before the War almost all chemical products were imported, mainly from Germany, though their value was not great. When the War broke out

and foreign supply was stopped, many chemical manufacturing companies were established. But owing to lack of technical knowledge and sound financial standing, most of them were unable to continue in business, and, with the exception of a few large concerns, had to be closed down as soon as the War came to an end. The imports increased again, as new industries, such as rayon manufacture, became active. In the meantime, however, after much strenuous research and scientific management, Japanese chemical concerns succeeded in effecting an improvement, being encouraged by an increase in home demand. Apart from the progress made by the heavy industries, one of the most remarkable industrial achievements during the last ten years is the development of the chemical industry. Consequently the imports decreased and the home output increased, except in the case of special superior goods, which are still supplied by foreign countries.

IMPORTS OF MAIN CHEMICAL PRODUCTS

Articles.	1913.		1923.		1934.	
	Value. (Yen 1000.)	Quan- tity. (Kin 1000.)	Value. (Yen 1000.)	Quan- tity. (Kin 1000.)	Value. (Yen 1000.)	Quan- tity. (Kin 1000.)
Aniline dyes . . .	4,213	7,362	9,786	7,978	9,147	1839
Glycerine . . .	652	1,431	1,243	1,243	449	440
Sulphate of am- monia . . .	15,992	185,866	24,950	24,950	13,806	2681
Nitrate of soda (crude) . . .	2,911	44,542	8,196	8,196	3,494	663
Soda-ash . . .	—	—	4,458	4,458	2,892	618
Caustic soda . . .	1,314	20,268	3,152	3,152	1,525	165
Carbolic acid . . .	251	739	1,073	1,851	1,205	185
Total (including others) . . .	39,603	—	97,055	—	87,455	—

Summarising the above, we come to the conclusion that the general tendency of the import trade of Japan is the absolute reverse of what has been mentioned regarding Japan's export trade. In other words, the rapid increase in imports of raw material and machinery shows most clearly the development of manufacturing industries under

the factory system. Japan must import machinery and iron and steel goods at present to a great extent owing to her lack of iron ore and insufficiency of fuel. In an economic sense these goods are quite different from articles of consumption, as they are to be regarded as productive imports. If we take machinery, iron and steel goods, and metal manufactures into account, together with raw material, it will be seen that they account for more than 90 per cent. of the total importation. It must be said, therefore, that the national economy of Japan cannot dispense with foreign goods, which are necessary to Japanese industries.

3. DISTRIBUTION OF TRADE

With this change in the character of foreign trade, an important change has been brought about in its geographical distribution.

Continental Classifications

First let us investigate the following table, which gives a rough idea of the subject apart from political divisions. The table shows clearly that the position between European countries and Japan has, so far as the value of Japanese foreign trade is concerned, completely altered in importance, in imports as well as in exports, compared with some twenty years ago. The increase in the trade to the American Continent—mostly to the United States—has been remarkable. The percentage which America held in Japanese exports was 32.5 in 1902 and 47.9 in 1923. Although it decreased to 23.6 per cent. in 1934, owing mainly to the fall in the price of raw silk, it still remained second of the groups. The trade to the Asiatic countries has increased overwhelmingly since 1933, and it now accounts for more than 50 per cent. of the total value of Japan's exports.

In imports, America comes first and Asia second, the former with 37.2 per cent. and the latter 35.6 per cent. in 1934. Thus, putting the two groups together, it may be seen that they amount to over 70 per cent. in imports and over 75 per cent. in exports of the Japanese foreign trade, while Europe and others account for only 30 per cent. in imports

and 25 per cent. in exports during recent years, in spite of the fact that Europe itself took about 26 per cent. of the exports and contributed about 34·6 per cent. of the imports in 1902. Judging from these facts, the importance of the Japanese foreign trade, which before the War used to be largely distributed among European countries, has now spread eastwards, and the position which China, India and the United States hold in Japanese trade is more important than that of the rest of the world. In the meantime, it is worth noting that the imports as well as the exports to Africa and Australia have shown an increasing percentage since 1931. This is mainly due to the fact that there has been a considerable expansion of exports in various parts of Africa, and that a larger quantity of raw wool has been bought from Australia. Thus, the importance of these two regions from the Japanese trade point of view is now greater than that of Europe.

THE GEOGRAPHICAL DISTRIBUTION OF THE FOUR GROUPS
IN REGARD TO PERCENTAGE

Year.	Export.				Import.			
	Asia.	Europe.	America.	Africa and Australia.	Asia.	Europe.	America.	Africa and Australia.
1902	39·2	25·9	32·5	2·4	45·4	34·6	14·4	5·7
1913	43·6	23·3	30·0	3·0	47·7	30·2	17·0	5·0
1923	40·9	5·7	47·9	5·5	41·7	22·9	29·1	6·3
1929	42·6	6·8	44·1	6·4	38·7	18·9	32·7	9·6
1930	48·6	8·7	36·1	6·6	40·9	18·1	31·7	9·3
1931	44·0	9·0	36·8	10·1	40·0	16·1	30·5	13·3
1932	48·0	9·0	32·6	10·3	31·5	15·7	38·4	14·3
1933	50·0	9·8	27·7	12·5	34·3	14·7	35·9	15·0
1934	53·0	10·5	23·6	12·8	35·6	12·9	37·2	14·3

The Leading Countries

Having regarded the distribution as a whole, we have now to look at it in greater detail. Until about 1886 the trade of Japan was confined almost exclusively to five countries—viz. the United States, England, China, France and Germany. In the export trade the United States led with 42 per cent. of the total in 1880, China followed with 22 per cent., and

then came France and England with percentages respectively of 19 and 9. The share of Germany was insignificant. Imports from England were 53 per cent. in the same year; from China, France, the United States and Germany respectively 15, 10, 7 and 4 per cent. Prior to 1886 the United States was at a disadvantage in having no facilities for direct transport, so that Japan's import trade was chiefly with England. As late as 1890 more than one-half of Japan's foreign trade was carried by British vessels. At that time commercial transactions with any of the Asiatic countries except China were quite insignificant.

Since then, however, internal affairs in Japan having been put in order, and foreign markets having been opened up, the public has turned its attention more and more to the external side of commercial relations rather than to domestic trade. In the evolution of Japanese foreign trade during the years that followed, the change in distribution also has been significant. Imports from England, though they amount to an enormous sum at the present time, have tended relatively to decrease, whilst a great increase occurred in German trade before the Great War and also in American imports. Another prominent feature has been the expansion of Japan's trade with Asiatic countries.

At present, of all the trade carried on by Japan with foreign countries, that with China—including the Kwangtung Province, Hong Kong, the Philippines, Siam, British India, the Straits Settlements, Indo-China and the Dutch East Indies—is the most important. In the trade with the first five countries, except China, during the last two years, the exports exceed the imports, owing to the outgoing of a large volume of cotton piece-goods, cotton yarns, copper manufactures, porcelain and earthenware, lacquered wares, umbrellas and parasols and matches; on the other hand, the imports from the last four countries exceed the exports, owing to large purchases of raw cotton from India, coal from Indo-China and sugar from the Dutch East Indies. Trade with China and the Straits Settlements has been evenly balanced for the last few years. The Chinese market is, and has been, the most important one for Japanese goods, Japan having

maintained a favourable trade with China until the Manchurian incident occurred and subsequent anti-Japanese agitation caused trade to decline. In regard to the trade with the Straits Settlements, every year Japan buys a great quantity of raw rubber, but on account of its present low price the trade between the two countries seems to be evenly balanced.

In regard to the trade with European countries, Germany, Belgium, Switzerland, Sweden, Great Britain and the Netherlands are the principal nations. But what must not be overlooked is the exceedingly "adverse" balance of trade with the four first-named countries. Japan's exports to European countries are highly specialised, such as silk, straw plaits, lacquer wares, and those in which Japanese artistic skill and handiwork play a great part; while she imports iron and steel manufactures and machinery of enormous value from Great Britain and Germany, woollen cloths from the former, and chemical products, scientific and medical necessaries of considerable value from the latter.

The increasing degree to which the United States has been participating in Japan's foreign trade, both as regards imports and exports, is most significant, especially since the War, when the percentage in Japanese trade held by America rose rapidly, from yen 184,000,000 in 1913 to yen 492,000,000 in 1933 in imports, and from yen 122,000,000 to yen 620,000,000 respectively in export trade. Japan buys raw cotton, petroleum, iron and steel manufactures, timber and flour from America, and sells raw silk, silk fabrics, tea, and matting. It must be remembered that raw silk, which is the greatest staple product of Japan, amounts to 90 per cent. of the total silk exports, by which Japan kept a "favourable" trade balance with America until 1931, since when the imports of raw cotton have been increasing, whilst the price of raw silk has been declining.

Of the remaining countries, the most important is Australia whose position in relation to Japanese trade has risen since the War. Silk tissues are the chief commodity exported to Australia, and raw wool is the principal import.

Generally speaking, the export trade with Europe and America consists of Japanese special products, while that with Asia consists chiefly of general manufactures. Japan, however, is still dependent on Europe and America for the supply of certain kinds of manufactures, more especially for machinery and metal goods, and she depends for the supply of raw material and foodstuffs on Asiatic countries, Australia and the United States.

Having briefly surveyed the trade with the leading countries with which Japan has had close relations for years, we must now investigate the new markets where she has recently secured commercial interests on a larger scale.

Dominated by the idea of economic nationalism, many countries have adopted restriction policies of different kinds against foreign imports, their chief aim being to hamper Japan's trade expansion, which has caused keen competition at home with their own products. At present those which have taken the anti-foreign-goods stand are Great Britain and her dominions and colonies—such as Canada, British India, Ceylon, British Borneo, the Straits Settlements, Aden, Kenya, Uganda, Tanganyika and Nigeria—and Belgium, Switzerland, Austria, Norway, France, Germany, Italy, the Netherlands and her Dutch East Indies, Greece, Turkey and Cuba. Of the above countries Canada, British India, Ceylon, British Borneo, Belgium, Switzerland, Austria and Norway have a favourable balance of trade with Japan—in other words, Japan buys a larger quantity of goods from those countries than she sells to them. In an international trade sense, it is most unfair and unreasonable that a country should not be able to sell to another country in the same proportion as it buys. Urged by a vital national necessity, Japan has to increase her exports as much as possible, regardless of high barriers. But, in the present circumstances, she is obliged to open new markets where no restrictions exist, otherwise there is no possibility of her being able to dispose of her accumulated stocks. Being encouraged by Government aid, exporters have exerted every effort to find new customers, as a consequence of which several new markets

have been established and a considerable number of transactions have taken place, despite keen European and American competition. Syria, Palestine and Iraq in the Near East, nearly all the countries in Central America, and Uruguay, Columbia, Chile, Peru and Argentine in South America, and also several European colonies in Africa are the principal new markets to which Japanese goods were sent out to the value of approximately yen 300,000,000 in 1934, whereas the value was less than yen 100,000,000 in 1929.

Japanese Export Trade with China

Since the Great War the world's attention has been focussed on China, politically as well as economically. It is widely believed that it is essential for any country which desires to secure an economic and political footing in the East to obtain the largest remaining undeveloped market in China, whose population numbers a fourth of the human race. It can be justly said that the present delicate problems in the Pacific seem to have arisen directly or indirectly around Chinese interests. Both politically and economically Japan has the largest interest in Chinese affairs.

It can be seen most clearly in the following tables that China has played a great rôle in Japan's foreign trade. She ranked second in exports from 1913 up to the Great War, and varied from second to fourth in imports. Although China comes after the United States in export value, she may be said in some senses to be a more important customer than America. It must not be forgotten that the main items of Japanese exports to China are manufactured goods, such as cotton piece-goods, matches, paper and machinery, whilst the vast export to the United States is chiefly raw silk, of which Japan is the greatest producer in the world. In other words, China is the largest market for Japanese general goods, whose manufacture Japan has developed to a great extent. The increase of trade with China can be looked upon as a reflection of Japan's industrial progress.

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POSITION OF THE LEADING COUNTRIES AS REGARDS JAPANESE EXPORTS

Year.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.
1913	U.S.A.	China	France	Hong Kong	Great Britain	British India	Kwantung Province
1922	"	"	British India	France	Hong Kong	Hong Kong	Great Britain
1923	"	"	"	Kwantung Province	"	Dutch E. India	"
1924	"	"	"	"	"	Kwantung Province	"
1932	"	British India	China	"	Dutch E. Indies	Great Britain	Manchukuo
1933	"	Kwantung Province	British India	Dutch E. Indies	China	"	"
1934	"	"	"	"	"	"	"

POSITION OF THE LEADING COUNTRIES AS REGARDS JAPANESE IMPORTS

Year.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.
1913	British India	Great Britain	U.S.A.	Germany	China	Dutch E. Indies	Kwantung Province
1922	U.S.A.	British India	Great Britain	China	Kwantung Province	Germany	Australia
1923	"	"	"	"	"	"	"
1924	"	"	"	"	"	"	"
1932	"	"	"	"	"	"	Manchukuo
1933	"	"	Manchukuo	"	Germany	Great Britain	Dutch E. Indies
1934	"	"	"	"	"	"	Straits Settlements

Note.—Hong Kong is classified separately in the official trade returns. It is obvious that great quantities of goods sent to Hong Kong are transferred to China. These are estimated roughly at 50 per cent. of the trade.

JAPAN'S TRADE WITH CHINA
(Yen 1000)

Year.	Exports.	Imports.	*
1872	4,786	9,881	— 5,095
1882	5,711	6,533	— 841
1892	6,358	12,509	— 6,150
1902	46,838	40,590	+ 6,247
1912	114,823	54,807	+ 60,016
1913	154,660	61,223	+ 93,437
1920	410,270	218,088	+ 192,181
1921	287,227	191,678	+ 95,548
1922	333,520	186,343	+ 147,176
1923	272,190	204,678	+ 67,512
1924	348,398	237,651	+ 110,747
1930	260,826	161,667	+ 99,159
1931	143,877	103,749	+ 40,128
1932	129,479	77,175	+ 52,304
1933	108,253	113,357	— 5,104
1934	117,062	119,562	— 2,500

* + = Excess of Exports; — = Excess of Imports.

The above table includes the figures given under the heading of "China" in the official trade returns. But as regards the trade with China, what must not be overlooked is that this table does not show the actual figure, as the trade with Kwantung Province and Hong Kong, the figures for which are given separately from those for China, is carried into the hinterland to a great extent, the former acting as a commercial depôt for some parts of North China, and the latter for South China. According to the investigation of the Department of Commerce and Industry, about 30 per cent. of the total trade consigned to those places may be included with that of China. Therefore the figures shown in the above table must be increased by this 30 per cent. of the trade with Kwantung and Hong Kong, which, of course, shows the trade with China to be much larger than that officially recorded. It must also be taken into consideration that since the independence of the State of Manchukuo was declared in 1931, the trade returns show separately the figures for the new State, which had formerly been included in those for China. It is therefore clear that the recent decrease of the trade with China is mainly due to this separation.

EXPORTS AND IMPORTS OF JAPAN

(Yen 1000)

Year.	Kwantung Province.		Hong Kong.		Manchukuo.	
	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
1913	29,836	30,878	33,622	1295	—	—
1923	68,264	149,784	68,262	1734	—	—
1924	72,191	175,737	72,191	1099	—	—
1931	65,542	90,165	36,754	499	11,874	41,948
1932	120,584	76,719	18,041	971	25,947	51,570
1933	221,068	20,161	23,419	2093	82,071	147,898
1934	295,868	27,222	33,497	977	107,151	164,209

According to the above estimate, Japanese exports

to China during 1934 should have been more than the yen 117,000,000 which appeared in the trade returns. Even though the trade with Manchukuo is taken into account, Japanese exports to China have been greatly curtailed since the Manchurian incident in 1930, owing to several facts. Firstly, anti-Japanese movements and the boycott of her goods, which have been intensified since the above year, have greatly jeopardised Japan's trade with China, resulting in a reduction of her exports to yen 108,000,000 at the height of the movement during 1931-32. In the meantime, the United States of America has made much headway, having completely usurped Japan's position, and Great Britain has also regained her old prestige to a large extent. Secondly, Japanese goods have been greatly affected by the recent revision of the Chinese import tariff, the object of which was alleged to be to impose heavier duties on certain goods and to reduce duties on others, so as to effect not only an increase in the customs revenue, but also to cause actual harm to Japanese goods. Thirdly, the breakdown of the general economic and financial situation in China has been intensified, particularly after the Manchurian incident, coupled with the prolonged internal political unrest and agricultural exhaustion. The benefit given to Chinese exports by the sharp fall in the price of silver during 1930-33 did not greatly help her trade, owing to the restrictions abroad and her general economic stagnation. Then the sudden rise in the price of silver caused by the American Silver Purchase Policy resulted in a large outflow of that metal from the country, which has eventually caused a chaos in the economic and financial situation. In addition, the remittances of money from Chinese business men abroad—the most important invisible export of China—have been greatly reduced, mainly because of the boycott of Japanese goods. Prices have soared and the purchasing power of the people has decreased.

In these circumstances it is quite natural that Japan's exports to China should have decreased, and that the premier

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position in China's foreign trade held by Japan since the end of the Great War should be taken by America¹ and Great Britain. Also the recent German trade expansion in the Chinese market is worth noticing. However, the tide of the anti-Japanese movement seems to have turned since the beginning of 1935, and conditions of trade between Japan and China are expected to return to normal before long, owing to the general trend of opinion and the fact that the results of the successive negotiations between the two countries are reported to be satisfactory. If Japan regains her normal trade with China and the latter's economic state recovers, the figures of the former's exports to the latter may soon exceed those before the Manchurian incident.

¹ CHIEF COUNTRIES TRADING WITH CHINA

Countries.	1913. (Haikwan taels 1000.)	1923. (Haikwan taels 1000.)	1933. (Chinese dollars 1000.)	1934. (Chinese dollars 1000.)
Export.				
Hong Kong	117,129	175,796	120,955	101,001
Great Britain	16,346	43,207	48,765	49,806
Germany	17,025	11,916	20,795	19,159
France	40,750	39,578	31,217	21,142
Japan	65,544	198,517	95,807	81,232
U.S.A.	37,650	126,804	113,146	94,435
Total (including others)	403,305	752,917	611,827	535,214
Import.				
Hong Kong	171,636	248,083	48,287	29,638
Great Britain	96,911	120,357	154,041	124,847
Germany	28,302	32,456	108,026	93,389
France	—	—	23,821	22,420
Japan	119,347	211,024	131,349	126,886
U.S.A.	34,427	154,448	297,488	271,731
Total (including others)	586,427	948,634	1,345,567	1,029,685

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On examining the list of Japanese¹ goods exported to China, we find that the principal items have changed as compared with those of pre-War. Prior to this, cotton yarn was at the top of the list, then came cotton piece-goods, refined sugar, copper, coal, matches, marine products, timber, hosiery goods and paper. After the War, cotton piece-goods replaced cotton yarn in value; refined sugar, copper, matches and hosiery decreased greatly in both value and quantity; while paper, machinery, iron manufactures, woollen goods and tyres increased correspondingly. The exports of copper and matches especially declined, falling to almost *nil*. The decrease in sugar was due to competition from Java, and that of copper to the increase of American goods and the high post-War price of Japanese copper goods. It is noticeable that the downward tendency of matches, hosiery goods, coal, and umbrellas is partly due to the fact that these industries in China have been greatly developed. Therefore it can be seen that there is little prospect in the trade with China for goods which are the products of industries needing little skill or machinery, but great prospects for those of high grade. Of the exports to China, cotton piece-goods are the most

¹ PRINCIPAL JAPANESE GOODS EXPORTED TO CHINA
(Yen 1000.)

Articles.	1913.	1923.	1933.	1934.
Cotton yarn	60,096	38,503	168	175
Cotton goods	18,965	100,293	25,605	13,029
Sugar	14,270	13,681	6,158	6,989
Copper	9,401	283	—	—
Coal	7,333	9,521	4,445	2,014
Matches	4,829	255	—	—
Marine products	4,660	8,828	2,278	4,432
Timber	3,338	4,175	2,702	2,704
Hosiery goods	1,892	855	194	195
Paper	1,342	7,669	4,785	6,152
Soap	1,303	1,392	180	245
Umbrellas	1,186	1,342	—	—
Machinery	1,206	5,418	4,915	9,691
Glass goods	891	2,132	1,047	1,191
Silk goods	675	2,111	—	—
Iron manufactures	227	3,755	4,312	6,769
Woollen goods	—	—	1,647	2,975
Tyres	—	—	1,727	1,875

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important, amounting to more than 10 per cent. of the total value in 1934. The main suppliers of these goods were Japan, Great Britain and the United States. Hong Kong occupies an important position as a depôt of the cotton trade to China. In pre-War years Great Britain was at the top of the list, with 53 per cent. of the value of the total imports of cotton goods into China in 1913, while Japan had only 20 per cent. and the United States less than 2 per cent. But with the Great War, Japan made great strides, and her export trade of cotton goods to China greatly increased. As a consequence, Japan's share of the total cotton imports into China has risen in value from 20 per cent. in 1913 to 51 per cent. in 1923, and was about 50 per cent. in the year 1934, when the anti-Japanese movement was still in existence.

It is most interesting to note the class of goods in which Japan has been competing with England in the Chinese market. In order to investigate this, it is best to classify the goods as follows: (1) Those English goods enjoying supremacy before the War which have been badly hit owing to Japanese competition since 1918; (2) those still mainly supplied by Great Britain, although challenged by Japan's competition since the War; (3) those mainly dependent upon the Japanese supply both before and after the War. The cotton goods belonging to (1) are shirtings (grey) and jeans; those in (2) are shirtings (white), Italian and cotton velvets; those in (3) sheetings (grey). It was said that the cloth which Japan was making before 1930 was generally of low grade and that made by England of higher grade; therefore, English and Japanese goods were not necessarily competing in the Chinese market. But things have changed since then. Japan is now able to manufacture any kind of goods, regardless of the quality. It is therefore inevitable that her higher-grade goods compete with English goods, while her lower-grade ones compete with the native goods, as the Chinese cotton industry develops. In fact, cotton piece-goods have fallen in recent years from the top of the list of China's imports to a relatively unimportant position—from \$113,000,000 in 1932 to

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\$26,000,000 in 1934. This shows the growth of the cotton industry in China, who, with the aid of foreign capital, has now become one of the five greatest cotton-producing countries in the world. There were 4,680,000 spindles at the end of July 1934, an increase of 35 per cent. compared with ten years ago, although more than 45 per cent. of these are under the management of foreign establishments, mostly Japanese. Nevertheless, the industry in China has grown to be almost self-sufficient for her cotton needs as far as the low-grade goods and yarns are concerned.

In spite of keen competition from both quarters, Japanese cotton goods have maintained their place in the Chinese market up to now, owing, needless to say, to the low price and superior quality of the goods. Cheaper and better-quality goods will always appeal not only to customers' demands, but will also raise their standard of life. On account of the low standard of life and poor purchasing power of China, Japanese goods in general are greatly needed by the masses in China.

Trade with Manchukuo

Since the advent of the new State of Manchukuo in 1931, Japan's trade with the new State has been increasing year by year, recording a rapid increase in her exports from yen 11.8 million in 1931 to yen 107.1 million in 1934, and from yen 41.9 million to yen 164.2 million respectively in imports. The State ranks the third in imports and the sixth in exports in Japan's foreign trade in both 1933 and 1934, whereas Japan continues to hold first place in Manchukuo's foreign trade. Among the chief exports of the latter country, soya beans come first, with coal next, followed by bean-cake, millet, pig-iron, ground nuts. The chief imports are iron and steel; machinery and tools come next; wheat-flour, cotton piece-goods and yarns follow.

According to the official report recently published by the South Manchurian Railway Co.—the first information of its kind—which was compiled under joint investigation with the Manchukuo authorities, the construction scheme of the country has been carried out very satisfactorily

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from every aspect. The amount of foreign capital invested was recorded as yen 298,000,000 in 1933, and yen 334,000,000 in 1934, most of which was Japanese. The total value of the State's foreign trade in 1934, including Kwantung Province, was yen 453,000,000 in exports and yen 652,000,000 in imports, thereby showing an excess of imports of yen 199,000,000, which is unavoidable in the case of a new country. However, in invisible trade, exports exceed imports by yen 298,000,000 in 1934, so that a favourable balance of yen 99,000,000¹ is left for the country.

As Manchukuo develops economically and settles down politically, she will play a great rôle in Japan's foreign trade, as a large consumer as well as a supplier of raw material for her industry. It is needless to say that the relations between the two countries have become closer than ever. Further, the new State is indispensable to Japan from the point of view of foreign trade, and is also a vital national necessity. It is a recognised policy that Japan must lend the State her fullest assistance and co-operation, both in capital and technical knowledge, in order to exploit natural resources to the largest extent for the development of industry in both countries, and that the basic interests of the two countries in respect of industry and trade must be under State control in conformity with the fundamental spirit of the Defence Protocol between the countries. In

¹ MERCHANDISE AND INVISIBLE TRADE OF MANCHUKUO
(INCLUDING KWANTUNG PROVINCE)

	1933.	1934.
Exports	453,520	453,469
Imports	567,183	652,651
Excess of Imports	113,663	199,182
Invisible Exports	477,848	481,480
„ Imports	349,032	182,556
Excess of Exports	128,816	298,924
Balance of Trade (Excess of Exports)	15,153	99,742

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accordance with these opinions, the Japan-Manchukuo Economic Agreement was signed in 1935 so as to further strengthen an economic bloc of the two States.

4. ADVERSE TRADE

It is obvious that the increase of foreign trade is a direct sign of industrial development. But the continuous excess of imports is by no means "favourable" to a country like Japan, though an excess of imports such as raw cotton, metals and machinery, may be regarded as ultimately increasing the productive capacity of the importing country. As a matter of fact, a large portion of Japan's imports, as stated before, consists of raw material and machinery. They are necessary imports, and if not entirely re-exported in the form of manufactured articles, provide employment and profit for Japanese labour and capital. As a rule, a young country during the early stages of its development will normally import a larger amount of goods than it exports. Japan is by no means fully developed at the present time. Therefore, it seems quite an ordinary state of affairs that she should continue having an excess of imports over exports. So long as the excess of imports (including foreign capital) creates future productive capacity, this explanation is quite acceptable. However, observing the recent alarmingly large adverse trade balance, no one can deny that one of the principal causes of the excess of imports is the growing extravagance of the consuming public in purchasing foreign-made luxuries. It is, therefore, interesting to watch the effects of the various fiscal measures by which the Government have sought to curtail the purchase of luxuries from abroad. If, however, the general public do not abandon the high standard of living to which they have now grown accustomed, there will remain the problem of finding the money to pay for the imported goods. After all, a country's foreign trade differs in no way from individual business, as what it owes to other countries must be paid for by means of export of goods, gold or services. What Japan has done during the last sixty-seven years in respect of adverse trade to meet her debts towards other countries has been

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to raise foreign loans, which have been used for the development of industry and commerce. It is clear that the excess of imports over exports has not contributed to the development of national economy.

If we study the balance of Japan's foreign trade for the last sixty-seven years, we see that forty-nine years show an excess of imports and the rest an excess of exports. ✓

Period.	(Yen.)
1. 1868-1881	- 77,643,000
2. 1882-1893	+ 69,813,000
3. 1894-1914	- 933,041,000
4. 1915-1918	+ 1,408,048,000
5. 1919-1934	- 3,691,616,000
Total excess of imports for the last 67 years	3,224,439,000

- = Excess of Imports; + = Excess of Exports.

During the first period 1868-81, imports exceeded exports by about yen 4,000,000 to yen 9,000,000 yearly, with the exception of two years, 1868 and 1876, and the adverse balance of trade reached yen 77,000,000 in the aggregate during these fourteen years. The reason for this was mainly due to the fact that the currency system was not satisfactory. Although unification of the currency was achieved and new coins were minted to the fineness of 900 to 1000, and the decimal system was adopted for all denominations soon after the Restoration, the Government found it impossible to place paper money on a convertible basis, to cover the rapid increase of expenditure, owing to the civil war of 1877 and various administrative reforms relating to the new era. For this purpose the Government issued unconvertible paper money to a considerable amount. At the same time, the national banks which had been established according to the Banking Law of the fifth year of Meiji (1872) and modelled on the banking system of the United States, issued their own paper money.

When Government notes remain unconvertible, bank-notes must also be unconvertible. So, on account of the

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civil war, the money market was flooded with this paper money. The consequence was that paper money depreciated as low as 80 per cent., the price of commodities soared and the balance of trade became adverse, for the settlement of which gold and silver coins were exported to the amount of yen 70,000,000 during the period.

Between 1882 and 1893 troubles incidental to the commencement of the new era began gradually to right themselves, and the depreciated currency was adjusted. In 1882 the Bank of Japan was established. The bank became a central agency in the financial administration of the country and was able to issue convertible paper money in 1884, after which the national banks lost their issuing privileges, and their notes were withdrawn from circulation. The bank received and disbursed all Government money, paper money was kept at par value, and coins came into the market again. At the same time, the Government greatly encouraged the export trade, in order to attract money from foreign markets. It was during this period that the Yokohama Specie Bank was established as the chief agent of Japan's foreign commerce, and it carried on its business of exchange in pursuance of the new financial policy. As a consequence, the foreign trade of Japan during this period showed a favourable balance, *i.e.*, exports exceeded imports by yen 69,000,000 and gold and silver amounting to yen 27,000,000 was imported from foreign markets.

This favourable trade, however, did not last long, and imports were again in excess in 1894 and continued so up to 1914. During this period the Chinese and Russian Wars broke out. It is, therefore, convenient for us to divide this period for purposes of study into two, one of which is 1894-1903, and the other 1904-14. As has often been stated, the wars in which Japan was engaged in the past fostered trade, as can be seen by observing Japanese industrial and trade developments. The Japanese-Chinese War brought about an entire change in national economy; trade after the war greatly altered in its character and distribution, as compared with the preceding periods. The rapid stride of new industries necessitated the im-

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portation of machinery and scientific instruments. As a consequence, imports exceeded exports by yen 352,000,000 during 1894-1903. It must not be forgotten that the excess of imports was at the same time contributed to by the war indemnities paid by China and the raising of foreign loans, the amount of which reached the total of yen 183,000,000 in 1903. This same tendency to import excess was increased still more after the war with Russia; it continued right up to 1914, and the excess was more than yen 581,000,000 during this period.

Many new industries and works were established and old ones extended, and for this material and machinery were imported. Thus the Government had to raise foreign loans on account of the continuous adverse balance of trade. Up to 1914 the amount of foreign loans promoted by the Government reached about yen 1,800,000,000, some portion of which was spent on military necessities supplied by foreign countries during the war, while part was kept as specie reserve in England.

✓The outbreak of the Great War, however, changed the situation remarkably and the trade balance of Japan for the four years 1915-18 was marked by an excess of exports. The aggregate of imports and exports had an average yearly value of yen 1,163,985,000 during 1910-11, while during 1915-18 it reached the annual average of yen 2,348,428,000. This increase, striking as it is, is not more significant than the change which appeared in the relative importance of exports and imports. During this period the excess of exports amounted to yen 1,408,000,000, which carried with it an excess of gold imports amounting to yen 300,000,000. The balance of these two, *i.e.* yen 1,108,000,000, was left in foreign countries as credit; some of it went to redeem foreign loans borrowed by the Government before 1914 and with the rest foreign investments were made.

This favourable trend did not last long, and the balance of trade was reversed again as soon as the War was over. It has continued so right up to the present, and it does not seem likely to change in the future. The excess of

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imports reached yen 2,261,000,000 between 1919 and 1924, surpassing that of exports during the War by about yen 853,000,000. Up to September 1923 Japan managed to adjust this post-War unfavourable trade balance without raising foreign loans or borrowing money abroad, as she was still in possession of ample gold and credit secured during the War. But the great earthquake and subsequent fire of 1923 disorganised the Japanese export trade: currency was inflated and prices suddenly rose. Imports were so tremendously encouraged by large purchases of material for reconstruction of the devastated area, that Japan had to borrow foreign money again to a vast amount. Borrowed capital at the end of 1923 amounted to yen 1,453,000,000, in spite of the fact that redemption of about yen 906,000,000 had been made during the War, while the capital borrowed abroad at the end of 1914 stood at yen 1,430,000,000. This shows that Japan borrowed more money in 1923 than before the War in spite of her repayments made during the War. Furthermore, in 1924 the balance of loans and repayments made abroad was roughly yen 350,000,000 against Japan. Thus, the huge excess of imports and the raising of loans were on a level up to 1928. However, a sudden change has taken place since 1929, namely, a marked decrease ¹ in the excess of imports, whilst Japanese capital invested abroad records an increasing amount, mostly in Manchukuo; the former is a good sign of the recent progress of Japan's industry, and the latter evidence of an economic and political development overseas based on her financial strength. Japan is now no longer an "immature borrower," but has passed to the stage of being a "mature borrower."

¹ EXCESS OF IMPORTS OF JAPAN (1924-1934)

Year.	(Yen.)	Year.	(Yen.)
1924	646,367,000	1930	76,219,000
1925	267,068,000	1931	88,694,000
1926	332,757,000	1932	21,469,000
1927	186,837,000	1933	56,174,000
1928	224,360,000	1934	110,606,000
1929	67,619,000		

PART VIII

CONCLUSION

JAPAN has achieved a remarkable development in the industrial and commercial spheres during the past half-century by Western economic methods. The wealth of the nation has multiplied and the population has more than doubled. Industries have developed under the factory system and foreign trade has enormously increased in value and in volume. Japan is regarded as a formidable competitor in the international market. In fact, comparing the present state of the country with that of 1868, we cannot help being astonished at the great change which has been brought about in every line of national economy.

During Japan's long spell of isolation, there had been a great industrial and commercial revolution in Western countries. England had been founding colonies over a vast area and developing her trade practically all over the world. To Japanese eyes at the time, Western civilisation seemed to be merely a source of great disturbance. It was only natural that, on the introduction of new foreign ideas, great confusion should reign in the social, political and economic life of Japan. Civil war was ready to break out; the question of unemployment was serious; prices rose greatly, and this unsettled political and financial state continued for fifteen years following the Meiji Restoration (1868).

As a nation, Japan was economically poor. In 1868 her gross foreign trade was scarcely more than yen 27,000,000, as compared with the yen 2,232,000,000 of imports and yen 2,172,000,000 of exports in 1934. Her exports at that time consisted mostly of native handwork, such as bamboo goods, tea, lacquered wares, mats and raw silk, which were all made in the homes of the workers. There were, of course,

no iron steamships, no railways and no modern industries, such as the cotton, wool, engineering and chemical industries. Foreign imported goods appeared to the Japanese to be marvellous things, and gave the impression that Western goods were far superior to those of Japan, and this impression, as a matter of fact, still remains in the mind of the people.

The twenty-five years following the Restoration were the most strenuous which Japan has faced in her modern history. Western economic methods were eagerly introduced and new fundamental laws regarding national economy, such as the Commercial Code, the Banking Act and the Exchange Act, were promulgated one after another. The Government established factories, docks and railways with the assistance of foreign experts, for purposes of national necessity and to educate the people in new scientific and engineering knowledge. The new Western transport and manufactures created fresh demands, and other areas were opened up and new markets developed. Japan's population, which was less than 30,000,000 before the Restoration, had increased to 40,000,000 by 1889.

An Imperial Rescript was issued on the 11th October, 1881, and the people were assured of the establishment of a National Assembly in the year 1890. Thus, constitutional government was set up in the place of feudal administration; the people were given a parliamentary vote, although it was limited to taxpayers and the property-owning class.

The most striking fact is that Japan so successfully developed her national strength that twenty-seven years after the Restoration she was able to claim victory in the Japanese-Chinese War. The development of fundamental enterprises, especially banking and transport, was marked after the war. Railways and steamships subsidised by the Government were successfully constructed by Japanese engineers. Machinery, engineering and other important industries, which had been mainly undertaken by the Government before the war, passed to private firms under the protection of a high tariff. The gold standard stabilised financial

conditions, and the revision of the one-sided Treaties, by which Japan secured fiscal autonomy and the abolition of extra-territoriality, afforded her great facilities for economic progress. Generally speaking, during the period 1868-1904 home industry developed faster than foreign trade.

It must not be overlooked that the wars which Japan has had to wage during the last thirty years have been landmarks in regard to economic progress. The war with Russia contributed to the development of Japanese industries and trade even more than the war with China. As a triumphant result of the war, Japan rose to the rank of a "first-class" Power, her territory doubled in area, and 20,000,000 were added to her population. Korea became a Japanese Protectorate, and its annexation followed a few years later, while Manchuria was openly recognised as an area of Japanese influence. Japan became the only colonising country in the Far East. In order to promote colonial industries, such as sugar in Formosa and coal-mining and railways in Manchuria, and also to encourage the further development of home industries and trade, a great amount of capital was continuously imported from abroad. With the aid of protection and abundant cheap labour, Japan's industries, especially the cotton, shipbuilding, engineering, and electrical industries, made striking progress. Cotton yarn made in Japan began to be exported not only to China, but also to India and other Eastern countries, consequently causing keen competition with British cotton goods. Although shipbuilding was heavily subsidised by the Government, in its construction and finish it seemed to belong to another age, as compared with the previous ten years. Japanese ocean transport developed so rapidly that her foreign trade was mostly carried by her own vessels, instead of by the foreign ships which had been the main means of transport before the war with Russia. On account of Japan's mountainous surface and plentiful rainfall, electric-power supply works were established all over the empire, a step which was regarded as most necessary to

compensate for Japan's lack of fuel. Although engineering works were established on a large scale after the war with Russia, their activity became marked after the Great War. ✓ The most significant feature, however, after 1905, was the noteworthy development of manufacturing industries, in spite of the fact that Japan has an insufficient supply of raw material for her staple industries. As a consequence, her people started to crowd into the cities, and Tokyo, Osaka, Kobe, Nagoya and Yokohama have grown rapidly into important industrial and commercial centres. Foreign trade increased in value and in volume, and its character greatly changed. Imports of manufactured goods, with the exception of iron and steel and machinery, gradually declined, and foodstuffs and raw material increased. Exports of cotton and silk manufactures and other finished goods increased both in value and quantity, and took the place of foodstuffs and unfinished goods. ✓ Another noticeable feature of this period was the relative decline of agriculture. Home-grown foodstuffs were not sufficient for the growing population. After the war foreign foodstuffs began to be imported*into Japan, and the Government imposed a high tariff for the purpose of protecting home agriculture. Thus, Japan was showing signs of changing from an agricultural to a manufacturing country before the Great War. This tendency was strengthened after 1914, and a further development of industries and trade was achieved, owing to the absence of foreign competitors and the vast demand for Japanese goods. During the five years of the War cotton mills, woollen and other textile factories, iron works and docks were successively established; Japan's ocean-going merchant fleet increased in number as well as tonnage, the latter being 3,470,000 tons in 1933, a 2,000,000-ton increase as compared with 1914, and Japan is now the third maritime country, coming next to England and the United States. Japanese industries, founded under the modern factory system, have successfully practised mass production. Foreign trade witnessed a vast excess of exports, the national revenue multiplied itself and individual wealth suddenly increased. The people became undesirably extravagant;

an unparalleled rise in prices, wages and cost of living took place; labour troubles, which Japan had never before experienced, have been acute year after year since the War; and the agrarian problem is serious, owing to the unremunerative state of agriculture.

When the War was followed by the world economic depression, the industries and trade of Japan were suddenly reduced to a chaotic state. Japan's financial and economic condition was so critical during 1920-22, that many new firms and several old ones went into liquidation. The advantages enjoyed by Japan during the War suddenly disappeared; but the high cost of labour, prices and living disputes were as rife as ever. At the same time, foreign competition returned, and Chinese and Indian industrial development meant added competition for Japanese manufacturers. Consequently, the export trade gradually declined, while imports showed an increasing tendency owing to the purchase of foreign foods, raw material and also to the people's extravagance, which encourages an incessant influx of foreign luxuries. Thus, the adverse balance of trade recurred in 1919, and has continued ever since; and was greatly intensified by the disastrous earthquake of 1923.

Although industry and trade seemed to be at a standstill during the period of post-War depression, their condition showed significant economic progress in comparison with that of the early part of the Meiji era. The causes of the progress, already described, can be summarised: firstly, the Government's strenuous and successful efforts to reorganise the economic system by the purposeful introduction of Western methods; secondly, two victorious wars; thirdly, an extreme protectionist policy; fourthly, the opportunities which the Great War offered Japan for the expansion of her industries and trade; fifthly, in addition to these external causes, what has contributed to progress all through the last half century is, above all, the fact that Japan has possessed cheap labour. Low wages and long working hours counterbalance to a certain extent the high cost of raw material and other high charges on production. Nevertheless, the recent rapid rise of wages tends not only to diminish

Japan's chief advantage in regard to production, but also to bring her original disadvantages to the surface. What is meant by her original disadvantages is lack of raw material. It is clear that the present state of capitalist enterprise has been scientifically devised by Western countries on the basis of natural resources, such as iron, steel, coal, oil, cotton, wool, etc. It would be absolutely impossible for Great Britain to hold her premier position in the industrial world without internal resources of iron and coal. The reason why America and Germany have achieved such pronounced progress that it seems to threaten British industrial supremacy is the fact that they have a sufficient supply of staple materials in their own territory. Needless to say, a country which has ample resources of raw material enjoys great advantages in international industrial competition. It can be said without hesitation that the international conflicts which occurred during the past century were largely due to the ambition to acquire territories producing important raw materials. The predominant feature of national policy from 1850 to 1914 was imperialism, and the period is well described as "the age of colonial expansion."

It is perfectly clear that a country poorly endowed with those important resources will never be able to attain equal success in international competition with more favoured countries, except in industries which can be undertaken without skill and experience, given that cheap labour is easily obtainable, as this covers to a certain extent the cost of imported raw material. Take, for instance, the cotton industry in low-grade yarns. Japan's spinning industry has developed remarkably because she has had cheap labour, although she had to rely entirely upon foreign cotton. But owing firstly to the rapid rise in wages, and secondly to Indian and Chinese competition, the low-grade cotton industry in Japan has been placed in a very difficult position. Not only the cotton, but also nearly all industries in Japan seem to suffer in the same way. In fact, many of the advantages which Japan possessed have disappeared and many disadvantages remain, while new ones are continually appearing.

Despite the decrease of exports after the War, Japan has to import foreign foodstuffs yearly to the amount of yen 170,000,000, and raw material and unfinished goods to yen 1,800,000,000. Both classes show an increasing tendency in recent years. The result has been revealed by the post-War adverse trade balance, which does not seem likely to change in the near future, although the excess of imports shows a decrease during the last few years.

National economy differs in no way from private economy. If a country fails to pay its debts to other countries, it is in the same position as a private firm which goes into liquidation. It is clear that should a country have no prospect of increasing its national productive capacity, and should it continue to import foreign goods beyond its exporting capacity, it will have an adverse balance, which it must pay either by borrowing money abroad or by sending out its own savings which could be otherwise used productively at home. As long as this condition lasts, such a country has no assurance that it can maintain its standard of living. Take, for instance, the case of a country of 50,000,000 people, and represent their standard of living by the figure of 100. If the population increases to 60,000,000 and there is no corresponding increase in productive capacity, it is clear that the country can only maintain its financial independence by forcing people to lower their standard of living from 100 to 80.

The population of Japan increased from 50,000,000 in 1909 to 70,000,000 in 1933. Emigration furnishes no outlet, owing to immigration restrictions which the Western countries firmly maintain even in their scantily populated colonies. Provided that no outlets are found for Japan's growing population and that no reduction in the present standard of living is possible or advisable, the only way open to her to cope with the present national difficulty is to encourage industries and trade to the utmost of her power.

The progress attained up to the Great War was based more on the protection and subsidies accorded by the Government, or on favourable opportunities brought about by the wars, than on the efforts of the people themselves.

This development, dependent on outside help, could not be expected to go beyond a certain limit, unless the people concerned took their own improvement in hand. A better financial system, reorganised industrial methods, use of up-to-date machinery, improvement of workers' efficiency and organised trading methods must necessarily be considered, as these are particularly important for a country like Japan, which has to combat with grave industrial disadvantages caused by poorness of natural resources and scarcity of raw material. It was also recognised that rationalisation must be carried out throughout all industries and trades, in order to deal with the business slump during the post-War years and to prepare for future eventualities. This has been wholeheartedly undertaken in every line of enterprise. The result has been so successful that the cost of production has been reduced and the quality of goods greatly improved so as to meet requirements not only in old-established markets, but also in newer ones. The world-wide demand for Japanese goods has been augmented to a large extent, causing a grave fear amongst her competitors that Japan may become a serious rival in a much wider area of the world's trade. Consequently discriminatory measures against Japanese goods have been taken by many countries in the form of import restrictions, high tariffs or quotas, the excuse being her unreasonably low wages and the artificial depreciation of the yen. This has been the general state of affairs since 1931.

It is undeniable that wages in Japan are lower than those in America and England, but they are not lower than those in some European countries. It must also be noted that low wages do not necessarily mean a low standard of living, for this should not be judged by the amount of money the worker receives, but by the value he can obtain with it. Although wages are said to be low in nominal value, the Japanese worker is able to obtain the requisites for a healthy and reasonable existence for himself and his family with his wage in the existing circumstances in Japan. In addition, employers, especially those in the textile concerns, defray a large amount of expense by providing their employees

with various facilities, such as free medical treatment, amusement, recreation, living-quarters, cheap supply of foods, etc., which may cost per capita more than 50 per cent. of their actual wages.

As to the depreciation of the yen, which commenced in December 1931, when the gold embargo was re-enforced, we cannot regard this as the main reason for the rapid expansion of Japan's exports, as prior to the reimposition, during the period 1928-30, the average value of her exports was yen 1,863,000,000 per annum, whereas the figure was yen 1,472,000,000 during 1931-33, when the exchange of the yen declined and became unstable. It is obvious, therefore, that the depreciation is not mainly attributable to the recent expansion of Japan's foreign trade; but it should be noted that the low rate of the yen has adverse effects on industries, because of the high price of imported raw material, on which Japan is mainly dependent. Were low wages and the depreciation of currency the only important factors in competing with foreign goods, as contended by some, why could not China obtain an advantageous position during the period when the price of silver fell as low as twelve pence per ounce in 1931? Why could not the abundant Chinese cheap labour help the development of China's industry and trade? The reasons are obvious. Her industry has not yet been well organised, and the efficiency of labour is still very low, apart from the deterioration of her financial and commercial systems.

Those who criticise Japanese competition as the so-called social and exchange dumpings, seem to overlook the most important factor in the recent development of Japan. Without improvement in technical and managerial skill, up-to-date machinery, flexible adaptation of type and quality of work, co-operation and complete harmony between masters and servants under the wise guidance of the Government, the present economic progress could not have attained such a marked improvement. Furthermore, those who attack Japanese competition as a menace to the world's trade, should first look to the economic state of their own

countries, which have been left so long without being rationalised. They claim to protect their own interests, but not those of millions of the native populations of their colonies in Asia and Africa, by whom Japanese goods are greatly required because of their low prices and good quality.

In the meantime, it should be borne in mind that Japan buys from foreign countries more than she sells to them, being a big customer of raw cotton from America and India and of raw wool from Australia. The more she purchases, the more will the people in those countries benefit, acquiring thereby greater purchasing power, which means more trade, not only in home products, but also in foreign goods.

However, a number of tendencies working against Japan are steadily gaining strength. New quota systems, high tariff barriers and restrictions against her goods are continually being made, which will eventually eliminate the advantages she has hitherto enjoyed, and may cause further difficulties for her export trade. Coincidentally, the over-production of certain important goods, such as rayon and cotton, is becoming alarming since the early part of 1935, and this has caused a downward tendency in their prices. Keen discussion has now ensued as to whether production should be restricted. In the meanwhile, a serious state of distress in rural districts is still significant, and small traders and manufacturers who supply the needs of the domestic market are suffering from prolonged inactivity; yet in spite of this the enormous military expense, representing 46 per cent. of the total national expenditure of 1935-36, continues to increase, thus causing a greater deficit in the nation's finances.

In these circumstances, it is predicted that the prospect at home and abroad is by no means promising, unless necessary measures are taken to secure the present prosperity of industry and trade, which is a vital necessity for the national existence, and provides for Japan the only peaceful solution of her social and economic problems.

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